



***AUSTRALIAN STANDARD
AS 4687:2022
TEMPORARY FENCING AND HOARDINGS***

AS 4687:2022

Australian Standard AS 4687:2007 Temporary Fencing and Hoardings has been revised. A new Standard AS 4687:2022 now supersedes the 2007 version.



Australian Standard

AS4687 - 2022
Temporary Fencing
and Hoardings



Australian Standard

AS4687 - 2022
Temporary Swimming
Pool Fencing



MAJOR CHANGES

1. THE STANDARD NOW COMPRISES FOUR PARTS AND SIGNIFICANTLY EXPANDS ON THE ORIGINAL VERSION
2. ALTERNATIVE PATHWAYS TO ACHIEVE CONFORMANCE
3. TEMPORARY FENCING CATEGORISED INTO 3 LEVELS
4. SIGNIFICANT DETAIL INCLUDED TO DETERMINE THE EFFECT OF WIND ACTIONS ON ALL TEMPORARY BARRIERS, AND THE EFFECT OF ADDING SHADE CLOTH OR OTHER MATERIALS
5. TESTING/DESIGN ANALYSIS TO RESIST OVERTURNING NOW REQUIRED FROM BOTH SIDES OF THE FENCE/HOARDING
6. COMBINATION OF ACTIONS INCLUDED (PERMANENT, IMPOSED AND WIND)
7. ONE WIND REGION AUSTRALIA WIDE
8. INTRODUCES A STANDARD FOR PEDESTRIAN BARRIERS
9. COMPREHENSIVE EXPANSION OF TEMPORARY HOARDINGS SECTION
10. INTRODUCES A STANDARD FOR TEMPORARY POOL FENCING



1. THE STANDARD NOW COMPRISES FOUR PARTS AND EXPANDS ON THE ORIGINAL TO INCLUDE:

- AS 4687.1:2022 Temporary fencing and hoardings,
Part 1: General Requirements
- AS 4687.2:2022 Temporary fencing and hoardings,
Part 2: Temporary Fencing and Temporary Pedestrian Barriers
- AS 4687.3:2022 Temporary fencing and hoardings,
Part 3: Temporary Hoardings
- AS 4687.4:2022 Temporary fencing and hoardings,
Part 4: Temporary Swimming Pool Fencing

Part 1 is to be read in conjunction with each of the other 3 parts and contains information pertinent to all temporary barrier design and installation. The design and use of temporary hoardings and temporary pool fencing were considered to be sufficiently different to require their own parts to the Standard.



2. ALTERNATE PATHWAYS TO ACHIEVE CONFORMANCE

AS 4687:2022 provides for alternative pathways to achieve conformance, either through design analysis, physical testing or a combination of both. The previous version only referenced physical testing to achieve conformance.

3. TEMPORARY FENCING CATEGORISED INTO THREE LEVELS

Temporary Fencing has now been categorised into three levels:

- **STABILITY CLASS**
- **IMPORTANCE LEVEL 1**
- **IMPORTANCE LEVEL 2**

AS 4687:2022 enables engineers/users to assess the risk profile of a specific site to ultimately determine the Design Wind Speed to be applied.



STABILITY CLASS

- AS 4687:2022 maintains a minimum or 'stability class' temporary fence from the previous standard. This is built to withstand winds at 54 km/h. This is generally the most basic temporary fence with a simple panel, foot and clamp.
- Stability class is only suitable for applications where the consequence of failure presents negligible risk to persons, property and vehicles. Clause 3.4.1
- For installations where there will be limited levels of pedestrian or vehicle traffic.
- Given majority of sales are simply panel, foot and clamp, the inclusion of a stability class of fencing ensures sales are still viable.



IMPORTANCE LEVELS

- AS 4687:2022 enables engineers/users to assess the Importance Level of the specific site to determine the appropriate Design Wind Speeds to apply.
- **Importance level 1** – Low risk to human life, or small economic, social or environmental consequences. See Table 4 Part 1
- **Importance level 2** – Medium risk to human life, or considerable economic, social or environmental consequences. See Table 5 Part 1

Table 1 – Regional gust wind speed for different Importance Levels

Importance Level	Comment	Annual probability of exceedance	Regional gust wind speed, VR [m/s]
1 (Low risk to human life, or small economic, social or environmental consequences)	Minor structures (where failure is not likely to endanger human life e.g. temporary porous fencing)	1/25	37
2 (Medium risk to human life, or considerable economic, social or environmental consequences)	Normal structures (failure could endanger human life e.g. solid hoarding)	1/50	39



4. SIGNIFICANT DETAIL INCLUDED TO DETERMINE THE EFFECT OF WIND ACTIONS ON ALL TEMPORARY BARRIERS, AND THE EFFECT OF ADDING SHADE CLOTH OR OTHER MATERIALS TO THEM

- Provides clear direction to engineers on how to calculate the wind forces applied to fences/hoardings
 - based on the principles of AS 1170.2 Wind Actions for Aust/NZ - using either physical testing, design analysis or a combination of both.
- The engineer's aim is to calculate a Design Wind Speed that is relevant to the location where the fence/hoarding will be placed.
- AS 4687:2022 provides handy look-up tables of prescribed Design Wind Speeds that engineers can reference. The bulk of the calculations are done so 5 aspects of local site conditions are considered to determine what Design Wind Speed the fence/hoarding needs to be designed and built too. These 5 aspects are Importance Level, Terrain Category, Shielding Class, Topography and Proximity.
- This Design Wind Speed estimates the wind forces to which the fence/hoarding will be subjected. The engineer then designs the fence to withstand those forces accounting for the total solid area of the fence, the total solid area will vary with mesh size and attachments such as shade cloth and banners.

IMPORTANCE LEVEL

DESIGN SITE WIND SPEEDS, VDES, IN M/S FOR IMPORTANCE LEVEL 1, GROUND MOUNTED SINGLE-STOREY ELEMENTS ASSUMING DIRECTIONAL MULTIPLIERS OF 1

Topography Multiplier		1.0			1.15			1.25			1.4		1.5	1.7
Shielding Class		HS	MS	NS	HS	MS	NS	HS	MS	NS	MS	NS	NS	NS
Terrain Category	1	29	33	36	34	38	42	36	41	45	46	51	54	62
	1.5	28	32	35	32	36	40	35	40	44	44	49	53	60
	2	27	31	34	31	35	39	34	38	43	43	48	51	58
	2.5	26	29	33	30	34	38	33	37	41	41	46	49	55
	3	25	28	31	29	32	36	31	35	39	39	43	47	53
	3.5	24	27	30	27	31	34	30	33	37	37	41	44	50
	4	23	25	28	26	29	32	28	32	35	35	39	42	48

DESIGN SITE WIND SPEEDS, VDES, IN M/S FOR IMPORTANCE LEVEL 2, GROUND MOUNTED SINGLE-STOREY ELEMENTS ASSUMING DIRECTIONAL MULTIPLIERS OF 1

Topography Multiplier		1.0			1.15			1.25			1.4		1.5	1.7
Shielding Class		HS	MS	NS	HS	MS	NS	HS	MS	NS	MS	NS	NS	NS
Terrain Category	1	31	35	38	35	40	44	38	43	48	48	53	57	64
	1.5	30	33	37	34	38	43	37	42	46	47	52	55	63
	2	29	32	36	33	37	41	36	40	45	45	50	54	61
	2.5	28	31	34	32	36	40	34	39	43	43	48	51	58
	3	26	30	33	30	34	38	33	37	41	41	46	49	56
	3.5	25	28	31	29	32	36	31	35	39	39	44	47	53
	4	24	27	30	27	31	34	30	33	37	37	41	44	50

TERRAIN CATEGORY

Determine your terrain category. The terrain category describes the surface roughness of the surrounding area 500m from the housing site.

CATEGORY 1 – TC1

Very exposed open terrain with few or no obstructions and all water surfaces, e.g. Flat, treeless, poorly grassed plains, or open ocean, rivers, canals, bays and lakes.

CATEGORY 1.5 – TC1.5

Exposed open terrain, with isolated obstructions having heights from 1.5 m to 5 m, with less than 2 obstructions per hectare, e.g. Rocky terrain, spinifex. This category is intermediate between TC1 and TC2.

CATEGORY 2 – TC 2

Open terrain including grassland with well-scattered obstructions having heights generally from 1.5m to 5m with no more than two obstructions per hectare, e.g. Farmland and cleared subdivisions with isolated trees and uncut grass.

CATEGORY 2.5 – TC2.5

Terrain with some trees or isolated obstructions, terrain in developing outer urban areas with scattered houses, or large acreage development with fewer than 10 buildings per hectare. This category is intermediate between TC2 and TC3.

CATEGORY 3 – TC3

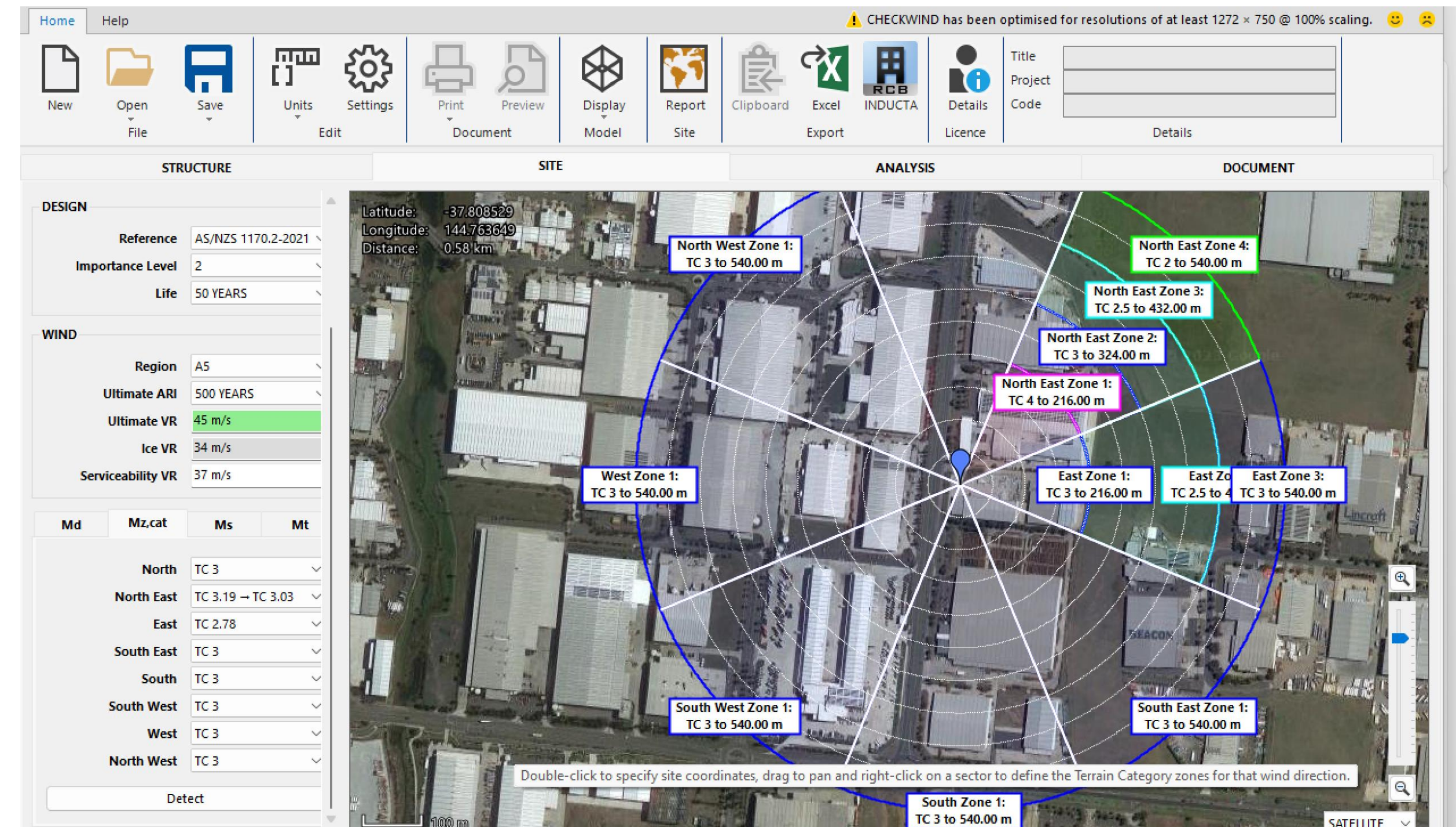
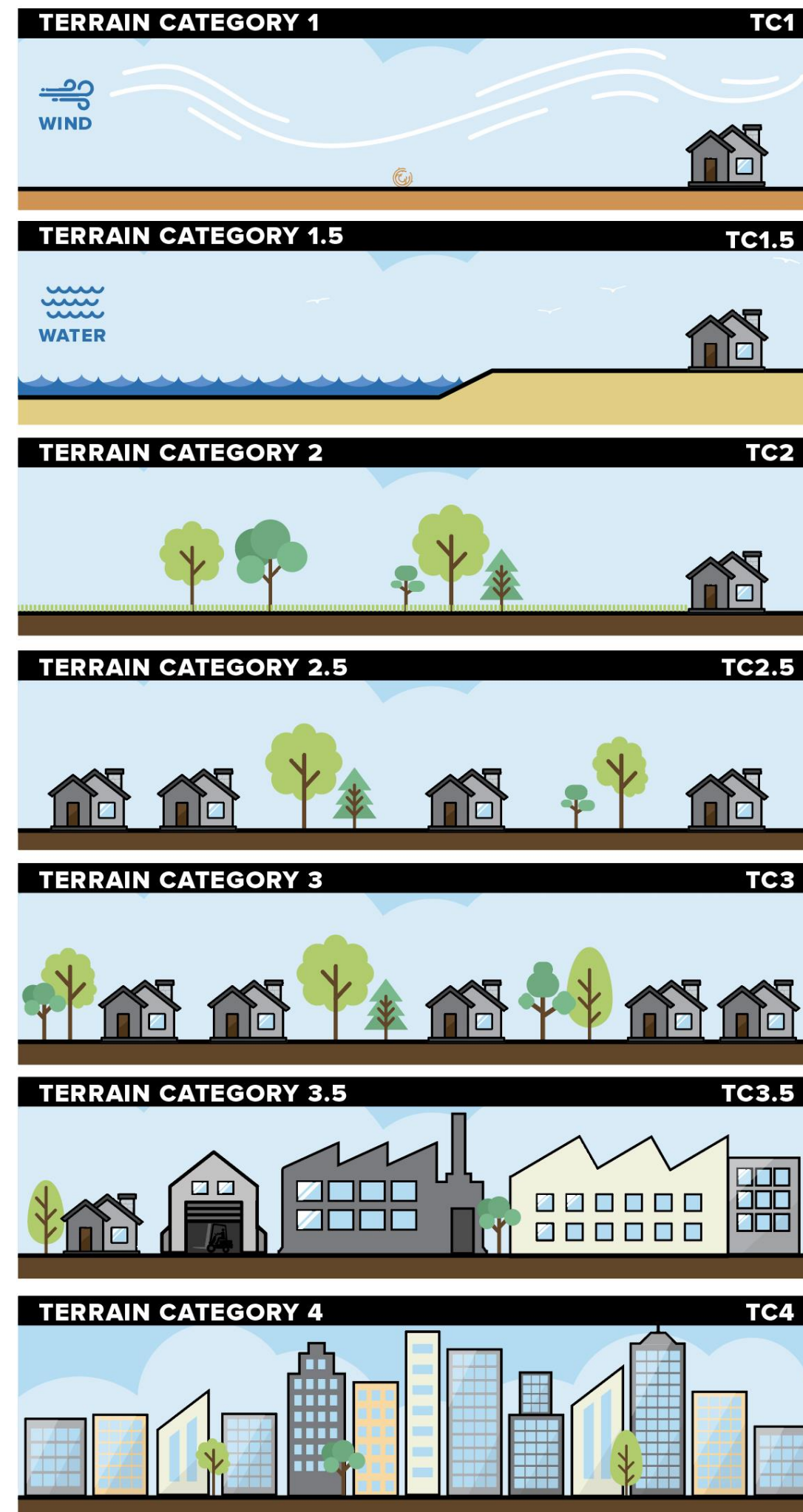
Terrain with numerous closely spaced obstructions having heights generally from 3m to 10m. The minimum density of obstructions shall be at least the equivalent of 10 house-size obstructions per hectare, e.g. "suburban housing, light industrial estates or dense forests.

CATEGORY 3.5 – TC3.5

Terrain with numerous closely spaced obstructions, or larger buildings with articulation such as saw-toothed roofs having heights from 5m to 15m. This category is intermediate between TC3 and TC4.

CATEGORY 4 – TC4

Terrain with numerous large, high (10m to 30m tall) and closely-spaced constructions, such as large city centres and well developed industrial complexes.



SHIELDING

For installations above 10m above ground level, the shielding multiplier shall be 1.0.
For installations below 10m above ground level, where the site-wind speed on a temporary barrier is influenced by obstructions of greater height, shielding may be considered based on the existing conditions. As the temporary barrier will be removed during cyclonic conditions, then well-established vegetation of greater height than the structure may be considered as an effective shielding element.

The shielding shall be identified by the notation *HS*, *MS* or *NS*, as defined by:

FULL SHIELDING - HS

$M_s = 0.8$ High shielding shall apply to a sector where there are at least 10 house-sized obstructions per hectare in the sector. High shielding is only possible with a topographic multiplier < 1.25 . An installation neighbouring permanent wooded areas, or continual dense suburbia within 100m provides high shielding.



MEDIUM SHIELDING - MS

$M_s = 0.9$ - Medium shielding shall apply to intermediate situations where there are at least three house sized obstructions per hectare, such as acreage type suburban development or wooded parkland. Partial shielding is only possible with topographic multiplier < 1.4 . An installation in the second row of housing abutting an open area may be classified as having partial shielding.



NO SHIELDING - NS

$M_s = 1.0$ - No shielding shall apply where there are less than three obstructions per hectare, such as a site adjacent to an open parkland, water body, or airfield.



Home Help CHECKWIND has been optimised for resolutions of at least 1272 x 750 @ 100% scaling.

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STRUCTURE SITE ANALYSIS DOCUMENT

DESIGN
Reference: AS/NZS 1170.2-2021
Importance Level: 2
Life: 50 YEARS

WIND
Region: A5
Ultimate ARI: 500 YEARS
Ultimate VR: 45 m/s
Ice VR: 34 m/s
Serviceability VR: 37 m/s

Md	Mz,cat	Ms	Mt
North		1.0	
North East		1.0	
East		1.0	
South East		0.7459	
South		0.7233	
South West		0.8181	
West		1.0	
North West		1.0	

Latitude: -37.307853
Longitude: 144.771330
Distance: 0.11 km

North: Ms = 1.0
North East: Ms = 1.0
North West: Ms = 1.0
East: Ms = 1.0
South East: Ms = 0.7459
South West: Ms = 0.8181
South: Ms = 0.7233
West: Ms = 1.0

Double-click to specify site coordinates, drag to pan and right-click to add/edit/delete/clear shielding structures.

Detect Clear



TOPOGRAPHY

The topographic classification is determined by the effect the wind has on the dwelling due to its position on the hill, designated to be T5.

The bottom of the hill is considered very flat or if the slope is less than a 1 in 20 rose a minimal slope would be classed as T0.

The maximum slope is measured at the steepest part of the hill regardless of where the dwelling is positioned. A cliff is a slope of greater than 1 in 3 and has the maximum of T5 at the top. Over the top of the hill the wind pressure drops down.

MAXIMUM SLOPE θ_s	SITE LOCATION					
	LOWER ZONE (L)	MID ZONE (M)	TOP ZONE (T)			OVER TOP (O)
			H<10M	10M<H<30M	H>30M	
<1:20	1.0	1.0	1.0	1.0	1.0	1.0
>1:20 TO <1:10	1.0	1.15	1.15	1.15	1.15	1.0
>1:10 TO <1:7.5	1.0	1.15	1.15	1.25	1.25	1.15
>1:7.5 TO <1:5	1.0	1.15	1.25	1.25	1.4	1.15
>1:5 TO <1:3	1.0	1.25	1.25	1.4	1.5	1.25
>1:3	1.15	1.25	1.4	1.5	1.7	1.4

H = height of the hill, ridge or escarpment (m)

The screenshot shows the CHECKWIND software interface. On the left, the 'DESIGN' and 'WIND' panels are visible. The 'DESIGN' panel includes Reference (AS/NZS 1170.2-2021), Importance Level (2), and Life (50 YEARS). The 'WIND' panel includes Region (A5), Ultimate ARI (500 YEARS), Ultimate VR (45 m/s), Ice VR (34 m/s), and Serviceability VR (37 m/s). Below these are wind direction analysis results for Mt (Mean Wind Direction) for various directions: North (1.0), North East (1.0), East (1.0), South East (1.0), South (1.0), South West (1.0), West (1.0), and North West (1.0).

The main window displays a topographic map of a residential area with a 'West Wind Topographic Zone' highlighted. Numerous wind direction analysis points are overlaid on the map, each labeled with a direction and a Mt value of 1.0. The map includes geographical markers like Derrimut, Ardeer, and Sunshine.

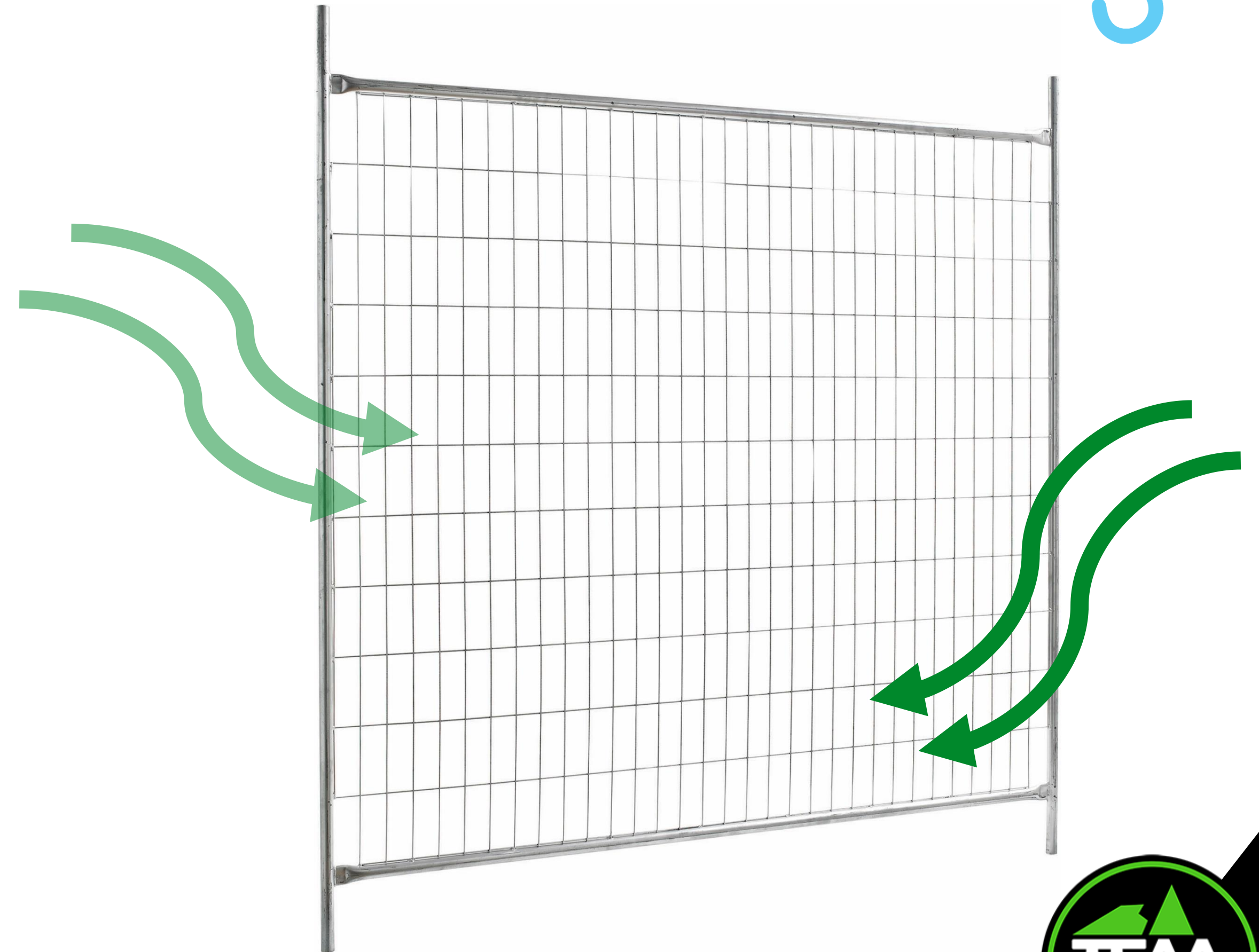


- It is worth noting that for many locations these design wind speeds are significantly lower than AS 1170 the AS/NZ wind code – which relates to permanent structures and has a minimum design wind speed of 30m/sec (108 km/h).
- The calculation for Shape factors and Reference areas in AS 4687 have also been simplified when compared to AS 1170. This has led to less conservative results compared to AS 1170 when calculating the effect of shade cloth, banners and other materials attached to a temporary fence.
- This means comparatively less equipment needs to be used to construct the temp fence/hoardings than if they were designed to AS 1170, making them more practical and economically viable.
- The standards committee also considered the OH&S implications of over-engineering a temporary structure which may require frequent movement on site.



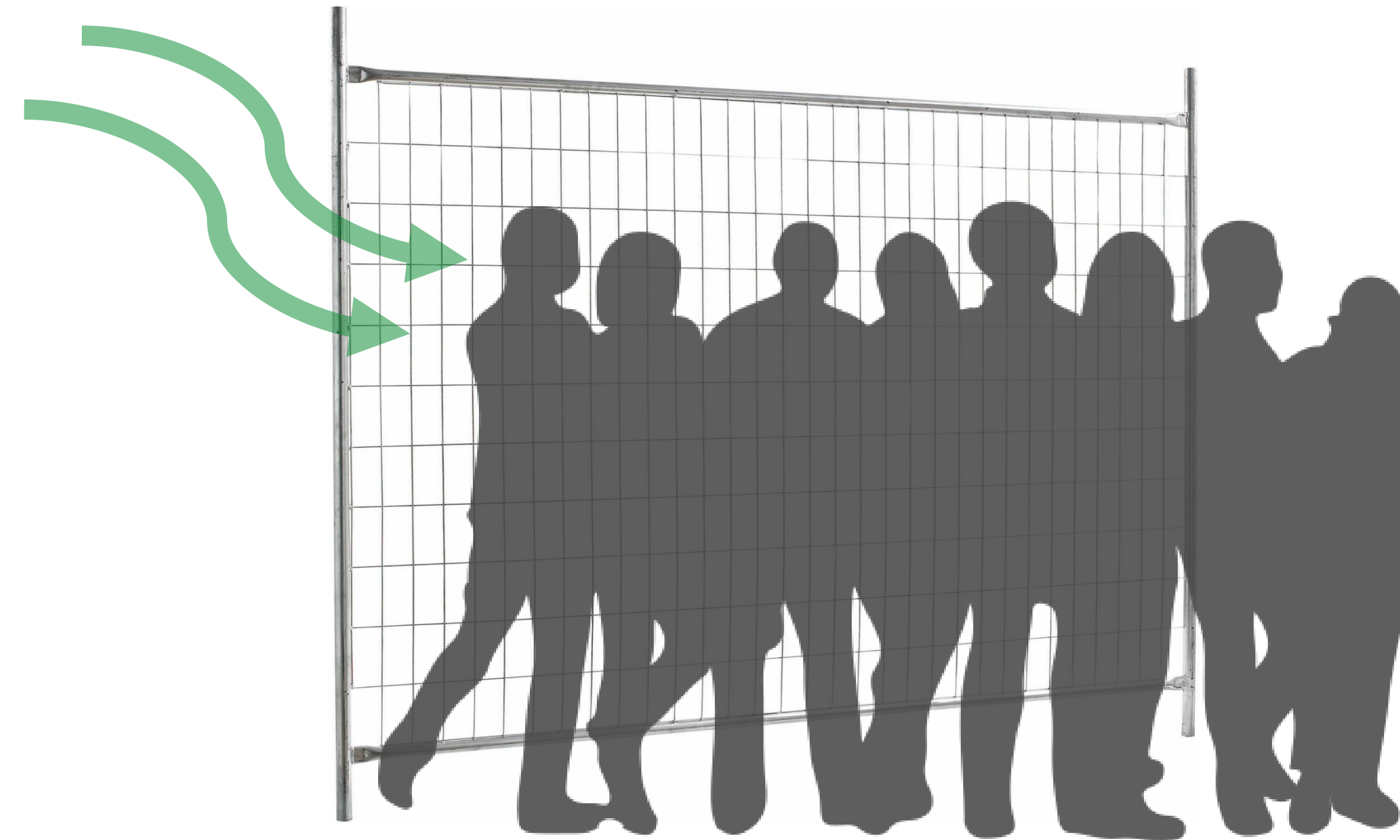
5. TESTING/DESIGN ANALYSIS TO RESIST OVERTURNING NOW REQUIRED FROM BOTH SIDES OF THE FENCE/HOARDING

- Testing from both sides of the fence/hoarding. In the 2007 version there was no requirement for fences/hoardings to be tested assessing forces - particularly wind forces - from both sides of the temp fence/hoarding. Testing was generally conducted from the side where bracing was attached achieving successful results.
- The 2022 version requires testing from both sides. This is significant because from experience fences with shade cloth/banner attached tended to fail when the wind force was from the front or non-braced side of the fence. The temp fence could pull out of the blocks and pivot over the bracing.
- The new Standard calls for the temp fence/hoarding to be designed to stay upright no matter from which direction the wind forces are applied to it.



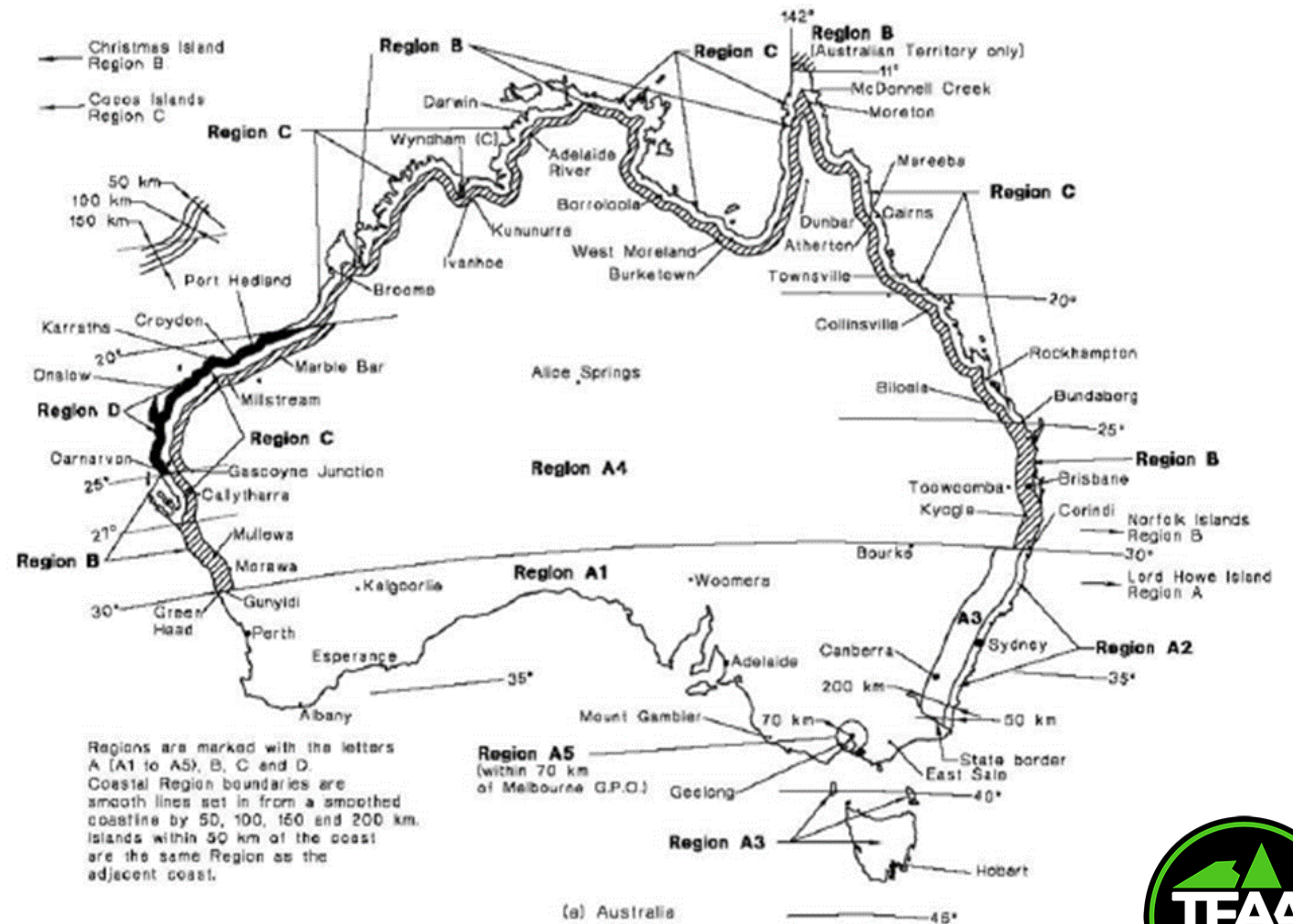
6. COMBINATION OF ACTIONS (PERMANENT, IMPOSED AND WIND) INCLUDED

AS 4687:2022 considers a Combination of actions. This means that a fence/hoarding needs to be designed to withstand a situation where it may be subjected to wind and any additional forces which may be applied such as impact from machinery or flying debris, climbing or crowding from pedestrians.



7. ONE WIND REGION AUSTRALIA WIDE

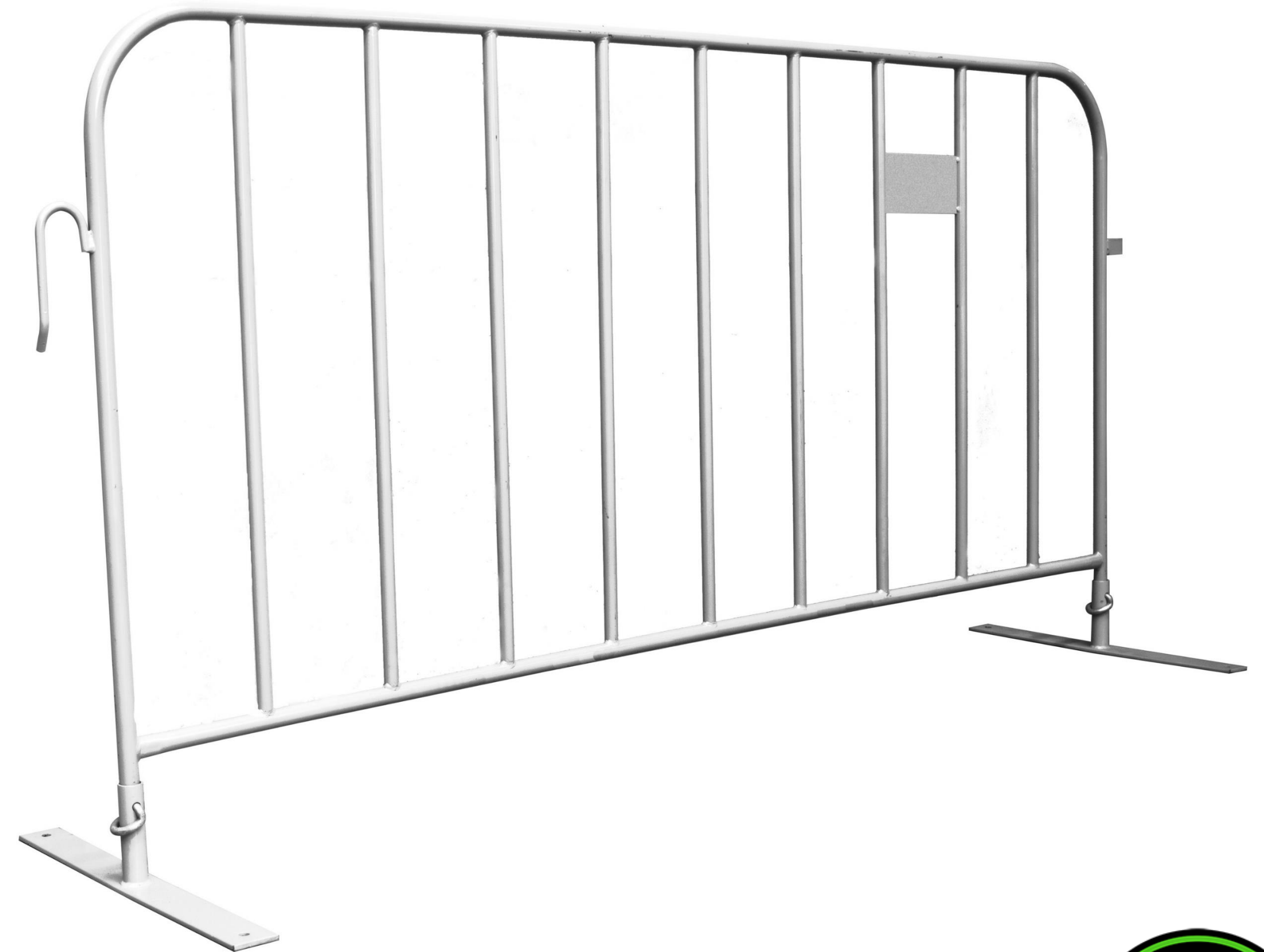
The 2007 version required fences/hoardings to be designed for different Wind Regions of Australia/NZ based on the AS1170 Wind Region map. AS 4768:2022 has simplified this by having the Design Wind Speeds provided in Tables 4 & 5 applicable to all areas of Australia. This reduces complexity for engineers. The only proviso to this is the requirement for fences/hoardings to be disassembled or made safe in the event of a cyclone warning.



8. INTRODUCES A STANDARD FOR PEDESTRIAN BARRIERS

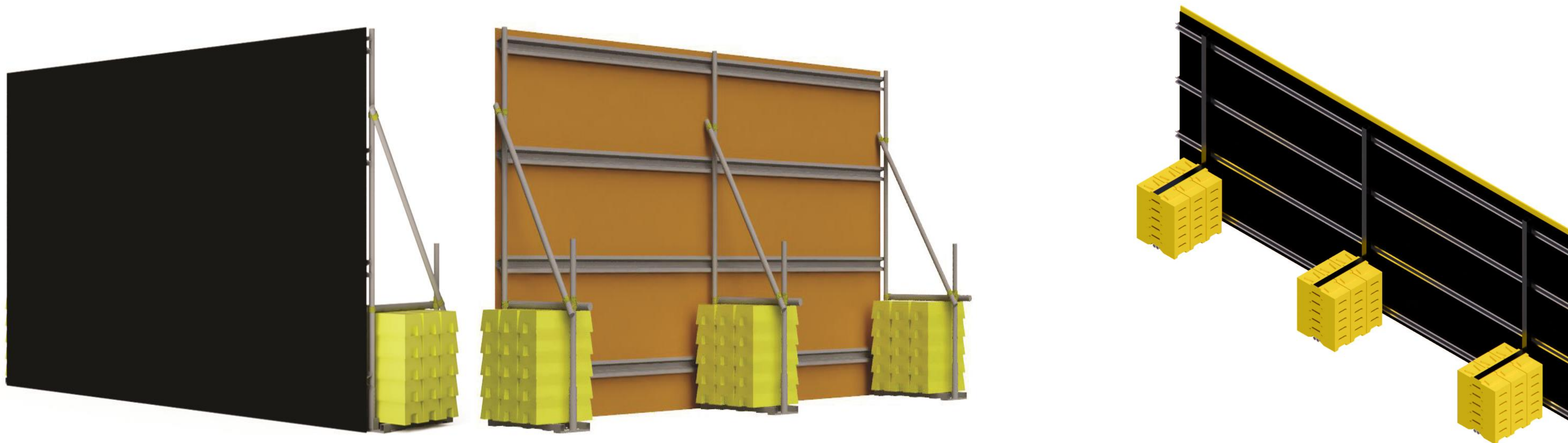
AS 4687:2022 introduces a Standard for design and installation of Pedestrian Barriers setting requirements to ensure they are manufactured and installed to be safe.

It provides for testing/design analysis requirements for strength, overturning and attachment of signage etc.



9. COMPREHENSIVE EXPANSION OF TEMPORARY HOARDINGS SECTION

- AS 4687.2:2022 provides significant detail for calculating wind effects on Temporary Hoardings. A temporary barrier with 100% cover from ground level is the definition of a temporary hoarding within this Standard.
- AS 4687.2:2022 is applicable to counterweight Hoardings only – that is hoardings that are secured with ballast blocks of some sort. It is not applicable to hoardings that have posts concreted in ground or fixed with mechanical fixings. These are considered permanent structures and are subject to engineering to AS/NZS 1170
- Requirement for additional bracing for 2 x height at Gates and Open Ends. Given the risk profile of Hoardings this requirement ensures conformance to best practice as required for permanent structures through AS/NZS 1170.



10. INTRODUCES A STANDARD FOR TEMPORARY POOL FENCE

- AS 4687:2022 introduces a Standard for design and installation of TEMPORARY Pool Fencing, setting requirements to ensure that it is manufactured, engineered and installed to be safe.
- This is extremely important as some building surveyors do not recognise Temporary Pool Fencing as an option as it was not referenced previously in AS 1926.1:2007 Swimming Pool Safety – Safety Barriers for Swimming Pools. These building surveyors would insist that only permanently installed pool fences could be used.
- As AS 4687:2022 is now applicable Building Surveyors can sign off on use of Temporary Pool Fencing.
- Includes a range of exclusion zones for climbing aids to assist surveyors for certification of fencing for new pools or those undergoing maintenance or repair
- Endorsed by SPASA
- AS 4687:2022 is now referenced in AS 1926.1:2024 Safety Barriers for Swimming Pools for pools under construction or repair

