Queensland

Subordinate Legislation 1991 No. 181

Building Act 1975

STANDARD BUILDING BY-LAWS AMENDMENT ORDER 1991

TABLE OF PROVISIONS

Short title

1. This order in council may be cited as the *Standard Building By-laws Amendment Order 1991*.

Amended by-laws

2. The *Standard Building By-laws 1991* are amended as set out in this order in council.

Commencement

3. This order in council commences on 1 January 1992.

Amendment of Contents (List of Parts)

4. Contents (List of Parts)—

after **'**PART 13—BUILDING PRODUCTS REGISTRATION;**',**

insert **'**PART 14—DESIGN CRITERIA FOR CONFORMING BUILDINGS;**'.**

Amendment of By-law 1.3 (Interpretation)

5. By-law 1.3(1) (definition **"special fire service"**)—

omit, insert—

' "special fire service" means, in relation to—

(a) a building—an item mentioned in Appendix 6; and

(b) matters that the Commissioner of Fire Service—

(i) is to assess—an item mentioned in Appendix 7; or

(ii) is to inspect—an item mentioned in Appendix 8;**'.**

Amendment of By-law 2.4 (Information required)

6. By-law 2.4(2)—

after **'**required special fire services**',** *insert* **'**mentioned in Appendix 6**'.**

Amendment of By-law 2.5 (Local Authority to inform the Commissioner of Fire Service)

7.(1) By-law 2.5—

after **'**provided with special fire services**',**

insert **'**mentioned in Appendix 6**'.**

(2) By-law 2.5(e)—

after **'**special fire services**',** *insert* **'**mentioned in Appendix 7**'.**

Amendment of By-law 2.6 (Assessment of special fire services by the Commissioner of Fire Service)

8. By-law 2.6(1)—after **'**cause the special fire services**',** *insert* **'**mentioned in Appendix 7**'.**

Amendment of By-law 5.1 (Notice to inspect)

9. By-law 5.1(1)(a)(i)—

after **'**services**',** *insert* **'**mentioned in Appendix 8**'.**

Amendment of By-law 5.2 (Fire Authority to inspect special fire services)

10.(1) By-law 5.2(1)—

after **'**any special fire services**',** *insert* **'**mentioned in Appendix 6**'.**

(2) By-law 5.2(1)(d)—

after **'**services**',** *insert* **'**mentioned in Appendix 8**'.**

Amendment of By-law 6.4 (Certificate of classification)

11. By-law 6.4(1) (Second sentence)—

omit **'**special fire services**',** *insert* **'**fire safety installations**'.**

Amendment of By-law 7.5 (Concessional approval for certain existing buildings)

12. By-law 7.5(2)—

after **'**special fire services**',** *insert* **'**mentioned in Appendix 6**'.**

Amendment of By-law 10.1 (Temporary buildings or other structures)

13. By-law 10.1(2)—

after **'**special fire services**',** *insert* **'**mentioned in Appendix 6**'.**

˙Amendment of Part 11 (Contents)

14.(1) Part 11 (Contents)—

omit **‘**Swimming pool fencing**’,**

insert **‘**Swimming pool fencing—prescribed standards of fencing**’.**

(2) Part 11 (Contents)—

add at the end—

‘11.5 Swimming pool fencing—prescribed standards of opening

11.6 Swimming pool fencing—prescribed standards for above ground pools**’.**

˙Replacement of By-law 11.4 (Swimming pool fencing)

15. By-law 11.4—

omit, insert—

‘Swimming pool fencing—prescribed standards of fencing

‘11.4(1) Subject to subclauses (2), (3), (4), (6), (7), (8) and (9), for the purposes of section 49H(4)(b)(i) and (ii) of the *Local Government Act 1936*, the prescribed standards for the design, construction and performance of swimming pool fencing are the standards set out in AS1926—1986, Fences and Gates for Private Swimming Pools, as in force on 4 August 1986.

‘(2) Despite clause 2.3 of AS1926—1986, the minimum effective perpendicular height of fencing constructed before 1 February 1991 is—

(a) if the fencing is 900 mm or higher and was lawfully constructed under a Local Authority by-law relating to the fencing of the swimming pool—900 mm; or

(b) if the fencing is 900 mm or higher and no Local Authority by-law relating to the fencing of the swimming pool subsisted on the day the fencing was constructed—900 mm; or

(c) in any other case—1 200 mm.

‘(3) The requirements of—

(a) clause 2.6 of AS1926—1986 that apply to the location of

horizontal members of fencing; and

(b) clauses 2.7 and 2.9 of AS1926—1986;

do not apply to fencing mentioned in subclause (2)(a) or (b) if the fencing is constructed in a way that is likely to inhibit young children from climbing over, or passing under or through it.

'(4) Despite clause 2.3 of AS1926—1986, the height of fencing is taken to be effective if a quadrant of radius 900 mm, located within the perpendicular height of the fencing as shown in Figure 11.4, provides a clear span of at least 900 mm to—

(a) finished ground level; and

(b) any substantially horizontal surface with a depth of more than 10 mm; and

(c) any projections from, or indentations into, the outside surface of the fencing, or any combination of projections and indentations, that form a substantially horizontal surface with a depth of more than 10 mm; and

(d) if perforated materials or mesh are used in the construction of the fencing—any openings that are more than 12 mm.

Figure 11.4

Effective Fencing Height

‘(5) To allay any doubt, fencing that is constructed after the commencement of this subclause must have an effective perpendicular height of at least 1.2 m at any point along its length, on the outside of the fencing.

‘(6) A thing on adjoining land is to be disregarded in determining compliance of fencing of an existing swimming pool with AS1926—1986.

‘(7) Despite clause 2.8 of AS1926—1986, an electronically operated gate may be used in fencing if the gate—

(a) can only be opened by deliberately triggering a switch or sensor that is located out of the reach of young children; and

(b) is capable of being manually closed if there is a power failure; and

(c) closes automatically immediately after use; and

(d) complies with the construction specifications of AS1926—1986.

‘(8) If a Local Authority gives an approval in respect of a non-complying gate under subclause (9)—

(a) clause 2.8 of AS1926—1986 does not apply to the gate to the extent to which the approval is given; and

(b) to that extent the prescribed standards for the gate are the standards approved by the Local Authority.

‘(9) A Local Authority may approve of a non-complying gate in fencing, subject to the following conditions—

(a) it is permanently key locked in the closed position and the key is removed from the lock and placed out of the reach of young children; or

(b) it is permanently fixed in the closed position; or

(c) it is fixed in a way that is no less effective than paragraph (a);

and the gate is opened only if access through the gate is the only physically possible means of—

(i) moving an object, materials or a vehicle into or out of the fenced area in which the swimming pool is located; or

(ii) gaining access to that area in an emergency; and

(d) the gate is permanently locked or permanently fixed in a closed

position immediately after achieving the purpose for which the gate was opened.

'(10) A Local Authority must not give an approval under subclause (9) if the non-complying gate is the only gate that provides access to the swimming pool.

'(11) In subclauses (8), (9) and (10)—

"non-complying gate" means a gate that is not self-closing and self-latching.

'Swimming pool fencing—prescribed standards of openings

'11.5(1) Subject to subclauses (2) and (13), for the purposes of section 49H of the *Local Government Act 1936*, the prescribed standards for openings providing access from a building to a swimming pool are the standards set out in clause 9.2.2 of AS2818—1986, Guide to Swimming Pool Safety, as in force on 5 September 1986.

'(2) If a Local Authority gives an approval in respect of an opening under subclause (4), (6), (7), (9) or (12)—

(a) clause 9.2.2 of AS2818—1986 does not apply to the opening to the extent to which the approval is given; and

(b) to that extent the prescribed standards for the opening are the standards approved by the Local Authority.

'(3) To allay any doubt, a Local Authority may give more than one approval in respect of an opening.

'(4) A Local Authority may approve of a security door—

(a) that has footholds wider than 10 mm in the area from the release for the latching mechanism down to 100 mm above the floor—if a metal fly screen mesh is securely fixed to that area on the inside of the door; or

(b) that has a release for an internal latching mechanism less than 1500 mm above the floor—if a release for an additional latching mechanism is located at 1 500 mm or more above the floor.

'(5) In subclause (4)—

"security door" means a door intended to be resistant to entry by a young

child and which incorporates a large area of grille or mesh material to allow the passage of light and air.

'(6) A Local Authority may approve of a door opening outward from a building if it is satisfied that it is impractical or inappropriate for the door to open inwards to the building.

'(7) A Local Authority may approve of double doors if it is satisfied that—

(a) it is impractical or inappropriate for both the doors to be self-closing and self-latching; and

(b) a young child is unlikely to gain access to the swimming pool through the doors.

'(8) An approval under subclause (7) must be subject to the following conditions—

(a) one of the doors—

(i) is permanently key locked in the closed position and the key is removed from the lock and placed out of the reach of young children; or

(ii) is permanently fixed in the closed position; or

(iii) is fixed in a way that is no less effective than subparagraph (i); and

(b) the other door is self-closing and self-latching in compliance with clause 9.2.2 of AS2818—1986; and

(c) the conditions prescribed by subclause (11).

'(9) A Local Authority may approve of a door that is not self-closing and self-latching, subject to the following conditions—

(a) the door is permanently key locked in the closed position and the key is removed from the lock and placed out of the reach of young children; or

(b) it is permanently fixed in the closed position; or

(c) it is fixed in a way that is no less effective than paragraph (a);

and the conditions prescribed by subclause (11).

'(10) A Local Authority must not give an approval under subclause

(9)—

(a) if the door is the only door that provides access from the building to the swimming pool; and

(b) unless it is satisfied that a young child is unlikely to gain access to the swimming pool through the door.

'(11) The conditions mentioned in subclauses (8)(c) and (9) are—

(a) that the door may be opened but only if access through the door is the only physically feasible means of—

(i) moving an object, materials or a vehicle into or out of the fenced area in which the swimming pool is located; or

(ii) gaining access to that area in an emergency; and

(b) that the door is permanently locked or permanently fixed in a closed position immediately after achieving the purpose for which the door was opened.

'(12) A Local Authority may approve the location of a window in the wall of an existing building at such a height that the distance from the floor to the lowest opening panel is not less than 900 mm if—

(a) there are no footholds wider than 10 mm (other than skirting boards) on the inside of the wall below the lowest opening panel; and

(b) a fly screen is securely fixed to the opening.

'(13) Despite clause 9.2.2 of AS2818—1986, the prescribed standard for an opening lawfully constructed under a Local Authority by-law—

(a) subsisting before 1 Fbruary 1991; and

(b) relating to inhibiting access by young children from a building to a swimming pool;

is the standard prescribed under the by-law.

'Swimming pool fencing—prescribed standards for above-ground pools

'11.6(1) For the purposes of section 49H(5) of the *Local Government Act 1936*, the prescribed standards for the walls of an above-ground

swimming pool or associated structure adjacent to an above-ground swimming pool around which fencing is not required to be constructed are set out in subclause (2).

‘(2) The walls of the swimming pool or associated structure must—

(a) if the swimming pool is an existing swimming pool and—

(i) under a Local Authority by-law subsisting on the day the swimming pool was lawfully constructed or installed, the owner of the swimming pool was not required to construct fencing around the walls of the swimming pool or adjacent structure; or

(ii) no such Local Authority by-law subsisted on the day the swimming pool was constructed or installed;

be at least 900 mm high and form a barrier to access to the swimming pool not inferior to the standards prescribed under by-law 11.4 in respect of swimming pool fencing of that height; or

(b) in any other case—be at least 1 200 mm high and form a barrier to access to the swimming pool not inferior to the standards prescribed under by-law 11.4 in respect of swimming pool fencing of that height.**’.**

Amendment of By-law 13.2 (Duration)

16. By-law 13.2—

omit **‘**1993**’, *insert* ‘**1994**’.**

Insertion of new Part 14 (Design criteria for conforming buildings)

17. After Part 13—

insert—

‘PART 14—DESIGN CRITERIA FOR CONFORMING BUILDINGS

‘Contents

‘Definitions

‘14.1 In this Part—

‘“conforming buildings” are Class 1 or Class 10 buildings that comply with figure 14.1 or the following limitations—

(a) plan configuration must be rectangular, square, ‘L’ shaped, or a simple combination of those shapes;

(b) the height to the underside of the eaves from the surrounding ground level must not exceed 6 m;

(c) the highest part of the roof must not exceed 8.5 m above the surrounding ground level;

(d) the storey height at external walls must not exceed 2.7 m;

(e) all heights exclude chimneys and parapet walls;

(f) the length measured from external wall to external wall must not exceed 5 times the width;

(g) the width (including verandahs but excluding eaves) measured from external wall to external wall in the direction perpendicular to the length must not exceed 16 m;

(h) the roof pitch must not exceed 35^0.

Figure 14.1

Geometry of Conforming Buildings

‘Design and acceptance of conforming buildings

‘14.2 This Part sets design procedures to be followed in the detailing of resistance to wind loads, and footing design of conforming buildings.

‘Suitability of materials, components and methods of construction for conforming buildings

‘14.3 Materials, components and methods of construction for conforming buildings that comply with this Part meet the level of performance required by these By-laws.

‘Design of conforming buildings by means other than this Part

‘14.4 Acceptance of materials, components and methods of construction for conforming buildings may also be determined by reference to other parts of these By-laws.

‘Requirements for conforming buildings—foundations and footings

‘14.5(1) For conforming buildings designed using this Part, foundation materials must be classified in accordance with AS2870.1—1988, Residential Slabs and Footing Code.

‘(2) Footing design classification must be determined from Table 14.5(a).

Table 14.5(a)

Determination of Footing Classification

‘(3) For single leaf masonry walls mentioned in Table 14.5(a)—

(a) articulated masonry is taken to be a building that has reinforced or articulated single-leaf masonry external walls and framed or articulated masonry internal walls; and

(b) non-articulated masonry is taken to be a building that has—

(i) reinforced or articulated single-leaf masonry external walls

and non-articulated masonry internal walls; or

(ii) single-leaf masonry external walls that are not reinforced or articulated.

‘(4) In subclause (3)—

“Articulated internal walls” means internal walls with full-height door openings.

‘(5) Footing systems comply with this Part if they are designed according to engineering principles to be equivalent in performance to the details shown (in respect to structural strength and stiffness, bearing, uplift or bracing loads) in Tables 14.5(b), 14.5(c), 14.5(d) and 14.5(e) and Figure 14.5(f).

Table 14.5(b)

Minimum Design Parameters for Footings F0—F5

‘(6) Footing designs for footing classifications—

(a) F4 and F5 must incorporate details to effectively isolate subfloor drainage and pipework from footing and slab movement; or

(b) F6 or F7 must be designed by a registered professional engineer.

‘(7) Footings to loadbearing columns designed to resist the direct vertical downward loads, illustrated as Force V in Figure 14.5(f), must have the minimum bearing areas required by Table 14.5(c).

Table 14.5(c)

Minimum Bearing Area of Column Footings

‘(8) Columns designed to resist uplift forces illustrated as Force U, and the horizontal bracing forces illustrated as Force H, in Figure 14.5(f) must comply with Table 14.5(d) or Table 14.5(e).

Table 14.5(d)

Bracing and Tie-down Columns

‘(9) Steel columns mentioned in Table 14.5(d) that are over 900 mm above the ground must not be used for bracing columns unless specified by a registered professional engineer or incorporated in a bracing set.

‘(10) Steel or sawn timber columns may be used in bracing sets that have allowable bracing forces (F) (up to a maximum value of 13 kN) calculated using the following formula—

$$F = U \times \frac{D}{H} \text{ (kN)}$$

and the values for the formula shown in Figure 14.5(f).

Table 14.5(e)

Steel and Timber Columns

Figure 14.5(f)
Functions of Columns

‘Requirements for conforming buildings—design for wind loads

‘14.6(1) For the purpose of this Part there are wind classifications W33N, W41N, W50N, W60N, W70N, W41C, W50C, W60C and W70C, determined under Table 14.6(a).

Table 14.6(a)

Wind Classifications

‘(2) To determine the wind classification of a site, the site must be assessed in terms of—

(a) the region of the site; and

(b) the terrain category classification; and

(c) the shielding classification; and

(d) the topographic classification.

‘(3) For the purposes of this Part, Queensland is divided into 3 distinct regions—

(a) region A—the interior region bordering region B, considered as normal; and

(b) region B—a 50 km wide strip abutting region C, and extending out to the coastline below latitude 25° S, and including the islands of the Torres Strait located to the east of longitude 142° E and north of latitude 11° S; and

(c) region C—a 50 km wide coastal strip as far south as latitude 25° S;

as indicated on Figure 14.6(b).

Figure 14.6(b)

Wind Regions

'(4) For the purposes of this Part, the terrain category classification (TC1, TC2, TC2.5 or TC3) for a building site is the measure of the lowest effective surface roughness (least TC number) to the passage of high winds from any direction within a distance of 500 m of the proposed building.

'(5) The terrain category classification must be based on the likely terrain over the following 5 years.

'(6) Lengthy cleared areas (for roads, parks or canals) up to 500 m wide are not considered to derate the terrain category classification in urban areas, but may affect shielding, and may be disregarded if they are not within 500 m of a terrain category boundary or each other.

'(7) For the purposes of this Part there are Terrain Categories TC3, TC2.5, TC2 and TC1 determined as follows—

(a) **TC3** (Terrain Category 3)—terrain with numerous closely spaced obstructions having domestic houses 3 m—8.5 m high, in which—

(i) the minimum density of obstructions is the equivalent of 10 house sized obstructions per hectare; and

(ii) substantial, well established trees are considered as obstructions (except in region C where a maximum of TC2.5 applies for well established trees giving the equivalent of 10 house sized obstructions per hectare); and

(b) **TC2.5** (Terrain Category 2.5)—a category that is intermediate between TC2 and TC3 and may represent the terrain in developing outer urban areas—terrain with few trees, isolated obstructions or long grass (600 mm high); and

(c) **TC2** (Terrain Category 2)—open terrain including sea coast areas, airfields, grasslands with few well scattered obstructions (isolated trees 1.5 m—10 m high) and uncut grass; and

(d) **TC1** (Terrain Category 1)—a category that is rare and exists only for isolated buildings in flat, treeless, poorly grassed plains at least 10 km wide, but may be more applicable in serviceability design—exposed open terrain with few or no obstructions.

'(8) For the purposes of this Part, the shielding classification of a building must be based on the likely shielding over the following 5 years, and must be assessed having regard to the following descriptions—

(a) full shielding **(FS)**—at least 2 rows of houses or similar sized permanent obstructions surround the building being considered (In regions A and B, heavily treed areas can provide full shielding, and in region C, heavily treed areas upwind can only be considered to give a maximum of partial shielding); and

(b) full shielding is appropriate for typical suburban development, equal to or greater than 10 house sized obstructions per hectare; and

(c) the effects of roads or open areas with a distance measured in any direction of less than 100 m are to be ignored, but the first 2 rows of houses abutting permanent open areas with the least dimension greater than 100 m—such as parklands, large expanses of water and airfields—are to be considered to have either partial shielding or no shielding; and

(d) partial shielding (**PS**)—intermediate situations of at least 2.5 houses, trees, or sheds for each hectare—such as acreage type suburban development or wooded parkland (partial shielding can also be considered for heavily treed areas in region C); and

(e) no shielding (**NS**)—less than 2.5 house sized obstructions for each hectare upwind, for example the first 2 rows of houses or single houses abutting open water, airfields and open parklands.

'(9) Shielding classification must take account of local effects on wind speed where a building is influenced by upwind obstructions of a similar size to the building in close proximity.

'(10) For the purposes of this Part, the topographic classification (T1, T2, T3, T4 or T5) of a building site is determined by the effect wind has on the proposed building because of its location on a hill, ridge or escarpment, and the average slope of that hill, ridge or escarpment.

'(11) The way in which the topographic classification is to be determined under subclause (12) or (13) is suitable for mapping wind classification zones of an area and for assessing the wind classification of an individual site.

'(12) The topographic classification T1 applies to hills, ridges or escarpments if—

(a) the average slope is less than 1 in 10; or

(b) the height of the hill, ridge or escarpment is less than—

(i) 25 m and the average slope is less than or equal to 1:7.5; or

(ii) 20 m and the average slope is more than 1:7.5 but less than or equal to 1:5; or

(iii) 15 m and the average slope is more than 1:5 but less than or equal to 1:3.

‘(13) The topographic classification in any other case is to be derived from Figure 14.6(c) and Table 14.6(c), in which—

(a) an escarpment is a hill or ridge with 1 slope less than 1 in 20 and another slope greater than 1 in 10; and

(b) the position of the site on a hill, ridge or escarpment is as indicated in Figure 14.6(c); and

(c) the average slope is the slope measured by averaging the steepest slope and the least slope measured through the top of the hill, ridge or escarpment over the top half of the hill, ridge or escarpment (the average slope will not always occur at the actual proposed building site, and must be appraised by considering the adjacent topography); and

(d) the near top zone extends for an equal distance ‘d’ either side of the crest of an escarpment as shown in Figure 14.6(c); and

(e) the distance ‘d’ is the average horizontal distance measured from the crest of the escarpment to the near top zone; and

(f) the over top zone of an escarpment is considered to extend a distance of 5 times the height of the hill ‘h’ past the crest of the escarpment; and

(g) the bottom of the hill, ridge or escarpment is that area at the base of the hill, ridge or escarpment where the average slope is less than 1 in 20, for example, a creek, river, valley or flat area.

TABLE 14.6(c)

TOPOGRAPHIC CLASSIFICATIONS

Average Slope		Building Location			
		L lower third	**M mid third**	**N near top third**	**O over top (escarpment only)**
Less than	1:10	T1	T1	T1	T1
1:10 to less than	1:7.5	T1	T1	T2	T1
1:7.5 to less than	1:5	T1	T1	T3	T1
1:5 to less than	1:3	T1	T2	T4	T2
1:3 or more than	1:3	T1	T3	T5	T3

Figure 14.6(c)

Defined Topographic Zones for Average Surface Slope

‘(14) Racking Forces for wind classification W33N on whole buildings (including roofs), single or 2 storey buildings (gable or hip roof), with conventional ceilings (continuous, horizontal or raked) are given in Tables 14.6(f) to 14.6(k).

‘(15) The racking forces for other wind classifications are calculated by multiplying the loads in Tables 14.6(f) to 14.6(k) by the factors given in Table 14.6(d).

Table 14.6(d)

Multiplying Factors For Design Racking Forces

Wind Classifications		Multiplying Factors
Regions A & B	**Region C**	
W33N	–	1.00
W41N	W41C	1.54
W50N	W50C	2.30
W60N	W60C	3.30
W70N	W70C	4.50

‘(16) Racking Forces must be resisted by bracing walls or systems that are reasonably evenly spaced over the length of the building, including at or near the ends of the building.

‘(17) For a single storey building or the upper storey of a 2 storey building, the maximum spacing of bracing walls is obtained by multiplying the spacing in Table 14.6(l) by the appropriate factor shown in Table 14.6(e) but must not exceed 9 m.

‘(18) For the lower storey of a 2 storey building, the spacing of bracing walls must not exceed 9 m.

Table 14.6(e)

Multiplying Factors For Bracing Spacing

Wind Classifications		**Multiplying Factors**
Regions A & B	**Region C**	
W33N	–	1.00
W41N	W41C	0.65
W50N	W50C	0.43
W60N	W60C	0.30
W70N	W70C	0.22

Table 14.6(f)

W33N—Single Storey or Upper Storey of Building

Table 14.6(g)

W33N—Lower Storey of 2 Storey Building

Table 14.6(h)

W33N—Single Storey or Upper Storey of Building

Table 14.6(i)

W33N—Lower Storey of 2 Storey Building

Table 14.6(j)

W33N—Single Storey or Upper Storey of Building

Table 14.6(k)

W33N—Lower Storey of 2 Storey Building

Table 14.6(l)

Basic Bracing Wall Spacing for Single or Upper Storey W33N Building

‘(19) Suitable structural bracing must constitute at least 50% of the required bracing strength for 2 storey buildings, and at least 40% for single storey buildings.

‘(20) The required remaining bracing wall requirements can be obtained by nominal bracing walls.

‘(21) Wall frames lined with sheet materials including plywood, plasterboard, fibre cement sheeting, hardboard and the like, with sheeting fixed in accordance with the manufacturers general specification and with the frames nominally fixed to the floor and the roof or ceiling framing may be assumed to have the following design strengths—

(a) sheeted 1 side only—0.3 kN/m; or

(b) sheeted 2 sides—0.5 kN/m.

‘(22) Internal masonry walls at least 90 mm thick, and nominally fixed to the ceiling or roof may be assumed to have a design bracing strength of 0.5 kN/m.

‘(23) Overturning must be considered for—

(a) all W50N and W50C buildings where the overall height divided by the width exceeds 1.33; and

(b) all W60N, W70N, W60C and W70C buildings.

‘(24) Uplift wind forces at the top of walls of buildings are obtained by multiplying the area supported by a particular element or member by the net permissible design uplift pressures of Table 14.6(m).

‘(25) Design uplift wind forces must be resisted by suitable fasteners or tie down systems that provide an effective load path to the foundation level.

Table 14.6(m)

Net Design Uplift Pressures (kPa)

	Roof Type	
Wind Classification	**Tile Roof**	**Sheet Roof (Including Metal Tile)**
W33N	0.0	0.42
W41N	0.44	0.81
W50N	0.98	1.35
W60N	1.71	2.08
W70N	2.56	2.93
W41C	0.94	1.31

W50C	1.73	2.10
W60C	2.79	3.16
W70C	4.03	4.40

‘(26) The permissible uplift pressure in Table 14.6(m) are based on the following—

uplift = $0.6V^2C_{p,n} \times 10^{-3} - 0.75G$

where G = .9 kPa for a tile roof

and G = .4 kPa for a sheet roof

‘(27) The following internal and external pressure co-efficients are used in this Part—

(a) regions A and B

(i) internal pressure co-efficients—

strength and serviceability: C_{pi}= 0.2 or -0.3;

(ii) net pressure co-efficients—

Strength— see Table 14.6(n).

Table 14.6(n)

Pressure Co-efficients For Regions A and B

Housing Component	**Factored External Pressure Co-efficient ($C_{p,e}$ K_L)**	**Internal Pressure Co-efficient ($C_{p,i}$)**	**Net Pressure Co-efficient ($C_{p,n}$)**
Roof—			
(a) General, including all	-0.9	0.2	-1.1
trusses and rafters	0.4	-0.3	0.7
(b) Cladding, fasteners and	-1.8	0.2	-2.0
immediate supporting			
members within			
1 200 mm of edges			
ie. battens and purlins			

Walls—			
(a) General, including all studs	0.7	-0.3	1.0
(b) Cladding, fasteners and corner windows within 1 200 mm of edges	-1.3	0.2	-1.5

(b) region C

(i) internal pressure co-efficients—
strength—C_{pi} = 0.7 or -0.65;
serviceability—C_{pi} = 0.2 or -0.3;

(ii) net pressure co-efficients—
strength—see Table 14.6(o).

Table 14.6(o)

Pressure Co-efficients For Region C

Housing Component	Factored External Pressure Co-efficient ($C_{p,e}$ K_L)	Internal Pressure Co-efficient ($C_{p,i}$)	Net Pressure Co-efficient ($C_{p,n}$)
Roof—			
(a) General, including walls, trusses and rafters	-0.9	0.7	-1.6
	0.4	-0.65	1.05
(b) Cladding, fasteners and immediate supporting members within 1 200 mm of edges, ie. battens and purlins	-1.8	0.7	-2.5
Walls—			
(a) General, including all	-0.65	0.7	-1.35

studs			
(b) Cladding, fasteners and corner windows within 1 200 mm of edges	-1.3	0.7	-2.0

Insertion of new Appendixes 7 and 8

18. After Appendix 6—

insert—

‘APPENDIX 7

‘SPECIAL FIRE SERVICES REQUIRED TO BE ASSESSED BY THE COMMISSIONER OF FIRE SERVICE

‘1. Large isolated buildings

Suitability of site provisions for access by Fire Service vehicles.

‘2. Fire fighting equipment

(a) Provisions for connection of Fire Service portable relay booster pump.

(b) Location and suitability of booster connections and enclosures.

(c) Location of fixed pump-set controls and status indication.

(d) Location and suitability of internal and roof hydrants and external hydrants including fire separation from adjacent buildings.

(e) Provisions for hard standing for fire appliances.

(f) Provision of additional hydrant services as mentioned in AS2419.

‘3. Sprinklers

(a) The location of valve room, pump-sets, water alarm and booster point.

(b) Location of pump-set controls and status indications.

(c) Provision of direct Fire Service alarm and location of directional signs.

(d) Provision of suitable fire-protection for special hazards as mentioned AS2118.

‘4. Wall-wetting sprinklers

(a) Location of isolating valves.

(b) Provision of suitable signs.

‘5. Special automatic fire suppression systems

(a) Location of control valves.

(b) Provision of access for Fire Service vehicles.

(c) Suitability of extinguishment media.

(d) Provision of interface with other systems and direct Fire Service alarm.

‘6. Fire detection and alarm systems

(a) Location of main fire indicator panel, sub-indicator panels, mimic panels, local alarm bells and directional signs.

(b) Suitability of weather protection, accessibility and lighting of equipment.

(c) Provision of direct Fire Service alarm.

(d) Suitability of nominated types of detection in all areas, and the location of manual call points.

‘7. Fire control centres

(a) Location and size of control centre.

(b) Suitability of contents of control centre.

‘8. Provisions for special hazards

Suitability of special fire services for the protection of special hazards as mentioned in clause E 1.10 of the Building Code of Australia.

‘9. Smoke control systems

(a) Suitability of operational controls and indicators.

(b) Automatic detector operation of stairwell pressurisation systems, smoke-and-heat vents and smoke exhaust systems.

‘10. Emergency lifts

Provision of Fire Officer's controls in lifts.

‘11. Emergency warning and intercommunication systems

(a) Provision of suitable auxiliary warning devices, where AS2220 systems are not specified.

(b) Suitability of interface of warning system with detection and alarm systems.

(c) Location of main emergency control panel and warden intercom points.

‘12. Prescribed buildings

Suitability of special fire services and site requirements for prescribed buildings mentioned in By-law 10.3.

‘APPENDIX 8

‘SPECIAL FIRE SERVICES REQUIRED TO BE INSPECTED BY THE COMMISSIONER OF FIRE SERVICE

‘1. Large isolated buildings

Suitability of site provisions for access by Fire Service vehicles.

‘2. Fire fighting equipment

(a) Provisions for connection of Fire Service portable relay booster pump.

(b) Location and suitability of booster connections and enclosures.

(c) Operation of fixed pump-set controls and status indication.

(d) Location and suitability of internal and roof hydrants and external hydrants including fire separation from adjacent buildings.

(e) Provisions for hard standing for fire appliances.

(f) Provision of additional hydrant services as mentioned in AS2419.

(g) Achievement of specified performance.

‘3. Sprinklers

(a) The location of valve room, pump-sets, water alarm and booster point.

(b) Operation of pump-set controls and status indications.

(c) Operation of direct Fire Service alarm and location of directional signs.

(d) Provision of suitable fire-protection for special hazards as mentioned in AS2118.

‘4. Wall-wetting sprinklers

(a) Location of isolating valves.

(b) Provision of suitable signs.

‘5. Special automatic fire suppression systems

(a) Location of control valves.

(b) Provision of access for Fire Service vehicles.

(c) Suitability of extinguishment media.

(d) Provision of interface with other systems and direct Fire Service alarm.

(e) Achievement of specified performance.

‘6. Fire detection and alarm systems

(a) Location and operation of main fire indicator panel, sub-indicator panels, mimic panels, local alarm bells and directional signs.

(b) Suitability of weather protection, accessibility and lighting of equipment.

(c) Operation of direct Fire Service alarm.

(d) Suitability of nominated types of detection in all areas, and the location of manual call points.

(e) Achievement of specified performance of detection and alarm systems.

‘7. Fire control centres

(a) Location of control centre.

(b) Suitability of contents, ventilation, signage, lighting and sound levels of control centre.

‘8. Provisions for special hazards

Suitability of special fire services for the protection of special hazards as mentioned in clause E1.10 of the Building Code of Australia.

‘9. Smoke control systems

(a) Suitability of operational controls and indicators.

(b) Suitability of automatic detector operation of stairwell pressurisation systems, smoke-and-heat vents and smoke exhaust systems.

(c) Achievement of specified performance of systems.

‘10. Emergency lifts

Operation of Fire Officer’s controls in lifts.

‘11. Emergency warning and intercommunication systems

(a) Operation of suitable auxiliary warning devices, where AS2220 systems are not specified.

(b) Operation of interface of warning system with detection and alarm systems.

(c) Location of main emergency control panel and warden intercom points.

(d) Suitability of warning tone and sound pressure levels under test.

‘12. Prescribed buildings

Suitability of special fire services and site requirements for prescribed buildings mentioned in By-law 10.3.**’.**

ENDNOTES

1. Made by the Governor in Council on 19 December 1991.
2. Published in the Gazette on 21 December 1991.
3. Not required to be laid before the Legislative Assembly.
4. The administering agency is the Department of Housing and Local Government.