
Building Services Information Sheet

CYCLONE INFORMATION



A Category 5 cyclone's strongest winds are VERY DESTRUCTIVE winds with typical gusts over open flat land of more than 280 km/h. These winds correspond to the highest category on the Beaufort scale, Beaufort 12 (Hurricane). The central pressure is typically below 920hPa.

Cyclone severity categories are summarised in Table 3-1 below.

Table 3-1: Cyclone severity categories

CATEGORY	WIND STRENGTH (Max gust in km/hr)*	WIND STRENGTH (Max gust in m/s)*	DAMAGE POTENTIAL
1	Gale 90 - 124	25 - 34	Minimal
2	Storm 125 - 164	35 - 45	Moderate
3	Hurricane 165 - 224	46 - 62	Major
4	Hurricane 225 - 279	63 - 78	Devastating
5	Hurricane >280	> 78	Extreme

* Gust speeds refer to 3 second gusts at a height of 10m above open flat terrain.

Note that the force exerted by the wind increases approximately as the square of the velocity. Thus a 60km/h wind exerts 100 times the force of a 6km/h wind.

Another important consideration is the duration of the cyclone. A slow moving cyclone will subject buildings to excessive wind actions and cyclic loading for a longer period of time compared to a fast moving cyclone. This means there would be a greater risk of building failure in the case of a slow moving cyclone compared to a fast moving cyclone even if the intensities were similar.

The Building Code of Australia (BCA) requires that all glazing meet either AS2047 or AS1288 depending on the type of glazing unit however it is recommended that cyclone screens or shutters are considered as the glass can still be smashed by flying projectiles.

It is to be noted that most buildings approved in the Shire of Broome are certified by the Structural Engineer as capable of taking "internal pressures". This means they are designed to be structurally sound when the windows are smashed. Hence the smashed glazing units can be a danger and will allow water egress and hence water damage. The Shire of Broome is located in an area where the building must be designed to withstand as a minimum, maximum design gust wind speeds of 61m/s. This equates to Region C Terrain Category 2. Note the category referred to here is totally different and not connected to the actual Cyclone Severity Category and are not to be confused. It can be seen from the above table that the minimum legal requirement for buildings only covers up to a Category 3 Cyclone. Buildings can obviously be designed for higher wind loadings which would be at the request of the building owner.

There are additional factors that influence a building's susceptibility to cyclone damage. These include the standard of construction applicable when the building was erected, the level of construction of any subsequent alterations and additions to the building, the deterioration of the building over time determined by the level of maintenance and factors such as termite degradation and corrosion of metal fasteners, and the risk of damage from falling trees and flying debris.

These factors, although potentially major contributors, are beyond the scope of the BCA.