National Construction Code

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Part H4 Health and amenity

Introduction to this Part

This Part is intended to address several different factors which impact on health and amenity. These factors include: waterproofing of wet areas; room heights; kitchen, laundry and toilet facilities; lighting; ventilation; sound insulation; and condensation.

Objectives

H4O1 Wet areas

[2019: O2.4.1]

The Objective is to safeguard the occupants from illness or injury and protect the building from damage caused by the accumulation of internal moisture arising from the use of *wet areas* in a building.

H4O2 Room heights

[2019: O2.4.2]

The Objective is to safeguard the occupants from injury or loss of amenity caused by inadequate height of a room or space.

H4O3 Facilities

[2019: O2.4.3]

The Objective is to—

(a) safeguard occupants from illness caused by infection; and

(b) safeguard occupants from loss of amenity arising from the absence of adequate personal hygiene facilities; and

(c) enable occupants to carry out laundering; and

(d) provide for facilities to enable food preparation; and

(e) enable unconscious occupants of *sanitary compartments* to be removed from the compartment.

H4O4 Light

[2019: O2.4.4]

The Objective is to safeguard occupants from injury, illness or loss of amenity due to—

(a) isolation from natural light; and

(b) lack of adequate artificial lighting.

H4O5 Ventilation

[2019: O2.4.5]

The Objective is to safeguard occupants from illness or loss of amenity due to lack of air freshness.

H4O6 Sound insulation

[2019: O2.4.6]

The Objective is to safeguard occupants from illness or loss of amenity as a result of undue sound being transmitted between adjoining dwellings.

H4O7 Condensation and water vapour management

[New for 2022]

The Objective is to reduce the likelihood of *condensation* or water vapour build-up causing illness, injury or loss of amenity for building occupants.

Functional Statements

H4F1 Wet areas

[2019: F2.4.1]

A building is to be constructed to avoid the likelihood of—

(a) the creation of any unhealthy or dangerous conditions; or

(b) damage to building elements,

caused by dampness or water overflow from bathrooms, laundries and the like.

H4F2 Room heights

[2019: F2.4.2]

A building is to be constructed to provide height in a room or space suitable for the intended use.

H4F3 Facilities

[2019: F2.4.3]

A building is to be provided with suitable—

(a) space and facilities for personal hygiene; and

(b) space or facilities for laundering; and

(c) space and facilities for the preparation and cooking of food; and

(d) space or other means to permit an unconscious occupant to be removed from a *sanitary compartment*; and

(e) means for the sanitary disposal of waste water.

Applications

H4F3 only applies to a Class 1 building.

H4F4 Light

[2019: F2.4.4]

(1) A *habitable room* within a building is to be provided with openings to admit adequate natural light consistent with its function or use.

(2) A space within a building used by occupants is to be provided with artificial lighting consistent with its function or use which, when activated in the absence of suitable natural light, will enable safe movement.

H4F5 Ventilation

[2019: F2.4.5]

A space used by occupants within a building is to be provided with adequate ventilation consistent with its function or use.

H4F6 Sound insulation

[2019: F2.4.6]

A building element which separates dwellings is to be constructed to prevent undue sound transmission between those dwellings.

H4F7 Condensation and water vapour management

[New for 2022]

Building elements in areas subject to water vapour or *condensation* must be constructed to reduce risks to the health of building occupants.

Applications

H4F7 only applies to a Class 1 building.

Performance Requirements

H4P1 Wet areas

[2019: P2.4.1]

To protect the structure of the building and to maintain the amenity of the occupants, water must be prevented from penetrating—

(a) behind fittings and linings; or

(b) into concealed spaces,

of sanitary facilities, bathrooms, laundries and the like.

H4P2 Room heights

[2019: P2.4.2]

A room or space must be of a height that does not unduly interfere with its intended function.

H4P3 Personal hygiene and other facilities

[2019: P2.4.3]

(1) Suitable sanitary facilities for personal hygiene must be provided in a convenient location within or associated with a building, appropriate to its function or use.

(2) Laundering facilities or space for laundering facilities and the means for sanitary disposal of waste water must be provided in a convenient location within or associated with a building, appropriate to its function or use.

(3) A food preparation facility must be provided which includes—

(a) a means for food rinsing, utensil washing and the sanitary disposal of associated waste water; and

(b) a means for cooking food; and

(c) a space for food preparation.

(4) A *sanitary compartment* must be constructed with sufficient space or other means to enable an unconscious occupant to be removed from the compartment.

Applications

H4P3 only applies to a Class 1 building.

Explanatory Information

For the purposes of H4P3(2), waste water includes water soiled as a result of clothes washing, mopping floors and other domestic cleaning processes.

H4P4 Lighting

[2019: P2.4.4]

(1) A *habitable room* must be provided with *windows*, where appropriate to the function or use of that part of the building, so that natural light, when available, provides an *average daylight factor* of not less than 2%.

(2) Artificial lighting must be installed to provide an *illuminance* of not less than 20 lux appropriate to the function or use of the building to enable safe movement by occupants.

Applications

H4P4(2) only applies—

(a) to *sanitary compartments*, bathrooms, shower rooms, airlocks, laundries and the like; and

(b) if natural light of a suitable standard is not available.

Explanatory Information

H4P4(1) nominates a minimum *average daylight factor* for rooms provided with natural light. Note that H4V2 provides a method by which *average daylight factor* may be calculated.

To comply with H4P4(2), the level of artificial light must enable safe movement by occupants, appropriate to the use of the building. For example, in a movie room a lower level of lighting may be appropriate while a movie is being screened, however at the beginning and end of the movie when occupants are entering and exiting the movie room the minimum lighting level of 20 lux may be appropriate.

H4P5 Ventilation

[2019: P2.4.5]

(1) A space within a building used by occupants must be provided with means of ventilation with *outdoor air* which will maintain adequate air quality.

(2) A mechanical air-handling system installed in a building must control—

(a) the circulation of objectionable odours; and

(b) the accumulation of harmful contamination by micro-organisms, pathogens and toxins.

(3) Contaminated air must be disposed of in a manner which does not unduly create a nuisance or hazard to people in the building or *other property*.

NT H4P6

H4P6 Sound insulation

[2019: P2.4.6]

(1) Walls separating dwellings must provide insulation against the transmission of airborne sound sufficient to prevent illness or loss of amenity to the occupants.

(2) Walls separating a bathroom, *sanitary compartment*, laundry or kitchen in a dwelling from a *habitable room* (other than a kitchen) in an adjoining dwelling, must provide insulation against impact generated sound sufficient to prevent illness or loss of amenity to the occupants.

(3) The *required* sound insulation of walls must not be compromised by the incorporation or penetration of a pipe or other service element.

H4P7 Condensation and water vapour management

[2019: P2.4.7]

Risks associated with water vapour and *condensation* must be managed to minimise their impact on the health of occupants.

Applications

H4P7 only applies to a Class 1 building.

Verification Methods

H4V1 Room or space height

[2019: V2.4.2]

(1) Compliance with H4P2 is verified where the height of a room or space provides an appropriate *activity support level* that does not unduly interfere with its intended function.

(2) For a room or space in (1), the *activity support level* must consider the dimensions of—

(a) doors, ramps, barriers, stairs and *windows*; and

(b) fixed fittings and *domestic services*; and

(c) fixed and moveable equipment or furniture; and

(d) occupant circulation spaces.

Explanatory Information

The intent of H4P2 is the height of a room or space is sufficient for the intended use of the room or space. 'Intended use' recognises that the height required in a room or space is directly related to the room or space's intended function.

H4V1 is a means to verify that the height of a room or space is suitable for the intended use, and therefore meets the requirement of H4P2.

In relation to the intended function of a room or space, the activities that are likely to be undertaken by occupants in the room of space, as well the features of the activities, are relevant considerations when determining a suitable height.

For example, if the intended use of a room is a gymnasium, then gymnastic activities are likely to be undertaken in the room. These activities often involve jumps and flips which require significant space in order to be undertaken safely.

In terms of the occupants, their features and needs are also relevant when determining a suitable height. For example, occupant features and needs would differ between rooms or spaces intended as a child's play area, and rooms or spaces intended for adult's indoor cricket.

The method requires consideration of '*activity traits*', '*occupant traits*' and '*activity support level*'. Refer to Schedule 1 for more information on these terms.

When determining the *activity support level*, the method requires consideration of the relevant dimensions of items likely to be located in the room or space, as well as occupant circulation spaces.

Some of these considerations are—

- stairs and ramps, since the height of the room of the space will change relative to the occupant during incline and decline; and
- fixed fittings such as lights that may protrude from the ceiling and wash-basins; and
- domestic services such as air-conditioners, heaters, ceiling fans and heated water systems; and
- fixed equipment such manufacturing or processing equipment, permanent signage or displays and lifts; and
- moveable equipment such as whitegoods; and
- fixed furniture such as built-in wardrobes and permanent seating; and
- moveable furniture such as wardrobes, desks and beds; and
- occupant circulation spaces so that occupants can move comfortably and safety around the room or space.

For example, the location and dimensions of a wash-basin is a relevant consideration in determining the *activity support level* of a bathroom. This is because an occupant will typically need to access the wash-basin whilst standing, which will influence the necessary height of the space.

Another example is the consideration of moveable equipment such as a refrigerator in a kitchen. If the intended use of a space is a kitchen, then it would be unrealistic to determine a sufficient height for the room without considering the height of a typical refrigerator that would be located in the room.

H4V2 Verification of suitable natural light

[2019: V2.4.4]

Compliance with H4P4(1) is verified for the provision of natural light in all *habitable rooms* when the *average daylight factor* for each *window* is determined in accordance with the following formula: $\text{Average Daylight Factor} = \frac{W}{A}\frac{T\theta}{(1-R^2)}$, where—

(a) W = the net area of the light transmitting area of the *window* (m^2); and

(b) A = the total area of the internal wall, floor and ceiling surfaces (m^2); and

(c) T = the diffuse light transmittance of the *window*; and

(d) θ = visible sky angle in degrees, measured in a plane normal to and from the centre of the *window*; and

(e) R = the area-weighted average reflectance of area A.

Explanatory Information

H4V2 is equivalent to F4V3 in NCC Volume One. Guidance on the use of F4V3 can be found in the Guide to NCC Volume One, and is applicable to the use of H4V2.

H4V3 Verification of indoor air quality

[2019: V2.4.5]

For a Class 1 building, compliance with H4P5(1) and H4P5(2)(a) is verified when it is determined that the building under typical conditions in use is provided with sufficient ventilation with *outdoor air* such that contaminant levels do not exceed the limits specified in Table H4V3.

Table H4V3: Maximum contaminant limits for acceptable indoor air quality

Pollutant	Averaging Time	Maximum Air Quality Value
Carbon dioxide, CO_2	8 hours	850 ppm Note 1

Pollutant	Averaging Time	Maximum Air Quality Value
Carbon monoxide, CO	15 minutes	90 ppm
Carbon monoxide, CO	30 minutes	50 ppm
Carbon monoxide, CO	1 hour	25 ppm
Carbon monoxide, CO	8 hours	10 ppm
Formaldehyde, CH_2O	30 minutes	0.1 mg/m^3
Nitrogen dioxide, NO_2	1 year	40 $\mu g/m^3$ (0.0197 ppm) Note 2
Nitrogen dioxide, NO_2	1 hour	200 $\mu g/m^3$ (0.0987 ppm) Note 2
Ozone, O_3	8 hour, daily maximum	100 $\mu g/m^3$ (0.0473 ppm)
Particulate matter, $PM_{2.5}$	1 year	10 $\mu g/m^3$
Particulate matter, $PM_{2.5}$	24 hour (99th percentile)	25 $\mu g/m^3$
Particulate matter, PM_{10}	1 year	20 $\mu g/m^3$
Particulate matter, PM_{10}	24 hour (99th percentile)	50 $\mu g/m^3$
Total volatile organic compounds	1 hour	500 $\mu g/m^3$

Table Notes

(1) Based on body odour metric (i.e. 450 ppm above ambient CO_2 level of 400 ppm and demand control ventilation provisions in AS 1668.2).

(2) Based on pressure of 101.325 kPa and temperature of 25 degrees (i.e. the conversion is mg/m^3 = ppm (molecular weight/24.4)).

NT H4V4

H4V4 Sound insulation

[2019: V2.4.6]

Compliance with H4P6(1) and (3) to insulate against transmission of airborne sound through walls separating dwellings is verified when it is measured in-situ that the wall has a weighted standardised level difference with spectrum adaptation term ($D_{nT,w}$ + C_{tr}) not less than 45 when determined under AS/NZS ISO 717.1.

H4V5 Verification of condensation management

[2019: V2.4.7]

(1) Compliance with *Performance Requirement*H4P7 is verified for an *external wall* assembly when it is determined that a mould index of greater than 3, as defined by Section 6 of AIRAH DA07, does not occur on interior, exterior or interstitial surfaces of components of the building fabric, from the 5th year after construction onwards.

(2) The calculation method for (1) must use input assumptions in accordance with AIRAH DA07.

(3) The calculation method for (1) must use the intermediate method for calculating indoor design humidity in Section 4.3.2 of AIRAH DA07.

~~(1) Compliance with H4P7 is verified when modelling determines that moisture will not accumulate—~~

~~(a) interior to the primary *water control layer* within a building envelope; or~~

~~(b) on the interior surface of the *water control layer*.~~

~~(2) Modelling used for the purposes of (1) must assess the effects of—~~

~~(a) indoor and outdoor temperature and humidity conditions; and~~

~~(b) heating and cooling set points; and~~

~~(c) rain absorption; and~~

~~(d) wind pressure; and~~

(e) ~~solar radiation; and~~

(f) ~~material hygrothermal properties.~~

Deemed-to-Satisfy Provisions

H4D1 Deemed-to-Satisfy Provisions

[New for 2022]

(1) Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirements* H4P1 to H4P7 are satisfied by complying with H4D2 to ~~H4D8~~H4D9.

(2) Where a *Performance Solution* is proposed, the relevant *Performance Requirements* must be determined in accordance with A2G2(3) and A2G2(4) as applicable.

H4D2 Wet areas ~~and external waterproofing~~

[2019: 3.8.1.1, 3.8.1.2]

Compliance with Part 10.2 of the ABCB Housing Provisions satisfies *Performance Requirement* H4P1 for *wet areas* provided the *wet areas* are protected in accordance with the appropriate requirements of 10.2.7 to 10.2.34 of the ABCB Housing Provisions. ~~and external waterproofing.~~

H4D3 Materials and installation of wet area components and systems

[New for 2022]

Performance Requirement H4P1 is satisfied for materials and the installation of *wet area* components and systems if they comply with either—

(a) AS 3740; or

(b) 10.2.7 to 10.2.34 of the ABCB Housing Provisions.

Notes: Livable housing design

In a Class 1a dwelling, at least one bathroom and at least one toilet must comply with the ABCB Standard for Livable Housing Design, which may override the requirements on H4D3.

Explanatory Information

AS 3740 and the ABCB Housing Provisions contain requirements for shower hobs and shower over bath configurations, however these may only be used in a bathroom that is not subject to the ABCB Standard for Livable Housing Design. Generally, the ABCB Standard for Livable Housing Design only applies to one bathroom per dwelling. Therefore, shower hobs and the like may only be used in additional bathrooms.

H4D~~3~~4 Room heights

[2019: 3.8.2]

Compliance with Part 10.3 of the ABCB Housing Provisions satisfies *Performance Requirement* H4P2 for room heights.

H4D~~4~~5 Facilities

[2019: 3.8.3]

Compliance with Part 10.4 of the ABCB Housing Provisions satisfies *Performance Requirement* H4P3 for facilities.

Explanatory Information: Additional requirements

Additional requirements relating to facilities for people with a disability in Class 1b and Class 10a buildings are contained in Volume One of the NCC. These requirements are based on the Disability (Access to Premises – Buildings) Standards (Premises Standards) which are available from the Australian Government Attorney-General's Department website at www.ag.gov.au.

Explanatory Information: Cross-volume considerations

NCC Volume Three contains a number of plumbing and drainage provisions which are relevant to facilities. These include, but may not be limited to, the following:

- Access for maintenance of plumbing and drainage: Parts B1, B2, B3, C1 and C2.
- Heated water temperature control for facilities used for personal hygiene: Part B2.
- Installation of sanitary plumbing and drainage systems: Parts C1 and C2.

H4D~~5~~6 Light

[2019: 3.8.4]

Compliance with Part 10.5 of the ABCB Housing Provisions satisfies *Performance Requirement* H4P4 for lighting.

H4D~~6~~7 Ventilation

[2019: 3.8.5]]

(1) Except for an exhaust fan from a *sanitary compartment*, laundry, kitchen or bathroom, *Performance Requirement* H4P5 is satisfied for a mechanical ventilation system if it is installed in accordance with AS 1668.2.

(2) Compliance with Part 10.6 of the ABCB Housing Provisions satisfies *Performance Requirement* H4P5 for ventilation.

H4D~~7~~8 Sound insulation

[2019: 3.8.6]

Compliance with Part 10.7 of the ABCB Housing Provisions satisfies *Performance Requirement* H4P6 for sound insulation.

H4D~~8~~9 Condensation management

[2019: 3.8.7]

Compliance with Part 10.8 of the ABCB Housing Provisions satisfies *Performance Requirement* H4P7 for condensation management.

Explanatory Information

The intent of these requirements is to assist in the mitigation of *condensation* within a building. The installation of a *condensation* management system may not prevent *condensation* from occurring.

Part H6 Energy efficiency

Introduction to this Part

This Part is intended to reduce greenhouse gas emissions from buildings. It addresses greenhouse gas emissions that occur as result of the how the building is designed and constructed; its energy use related to design and construction factors; and the source of the energy used.

Objectives

H6O1 Objective

[2019: O2.6]

The Objective is to ~~reduce greenhouse gas emissions.~~use energy efficiently in order to—

(a) reduce energy consumption; and

(b) reduce greenhouse gas emissions; and

(c) improve occupant health and amenity; and

(d) improve the resilience of a building to extreme weather and blackouts.

Functional Statements

H6F1 ~~Greenhouse gas emissions~~Energy efficiency

[2019: F2.6]

To ~~reduce greenhouse gas emissions, to~~ the degree necessary, a building, including its *fabric* and *domestic services*, is to contribute to the efficient use of energy to—

(a) reduce energy consumption; and

(b) reduce greenhouse gas emissions; and

(c) improve occupant health and amenity; and

(d) improve the resilience of a building to extreme weather and blackouts.

~~(a) a building, including its *domestic services*, is to be capable of efficiently using energy; and~~

~~(b) a building's *domestic services* for heating are to obtain their energy from—~~

~~(i) a low greenhouse gas intensity source; or~~

~~(ii) an on site *renewable energy* source; or~~

~~(iii) another process as reclaimed energy.~~

Explanatory Information

(1) ~~The greenhouse gas intensity of energy sources varies. For example, natural gas has a low greenhouse gas intensity compared with electricity generated from coal.~~

(2) ~~For the purposes of H6F1, the *renewable energy* source must be on site (so not Greenpower) and includes, but is not limited to, solar, wind, hydroelectric, wave action and geothermal.~~

Performance Requirements

VIC H6P1

H6P1 Building fabric

[2019: P2.6.1]

(1) The total *heating load* of the *habitable rooms* in a building must not exceed the heating load limit in Specification 44. ~~A building must have, to the degree necessary, a level of thermal performance to facilitate the efficient use of energy for artificial heating and cooling appropriate to—~~

- (a) ~~the function and use of the building; and~~
- (b) ~~the internal environment; and~~
- (c) ~~the geographic location of the building; and~~
- (d) ~~the effects of nearby permanent features such as topography, structures and buildings; and~~
- (e) ~~solar radiation being—~~
  - (i) ~~utilised for heating; and~~
  - (ii) ~~controlled to minimise energy for cooling; and~~
- (f) ~~the sealing of the building *envelope* against air leakage; and~~
- (g) ~~the utilisation of air movement to assist cooling.~~

(2) The total *cooling load* of the *habitable rooms* in a building must not exceed the cooling load limit in Specification 44.

(3) The total *thermal energy load* of the habitable rooms in a building must not exceed the *thermal energy load* limit in Specification 44.

Explanatory Information

~~In H6P1(d) the word 'permanent' is used to describe features that will have a long term impact on the building and includes natural features of the landscape, such as mountains and escarpments, while permanent man made features would be buildings likely to be in place for a long period of time.~~

VIC H6P2

H6P2 ~~Services~~Energy usage

[2019: P2.6.2]

The *energy value* of a building's *domestic services* must not exceed 70% of the *energy value* with— ~~Domestic services, including any associated distribution system and components must, to the degree necessary—~~

- (a) a 3-star ducted heat pump, rated under the 2019 GEMS determination, heating all spaces that are provided with heating; and
- (b) a 3-star ducted heat pump, rated under the 2019 GEMS determination, cooling all spaces that are provided with cooling; and
- (c) a 5-star instantaneous gas water heater, rated under the 2017 GEMS determination, providing all domestic hot water; and
- (d) a lighting power density of 4 W/m^2 serving all spaces that are provided with lighting.

(a) ~~have features that facilitate the efficient use of energy appropriate to—~~

- (i) ~~the *domestic service* and its usage; and~~
- (ii) ~~the geographic location of the building; and~~
- (iii) ~~the location of the *domestic service*; and~~
- (iv) ~~the energy source; and~~

(b) ~~obtain heating energy from—~~

(i) ~~a source that has a greenhouse gas intensity that does not exceed 100 g CO_2-e/MJ of thermal energy load; or~~

(ii) ~~an on-site *renewable energy* source; or~~

(iii) ~~another process such as reclaimed energy.~~

Explanatory Information

(1) ~~For (a)(iv) the energy source can be a consideration if, for example, *renewable energy* such as electricity from a photovoltaic panel or a wind turbine was used to meet or supplement the lighting or cooling electricity load. For (b)(ii) similar sources could meet or supplement the heating load.~~

(2) ~~The intent of H6P2(b) is to constrain the use of a high greenhouse gas intensity source of energy. It does not prevent the use of electricity because the greenhouse gas intensity is related to the thermal load rather than the energy consumption which is covered by H6P2(a). H6P2 also contains the qualification that it is to be applied "to the degree necessary", allowing electricity to be used, even by low efficiency plant when there are no reasonable alternatives.~~

(3) ~~For the purposes of H6P2 the *renewable energy* source must be on site (so not Greenpower) and includes, but is not limited to, solar, wind, hydroelectric, wave action and geothermal.~~

Verification Methods

VIC H6V1

H6V1 Application of H6V2 and H6V3

[2019: V2.6.1]

The *Verification Methods* in this Part only apply to—

(a) a Class 1 building; and

(b) an enclosed Class 10a building attached to a Class 1 building.

Explanatory Information

The *Verification Methods* in this Part are intended to apply to whole Class 1 buildings and to whole Class 1 buildings that incorporate attached and enclosed Class 10a parts, such as attached garages. The *Verification Methods* are not intended to apply to detached garages or to open carports.

H6V2 Verification using a reference building

[2019: V2.6.2.2]

(1) Compliance with H6P1 is verified when a proposed building—

(a) compared to a *reference building*, using a calculation method other than , has—

(i) in *climate zone*~~s~~ 1 ~~and 2~~, a *cooling load* equal to or less than that of the *reference building*; or

(ii) in *climate zone*~~s 7 and~~ 8, a *heating load* equal to or less than that of the *reference building*; or

(iii) in *climate zones* 2, 3, 4, 5, 6 and ~~6~~7, a *heating load* and a *cooling load* equal to or less than that of the *reference building*; and

(b) complies with—

(i) for building *fabric* thermal insulation, clause 13.2.2 of the ABCB Housing Provisions; and

(ii) for thermal breaks, clauses 13.2.3(6~~3~~) and 13.2.5(5~~4~~) of the ABCB Housing Provisions; and

(iii) for calculation of *R-Values*, AS 4859.2~~compensating for a loss of ceiling insulation, clauses 13.2.3(5) of the ABCB Housing Provisions~~; and

(iv) for floor edge insulation, clauses 13.2.6(4~~3~~), ~~and~~ 13.2.6(5~~4~~) and 13.2.6(6) of the ABCB Housing Provisions;

and

(v) for building sealing, Part 13.4 of the ABCB Housing Provisions or H6V3.

(2) The *reference building* must be compliant with the *Deemed-to-Satisfy Provisions* in Parts 13.2, 13.3 and 13.5 of the ABCB Housing Provisions.

(~~2~~) ~~The heating loads and cooling loads in (1) must be calculated for the reference building using —~~

(a) ~~internal heat gains from appliances and equipment of 5 W/m2 averaged for 4 hours per day, 7 days per week; and~~

(b) ~~an infiltration value of 0.6 air changes per hour; and~~

(c) ~~the modelling criteria in Table H6V2.~~

(3) The *heating load* and *cooling load* for the proposed building and the *reference building* must be determined using the same—

(a) calculation method; and

(b) location specific data, including that of climate and topography appropriate to the location where the proposed building is to be constructed if the data is available, or the nearest location with similar climatic conditions in the same *climate zone* for which the data is available; and

(c) impact of adjoining structures and features; and

(d) soil conditions; and

(e) orientation; and

(f) floor plan, including the location and size of ; and

(g) number of storeys; and

(h) roof cladding and *roof lights*; and

(i) *separating walls*; and

(j) external non-glazed doors; and

(k) intermediate floors; and

(l) floor coverings; and

(m) ~~internal heat gains from equipment and appliances; and~~

(n) ~~air infiltration and~~ ventilation; and

(o) function and use of the building and spaces, including zoning, hours of occupation~~, hours of heating and cooling availability~~; and

(p) ~~space temperature settings within the ranges of 20°C to 21°C for heating and 25°C to 28°C for cooling; and~~

(q) ~~the profiles for occupancy and air conditioning.~~

(r) operating schedules for heating and cooling as per Table H6V2a; and

(s) cooling thermostat settings of—

(i) for bedrooms, 24°C; and

(ii) for *habitable rooms* other than bedrooms—

(A) in *climate zones* 1, 2, 3 and 4, 27°C; and

(B) in *climate zones* 5, 6, 7 and 8, 26°C; and

(t) a heating thermostat setting of 20°C for all *habitable rooms*; and

(u) maximum occupancy in accordance with Table H6V2b, with —

(i) heat gains due to occupants of—

(A) 75 W per person in bedrooms; and

(B) 105 W per person in *habitable rooms* other than bedrooms; and

(ii) occupancy schedules in accordance with Table H6V2c; and

(v) internal heat gains—

(i) from appliances of 450 W; and

(ii) from lighting of 4 W/m²; and

(iii) from cooking equipment in accordance with Table H6V2b; and

(iv) operating schedules for lighting, cooking equipment and appliances in accordance with Table H6V2d; and

(w) air infiltration rate of—

(i) 0.75 air changes per hour; or

(ii) equal to the intended building air change rate at 50 Pa divided by 20 where—

(A) an intended building air change rate at 50 Pa is specified; and

(B) additional building sealing provisions to Part 13.4 are specified; and

(C) building sealing is verified using H6V3.

(4) The calculation method used must comply with ANSI/ASHRAE Standard 140 and be capable of assessing the *heating load* and *cooling load* by modelling—

(a) the building *fabric*; and

(b) and shading; and

(c) air infiltration and ventilation; and

(d) the function and use of the building including zoning, hours of occupation, hours of heating and cooling availability and internal heat gains; and

(e) relevant built-environment and topographical features; and

(f) the sensible heat component of the *cooling load* and *heating load*.

(5) Climatic data employed in the calculation method must be based on hourly recorded values and be representative of a typical year for the proposed location.

Table H6V2a: Heating and cooling schedules

Hour ending at	*Habitable rooms* other than bedrooms	Bedrooms
1:00	OFF	ON
2:00	OFF	ON
3:00	OFF	ON
4:00	OFF	ON
5:00	OFF	ON
6:00	OFF	ON
7:00	ON	ON
8:00	ON	ON
9:00	ON	ON
10:00	ON	OFF
11:00	ON	OFF
12:00	ON	OFF
13:00	ON	OFF
14:00	ON	OFF
15:00	ON	OFF
16:00	ON	OFF
17:00	ON	OFF
18:00	ON	OFF
19:00	ON	ON
20:00	ON	ON
21:00	ON	ON
22:00	ON	ON

Hour ending at	*Habitable rooms* other than bedrooms	Bedrooms
23:00	ON	ON
0:00	OFF	ON

Table H6V2b: Occupant and cooking equipment loads

Floor area of *habitable rooms* (m²)	Maximum occupancy (m²/occupant)	Cooking equipment load (W/m² of kitchen area)
100	41.2	36.2
125	44.3	34.7
150	47.8	28.9
175	51.7	24.8
200	55.8	25.3
225	60.0	22.5
250	64.4	20.2
275	68.9	18.4
300	73.3	16.9
325	77.5	15.6
350	81.6	14.5
375	85.4	13.5
400	89.0	12.7

Table H6V2c: Occupancy schedules

Hour ending at	Weekday occupancy in *habitable rooms* other than bedrooms	Weekend daytime occupancy in *habitable rooms* other than bedrooms	Weekday and weekend bedroom occupancy
1:00	0%	0%	100%
2:00	0%	0%	100%
3:00	0%	0%	100%
4:00	0%	0%	100%
5:00	0%	0%	100%
6:00	0%	0%	100%
7:00	30%	30%	50%
8:00	30%	30%	50%
9:00	100%	30%	50%
10:00	100%	100%	0%
11:00	50%	100%	0%
12:00	50%	100%	0%
13:00	50%	100%	0%
14:00	50%	50%	0%
15:00	50%	50%	0%
16:00	50%	50%	0%
17:00	100%	50%	0%
18:00	100%	50%	0%
19:00	100%	100%	50%

Hour ending at	Weekday occupancy in *habitable rooms* other than bedrooms	Weekend daytime occupancy in *habitable rooms* other than bedrooms	Weekday and weekend bedroom occupancy
20:00	100%	100%	50%
21:00	100%	100%	50%
22:00	30%	100%	100%
23:00	30%	30%	100%
0:00	0%	0%	100%

Table H6V2d: Lighting, cooking and appliance schedules

Hour ending at	Lighting	Cooking	Appliances
1:00	0%	0%	45%
2:00	0%	0%	40%
3:00	0%	0%	40%
4:00	0%	0%	40%
5:00	0%	0%	40%
6:00	0%	0%	40%
7:00	10%	5%	50%
8:00	10%	10%	70%
9:00	5%	10%	55%
10:00	0%	15%	50%
11:00	0%	15%	50%
12:00	0%	15%	50%
13:00	0%	20%	50%
14:00	0%	20%	50%
15:00	0%	20%	50%
16:00	0%	20%	50%
17:00	0%	25%	75%
18:00	20%	40%	95%
19:00	30%	80%	80%
20:00	35%	80%	70%
21:00	30%	40%	70%
22:00	25%	20%	65%
23:00	15%	10%	55%
0:00	0%	5%	55%

Table H6V2: ~~Reference building requirements~~

~~Item~~	~~Description~~	~~Criteria to be modelled~~
~~1~~	~~Roof~~	~~Pitched roof (23 degrees) with solar absorptance of 0.6~~
~~2~~	~~Ceiling~~	~~2.4 m high horizontal, 10 mm plasterboard ceiling~~
~~3~~	~~Roof and ceiling insulation~~	~~In accordance with ABCB Housing Provisions Tables 13.2.3a to 13.2.3g~~

Item	Description	Criteria to be modelled
4	*Roof lights*	No *roof light*, unless *required* by ABCB Housing Provisions Part 10.5
5	External walls	Masonry veneer with 110 mm thick masonry with a solar absorptance of 0.6
6	Wall insulation	The minimum specified in ABCB Housing Provisions clause 13.2.5(2)
7	Internal walls	70 mm timber frame with 10 mm internal plaster lining
8	Ground floor	Concrete slab on ground, insulated in accordance with ABCB Housing Provisions clause 13.2.6(3)
9	Glazing	In accordance with Part 13.3 of the ABCB Housing Provisions
10	Air movement	In accordance with Part 13.4 of the ABCB Housing Provisions
11	Artificial lighting	In accordance with the maximum illumination power density allowed by ABCB Housing Provisions clause 13.6.6 without any increase for a control device illumination power density adjustment factor

Explanatory Information

(1) The items listed in (3) must be the same for both the proposed building and *reference building*. This means that those factors applicable to the proposed building must be applied to the *reference building*. For example, if the proposed building is subject to overshadowing by an existing adjoining building, in accordance with (3)(c) the same overshadowing must be applied to the *reference building*.

(2) In (4)(d), the number of hours per day for which heating and cooling is available would be expected to lie between 8 and 17, with values outside this range unlikely in other than exceptional circumstances.

(3) To comply with (3)(e) all internal zones need to be modelled for each internal area. For example, zones for *conditioned spaces*, unconditioned spaces, day time, night time and the like appropriate to their intended usage. It is expected that each room including significant hallways will be modelled as a separate thermal zone.

(4) Suitable climatic data including dry bulb temperature, direct and diffuse solar radiation, wind speed, wind direction and cloud cover can be obtained from the Australian national climate database.

H6V3 Verification of building envelope sealing

[2019: V2.6.2.3]

(1) Compliance with H6P1(f) is verified when a building *envelope* is sealed at an air permeability of not more than 10 $m^3/hr.m^2$ at 50 Pa reference pressure when tested in accordance with AS/NZS ISO 9972 Method 1.

(2) Where an air change rate of not more than 5 air changes per hour at 50 Pa reference pressure is achieved—

(a) the building must be provided with a mechanical ventilation system that—

(i) can be manually turned off; and

(ii) provides outdoor air, either—

(A) continuously; or

(B) intermittently, where the system has controls that enable operation for not less than 25 percent of each 4 hour segment; and

(iii) provides a flow rate not less than that achieved with the following formula: $Q = (0.05 \times A + 3.5 \times (N + 1))/p$

(A) Q = the required air flow rate (L/s); and

(B) A = the total floor area of the building (m²); and

(C) N = the number of bedrooms in the building; and

(D) p = the fraction of time within each four hour segment that the system is operational; and

(b) any space with a solid-fuel burning combustion appliance must be ventilated with permanent openings directly to outside with a free area of not less than half of the cross-sectional area of the appliance's flue; and

(c) any space with a gas fuelled combustion appliance must be ventilated in accordance with—

(i) clause 6.4 of AS/NZS 5601.1; and

(ii) clause 6.4.5 of AS/NZS 5601.1.

(3) For the purposes of (2)(c), the volume of the space is considered to be 0 m^3 for determining ventilation requirements.

Explanatory Information

The intent is that 10 m^3/hr.m^2 at 50 Pa is broadly equivalent to 10 air changes per hour at 50 Pa when applied to homes.

It should be noted that H6V3 is only one way of achieving compliance with H6P1(f). Other ways of complying include the following:

- The relevant provisions of Section 13 of the ABCB Housing Provisions.
- A *Performance Solution* which uses one of the other NCC *Assessment Methods* to verify that compliance with H6P1(f) will be achieved.

Deemed-to-Satisfy Provisions

H6D1 Deemed-to-Satisfy Provisions

[New for 2022]

(1) Where a *Deemed-to-Satisfy Solution* is proposed *Performance Requirements* H6P1 and H6P2 are satisfied by complying with H6D2; and

(2) Where a *Performance Solution* is proposed, the relevant *Performance Requirements* must be determined in accordance with A2G2(3) and A2G2(4) as applicable.

H6D2 Application of Part H6

[2019: 3.12.0]

(1) *Performance Requirement* H6P1 for the thermal performance of the building is satisfied by—

(a) complying with—

(i) Specification 42, for reducing the heating or cooling loads; and

(ii) Section 13 of the ABCB Housing Provisions, clauses—

(A) 13.2.2, for building *fabric* thermal insulation; and

(B) 13.2.3(6~~3~~) and 13.2.5(5~~4~~), for thermal breaks; and

(C) 13.2.3(4~~6~~), for compensating for a loss of ceiling insulation, other than where the used can automatically compensate for a loss of ceiling insulation; and

(D) 13.2.6(3) and 13.2.6(4), for floor edge insulation; and

(E) Part 13.4, for building sealing; or

(b) complying with Section 13 of the ABCB Housing Provisions—

(i) Part 13.2, for the building *fabric*; and

(ii) Part 13.3, for the external and shading; and

(iii) Part 13.4, for building sealing; and

(iv) Part 13.5, for ~~air movement~~ceiling fans.

(2) *Performance Requirement* H6P2 for the net equivalent energy usage of the building ~~reducing greenhouse gas emissions~~ is satisfied by ~~complying with~~—

(a) complying with S42C3; or

(b) complying with Parts 13.6 and 13.7 of the ABCB Housing Provisions; or

(c) for a heated water supply system, complying with Part B2 of NCC Volume Three – Plumbing Code of Australia.

(a) ~~Part 13.6 of the ABCB Housing Provisions; or~~

VIC H6D2(3)

Explanatory Information

~~There are two options for complying with the energy efficiency *Deemed to Satisfy Provisions* of Parts 13.2 to 13.5 in the ABCB Housing Provisions:~~

- ~~Option 1 Energy Rating — H6D2(1)(a)(i) to achieve the *required* energy rating and comply with H6D2(1)(a)(ii) for energy saving features such as the testing and installation of insulation, thermal breaks, compensation for downlights other than where the used can automatically compensate for a loss of ceiling insulation, floor edge insulation and detailed provisions for building sealing.~~
- ~~Option 2 Elemental Provisions — H6D2(1)(b) to satisfy all the detailed provisions including meeting the *Total R-Values* of roofs, walls and floors, the *glazing* allowances and the air movement requirements. These detailed provisions also include the testing and installation of insulation, thermal breaks, compensation for downlights, floor edge insulation and detailed provisions for building sealing.~~

Specification 42 ~~Heating and cooling loads~~Using house energy rating software

S42C1 Scope

[New for 2022]

This Specification sets out requirements for ~~reducing heating and cooling loads~~ using house energy rating software.

S42C2 Heating and cooling loads

[2019: 3.12.0.1]

SA S42C2(1)

(1) A building must achieve an energy rating, including the separate heating and cooling load limits, using , of greater than or equal to—

(a) 7~~6~~ stars; or

(b) for a building in *climate zones* 1 or 2, 6.5~~5.5~~ stars if the building has an outdoor living area as described in (3) if the outdoor living area—

(i) is fully covered with an impervious roof having a greater than or equal to 1.5 (for downward heat flow); or

(ii) has at least one permanently installed ceiling fan; or

(c) for a building in *climate zones*1 or 2, 6~~5~~ stars if the building has an outdoor living area as described in (3) if the outdoor living area—

(i) is fully covered with an impervious roof having a greater than or equal to 1.5 (for downward heat flow); and

(ii) has at least one permanently installed ceiling fan.

(2) The heating and cooling load limits in (1) are specified in the ABCB Standard for NatHERS Heating and Cooling Load Limits.

(3) An outdoor living area in (1)(b) and (1)(c) is a space that—

(a) is directly adjoining, and directly accessible from, a general purpose living area of a Class 1 building such as a lounge, kitchen, dining or family room, which is not a room for sleeping or specialist tasks such as a study or home theatre; and

(b) has a *floor area* greater than or equal to 12.0 m^2; and

(c) has length and width dimensions greater than or equal to 2.5 m each; and

(d) has an opening height above floor level greater than or equal to 2.1 m; and

(e) has one side permanently open with a second side either—

(i) permanently open; or

(ii) readily openable.

(4) The sides referred to in (3)(e) must be greater than or equal to 900 mm from an allotment boundary or 900 mm from an obstruction to the breeze path such as a building, fence or other structure.

(5) Where a ceiling fan is *required* as part of compliance with (1)(b) or (1)(c), the fan must~~ comply with clause 13.5.4 of the ABCB Housing Provisions.~~

(a) be permanently installed; and

(b) have a speed controller; and

(c) serve the whole room, with the floor area that a single fan serves not exceeding—

(i) 15 m^2 if it has a blade rotation diameter of greater than or equal to 900 mm; and

(ii) 25 m^2 if it has a blade rotation diameter of greater than or equal to 1200 mm.

SA S42C2(6)

SA S42C2(7)

SA Table S42C2

Explanatory Information: Complying with S42C2(1)

(1) To comply with (1), the modelled energy loads of a building must not exceed three separate load limits, i.e.—

(a) the total load limit corresponding to the applicable star rating; and

(b) the heating load limit; and

(c) the cooling load limit.

(2) Information about building modelling using is available at www.nathers.gov.au.

(3) The ABCB Standard for NatHERS Heating and Cooling Load Limits can be accessed at www.abcb.gov.au.

(4) To comply with (1)(b), either insulate the roof of the outdoor living area, or provide a ceiling fan.

(5) To comply with (1)(c), insulate the roof of the outdoor living area and provide a ceiling fan.

(6) ~~The options for complying with H6D3(1) are shown in the flowchart in explanatory Figure S42C2.~~

Figure S42C2 (explanatory): ~~Flowchart for complying with S42C2(1)~~

Explanatory Information: Outdoor living areas

(1) The opening height in (3)(d) is to provide a breeze path and is likely to be the measurement from the floor to the underside of a perimeter beam. It is not a ceiling height measurement. It is also not a height for mounting a ceiling fan or the height of ceiling fan blades above the floor. These dimensions need to be determined considering the activities in the space, the safety of occupants of the space and any appropriate safety standards.

(2) There is some survey evidence that suggests the majority of home owners turn off their air-conditioners when using an outdoor living area. Another cost effective option is to install a reed switch or other micro switch on the door leading to the outdoor living area in order to automatically deactivate an air-conditioning unit when the door is left open for a period which allows occupants to enter and leave the air-conditioned space but does not affect the operation of the air-conditioner.

(3) A side referred to in (3)(e) may contain some obstructions such as columns and barriers. Where an open side is *required* to have a 1 m barrier, consideration as to the type (wire, solid or other) should be made with regard to the overall opening area of the two sides.

S42C3 Net equivalent energy usage

[New for 2022]

For net equivalent energy usage, a building must achieve a whole-of-home rating of not less than H6P2 using *house energy rating software*.

Specification 44 Calculation of heating load limit, cooling load limit and thermal energy load limit

S44C1 Scope

[New for 2022]

This Specification contains the method of calculating the *heating load* limit, *cooling load* limit and *thermal energy load* limit for compliance with J1P2 and H6P1.

S44C2 Heating load limit

[New for 2022]

The *heating load* limit of a space, measured in MJ/m^2.annum, is equal to the greater of—

(a) 4; and

(b) $((0.0044 \times HDH) - 5.9) \times FH$, where—

(i) HDH = the total annual *heating degree hours* of the building location; and

(ii) FH = the area adjustment factor for the *heating load* limit, determined in accordance with Table S44C2.

Table S44C2: Area adjustment factors for the heating load limit

Total area of *habitable rooms* (A_H)	Area adjustment factor (F_{AH})
≤ 50 m^2	1.37
> 50 m^2 to ≤ 350 m^2	$(5.11 \times 10^{-6})AH^2 - (3.82 \times 10^{-3})AH + 1.55$
> 350 m^2	0.84

S44C3 Cooling load limit

[New for 2022]

(1) The *cooling load* limit of a space, measured in MJ/m^2.annum, is calculated in accordance with the following formula:

$$CLL = (5.4 + 0.00617 \times (CDH + 1.85DGH)) \times FC$$

(2) In the formula at (1)—

(a) CLL = the *cooling load* limit (MJ/m^2.annum); and

(b) CDH = the total annual *cooling degree hours* of the building location; and

(c) DGH = the total annual *dehumidification gram hours* of the building location; and

(d) FC = the area adjustment factor for the *cooling load* limit, determined in accordance with Table S44C3.

Table S44C3: Area adjustment factors for the cooling load limit

Total area of the *habitable rooms* (A_H)	Area adjustment factor (F_C)
≤ 50 m^2	1.34
> 50 m^2 and ≤ 200 m^2	$(1.29 \times 10^{-5})AH^2 - (5.55 \times 10^{-3})AH + 1.58$

Total area of the *habitable rooms* (A_H)	Area adjustment factor (F_C)
> 200 m² and ≤ 1000 m²	$(3.76\times10^{-7})AH^2-(7.82\times10^{-4})AH+1.12$
> 1000 m²	0.71

S44C4 Thermal energy load limit

[New for 2022]

(1) The *thermal energy load* limit of a space, measured in MJ/m².annum, is calculated in accordance with the following formula:

$$TLL=\frac{19.3\,HLL+22.6\,CLL-8.4}{Tr+10.74}-15$$

(2) In the formula at (1)—

(a) TLL = the *thermal energy load* limit; and

(b) HLL = the *heating load* limit; and

(c) CLL = the *cooling load* limit; and

(d) Tr = the annual average *daily outdoor temperature range*.

Schedule 1 Definitions

Abbreviations

Symbols

Glossary

Abbreviations

Abbreviation	Definitions
ABCB	Australian Building Codes Board
AC	Alternating Current
ACP	Aluminium Composite Panel
AS	Australian Standard
ASET	Available Safe Egress Time
ASTM	American Society for Testing and Materials
BCA	Building Code of Australia
BE	Fire blocks evacuation route
CCT	Correlated Colour Temperature
CF	Challenging fire
CHF	Critical Heat Flux
CRF	Critical Radiant Flux
CS	Fire starts in a concealed space
C_{SHGC}	Constant for solar heat gain
CSIRO	Commonwealth Scientific and Industrial Research Organisation
C_U	Constant for conductance
DC	Direct Current
FED	Fractional Effective Dose
FI	Fire brigade intervention
FRL	Fire Resistance Level
GEMS	Greenhouse and Energy Minimum Standards
GRP	Glass fibre reinforced polyester
HRR	Heat Release Rate
HS	Horizontal fire spread
IS	Rapid fire spread involving internal surface linings
ISO	International Organisation for Standardisation
LED	Light-Emitting Diode
MEPS	Minimum Energy Performance Standards
NABERS	National Australian Built Environment Rating System
NATA	National Association of Testing Authorities
NatHERS	Nationwide House Energy Rating Scheme
NCC	National Construction Code
PBDB	Performance-based design brief
PCA	Plumbing Code of Australia
PMV	Predicted Mean Vote
ppm	parts per million
PVC	Polyvinyl chloride
RC	Robustness check
RSET	Required Safe Egress Time
R_W	Weighted sound reduction index

Amenity: An attribute which contributes to the health, physical independence, comfort and well-being of people.

Ancillary element: An element that is secondary to and not an integral part of another element to which it is attached.

Annual exceedance probability: The probability that a given rainfall total accumulated over a given duration will be exceeded in any one year.

Annual greenhouse gas emissions: The theoretical amount of greenhouse gas emissions attributable to the energy used annually by a building's *services*, excluding kitchen exhaust and the like.

Appropriate authority: For the purposes of the Fire Safety Verification Method, means the relevant authority with the statutory responsibility to determine the particular matter satisfies the relevant *Performance Requirement*.

Explanatory Information

The Appropriate Authority is typically the building surveyor or building certifier charged with the statutory responsibility to determine building compliance and issue the building permit / approval and occupancy certificate / approval.

NSW Appropriate authority

Appropriate authority: The relevant authority with the statutory responsibility to determine the particular matter.

Appropriately qualified person: A person recognised by the *appropriate authority* as having qualifications and/or experience in the relevant discipline in question.

Approved disposal system: A system for the disposal of sewage, sullage or stormwater approved by an authority having jurisdiction.

Articulated masonry: Masonry construction in which special provisions have been made for movement by articulation.

NSW Assembly building

SA Assembly building

Assembly building: A building where people may assemble for—

(a) civic, theatrical, social, political or religious purposes including a library, theatre, public hall or place of worship; or

(b) educational purposes in a *school*, *early childhood centre*, preschool, or the like; or

(c) entertainment, recreational or sporting purposes including—

(i) a discotheque, nightclub or a bar area of a hotel or motel providing live entertainment or containing a dance floor; or

(ii) a cinema; or

(iii) a sports stadium, sporting or other club; or

(d) transit purposes including a bus station, railway station, airport or ferry terminal.

Assessment Method: A method that can be used for determining that a *Performance Solution* or *Deemed-to-Satisfy Solution* complies with the *Performance Requirements*.

Assumed cooling thermostat set point: The cooling thermostat set point used to calculate *cooling degree hours*, and equal to $17.8 + 0.31Tm$, where Tm is the mean January outdoor air temperature measured in degrees Celsius.

Atrium: A space within a building that connects 2 or more *storeys* and—

(a) is enclosed at the top by a floor or roof (including a glazed roof structure); and

(b) includes any adjacent part of the building not separated by an appropriate barrier to fire; but

(c) does not include a stairwell, rampwell or the space within a *shaft*; and

(d) for the purposes of (a) a space is considered enclosed if the area of the enclosing floor or roof is greater than 50% of the area of the space, measured in plan, of any of the *storeys* connected by the space.

Atrium well: A space in an *atrium* bounded by the perimeter of the openings in the floors or by the perimeter of the floors and the *external walls*.

Automatic: Designed to operate when activated by a heat, smoke or fire sensing device.

Available safe egress time (ASET)

(1) The time between ignition of a fire and the onset of untenable conditions in a specific part of a building.

Connections: The parts that fix the members into the structure, through which the loads pass.

Construction activity actions: Actions due to stacking of building materials or the use of equipment, including cranes and trucks, during construction or actions which may be induced by floor to floor propping.

Containment protection: The installation of a *backflow prevention device* at the *point of connection* of a *Network Utility Operator's* water supply to a site.

Contaminant: Any substance (including gases, liquids, solids or micro-organisms), energy (excluding noise) or heat, that either by itself or in combination with the same, similar or other substances, energy or heat, changes or is likely to change the physical, chemical or biological condition of water.

Controlled fill: Material that has been placed and compacted in layers with compaction equipment (such as a vibrating plate) within a defined moisture range to a defined density requirement.

Cooling degree hours: For any one hour when the mean outdoor air temperature is above the *assumed cooling thermostat set point*, the degree Celsius air temperature difference between the mean outdoor air temperature and the *assumed cooling thermostat set point*.

Cooling load: The calculated amount of energy removed from the cooled spaces of the building annually by artificial means to maintain the desired temperatures in those spaces.

Critical radiant flux (CRF): The critical heat flux at extinguishment (CHF in kW/m^2) as determined by AS ISO 9239.1.

Cross-connection: Any actual or potential connection between a water supply and any *contaminant*.

Curtain wall: A non-*loadbearing external wall* that is not a *panel wall*.

Daily outdoor temperature range: The difference between the maximum and minimum temperatures that occur in a day.

Damp-proof course (DPC): A continuous layer of impervious material placed in a masonry wall or pier, or between a wall or pier and a floor, to prevent the upward or downward migration of water.

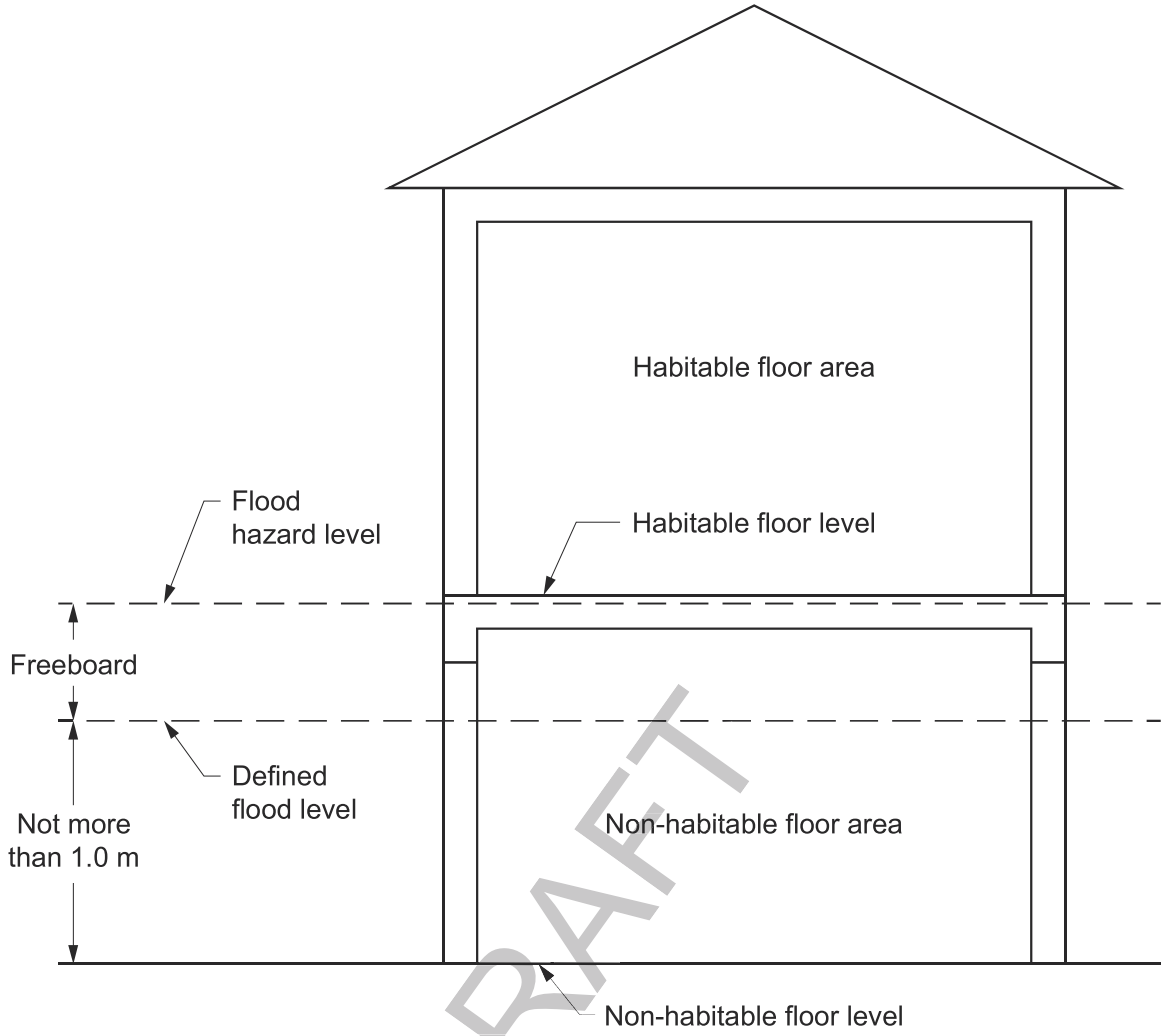
Deemed-to-Satisfy Provisions: Provisions which are deemed to satisfy the *Performance Requirements*.

Deemed-to-Satisfy Solution: A method of satisfying the *Deemed-to-Satisfy Provisions*.

Defined flood event (DFE): The flood event selected for the management of flood hazard for the location of specific development as determined by the *appropriate authority*.

Defined flood level (DFL): The flood level associated with a *defined flood event* relative to a specified datum (see Figure 3).

Figure 3: Identification of defined flood level, flood hazard level and freeboard



Dehumidification gram hours: For any one hour when the mean humidity is more than 15.7g/kg, the grams per kilogram of absolute humidity difference between the mean outdoor absolute humidity and 15.7g/kg.

NSW Designated bushfire prone area

Designated bushfire prone area: Land which has been designated under a power of legislation as being subject, or likely to be subject, to bushfires.

Design bushfire: The characteristics of a bushfire, its initiation, spread and development, which arises from weather conditions, topography and fuel (vegetation) in a given setting, used to determine *fire actions*.

Design fire: The quantitative description of a representation of a fire within the *design scenario*.

Design scenario: The specific scenario of which the sequence of events is quantified and a *fire safety engineering* analysis is conducted against.

Design wind speed: The design gust wind speed for the area where the building is located, calculated in accordance with AS/NZS 1170.2 or AS 4055 (see Table 4~~3~~ for wind classes).

Table 4: Wind classes

Non-cyclonic Region A and B	Cyclonic Region C and D
N1, N2, N3	C1
N4, N5, N6 (these wind classes are covered in the Housing Provisions Part 2.2, Structural provisions).	C2, C3, C4 (these wind classes are covered in the Housing Provisions Part 2.2, Structural provisions).

Table Notes

(1) Wind classification map identifying wind regions is contained in Housing Provisions Part 2.2 (see Figure 2.2.3).

Electric passenger lift: A power-operated lift for raising or lowering people in a car in which the motion of the car is obtained from an electric motor mechanically coupled to the hoisting mechanism.

Electrohydraulic passenger lift: A power-operated lift for raising or lowering people in a car in which the motion of the car is obtained from the action of liquid under pressure acting on a piston or ram, the pressure being generated by a pump driven by an individual electric motor.

Energy value: The net cost to society including, but not limited to, costs to the building user, the environment and energy networks.

Engaged pier: A pier bonded to a masonry wall by course bonding of masonry units or by masonry ties.

Envelope

(1) For the purposes of Section J in Volume One, the parts of a building's *fabric* that separate a *conditioned space* or *habitable room* from—

(a) the exterior of the building; or

(b) a non-*conditioned space* including—

(i) the floor of a rooftop plant room, lift-machine room or the like; and

(ii) the floor above a *carpark* or warehouse; and

(iii) the *common wall* with a *carpark*, warehouse or the like.

(2) For the purposes of Part H6 in Volume Two and Section 13 of the Housing Provisions, the parts of a building's *fabric* that separate artificially heated or cooled spaces from—

(a) the exterior of the building; or

(b) other spaces that are not artificially heated or cooled.

Equivalent: Equivalent to the level of health, safety and amenity provided by the *Deemed-to-Satisfy Provisions*.

Evacuation route: The continuous path of travel (including *exits*, *public corridors* and the like) from any part of a building, including within a *sole-occupancy unit* in a Class 2 or 3 building or Class 4 part, to a *safe place*.

Evacuation time: The time calculated from when the emergency starts for the occupants of the building to evacuate to a *safe place*.

Exit

(1) Any, or any combination of the following if they provide egress to a road or *open space*:

(a) An internal or external stairway.

(b) A ramp.

(c) A *fire-isolated passageway*.

(d) A doorway opening to a road or *open space*.

(2) A *horizontal exit* or a *fire-isolated passageway* leading to a *horizontal exit*.

TAS Expert Judgement

Expert Judgement: The judgement of an expert who has the qualifications and experience to determine whether a *Performance Solution* or *Deemed-to-Satisfy Solution* complies with the *Performance Requirements*.

Explanatory Information

Contemporary and relevant qualifications and/or experience are necessary to determine whether a *Performance Solution* complies with the *Performance Requirements*. The level of qualification and/or experience may differ depending on the complexity of the proposal and the requirements of the regulatory authority. Practitioners should seek advice from the authority having jurisdiction or *appropriate authority* for clarification as to what will be accepted.

Exposed joint: A construction joint, control joint, expansion joint, contraction joint or movement joint that is exposed to rainwater.

External wall

(1) For the purposes of Volume One, an outer wall of a building which is not a *common wall*.

(2) For the purposes of Volume Two, an outer wall of a building which is not a *separating wall*.

Extra-low voltage: A *voltage* not exceeding 50 V AC or 120 V ripple-free DC.

Gradual failure: Relatively slow collapse of a structure that occurs through significant plastic deformation and/or moment redistribution.

Green Star: The building sustainability rating scheme managed by the Green Building Council of Australia.

Group number: The number of one of 4 groups of materials used in the regulation of *fire hazard properties* and applied to materials used as a finish, surface, lining, or attachment to a wall or ceiling.

Habitable room: A room used for normal domestic activities, and—

(a) includes a bedroom, living room, lounge room, music room, television room, kitchen, dining room, sewing room, study, playroom, family room, home theatre and sunroom; but

(b) excludes a bathroom, laundry, water closet, pantry, walk-in wardrobe, corridor, hallway, lobby, photographic darkroom, clothes-drying room, and other spaces of a specialised nature occupied neither frequently nor for extended periods.

Hazard Rating: A level of potential toxicity that may cause contamination in a drinking water system., having a~~Thecerae A~~ting of ~~either~~ *Low Hazard*, *Medium Hazard* or *High Hazard*, ~~is~~ determined in accordance with NCC Volume Three. ~~Specification 41, for any Deemed-to-Satisfy Solution.~~

Health-care building: A building whose occupants or patients undergoing medical treatment generally need physical assistance to evacuate the building during an emergency and includes—

(a) a public or private hospital; or

(b) a nursing home or similar facility for sick or disabled persons needing full-time care; or

(c) a clinic, day surgery or procedure unit where the effects of the predominant treatment administered involve patients becoming non-ambulatory and requiring supervised medical care on the premises for some time after the treatment.

Heated water: Water that has been intentionally heated; normally referred to as hot water or warm water.

Heating degree hours: For any one hour when the mean outdoor air temperature is less than 18°C, the degrees Celsius temperature difference between the mean outdoor air temperature and 18°C.

Heating load: The calculated amount of energy delivered to the heated spaces of the building annually by artificial means to maintain the desired temperatures in those spaces.

Heat release: The thermal energy produced by combustion (measured in kJ).

Heat release rate (HRR): The rate of thermal energy production generated by combustion, measured in kW (preferred) or MW.

High Hazard: Any condition, device or practice which, in connection with a water supply, has the potential to cause death.

High wind area: A region that is subject to *design wind speed* more than N3 or C1 (see Table 3).

Hob: The upstand at the perimeter to a shower area.

Horizontal exit: A *required* doorway between 2 parts of a building separated from each other by a *fire wall*.

House energy rating software

(1) For the purposes of Volume One, means software accredited under the Nationwide House Energy Rating Scheme (NatHERS) and its associated NatHERS Certificate.

(2) For the purposes of Volume Two—

(a) applied to H6V2—software accredited or previously accredited under the Nationwide House Energy Rating Scheme (NatHERS), its associated NatHERS Certificate and the additional functionality provided in non-regulatory mode; and

(b) applied to H6D3—software accredited under the Nationwide House Energy Rating Scheme (NatHERS) and its associated NatHERS Certificate.

Explanatory Information

The Nationwide House Energy Rating Scheme (NatHERS) refers to the Australian Governments' scheme that facilitates consistent energy ratings from software tools which are used to assess the potential thermal efficiency of dwelling envelopes.

a lamp is usually marked on the fitting as the maximum allowable wattage.

The area of the space refers to the area the lights serve. This could be considered a single room, open plan space, verandah, balcony or the like, or the total area of all these spaces.

Landing: An area at the top or bottom of a *flight* or between two *flights*.

Latent heat gain: The heat gained by the vapourising of liquid without change of temperature.

Lateral support: A support (including footing, buttress, cross wall, beam, floor or braced roof structure) that effectively restrains the wall or pier at right angles to the face of the wall or pier.

Lightweight construction: Construction which incorporates or comprises—

(a) sheet or board material, plaster, render, sprayed application, or other material similarly susceptible to damage by impact, pressure or abrasion; or

(b) concrete and concrete products containing pumice, perlite, vermiculite, or other soft material similarly susceptible to damage by impact, pressure or abrasion; or

(c) masonry having a width of less than 70 mm.

Loadbearing: Intended to resist vertical forces additional to those due to its own weight.

Loadbearing wall: For the purposes of H1D4, H2D3 and Section 4 of the Housing Provisions, means any wall imposing on the footing a load greater than 10 kN/m.

Loss: Physical damage, financial loss or loss of *amenity*.

Low Hazard: Any condition, device or practice which, in connection with a water supply, would constitute a nuisance by colour, odour or taste but does not have the potential to injure or endanger health.

Low lead: Where a plumbing product or material in contact with drinking water is calculated using a weighted average lead content of no more than 0.25%.

Low rainfall intensity area: An area with a 5 minute rainfall intensity for an *annual exceedance probability* of 5% ~~average recurrence interval of 20 years~~ of not more than 125 mm/hour.

Explanatory Information

Rainfall intensity figures can be obtained from Tables 7.4.3d to 7.4.3k in the Housing Provisions.

Low-rise, low-speed constant pressure lift: A power-operated low-rise, low-speed device for raising or lowering people with limited mobility on a carriage that is controlled by the application of constant pressure to a control.

Low-rise platform lift: A power-operated device for raising or lowering people with limited mobility on a platform, that is controlled automatically or by the application of constant pressure to a control.

Low voltage: A *voltage* exceeding *extra-low voltage*, but not exceeding 1000 V AC or 1500 V DC.

Luminance contrast: The light reflected from one surface or component, compared to the light reflected from another surface or component.

Main water heater: The domestic hot water unit in the dwelling connected to at least one shower and the largest number of hot water outlets.

Main space conditioning: Either—

(a) the *service* that supplies to at least 70% of the conditioned area of the dwelling, or

(b) if no one heating or cooling appliance serves at least 70% of the conditioned area of the dwelling, the appliance that results in the highest net equivalent energy usage when calculated in accordance with J3D14(1)(a).

Notes

(1) If a multi-split air-conditioner unit is installed, it is considered to be a single heating or cooling *service*.

(2) A series of separate heaters or coolers of the one type can be considered a single heater or cooler type with a performance level of that of the unit with the lowest efficiency.

Explanatory Information

The purpose of the definition for main space conditioning is to provide information on which heating or cooling or

appliance should be selected when showing compliance with J3D14(1)(a) and ABCB Housing Provisions clause 13.6.2(1)(a) when more than one type and efficiency of appliance are present. In J3D14(1)(a) the formula that determines ER allows the selection of only one heating or cooling system. This definition requires that if any one appliance serves at 70% of the floor area that is heated or cooled it should be used as the basis of determining ER. If, however, no one system serves at least 70% of the area, then the appliance that results in the highest net equivalent energy usage when calculated in accordance with J3D14(1)(a) should be selected.

Massive timber: An element not less than 75 mm thick as measured in each direction formed from solid and laminated timber.

Maximum acceptable annual probability of structural failure of structures, buildings, members and connections: The probability that, in any year, there could be a structural failure leading to collapse of either the whole of the structure or building, or significant members and/or their connections, expressed as 1 in … (e.g. 1 in 1,000 meaning a probability of 1 in 1,000 that the failure could occur).

Maximum retained water level: The point where surface water will start to overflow out of the shower area.

Medium Hazard: Any condition, device or practice which, in connection with a water supply, has the potential to injure or endanger health.

Members: The parts of a structure or component that provide resistance to structural actions.

Members and connections that do not provide primary building support: Those components of a building or other structure that are not necessary to resist collapse of other members, parts of the building or the whole building, including but are not limited to—

(a) non-*loadbearing* walls including framing, wall cladding, roof cladding, roof purlins and battens, mezzanine floors; and

(b) connections and fixings that fix in position only those members that do not provide primary building support.

Members and connections that provide primary building support: Those components of a building or other structure that provide the structural system resisting collapse of other members, parts of the building or the whole building under the design actions, including but are not limited to—

(a) beams, columns, trusses, portal frames, posts, *loadbearing* walls, floor systems, footings, foundations and earth retaining structures; and

(b) connections and fixings that transfer loads between members that provide primary building support.

Membrane: A barrier impervious to moisture.

Explanatory Information

A barrier may be a single or multi-part system.

Mezzanine: An intermediate floor within a room.

Minimum Acceptable Annual Structural Reliability Index of Structures, Buildings, Members and Connections: The Structural Reliability Index (β), determined in accordance with the ABCB Structural Reliability Handbook (Version 2022.1) that corresponds to the maximum acceptable annual probability of structural failure tabulated in Table B1P1.

Minimum Energy Performance Standards (MEPS): The Minimum Energy Performance Standards for equipment and appliances established through the Greenhouse and Energy Minimum Standards Act 2012.

Mixed construction: A building consisting of more than one form of construction, particularly in double-storey buildings.

Mould: A fungal growth that can be produced from conditions such as dampness, darkness, or poor ventilation.

Multiple resistance paths: Situations where the failure of a part of a building or structure is resisted collectively by more than one member or connection, such that the failure of any member or connection will result in the transfer of loads to the other members and connections with sufficient combined capacity to resist the total applied loads.

NABERS Energy for Apartment Buildings: The National Australian Built Environment Rating System for apartment building energy efficiency, which is managed by the New South Wales Government.

NABERS Energy for Hotels: The National Australian Built Environment Rating System for hotel building energy efficiency, which is managed by the New South Wales Government.

NABERS Energy for Offices: The National Australian Built Environment Rating Systems for office energy efficiency, which is managed by the New South Wales Government.

NABERS Energy for Shopping Centres: The National Australian Built Environment Rating System for shopping centre

energy efficiency, which is managed by the New South Wales Government.

TAS Network Utility Operator

Network Utility Operator: A person who—

(a) undertakes the piped distribution of *drinking water* or *non-drinking water* for supply; or

(b) is the operator of a sewerage system or a stormwater *drainage* system.

Explanatory Information

A Network Utility Operator in most States and Territories is the water and sewerage authority licensed to supply water and receive sewage and/or stormwater. The authority operates or proposes to operate a network that undertakes the distribution of water for supply and undertakes to receive sewage and/or stormwater drainage. This authority may be a licensed utility, local government body or council.

Non-combustible

(1) Applied to a material — means not deemed *combustible* as determined by AS 1530.1 — Combustibility Tests for Materials.

(2) Applied to construction or part of a building — means constructed wholly of materials that are not deemed *combustible*.

Non-drinking water: Water which is not intended primarily for human consumption, but which may have other uses. ~~drinking water.~~

Non-transient actions: The combination of structural actions in which the combined magnitude of the permanent gravity action and imposed gravity action is equal to or greater than 50% of the magnitude of the total combined actions.

Occupant traits

(1) For the purposes of Volume One, the features, needs and profile of the occupants in a *habitable room* or space.

(2) For the purposes of Volume Two, the features, needs and profile of the occupants in a room or space.

Explanatory Information

For the purpose of Volume Two, this term is used to describe the characteristics of the occupants and their associated requirements in relation to a room or space.

For example, in relation to a bedroom, the following occupant characteristics and associated requirements should be considered:

- Characteristics: height, mobility and how often the space will be used.
- Requirements: a sleeping space and a space to undertake leisure activities.

Occupiable outdoor area: A space on a roof, balcony or similar part of a building—

(a) that is open to the sky; and

(b) to which access is provided, other than access only for maintenance; and

(c) that is not *open space* or directly connected with *open space*.

TAS On-site wastewater management system

On-site wastewater management system: A system ~~installed on premises that~~ that receives and/or treats wastewater generated and discharges ~~on the premises and applies~~ the resulting effluent to an *approved disposal system* or re-use system.

Open-deck carpark: A carpark in which all parts of the parking *storeys* are cross-ventilated by permanent unobstructed openings in not fewer than 2 opposite or approximately opposite sides, and—

(a) each side that provides ventilation is not less than $^{1}/_{6}$ of the area of any other side; and

(b) the openings are not less than ½ of the wall area of the side concerned.

Open space: A space on the allotment, or a roof or similar part of a building adequately protected from fire, open to the sky and connected directly with a public road.

Open spectator stand: A tiered stand substantially open at the front.

system, a system of *loadbearing* walls and the like) which could result in loss of life or injury should it fail.

Sudden failure: Relatively rapid collapse of a structure that occurs with little warning with little plastic deformation and/or moment redistribution.

Surface water: All naturally occurring water, other than sub-surface water, which results from rainfall on or around the *site* or water flowing onto the *site*.

Swimming pool: Any excavation or structure containing water and principally used, or that is designed, manufactured or adapted to be principally used for swimming, wading, paddling, or the like, including a bathing or wading pool, or spa.

Tapered tread: A stair tread with a walking area that grows smaller towards one end.

Thermal comfort level: The level of thermal comfort in a building expressed as a *PMV* sensation scale.

Thermal energy load: The sum of the *heating load* and the *cooling load*.

Total R-Value: The sum of the *R-Values* of the individual component layers in a composite element including any building material, insulating material, airspace, thermal bridging and associated surface resistances, expressed in m^2.K/W.

Total System Solar Heat Gain Coefficient (SHGC)

(1) For the purposes of Volume One, the fraction of incident irradiance on a *wall-glazing construction* or a *roof light* that adds heat to a building's space.

(2) For the purposes of Volume Two, the fraction of incident irradiance on *glazing* or a *roof light* that adds heat to a building's space.

Total System U-Value

(1) For the purposes of Volume One, the thermal transmittance of the composite element allowing for the effect of any airspaces, thermal bridging and associated surface resistances, expressed in W/m^2.K.

(2) For the purposes of Volume Two, means the thermal transmittance of the composite element allowing for the effect of any airspaces and associated surface resistances, expressed in W/m^2.K.

Transient actions: The combination of structural actions in which the combined magnitude of the permanent gravity action and imposed gravity action is less than 50% of the magnitude of the total combined actions.

Treatment area: An area within a *patient care area* such as an operating theatre and rooms used for recovery, minor procedures, resuscitation, intensive care and coronary care from which a patient may not be readily moved.

Uncontrolled discharge: Any unintentional release of fluid from a *plumbing* and *drainage* system and includes leakage and seepage.

Unique wall: For the purposes of F1V1 in Volume One and H2V1 in Volume Two, a wall which is neither a *cavity wall* nor a *direct fix cladding wall*.

Unobstructed opening: For the purposes of Section 8 of the Housing Provisions, a glazed area that a person could mistake for an open doorway or clearway and walk into the glazed panel.

Unreinforced masonry: Masonry that is not reinforced.

Vapour permeance: The degree that water vapour is able to diffuse through a material, measured in µg/N.s and tested in accordance with the ASTM-E96 Water Method at 23°C.

Vapour pressure: The pressure at which water vapour is in thermodynamic equilibrium with its condensed state.

Ventilation opening: An opening in the *external wall*, floor or roof of a building designed to allow air movement into or out of the building by natural means including a permanent opening, an openable part of a *window*, a door or other device which can be held open.

Verification Method: A test, inspection, calculation or other method that determines whether a *Performance Solution* complies with the relevant *Performance Requirements*.

Vessel: For the purposes of Volume One and Part 10.2 of the Housing Provisions, an open, pre-formed, pre-finished concave receptacle capable of holding water, usually for the purpose of washing, including a basin, sink, bath, laundry tub and the like.

Visibility: The maximum distance at which an object of defined size, brightness and contrast can be seen and recognised.

Voltage: A difference of potential, measured in Volts (V) and includes *extra-low voltage* and *low voltage*.

Volume

(1) In relation to a building — the volume of the total space of the building measured above the lowest floor (including, for a suspended floor, any subfloor space), over the enclosing walls, and to the underside of the roof covering.

Schedule 2 Referenced documents

Referenced documents

No.	Date	Title	Volume One	Volume Two	Housing Provisions	Volume Three
AS/NZS 4859 Part 2	2018	Thermal insulation materials for buildings — Design	~~J3D3~~J4D3, Spec 37	N/A	N/A	N/A
AS 5113	2016	Classification of external walls of buildings based on reaction-to-fire performance (incorporating amendment 1)	C1V3	N/A	N/A	N/A
AS 5146 Part 1	2015	Reinforced autoclaved aerated concrete — Structures (incorporating amendment 1)	B1D4	H1D7	N/A	N/A
AS 5216	2018	Design of post-installed and cast-in fastenings in concrete	B1D4	N/A	2.2.4	N/A
AS/NZS 5601 Part1	2013	Gas installations, Part 1: General installations	J1V4	H6V3	N/A	N/A
AS 5637 Part 1	2015	Determination of fire hazard properties — Wall and ceiling linings	Spec 7, Schedule 2	Schedule 2	Schedule 2	Schedule 2
AS ISO 9239 Part 1	2003	Reaction to fire tests for floorings — Determination of the burning behaviour using a radiant heat source	Schedule 2	Schedule 2	Schedule 2	Schedule 2
AS/NZS ISO 9972	2015	Thermal performance of buildings — Determination of air permeability of buildings — Fan pressurization method	J1V4	H6V3	N/A	N/A
AIRAH-DA07	2020	Criteria for moisture control design analysis in buildings	F8V1	H4V5	N/A	N/A
AIRAH-DA09	1998	Air conditioning load estimation	Spec 35	N/A	N/A	N/A
AIRAH-DA28	2011	Building management and control systems	Spec 34	N/A	N/A	N/A
ANSI/ASHRAE Standard 55	2013	Thermal environmental conditions for human occupancy	Schedule 2	Schedule 2	Schedule 2	Schedule 2
ANSI/ASHRAE Standard 140	2007	Standard method of test for the evaluation of building energy analysis computer programs	J1V1, J1V2, J1V3	H6V2	N/A	N/A
ASTM E2073-10	2010	Standard Test Method for Photopic Luminance of Photoluminescent (Phosphorescent) Markings	Spec 25	N/A	N/A	N/A
ASTM E72-15	2015	Standard Test Methods of Conducting Strength Tests of Panels for Building Construction	Spec 6	N/A	N/A	N/A
ASTM E695-03	2003	Standard Test Method of Measuring Relative Resistance of Wall, Floor and Roof Construction to Impact Loading	Spec 6	N/A	N/A	N/A

No.	Date	Title	Volume One	Volume Two	Housing Provisions	Volume Three
ASTM E903	2012	Standard Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials Using Integrating Spheres	N/A	N/A	13.2.3	N/A
ASTM E96	2016	Standard Test Methods for Water Vapor Transmission of Materials	Schedule 1	Schedule 1	Schedule 1	Schedule 1
AHRI 460	2005	Performance rating of remote mechanical-draft air-cooled refrigerant condensers	~~J5D13~~J6D13	N/A	N/A	N/A
AHRI 551/591	2015	Performance rating of water-chilling and heat pump water-heating packages using the vapor compression cycle.	Spec 33, ~~J5D11~~J6D11	N/A	N/A	N/A
ABCB	2011	Protocol for Structural Software, Version 2011.2	B1D5	H1D6	2.2.5	N/A
ABCB	2012	Standard for Construction of Buildings in Flood Hazard Areas, Version 2012.3	B1D6	H1D10	N/A	N/A
ABCB	2022	Fire Safety Verification Method	C1V4, D1V4, E1V1, E2V1, E3V1, E4V2	N/A	N/A	N/A
ABCB	2019	Standard for NatHERS Heating and Cooling Load Limits, Version 2019.1	~~J2D3~~J3D3	Spec 42	N/A	N/A
CIBSE Guide A	2015	Environmental design	Spec 34, Spec 35, ~~J3D3~~J4D3, ~~J3D7~~J4D7	N/A	N/A	N/A
N/A	2002	Disability Standards for Accessible Public Transport	F4D12~~F2D12~~, I2D1	N/A	N/A	N/A
N/A	2010	Education and Care Services National Law Act (Vic)	Schedule 2	Schedule 2	Schedule 2	Schedule 2
European Union Commission Regulation 547/2012	2012	Eco-design requirements for water pumps	~~J5D8~~J6D8	N/A	N/A	N/A
European Union Commission Regulation 622/Annexx II, point 2	2012	Eco-design requirements for glandless standalone circulators and glandless circulators integrated in products	~~J5D8~~J6D8	N/A	N/A	N/A