

Wind Loading Training

BCA IMPORTANCE LEVEL DEFINITIONS

Level 1	Buildings or structures presenting a low degree of hazard to life and other property in the case of failure
Level 2	Buildings or structures not included in importance levels 1, 3 or 4
Level 3	Buildings or structures that are designed to contain a large number of people
Level 4	Buildings or structures that are essential to post-disaster recovery or associated with hazardous facilities

IMPORTANCE LEVEL MATRIX

Building Importance Level					
		Impact on the Public			
		Low	Moderate	Substantial	Extreme
Hazard to Human Life	Low	1	2	2	3
	Moderate	2	2	3	3
	Substantial	2	3	3	4
	Extreme	3	3	4	4

- NOTE:
- Importance level 2 is the default level. It applies unless a lower level is justified or a higher level is required according to BCA risk assessment guidelines.
 - All forms of low-rise residential construction, including both dwellings and outbuildings such as garages and sheds, should be assigned importance level 2.

EXAMPLES:

Building Description	BCA Class	Failure Consequences		Importance Level
		Human Hazard	Public Impact	
Isolated Farm Building	10a	Low	Low	1
Residential Shed / Garage	10a	Mod	Mod	2
Residential Dwelling	1a	Mod	Mod	2
Small School Shade Structure	9b	Mod	Mod	2
Produce Sales Building	6	Mod	Mod	2
Shearing Shed	8	Mod	Low	2
Large Commercial Storage Warehouse	7	Mod	Sub	3
Large (250+) School Assembly Shelter	9b	Sub	Sub	3
Shed Housing Hospital Emergency Generator	10a	Sub	Ext	4
Emergency Vehicle Garage	10a	Sub	Ext	4

The above table is an extract from the ASI 'Portal Frame Steel Sheds and Garages' design guide.

WIND REGION CLASSIFICATION

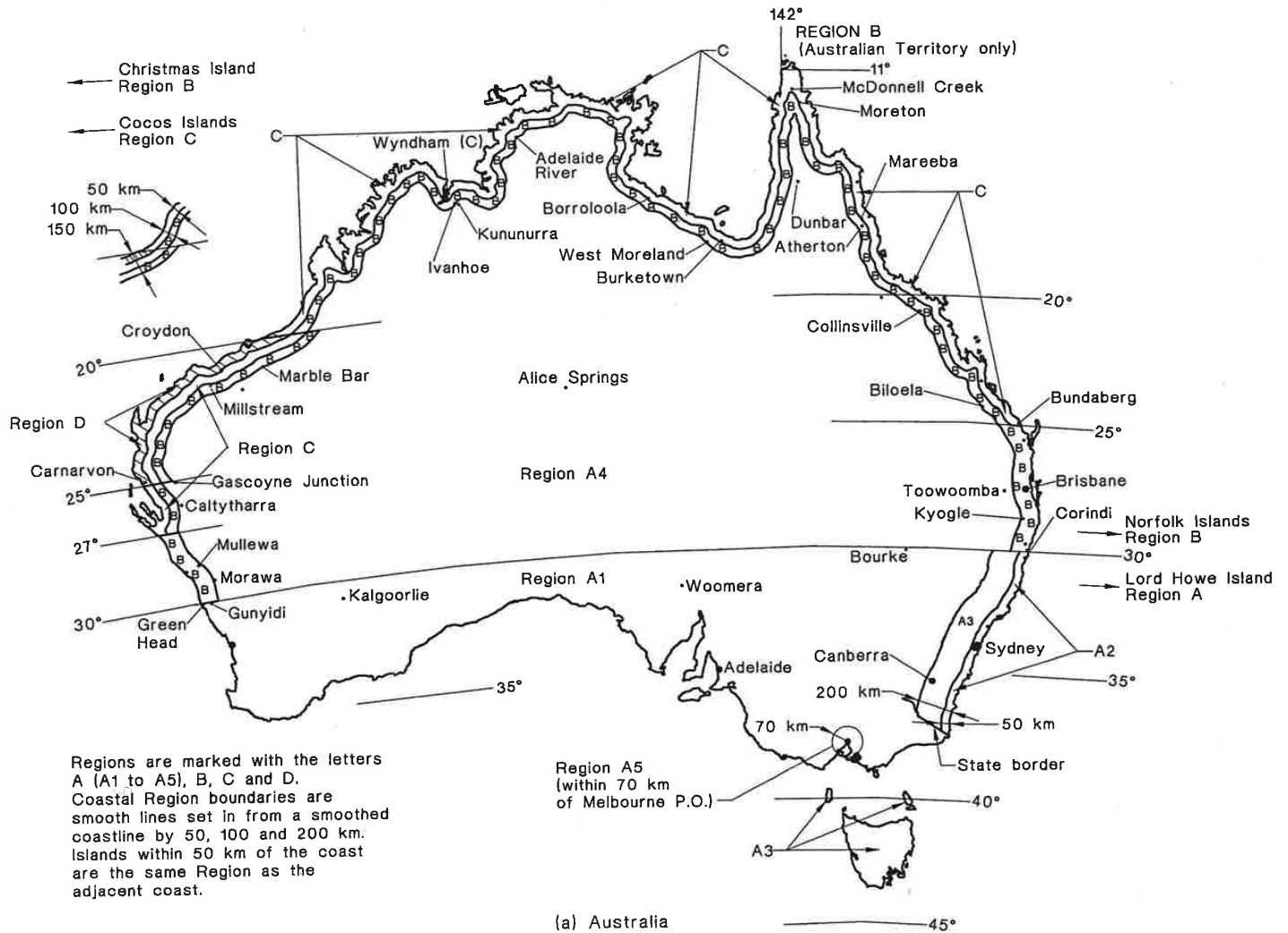
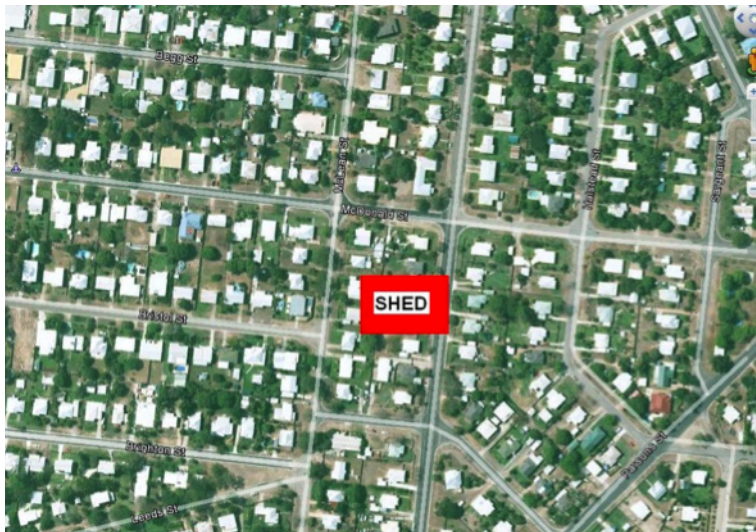


FIGURE 3.1 (in part) WIND REGIONS

TERRAIN CATEGORY CLASSIFICATION EXAMPLES For Buildings Below 3.5m Eaves Height

Building with greater than 3.5m eaves height the distance from change in terrain category will be increased from 200m to 500m.

Terrain Category 3 Examples (TCat3)



Description:

Densely populated area suburban housing.

Terrain Category – 3.0

Description:

Densely populated area 200m (500m for eave height greater than 3.5m) or more from large park or open ground such as airport. For less than 200m seek engineer's advice.

Terrain Category – 3.0





Description:

Densely populated industrial area.

Terrain Category – 3.0

Description:

Densely populated area 200m (500m for eave height greater than 3.5m) or more from forest and beach. For locations less than 200m seek engineer's advice.

Terrain Category – 3.0



Description:

Substantial well established dense trees and forest. Must do an onsite survey to confirm the bush / forest is dense. Dense means equivalent to about 10 house sized obstruction per hectare and also likely to withstand a large wind event.

For reference, vine yards would be considered Terrain Category 2.5 or 2.0.

Terrain Category 3 Definition is only applicable to Region A and B – seek engineers advice if in doubt.



Examples of Terrain Category 2.5 (Tc2.5)



Description:

Substantial well established dense trees and forest. Must do an onsite survey to confirm the bush / forest is dense. Dense means equivalent to about 10 house size obstruction per hectare and also likely to withstand a large wind event.

For reference bushland regrowth would be considered Terrain Category 2.0.

Regions C & D Dense Forrest Terrain Category – 2.5 - Seek engineers advice if in doubt.

Description:

Sparsely populated industrial subdivision with no development expected within the next 5 years.

If development is expected to occur within 5 years the remaining lots Terrain Category 3.0 would be appropriate.

Terrain Category – 2.5





Description:

Isolated obstructions with long grass (greater than 600mm average height) or bush land.

Terrain Category – 2.5.

Please seek engineering assistance for region C & D.

Description:

Small town with isolated obstructions with long grass (greater than 600mm average height) or bush land surrounding.

Terrain Category – 2.5



Description:

Surrounded by plantations of similar height (greater than 600mm high).

Terrain Category – 2.5



Terrain Category 2



Description:

Building on the edge of developments or subdivisions the building must adopt the surrounding profile in this case.

Terrain Category – 2.0

Description:

Isolated building in areas with grass fields average height less than 600mm grass height.

Terrain Category – 2.0



Description:

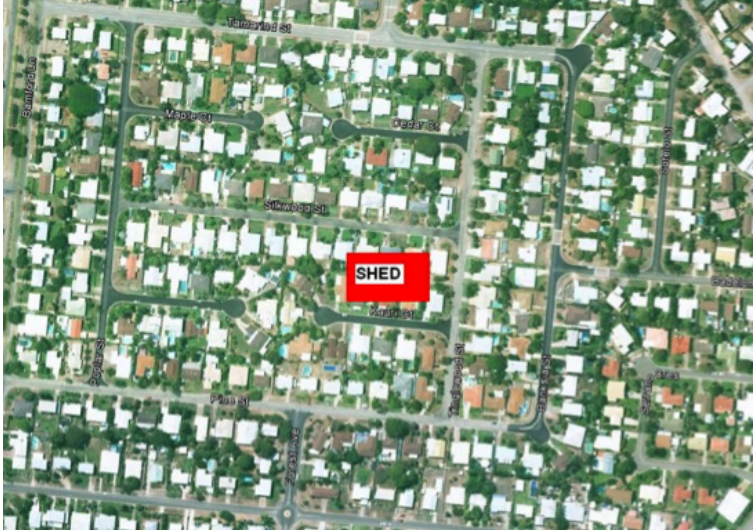
Buildings within 200m of beach.

Terrain Category – 1.5



SHIELDING MULTIPLIER (Ms)

Shielding Factor 0.85



Description:

Closely spaced suburban lots with an average height equal to or greater than the proposed new building.

Shielding multiplier = 0.85

An engineering wind classification can be sought to confirm if a lower classification is appropriate from the engineer.

Description:

Closely spaced industrial lots with an average height equal to or greater than the proposed new building.

Shielding multiplier = 0.85

An engineering wind classification can be sort to confirm if a lower classification is appropriate from the engineer.



Description:

200m from park but has more than 2 Houses between shed and park. Shielding building must be larger than the proposed building.

Shielding multiplier = 0.85

Description:

Building with more than 2 building from the edge of town. Shielding building must be larger than the proposed building.

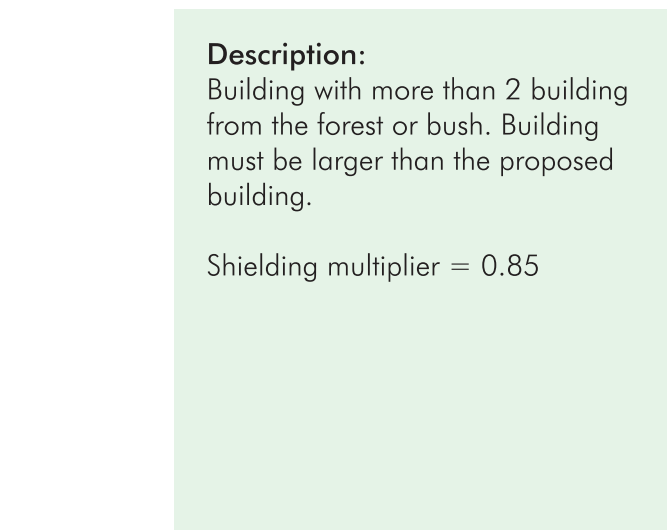
Shielding multiplier = 0.85



Description:

Building with more than 2 building from the beach. Buildings must be larger than the proposed building.

Shielding multiplier = 0.85



Description:

Building with more than 2 building from the forest or bush. Building must be larger than the proposed building.

Shielding multiplier = 0.85



Shielding Factor 1.0



Description:

Building on the edge of developments.

Shielding multiplier – 1.0

Description:

Isolated buildings.

Shielding multiplier – 1.0



Description:

Building next to beach or vegetation.

Shielding multiplier – 1.0

Description:

Unpopulated industrial subdivision.

Shielding multiplier – 1.0

An engineering wind classification can be sought to confirm if a lower classification is appropriate from the engineer.



TOPOGRAPHIC MULTIPLIER (Mt)

Topographic Multiplier (Mt) is always considered to be 1 except for hilly conditions.

All sites on flat ground around the hill to be considered 1. Area above the red line seek engineer assistance.

