

# Dulux®

Worth doing, worth Dulux.

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AN ORICA  
BUSINESS

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ACN 004 117 828

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The majority of the building images shown throughout this guide depicts recent building projects as case studies for Dulux Powder Coatings. Other images have been provided as inspiration.

The information in this guide is correct at the time of printing.

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POWDER  
COATINGS

# Product Essentials

for Commercial Aluminium





Whether it is a commercial or an architectural project, the specification of powder coating finishes on architectural aluminium can be a complex and confusing process. You need to consider:

- What is the most appropriate product for your project,
- Does the product offer a genuine colour and film integrity performance warranty,
- What assurance is there that the coating is applied correctly,
- How do you ensure that your specification is not misinterpreted... and all this at a competitive price.



#### So how is this achieved?

Each of the following pages are designed to address the key elements for specifying a Dulux powder coat finish on extruded aluminium. The information includes:

- Product performance benchmarking to the leading AAMA international standard,
- Environmental consideration for project locations,
- Which powder coating is best suited to a given type of building,
- A summary of each of the Dulux Powder Coatings' products and their individual features,
- Applicator and fabrication considerations,
- Colour selection,
- Warranty considerations are understood,
- How to specify the chosen finish clearly in line with all the above points.

# Recommended AAMA specifications

Since 1936, the AAMA (American Architectural Manufacturer's Association) is regarded as the standards' leader for finishes on architectural aluminium. The AAMA objective is to develop and improve quality standards, encourage research & development, and set benchmarks for product performance of architectural products. For finishing of architectural aluminium, Dulux recommend these 3 internationally recognised AAMA standards - AAMA 2603, AAMA 2604 and AAMA 2605. These AAMA standards recommend a variety of film and appearance performance tests, of which, the key tests are shown below.

Performance Tests		AAMA 2603-02	AAMA 2604-02	AAMA 2605-02
Chemical	Muriatic Acid Resistance - 10%, 10 drops, 15 mins	No blistering, no visual change	No blistering, no visual change	No blistering, no visual change
	Mortar Resistance - 24 hrs	No loss of film adhesion or visual change	No loss of film adhesion or visual change	No loss of film adhesion or visual change
	Nitric Acid Resistance - 70% reagent grade, 30 mins	Not applicable	Colour change Delta E < 5	Colour change Delta E < 5
	Detergent Resistance - 3%, 72 hrs	No loss of adhesion	No loss of adhesion	No loss of adhesion
	Window Cleaner Resistance - 10 drops, 24 hrs	Not applicable	No blistering and no change in appearance	No blistering and no change in appearance
Weather	Humidity Resistance	1500 hrs formation of blisters Size No.8	3000 hrs formation of blisters Size No.8	4000 hrs formation of blisters Size No.8
	Salt Spray Resistance	1500 hrs 1-2mm creepage, formation of blisters Size No.8	3000 hrs 1-2mm creepage, formation of blisters Size No.8	4000 hrs 1-2mm creepage, formation of blisters Size No.8
	Erosion Resistance	Not applicable	10% loss max.	10% loss max.
UV Exposure	45° Florida Exposure	1 year	5 years	10 years
	Colour Retention	Not applicable	Colour change Delta E < 5	Colour change Delta E < 5
	Chalk Resistance	Not applicable	No more than No.8 rating	No more than No.8 rating for colours and No.6 for whites
	Gloss Retention	Not applicable	Minimum 30%	Minimum 50%

- These 3 standards help differentiate products for residential and commercial applications. The AAMA 2603 standard requires 1 year Florida UV exposure which is generally considered a residential criteria for coating's performance. The AAMA 2604 standard requires 5 year UV exposure, a criteria that suits most commercial applications. The AAMA 2605 standard requires 10 years in the same harsh environment – a criteria that suits major commercial or monumental applications.
- For complete details relating to these and other standards, visit [www.aamanet.org](http://www.aamanet.org)

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AAMA Specifications

## Matching Products to AAMA Specifications

Specifying powder coatings that comply to one of the 3 AAMA standards removes all doubt for the fabricator and applicator.

The supply chain will be aware of the standard of product demanded for the project, as the standards spell out the level of both colour performance and film properties required.

The Dulux products that meet or exceed these standards are shown in the table below.

To achieve the AAMA Standard	AAMA 2603-02 Specify	AAMA 2604-02 Specify		AAMA 2605-02 Specify
Dulux Product Name	Duralloy	Duratec	Duratec LX	Fluoroset FP
Dulux Product Code	272 line	900 Line	905 line	964 line
Coating Type	High Durable Polyester	Super Durable Polyester	Super Durable Enhanced Polyester	Ultra Durable PVF3 Fluoropolymer

# Environmental Aspect

Now that you understand the importance of the AAMA standards, you should also take into consideration the environmental aspect. Each location can vary in extremity, and this will affect the performance of various finishes. So it is vital that before specifying a given powder coating, the environment for your project is understood. There are many terminologies used to describe exterior environments – very severe, marine, tropical, harsh, mild, arid, etc. The Australian Standard AS3715-2002 Appendix E summarises the ISO 9223 outline of environments. Here is a summary of the common references in the Australian Standard.

- **Mild (to Moderate)** – usually refers to environments
  - Remote from coastal, heavy industrial or tropical locations,
  - With very light marine proximity, such as sheltered bays which are well away from coastlines,
  - Sheltered from marine coastal locations or from industrial fallout.
- **Tropical** – usually refers to environments
  - In high humid locations, typically 65% - 100% all year round,
  - Remote from coastal activity.
- **Severe** – usually refers to environments
  - In marine locations, directly in the path of sea spray,
  - In heavy industrial locations.

The resistance of each powder coating to the physical and chemical extremes of these climates determines the most suitable product.



## Extreme Environments

*Some environments are so extreme, that the performance of any surface finish may be compromised.*

Whilst all coastlines are technically “in the direct path of sea spray”, the frequency and severity of sea spray is much higher on a rough coastline as opposed to something like Sydney Harbour. For any severe environments, whether they be marine and/or industrial, we recommend you contact Dulux before specifying any powder coating finish, to ensure the site meets with our service and warranty conditions.



## Project Type

This brochure focuses on commercial aluminium applications. Residential properties are typically easy to maintain given their height and access. High rise projects are less sheltered from neighbouring buildings, raising their exposure and reducing their ease of maintenance. Monumental projects attract the most attention and have the highest standards required to uphold the reputation expected from landmark sites. The relevant AAMA standard can now be applied to the specification based on environmental conditions and project type.

Project Type	Environment	Dulux Recommended AAMA Standard	Dulux Powder Coating
Monumental	Mild, Tropical or Severe	AAMA 2605	Fluoraset FP
Prestigious Commercial Development	Severe	AAMA 2605	Fluoraset FP
Prestigious Commercial Development	Mild or Tropical	AAMA 2604	Duratec or Duratec LX
Commercial Development (> 3 levels)	Severe	AAMA 2604	Duratec or Duratec LX
Commercial Development (> 3 levels)	Mild or Tropical	AAMA 2604	Duratec
Commercial Development (< 4 levels)	Mild, Tropical or Severe	AAMA 2604	Duratec
Residential (> 3 levels)	Mild, Tropical or Severe	AAMA 2604	Duratec
Residential (< 4 levels)	Severe	AAMA 2604	Duratec
Residential (< 4 levels)	Mild or Tropical	AAMA 2603	Duralloy

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## Essential Products for Commercial Aluminium

Dulux offers a selection of products that comply with the AAMA standards and which are suitable for most environments. Choosing the right product for your project is a critical element in the specification process.

### FLUOROSET® FP

... is designed for

- Monumental / landmark projects where product performance is under constant review,
- For prestigious commercial projects - equivalent to any class under the Australian Building Code,
- Developments irrespective of the height and most environments,
- Developments greater than 10 metres from salt water,
- Where AAMA 2605-02 performance is desired,
- Where a 20 year colour warranty and 20 year film integrity warranty is desired.



Fluoraset FP is a 100% PVF3 fluoropolymer system and stands alone for proven performance in the field. First launched in 1991, Fluoraset FP is a made to order product.

### DURATEC® LX

... is designed for

- High rise residential and commercial projects – equivalent to any class under the Australian Building Code,
- All major architectural developments irrespective of the height and most environments,
- Where AAMA 2604-02 performance is desired,
- Where a 10 year colour warranty and a 15 year film integrity warranty are desired.



Duratec LX is a made to order product. It has the same application benefits as Duratec but offers an additional 5 year film integrity warranty where higher chemical and film integrity resistance properties are required.

### DURATEC®

... is designed for

- Prestigious residential and commercial developments – equivalent to any class under the Australian Building Code,
- All major architectural developments irrespective of the height,
- Properties greater than 10 metres from salt water, in mild to tropical and some severe environments,
- Where AAMA 2604-02 performance is desired,
- Where a 10 year colour warranty and a 10 year film integrity warranty are desired.



Duratec was launched in 1988, and has been used extensively in Australia, New Zealand and South East Asia. Dulux offers over 20 stock Duratec colours especially suited to the colour palette of specifiers.

### Not Suitable For Commercial Applications

Dulux Duralloy is one of our most popular powder coatings used in the aluminium industry. On occasions Duralloy is incorrectly used on Commercial Applications only to the disappointment of clients when they are told warranties do not apply to projects outside the following parameters.

Duralloy is designed for

- Residential developments - equivalent to Class 1 or Class 10 of the Australian Building Code,
- Buildings up to 3 floors from the ground,
- Properties greater than 100 metres from salt water, in mild to tropical environments,
- Where AAMA 2603-02 performance is desired,
- Where a 7 year colour warranty and a 7 year film integrity warranty are desired.

## Cost versus Value

The final price of powder coated aluminium is influenced by many factors, including the design of the aluminium section, the type of glass, the hardware, and to a much lesser extent, the powder coat finish. Whilst finishing is generally the last process in production of an architectural section, it is commonly one of the first review points for cost cutting.

The initial price premium which is to be expected when specifying high performance grade powder coatings, will be offset by the quality of finish during the product service life. This can influence maintenance and repair costs for the future.



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## Applicator + Fabrication

Satisfied that you have considered the performance standards and project requirements, your project's success (or failure), now rests in the hands of a powder applicator and fabricator. Here are some major considerations required before ordering your product.

### Registered Applicators

Only Dulux Registered Aluminium Applicators can purchase and apply Duratec, Duratec LX and Fluoroset FP. All warranties offered in this booklet are conditional on the powders being applied by Dulux Registered Aluminium Applicators. These applicators are only certified after demonstrating their capability to meet stringent quality conditions and international standards.

The importance of selecting an appropriate powder applicator cannot be understated. For a surface coating to provide maximum performance, the metal to be coated must be properly cleaned and prepared, the powder coating must be applied in accordance with Dulux's recommendation, and the coated metal thoroughly tested for quality assurance before being released for fabrication.

Each Dulux Registered Aluminium Applicator has invested heavily in their business to guarantee their performance in preparing the aluminium performance and applying the premium finishes shown in this guide. Due to the specialist nature of Duratec LX and Fluoroset FP, only a select number of Dulux Registered Aluminium Applicators are capable of providing these finishes. Should you require details relating to Dulux Registered Aluminium Applicators, please contact your local Dulux representative or visit the web at [www.duluxpowders.com.au](http://www.duluxpowders.com.au)



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## Fabrication + Installation Considerations

The premium powder coatings offered by Dulux in this guide are suitable for post fabrication on to windows, doors, balustrade assembly and so on. Some of the common considerations for fabricating powder coating aluminium sections are:

### General Fabrication + Assembly

All the powder coating in this guide are suitable for post cutting, mitre joining and glazing. Punching out drainage holes is generally acceptable provided there is no deformation of the metal. Generally raw edges of cut metal will perform quite well in mild to moderate environments. For additional protection, in mild environments and critical in tropical or severe environments, the raw metal should be treated with a chromate solution, a small joint sealer or an equivalent performing system before the metal is assembled and installed.

**Bending** As a general rule, the higher the durability of the finish, the lower the flexibility of the coating. This means the highest durable coating, Fluoroset FP – PVF3 fluoropolymer has conversely the lowest flexibility. Bending of powder coated aluminium sections should be kept to an absolute minimum, as this can introduce cracking of the metal and the pre-treatment underneath the powder coating. In some cases the powder coating can crack upon bending causing unsightly marks and potentially a site for film failure. When designing fabricated sections it is recommended that trials are

conducted to ensure the fabrication procedures are understood prior to production. Alternatively and ideally, the metal should be formed into the desired shape before pre-treatment and powder coating. Whilst some architectural powder coatings show no evidence of cracking after bending, it should be noted that warranties do not cover film failure or corrosion caused by post bending, unless specifically authorised by Dulux in writing.

**Installation** The use of masking materials to protect the installed architectural products is a common practice to avoid scratching or discolouration. There have been many occasions where high quality product has been installed only to be damaged through excessive exposure to building materials like mortar, plaster, cleaning chemicals and paints. However care must be exercised to ensure the protective material itself does not cause harm to the finish. All protective materials should be used for short periods (less than three months) and where the masked product is exposed to direct sunlight, even shorter masking periods should be employed. With so many masking materials being available and used it is advisable to trial a small test area before applying any form of protective product.

**Sealant Adhesion** Consistent with the AAMA specifications, sealants should be applied to these powder coatings in accordance with AAMA 800. In some cases, preparation of the powder coating surface may require a primer. Testing should be carried out prior to deciding which sealant provides the appropriate performance. As a rule, neutral cured sealants are preferred as these have the least effect on the coating system.

## Warranty Considerations

Warranties relating to the products outlined in this brochure are subject to the following terms and conditions:

- Warranties are conditional on the products being prepared and applied by Dulux Registered Aluminium Applicators, on to extruded aluminium extrusions and fittings.
- Duratec, Duratec LX and Fluoroset FP warranties are only applicable to extruded aluminium which is located at least 10 metres from salt water environments. For welded aluminium sections, warranties are only applicable for Duratec where the product is located at 100 metres from salt water environments.
- Salt water environments include but not limited to coastlines, harbours, rivers and estuaries, where exposure to salt water is greatest.
- For the purpose of warranty coverage, salt water environments exclude outdoor residential swimming pools which incorporate salt water treatment, since the exposure to swimming pools is not influenced to the same extent from climatic changes.
- If the project location is in a severe environment and/or is less than the recommended meterage from salt water, these environments may be considered as having "an excessive salt atmosphere". Specifiers should consult with Dulux prior to progressing any further. Any exceptions will need to be confirmed in writing by Dulux.
- Warranties shall not apply if the failure results from abnormal influences including but not limited to bi-metallic corrosion; mechanical abrasion; falling objects; damage during transport, installation and storage; explosion; fire; terrorism; radiation; harmful chemicals or fumes; temperatures in excess of 110°C; water chemicals and foreign substances; excessive salt atmospheres or deposits; failure from post forming or other circumstances beyond Dulux's reasonable control.
- The powder coated metal must be cleaned and maintained according to the AAMA610.1 and Australian Standard 3715-2002 (Appendix C). Warranties will be rendered void where cleaning is not conducted correctly or with appropriate frequency to commensurate with the environment.

For all other terms and conditions relating to warranties from Dulux, please call us on 13 24 99 for a copy.

## How to Specify

In summary, the decision making process for powder coat finishing of architectural aluminium should take into consideration:

- The AAMA specification,
- The environmental aspect and project type,
- The product features including performance and colour range,
- The design and installation considerations,
- The key warranty terms and conditions,
- The specification of the chosen finish is clearly in line with all the above points.

To ensure there is no misinterpretation of what you want on your project.

- Specify the Dulux "Product Name and Code" to meet,
- The AAMA standard required,
- To be applied by a Dulux Registered Aluminium Applicator in accordance with AS3715-2002,
- Specify both the colour retention AND film integrity warranty period,
- If an alternative to the specified product is to be submitted, it must meet or exceed the AAMA standard and the performance criteria of the Dulux warranty.

For example

**"Duratec Intensity™ Yellow 900-2004S to meet AAMA 2604-02. Product must be applied by a Dulux Registered Aluminium Applicator and must offer a 10 year colour and 10 year film integrity warranty."**

### What to Watch Out For

**Substitution** Specify the period of coverage for both colour retention and film integrity warranty, so that a substitute product with a warranty of equivalent film integrity but less colour retention is not used as a replacement.

**Standards** The former AAMA standards (AAMA 603 and AAMA 605) have been re-written into 3 higher performing specifications (AAMA 2603, AAMA 2604 and AAMA 2605). The referencing to these older standards is not recommended as they may be inferior performance measures.

**Tenderers** Only tenders based on quotes provided by a Dulux Registered Aluminium Applicator would be accurate. Verify that the applicator is authorised to apply these warrantable products by requesting a copy of the Dulux Registered Aluminium Applicator certificate from the applicator.



## Care + Maintenance

The effects of ultra violet light, pollution, dirt, grime and salt deposits can all accumulate on your powder coated surface over time. To extend the effective life of powder coatings and protect any warranty requirements that may exist, a very simple regular maintenance program should be implemented for the removal of any residues.

For powder coatings that offer a minimum 10 year colour warranty, please refer to the International Standard AAMA610.1 and Australian Standard 3715-2002 (Appendix C) for care and maintenance procedures.

As a general guide to clean your powder coated surface, complete the following:

1. Carefully remove any loose deposits with a wet sponge.
2. Use a soft brush (non abrasive) or cloth, and a mild household detergent solution to remove dust, salt and other deposits. Do not use steel wool, scrapers, scouring liquids or powders to remove deposits as these permanently scratch the coating surface.
3. Rinse off with clean fresh water. Avoid water which has a high mineral content. Bore water is generally unsuitable for rinsing.

In essence, common sense should apply with regards to cleaning frequency. If the surface is ignored, the appearance and performance of the powder coating may be compromised.

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# Standard Colours

**DURATEC\***

Solids

**LUNAR® WHITE**  
87731 Gloss



**CHALK USA**  
73713 Gloss




**METROPOLIS® BEACH**  
87733 Gloss




**LUNAR® GREY**  
88417 Matt




**ZEUS® GREY**  
88416 Satin




**ZEUS® BLUE**  
88418 Satin



**METROPOLIS® CHARCOAL**  
87732 Satin



**LUNAR® ECLIPSE**  
87734 Satin



Pearls

**LUNAR® STAR PEARL**  
7005F Flat



**CITI SILVER PEARL** ■  
7024Q Matt



**ETERNITY® SILVER PEARL**  
88397 Satin



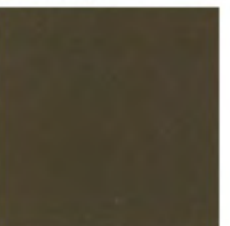
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88396 Satin



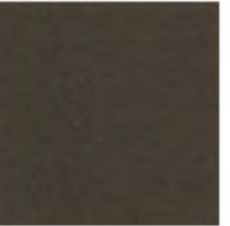
**PRECIOUS® TITANIUM PEARL**  
87728 Satin



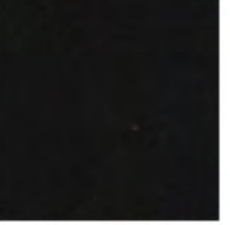
**ETERNITY® NICKEL PEARL**  
88395 Matt




**ETERNITY® BRONZE PEARL**  
88393 Satin



**LUNAR® BRONZE PEARL**  
8013Q Satin




**ETERNITY® CHARCOAL PEARL**  
88394 Satin



Intensity™

**INTENSITY™ RED**  
4007G Gloss



**INTENSITY™ ORANGE**  
4008G Gloss




**INTENSITY™ YELLOW**  
2004S Satin



**INTENSITY™ LIME**  
6006S Satin



**INTENSITY™ GREEN**  
6005S Satin



**COOL INTENSITY™**  
5011G Gloss



■ Colour to match BlueScope Steel's COLORBOND® colour range

The colours represented in this brochure are indicative only. They are close to the actual product colours as modern printing techniques allow and they have been matched to outdoor viewing. Colour appearance may vary according to light source. Note: Some products may attract a price premium due to pigmentation and effect.



Colour Considerations

Dulux offer a range of stock and project colours according to which product is required.

**DURATEC\*** is available in over 20 stock colours and can also be produced in special batches of matt, satin or gloss finishes, in either solid or pearl effects. Duratec offers a 10 year colour and 10 year film integrity warranty\*

**DURATEC® LX** can be produced in special batches of matt, satin or gloss finishes, in either solid or pearl effects. Duratec LX offers a 10 year colour and 15 year film integrity warranty\*

**FLUOROSSET® FP** can be produced in special batches of matt to satin finishes depending on colour, in either solid or pearl effects. Fluorosset FP offers a 20 year colour and 20 year film integrity warranty\*

\* refer to warranty section of this brochure for more information



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DURATEC®

DURATEC® LX

FLUOROSSET® FP

# Project Colours

These project colours are examples of some of the finishes Dulux can produce in Duratec, Duratec LX and Fluoraset FP technology. Dulux offer a fast powder batch service as low as 50 kilograms gloss and satin effects. Depending on technology, matt finishes may attract a different minimum batch size. We also understand on occasions, individual colours and finishes may be desired for a project. Dulux have an unparalleled library of colours and colour formulation experience to develop a colour match to your requirements, so please discuss such requirements with a Dulux Powder Coatings' representative.

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