



AUSTRALIAN STEEL INSTITUTE  
STEEL SHED GROUP

# Wind Speeds for Steel Sheds & Garages



This publication is intended to clarify the application of Wind Actions Code AS/NZS 1170.2-2002 and Wind Loads for Housing Code AS 4055 for the classification of wind speeds for steel sheds & garages.

## Wind Loadings Design Codes for Steel Sheds

The BCA A3.1: defines "The classification of a building or part of a building is determined by the purpose for which it is designed, constructed or adapted to be used". A "shed" could be designed or adapted as virtually any class of building.

The BCA Volume 1 covers Class 2 to 9 buildings, some Class 10b structures and disabled access requirements in all buildings.

The BCA Volume 2 covers Class 1 and Class 10a buildings. A Class 10a building is "a non-habitable building being a private garage, carport, shed or the like".

For determination of wind actions, AS/NZS 1170.2 is referenced in both Volume 1 and 2 of the BCA. AS/NZS 1170.2 may be used to determine wind actions in virtually all situations for all building classes and all importance levels.

AS 4055 (Wind Loads for Housing) is referenced only in Volume 2 is limited by its Scope (housing) and Limitations (length, width, height & roof pitch). AS 4055 is only applicable for structures with an Importance Level 2 since annual probability of exceedance has been taken as 1:500.

If a building is not a house or is larger than the AS 4055 geometric limitations, or has an importance level higher than 2, AS 4055 cannot be used for determining wind actions and AS/NZS 1170.2 must be used.

Shed designers who design a series of buildings intended for a range of applications (and building classes) should use AS/NZS1170.2.

Designs developed using AS/NZS 1170.2 are legitimate for class10a sheds used in residential areas and should not be required to be referenced to AS 4055. The system of wind speed classes (i.e. N2, C1) is defined only in AS 4055 and is not used or referred to in AS/NZS 1170.2.

**Cyclonic Regions:** Sheds in cyclonic areas (wind regions C & D as described in AS/NZS 1170.2) are required to comply with BCA Specification B1.2 (low high low test method)

Please note: Permissible Stress designs to (AS1170.1989) i.e. W41N, W50C are superseded and should be rejected.

## The BCA defines four Importance levels:

- Level 1 Buildings with a low degree of hazard to life and other property in case of failure
- Level 2 Default level - buildings not assigned levels 1, 3 or 4
- Level 3 Buildings designed to contain a large number of people
- Level 4 Buildings essential to post-disaster recovery or associated with hazardous facilities

**BCA 2009**

### Importance Level Examples

BUILDING DESCRIPTION	BCA CLASS	FAILURE CONSEQUENCES		IMPORTANCE LEVEL
		HUMAN HAZARD	PUBLIC IMPACT	
Farm Shed	10a	Low	Low	1*
Residential shed or garage	10a	Mod	Low	2
Small school shade structure	9b	Mod	Mod	2
Produce sales building	6	Mod	Mod	2 or 3
Shearing shed	8	Sub	Mod	2
Large commercial storage warehouse	7b	Mod	Sub	3
Large (250+) school assembly shelter	9b	Sub	Sub	3
Shed housing hospital emergency generator	10a	Sub	Ext	4
Emergency vehicle shed	10a	Sub	Ext	4

The Site Wind Speed for a shed is determined by the Wind Region, Regional Wind Speed, Terrain Category, Topography & Shielding

Terrain Categories Descriptions – refer AS/NZS1170.2, AS 4055

TC2	Water surfaces, open terrain, grassland with few, well-scattered obstructions having heights generally from 1.5 m to 10 m.
TC2.5	Terrain with few trees, isolated obstructions such as agricultural land, cane fields or long grass, up to 600 mm high.
TC3	Terrain with numerous closely spaced obstructions 3 m to 5 m high such as areas of suburban housing.

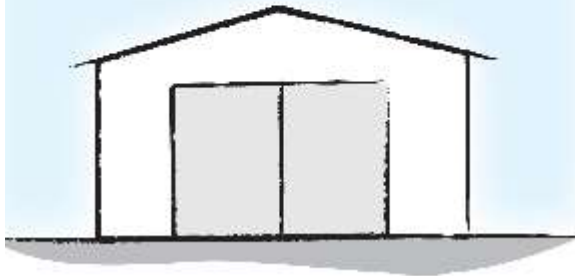
# Wind Speeds for Steel Sheds

Ultimate Limit State Designs to AS/NZS 1170-2:2002



## Regional Wind Speed

Wind Region A	45 m/s
Wind Region B	57 m/s
Wind Region C	69 m/s
Wind Region D	88 m/s



## Site Wind Speed (Typical examples)

### Domestic / Industrial (Importance Level 2)

Region	Terrain	M/S
Region A	TC 3	32 m/s *
Region A	TC 2	41 m/s
Region B	TC 2.5	47 m/s
Region B	TC 2	49 m/s
Region C	TC 2.5	58 m/s
Region C	TC 2	62 m/s
Region D	TC 2.5	74 m/s

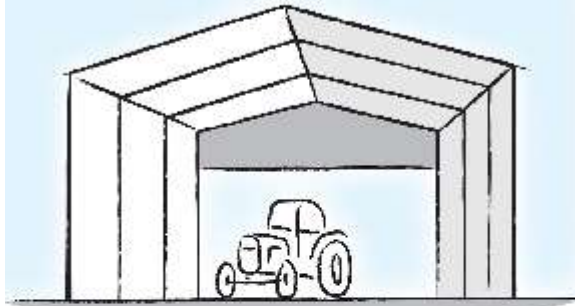
Topography for a flat site (multiplier 1.0)

\* Fully shielded

## Regional Wind Speeds

### Farm Sheds

Wind Region A	41m/s
Wind Region B	48 m/s
Wind Region C	64 m/s
Wind Region D	79 m/s



## Site Wind Speed (Typical examples)

### Farm Shed (Importance level 1)

Region	Terrain	M/S
Region A	TC 2.5	36 m/s
Region B	TC 2	41 m/s
Region C	TC 2	58 m/s
Region D	TC 2	71 m/s

Topography for a flat site (multiplier 1.0)

## AS 4055 Wind Loads for Housing

N1	34 m/s
N2	40 m/s
N3 / C1	50 m/s
N4 / C2	61 m/s
N5 / C3	74 m/s

## Permissible Stress Design (superseded code)

W28	34 m/s
W33	40 m/s
W41 / W41C	50 m/s
W50 / W50C	61 m/s
W60 / W60C	74 m/s

ADDITIONAL INFORMATION at [www.steel.org.au](http://www.steel.org.au)

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