



# **Building control and peer review Wellington City Council Guidance Document**

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## **1. Introduction**

- 1.1 This document is Wellington City Council's building control policy on peer reviews.
- 1.2 The document sets out the conditions for the requirements and acceptance of peer reviews by the Council – to ensure it complies with Schedule 1 of the New Zealand Building Regulations 1992 (the Building Code).
- 1.3 The Council may amend this document from time to time at its discretion.
- 1.4 Peer reviews may cover a wide range of building elements and code clauses, including, but not limited to, weathertightness, structure and fire safety.

## **2. Purpose**

- 2.1 It is important that all parties understand the Council's expectations of the peer review process. The guidance in this document is intended to establish a baseline for peer reviewers, stakeholders, professionals and Council staff.

## **3. Why are peer reviews necessary?**

The purpose of a peer review is to assess whether the design complies with relevant regulations, consent requirements and legislation. The review should cover the full design including assessing the design objectives, process, options, assumptions or method.

- 3.1 There should be no direct relationship between the peer reviewer and the designer. However under certain circumstances – for example with design work that is extremely specific – a prior relationship may be unavoidable. In such cases an ethical consideration arises for the peer reviewer and they must do their utmost to remain objective.
- 3.2 The peer reviewer should contact the designer to discuss any concerns they may have about the design before the peer reviewer issues a report. This allows the designer to comment and state a position before the report is submitted.
- 3.3 The peer reviewer's role is to identify areas of the design that need to be addressed and to invite the designer to resolve them to the peer reviewer's satisfaction. The peer reviewer does not become involved in resolving the issues.
- 3.4 The peer reviewer must be an independent person engaged by the applicant to carry out the review, and reporting directly to the Council.

#### **4. Who appoints a peer reviewer?**

- 4.1 The applicant (on behalf of the owner) who commissioned the work or design will appoint the peer reviewer – since the owner has a stake in getting the work/design completed satisfactorily. However, the applicant must check first that the peer reviewer is acceptable to the Council.
- 4.2 For all peer reviews, the Council must approve the peer reviewer. The peer reviewer must demonstrate to the Council that they have the necessary skills and qualifications to review the work in question.
- 4.3 If the applicant approaches a peer reviewer directly, the peer reviewer must refer them to the Council and this policy before undertaking the peer review work.

#### **5. Peer reviewer criteria**

- 5.1 The Council will accept peer reviews from people who are already approved as being suitably qualified and experienced.
- 5.2 Before the building consent is lodged, the applicant must provide sufficient evidence to demonstrate the suitability and competence of the proposed peer reviewer. The information should include but is not limited to the following:
  - a) demonstrated competence in the type and scale of the project subject to the peer review
  - b) formal qualifications
  - c) a review of their work history and relevant experience in the building industry
  - d) evidence of successful completion of technical courses, assignments or projects
  - e) membership of appropriate trade/professional affiliations
  - f) quality assurance policies and procedures
  - g) appropriate levels of professional indemnity insurance based on the value of the proposed construction
  - h) proven performance/historical records (ie previous work history for the Council)
  - i) statements or references from industry peers
  - j) confirmation that the proposed peer reviewer will declare any potential conflicts of interest
  - k) proof of insurance
  - l) continued professional development.

## **6. Acceptance of peer reviewers**

- 6.1 If the design is intricate or complex in nature, involves alternative solutions or it is proposed to use C/VM2, the Council will use a risk-based approach to determine whether to accept the peer reviewer. Once the peer reviewer has been proposed and information provided to demonstrate their suitability, the Council will assess the proposed peer reviewer against the above criteria. While it is not critical for the applicant to meet all criteria, a reason must be provided to support a decision not to require this information.
- 6.2 Assessments of peer reviewers will be done on a case-by-case basis. The suitability of the peer reviewer must be demonstrated to the Council if deemed necessary.
- 6.3 Successful proposals will be recorded by the Council along with details of the reviewer, the project, complexity of the review, scope of the building and any relevant technical information.
- 6.4 Peer reviewers may be approved with or without conditions or limitations. Any conditions or limitations will be noted in the peer review brief and recorded in the peer review register.
- 6.5 When determining the suitability of a peer reviewer, the Council will be responsible for checking the proposed reviewer's past approval status and any conditions and/or limitations previously imposed. Subsequent successful proposals will be recorded on the register.
- 6.6 The Council reserves the right to refuse a peer reviewer despite previous successful applications to us. The reasons for this may include:
  - a) failing to maintain registration (in the case of a chartered professional engineer, registered architect, registered building surveyor etc)
  - b) failing to provide evidence of ongoing insurance
  - c) failure to provide evidence of insurance relevant to the scope of the project under consideration
  - d) failing to provide evidence of continued professional development
  - e) failing to provide evidence of suitability for the scope of the project under consideration.

## **7. Peer review brief**

- 7.1 If the Council is satisfied that the peer reviewer is suitable, the applicant will be notified.
- 7.2 A peer review brief must then be provided by the applicant – please see the required format in Appendix A.

- 7.3 The peer review brief must outline the scope of the review, with details of the process and the approach of the designer and peer reviewer. The brief will also cover the design objective, analysis method and acceptance criteria that have been agreed on by all stakeholders (ie the applicant/owner, designer, peer reviewer and the Council).
- 7.4 The peer review brief forms the basis of the peer review and must be accepted by all stakeholders. The brief must consider the key requirements (see the example in Appendix B), which will be used as a benchmark for accepting the brief.

## **8. Assessment of chartered professional engineers (CPEng)**

- 8.1 The Council requires details of the author's practice area (scope of works) as the register held by the Institute of Professional Engineers of New Zealand (IPENZ) does not provide this information. However CPEng engineers who provide written evidence from their board confirming their practice area, and showing their competency to handle the type and scope of the project, will not require a competency assessment.

## **9. Professional indemnity insurance**

- 9.1 Peer reviewers are required to procure and maintain professional indemnity insurance from a reputable insurer for the following amounts:
- a) \$200,000 for building work with a value up to \$100,000
  - b) \$500,000 for building work with a value up to \$250,000
  - c) \$1 million for building work with a value up to \$500,000
  - d) \$2 million for building work with a value up to \$1 million.

Note: the above insurance provisions do not apply to CPEng; CPEng insurance provisions are set by IPENZ.

- 9.2 Building work with a value of more than \$1 million will require specific project-based professional indemnity insurance; the amount will be determined on a case-by-case basis.
- 9.3 Where projects are specifically complex, the actual limit required will be determined upon the value of the building consent.
- 9.4 The above minimum levels will take precedence over any minimum level stated in the producer statement forms prepared by IPENZ, NZIA or ACENZ (ie PS2).
- 9.5 The Council will not accept a peer reviewer who cannot show they are able to comply with the above requirements.

## **10. Producer statements**

- 10.1 The Council will not necessarily insist on a producer statement (PS1 – Design) from the designer. However, providing a producer statement at the building consent processing stage may significantly influence the Council’s decision-making.
- 10.2 If the Council does not specifically require a PS1, discussions between the peer reviewer and designer about producer statements will be required during the peer review brief process. If the peer reviewer requires the designer to issue a PS1 to enable them to undertake the peer review, the Council will also require a copy of the PS1.
- 10.3 A producer statement (PS2 – Design Review), issued by the peer reviewer directly to the Council, must be provided. This includes designs involving alternative solutions, specific design, verification method, (C/VM2) or geotechnical reports.
- 10.4 The Council will only accept the PS2 if the author has been agreed and subsequently approved by the Council to do the work.
- 10.5 If the peer reviewer is found to be working outside their field of expertise, the building consent may be refused.

## **11. Construction monitoring and quality assurance**

- 11.1 Construction monitoring and a quality assurance (QA) programme are required to ensure that the building works will be done in accordance with the approved design, in conjunction with regulatory inspection by the Council.
- 11.2 For a project with a peer review process, the Council requires that the appropriate level of QA, site supervision and construction monitoring are undertaken. This should be discussed during the peer review brief process.
- 11.3 If the peer reviewer considers it appropriate that the designer monitors construction and provides a producer statement (PS4 – Construction Review), this must be discussed and agreed with the applicant and the Council before the building consent is approved. A schedule of items that require construction monitoring, and the level of construction monitoring proposed, will also be required in this case.
- 11.4 During consent processing, where it is identified that a PS4 is required for the construction phase, agreement must be reached with the Council before the building consent is approved.

## **12. Remedies**

- 12.1 Any action which is likely to result in non-compliance with the Building Code or the conditions set out by the peer review brief, may result in:
- a. the Council taking appropriate action under the Building Act to ensure compliance with the Building Code, including checking the design or inspecting the building work as if there was no reliance on the peer review. Reasonable costs associated with this action will be borne by the building consent applicant
  - b. a review of the suitability of the person to undertake peer reviews in the future
  - c. the Council advising the author's registration board or professional affiliation where a peer review is found to be non-compliant
  - d. a record of the decision being imposed on the Council register, and/or
  - e. possible enforcement action under the Building Act, where appropriate.

## **13. Quality control**

- 13.1 The Council reserves the right to carry out additional reviews of information supplied to ensure that quality and consistency are maintained in the review of designs for compliance with the Building Code.



## Appendix A

### Peer review brief

For projects that require peer review, a peer review brief (PRB) must be approved by the Council before the review can begin. The PRB helps to ensure that the Council accepts the final result of the review. A peer review is provided in order to avoid delays in gaining approval for alternative solutions during the building consent process.

The PRB should outline the overall design objective, the design approach, method of analysis and the acceptance criteria that have been accepted and agreed by all relevant stakeholders. It is therefore crucial to have agreement/acceptance of the PRB between all stakeholders before the peer review assessment is carried out. Stakeholders may include all or some of the following (where applicable):

- a Council representative
- the architect or designer
- the peer reviewer as previously agreed
- the product manufacturer
- a project management representative
- the building owner/client representative
- the contractor/builder
- the users of the building.

The PRB, and the peer review process, must be discussed and agreed by the applicant and the Council during the pre-application meeting, before a building consent application is lodged.

For fire safety design, the PRB is commonly known as the fire engineering brief, which should follow the International Fire Engineering Guidelines.

The PRB is not a one-size-fits-all template for every situation, and should not override or supersede other good practices already employed by the design professional. It outlines the expectations and minimum requirements that will be used by the Council to benchmark, evaluate and approve the proposed alternative solution or specific design.

The PRB must include the following information:

- date and version
- scope and/or detail of the project
- building description
  - type of building construction
  - number of stories/height above the finished ground level
  - building type/importance level
- site conditions and geography/environmental condition of the site
- departures proposed from the acceptable solution – details of the alternative solution/specific design subject to peer review
- design objectives
- Building Code clause(s) and relevant performance requirements applicable to the proposed alternative solution

- proposed method(s) of assessment to demonstrate compliance, including any acceptance criteria and assumptions
- proposed tools to be employed for design and also peer review analysis including relevant validation information of the tools
- a summary of specific issues or areas of concern raised by all stakeholders
- a summary of the key deliverables to the Council
- a record of the agreement/acceptance of the PRB by all stakeholders.

### Example peer review brief – weathertightness peer review

<b>Peer review brief for peer review of E2 Alternative Solution</b>	
<b>Date and version</b>	<Details>
<b>Detail of the project</b>	<Details>
<b>Building description</b>	Type of building construction. Number of stories or height above FGL (finished ground level). Building type/importance level.
<b>Site condition and geography/ environmental condition of the site</b>	Corrosion zone. Wind zone/wind pressure. Other.
<b>Details of the alternative solution/specific design subject to peer review</b>	Cladding/building envelope and weathertightness design that are outside the scope of E2/AS1.
<b>Design objectives</b>	Building Act requirements. Building Code objective or functional requirements. Owner property protection requirements. Other.

<p><b>Relevant performance requirements applicable to the proposed alternative solution</b></p>	<p>Building Code clause E2</p> <p><b>E2.3.1</b> Roofs must shed precipitated moisture. In locations subject to snowfalls, roofs must also shed melted snow.</p> <p><b>E2.3.2</b> Roofs and exterior walls must prevent the penetration of water that could cause undue dampness, damage to building elements, or both.</p> <p><b>E2.3.3</b> Walls, floors and structural elements in contact with, or in close proximity to, the ground must not absorb or transmit moisture in quantities that could cause undue dampness, damage to building elements, or both.</p> <p><b>E2.3.5</b> Concealed spaces and cavities in buildings must be constructed in a way that prevents external moisture being accumulated or transferred and causing condensation, fungal growth, or the degradation of building elements.</p> <p><b>E2.3.6</b> Excess moisture present at the completion of construction must be capable of being dissipated without permanent damage to building elements.</p> <p><b>E2.3.7</b> Building elements must be constructed in a way that makes due allowance for the following:</p> <ul style="list-style-type: none"> <li>(a) the consequences of failure</li> <li>(b) the effects of uncertainties resulting from construction or from the sequence in which different aspects of construction occur, variation in the properties of materials and in the characteristics of the site.</li> </ul>
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Building Code clause B2

**B2.3.1** Building elements must, with only normal maintenance, continue to satisfy the performance requirements of this code for the lesser of the specified intended life of the building, if stated, or:

- (a) the life of the building, being not less than 50 years, if:
- those building elements (including floors, walls and fixings) provide structural stability to the building, or
  - those building elements are difficult to access or replace, or
  - failure of those building elements to comply with the Building Code would go undetected during both normal use and maintenance of the building.
- (b) 15 years if:
- those building elements (including the building envelope, exposed plumbing in the subfloor space, and in-built chimneys and flues) are moderately difficult to access or replace, or
  - failure of those building elements to comply with the Building Code would go undetected during normal use of the building, but would be easily detected during normal maintenance.
- (c) five years if:
- the building elements (including services, linings, renewable protective coatings, and fixtures) are easy to access and replace, and
  - failure of those building elements to comply with the Building Code would be easily detected during normal use of the building.

**B2.3.2** Individual building elements which are components of a building system and are difficult to access or replace must either:

- (a) all have the same durability, or  
(b) be installed in a manner that allows the replacement of building elements of lesser durability without removing building elements that have greater durability and are not specifically designed for removal and replacement.

<p><b>Proposed methodology(s) or method of assessment to demonstrate compliance, including any acceptance criteria and assumption</b></p> <p>MBIE guidance:  <a href="http://www.dbh.govt.nz/bic-alternative-solutions">http://www.dbh.govt.nz/bic-alternative-solutions</a>   <a href="http://www.dbh.govt.nz/establishing-compliance-alternative-solutions">http://www.dbh.govt.nz/establishing-compliance-alternative-solutions</a></p>	<p>Expert opinion.  Appraisal.  Technical literature.  Test report.  In-service history.  Comparison method.  Testing to meet with AS/NZS 4840.  Testing to meet with E2/VM1.  Code of Practice.  Standards setting minimum requirements to be met.  Other.</p>
<p><b>Proposed tools to be employed for design and peer review analysis, including relevant validation information of the tools</b></p>	<p>Expert judgment using knowledge and experience of the peer reviewer.</p> <p>Design tool used by the peer reviewer for the assessment.</p> <p>To assess the design method of assessment, the design approach, process, options and design assumption used by the designer to meet with the design objective – testing the outcome against performance requirements.</p>
<p><b>Issues/concerns raised by relevant stakeholders</b></p>	<p>Specific concerns or issues that relate specifically to the project and that need to be addressed as part of the peer review.</p>
<p><b>The Council's key requirements</b></p>	<p>A summary of key requirements to the Council must be included in the peer review process. A list of key requirements can be found in Appendix B.</p> <p>The key requirements can be generic in content but can also be specific depending on the nature and complexity of the project.</p> <p>The list does not cover every possible issue but provides guidance to staff and design professionals on issues that should be addressed for peer review purposes.</p>

## Appendix B

### The Council's key requirements

#### B.1 General

1. Peer reviewers must disclose any potential conflicts of interest.
2. Design plans must be countersigned by the design professional, confirming that the design has been correctly interpreted.
3. The extent of the work subject to the peer review must be clearly articulated (in particular where the producer statement only covers part of the proposed works).
4. If the peer reviewer highlights a requirement for the design professional to supervise or observe construction, an agreement to undertake this work is required before the building consent can be approved.
5. The peer reviewer is not to do any design work. If the documentation supplied by the applicant is not adequate to support the fire report then it must be revised and resubmitted.
6. Legislative considerations ie whether s.112 (alteration), s.115 (change of use, specified intended life and subdivision), apply.
7. If additional information is required during the peer review process, the request must be made in writing. When the project is completed, all supplementary documentation must be submitted to the Council.
8. If a waiver is applied for, the peer reviewer must discuss this with the Council before completing the peer review.
9. The Council has final say on what is reasonably practicable, and the peer reviewer must discuss and agree on the approach with the Council before completing the peer review.
10. Alternative solutions must be compared to the requirements of approved documents. If the comparison is not submitted by the applicant, it may be done by the peer reviewer as noted in determination 2006/77.
11. At the end of the review, the information on the Council's file must be complete. It must be sufficient so that if the report has to be revisited at any time in the future, all information necessary to understand the design and why it was accepted must be available. For this reason, the following information should accompany a peer review:
  - a summary sheet listing the documentation reviewed during the assessment, including any revisions to drawings (it may be possible to attach the document transmittal sheet used to send the documents to the peer reviewer)
  - the summary sheet must detail all correspondence reviewed or received and a copy of all correspondence must be provided to the Council for record-keeping
  - the precise extent of the review must be identified, including any exclusions
  - any applicable conditions of consent must be noted, including any requirements for specialist inspections
  - a producer statement (PS2 – Design Review) must be provided for the review

- if the peer reviewer considers it appropriate that the designer monitors construction and provides a producer statement (PS4 – Construction Review), this must be discussed and agreed by the applicant and the Council before approval. In this case, a list of items requiring construction monitoring, and the level of monitoring proposed, will be required.

## **B.2 Fire design**

1. The fire report documentation must be complete and thorough otherwise the application may not be approved.
2. For all alternative solutions, the relevant performance criteria from the Building Code clauses, B1, C1, C2, C3, C4, C5, C6, C7, E2, D1, D2 or F6, F7, F8 as appropriate, must be listed by the designer and reviewed by the peer reviewer.
3. The fire design philosophy must be summarised in the fire report ie acceptable solutions, alternative solutions, specific design etc. Note: approved documents are only one means of demonstrating compliance with the Building Code. Alternative solutions must be compared to approved documents.
4. The peer reviewer must confirm that all supporting documentation has been:
  - reviewed to meet the requirements of the fire report (ie architectural, electrical, mechanical, structural etc) and
  - included in the drawings submitted for building consent.
5. If fire ratings of the structure are required, the method and structures required to be fire rated must be identified as part of the building consent application.
6. The peer reviewer must complete a design summary (see the example in the attached table).
7. If the building requires a memorandum of encumbrance, the peer reviewer must agree on this with the Council before completing the peer review.
8. The fire peer reviewer should review and comment on the applicant's response to the New Zealand Fire Service Design Review Unit memorandum.
9. For an existing building, the documentation should include a fire report addressing the means of escape for the entire building, and to demonstrate compliance with s.112 of the Building Act 2004.
10. The fire report must cover the suitability of design elements including: exit doors, exit signs, emergency lighting, key locks issues, purpose groups, fire hazard categories, occupant loads and types of alarm required for each firecell.
11. Detailed floor plans must accompany fire reports, demonstrating safe paths for each level of the building including basements (and any lifts serving the basement).
12. Peer reviews must include confirmation that there are no key locks on doors leaving tenancies or into safe paths (stairs etc) and an evaluation of common spaces.

13. To demonstrate compliance with s.112/115 of the Building Act 2004, fire reports for existing buildings must include an assessment of the means of escape for the entire building.
14. The peer reviewer must list all the building's safety features or essential fire services that are required on the compliance schedule.
15. If the fire design has a specific limitation, condition or similar, such limitations or restrictions must be brought to the attention of the Council. If the applicant's fire engineer does not submit these items, the peer reviewer is to prepare it themselves. Alternatively, they may request it from the applicant.
16. The peer reviewer should check that all specific conditions have been noted. For example:
  - a. a 7m high warehouse is submitted with a limit of 3m high storage
  - b. smoke control design that requires limitation on furniture in the space
  - c. special security interlocks
  - d. special compliance schedule items.
17. If the applicant is submitting fire modelling in support of a fire design, the following information is required in support of the peer review:
  - a. validity of the model for use, including version and date
  - b. a written explanation of the input values used and why they were chosen (technical references may be required in support of the chosen values) must include:
    - fire design
    - height of fire
    - combustion parameters/yield
    - vents
    - detector actuation input
    - sprinkler information including control versus suppression
  - c. a robustness check of the fire design in accordance with VM2 and peer review of the robustness check is always expected
  - d. for any alternative solution, a sensitivity analysis is expected to be performed on variables in the computer modelling – these are likely to be the same variables outlined in item 1 above. A written explanation of the results of the sensitivity analysis is required
  - e. actual modelling may be requested to determine the effect of the change in design. For example, checking vent sizes which are larger or smaller than the design value. These changes must be summarised in a table analysing comparison versus sensitivity
  - f. for alternative solutions, the tenability criteria and justification for the values chosen must be provided
  - g. where the design includes inherently conservative variables, the reviewer must articulate what these variables are
  - h. for CFD modelling, in addition to the information above, the modelling must be provided on cd, dvd or hard drive and included with the application submitted to the Council
  - i. records of all correspondence between the peer reviewer and designer



- j. the final peer review report and a copy of the PS2 issued by the peer reviewer, with reference to any supporting documentation and the file of the computer modelling submitted for the peer review process.

### **B.3 Weathertightness**

1. The peer review must include a summary written in plain English, which outlines the methodology used by the peer reviewer to establish compliance. For example, it may be proposed that the review be undertaken on a comparative basis. If so what will be the basis of the comparison; comparison with a product, a system, determination, compliance document, trade literature etc?
2. If in-service history is proposed as the basis for the review it must be proven to the Council that the building/elements of comparison have performed. Simply stating that there is no history of water ingress or failure on similar buildings previously constructed will not satisfy the Council (who proved it and how?). The credibility of the person establishing in-service history must also be demonstrated to the Council. In addition, if in-service history is established, a clear link between the building work and its comparison must be established for the Council to be assured that we are comparing apples with apples.
3. If in-service history is to be established, evidence from a credible source must convince the Council that the required durability period, ie 50 years, will be met for E2 as already established for B1. Inconclusive statements will not give the Council enough confidence to establish reasonable grounds.
4. The Council expects that the actual conditions on-site have been assessed, and the assessment is clearly referenced within the report. If it is argued that the site is very sheltered, the Council requires that these observations are backed up with quantitative and measurable evidence, such as meteorological or horticultural data.
5. Reference must be made to the site wind speed. The ULS and SLS both need to be referenced and considered within the peer review.
6. With regards to the SLS, the joinery manufacturers must be consulted and statements from them included in the peer review.
7. With regards to the ULS, either comments from the cladding manufacturers, or relevant appraisals (both roof and walls), will be expected. Not only must we establish that the actual detailing of junctions, penetrations etc are suitable (evidence the peer reviewer gives reasonable grounds for), but also that the cladding is fit for purpose. This is especially important where the proposed cladding is outside the scope of an acceptable solution, relevant testing, manufacturers' recommendations, appraisals etc.
8. Compatibility issues between dissimilar materials.
9. Maintenance requirements – there must be adequate provision for access to do maintenance and cleaning, including a provision for safety from falling.
10. Quality assurance/quality control of construction on-site.

11. Third party sign off/inspection during construction.
12. Suitability and adequacy of the performance specifications.
13. Structural adequacy for wind/seismic/thermal loads.
14. Requirements for prototype/mock up testing on-site. Performance and acceptance criteria for on-site testing.
15. Checking and verifying condition of existing construction.

### **B.3 Structure**

1. The design engineer must supply a design features report (DFR), clearly outlining the elements of alternative solution design and the proposed means of compliance. This must be consistent with the structural engineers design assumptions template for a DFR.
2. A proposed peer review brief and suitable peer reviewer must be submitted to the Council for confirmation. This should include information such as a CV to show why the peer reviewer has experience and competence to undertake this work.
3. The peer review must be included in the building consent application and include a statement establishing that the reviewer believes the design complies with the objectives, functional requirements and performance criteria for the Building Code B1-Structure.
4. Documentation must include a log of the issues raised during the review process and how they have been resolved.

## Appendix C

### Glossary

**Architect:** a member of the New Zealand Institute of Architects.

**Applicant:** the building owner, or the owner's agent who has the authority to act on behalf of the owner.

**The Council:** Wellington City Council, which has the accreditation and authority to perform the functions of a building consent authority (BCA).

**CPEng:** A chartered professional engineer is a quality mark attesting to the competence of a professional engineer in New Zealand. It is a statutory title under the Chartered Professional Engineers Act of New Zealand 2002 ([CPEng Act](#)), which established a register of professional engineers whose competence is up-to-date.

**C/VM2:** a robust and consistent design verification method tool to be used by design professionals with specific fire-engineering expertise, such as chartered professional engineers. C/VM2 is a reverse fire-engineered design solution that promotes more creative and flexible fire-engineering solutions.

**Fire engineer:** a professional who is qualified by way of education and experience and who has recognised skills to complement, supplement, accept or reject elements of a quantitative analysis. A fire engineer should be part of, and accountable to, a professional organisation which has independently assessed their skills, knowledge and experience. For the purposes of this policy, a person who achieves CPEng status and/or professional membership of IPENZ, or holds membership to an equivalent overseas professional body in the field of fire engineering, will be recognised by the Council as a fire engineer.

**IPENZ:** the Institute of Professional Engineers New Zealand is the professional body representing engineers from all disciplines in New Zealand.

**Peer:** a person of equivalent expertise to the designer/author who has experience relevant to the work in question.

**Peer review:** an evaluation of professional work done by others working in the same field and who are required to give the Council reasonable grounds that the building work complies with the Building Code.

**PS1 Design:** for use by a suitably qualified independent design professional where the BCA accepts a producer statement for establishing reasonable grounds to issue a Building consent.

**PS2 Design Review:** for use by a suitably qualified independent design professional where the BCA accepts an independent design professional's review as the basis for establishing reasonable grounds to issue a building consent.

**PS3 Construction:** the forms commonly used as a certificate of completion of building work are Schedule 6 of NZS 3910:2003 1 or Schedules E1/E2 of NZIA's SCC 2007 2.

**PS4 Construction Review:** for use by a suitably qualified independent design professional who undertakes construction-monitoring of the building works where the BCA requests a producer statement before a Code Compliance Certificate is issued. This must be accompanied by a statement of completion of building work (Schedule 6).

**Quality assurance (QA):** the recording of activities required by the building consent process. The primary function of a QA is to ensure that both the assembly of the new building elements and the condition of the building's existing elements comply with the New Zealand Building Code. The QA is the systematic measurement, comparison with the building consent documentation, monitoring and recording of the design professional's processes and actions to minimise potential errors. A QA promotes a 'right first time' approach to the building process and records the 'who, what, where and when' to ensure that mistakes are eliminated.