

## STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

**Amendment No. 3**  
to  
**AS/NZS 1170.0:2002**  
**Structural design actions**  
**Part 0: General principles**

**REVISED TEXT**

The 2002 edition of AS/NZS 1170.0 is amended as follows; the amendments should be inserted in the appropriate places.

SUMMARY: This Amendment applies to Clauses 1.1, 1.2, 1.3, 1.5, 2.3, 4.2.1, 4.2.2, 5.2, 6.2.2 and 6.2.5, Table 4.1 and Appendices C and D.

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**Clause 1.1**

*Delete* Item (f) and *replace* with the following:

(f) Static liquid pressure.

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**Clause 1.2**

*Delete* the second paragraph and *replace* with the following:

This Standard is intended for citation by New Zealand's Department of Building and Housing as a document that contributes towards establishing compliance with Clause B1 'Structure' of the New Zealand Building Code (NZBC). Citation of the Standard means that compliance with the NZBC can be achieved by applying this Standard in conjunction with the appropriate material standards, provided that an engineer with relevant experience and skills in structural engineering is responsible for interpretation of the requirements.

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**Clause 1.3**

*Delete* the listing for AS 1170.4 and *replace* as follows:

AS  
1170 Structural design actions  
1170.4 Part 4: Earthquake actions in Australia

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**Clause 1.5**

*Add* the following:

$\psi_E$  = combination factor for earthquake actions

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**Clause 2.3**

*Add* the following new Item (k):

(k) Serviceability limits applicable to earthquake loading in New Zealand are to conform with the requirements of NZS 1170.5.

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**Clause 4.2.1**

*Delete* Item (b)(v) and *replace* with the following:

- (v)  $E_{d,dst} = [G, E_u, \psi_E Q]$  permanent, earthquake and imposed action

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**Clause 4.2.2**

- 1 *Delete* Item (f) and *replace* with the following:

- (f)  $E_d = [G, E_u, \psi_E Q]$  permanent, earthquake and imposed action

- 2 *Number* existing Note as Note 1 and *add* a second Note to the Clause as follows:

NOTES:

1 Combination factors for prestressing forces are given in the appropriate materials design Standard.

2 Refer to AS/NZS 1170.1, Clause 3.3.

- 3 *Add* a new last paragraph as follows:

Where impact is a design consideration, and no other Standard sets the manner of calculation, the effect shall be considered as part of imposed action, that is substitute ( $Q + \text{Impact}$ ) for  $Q$  in the relevant combinations.

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**Table 4.1**

*Add* a new fifth column as follows:

| Character of imposed action                                                 | Short-term factor ( $\psi_s$ ) | Long-term factor ( $\psi_L$ ) | Combination factor ( $\psi_c$ )  | Earthquake combination factor ( $\psi_E$ ) |
|-----------------------------------------------------------------------------|--------------------------------|-------------------------------|----------------------------------|--------------------------------------------|
| <b>Distributed imposed actions, <math>Q</math></b>                          |                                |                               |                                  |                                            |
| <b>Floors</b>                                                               |                                |                               |                                  |                                            |
| Residential and domestic                                                    | 0.7                            | 0.4                           | 0.4                              | 0.3                                        |
| Offices                                                                     | 0.7                            | 0.4                           | 0.4                              | 0.3                                        |
| Parking                                                                     | 0.7                            | 0.4                           | 0.4                              | 0.3                                        |
| Retail                                                                      | 0.7                            | 0.4                           | 0.4                              | 0.3                                        |
| Storage                                                                     | 1.0                            | 0.6                           | 0.6                              | 0.6                                        |
| Other                                                                       | 1.0                            | 0.6                           | 0.6                              | 0.6                                        |
| <b>Roofs</b>                                                                |                                |                               |                                  |                                            |
| Roofs used for floor type activities (see AS/NZS 1170.1)                    | 0.7                            | 0.4                           | 0.4                              | 0.3                                        |
| All other roofs                                                             | 0.7                            | 0.0                           | 0.0                              | 0.0                                        |
| <b>Concentrated imposed actions (including balustrades), <math>Q</math></b> |                                |                               |                                  |                                            |
| Floors                                                                      | 1.0                            | 0.6                           |                                  | 0.3                                        |
| Floors of domestic housing                                                  | 1.0                            | 0.4                           | as for distributed floor actions | 0.3                                        |
| Roofs used for floor type activities                                        | 1.0                            | 0.6                           |                                  | 0.3                                        |
| All other roofs                                                             | 1.0                            | 0.0                           | 0.0                              | 0.0                                        |
| Balustrades                                                                 | 1.0                            | 0.0                           | 0.0                              | 0.0                                        |
| Long-term installed machinery, tare weight                                  | 1.0                            | 1.0                           | 1.2                              | 1.0                                        |

## Clause 5.2

Delete the third paragraph and *replace* with the following:

Modelling shall be based on the following:

- Static or dynamic response, or both.
- Elastic or non-elastic (plastic) response, or both.
- Geometrically linear or geometrically non-linear response, or both.
- Time-independent or time-dependent behaviour, or both.

## Clause 6.2.2

Delete the first paragraph and *replace* with the following:

The structure shall have a minimum lateral resistance equivalent to the following percentage of  $(G + \psi_c Q)$  for each level, applied simultaneously at each level for a given direction:

- For structures over 15 m tall ..... 1%.
- For all other structures ..... 1.5%.

The height shall be the height of the top of the structure above the level where the structure is coupled with the ground for lateral resistance.

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