



# **Structural reassessment (CPEng)**

## Candidate guidance

August 2022

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# Our process

## Preliminary review

When we receive your application, one of our Competence Assessment Advisors, along with a Staff Lead Assessor will review your portfolio and check whether:

- » your application is complete
- » there is alignment between your practice area, the evidence and CPD you have submitted
- » your evidence includes construction monitoring evidence as well as design calculations
- » you've completed an average of 40 hours of CPD per year since our last assessment
- » your referees have provided statements
- » you're a member of a Technical Interest Group
- » you've changed your practice field
- » you've been subject to a complaint or disciplinary action.

If there are no concerns raised from any of these aspects of your portfolio, your application will be sent to a member of our Structural Triage Panel. If we have concerns, we'll either ask you for more information or allocate your application to a panel which will conduct a more detailed review of your technical competence.

## Structural Triage Panel

The members of our Structural Triage Panel are highly experienced structural engineers and assessors. Members of the panel undertake desktop technical reviews of reassessment portfolios to identify CPEng reassessment candidates who provide strong assurance of ongoing competence, or identify those who require a more detailed review of their technical competence.

The Structural Triage Panel member will decide whether you:

- a. have provided strong assurance of ongoing competence and meet the minimum standard for continued registration; are still able to practice competently in your current practice area; have taken reasonable steps to maintain the currency of your professional engineering knowledge and skills within your practice area as per the requirements of the CPEng Rules 2002; or
- b. should be subject to a more detailed review of your technical competence, including an interactive interview by a full assessment panel.

To ensure your reassessment is as quick and pain-free as possible, it's in your best interests to submit a complete, high-quality portfolio that provides evidence of your current competence in your practice area.

## What are our assessors looking for through the Structural triage process?

Two assessors will examine your application – a Lead Assessor, and a Structural Triage Panel Member (Practice Area Assessor).

- » The Lead Assessor will check whether:
- » the referees you have provided is acceptable
- » the CPD you have provided is acceptable
- » there is clear evidence you have maintained your currency of knowledge eg ethics, quality assurance/peer review, professionalism.

If minimal additional information is required, it may be requested. Otherwise, your application is referred to the usual reassessment process with full panel. Again – it pays to ensure your application covers all bases! Check out the guidance sections below to make sure you provide enough detail.

The Structural Triage Panel Practice Area Assessor will check whether:

- » your work history align with your practice area
- » you have provided evidence of continuing to meet the Core Skills requirements for structural engineers (see 'Selecting and Documenting your Work Samples')
- » you have met Practice Area specific requirements (see 'Structural Engineer Technical Competency Assessment Checklist').

## Options following the Triage Panel Review

Following their review of your application, the Structural Triage Panel will make one of three determinations, each outlined below.

1. Your application is low risk. This is the best possible outcome. The Lead Assessor will schedule a brief conversation with you to discuss your application and ask you any questions the panel may have. The primary focus of this discussion will be the professional and business acumen aspects of your practice and competence, including your approach to such things as CPD, risk management and ethics.
2. More information needed. This will either be requested by the panel (if minimal) or referred to the full reassessment process (with full panel).
3. Specific concern about competence identified. Your application will be referred to a specialist reassessment panel to do a more detailed review of your technical competence by an interactive interview with a full assessment panel and/or a standardised written assignment to help you demonstrate your technical competence.

# Structural reassessment application guidance

## 1. Referee guidance

A referee should be familiar with your technical and professional capabilities and be able to confidently provide a reference.

### What is an example of a good referee?

Referees should be competent in the practice area that you are applying for. They should be familiar with your technical skills.

|  |   |
|--|---|
|  | Two referees should be provided. In accordance with the Rules, these must be CPEng registered engineers or equivalent <sup>1</sup> .<br>Ideally at least one of your referees does not work within the same company as you. This referee could be someone who has peer reviewed work samples, or been involved in a collaborative project with you. |
|  | A referee who is not familiar with your technical skills.<br>Referees who are conflicted; for example, through a personal relationship with you or having a financial interest in the outcome of the assessment.  |

Tip: finding referees can be a particular challenge for people in small companies. We recommend you consider who may act as your referee well in advance of any application for CPEng reassessment, and ensure this person has sufficient familiarity with your work.

<sup>1</sup> CPEng equivalence means a qualification or title that the Registration Authority determines requires the holder to - (a) have demonstrated competence at least equivalent to the minimum standard for registration under these rules; and (b) be bound by a code of ethical conduct that is substantially equivalent to the code of ethical conduct under these rules. Examples of CPEng equivalence, therefore, include: A Chartered Member of Engineering New Zealand (CMEngNZ) who is not classified as an Engineering Technician (CMEngNZ (Engineering Technician)) or an Engineering Technologist (CMEngNZ (Engineering Technologist)). A Chartered Engineer (CEng) registered with the Engineering Council in the UK.

## Referees will be asked the following questions:

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### GENERAL

Please provide details of your relationship to the applicant. Please also confirm you can provide a reference based on an understanding of the applicant's work within their practice area. If you're unable to provide a technical reference in the practice field of the applicant, please decline this request for a reference.

### ENGINEERING COMPETENCY

Please comment on the technical engineering competence (specifically in analysis and design/problem solving) of the applicant to practice within their practice area. Do you consider the engineer to be competent in the engineering work that they do? Do you think they demonstrate knowledge and application of current practice in their field and an ability to develop safe and effective engineering solutions? Why or why not?

### PROFESSIONAL

What aspects of professionalism do you believe the applicant brings to their work? Please include detail of their relationships with stakeholders, compliance with legislation, and health and safety compliance, where appropriate. Is there anything about the practice of the applicant that would raise a potential concern? Do you support their registration as a Chartered Professional Engineer?

## 2. CPD Guidance

Continued Professional Development (CPD) should be completed to show evidence that you have taken reasonable steps to maintain the currency of your professional engineering knowledge and skills within your current practice area since your last assessment.

### What is an example of good CPD?

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CPD should be completed to maintain currency in your practice area. For example, if you are completing structural design, then attendance at a technical society training seminar would be seen as good CPD.

|   |  |
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|  | <p>Evidence of learning linked to the application of contemporary knowledge of the seismic performance of any structures that you design.</p> <p>CPD activities across different categories (we recommend at least 15 hours related to each of your practice fields, a few hours addressing risk management and business processes, courses on professional ethics and then a range of activities across career interests).</p> <p>CPD can be tertiary courses, short courses, workshops, seminars, discussion groups, conferences, technical inspections, and technical meetings that are non-routine and contribute to your development as an engineering professional. Private study and service to the engineering profession can also be counted towards CPD.</p> <p>Where applicable, relevant seminars hosted by a Collaborating Technical Society (CTS).</p> |
|  | <p>40 hours of 'on the job reading'.</p> <p>40 hours of 'mentoring'.</p>   |

## What are assessors looking for?

| CPD Review Questions  | Yes/No |
|---|--------|
| Is there evidence of a planned approach to continuing professional development?   |        |
| Has the engineer completed an average of 40 hours of CPD each year?   |        |
| Is the CPD relevant to their practice area?<br>Relevance can be demonstrated by:<br>having attended at least one technical training seminar every two years<br>(in person or webinar attendance)<br>having attended a technical conference in the last four years or since last assessment. |        |
| Is the CPD considered sufficient for the engineer to have maintained currency of knowledge?   |        |
| Is there evidence of contemporary knowledge on building performance?  |        |

## 3. Work history guidance

Your work history (CV) should allow an assessor to see your area of practice since your last assessment.

### What is an example of good work history?

Your work history should describe the projects you have been involved with, and more importantly, your role in each project. It should outline what your responsibilities were for the project and what challenges were presented by the project.

Where possible, keep your CV under three pages.

|   |   |
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|  | Provide the name, location and contact details of employing organisations, as well as the dates and duration of employment, the title of your position, details of your role and how your work demonstrates your competency as a professional engineer. |
|  | Provide sufficient work history to demonstrate the broad scope of competency required for your practice area.   |
|  | Clearly describe key projects you were involved in, and your role in the work, with a particular focus on the period since your last assessment.  |
|  | A list of projects you have worked on with no information on your roles and responsibilities.   |

## What are assessors looking for?

| Work history review questions   | Yes/No |
|---|--------|
| Has the engineer provided work history for the period since their last assessment?                            |        |
| Does their work history align with their practice area?   |        |
| Does their work history demonstrate successful completion of complex engineering work in their practice area? |        |
| Does their work history demonstrate ongoing involvement in the profession?                                    |        |

## 4. Selecting and documenting your work samples

This part of your application is key to demonstrating your current technical competence.

The Structural Body of Knowledge and Skills (Structural BOKS) defines the core knowledge and skills that a Chartered Professional Engineer (Structural) is expected to have to competently investigate, design and supervise the construction of structural works in New Zealand. The Structural BOKS is intended to complement and inform the Chartered Professional Engineer assessment process.

When applying for CPEng, an assessor needs to confirm that the provided work samples clearly demonstrate competency in relation to the Structural BOKs. This document is intended to provide consistent criteria for assessors to review a portfolio against, to confirm the candidate understands the Structural BOKS as needed to practice as a competent professional in their practice area.

We recommend you review your application against this checklist prior to submitting your CPEng application. If evidence is missing, incomplete, or can't be clearly interpreted by an assessor, you'll be advised and further information requested.

### Guidance for engineers providing information for reassessments

Your work samples must clearly show that you understand the fundamentals of structural design, specifically:

- » load path
- » the principles of ductility and robustness, and what this means for a structure
- » appropriate detailing of connections
- » the system within which structural engineers practise (for example, consenting system, standards, verification methods).

You are responsible for ensuring you have appropriate work samples to demonstrate your current competence.

### What is an example of a good work sample?

Work samples that are provided should be clear and professionally presented in such a way that an assessor can clearly confirm your current competence.

|   |  |
|---|--|
|  | <p>Provide a complete set of design documents for a project. This could include a set of structural drawings accompanied by a consent package with a PS1, part only statement and a design features report.</p> <p>The design features report should clearly outline the gravity support for the structure, the lateral load resisting system, the ductility associated with the design, and any geotechnical considerations.</p> <p>The structural plans should be clear and easy to follow, with a proper and well detailed load path. A specification should be provided for the works.</p> <p>Evidence of construction monitoring should be provided as well as the documentation provided at completion of the works.</p> |
|  | <p>Structural drawings only, with no supporting documentation.</p> <p>Pages of printed spreadsheets, with unclear calculations or derivations.</p>   |

## WHY WOULD FURTHER EVIDENCE BE REQUESTED?

If you do not provide clear evidence to allow for an assessment as per the criteria below, then further evidence may be requested. If an assessor cannot see, for example, how loads have been derived or how a model has been derived, the work sample doesn't provide assurance of current competence.

## WHY WOULD MY APPLICATION BE DECLINED?

Any one of the following would indicate a lack of current competence:

- » drawings have a missing load path
- » 'adopt a ductility' provisions incorrectly applied
- » any brittle failure mechanism/load path present in the lateral force resisting system of a structure
- » poor load path through eccentric connections
- » treating assessment as design, for example using 'adopt a ductility' provisions for an assessment as opposed to completing a SLaMa approach.

## 5. Structural engineer technical competency assessment checklist

This is the checklist that our assessors will use to determine your technical competency.

| Core Skills<br><b>All candidates to be reviewed against these criteria</b>  | Does the evidence clearly demonstrate competence? |
|---|---|
| <b>1 Is the documentation clear enough to allow for review?</b><br>For example, has a clear design features report (or description within the calculations) been provided which outlines the design intent, and structural features of the building? Are the calculations clearly laid out and easily followed so the assessor can confirm the application of relevant standards?   |   |
| <b>2 Is the candidate showing that they understand the load paths?</b><br>For example, do the structural drawings clearly show design requirements and are they able to be followed? Is there evidence of a compliant load path for vertical (gravity/uplift) loads? Has a compliant load path been clearly shown for lateral loads? Are the connections properly designed, and do they show clear consideration of load paths? |   |
| <b>3 Has the candidate shown that they understand the principles of ductility and what this means for a structure?</b><br>For example, is the detailing used appropriate for the level of ductility adopted by the engineer?  |   |
| <b>4 Has the candidate shown that they understand other considerations such as construction methods and durability?</b><br>For example, can the structure be built? Has the engineer shown that they understand durability requirements?  |   |
| <b>5 Has the candidate shown that they can competently undertake construction monitoring?</b><br>For example, is documentation of construction monitoring and communication of site instructions to the contractor provided?  |   |
| <b>Practice Area Specific – assess against these criteria if they are listed by the engineer as a practice area</b>   |   |
| <b>Has the candidate shown that they can competently complete structural design for residential structures?</b>   |   |
| <b>6</b> For example, has the structural design been coordinated with the architectural?<br>Does the design illustrate consideration around displacement compatibility?<br>Does the design show consideration to the placement and integration of specific engineered elements within a residential structure?  |   |

| <b>Core Skills</b> | <b>All candidates to be reviewed against these criteria</b>   | <b>Does the evidence clearly demonstrate competence?</b> |
|--------------------|---|--|
|                    | <b>Has the candidate shown that they can competently complete structural design for commercial structures?</b>  |  |
| <b>7</b>           | For example, has the engineer shown integration of structural and architectural requirements? Have they demonstrated the adoption of current best practice?   |  |
| <b>8</b>           | <b>Has the candidate shown that they can competently complete seismic assessments of existing buildings, and design strengthening solutions?</b><br><br>For example, has a DSA been provided which meets the guidelines or current industry best practice? Does the DSA demonstrate that the engineer understands the process of a simple lateral mechanism analysis and the calculation of probable capacity? Has the engineer shown they have investigated the existing building and can properly assess an existing load path? Has the engineer shown that they understand the constraints of inserting new structure inside an existing building? |  |