



Temporary Structures



2015

STANDARD



TEMPORARY STRUCTURES

STANDARD

2015

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¹ The Australian Building Codes Board (ABCB) is a joint initiative of all three levels of government in Australia and includes representatives from the building and construction industry, and the plumbing industry. The mission of the ABCB is to address issues relating to safety and health, and amenity and sustainability in the design and performance of buildings through the National Construction Code (NCC) Series, and the development of effective regulatory systems and appropriate non-regulatory solutions. This is set out in an inter-government agreement between the Commonwealth, States and Territories.

Preface

The ABCB has developed this Standard to enable State or Territory authorities responsible for regulatory matters associated with *temporary structures* to use it as the primary document of reference for *temporary structures* to be applied nationally.

This Standard is intended for use in the design, construction and use of *temporary structures*. It provides criteria for structural safety (particularly determining appropriate wind actions), fire safety (including fire resistance of materials, fire safety services and equipment, and egress), access, sanitary facilities and certain ancillary provisions.

Note:

It should be noted that adoption and application of this Standard is for the determination of each State or Territory authority responsible for regulatory matters associated with *temporary structures* and may be subject to legislative/transitional arrangements. Any queries on such matters should be directed to the relevant State or Territory authority (see **Appendix B**).

Acknowledgements

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The following organisations were represented on the reference group –

- Adelaide City Council
- Australian Temporary Structures
- Baytex
- Busselton Council
- Cardno
- Carlisle Events Hire
- Circus Federation of Australia
- City of Perth Council
- City of Sydney Council
- Coates Hire
- Environmental Health Australia (Western Australia) Incorporated
- Harry the Hirer
- H-Line Structures Australia
- Hire and Rental Industry Association Limited
- Inflate Australasia Pty Ltd
- Integrated Event Delivery Management Pty Ltd
- Lightweight Structures Association of Australia
- Joondalup Council
- Kehoe Myers
- Melbourne City Council
- Mellen Events
- Modular Building Industry Association Australia
- Moreton Hire
- Röder HTS Höcker GmbH trading as HTS Australia
- SEMF Pty Ltd
- Sitzler
- SpanIT Pty Ltd
- Victoria Racing Club Limited
- Western Australia Department of Health

The ABCBC acknowledges the use of certain content from the United Kingdom Made Up Textiles Association (MUTA) Best Practice Guide, *Safe Use and Operation of Temporary Demountable Fabric Structures*, within this Standard.

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PART 1 SCOPE AND GENERAL

1.1 General

Temporary structures are used for a variety of functions at public and private events. They may provide viewing facilities (temporary tiered seating), shelter (tents and marquees) and platforms and supports for performers (such as stages).

These types of *temporary structures* are commonly found at sporting events, such as motor racing and horse racing events, circuses, concerts and festivals and social occasions, such as weddings. Some *temporary structures* may be used by substantial numbers of people during major events. The fact that a structure is designed for temporary use does not change the overall expectation for safety.

Temporary structures may be required at very short notice and although the time available from concept to use at an event may be limited, it is essential to design structures to suit the specific intended purpose and to recognise that the key to the safety of *temporary structures* lies largely in proper planning and control of work practices.

In obtaining an approval for the use of these structures, contact with appropriate state or local authorities, such as municipal councils, fire authorities, health authorities and police may be necessary.

The safe use of *temporary structures* requires judgement based on experience and careful evaluation of relevant factors and each case should be evaluated on its individual circumstances. The application of on-site risk management or risk monitoring is a critical consideration in the planning, implementation and use of *temporary structures*.

The increased use and sophistication of *temporary structures* has highlighted the need to have suitable and consistent provisions in place nationally.

In recognition of these factors, the ABCB developed this Standard to enable State and Territory authorities to use it as the primary document of reference for the design, construction and use of *temporary structures*.

This Standard contains sections which are “normative” and “informative”. Normative provisions are mandatory i.e. must be met in order to comply with this Standard, whilst the informative provisions are non-mandatory and are provided for guidance only.

This Standard contains three informative appendices—

Appendix A – contains a recommended inspection checklist for assembled structures and a list of publications that provide further guidance.

Appendix B – contains an overview of each State and Territory’s legislative arrangements for *temporary structures*.

Appendix C – contains commentary on risk management and on-site monitoring principles.

1.2 Scope

This Standard contains criteria for the design, construction and use of *temporary structures*.

1.3 Limitation

This Standard does not contain requirements for permits or approvals, licensing and other similar administrative requirements associated with the use of *temporary structures*. See **Appendix B** for further information on State and Territory legislative requirements.

This Standard is not intended to apply to the following structures:

- portable toilets
- construction site sheds
- demountable classrooms or similar
- camping tents and awnings
- amusement rides
- shade sails
- construction hoardings and construction scaffolding, and
- temporary residential accommodation buildings.

PART 2 APPLICATION

(NORMATIVE)

The application of this Standard is determined by the relevant legislative provisions in each State and Territory (see **Figure 2.1**).

Comment:

Part 2 contains information on the structure, operation and application of this Standard. It includes definitions, a schedule of documents adopted by reference and requirements for suitability of materials.

2.1 Compliance with this Standard

Parts 3, 4, 5 and 6 of this Standard are mandatory and must be complied with in the design, construction and use of *temporary structures*.

Parts 3, 4, 5 and 6 of this Standard allow a choice of complying with the normative provisions prescribed within this Standard or for an alternative method to be developed. This allows for flexibility to develop solutions on a case by case basis. The alternate method pathway, if chosen, would need to be to the satisfaction of the *appropriate authority* and be fully documented.

Comment:

Formulating an alternative method:

Formulating an alternative method which complies with this Standard involves the application of engineering practice from first principles or undertaking a risk based assessment as an alternative to the normative provisions prescribed within this Standard.

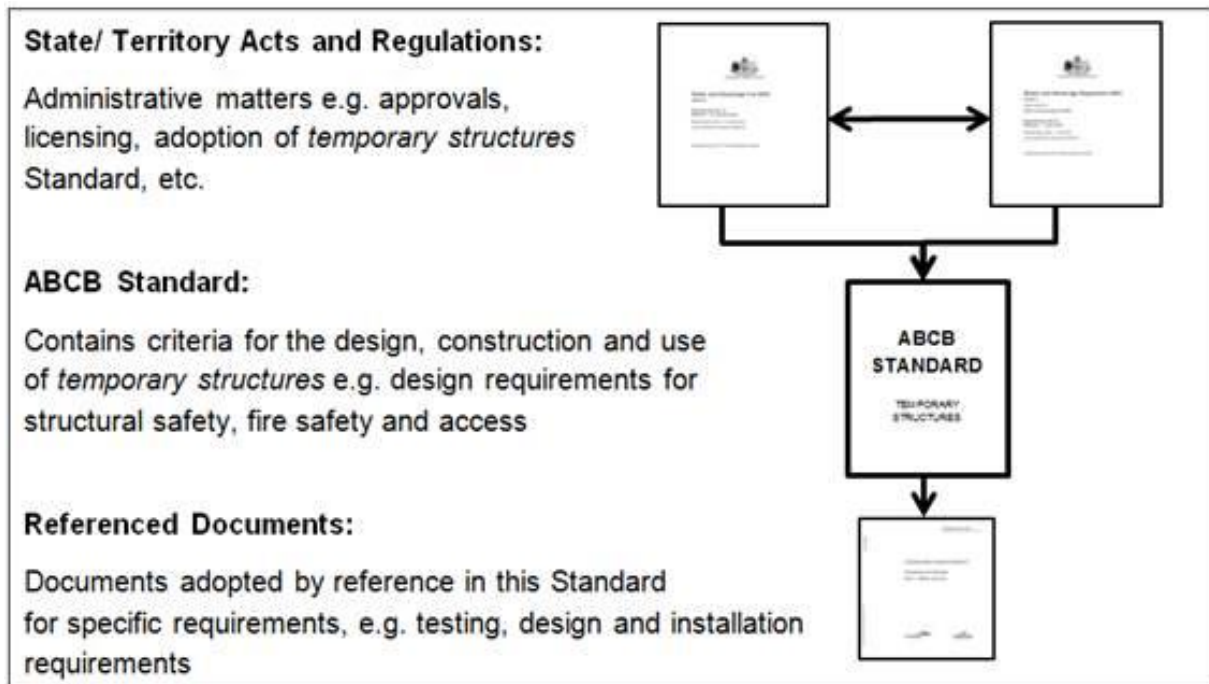
Alternative method example:

For the **Part 3** structural provisions of this Standard, the alternative method option would generally involve designing the structural system for the *temporary structure* in accordance with engineering practice from first principles.

The alternative method may propose reduction factors other than those prescribed in this Standard or in one of the international documents referenced in **clause 3.3**. These alternate factors may take account of an enhanced on-site monitoring strategy to accompany the use of the structure, the previously established use and performance of the structure, subject to verification of these factors by a qualified structural engineer with relevant experience.

The alternate method pathway, if chosen, would need to be to the satisfaction of the *appropriate authority* and be fully documented.

Figure 2.1 TYPICAL LEGISLATIVE STRUCTURE



Comment:

The typical legislative structure under which this Standard applies is illustrated in **Figure 2.1**.

Any provision of this Standard may be overridden by, or subject to, State and Territory legislation. This Standard therefore, must be read in conjunction with that legislation. Any queries on such matters should be referred to the State or Territory authority responsible for regulatory matters associated with *temporary structures*.

To assist users in determining the application of this Standard, commentary on State and Territory legislative arrangements is contained in **Appendix B**.

2.2 Definitions

Defined terms used within the text of this Standard are printed in italics. For the purposes of this Standard, the following definitions apply:

Term	Definition
Appropriate authority*	Means the relevant authority with the statutory responsibility to determine the particular matter.
Fabric membrane material	Means a thin flexible material that can be bent around a 6 mm-diameter rod, such as a polyvinyl chloride fabric, used in roof and/or wall coverings of a <i>temporary structure</i> .
Floor area	Means the amount of area, measured in square metres, taken up by the <i>temporary structure</i> . Supports located externally are excluded in

Term	Definition
	the <i>floor area</i> measurement.
Point of egress	Means the point of discharge from the <i>temporary structure</i> to open space.
Temporary structure(s)	Has the meaning assigned by the relevant State or Territory legislation or by the <i>appropriate authority</i> .

Comment:

Appropriate authority* - The *appropriate authority* for *temporary structures* may differ between States and Territories. In some cases the *appropriate authority* may be a municipal or private building certifier, State or Territory building control administration or health department.

2.3 Suitability of materials

- (a) Every part of a *temporary structure* must be constructed in an appropriate manner to achieve the requirements of this Standard, using materials that are fit for the purpose for which they are intended.
- (b) Evidence to support the use of a material, form of construction or design to satisfy the requirements of this Standard may be in the form of one or a combination of the following:
 - (i) A report issued by a registered testing authority, showing that the material or form of construction has been submitted to the tests listed in the report, and setting out the results of those tests and any other relevant information for its suitability for use.
 - (ii) A certificate from a professional engineer or other appropriately qualified person which—
 - (A) certifies that a material, design or form of construction complies with the requirements of this Standard; and
 - (B) sets out the basis on which it is given and the extent to which relevant specifications, rules, codes of practice or other publications have been relied upon.

Comment:

The suitability of materials requirement relates to the testing of products, permissible calculation methods and other relevant information to ensure that a material, form of construction or design is suitable.

2.4 Documents adopted by reference

The documents listed in **Table 2.4** are adopted by reference in this Standard.

Table 2.4 REFERENCED DOCUMENTS

No.	Date	Title
AS/NZS 1170		Structural design actions
Part 0	2002	General principles (Amdt 1, 3 and 4)
Part 1	2002	Permanent, imposed and other actions (Amdt 1 and 2)
Part 2	2011	Wind actions (Amdt 1, 2 and 3)
Part 3	2003	Snow and ice actions (Amdt 1)
AS 1288	2006	Glass in buildings – Selection and Installation (Amdt 1 and 2)
AS 1530		Methods for fire tests on building materials, components and structures
Part 2	1993	Test for flammability of materials (Amdt 1)
AS/NZS 1530		Methods for fire tests on building materials, components and structures
Part 3	1999	Simultaneous determination of ignitability, flame propagation, heat release and smoke release
AS 1562		Design and installation of sheet roof and wall cladding
Part 1	1992	Metal (Amdt 1, 2 and 3)
AS/NZS 1562		Design and installation of sheet roof and wall cladding
Part 2	1999	Corrugated fibre-reinforced cement
Part 3	1996	Plastics
AS 1657	2013	Fixed platforms, walkways, stairways and ladders – Design, construction and installation
AS/NZS 1664		Aluminum structures
Part 1	1997	Limit state design (Amdt 1)

No.	Date	Title
Part 2	1997	Allowable stress design (Amdt 1)
AS 1684		Residential timber-framed construction
Part 2	2010	Non-cyclonic areas (Amdt 1 and 2)
Part 3	2010	Cyclonic areas (Amdt 1)
Part 4	2010	Simplified – non-cyclonic areas (Amdt 1)
AS 1691	1985	Domestic oil-fired appliances – Installation
AS 1720 Part 1	2010	Timber structures – Design methods (Amdt 1 and 2)
AS 1860		Particleboard flooring
Part 2	2006	Installation (Amdt 1)
AS 2047	2014	Windows and external glazed doors in buildings
AS 2293		Emergency escape lighting and exit signs for buildings
Part 1	2005	System design, installation and operation (Amdt 1 and 2)
AS/NZS 2269		Plywood – Structural
Part 0	2012	Specifications
AS 2419		Fire hydrant installations
Part 1	2005	System design, installation and commissioning (Amdt 1)
AS 2444	2001	Portable fire extinguishers and fire blankets – Selection and location
AS/NZS 2918	2001	Domestic solid-fuel burning appliances – Installation
AS 3600	2009	Concrete structures (Amdt 1 and 2)
AS/NZS 4013	1999	Domestic solid fuel burning appliances – Method for determination of flue gas emission

No.	Date	Title
AS 4100	1998	Steel structures (Amdt 1)
AS/NZS 4256 Part 1 Part 2 Part 3 Part 5	1994 1994 1994 1996	Plastic roof and wall cladding materials General requirements Unplasticized polyvinyl chloride (uPVC) building sheets Glass fibre reinforced polyester (GRP) Polycarbonate
AS/NZS 4600	2005	Cold-formed steel structures (Amdt 1)
ANSI E1.21	2013	Entertainment Technology – Temporary Structures Used for Technical Production of Outdoor Entertainment Events
BS EN 13782	2015	Temporary structures – Tents – Safety
IStructE UK Third Edition	2007	Temporary demountable structures Guidance on procurement, design and use
NASH Standard Part 1 Part 2	2005 2014	Residential and Low-Rise Steel Framing Design Criteria (Amdt A, B and C) Design Solutions

Comment:

It should be noted that not all documents identified in **Table 2.4** may be applicable for each application.

Example:

This Standard permits the use of *fabric membrane material* for the roof and wall coverings of a *temporary structure*. Therefore, AS 1562.1 which relates to the requirements for the design and installation of metal sheet roof and wall cladding would not be applicable for that particular design/application.

However, if the *temporary structure* incorporated metal sheet roofing, then AS 1562.1 would be applicable for the design and installation of the roofing.

It should also be noted that the majority of the documents referred to do not contain specific provisions for *temporary structures*. Therefore, their application requires judgement based on evaluation of relevant factors and each case should be considered on its individual circumstances.

2.5 Language

Instructions or specifications that must be followed to achieve compliance with this Standard are given in the normative sections of this document. Terms such as “must” and “require” are used to help make this clear.

Where terms such as “should”, “may” and “recommend” are used, these are recommended practices or advice rather than compliance requirements and do not need to be followed to meet the requirements of this Standard.

A reference to the “NCC” in this Standard, means a reference to the relevant and current volume of the National Construction Code (NCC) Series.

2.6 Use of ‘notes’ and ‘comments’

‘Notes’ and ‘comments’ are used throughout this Standard—

NOTES – form part of the mandatory requirements of this Standard.

COMMENTS – are provided for guidance purposes only and do not form part of the mandatory requirements of this Standard.

PART 3 STRUCTURAL PROVISIONS

(NORMATIVE)

3.1 Application

The structural provisions of this Standard are satisfied by complying with—

- (a) 3.2 to 3.4; or
- (b) an alternative method which has been approved by the *appropriate authority*.

Comment:

Clause 2.1 and Part 3A provide further detail on formulating an alternative method.

3.2 Resistance to actions

The resistance of a *temporary structure* must be greater than the most critical action effect resulting from different combination of actions, where—

- (a) the most critical action effect on a *temporary structure* must be in accordance with 3.3 and the general design procedures contained in AS/NZS 1170.0; and
- (b) the resistance of a *temporary structure* is determined in accordance with 3.4.

3.3 Determination of individual actions

The magnitude of individual actions is determined in accordance with the following:

- (a) **Permanent actions:**
 - (i) the design or known dimensions of the *temporary structure*; and
 - (ii) the unit weight of the construction; and
 - (iii) one of the following:
 - (A) AS/NZS 1170.1
 - (B) BS EN 13782
 - (C) ANSI E1.21
 - (D) IStructE.
- (b) **Imposed actions:**
 - (i) the known loads that will be imposed during the occupation or use of the *temporary structure*; and
 - (ii) one of the following:
 - (A) AS/NZS 1170.1

- (B) BS EN 13782
 - (C) ANSI E1.21
 - (D) IStructE.
- (c) **Wind and snow actions:**
- (i) the applicable annual probability of design event for safety, determined by—
 - (A) assigning the *temporary structure* an Importance Level in accordance with **Table 3.3.1**; and
 - (B) determining the corresponding annual probability of exceedance for wind and snow actions in accordance with **Table 3.3.2**; and
 - (ii) for wind actions:
 - (A) the regional wind speeds for use in AS/NZS 1170.2 be determined in accordance with **Table 3.3.3** for the relevant wind region and reference period for which the *temporary structure* is erected; or
 - (B) using a comparative method in one or a combination of the following:
 - (aa) “special study” in accordance with AS/NZS 1170.0
 - (bb) BS EN 13782
 - (cc) ANSI E1.21
 - (dd) IStructE.
 - (iii) for snow actions: AS/NZS 1170.3.

Notes:

1. Where one of the international standards/documents referenced herein are proposed to be used, regard must be given to the corresponding Australian Standards, e.g. BS EN 13782 references BS 6399 Part 2 for determining the regional wind speeds for the United Kingdom. These wind speeds are not applicable for Australian conditions and must be replaced with the relevant provisions of the Australian Standard for wind actions – AS/NZS 1170.2.
2. Snow actions are only applicable to a *temporary structure* which will be used in an alpine area in a period prone to significant snow fall. Alpine area is a defined term in NCC Volumes One and Two and Volume Two contains a map of the defined alpine areas in Australia.
3. The design for permanent and imposed actions must be undertaken using consistent standards, e.g. if AS/NZS 1170.1 is used for determining permanent actions, it must also be used for the determination of imposed actions.

Table 3.3.1 IMPORTANCE LEVELS OF TEMPORARY STRUCTURES

Importance Level	Type of <i>temporary structure</i>
2	<i>Temporary structure</i> designed to contain not more than 300 people.
3	<i>Temporary structure</i> designed to contain more than 300 people.

Comment:

A generic description of *temporary structure* occupancy loads has been provided to which Importance Levels have been assigned. The “Importance Level” concept is applicable to structural safety only.

Importance Levels are to be assigned on a case by case basis. A general method for the determination of the Importance Level of any *temporary structure* is to assess the hazard to human life and the impact on the public in the event of failure of the structure.

The annual probability of exceedance for design events for safety varies with the type of action and Importance Level.

Table 3.3.2 DESIGN EVENTS FOR SAFETY

Importance Level	Probability of exceedance	
	Wind	Snow
2	1:500	1:50
3	1:1000	1:100

Table 3.3.3 REDUCTION FACTORS ON REGIONAL WIND SPEEDS

Wind region	Reference period		
	6 month duration	1 month duration	1 week duration
	Reduction factor on regional wind speed		
A	0.95	0.85	0.75
B	0.95	0.75	0.55
C	0.95	0.75	0.55
D	0.90	0.70	0.50

Notes:

1. The reference period in **3.3(c)** and **Table 3.3.3** refers to the time the *temporary structure* is erected and approved for occupation and use, not whilst being erected.
2. Interpolation is permitted for other reference periods not less than one week. If erected for a period less than one week, the one week factor is to be applied.
3. For structures erected in wind regions C and D i.e. cyclonic areas, in periods not prone to cyclone events, the wind actions for region A can be used.

3.4 Determination of structural resistance of materials and forms of construction

The structural resistance of materials and forms of construction must be determined in accordance with the following, as appropriate:

- (a) Concrete ballasts: AS 3600.
- (b) Steel floor, wall and roof frames, or other supporting steel framing: AS 4100, AS/NZS 4600 or NASH Standard Part 1 or 2.
- (c) Aluminium floor, wall and roof frames, or other supporting aluminium framing: AS/NZS 1664.1 or AS/NZS 1664.2.
- (d) Timber construction:
 - (i) Floor, wall and roof frames, or other supporting framing: AS 1720.1.
 - (ii) Wall and roof frames: AS 1684 Part 2, Part 3 or Part 4.
- (e) Glazed assemblies:
 - (i) In an external wall: AS 2047; and
 - (ii) Other glazed assemblies not covered by (i): AS 1288.
- (f) Roof and wall coverings:

- (i) Plastic sheet roofing: AS/NZS 1562.3, AS/NZS 4256 Parts 1, 2, 3 and 5.
- (ii) Metal roofing: AS 1562.1.
- (iii) Corrugated fibre-reinforced cement sheet roofing: AS/NZS 1562.2.
- (iv) Fibre-cement sheet and plywood sheet wall cladding: Part 3.5.3 of NCC Volume Two.
- (v) *Fabric membrane material* may be used as a roof and/or wall covering provided when used as a roof covering it is designed and installed to:
 - (A) avoid the potential for water ponding; and
 - (B) be taut in all directions and free from areas of wrinkling owing to uneven stressing; and
 - (C) if erected in an alpine area, in a period prone to significant snowfall, be able to resist the accumulation of snow.
- (vi) Air-supported structures and pneumatic structures may be used provided adequate air pressure is maintained for structural stability of the *temporary structure* while it is occupied.
- (g) Flooring:
 - (i) Particleboard structural flooring: AS 1860.2.
 - (ii) Plywood structural flooring: AS/NZS 2269.0.

Comment:

Not all the documents referred to in 3.4 may be applicable for each application. However, if materials and construction listed in 3.4 are used, they would need to comply with the requirements outlined in the relevant sub-clauses.

Example:

If a *temporary structure* contains particleboard structural flooring, it would need to comply with AS 1860.2 (Installation of particleboard flooring).

PART 3A STRUCTURAL PROVISIONS

(INFORMATIVE)

The intent of the structural provisions in this Standard is to ensure that a *temporary structure* has sufficient strength to resist the actions to which it will be subjected.

Wind forces in particular are a critical consideration in the design, construction, erection and dismantling of these structures. The design should ensure the transfer of wind forces to the ground or supporting structure, with an adequate safety margin to prevent collapse of the structure or the building being lifted or slid off its supporting foundations.

To resist these forces it is necessary to have—

- (a) an anchorage system, where the roof is connected by the walls to the supporting foundations by a chain of connections, or if no walls are in place, to supporting columns or similar; and
- (b) a bracing system to prevent horizontal collapse due to wind forces; and
- (c) continuity of the system where each structural element is interlocked to its adjoining structural element throughout the structure.

The structural adequacy of a *temporary structure* is generally proven by calculation verified by a qualified structural engineer. As a minimum, such calculations should include the permanent actions, maximum likely imposed actions and the wind actions for which the structure has been designed to resist.

Structural provisions of Part 3

Part 3 is set out in the same manner as the corresponding structural provisions in Section B of NCC Volume One. Primarily, **Part 3** relates to the determination of permanent and imposed actions and wind and snow actions that a *temporary structure* must resist and the acceptable materials and forms of construction.

Part 3 provides a concession to the structural provisions in Section B of NCC Volume One. Primarily, the concession contains reduced design factors for the annual probability of exceedance for wind and snow actions.

The requirement to consider snow actions would only apply where a structure is to be erected in an alpine area where significant snow fall is likely to occur and would result in increased structural loading on the *temporary structure*.

Applying Part 3

Temporary structures are required to be assigned an “Importance Level” based on the number of occupants. Importance Levels are determined by using **Table 3.3.1**.

- *Temporary Structures* used for public assembly events would generally be assigned an Importance Level of 3 (major structure affecting crowds), because in the event of failure there is a potential to cause a high level of hazard to human life.

Once the Importance Level is established, the annual probability of exceedance of design events can be determined. The annual probability of exceedance is determined by using **Table 3.3.2**.

- For determination of wind actions, AS/NZS 1170.2 specifies the principles to be applied. **Table 3.3.3** provides reduction factors that can be applied to the corresponding regional wind speeds from those contained in AS/NZS 1170.2. The regional wind speeds are dependent on the relevant wind region and the reference period for which the structure is erected, and approved for occupation and use.
- Other factors from AS/NZS 1170.2 such as shielding, topography, shape of structure, etc. are still applicable to *temporary structures* but can be applied taking account of the reduced regional wind speed factors.
- The ABCB Standard lists a number of international standards/documents as acceptable alternative options. The international standards/documents referenced are specific to *temporary structures* and a number also contain reduction factors which can be applied.
- **Clause 3.3(b)(ii)** also allows for a “special study” to be undertaken in accordance with AS/NZS 1170.0.

The reduction factors provided in **Table 3.3.3** have been derived from probabilistic modelling for actions and resistances carried out by C.H. Wang and L.Pham, and published in their 2011 research paper (*C-H Wang and L Pham ,2011, “Design wind speeds for temporary structures” –Ecosystem Sciences, CSIRO, Melbourne, Australian Journal of Structural Engineering, Vol 12 No 2*). The probabilistic modelling is in accordance with the NCC Volume One Section B methodology for specifying “design events” for which buildings and structures must be designed based on the annual probabilities of exceedance for the specified events.

Formulating alternative methods to Part 3:

As with other Parts of this Standard, **Part 3** allows a choice of complying with the normative provisions within this Standard or for an alternative method to be developed. The alternative method option allows for flexibility to develop solutions on a case by case basis.

For the **Part 3** structural provisions of this Standard, the alternative method option would generally involve designing the structural system for the *temporary structure* in accordance with engineering practice from first principles.

The alternative method may propose to use other design actions than those prescribed in this Standard. These alternate design actions may take account of an enhanced on-site monitoring strategy to accompany the use of the structure, the previously established use and performance of the structure, subject to verification of these factors by a qualified structural engineer with relevant experience.

The alternate method pathway, if chosen, would need to be to the satisfaction of the *appropriate authority* and be fully documented.

Tents, marquees, stages and tiered seating or viewing structures

It should be noted that the structural requirements of this Standard are applicable to not just tents, marquees or the like but apply equally to stages, seating structures and other similar types of *temporary structures*.

Although the structural provisions of this Standard do not differentiate between types of *temporary structures*, useful information on provisions for the different types of *temporary structures* can be found in the United Kingdom Institute of Structural Engineers publication: *Temporary demountable structures - Guidance on procurement design and use, 3rd edition* (IStructE 2007).

The IStructE publication contains chapters for specific design parameters for grandstands (Chapter 9), stages and similar structures (Chapter 10), tents and marquees (Chapter 11) and ancillary and special structures (Chapter 13).

The IStructE publication also has useful information on ground and site conditions (Chapter 6), such as determining ground bearing pressures for the structure and its supporting members.

Commentary on risk monitoring strategies

In applying the structural provisions of **Part 3**, particularly where reduced design factors are used in the design, consideration should be given to the implementation of a monitoring strategy for the particular event at which the *temporary structure* will be used and consideration given to the following factors:

1. Suitable monitoring systems, e.g. action plans should be in place to continuously assess the wind conditions at each site and procedures implemented to take early preventative action if necessary.
2. Site managers should be informed of the design wind load of the *temporary structure* and given instructions to evacuate should the design wind load be in danger of being exceeded. A wind monitoring plan, incorporating when specific measures are required, should be developed and provided to those purchasing or hiring the structure or using the structure.

3. Types of monitoring strategies could include placing an anemometer on the structure to monitor site wind speeds. The purpose of monitoring the site wind speed is due to the structures generally being designed to take account of a safe working wind speed and an ultimate wind speed the structure can withstand. Once winds reach certain levels, specific measures may need to be implemented.
4. Site managers should be alert to early warning of approaching adverse weather conditions. This monitoring strategy may include monitoring of weather forecasts from the Australian Bureau of Meteorology.
5. Another matter which requires monitoring is guy ropes used for anchoring the structure which, in strong winds, may loosen and may need regular tightening. Other supporting members may also need to be checked for movement.

Although these management and monitoring strategies are beyond the scope of this Standard, useful information on these types of strategies can be found in the IStructE publication and the United Kingdom Made Up Textiles Association's (MUTA), Best Practice Guide, *Safe Use and Operation of Temporary Demountable Fabric Structures* publication.

It is therefore recommended that advice be sought from the relevant *appropriate authority* for the jurisdiction in which the *temporary structure* will be erected for the types of on-site management measures required.

Commentary on anchorage requirements

Part 3 does not provide specific provisions for ground anchorage systems due to their design being influenced by numerous variable factors, such as site conditions, bearing capacity of soil, number of occupants, size and shape of structure, and the proprietary nature of many systems in use.

However, in determining the appropriate ground anchorage requirements for the *temporary structure*, the general structural provisions of **Part 3** apply. This includes applying the engineering principle factors from the AS/NZS 1170 suite, or one of the international standards/documents referenced herein, taking account of any reduced regional wind speed factors applied.

The following guidance is provided in relation to determining the appropriate ground anchorage requirements for *temporary structures* that rely on guy ropes or similar for support:

1. Anchors are critical to the stability and safety of *temporary structures*. The pull out force that an anchorage stake can withstand depends on the type of soil, its moisture content, the inclination of the anchor and the depth of the anchor.
2. Loose, non-cohesive soils provide the least resistance and may require special anchors. In these situations pull-out tests would be expected in order to verify the anchorage resistances.

3. Each connector should be capable of carrying uplift force, because the ability of a *temporary structure* to resist the wind forces is directly related to its weakest link.
4. Where ground penetration is not possible, a system of ballast weights can be used as a means of resisting uplift forces provided it can be demonstrated by calculation or other suitable means that the system will perform adequately.
5. Integral wooden flooring will contribute to the anchorage by virtue of its weight, but is unlikely to resist all uplift force alone.
6. Anchorage should always be in accordance with the manufacturer's manual and be consistent with the design documentation.
7. Every upright should be anchored even if uplift forces are countered at the main anchor points, as lateral movement can destabilise the structure.
8. All uprights should have a means to spread the load at the base to prevent sinking when erected on soft ground. It is also essential to ensure the security of stabilising anchorages (stakes, ballasts, etc.) at all times.
9. Stakes and ropes near exits or other walking routes should be fenced off or clearly marked to prevent members of the public from walking into or tripping over them.
10. Purpose-designed stakes with defined heads and/or eyes for rope attachment are generally preferred since they do not need to project significantly above the surface. This provides superior anchorage as well as reducing the risk of tripping. Where necessary, consideration should be given to protecting the heads of any projecting stakes with a suitable padding.
11. If heavy rain or flooding occurs, the loadbearing capacity of the ground may be reduced, guy ropes may slacken and anchorages may become loosened.

Commentary on bracing for temporary structures

Part 3 does not provide specific provisions for bracing systems for *temporary structures* due to their design being influenced by numerous variable factors, such as site conditions, size and shape of structure, and the proprietary nature of many systems in use.

However, in determining the appropriate bracing requirements for the *temporary structure*, the general structural provisions of **Part 3** apply. This includes applying the engineering principle factors from the AS/NZS 1170 suite, or one of the international standards/documents referenced herein, taking account of any reduced regional wind speed factors applied.

The following guidance is provided in relation to determining the appropriate stability and bracing requirements for *temporary structures*:

1. Roof and wall bracing are an integral part of most framed *temporary structures* and should be installed in accordance with the manufacturer's instructions.

2. Roof panels consisting of *fabric membrane material* should be sufficiently tensioned to avoid ponding.
3. On uneven ground, such as variations in ground level greater than 500 mm, the excessive use of packing is discouraged. Specialist platforms or scaffolding should be considered for variations in ground level and special attention given to the anchorage system.
4. Where *temporary structures* are erected on a scaffold grid or similar platform, the grid or platform should comply with AS/NZS 4576:1995, and the *temporary structure* be designed taking account of it being placed on the elevated platform. The structural loading provision for structures placed on scaffold grids or platforms where used, must be designed in accordance with AS/NZS 1170.1 (or one of the international standards/documents referenced herein), and structures designed to appropriate design standards referenced herein, then installed to AS/NZS 4576.
5. All relevant design information should be provided to the hirer or purchaser of the structure, e.g. design wind load, anchorage load, point load, occupancy level etc. in the form of an operation manual.

Commentary on load notices

It is recommended that, where possible, a notice showing the maximum permissible actual distributed and concentrated load and maximum occupancy capacity the *temporary structure* has been designed for, be displayed in a prominent location on the *temporary structure*. This information should also be contained within the design documentation for the *temporary structure* and may as an alternative to having a load notice fixed to the structure, be clearly stated in the design documentation for the structure and be provided to the *appropriate authority* and site manager.



PART 4 FIRE SAFETY

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Part 4.1 Fire Resistance

(NORMATIVE)

4.1.1 Application

The fire resistance provisions of this Standard are satisfied by complying with—

- (a) 4.1.2 to 4.1.4; or
- (b) an alternative method which has been approved by the *appropriate authority*.

4.1.2 Fire resisting material

- (a) Roof and/or wall coverings of a *temporary structure* (including any additional lining attached to the structure) must comply with the fire hazard properties set out in **Table 4.1.2**.
- (b) (a) does not apply to tiered seating and viewing structures or stages without wall or roof coverings.

Table 4.1.2 FIRE HAZARD PROPERTIES

Location	Flammability Index	Spread-of-Flame Index	Smoke-Developed Index
For roof and/or wall coverings:			
(a) Within 4 m of the base of the <i>temporary structure</i> and for air-supported <i>temporary structures</i> (without other supporting framework)	6	9	8
(b) In every other case	25	9	8

Notes:

1. In determining fire hazard properties as set out in **Table 4.1.2**:
 - (i) Flammability Index – means the index number as determined by AS 1530.2.
 - (ii) Spread-of-Flame Index – means the index number for spread-of-flame as determined by AS/NZS 1530.3.
 - (iii) Smoke-Developed Index – means the index number for smoke development as determined by AS/NZS 1530.3.
2. If a material achieves a lower index number for a particular test to those prescribed in **Table 4.1.2**, it is still required to satisfy the other prescribed indices.

4.1.3 Separation between structures

- (a) A *temporary structure* must be separated from another *temporary structure* or an existing permanent building in accordance with **Table 4.1.3**.
- (b) Where separation in accordance with (a) is not provided, fire fighting provisions in accordance with **4.2.2** must be provided.

Table 4.1.3 SEPARATION BETWEEN TEMPORARY STRUCTURES

	Separation distances between a <i>temporary structure</i> and another <i>temporary structure</i> or an existing permanent building
<i>Temporary structure</i> with a floor area of not more than 750 m ²	1.5 m
<i>Temporary structure</i> with a floor area more than 750 m ² but not more than 3000 m ²	3 m
<i>Temporary structure</i> with a floor area more than 3000 m ²	6 m

Notes:

- Multiple *temporary structures* may be combined to make one larger *temporary structure* provided the combined total floor area of the *temporary structures* is used to determine the separation requirements.
- If fire fighting provisions are provided in accordance with **4.2.2**, the separation requirements of **Table 4.1.3** need not be provided.
- In determining the separation requirements, if one *temporary structure* has a larger floor area than the opposing *temporary structure*, the separation distances for the larger *temporary structure* are to be used.

4.1.4 Combustible materials placed/stored beneath tiered structures and stages

The area beneath tiered seating, viewing structures, elevated platforms and stages must not be used for storage of combustible materials.

Comment:

Examples of combustible materials include but are not limited to paper waste, wooden off cuts and cardboard storage boxes.

Part 4.2 Fire Fighting Equipment

(NORMATIVE)

4.2.1 Application

The fire fighting equipment provisions of this Standard are satisfied by complying with—

- (a) 4.2.2 and 4.2.3; or
- (b) an alternative method which has been approved by the *appropriate authority*.

4.2.2 Access to fire hydrants or providing water for fire fighting

Where the separation distance required by 4.1.3 is not provided, the following provisions apply:

- (a) A *temporary structure* with a *floor area* more than 750 m² but not more than 3000 m² must be located so that any part of the *temporary structure* is not more than 90 m from:
 - (i) a fire hydrant; or
 - (ii) water storage with connections for fire fighting in accordance with the requirements of AS 2419.1 and containing not less than 10 000 litres of water, where a fire hydrant is not available.
- (b) A *temporary structure* having a *floor area* more than 3000 m² must be located so that any part of the *temporary structure* is not more than:
 - (i) 90 m from one fire hydrant and 120 m from a second fire hydrant; or
 - (ii) 90 m from water storage with connections for fire fighting in accordance with the requirements of AS 2419.1 and containing not less than 36 000 litres of water, where fire hydrants in accordance with **(b)(i)** are not available.

Notes:

1. Multiple *temporary structures* may be combined to make one larger *temporary structure* provided the combined total *floor area* of the *temporary structures* is used to determine the requirements of 4.2.2.
2. Water storage in accordance with 4.2.2(a)(ii) and 4.2.2(b)(ii) can be in the form of an onsite tank, mobile water storage device, or access to another source of water supply such as a dam, a lake, a sea, etc. Any combination of these may be used provided they make up the required water storage capacity.

4.2.3 Portable fire extinguishers

Portable fire extinguishers must be provided in accordance with **Table 4.2.3**.

Table 4.2.3 REQUIREMENTS FOR PORTABLE FIRE EXTINGUISHERS

Requirements for extinguishers	Risk Class (as defined in AS 2444)	Location/type/number
All enclosed <i>temporary structures</i>	Class AE or E fire risk	One 4.5kg AB (E) dry chemical powder extinguisher located adjacent to any generator or switchboard
	Class F fire risk	One 4.5kg AB (E) dry chemical powder extinguisher located adjacent to any cooking area
	Class B fire risks	One 4.5kg AB (E) dry chemical powder or foam type extinguisher located adjacent to any flammable liquid or gas container
	Class A fire risks	One 4.5kg AB (E) dry chemical or pressurised water type extinguisher for every 100 m ² of <i>floor area</i> of the <i>temporary structure</i> and where more than one extinguisher is required, they must be— (a) distributed evenly; and (b) be located within 5 m of a <i>point of egress</i> from the structure

Notes:

The *appropriate authority* may require additional portable fire extinguishers be provided to cover fire risks in relation to special hazards associated to the use of the structure. This could include events where fireworks or pyrotechnics are to be used within or in close proximity to the *temporary structure*.

The appropriate location of portable fire extinguishers is to be determined in consultation with the *appropriate authority*.

Other types of portable fire extinguishers to those prescribed in **Table 4.2.3** may also be used provided they are selected, located and distributed in accordance with AS 2441.

Part 4.3 Egress Provisions

(NORMATIVE)

4.3.1 Application

The egress provisions of this Standard are satisfied by complying with—

- (a) **4.3.2 to 4.3.5;** or
- (b) an alternative method which has been approved by the *appropriate authority*.

4.3.2 Number of points of egress required

- (a) **Tents, marquees or similar –**
 - (i) The number of *points of egress* from a tent, marquee or similar enclosed *temporary structure* must be determined in accordance with **Table 4.3.2**; and
 - (ii) Where a tent, marquee or similar enclosed *temporary structure* has more than one storey, every storey above the ground storey must have-
 - (A) a stairway or ramp leading to a *point of egress*; and
 - (B) not less than 2 stairways or ramps leading to a *point of egress* if that storey accommodates more than 50 persons.
- (b) **Stages –** Must have a minimum of 2 *points of egress* from the backstage area.
- (c) **Tiered seating or viewing structure or similar –**
 - (i) Every tiered seating or viewing structure must have a minimum of 2 *points of egress*; and
 - (ii) For a tiered seating or viewing structure containing more than one tier of seating, every tier must have not less than 2 stairways or ramps, each leading to a *point of egress*.

Table 4.3.2 NUMBER OF POINTS OF EGRESS REQUIRED

Persons accommodated	Number of <i>points of egress</i> required
1-50	1
51-200	2
201-400	3
401-600	4

Persons accommodated	Number of <i>points of egress</i> required
601-1000	5
Over 1000	5 plus one additional <i>point of egress</i> for each additional 450 persons or part thereof

Note:

Points of egress must be spaced as evenly as possible around the perimeter of the structure.

4.3.3 Dimensions for points of egress and paths of travel to points of egress

- (a) **Tents, marquees or similar** – A *point of egress* or path of travel to a *point of egress* from a tent, marquee or similar enclosed *temporary structure* must be determined in accordance with **Table 4.3.3** and have an unobstructed height throughout of not less than 2 m, except the unobstructed height of any doorway may be reduced to not less than 1980 mm.

Table 4.3.3 WIDTH OF POINTS OF EGRESS FROM AN ENCLOSED TEMPORARY STRUCTURE

Persons accommodated	Minimum aggregate width of <i>points of egress</i> (mm)
1-25	1000
26-50	1500
51-75	2000
76-100	2500
101-200	3000
201-400	4000
401-600	6000
601-800	7500
801-1000	9000
Over 1000	9000 plus 500 mm for each additional 50 persons or part thereof

Notes:

1. Refer to **Table 4.3.2** for number of required *points of egress*.
 2. Required widths may be reduced by 200 mm at doorways.
- (b) **Stages** – A *point of egress* or path of travel to a *point of egress* from the backstage area of a stage must have—
- (i) an unobstructed height throughout of not less than 2 m, except the unobstructed height of any doorway may be reduced to not less than 1980 mm; and
 - (ii) an unobstructed width of not less than 1 m, except the width may be reduced by 200 mm at doorways.
- (c) **Tiered seating or viewing structures or similar** – The dimensions of *points of egress* for a tiered seating or viewing structure or similar must be determined in accordance with the relevant provisions for open spectator stands in D1.6 in NCC Volume One as if the *points of egress* were exits.

4.3.4 Egress travel distances

- (a) **Tents, marquees, or similar**– The maximum travel distance to a *point of egress* in a tent, marquee, or similar enclosed *temporary structure* must be not more than 40 m where only *one point of egress* is provided and 60 m where more than one *point of egress* is provided.
- (b) **Stages** – The maximum travel distance to a *point of egress* from the backstage area of a stage must be not more than 40 m.
- (c) **Tiered seating or viewing structures or similar** – The maximum travel distance to a *point of egress* from a tiered seating or viewing structure or similar must be not more than 60 m.

4.3.5 Egress doors and curtains across points of egress

- (a) All *point of egress* doors in a *temporary structure* must open outwards.
- (b) Where a flap or curtain is used to cover a *point of egress* it must be designed so that, when it is secured, it will not obstruct or impede egress.

Part 4.4 Emergency Lighting and Exit Signs

(NORMATIVE)

4.4.1 Application

The emergency lighting and exit sign provisions of this Standard are satisfied by complying with—

- (a) 4.4.2 to 4.4.6; or
- (b) an alternative method which has been approved by the *appropriate authority*.

4.4.2 Emergency lighting

- (a) An emergency lighting system must be installed in an enclosed *temporary structure* having a *floor area* more than 500 m², if the *temporary structure* is intended for use outside the hours of daylight, or in the absence of natural daylight, where a minimum illumination level of 0.2 lux is not achieved at floor level; and
- (b) any area that is used primarily for storage is excluded when calculating the *floor area* of the *temporary structure* for the purpose of determining emergency lighting requirements.

4.4.3 Design and operation of emergency lighting

An emergency lighting system required by 4.4.2 must activate upon failure of the power supply to the normal lighting in the *temporary structure* and use light fittings that—

- (a) comply with the requirements of AS/NZS 2293.1; or
- (b) provide a minimum illumination of 0.2 lux at floor level for—
 - (i) 30 minutes for a structure designed to accommodate not more than 1000 persons; and
 - (ii) 1 hour for a structure designed to accommodate more than 1000 persons.

4.4.4 Exit signs

Exit signs must be provided for an enclosed *temporary structure*.

4.4.5 Direction signs

If a *point of egress* from a stage or seating structure is not readily apparent to persons occupying the structure, directional signage must be installed in appropriate positions in corridors, lobbies, aisles, crossovers, or the like, indicating the direction to the *point of egress*.

4.4.6 Design and operation of exit signs

An exit sign required by 4.4.4 must—

- (a) be clearly visible at all times when the structure is occupied and be either—
 - (i) photoluminescent exit signs complying with Specification E4.8 of NCC Volume One; or
 - (ii) electrically illuminated exit signs complying with AS/NZS 2293.1; and
- (b) be placed over any door, flap or opening leading to a *point of egress* from the structure; and
- (c) be positioned between 2 m and 2.5 m above the floor; and
- (d) be illuminated whenever the public are present within the structure, including when the main lighting in the structure is dimmed or extinguished.

PART 4A FIRE SAFETY

(INFORMATIVE)

The fire safety provisions of this Standard place a greater emphasis on occupant egress rather than measures to control or suppress fires. This is achieved by prescribing provisions for:

- Fire resistance of materials
- Separation between structures
- Fire fighting equipment, where separation between structures is not provided
- Egress
- Emergency lighting and exit signs.

The publications listed below contain useful information on fire safety associated with *temporary structures* and at events where *temporary structures* are used:

- Fire Safety Risk Assessment – Small and Medium Places of Assembly and Fire Safety Risk Assessment – Large Places of Assembly (2006), available from the UK Department for Communities and Local Government.
- Fire Safety Risk Assessment – Open Air Events and Venues (2007), available from the UK Department for Communities and Local Government.

Part 4.1 Fire resistance

Part 4.1 of the Standard prescribes requirements for the fire resistance of materials, separation between structures and restrictions on the storage of combustible materials under the structure. These requirements are discussed below:

Fire resistance testing of materials

This Standard requires materials used for roof and/or wall coverings including attached linings, in *temporary structures* be tested and to meet prescribed fire and smoke related indices. This is to assist in maintaining a tenable environment to allow the occupants time to evacuate in the event of a fire.

Materials used are required to be tested for flammability, spread-of-flame and smoke-development.

In determining the flammability index, spread-of-flame index and smoke-developed index a lower index number indicates better performance. The index is based on the logarithmic scale of 0 to 10 (for flammability index 0-100).

Separation between structures

It is important that the spread of fire and the development of smoke be limited during a fire until occupants of the *temporary structure* have time to evacuate. As such, *temporary structures* are to be separated to reduce the possibility of the spread of fire between *temporary structures* and between a *temporary structure* and an existing permanent building.

The Standard prescribes different separation distances depending on the *floor area* of the *temporary structure*.

Site managers should ensure that the separation spaces provided are not used for any purpose that could contribute to the spread of fire.

Fire fighting equipment, where separation between structures is not provided

Where the separation distances prescribed by 4.1.3 are not able to be provided, fire fighting provisions in accordance with 4.2.2 are required to be provided.

Additionally, the separation distances prescribed by 4.1.3 need not be provided if fire equipment in accordance with 4.2.2 is provided.

Access to fire hydrants or providing water for fire fighting: The fire-fighting provisions of 4.2.2 seek to ensure that adequate water, under sufficient pressure and flow as prescribed in AS 2419.1, is provided to allow intervention from fire brigades to control or limit the spread of a fire until occupants have time to evacuate.

Similar to 4.1.3, 4.2.2 prescribes different fire fighting provisions based on the *floor area* of the *temporary structure* and provides a number of options:

- relying on existing fire hydrant systems, where available; or
- having another type of water storage such as:
 - a tank or tanks, or a mobile water storage tanker; or
 - nearby permanent water supply such as a dam, a lake, a sea, etc.; or
 - a combination of these provided they make up the required water storage capacity.

Portable fire extinguishers: 4.2.3 applies to all enclosed *temporary structures*. 4.2.3 requires portable fire extinguishers to be installed and includes requirements for specific types of extinguishers to deal with the specific types of hazards which may be associated with the use of the *temporary structure*.

Formulating alternative methods to Part 4:

It should be noted, as with other **Parts** of this Standard, **Part 4** allows a choice of complying with the normative provisions prescribed within this Standard or for an

alternative method to be developed. The alternative method option allows for solutions to be developed on a case by case basis.

For the **Part 4** fire safety provisions of this Standard, the alternative method option would generally involve a risk based assessment be undertaken, taking into account the use of the structure, the extent of combustible items stored and used within the structure, the siting of the structure, the relative openness of the structure whilst in use, the location of available services, the availability of the fire brigade to be able to attend and other similar considerations.

The alternate method pathway, if chosen, would need to be to the satisfaction of the *appropriate authority* and be fully documented.

Commentary on requirements for emergency vehicular access

This Standard does not contain provisions for emergency vehicular access to a *temporary structure* as they would generally be considered as part of the broader permit/approval/licensing administrative requirements for events where *temporary structures* are used. (see **Appendix B** for further information on State and Territory administrative requirements).

Provisions for emergency vehicular access to a *temporary structure* are not prescribed in this Standard due to the difficulties that arise in requiring a *temporary structure* to meet the types of measures required for permanent buildings. *Temporary structures* may be erected in an open field or a remote location that would not be serviced by permanent access routes e.g. a tiered seating structure erected in a remote setting on a golf course.

Where it is determined as part of permit/approval/licensing requirements that emergency vehicular access is required, the following guidance is provided:

1. In situations where a *temporary structure* or a group of adjacent *temporary structures* have a *floor area* greater than 3000 m², where practical, the site should be arranged to allow access for emergency vehicles to within 50 m of part of the *temporary structure(s)*.
2. Vehicular access routes would generally be not less than 6 m wide, having no overhead structure or cable less than 4.5 m above the ground and be capable of taking the weight of emergency vehicles.
3. Site managers should also ensure that designated vehicular access routes are kept clear of obstructions at all times when the *temporary structure* is in use. This may be in the form of roping or installing bollards or other similar physical barriers.

Commentary on special hazards associated with the use of a temporary structure

A number of the publications listed in **Appendix A1** (and below) contain useful information in relation to risk based assessments and mitigation strategies associated with special hazards.

Special hazards could include where fireworks or pyrotechnics or cooking or heating appliances are to be used within, or in, close proximity to the *temporary structure*.

Useful guidance can be found in the following publications:

- AS/NZS ISO 31000: 2009 Risk Management – *Principles and guidelines*.
- UK Department for Communities and Local Government 2006, *Fire Safety Risk Assessment – Large Places of Assembly*, available from the UK Department for Communities and Local Government.
- UK Department for Communities and Local Government 2006, *Fire Safety Risk Assessment – Small and Medium Places of Assembly*, available from the UK Department for Communities and Local Government.
- UK Department for Communities and Local Government 2007, *Fire Safety Risk Assessment – Open Air Events and Venues*, available from the UK Department for Communities and Local Government.
- Western Australian Department of Health, *Guidelines for concerts, events and organised gatherings*, available from the Western Australian Department of Health.
- Energy Safe Victoria, *Code of Practice for the Safe Use of LP gas at Public Events in Victoria*.



PART 5 ACCESS AND SANITARY FACILITIES

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Part 5.1 Safe Movement and Access

(NORMATIVE)

5.1.1 Application

The safe movement and access provisions of this Standard are satisfied by complying with—

- (a) 5.1.2 to 5.1.9; or
- (b) an alternative method which has been approved by the *appropriate authority*.

5.1.2 Pedestrian ramps

- (a) A ramp serving an entrance or *point of egress* must have a gradient not steeper than 1:14, and be provided with a suitable non-slip surface.
- (b) Ramps must be provided with landings at the top and bottom of the ramp and at intervals not more than 15 m.

5.1.3 Stairway construction

- (a) A stairway must have:
 - (i) not more than 18 and not less than 2 risers in each flight; and
 - (ii) going (G) and riser (R) and slope relationship ($2R+G$) in accordance with **Table 5.1.3**, except as permitted by **(b)**, and
 - (iii) goings and risers that are constant throughout one flight, except as permitted by **(b)**; and
 - (iv) risers which do not have any openings that would allow a 125 mm sphere to pass through between treads; and
 - (v) treads of solid construction (not mesh or other perforated material) if the stairway is more than 10 m high or connects more than 3 storeys; and
 - (vi) treads which have a non-slip finish or a non-skid strip near the edge of the nosings; and
 - (vii) landings may be used to limit the number of risers in each flight and must be not less than 750 mm long.
- (b) Where a stairway discharges to a sloping public walkway, road or similar—
 - (i) the riser (R) may be reduced to account for a slope of the walkway or road; and
 - (ii) the quantity ($2R+G$) may vary at that location.

- (c) The dimensions of goings (G) and risers (R) in accordance with (a) are considered constant if the variation between—
- (i) adjacent risers, or between adjacent goings, is no greater than 5 mm; and
 - (ii) the largest and smallest riser within a flight, or the largest and smallest going within a flight, does not exceed 10 mm.

Note:

For the purpose of **Part 5.1**, a flight means that part of a stairway that has a continuous series of risers not interrupted by a landing or floor.

Table 5.1.3 RISER AND GOING DIMENSIONS (mm)

Riser (R)		Going (G)		Slope Relationship (2R+G)	
Max	Min	Max	Min	Max	Min
190	115	355	250	700	550

5.1.4 Barriers to prevent falls

- (a) A continuous barrier to prevent falls must be provided along the side of—
- (i) a roof to which general access is provided; and
 - (ii) a stairway or ramp; and
 - (iii) a floor, corridor, hallway, balcony, deck, verandah, mezzanine, access bridge or the like; and
 - (iv) along the side of any delineated path of access to a *temporary structure*,
- if the trafficable surface is 1 m or more above the surface beneath.
- (b) The requirements of (a) do not apply to—
- (i) the perimeter of a stage, rigging loft, or the like: or
 - (ii) areas referred to in 5.1.7.
- (c) A barrier required by (a) must be constructed in accordance with 5.1.5.

5.1.5 Barrier construction

- (a) The height of a barrier must be in accordance with the following:
- (i) The height must be not less than 865 mm above the nosing line of the stair treads or the floor of a ramp with a gradient not less than 1:20.
 - (ii) The height must be not less than—

- (A) 1 m above the floor of any access path, balcony, landing or the like where the path of travel has a gradient less than 1:20; or
 - (B) 865 mm above the floor of a landing to a stair or ramp where the barrier is provided along the inside edge of the landing and does not exceed a length of 500 mm.
- (iii) The height of a barrier may be reduced to 700 mm above the floor in situations where it would interfere with sightlines if a horizontal projection is provided which extends not less than 1 m outwards from the top of the barrier.
- (b) A transition zone may be incorporated where the barrier height changes from 865 mm on the stair flight or ramp to 1 m at the landing.
 - (c) Openings in a barrier must be constructed so that they do not permit a 125 mm sphere to pass through it and for stairs, the opening is measured above the nosing line of the stair treads.
 - (d) A barrier must be designed to take loading forces in accordance with AS/NZS 1170.1.
 - (e) For floors more than 4 m above the surface beneath, any horizontal elements within the barrier between 150 mm and 760 mm above the floor must not facilitate climbing.
 - (f) A wire barrier constructed in accordance with the relevant provisions of NCC Volumes One or Two is deemed to meet the requirements of **(c)**.
 - (g) A glass barrier must comply with AS 1288.

5.1.6 Handrails

- (a) Handrails must be—
 - (i) located along at least one side of ramps and stair flights; and
 - (ii) located along each side if the total width of the stairway or ramp is 2 m or more; and
 - (iii) fixed at a height of not less than 865 mm measured above the nosings of stair treads and the floor surface of the ramp, landing or the like; and
 - (iv) continuous between stair flight landings and have no obstructions on or above them that will tend to break a handhold.
- (b) The requirements of **(a)** do not apply to areas referred to in **5.1.7**.

5.1.7 Fixed platforms, walkways, stairways and ladders

A fixed platform, walkway, stairway, ladder and any going and riser, landing, handrail or other barrier attached thereto may comply with AS 1657 in lieu of **5.1.3**, **5.1.4**, **5.1.5** and

5.1.6 if it only serves backstage areas, rigging lofts or other similar spaces, which will not be accessed by the public.

5.1.8 Tiered seating structures, concourses and embankments

A seating area in an enclosed *temporary structure*, a tiered seating structure, concourse or an embankment must comply with either H1.4 of NCC Volume One or **5.1.9**.

5.1.9 Design requirements for tiered seating structures, concourses and embankments

- (a) The maximum slope must not exceed 30 degrees when measured from the horizontal plane.
- (b) Aisles and cross-overs must be evenly spaced throughout the structure and have—
 - (i) a minimum width of 1 m; and
 - (ii) the aggregate of aisle widths leading to a *point of egress* must be not less than the required width of that *point of egress*; and
 - (iii) no one aisle may serve more than—
 - (A) 120 patrons where individual seating with backs is provided; or
 - (B) 200 patrons in any other case.
- (c) Transverse aisles or cross-overs must be provided at a horizontal distance of not more than 10 m between any row of seats.
- (d) When applying the barrier requirements of **5.1.4** and **5.1.5**, the height of a plat barrier that directly abuts seating (i.e. with no aisle between the seat and the barrier) must be measured from the plat or seat base whichever is higher.
- (e) All individual moveable seats must be—
 - (i) fixed in groups of not less than four; and
 - (ii) not used in stepped or ramped seating areas.
- (f) The gradient of the floor surface must be not be steeper than 1 in 8, or the floor must be stepped so that—
 - (i) the height of each step in the stepped floor is not more than 600 mm; and
 - (ii) the height of any opening in such a step would not allow a 125 mm sphere to pass through; and
 - (iii) if an aisle divides the stepped floor and the difference in level between any 2 consecutive steps—

- (A) is more than 230 mm but not more than 400 mm – an intermediate step must be provided in the aisle; and
- (B) is more than 400 mm – 2 equally spaced intermediate steps must be provided in the aisle; and
- (C) the going of intermediate steps must be not less than 270 mm and such as to provide as nearly as practicable equal treads throughout the length of the aisle.

Part 5.2 Access for People with a Disability

This Standard does not contain requirements for access for people with a disability.

Comment on access for people with a disability:

Section 23 of the Disability Discrimination Act 1992 (DDA) covers access to premises and makes it unlawful to discriminate against a person with a disability in relation to access to, or use of premises. While Section 23 of the DDA states it is unlawful to discriminate, it does not provide information to people responsible for buildings to assist them to design, construct or manage buildings in ways that do not discriminate.

However, Subsection 31(1) of the DDA allows the Minister responsible for the DDA to develop disability standards. Disability standards effectively codify the general non-discrimination requirements of the relevant parts of the DDA. The Disability (Access to Premises – Buildings) Standards 2010 (Premises Standards) commenced on 1 May 2011. The Building Code of Australia (BCA) was also amended on 1 May 2011 to achieve consistency with the Access Code for Buildings (Schedule 1 of the Premises Standards).

The Premises Standards only apply to public buildings of the type covered by the building classifications within the BCA and only to new buildings and existing buildings that undergo building work that involves extensions to, or modifications of the building where a building or construction approval is required.

In situations where building or construction approval is not required for a *temporary structure*, the Premises Standards would not apply. However, the *temporary structure* would still be subject to the general DDA provisions that make it unlawful to discriminate against a person with a disability.

Further information on these matters and on creating accessible events can be found in the following publications:

- Disability (Access to Premises – Buildings) Standards 2010 (Premises Standards) available at www.ag.gov.au.
- Guideline to the application of the Premises Standards, produced by the Australian Human Rights Commission available at www.humanrights.gov.au.
- Guidelines for concerts, events and organised gatherings, produced by the WA Department of Health.
- Accessible Events, a guide for meeting and event organisers, produced by Meetings & Events Australia.

Part 5.3 Sanitary Facilities

(NORMATIVE)

5.3.1 Application

The sanitary facilities provisions of this Standard are satisfied by complying with—

- (a) **5.3.2**; or
- (b) an alternative method which has been approved by the *appropriate authority*.

5.3.2 Sanitary facilities

Sanitary facilities must be provided in accordance with the following—

- (a) Where the *appropriate authority* requires the number of sanitary facilities provided to be determined based on the number of people accommodated in a *temporary structure*, the number of sanitary facilities must be determined in accordance with **Table 5.3.1**.
- (b) Where the *appropriate authority* requires the number of sanitary facilities provided to be determined based on the number of people attending the event where *temporary structure(s)* will be erected and in use, the number of sanitary facilities must be provided as follows:
 - (i) One closet fixture for every 200 female patrons or part thereof.
 - (ii) One closet fixture or urinal for every 200 male patrons or part thereof, at least 30% of which must be in the form of closet fixtures.
 - (iii) One washbasin for every 200 patrons of part thereof.
- (c) Where sanitary facilities are provided in accordance with **(a)** and **(b)** the relevant reduction factors of **Table 5.3.2** may be applied based on the duration of the event.

Note:

In providing sanitary facilities in accordance with **Part 5.3**, the sanitary facilities are to be provided at a location convenient to the *temporary structure*. This does not mean that the facilities are required to be located within the *temporary structure* itself.

Table 5.3.1 PROVISION OF SANITARY FACILITIES

	Closet Pans		Urinals		Washbasins	
	Design Occupancy	Number	Design Occupancy	Number	Design Occupancy	Number
Male Facilities	1 – 100	1	1 – 50	1	1 – 50	1
	101 – 300	2	51 – 100	2	51 – 200	2
	>300	Add 1 per 200	101 – 150	3	>200	Add 1 per 200
			151 – 200	4		
			201 – 250	5		
>250	Add 1 per 100					
Female Facilities	1 – 25	1	N/A	N/A	1 – 50	1
	26 – 50	2			51 – 150	2
	51 – 100	3			>150	Add 1 per 200
	101 – 150	4				
	151 – 200	5				
	201 – 250	6				
	>250	Add 1 per 100				

Note:

Sanitary facilities need not be provided for a *temporary structure* accommodating not more than 20 people.

Table 5.3.2 ADJUSTING THE REQUIRED NUMBER OF SANITARY FACILITIES FOR EVENTS

Duration of event	Percentage of required number of sanitary facilities in accordance with 5.3.2(a) and (b)
More than 4 hours	100%
Less than 4 hours	75%
Less than 2 hours	50%

Note:

For the purpose of **Table 5.3.2** duration of event refers to a single day event

Part 5.3A Sanitary Facilities

(INFORMATIVE)

Commentary on sanitary facilities

Part 5.3 contains tables for the determination of the number of sanitary facilities required for both a whole-of-event calculation and based only on the number of occupants of the *temporary structure* itself.

Advice from the *appropriate authority* is required to determine which method is appropriate for a particular situation.

Urinals and washbasins – urinals and hand-washing facilities are often not provided as single units, but as a length or trough. As such in applying **Part 5.3**:

- a urinal may be an individual stall or be each 600 mm length of a continuous trough; and
- a washbasin may be an individual basin or a part of a hand-washing trough.

The publications listed below contain useful information on providing sanitary facilities for events which utilise *temporary structures*.

- Hire and Rental Industry Association, *Code of Practice: Guidelines for the Provision of Portable Toilets on Construction Sites and at Events where Connection to a Sewer is not Practical*.
- The Western Australian Department of Health, *Guidelines for concerts, events and organised gatherings*.

PART 6 ANCILLARY PROVISIONS

(NORMATIVE)

6.1 Application

The ancillary provisions of this Standard are satisfied by complying with—

- (a) **6.2**; or
- (b) an alternative method which has been approved by the *appropriate authority*.

6.2 Refrigerated chambers

A refrigerated or cooling chamber which is of sufficient size for a person to enter must have—

- (a) a door which is capable of being opened by hand from the inside without a key and have a doorway with a clear width of not less than 600 mm and a clear height not less than 1.5 m; and
- (b) internal lighting controllable only from within the room; and
- (c) means of communicating with or alerting others in the case of an emergency.

PART 6A ANCILLARY PROVISIONS

(INFORMATIVE)

Electrical installations, plumbing or drainage installations, gas installations and solid-fuel burning appliances, pressure vessels or the like installations associated with a *temporary structure* are outside the scope of this Standard. It is therefore recommended that advice be sought from the relevant *appropriate authority* for the jurisdiction in which the *temporary structure* will be erected for the requirements for these types of installations.

The following documents have relevance to these types of installations, however, it should be noted that these documents are listed for guidance purposes only.

Electrical installations

Electrical services connected to the local supply mains, to a generating plant or to a battery supply—

- (a) Electrical installation: AS/NZS 3000 and AS/NZS 3002.
- (b) Testing of electrical equipment: AS 3760.

Plumbing and drainage installations

Plumbing and drainage installations associated with a *temporary structure*: Plumbing Code of Australia (PCA).

Commentary on the Plumbing Code of Australia

The PCA contains the technical provisions for the design, construction, installation, repair, alteration and maintenance of—

- Water services
- Sanitary plumbing and drainage systems
- Stormwater drainage systems
- Heating, ventilation and air-conditioning systems, and
- On-site wastewater management systems.

The PCA also contains procedures for certification of plumbing and drainage materials and products that may be used or installed in plumbing or drainage installations.

Gas installations

Gas installations associated with a *temporary structure*—

- (a) LP gas portable mobile appliances: AS 2658.
- (b) Gas heating or cooking equipment: AS/NZS 5601.1.
- (c) Energy Safe Victoria: Code of Practice for the Safe Use of LP gas at Public Events in Victoria.
- (d) Radiant gas heaters for outdoor and non-residential use: AS 4654.

Domestic solid fuel burning, pressure equipment and the like

Solid-fuel burning appliances, oil-fired appliances and boilers and pressure vessels installations associated with a *temporary structure*:

- (a) Domestic solid-fuel burning appliances – Emissions: AS/NZS 4013, Installation: AS/NZS 2918.
- (b) Domestic oil-fired appliances – Installation: AS 1691.
- (c) Boilers and pressure vessels: G2.5 in NCC Volume One.

Comment:

Where cooking apparatus are to be used within an enclosed area of a *temporary structure*, advice from the *appropriate authority* would generally be required to determine whether there is a need to provide kitchen local exhaust ventilation. This would generally be determined based on the relative openness of the *temporary structure* and the cooking apparatus' total maximum electrical power input or a total gas power input or where there is more than one apparatus, the total combined maximum inputs based on the per/m² of *floor area* of the room or the enclosed area.

Further guidance on this can be found in F4.12 in NCC Volume One.



APPENDICES

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Appendix A

(INFORMATVE)

A1 Guideline publications

The following list of publications provides more comprehensive guidance on a number of matters contained in this Standard.

Furthermore, a number of these publications provide useful guidance on the relationship between event requirements and the application of building standards for events which utilise *temporary structures*.

- Australian Human Rights Commission February 2013, *Guideline to the Application of the Premises Standards, Version 2*.
- C-H Wang and L Pham, 2011, “Design wind speeds for temporary structures” – Ecosystem Sciences, CSIRO, Melbourne, *Australian Journal of Structural Engineering, Vol 12 No 2*.
- Energy Safe Victoria, *Code of Practice for the Safe Use of LP gas at Public Events in Victoria*.
- Hire and Rental Industry Association, *Code of Practice: Guidelines for the Provision of Portable Toilets on Construction Sites and at Events where Connection to a Sewer is not Practical*.
- Lightweight Structures Association of Australia, *Design Guidelines for Tensioned Membrane Structures*.
- Meetings & Events Australia, *Accessible Events, A Guide For Meeting and Event Organisers*.
- Standards Australia 2009, *AS/NZS ISO 31000: 2009 Risk Management: Principles and guidelines*, Standards Australia.
- The Western Australian Department of Health, *Guidelines for concerts, events and organised gatherings*.
- UK Department for Communities and Local Government 2006, *Fire Safety Risk Assessment: Small and Medium Places of Assembly*, available from the UK Department for Communities and Local Government (2006).
- UK Department for Communities and Local Government 2006, *Fire Safety Risk Assessment: Large Places of Assembly*, available from the UK Department for Communities and Local Government (2006).
- UK Department for Communities and Local Government 2007, *Fire Safety Risk Assessment: Open Air Events and Venues*, available from the UK Department for Communities and Local Government (2007).

- UK Health and Safety Executive, *The Event Safety Guide: A Guide to Health, Safety and Welfare at Music and Similar Events*.
- UK Made Up Textiles Association's (MUTA) Best Practice Guide, *Safe Use and Operation of Temporary Demountable Fabric Structures*.
- UK Institute of Structural Engineers publication: *Temporary demountable structures - Guidance on procurement design and use, 3rd edition* (IStructE 2007).

A2 Recommended checklist for assembled structures

ITEM No.	ITEM TO BE CHECKED	Y/N
1	All components of the structure are at a safe distance from power lines & other hazards	
2	Anchorage is suitable for the purpose and soil condition and are holding fast	
3	Bracing wires/bars on roof and walls are in place and adequately tensioned	
4	All ropes, including wire ropes, are sound	
5	Fabric is tensioned and not prone to ponding of water and any tears in <i>fabric membrane material</i> have been repaired	
6	Emergency lighting, exit signage are operating correctly, where required	
7	Fire fighting equipment has been provided	
8	Egress routes are signed within the structure and clear of obstruction	
9	Prescribed separation distances between structures for fire safety, are not being used for any purpose that will contribute to the spread of fire	
10	Exposed ropes and stakes adjacent to <i>point(s) of egress</i> and entrances are marked and/or roped off	
11	All locking pins and bolts are in place and secure	
12	All structural supports are sound without cracks or deformation and not overstressed	
13	All floor coverings are evenly laid and there are no tripping points	
14	Any timber framing members or supports are free from splits that are likely to cause failure	
15	Walls are securely pegged and/or secured	
16	Structure has a full complement of side uprights, anchor stakes or ballast, pulley blocks & guy ropes	
17	The main upright(s) is/are independently guyed where appropriate	
18	Suspended weights are evenly distributed and do not overload the structure; no excessive weights suspended from roof beams, ridges etc.	
19	Final all-round visual check to satisfy that the structure is erected in accordance with the approved design documentation; and that the design documentation is available on site	
20	Variations from approved design documentation have been certified by an appropriately qualified person and approved by the <i>appropriate authority</i>	
21	On-site management plan for emergency procedures is in place and check operation of wind speed monitoring instruments if specified	
22	On-site wind monitoring plan in place, incorporating wind action levels and procedures for evacuating the structure if design wind speeds are in danger of being exceeded	

Appendix B

(INFORMATIVE)

State and Territories' legislative requirements for temporary structures

This appendix presents an overview of State and Territory legislative requirements for *temporary structures*. In order to obtain the latest requirements and to address any queries on such matters, advice should be sought from the State and Territory authority responsible for regulatory matters associated with *temporary structures*.

Australian Capital Territory

Temporary structures in the Australian Capital Territory ("ACT") and in Jervis Bay Territory, must comply with relevant ACT and Commonwealth laws, unless exempted.

Some structures might be exempted from some, or all, provisions of the ACT's Building Act 2004, and thereby might be exempted from respective requirements of this Standard. See the relevant exemption provisions in that Act at www.legislation.act.gov.au.

For further information: phone the Canberra Connect Contact Centre on 13 22 81 or (02) 6207 5111. International callers please use +61 2 6207 5111.
www.canberraconnect.act.gov.au.

New South Wales

The erection and use of temporary structures in NSW is generally regulated through the *Environmental Planning and Assessment Act 1979 (Act)*, the *Environmental Planning and Assessment Regulation 2000 (Regulation)* and the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 (Policy)*.

Exempt Development

Exempt Development is minor development of minimal environmental impact that can be carried out without the need for the prior approval of the local Council or a private accredited certifier, subject to the development meeting prescribed development standards. The erection and use of certain temporary structures may be carried out as exempt development in accordance with the standards prescribed in Division 3 'Temporary Uses and Structures Exempt Development Code' within Part 2 'Exempt Development Codes' of the Policy.

Complying Development

Under the Act, there is a streamlined approval process for certain types of routine development that meet certain prescribed development standards, known as complying development. The 'General Development Code' in Part 4A of the Policy specifies certain temporary structures that may be undertaken as complying development so long as the applicable development standards are met. A complying development certificate must be obtained from the local Council or a private accredited certifier before the temporary structure is erected.

In conjunction with the development standards listed in Part 4A of the Policy, clause 133(2) of the Regulation imposes additional development standards relating to the fire protection and structural capacity of the structure based on the proposed use, and the suitability of the ground surface on which the structure will be erected.

Part 2 of Schedule 1 of the Regulation prescribes the information that must be included in and accompany an application for a complying development certificate.

Development Consent

Development consent for the erection and use of a temporary structure is required where the proposed development is not specified as either exempt or complying development, or does not meet the relevant development standards to be undertaken as exempt or complying development. In considering an application for a temporary structure, the consent authority (usually the local council) must have regard to clause 94A of the Regulation, which requires the consent authority to consider whether the fire protection and structural capacity of the structure will be appropriate to the proposed use, as well as the suitability of the ground surface on which the structure will be erected, in addition to the other matters specified for consideration under section 79C of the Act.

Part 1 of Schedule 1 of the Regulation prescribes the information that must be included in and accompany a development application.

Under clause 268A of the Regulation, a construction certificate is not required for the erection of a temporary structure in accordance with a development consent.

Temporary Structures used as 'Entertainment Venues'

An 'entertainment venue' is defined in the Regulation as a building used as a cinema, theatre or concert hall or an indoor sports stadium.

It is a prescribed condition of a development consent (including complying development certificates) for a temporary structure that is to be used as an 'entertainment venue' that

it complies with Part B1 and NSW Part H102 of Volume One of the Building Code of Australia (BCA) (clauses 136A(1A) and 98(1A) of the Regulation).

NSW Part H102, in the NSW Appendix to Volume One of the BCA, contains specific requirements that apply to temporary structures used as ‘entertainment venues.’ These include requirements for exits, fabrics, guardrails, seating, sanitary accommodation, projection suites, heating, electrical services, lighting (including exit and emergency lighting) and firefighting services.

For a temporary structure used as an ‘entertainment venue’, an occupation certificate will need to be issued by the principal certifying authority (PCA) prior to the occupation or use of the temporary structure. The PCA, which can be the local council or private accredited certifier, must be appointed prior to the commencement of work. Before issuing the occupation certificate, the PCA will need to inspect the temporary structure and be satisfied that it is suitable for use and that the conditions of the development consent or complying development certificate, including those relating to compliance with the BCA, have been met (clause 154 of the Regulation).

Application of this Standard

Compliance with this Standard is not required by NSW legislation and the provisions of NSW legislation prevail over this Standard.

Further Information

For further information on the requirements relating to the erection and use of temporary structures in NSW, please contact the Department of Planning and Environment’s information centre on 1300 305 695.

Northern Territory

Northern Territory Requirements for Temporary Structures

The Northern Territory *Building Act* defines a temporary structure as:

- (a) a booth, tent or other temporary enclosure, whether or not a part of it is permanent; or
- (b) a mobile structure.

Northern Territory *Building Act* Division 4: Temporary occupation

74 Temporary occupation of buildings

(1) Despite anything to the contrary in this Act or the Regulations, a person may, with the approval of a building certifier, occupy on a temporary basis a building for which a building permit has not or could not be granted.

(2) An application for an approval to occupy a building on a temporary basis may be made to a building certifier by the owner of the building or by the owner's agent.

75 Schedule 3 to apply

Schedule 3 applies to and in relation to an application for an approval to occupy a building on a temporary basis, and an approval, under this Division.

76 Conditions

(1) An approval to occupy a building on a temporary basis must specify the period for which occupancy is permitted.

(2) An approval to occupy a building on a temporary basis must not be granted for a period exceeding 6 months without the approval of the Director.

Building approvals for all structures including temporary structures are assessed and issued by private sector registered building certifiers. Refer to <http://www.ntlis.nt.gov.au/building-practitioners/> to search for building certifiers currently registered to work in the Northern Territory.

Queensland

Under the *Building Act 1975* and the *Building Regulation 2006*, all building work is assessable and requires a building development approval unless it is prescribed as exempt or self-assessable development.

Schedule 2 of the regulation prescribes certain building work as exempt development, which means a building development approval is not required and the work does not need to meet any particular building requirements or standards. Additionally, building work outlined in Schedule 1 of the regulation is prescribed as self-assessable, which means it does not require a building development approval but must still meet the relevant building assessment provisions, including the National Construction Code (NCC) and the Queensland Development Code (QDC).

The QDC consolidates Queensland-specific building standards into a single document. It covers Queensland matters outside the scope of and in addition to the NCC. For example, QDC MP 3.3 relates to temporary accommodation buildings and structures. The purpose of this part is to ensure temporary accommodation buildings achieve acceptable minimum standards of health and safety.

The legislation referenced above can be found at www.legislation.qld.gov.au or at www.hpw.qld.gov.au/construction/BuildingPlumbing/Building/BuildingLawsCodes/.

For further information regarding the specific building requirements for a particular project, a private building certifier or the relevant local government should be contacted. Any applicable planning requirements should also be confirmed with the relevant local government.

South Australia

Under the *Development Act 1993* and the *Development Regulations 2008*, no development can be undertaken without a development approval unless specifically exempted by the legislation. Approvals are obtained from relevant authorities established by the Act (i.e. local councils or in some cases the Development Assessment Commission). For temporary structures, a development approval will require a development plan consent (planning) and a building rules consent.

Tasmania

Tasmania – Occupancy Permits for Temporary Structures

A Temporary Occupancy Permit (TOP) is issued under the *Building Act 2000* to allow the use of temporary structure for a particular short term activity such as a public or a private event.

3.1 Requirements and relevant legislation

A TOP is required where a person intends to:—

- Operate an event or function where temporary structures may be erected such as booths, tents, marquees, seating or stages.
- Erection of a temporary structure on private property such as for a temporary boat or vehicle shelter, a temporary radio mast or for a wedding or party.

The *Building Act 2000* provides that a person must not occupy a temporary structure in respect of which an occupancy permit is not, or is not likely to be, issued unless:

- (a) a temporary occupancy permit is in force in respect of a temporary structure; or
- (b) the *Building Regulations 2014* provide that a temporary occupancy permit is not required for that temporary structure.

Further examples of when a TOP may be required include:

- Outdoor concerts, rallies, festivals, or similar events where there are temporary stages, tiered seating or temporary shelters erected,
- Markets, (either indoor or outdoor), fairs, shows, carnivals and rodeos or sporting events where temporary structures erected e.g. car rallies, rowing carnivals, school sports days.

Note also that the Temporary Occupancy Permit process in the *Building Act 2000* is also applicable to the temporary use of an existing building, as well as for using temporary structures.

3.2 Definition of a Temporary Structure

The *Building Act 2000* and the *Building Regulations 2014* provide that a ‘temporary structure’ *includes* any:—

- (a) booth, tent or other temporary enclosure, whether or not a part of the booth, tent or enclosure is permanent; or
- (b) temporary seating structure; or
- (c) a mobile structure;
- (d) a temporary bridge;
- (e) a temporary stage;
- (f) a temporary platform;
- (g) a temporary tower.

This is *not* an exhaustive list of the types of temporary structures.

3.3 Approval authority

An owner, or an agent of the owner, of an existing building or temporary structure may apply to the general manager of the local council for a temporary occupancy permit to occupy the building or temporary structure. The application form is available from Council offices.

3.4 Exemptions from permits

Some types of smaller temporary structures have been exempted from the requirement for a TOP. These exemptions are detailed in Regulation 41 of the *Building Regulations 2014*:

- It exempts a tent used for two days or less that occupies floor space of less than 75 square metres, is the only one of its type on the site and does not have an ignitable fuel source or electrical wiring.
- Specific exemptions also apply to groups of small tents, stalls and gazebos predominately used for the shelter of stallholders and their wares.
- Tents erected on a camping ground or caravan park are also exempt.

3.5 Standards of performance in the National Construction Code

The National Construction Code, Volume One, Tasmania Appendix (TAS PART H123) provides the Objective, Functional Statements and Performance Requirements for the use of temporary structures.

- The provisions of TAS PART H123 *apply* to the temporary structures as described in Tas Part H123.0 *Application of Part*.

- The Deemed-to-Satisfy provisions referenced in Tas Part H123 is the ABCB Temporary Structures Standard 2015, *except for* Disability Access requirements for temporary structures, which are included in H123.4 Access of Tas Part H123.

3.6 Other requirements for events using temporary structures

Building owners, event managers, stall holders and erectors of structures must also ensure that other legal requirements are complied with before an event or new temporary use of a building starts.

3.1.1 Disability access

Access for people with disabilities must be provided to and within a temporary structure by means of a continuous path of travel, and also provision for accessible sanitary facilities. For these requirements see Tas Part H123.4 Access. Note that the organiser of any event who fails to provide for the needs of persons with a disability may be subject to a complaint of discrimination, lodged under either Tasmanian or Commonwealth laws.

3.1.2 Food licence

If your event is serving food you will need a food licence from the local council. The Department of Health and Human Services has a publication called *Local Government Guidelines for Temporary Food Stalls* available on council websites. The Guidelines specify minimum requirements for the construction and operation of a food stall. Ask your local council for a copy.

3.1.3 Alcohol licence

If your event is serving alcohol a liquor licence from the Liquor and Gaming Branch of the Department of Treasury may be required.

3.1.4 Markets

Some councils have specific By-Laws that regulate markets.

3.1.5 Workplace health and safety

If the place where the temporary structure is erected and used by the public is a workplace, the person in charge of that undertaking has to comply with the *Work Health and Safety Act 2012* and its regulations.

3.1.6 Inflatable jumping castles, rides or similar ‘amusement structures’

These are regulated under *Work Health and Safety Act 2012* and are to comply with the Australian Standard AS 3533 *Amusement rides and devices Part Two - Operation and Maintenance*.

Victoria

The *Building Act 1993* requires all building work to be undertaken by a building practitioner, this includes the erection or dismantling of temporary structures. The relevant class of practitioner is *erector of temporary structures*. Temporary structures include:

- a booth, tent, marquee or other temporary enclosure, whether or not a part of the booth, tent, marquee or enclosure is permanent; and
- a seating structure whether enclosed or not, including a mobile seating structure.

In addition to the requirement for the work to be undertaken by a registered building practitioner, an occupancy permit must be obtained from the Victorian Building Authority for a prescribed temporary structure because these are regulated as a place of public entertainment.

The following are prescribed temporary structures:

- tents, marquees or booths with a *floor area* greater than 100 m²
- seating stands for more than 20 persons
- stages or platforms (including sky borders and stage wings) exceeding 150 m² in *floor area*
- prefabricated buildings exceeding 100 m² other than ones placed directly on the ground.

Occupancy permits issued by the Victorian Building Authority will generally require, as a condition of permit, that the siting of the temporary structure be approved by the relevant municipal building surveyor.

Further information about temporary structures generally as well as applying for an occupancy permit can be obtained from the Victorian Building Authority by email to technicalenquiry@vba.vic.gov.au or phone 1300 815 127.

Western Australia

Temporary Structures considered as public buildings under the Health Act 1911 will require the relevant health approvals. Under section 173 of the Health Act 1911, **public building** means—

- (a) a building or place or part of a building or place where persons may assemble for—
 - (i) civic, theatrical, social, political or religious purposes; and
 - (ii) educational purposes; and
 - (iii) entertainment, recreational or sporting purposes; and
 - (iv) business purposes; and

- (b) any building, structure, tent, gallery, enclosure, platform or other place or any part of a building, structure, tent, gallery, enclosure, platform or other place in or on which numbers of persons are usually or occasionally assembled,

but does not include a hospital.

Refer to the relevant local government permit authority for any requirements under the Building Act 2011.

Appendix C

(INFORMATVE)

Commentary on risk management

In applying the acceptable design criteria of this Standard, consideration should be given to the implementation of a risk management and/or on-site monitoring strategy for the particular event at which the *temporary structure(s)* will be used.

However, it should be noted that these types of management strategies are outside the scope of this Standard. It is therefore recommended that advice be sought from the relevant *appropriate authority* for the jurisdiction in which the *temporary structure* will be erected for the requirements for these types of management measures.

The following publications provide useful guidance in the implementation of risk management principles and on-site monitoring strategies:

- Standards Australia 2009, *AS/NZS ISO 31000: 2009 Risk Management: Principles and guidelines*, Standards Australia.
- The Western Australian Department of Health, *Guidelines for concerts, events and organised gatherings*.
- United Kingdom Institute of Structural Engineers publication: *Temporary demountable structures - Guidance on procurement design and use, 3rd edition* (ISturctE 2007).
- United Kingdom Made Up Textiles Association's (MUTA) Best Practice Guide, *Safe Use and Operation of Temporary Demountable Fabric Structures*.

