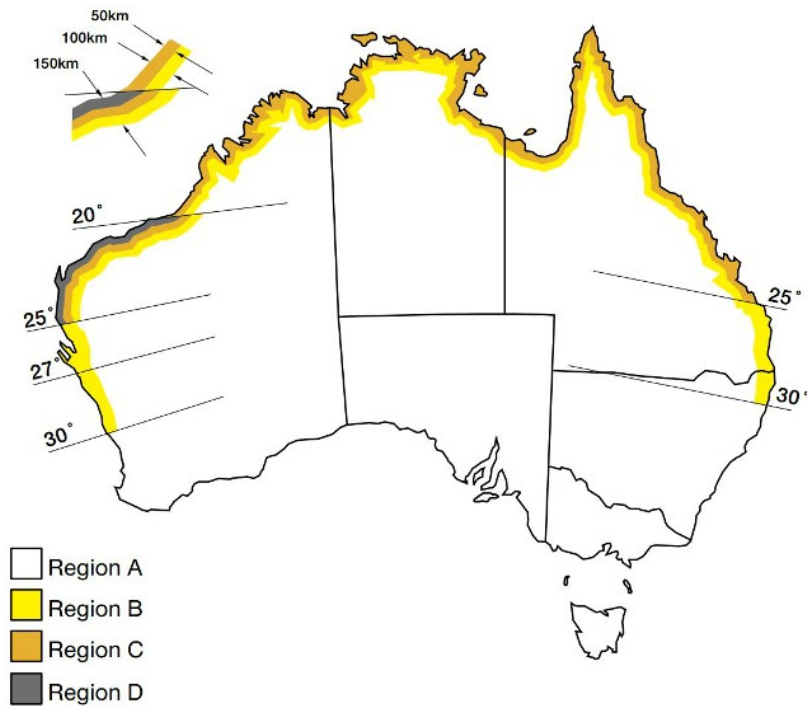# DESIGNING YOUR FRAMING SYSTEM

Selecting wind region

Select the required wind region (A, B, C or D) from the following map.

Region A:
- Callytharra Springs
- Gascoyne Junction
- Green Head
- Kununurra
- Lord Howe Island
- Morawa
- Toowoomba
- Wittanoom
- Bourke

Region B:
- Adelaide River
- Atherton
- Biloela
- Brisbane
- Christmas Island
- Collinsville
- Geraldton
- Ivanhoe
- Mullewa
- Norfolk Island
- Torres Strait Islands
- Wyndham

Region C:
- Broome
- Bundaberg
- Burketown
- Cairns
- Cocos Islands
- Darwin
- Derby
- Mackay
- Moreton
- Normanton
- Rockhampton
- Townsville

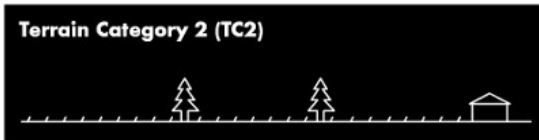**Region D:**
- Carnarvon
- Exmouth
- Karratha
- Onslow
- Port Hedland

Selecting wind terrain category
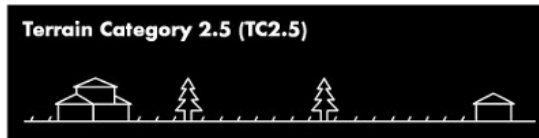
Terrain category 2

Open terrain, including grassland with well scattered obstructions having heights generally from 1.5 metres to 5 metres. Examples include farmland or cleared sub-divisions with isolated trees and uncut grass.

Terrain Category 2 (TC2)

Terrain Category 2 (TC2)
Site near water or cleared rural land with few obstructions to wind.

Terrain category 2.5

Terrain with few trees or isolated obstructions, for example terrain in developing outer urban areas with scattered houses.

Terrain Category 2.5 (TC2.5)

Terrain Category 2.5 (TC2.5)
Site with a few trees or isolated buildings 3m to 5m high (developing urban areas).

Terrain category 3

Terrain with numerous closely spaced obstructions having heights generally from 3 metres to 5 metres. Examples include typical suburban housing or light industrial areas.
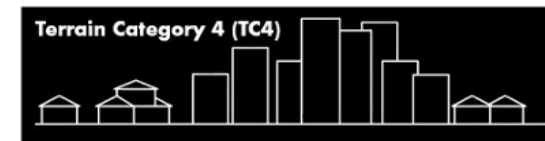
Terrain Category 3 (TC3)

Terrain Category 3 (TC3)
Site surrounded by trees or buildings 3m to 5m high (typical suburban site).

Terrain category 4

Terrain with numerous large, high and closely spaced obstructions having heights generally from 10 metres to 30 metres.

Examples include large city centres or well-developed industrial complexes.

Terrain Category 4 (TC4)

Terrain Category 4 (TC4)
Site located in highly built up industrial or inner city areas (10m to 30m obstructions).

Selecting roof zone

Solar panels can be installed anywhere on the roof, as long as a sufficient number of fixings are used. Higher wind speeds are encountered at the edges of roofs and therefore more fixings are required in these areas.

For a tilted array, a roof can be divided into four zones, the internal zone, intermediate zone, the edge zone and corner zone.

For a flush array, a roof can be divided into two zones, the central zone and end zone.

The width of these outer zones can be determined based on the length, width and average height of the building.
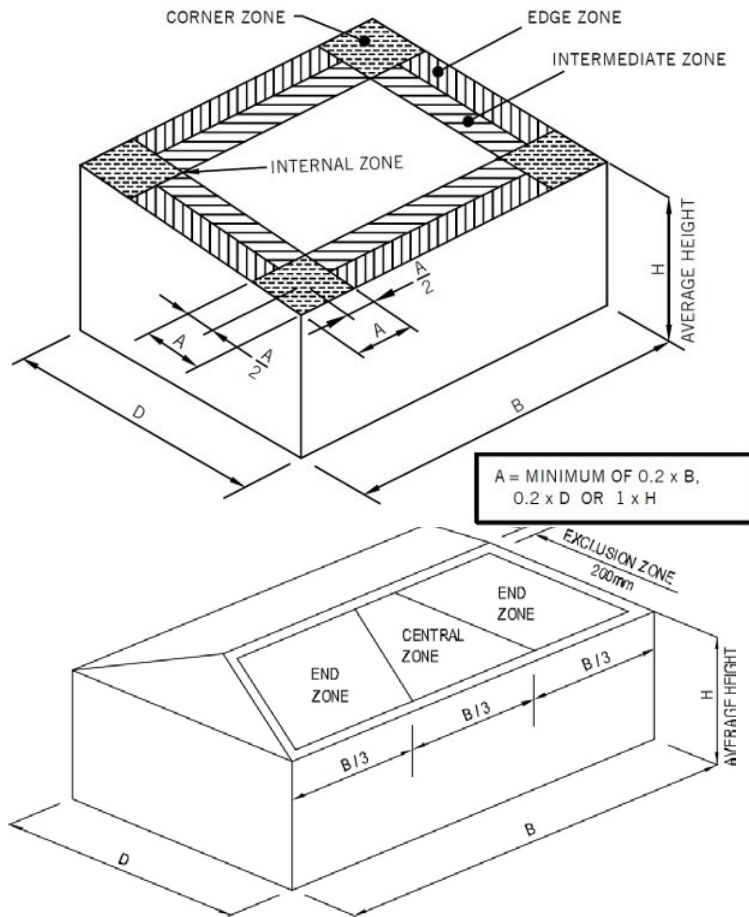
Determining the width of zones 'A' and 'B'

The width of the edge and intermediate zones, 'A' is determined by calculating each of the following values, and then using the smallest:

Tilt: $> 0.2 \times B > 0.2 \times B > H$ **Flush:** $> B / 3 > D / 3$

Selecting roof zone

A = MINIMUM OF 0.2 x B,
0.2 x D OR 1 x H

Selecting purlin thickness and spacing

To appropriately design your NOVA framing system measure the thickness and spacing of the purlins supporting the roof sheeting. The strength of each fixing holding the solar frame to the roof is increased with thicker purlins. As a result, the amount of framing can be optimized. Alternatively, if it isn't possible to measure the thickness of the purlins, the thickness can be derived by measuring the height and width of the purlins (see below). If access to the purlins isn't possible, use the value of 0.9 mm.

Catalogue number	t mm	D mm	Zeds			Cees	
			E mm	F mm	L mm	B mm	L mm
Z/C10010	1.0	102	53	49	12.5	51	12.5
Z/C10012	1.2	102	53	49	12.5	51	12.5
Z/C10015	1.5	102	53	49	13.5	51	13.5
Z/C10019	1.9	102	53	49	14.5	51	14.5
Z/C15012	1.2	152	65	61	15.5	64	14.5
Z/C15015	1.5	152	65	61	16.5	64	15.5
Z/C15019	1.9	152	65	61	17.5	64	16.5
Z/C15024	2.4	152	66	60	19.5	64	18.5
Z/C20015	1.5	203	79	74	15.0	76	15.5
Z/C20019	1.9	203	79	74	18.5	76	19.0
Z/C20024	2.4	203	79	73	21.5	76	21.0
Z/C25019	1.9	254	79	74	18.0	76	18.5
Z/C25024	2.4	254	79	73	21.0	76	20.5
Z/C30024	2.4	300	100	93	27.0	96	27.5
Z/C30030	3.0	300	100	93	31.0	96	31.5
Z/C35030	3.0	350	129	121	30.0	125	30.0