



# Hurricane Natural Ventilation





Originally known as Edmonds® until 2019 then rebranded to Bradford® in 2020.

Bradford is a manufacturer of premium ventilation and energy efficiency products, including insulation and sarking – backed by CSR, Australia’s leader in building products.

Bradford is passionate about delivering superior comfort and performance whilst reducing the overall impact on the environment. It is this vision of a sustainable future which has resulted in the design and development of many energy efficient innovations. These innovations include natural, wind-driven, hybrid and turbine ventilation technology.

Regarded as a leading industry innovator, Bradford has a range of ventilation products that are engineered and manufactured at its ISO9001 accredited facility in Seven Hills, Australia. It is this manufacturing and technical expertise which makes Bradford a pioneer in home, commercial and industrial ventilation solutions in Australia as well as across the globe.

Bradford, formerly known as Edmonds, has also received numerous awards including the AIRAH Excellence in Sustainability Award in 2013 and Achiever Award in 2008. It was also recognised with a Good Design Award at the 2013 Australian International Design Awards and Master Builders Australia 2012 National Export Award. In 2016 Bradford’s EcoPower Hybrid Ventilator won the MEP Services Category in The Big 5 Gaia Awards.

With strong synergies between insulation and ventilation in buildings, Bradford’s vision to enable the creation of sustainable environments continues.



Hurricane® was installed in indoor swimming centres to reduce condensation and humidity.



Hurricane® (93 x H900) was installed at the Qantas Engineering Workshops, Mascot, Sydney to improve ventilation for employees.

## Hurricane®

For over 25 years, the Hurricane® range of Australian-engineered natural ventilation technology has been built to endure the toughest of climatic conditions and operating environments.

From Melbourne to the Middle East and to the Midwest of USA; you can be confident that Hurricane® will provide years of superior operation.

## EFFECTIVE NO COST OPERATION

- Natural, wind-driven ventilation to maximise energy savings through free-air cooling.
- Improved indoor air quality by removing pollutants.
- Improved humidity control by removing moisture build-up.
- Improved occupant comfort by removing heat build-up.

## HIGH PERFORMANCE BRADFORD VERTICAL VANE™ TECHNOLOGY

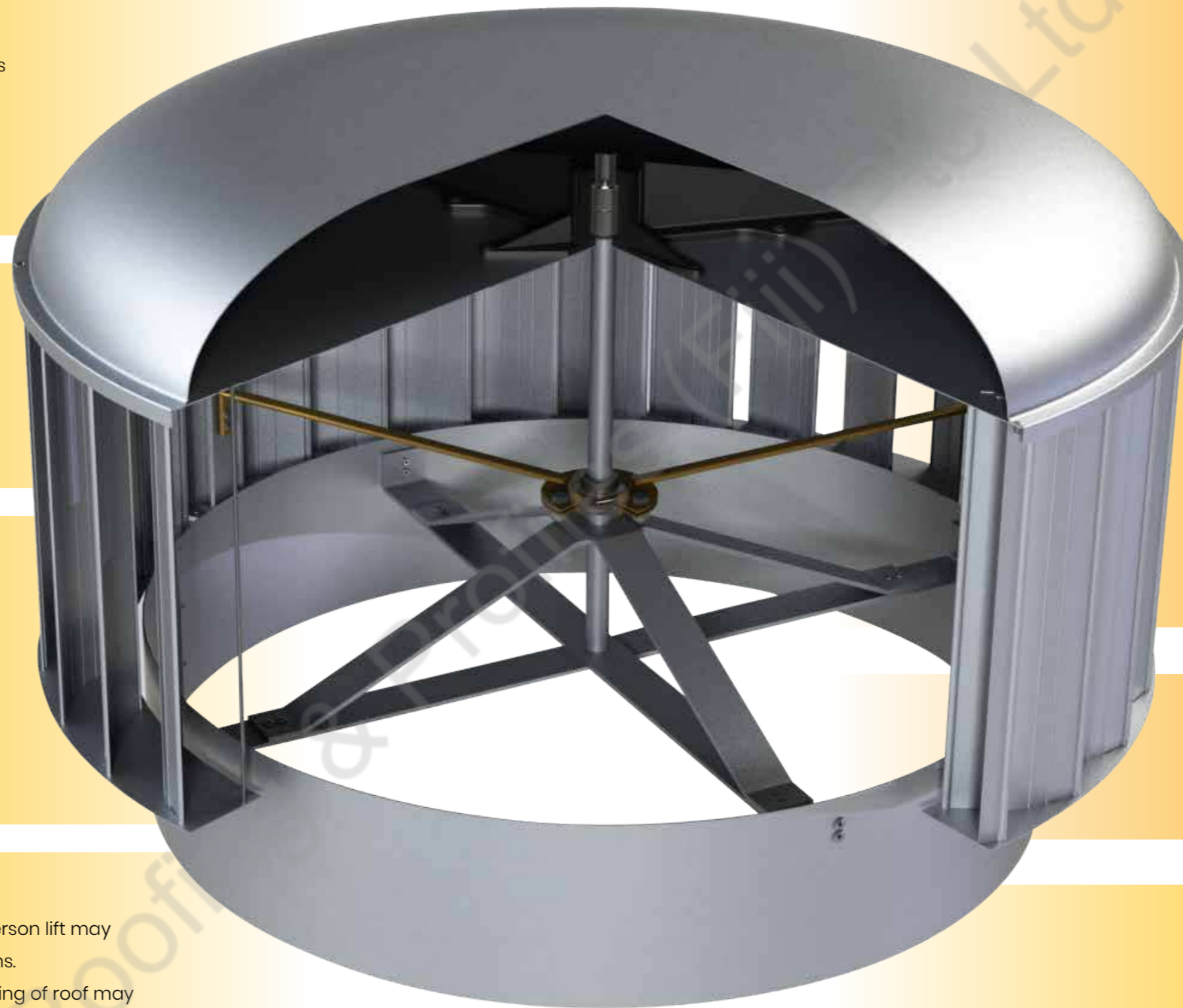
- Unique design allows wind turbine to act as a centrifugal impeller
- Improved co-efficient of flow ( $C_p$ ) compared to similar sized traditional spherical vents.

## MATERIALS

- Marine grade equivalent aluminium as standard.
- Options for highly corrosive environments also available.
- Aluminum finish or powder coated options to match most COLORBOND® colours. Refer to Bradford® colour chart for available colours.
- Bearing system designed to prevent ingress of fine dust particulates in harsh environments.

## INSTALLATION BENEFITS

- Significant weight advantage, <25kg on turbine top. Two-person lift may be achieved versus crane-lift for heavier competitor options.
- Lightweight design means additional structural strengthening of roof may not be required.
- Variable pitch base design can adapt to most roof angles. Special Bases can be custom made for known roof pitch.



## SPECIAL VARIATIONS



FR900 Fire-Rated option meets the fire-resistant test to AS 1668.1-1998. The use of ventilation and air conditioning in buildings, Part 1: Fire and smoke control in multi-compartment buildings Section 4.8. Smoke-Spill fan.



BAL rated option for buildings in Bushfire Prone Vegetation Category 1 areas. It is designed to comply with the Deemed to Satisfy provisions of AS3959.



S2 Corrosion Resistant option for water reservoirs or environments that are oxidative or slightly acidic (non-caustic).



HI Heavy Industrial option with polyolefin coating for highly corrosive environments.

## ACCESSORIES

- Manual or electric dampers
- Special bases
- EC damper grilles

## WARRANTY

15 year warranty on standard Hurricane, not including Special Variations and Accessories. Please refer to [bradfordventilation.com.au](http://bradfordventilation.com.au) for full warranty conditions.

Note: Image for illustrative purposes only.

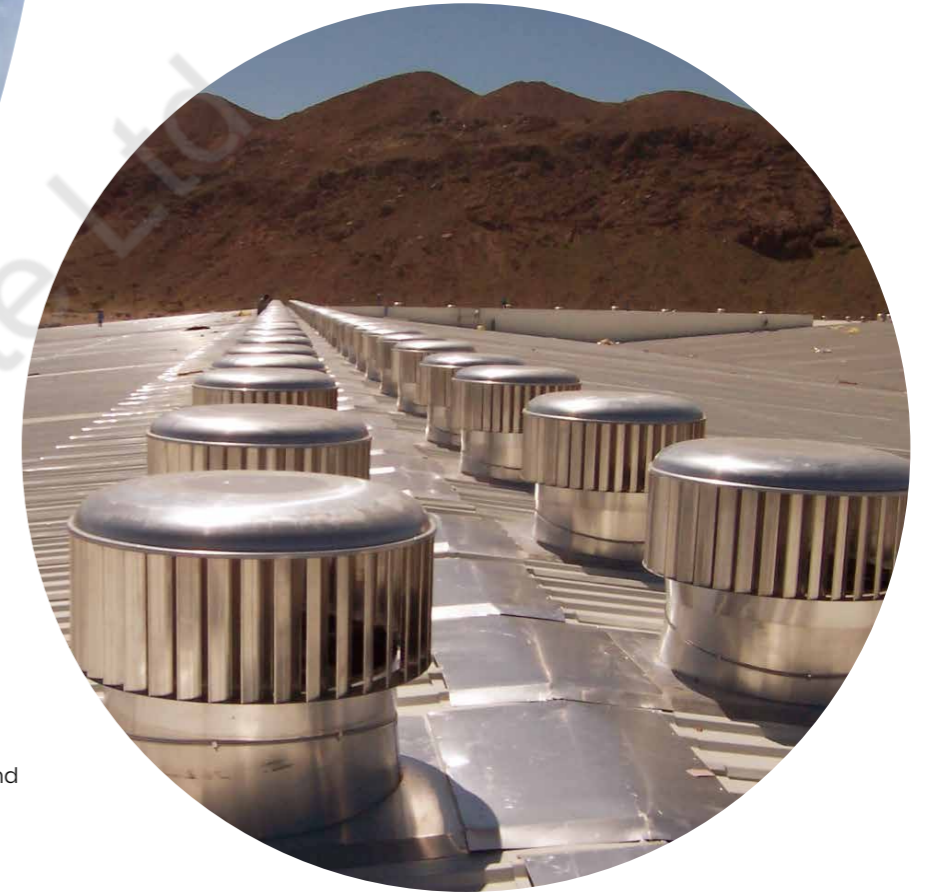


## STANDARD VARIANT

Hurricane®



7 x Hurricane® H700 were installed at the The Heritage Centre building, Garden Island Sydney



Toyota Spare Parts facility in Muscat Oman, Hurricane H900 for high ambient conditions >40°C.

## MORE COMFORT, LESS ENERGY

Hurricane® range of turbine ventilators provide natural, wind-driven ventilation that can enhance air movement and maximise energy savings. Hurricane® ventilators can benefit your building project through:

- Improved indoor air quality by removing airborne pollutants.
- Improved humidity control by removing moisture build-up.
- Improved occupant comfort by removing heat build-up.
- Improved occupant comfort by increasing fresh air movement.

Project Profile:  
The Heritage Centre, Garden Island Sydney

Overlooking Sydney Harbour and originally built in 1923 as part of the Naval Fleet Maintenance Depot, the Fima Building was converted to a prestigious function centre. As part of the refurbishment, the building was retrofitted with a natural ventilation solution as mechanical options were not viable on this heritage site. The Hurricane® H700 Turbine Ventilator was the most efficient and cost effective solution.

## ENGINEERED FOR HIGH AMBIENT CONDITIONS

The Hurricane® ventilator has been engineered and built rugged to withstand harsh climatic conditions around the globe, including high temperatures, dust, sand and strong winds.

Project Profile:  
Toyota Muscat, Oman

In 2004, the Toyota Spare Parts Distribution Facility, a Saud Bahwan owned property in Muscat, Oman installed 425 Hurricane® H900 units. The climatic conditions in the region include high ambient temperatures that often exceed 40°C during the day. There is very little rainfall and sandstorms regularly affect the region. The Hurricane® HP900 makes an ideal choice for these conditions.



Hurricane® (24 x H800) was installed at the Brisbane Markets to reduce the level of moisture in the air.



Hurricane® (16 x H900) was installed at the Altajir Glass Factory Dubai, United Arab Emirates. Temperature of exhausted gases exceeds 80°C.

## CONDENSATION CONTROL

Condensation inside buildings from poor ventilation can result in mould and bacteria growth, equipment damage, plus additional repair and maintenance costs from water damaged walls and ceilings, spoilt goods or disruption to production processes. The most effective way to minimise condensation is to ventilate the building with fresh air. The Hurricane® ventilator can provide high ventilation rates to reduce moisture build-up inside.

Applications include refrigerated warehouses, dry goods storage, meat and dairy processing plants and livestock sheds.

Project Profile:  
Brisbane Markets, Brisbane

The cold storage facility at the Brisbane Markets is used to protect highly perishable fruit and vegetables from the humid subtropical Brisbane climate. Without adequate airflow, the warm, moist air produced by the refrigeration processes causes elevated internal temperatures and condensation on steel surfaces. The final solution included 24 Hurricane® Turbine Ventilators installed on the roof of the warehouse.

## REDUCING BUILDING THERMAL LOADS

With heating and cooling systems contributing up to 70% of a commercial building's electricity consumption, the Hurricane® ventilator can provide significant savings by reducing internal heat build-up and thereby reducing the building's thermal load on the air conditioning system.

Applications include large retail spaces and warehouse/storage facilities.

Project Profile:  
Altajir Glass Factory, Dubai

The melt furnace in the Altajir Glass factory produces exhaust temperatures of over 80°C which are exhausted at high level through natural ventilation openings. The existing ridge ventilator was not operating effectively, suffering from backdraft issues and poor ventilation rates. Edmonds supplied sixteen Hurricane® H900 Turbine Ventilators to be retrofitted. The client was so impressed they developed a full ventilation solution using Hurricane ventilation for the whole plant.

# SPECIAL VARIATIONS

## Hurricane®



## FIRE AND SMOKE RELEASE

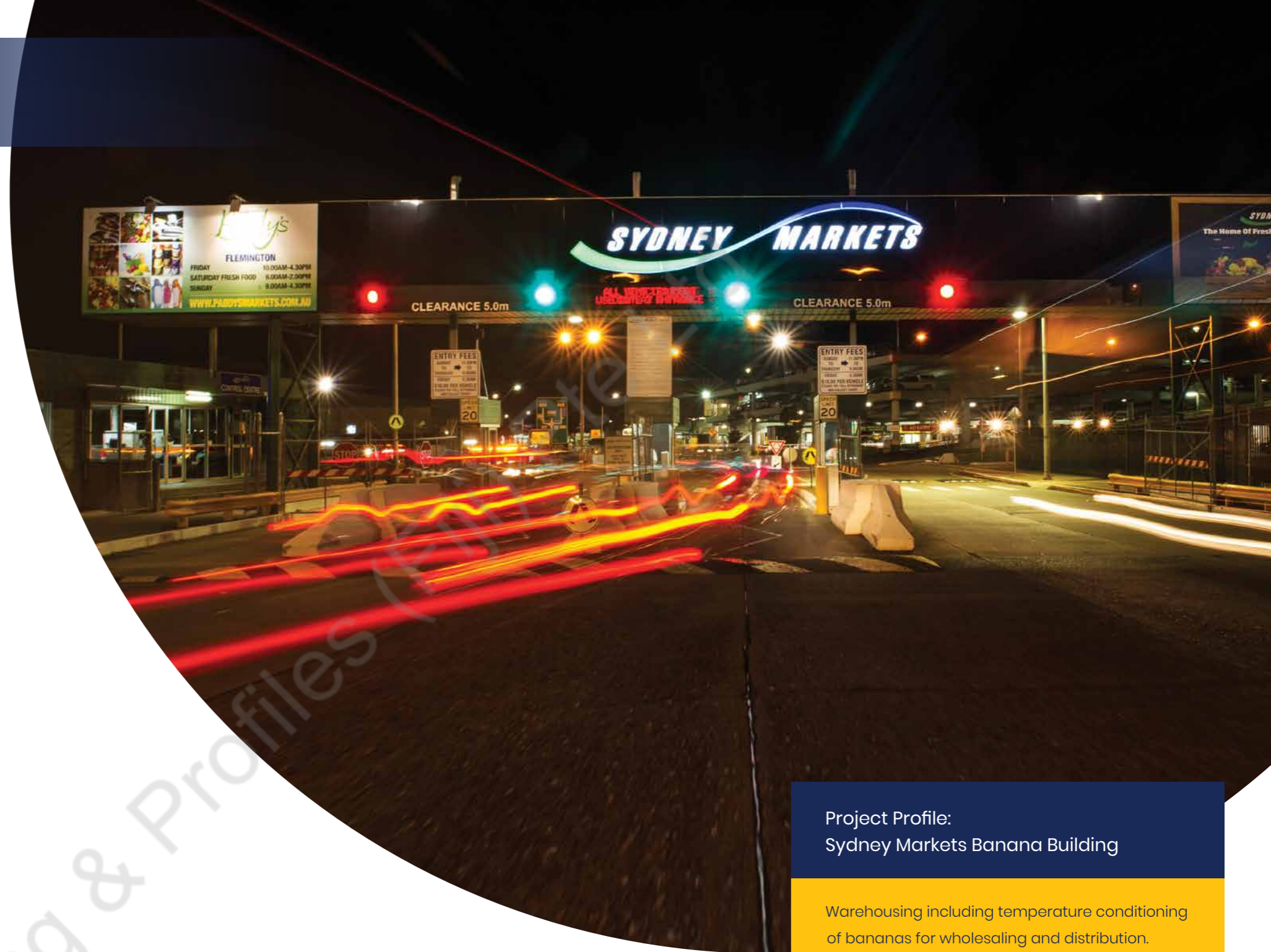
In the event of a fire, the Hurricane® Fire Rated FR special variation is engineered to provide both continuous ventilation and smoke release capability to Section 4.8.1 of AS1668.1-1998: *The use of ventilation and airconditioning in buildings, Part 1: Fire and smoke control in multicompartment buildings.*

Compared to traditional pneumatically released ventilators, the Hurricane FR includes both constant ventilation and responsive smoke release capacity which is boosted by the buoyancy effect of rising hot air. It has been demonstrated that the Hurricane® FR does not interfere with Early Suppression Fast Response sprinkler systems, making it an ideal choice for ventilation and smoke control in all types of facilities.

### PERFORMANCE

Hurricane natural wind ventilators are manufactured in an Australian ISO 9001 certified factory. Our Hurricane ventilator series are:

- Performance calculated in accordance with AS/NZS4740-2000: *Natural ventilators - Classification and performance, and Section 4.8.1 of AS1668.1 - 1998*
- Fire rated and tested by CSIRO in accordance with Section 4.8.1 of AS1668-1998: *The use of ventilation and airconditioning in buildings, Part 1: Fire and smoke control in multicompartment buildings.* This includes an ability to continued to operate for:
  - over 120 minutes at a temperature of at least 200°C,
  - then with an additional 30 minutes at a temperature of at least 300°C,
  - then a further 30 minutes of least least over @ 400°CHurricane FR900 continued to operate for 240 minute duration of the test.
- 15 year warranty. Please refer to edmonds.com.au for full warranty conditions.



Sydney Markets  
Banana Building.  
Hurricane FR

### Project Profile: Sydney Markets Banana Building

Warehousing including temperature conditioning of bananas for wholesaling and distribution.

The warehouse had old Colt smoke release vents installed that were no longer operable. The warehouse did not meet strict fire codes for smoke release capability.

The Hurricane 900FR ventilator was selected to remove trapped heat, facilitate air exchange, and also meet the fire codes for smoke release.

The H900 FR has been certified by the CSIRO to meet AS 1668.1 requiring the smoke spill vent to operate for not less than 200 minutes at 200°C and not less than 30 minutes at 300°C.

# SPECIAL VARIATIONS

## Hurricane®



### BAL RATED

The Hurricane® BAL rated special variation is engineered to comply with the strict requirements of buildings in bush fire prone areas including the Deemed-to-Satisfy provisions of AS3959: *Construction of buildings in bush fire prone areas*.

The unit is constructed completely from non-combustible aluminium and stainless steel materials. Specific features include:

- The bearing being fully contained within an aluminium heat sink, which is then covered by an aluminium dome.
- Spark guard mesh constructed from stainless steel with aperture size less than 1.8mm, permanently fitted as required by AS3959.

Applications include all building types in bush fire prone areas.

### PERFORMANCE

Hurricane natural wind ventilators are manufactured in an Australian ISO 9001 certified factory. Our Hurricane BAL special variation ventilator series are:

- Performance calculated in accordance with AS/NZS 4740-2000: *Natural ventilators - Classification and performance*
- Designed to meet the requirements of AS3959: *Construction of buildings in bush fire prone areas*
- Constructed from high performing non-combustible aluminium and stainless steel.
- 15 year warranty. Please refer to [bradfordventilation.com.au](http://bradfordventilation.com.au) for full warranty



Picton Railway Station  
Hurricane BAL

### Project Profile: Picton Railway Station

The historic Picton Railway Station is located 85km south west of Sydney, in a bush fire prone area. Built in 1869, the station was upgraded in 2011 to include new lifts and a pedestrian overpass.

The Hurricane® BAL was selected for the project as it met the strict requirements of AS3959. The BAL ventilator is constructed from non-combustible components and has fine aperture stainless steel spark guards to minimise the risk of embers entering the ventilator during a bush fire.

## SPECIAL VARIATIONS

# Hurricane®



## CORROSION RESISTANT

The Hurricane® S2 is ideal for water reservoirs and other highly oxidative, slightly acidic (non-caustic) and moisture rich environments.

By improving air movement in the space and reducing condensation risk, the Hurricane S2 ventilator can minimise corrosion and extend asset life of metal roof and wall surfaces, as well as other equipment and componentry.

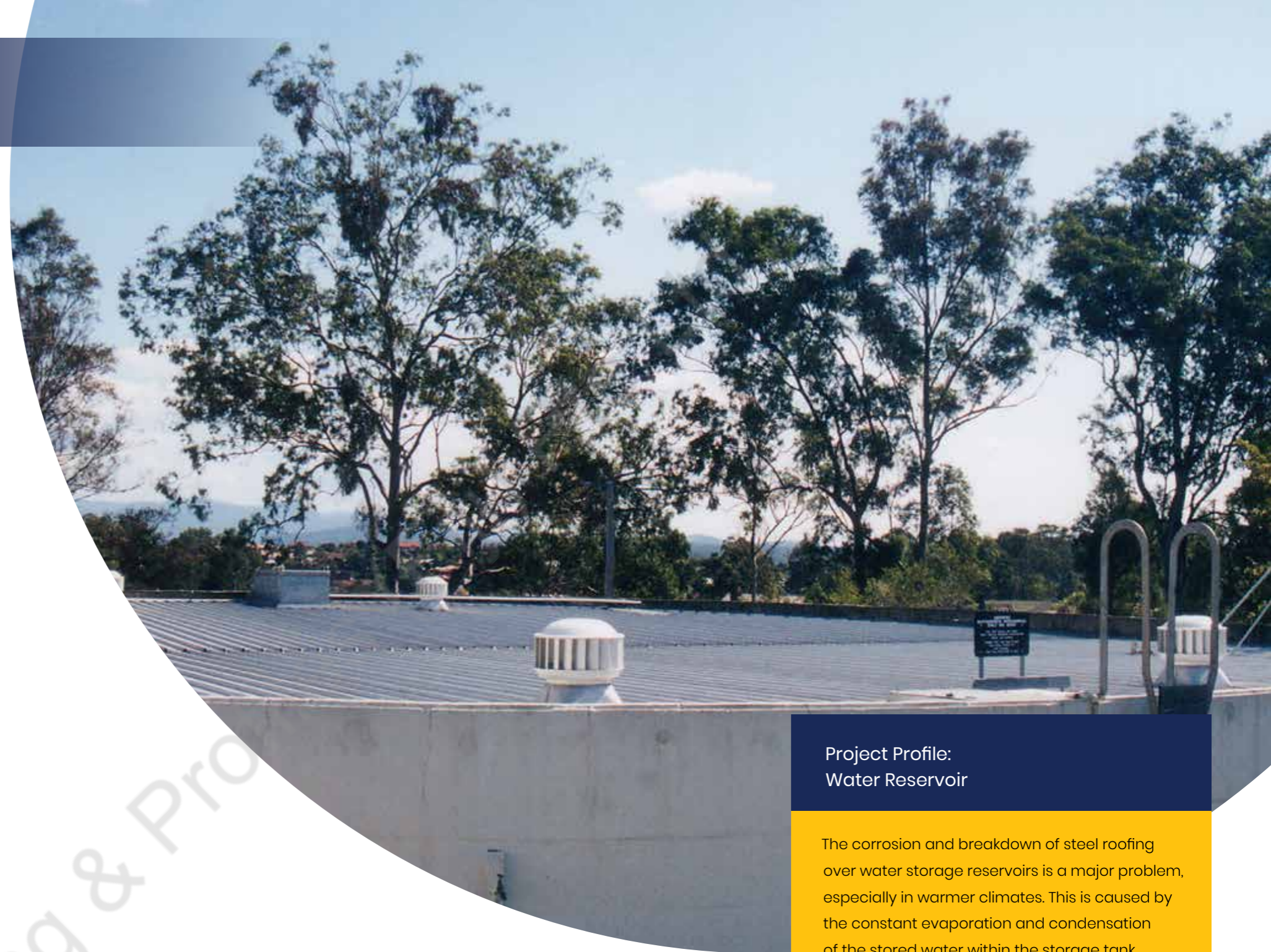
The ventilator turbine is coated both inside and outside with a polyolefin coating providing superior corrosion resistance. The Hurricane S2 is engineered with a deflector flange located beneath the bearing. The bearing is then located above the top plate of the vent to reduce exposure to harsh vapours. This ensures a longer service life compared to normal ventilators, even in harsh environments.

Applications include swimming pool complexes, water storage/tanks, caustic soda and sulphuric acid handling plants.

### PERFORMANCE

Hurricane natural wind ventilators are manufactured in an Australian ISO 9001 certified factory. Our Hurricane S2 Corrosion Resistant special variation ventilator series are:

- Performance calculated in accordance with *AS/NZS 4740-2000: Natural ventilators - Classification and performance*
- Coated inside and out with polyolefin coating to provide superior corrosion resistance
- 5 year warranty. Please refer to [bradfordventilation.com.au](http://bradfordventilation.com.au) for full warranty



Water Reservoir Installation.  
Hurricane S2

### Project Profile: Water Reservoir

The corrosion and breakdown of steel roofing over water storage reservoirs is a major problem, especially in warmer climates. This is caused by the constant evaporation and condensation of the stored water within the storage tank or reservoir. The corrosion process can be accelerated and severe if the water has also been treated with chemicals such as chlorine.

The Hurricane® S2 Corrosion Resistant special variant is purpose built to withstand corrosive environments such as water storage reservoirs, delivering a constant inflow of fresh air, removing moisture rich air. This reduces humidity levels and hence reduces or eliminates condensation on the underside of the metal roofing, improving asset life and reducing maintenance.



# SPECIAL VARIATIONS

## Hurricane®



## HEAVY INDUSTRIAL

The Hurricane® Heavy Industrial HI special variation is built to perform in highly corrosive environments, particularly where acidic or caustic fumes are required to be exhausted.

By improving air movement in the space and reducing condensation risk, the Hurricane HI ventilator can minimise chemical attack from corrosive fumes and extend the asset life of metal roof and wall surfaces, as well as other equipment and componentry.

The Hurricane HI has superior corrosion resistance. The ventilator turbine is available in aluminium finish, polyolefin white, or a range of powder coat colours upon request.

Applications include ceramic plants, power coating facilities and gritty environments.

### PERFORMANCE

Hurricane natural wind ventilators are manufactured in an Australian in an ISO 9001 certified factory. Our Hurricane S2 Corrosion Resistant special variation ventilator series are:

- Tested in accordance with *AS/NZS 4740-2000: Natural ventilators - Classification and performance*
- Coated inside and out with polyolefin coating to provide superior corrosion resistance
- 5 year warranty. Please refer to [edmonds.com.au](http://edmonds.com.au) for full warranty



Adelaide desalination plant.  
Hurricane HI

### Project Profile: Adelaide desalination plant

The Adelaide Desalination plant is a reverse osmosis desalination plant capable of produce 100 gigalitres of fresh water per year, equivalent to half of Adelaide's potable water needs. The award winning facility is located approximately 25 kilometres south of the Adelaide CBD. The facility has 60 Hurricane® HI Turbine Ventilators. Due to the plant's coastal location and the potentially corrosive environment in the treatment plant, the units incorporated a polyolefin coating and rugged construction to ensure a long service life.

# PRODUCT SELECTOR

# FINISHES AND COLOUR CHART

Product	Wind driven, natural ventilation				
	Hurricane® H	Hurricane® S2	Hurricane® HI	Hurricane® BAL	Hurricane® FR
External Environment	Standard	Harsh and moisture rich environment	Harsh environment	Bushfire prone area	Fire rated
<b>Schools, Colleges and Universities</b>					
Mix-use halls, bathrooms, change rooms	•			•	•
Classrooms or lecture halls	•			•	•
Laboratories	•			•	•
Computer labs, data centers, server rooms				•	•
<b>Retail</b>					
Restrooms, parenting rooms, bathrooms	•			•	•
Shops, arcades & centers, showrooms	•			•	•
Carparks: enclosed and multi storey				•	•
<b>Multi-Res</b>					
Units, townhouses	•			•	•
Apartments				•	•
Carparks: enclosed and multi storey	•			•	•
<b>Industrial</b>					
Water and sewerage plants, pipes and storage		•		•	•
Power stations, substations	•			•	•
Food & beverage processing plants				•	•
Abattoirs, Breweries, Dairies, Bakeries, Wineries	•			•	•
Silos, Grain elevators	•			•	•
<b>Commercial</b>					
Offices	•			•	•
Carparks: enclosed and multi storey				•	•
Warehouse storage	•			•	•
Data centers / server room	•			•	•
<b>Warehouse, Manufacturing, Factories: Light industries</b>					
Caustic Soda, sulphuric acid handling facilities		•	•	•	•
Light chemical fumes concentration		•	•	•	•
Welding/powder coating facilities	•			•	•
Exhaust fumes - Petrol, diesel	•			•	•
Bathrooms, change rooms	•			•	•
Storage warehouse	•			•	•
Flammable material storage		•	•	•	•
Carparks: enclosed and multi storey				•	•
<b>Public, Sporting and Social Buildings</b>					
Police, ambulance, fire stations	•			•	•
Airport, bus, rail & sea	•			•	•
Religious Buildings, chapels	•			•	•
Community centres, Youth centres	•			•	•
Retirement villages	•			•	•
Sports, gyms, stadiums, auditoriums & townhalls	•			•	•
Aquatic centers, swimming pools		•	•	•	•
Carparks: enclosed and multi storey				•	•
<b>Agricultural</b>					
Poultry coop, pigpen/sty		•	•	•	•
Stable		•	•	•	•
Root cellar			•	•	•
Hatcheries	•			•	•

Refer to website for case studies

Available in 3 finishes - aluminium mill, powder coated colours and polyolefin to suit most commercial and industrial applications.

## POWDER COAT COLOURS

CB: WHITE CS: WHITE	CB: CLASSIC CREAM CS: SMOOTH CREAM	CB: PAPERBARK®	CB: COVE™	CB: GULLY™	CB: LOFT™
CB: SURFMIST® CS: TITANIA	CB: EVENING HAZE®	CB: MANGROVE	CB: PALE EUCALYPT® CS: MIST GREEN	CB: WILDERNESS® CS: RIVERGUM	CB: COTTAGE GREEN® CS: KELP
CB: HEADLAND® CS: MAPLE	CB: JASPER® CS: SORRELL	CB: TERRAIN®	CB: MANOR RED®	CB: SHALE GREY™ CS: GULL GREY	CB: DUNE®
CB: WINDSPRAY® CS: SMOKEY	CB: BASALT®	CB: WALLABY®	CB: WOODLAND GREY® CS: THUNDER GREY	CB: DEEP OCEAN® CS: STORM BLUE	CB: IRONSTONE® CS: INDIGO BLUE
CB: MONUMENT®	CB: NIGHT SKY® CS: EBONY				

**Colorbond® = CB**      **Colorsteel® = CS**

The COLORBOND® and COLORSTEEL® colour swatches and images shown in this brochure have been reproduced to represent actual product colours as accurately as possible. However, we recommend checking your chosen colour against an actual sample of the product before purchasing as varying light conditions and limitations of the printing process may affect colour tones. COLORBOND®, and its colour names are registered trademarks of BlueScope Steel Limited. Colorsteel, and its colour names are registered trademarks of New Zealand Steel.

## POLYOLEFIN COLOUR



Model	H100	H150	H300	H400	H450	H500	H600	H700	H900
Power Source	Wind & Stack Effect								
Dimensions on varipitch*									
Height Overall (mm)	313	363	480	564	634	700	724	796	936
Diameter Turbine (mm)	290	332	477	561	648	702	766	876	1096
Flashing Length (mm)	430	430	600	750	750	750	1000	1000	1200
Flashing Width (mm)	430	430	500	700	700	700	1000	1000	1200
Effective opening area (mm)	90	127	275	378	425	472	572	675	870
Mass* (kg)	1.80	2.40	4.90	6.30	8.1	9.2	11.8	15.8	24.1
Roof slope range - varipitch	0-45°	0-45°	0-45°	0-45°	0-45°	0-45°	0-45°	0-22.5°	0-22.5°
Flow rate capacity #									
m <sup>3</sup> /hr	32	103	404	699	969	1,132	1,220	1,669	3,267
m <sup>3</sup> /s	0.01	0.03	0.11	0.19	0.27	0.31	0.34	0.46	0.91
l/hr	32,400	104,400	403,200	698,400	968,400	1,130,000	1,220,000	1,670,000	3,269,000
l/s	9	29	112	194	269	314	339	464	908
Material									
Turbine Top	Aluminium 5005								
Varipitch	Aluminium 5005								
Flashing	Aluminium 5005								
Finish	Aluminium / Powdercoat								
Accessories (optional)									
Electric Dampers	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Manual dampers	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Special bases - spigot slope	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Special bases - spigot ridge	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Special bases - square to round slope	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Special bases - square to round ridge	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Special bases - spigot curb mount	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Special bases - square to round pyramid	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Special bases - spigot pyramid	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Special bases - EX base	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sparkguard	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Special Variations									
FR : Fire-rated to meet AS 1668.1-1998 Section 4.8.1	No	No	No	No	No	No	No	No	Yes
BFR : Bush Fire Rated to meet AS3959	No	No	Yes	Yes	No	No	No	No	No
S2 : Corrosion Resistant	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
HI : Heavy Industrial	No	No	No	No	No	No	No	No	Yes
Australian designed and built	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Manufactured in ISO 9001 facility	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Designed and tested to AS4740	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

\* Tolerance: Dimension +/- 5mm. Weight +/- 0.5kg

# Flow rate figures are based on testing conducted by CSR Edmonds and in accordance to AS4740. Published flow rate results are optimal figures based on precision testing input and the other formulas are derived from fluid mechanics. Application results may vary due to external environmental factors, internal heat load, supply air capacity, construction materials and installation factors etc. Parameters : h = 6m, ΔT = 14°C, T = 20°C, V = 10.8km/h based on Nominal Performance as per AS4740 cl. 3.5

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[www.bradfordventilation.com.au](http://www.bradfordventilation.com.au)

Bradford Ventilation

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