Specifications for
Umbrella Design & Components

TECHNICAL INFORMATION

Design

The umbrellas have been designed in accordance with the principles of structural mechanics to resist loading in accordance with the Building Code of Australia and the relevant Australian Standards listed below:
Structural Design Actions
AS/NZS 1170.0 - General Principles.
AS/NZS 1170.1 - Permanent, Imposed and other Actions.
AS/NZS 1170.2 - Wind Actions.
AS 4100 - Steel Structures.
AS 3600 - Concrete Structures.
AS1170.4 - Earthquake Loads

The umbrella structure is engineered to withstand wind-speeds of up to 120kph (ie: 33 metres per second). Please note that weather bureau reports will not take into account your site's local topography (ie: the affects of the surrounding land formation and adjacent structures). Local topographical affects can cause an overall net increase in wind speed due to funneling, as well as change the angle of attack of the wind onto the structure. In other words, wind gusts due to variations in local topography may cause wind-speeds in excess of those reported by the local weather bureau. It is for this reason that the structures must be closed and tied before **reported** wind speeds reach gusts of 100km/h (60mph).

Standards for Steelwork & Workmanship

The following Australian Standard Codes apply to materials and workmanship:
AS 1163 - Welded and seamless steel hollow sections for general structural purposes.
AS 3679 - Grade 250, Hot rolled structural steel sections.
AS 3578 - Structural steels, ordinary weldable grades.
AS 1554/SP - S.A.A. Structural steel welding code.
AS 1796 - Certification of welders & welding supervisors.
AS 1650 - Hot-dipped galvanised coatings on ferrous articles.
AS 1595 - Cold rolled steel strip.
AS 1397 - Galvanised steel strip.
AS 1450 - Steel tubes for mechanical purposes.

Components

The tensile membrane is fabricated from UV-stabilised, architectural-grade PVDF-coated white polyester fabric. The finish is low maintenance, pollution resistant and rot free.

The structure employs galvanised tubular steel components, complying with the above codes, finished with Triplex white polyester powder coating system.

Bolts, nuts and washers, wire rope cables, rigging screws and shackles are stainless steel Gr.304/Gr.316

Pole sleeve is stainless steel Gr. 316

Top hat is aluminium with white polyester powder coat.

Arm end plugs are UV resistant Nylon 6 MO (extruded), colour black. (Polyamide 6 + molybdenum disulfide)

Membrane top plate is weatherproof PVC Integral skin-foam