

AS4055 wind loads for housing



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how to use rating charts

step 1
select your Region from the map
eg: Region A

step 2
select the Terrain Category
eg: Terrain Category 3

REGION A

TERRAIN CATEGORY 3 	WIND RATING	TOPOGRAPHY		
		T1 	T2 	T3
FULL SHIELDING 	Wind Classification	N1	N1	N2
	Serviceability Design Wind Pressure	500Pa.	500Pa.	700Pa.
	Ultimate Limit State Wind Pressure	700Pa.	700Pa.	1000Pa.
	Water Penetration	150Pa.	150Pa.	150Pa.
PARTIAL SHIELDING 	Wind Classification	N1	N2	N3
	Serviceability Design Wind Pressure	500Pa.	700Pa.	1000Pa.
	Ultimate Limit State Wind Pressure	700Pa.	1000Pa.	1500Pa.
	Water Penetration	150Pa.	150Pa.	150Pa.
NO SHIELDING 	Wind Classification	N2	N2	N3
	Serviceability Design Wind Pressure	700Pa.	700Pa.	1000Pa.
	Ultimate Limit State Wind Pressure	1000Pa.	1000Pa.	1500Pa.
	Water Penetration	150Pa.	150Pa.	150Pa.

step 3
select your Shielding Classification
eg: Partial Shielding

step 4
select your Topographic Classification
eg: T1

result
 N1
 500Pa.
 700Pa.
 150Pa.

note

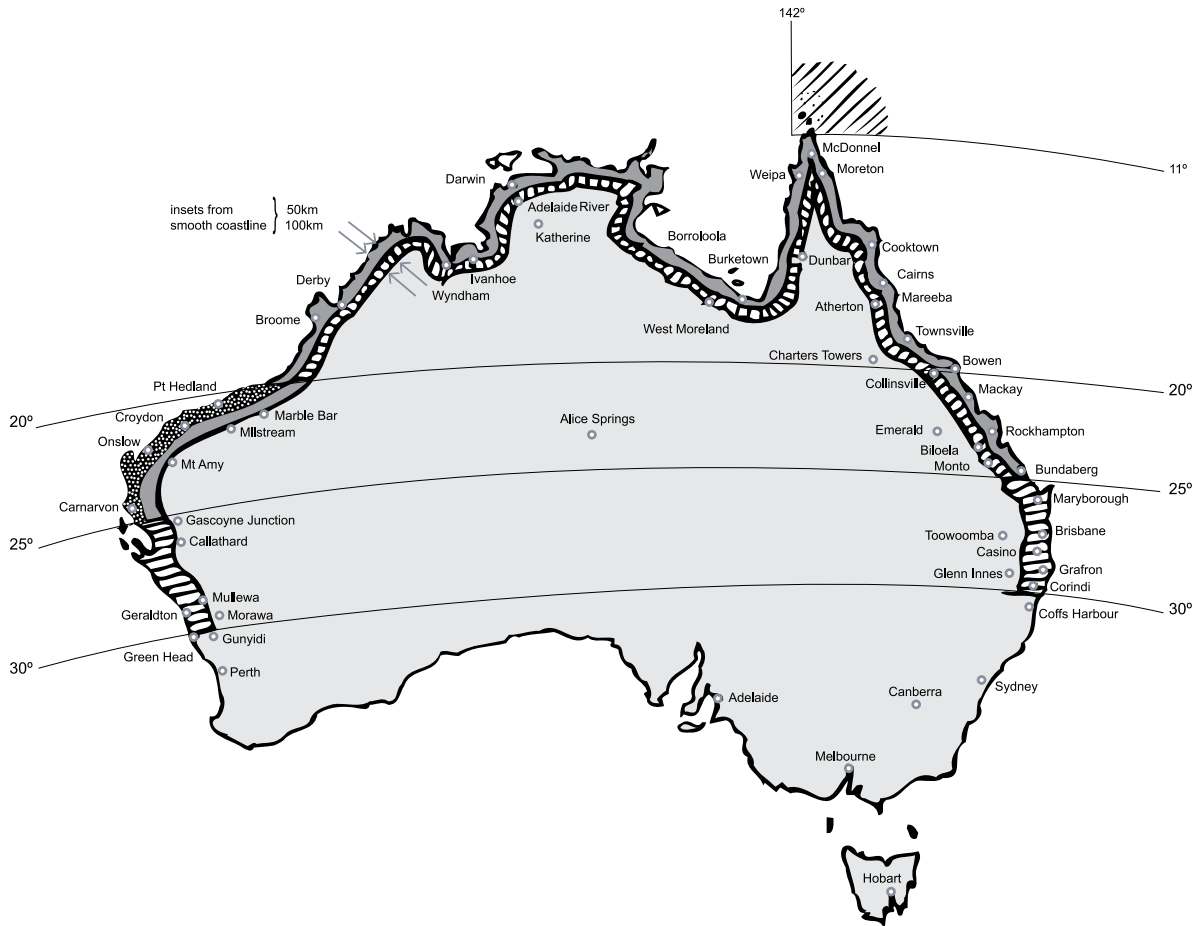
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step 1 - geographic regions

THE GEOGRAPHIC REGION OF A SITE IS SELECTED FROM THE MAP BELOW.



wind classification

AS4055-1992 is based on a ten-band wind classification system: N1 to N6 for non-cyclonic Regions A and B, and C1 to C4 for cyclonic Regions C and D.

location classification

Non-cyclonic Classification

- REGION A
- REGION B

Cyclonic Classification

- REGION C
- REGION D

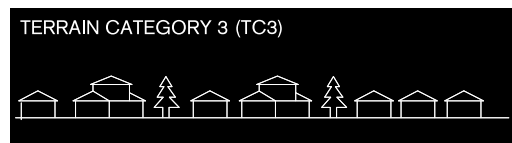
note

The wind classification of a building depends on the combination of a number of factors such as the location of the site within Australia, the terrain and topography surrounding it and the shielding offered by surrounding buildings and trees.

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step 2 - terrain category

TERRAIN CATEGORY MEASURES THE ROUGHNESS OF THE GROUND WITHIN A DISTANCE OF 500M OF THE SITE.



terrain category 3 (TC3)

Terrain with numerous closely spaced obstructions having the size of houses.

The minimum density of housing and trees, except for regions C and D, shall be equivalent of 10 house size obstructions per hectare.

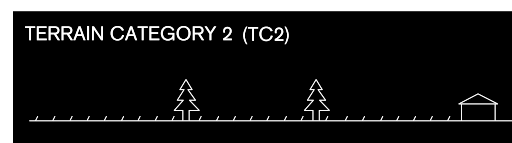
Substantial well established trees shall be considered as obstructions except in regions C and D where a maximum of TC2.5 applies for the equivalent house size obstructions per hectare.



terrain category 2.5 (TC2.5)

Terrain with a few trees, isolated obstructions, such as agricultural land, canefields or long grass, up to 600mm high.

This terrain is intermediate between TC2 and TC3 and represents the terrain in developing outer urban areas.



terrain category 2 (TC2)

Open terrain including sea coast areas, airfields, grassed with few well scattered obstructions, such as isolated trees and uncut grass, having heights from 1.5m to 10m.

note

In urban situations, roads, rivers or canals less than 200m wide are considered to be TC3. Parks and other open spaces less than 250,000m² are also TC3, provided they are not within 500m of each other.

Housing sites within 500m of a terrain boundary are given the classification of the adjoining terrain.

The Terrain Category should be based on the likely terrain in five years time.

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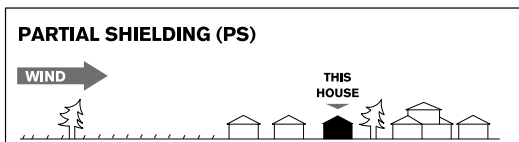
step 3 - shielding classification

THE SHIELDING CLASSIFICATION TAKES INTO ACCOUNT ANY LOCALISED SHIELDING WHICH MAY BE OFFERED BY SURROUNDING BUILDINGS AND TREES.



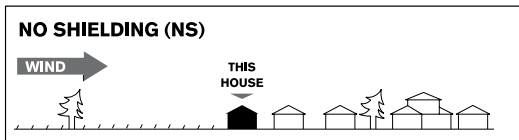
full shielding (FS)

At least two rows of houses or similar size permanent obstructions surround the house being considered. In Regions A and B, heavily wooded areas provide full shielding. The effects of roads or other open areas with a distance measured in any direction less than 100m shall be ignored.



partial shielding (PS)

Intermediate situations where there are at least 2.5 houses, trees or sheds per hectare such as acreage type suburban development or wooden parkland. In Regions C and D heavily wooded shall be considered to have partial shielding.



no shielding (NS)

Where there are no permanent obstructions or where there are less than 2.5 obstruction per hectare, such as the first two rows of houses abutting open parklands, water or airfields.

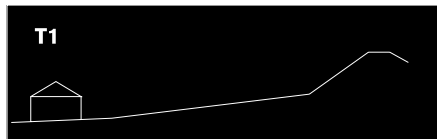
note

The Shielding Classification should be based on the likely situation in five years time.

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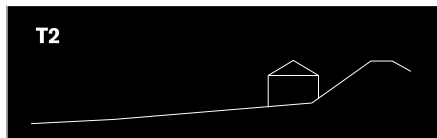
step 4 - topographic classification

TOPOGRAPHIC CLASSIFICATION DETERMINES THE EFFECT OF WIND ON A SITE DUE TO ITS LOCATION ON, AND THE AVERAGE SLOPE OF, THE UPPER SECTION OF A HILL, RIDGE OR ESCARPMENT.



T1 - topography 1 =

All slopes $\leq 1:10$ and the lower two thirds of slopes $\leq 1:15$. Most sites fall within these limits.



T2 - topography 2 =

Top third of slopes between $1:10$ and $1:7.5$.



T3 - topography 3 =

Top third of slopes between $1:7.5$ and $1:5$.

Topography is determined by the average of the steepest and least overall slopes occurring anywhere around the upper half of a hill, not the specific slope of the site. For typical residential developments, the average slope is generally less than $1:10$ and topography has no effect.

Practical constraints on the development of housing estates and the ancient geography of much of Australia ensures that hillside sites in hillier areas rarely present an average slope for the top half of the hill of greater than $1:5$. Within these limits topography also has no effect on housing situated on the lower two thirds of hillsides.

Hillside sites on average slopes greater than $1:5$ and sites on cliff-top escarpments will usually require engineering design for other reasons.

Window ratings for such houses should be determined by specific calculation using the Standards.

Read the required window ratings for the appropriate topographic classification.

AS4055 wind loads for housing rating chart region A

REGION A

TERRAIN CATEGORY 3	WIND RATING	TOPOGRAPHY		
		T1	T2	T3
FULL SHIELDING 	Wind Classification	N1	N1	N2
	Serviceability Design Wind Pressure	500Pa.	500Pa.	700Pa.
	Ultimate Limit State Wind Pressure	700Pa.	700Pa.	1000Pa.
	Water Penetration	150Pa.	150Pa.	150Pa.
PARTIAL SHIELDING 	Wind Classification	N1	N2	N3
	Serviceability Design Wind Pressure	500Pa.	700Pa.	1000Pa.
	Ultimate Limit State Wind Pressure	700Pa.	1000Pa.	1500Pa.
	Water Penetration	150Pa.	150Pa.	150Pa.
NO SHIELDING 	Wind Classification	N2	N2	N3
	Serviceability Design Wind Pressure	700Pa.	700Pa.	1000Pa.
	Ultimate Limit State Wind Pressure	1000Pa.	1000Pa.	1500Pa.
	Water Penetration	150Pa.	150Pa.	150Pa.
TERRAIN CATEGORY 2.5				
TERRAIN CATEGORY 2.5	WIND RATING	TOPOGRAPHY		
		T1	T2	T3
FULL SHIELDING 	Wind Classification	N1	N2	N2
	Serviceability Design Wind Pressure	500Pa.	700Pa.	700Pa.
	Ultimate Limit State Wind Pressure	700Pa.	1000Pa.	1000Pa.
	Water Penetration	150Pa.	150Pa.	150Pa.
PARTIAL SHIELDING 	Wind Classification	N2	N3	N3
	Serviceability Design Wind Pressure	700Pa.	1000Pa.	1000Pa.
	Ultimate Limit State Wind Pressure	1000Pa.	1500Pa.	1500Pa.
	Water Penetration	150Pa.	150Pa.	150Pa.
NO SHIELDING 	Wind Classification	N2	N3	N3
	Serviceability Design Wind Pressure	700Pa.	1000Pa.	1000Pa.
	Ultimate Limit State Wind Pressure	1000Pa.	1500Pa.	1500Pa.
	Water Penetration	150Pa.	150Pa.	150Pa.
TERRAIN CATEGORY 2				
TERRAIN CATEGORY 2	WIND RATING	TOPOGRAPHY		
		T1	T2	T3
FULL SHIELDING 	Wind Classification	N2	N3	N3
	Serviceability Design Wind Pressure	700Pa.	1000Pa.	1000Pa.
	Ultimate Limit State Wind Pressure	1000Pa.	1500Pa.	1500Pa.
	Water Penetration	150Pa.	150Pa.	150Pa.
PARTIAL SHIELDING 	Wind Classification	N2	N3	N3
	Serviceability Design Wind Pressure	700Pa.	1000Pa.	1000Pa.
	Ultimate Limit State Wind Pressure	1000Pa.	1500Pa.	1500Pa.
	Water Penetration	150Pa.	150Pa.	150Pa.
NO SHIELDING 	Wind Classification	N3	N3	N4
	Serviceability Design Wind Pressure	1000Pa.	1000Pa.	1500Pa.
	Ultimate Limit State Wind Pressure	1500Pa.	1500Pa.	2300Pa.
	Water Penetration	150Pa.	150Pa.	200Pa.

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AS4055 wind loads for housing rating chart region B

REGION B

TERRAIN CATEGORY 3 	WIND RATING	TOPOGRAPHY		
		T1 	T2 	T3
FULL SHIELDING WIND → THIS HOUSE	Wind Classification	N2	N2	N3
	Serviceability Design Wind Pressure	700Pa.	700Pa.	1000Pa.
	Ultimate Limit State Wind Pressure	1000Pa.	1000Pa.	1500Pa.
	Water Penetration	150Pa.	150Pa.	150Pa.
PARTIAL SHIELDING WIND → THIS HOUSE	Wind Classification	N2	N3	N3
	Serviceability Design Wind Pressure	700Pa.	1000Pa.	1000Pa.
	Ultimate Limit State Wind Pressure	1000Pa.	1500Pa.	1500Pa.
	Water Penetration	150Pa.	150Pa.	150Pa.
NO SHIELDING WIND → THIS HOUSE	Wind Classification	N3	N3	N4
	Serviceability Design Wind Pressure	1000Pa.	1000Pa.	1500Pa.
	Ultimate Limit State Wind Pressure	1500Pa.	1500Pa.	2300Pa.
	Water Penetration	150Pa.	150Pa.	200Pa.

TERRAIN CATEGORY 2.5 	WIND RATING	TOPOGRAPHY		
		T1 	T2 	T3
FULL SHIELDING WIND → THIS HOUSE	Wind Classification	N2	N3	N3
	Serviceability Design Wind Pressure	700Pa.	1000Pa.	1000Pa.
	Ultimate Limit State Wind Pressure	1000Pa.	1500Pa.	1500Pa.
	Water Penetration	150Pa.	150Pa.	150Pa.
PARTIAL SHIELDING WIND → THIS HOUSE	Wind Classification	N3	N3	N4
	Serviceability Design Wind Pressure	1000Pa.	1000Pa.	1500Pa.
	Ultimate Limit State Wind Pressure	1500Pa.	1500Pa.	2300Pa.
	Water Penetration	150Pa.	150Pa.	200Pa.
NO SHIELDING WIND → THIS HOUSE	Wind Classification	N3	N4	N4
	Serviceability Design Wind Pressure	1000Pa.	1500Pa.	1500Pa.
	Ultimate Limit State Wind Pressure	1500Pa.	2300Pa.	2300Pa.
	Water Penetration	150Pa.	200Pa.	200Pa.

TERRAIN CATEGORY 2 	WIND RATING	TOPOGRAPHY		
		T1 	T2 	T3
FULL SHIELDING WIND → THIS HOUSE	Wind Classification	N3	N3	N4
	Serviceability Design Wind Pressure	1000Pa.	1000Pa.	1500Pa.
	Ultimate Limit State Wind Pressure	1500Pa.	1500Pa.	2300Pa.
	Water Penetration	150Pa.	150Pa.	200Pa.
PARTIAL SHIELDING WIND → THIS HOUSE	Wind Classification	N3	N4	N4
	Serviceability Design Wind Pressure	1000Pa.	1500Pa.	1500Pa.
	Ultimate Limit State Wind Pressure	1500Pa.	2300Pa.	2300Pa.
	Water Penetration	150Pa.	200Pa.	200Pa.
NO SHIELDING WIND → THIS HOUSE	Wind Classification	N3	N4	N5
	Serviceability Design Wind Pressure	1000Pa.	1500Pa.	2200Pa.
	Ultimate Limit State Wind Pressure	1500Pa.	2300Pa.	3300Pa.
	Water Penetration	150Pa.	200Pa.	300Pa.

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rating chart region C

REGION C

TERRAIN CATEGORY 3	WIND RATING	TOPOGRAPHY		
		T1	T2	T3
FULL SHIELDING 	Wind Classification	C1	C2	C2
	Serviceability Design Wind Pressure	1000Pa.	1500Pa.	1500Pa.
	Ultimate Limit State Wind Pressure	1500Pa.	2300Pa.	2300Pa.
	Water Penetration	150Pa.	200Pa.	200Pa.
PARTIAL SHIELDING 	Wind Classification	C1	C2	C2
	Serviceability Design Wind Pressure	1000Pa.	1500Pa.	1500Pa.
	Ultimate Limit State Wind Pressure	1500Pa.	2300Pa.	2300Pa.
	Water Penetration	150Pa.	200Pa.	200Pa.
NO SHIELDING 	Wind Classification	C2	C2	C3
	Serviceability Design Wind Pressure	1500Pa.	1500Pa.	2200Pa.
	Ultimate Limit State Wind Pressure	2300Pa.	2300Pa.	3300Pa.
	Water Penetration	200Pa.	200Pa.	300Pa.

TERRAIN CATEGORY 2.5	WIND RATING	TOPOGRAPHY		
		T1	T2	T3
FULL SHIELDING 	Wind Classification	C1	C2	C2
	Serviceability Design Wind Pressure	1000Pa.	1500Pa.	1500Pa.
	Ultimate Limit State Wind Pressure	1500Pa.	2300Pa.	2300Pa.
	Water Penetration	150Pa.	200Pa.	200Pa.
PARTIAL SHIELDING 	Wind Classification	C2	C2	C3
	Serviceability Design Wind Pressure	1500Pa.	1500Pa.	2200Pa.
	Ultimate Limit State Wind Pressure	2300Pa.	2300Pa.	3300Pa.
	Water Penetration	200Pa.	200Pa.	300Pa.
NO SHIELDING 	Wind Classification	C2	C3	C3
	Serviceability Design Wind Pressure	1500Pa.	2200Pa.	2200Pa.
	Ultimate Limit State Wind Pressure	2300Pa.	3300Pa.	3300Pa.
	Water Penetration	200Pa.	300Pa.	300Pa.

TERRAIN CATEGORY 2	WIND RATING	TOPOGRAPHY		
		T1	T2	T3
FULL SHIELDING 	Wind Classification	C2	C2	C3
	Serviceability Design Wind Pressure	1500Pa.	1500Pa.	2200Pa.
	Ultimate Limit State Wind Pressure	2300Pa.	2300Pa.	3300Pa.
	Water Penetration	200Pa.	200Pa.	300Pa.
PARTIAL SHIELDING 	Wind Classification	C2	C3	C3
	Serviceability Design Wind Pressure	1500Pa.	2200Pa.	2200Pa.
	Ultimate Limit State Wind Pressure	2300Pa.	3300Pa.	3300Pa.
	Water Penetration	200Pa.	300Pa.	300Pa.
NO SHIELDING 	Wind Classification	C2	C3	C4
	Serviceability Design Wind Pressure	1500Pa.	2200Pa.	3000Pa.
	Ultimate Limit State Wind Pressure	2300Pa.	3300Pa.	4500Pa.
	Water Penetration	200Pa.	300Pa.	450Pa.

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