15 Painting

15.1 General

Scope:
This section of the Standards describes the University's painting & surface finish requirements.

Considerations:
Provide coating systems to substrates as follows and as scheduled

15.1.1 Consistent in colour, gloss level, texture, and dry film thickness
15.1.2 Free of runs, sags, blisters, or other discontinuities
15.1.3 Paint systems fully opaque

Clear finishes at the level of transparency consistent with the product fully adhered

15.1.4 Resistant to expected impacts and damage from expected use
15.1.5 Resistant to environmental degradation with the manufacturers stated life span
15.1.6 Minimise the impact on the quality of indoor atmospheric health by using a low or no Volatile Organic Chemicals (VOCs) product where possible
15.1.7 Minimise heat absorption and temperature in the surrounding area (e.g. by using highly reflective or low heat absorbing paint)
15.1.8 Minimise impact on the environment through responsible manufacture and using lower amounts of oil, titanium dioxide and other chemicals potentially damaging to the environment
15.1.9 Environmentally responsible methods are to be used consistent with those promoted by GreenPainters® and standards organisations listed below.

APAS and other Standards
All paint types or protective coating systems specified in project paint systems shall conform to the appropriate APAS specification. http://www.apas.gov.au/

Where the building is subject to Green Star ® accreditation stringent compliance is required to the conditions of Green Building Council of Australia specifications for paints and substances used. Registers of paints and substances used must be kept and submitted to relevant parties. (See Green Building Council of Australia : http://www.gbca.org.au)

Low VOC and environmentally friendly products are accredited and/or assessed by Good Environmental Choice Australia http://www.geca.org.au and Ecospecifier http://www.ecospecifier.com.au.

APAS is administered by CSIRO's Manufacturing & Infrastructure Technology Division [CMIT]. APAS tests and certifies paints and coatings to ensure they meet stringent performance specifications. The basis of the APAS scheme is The APAS List of Approved Products containing more than 2000 approved paint and related products. It is a comprehensive guide for specifiers. Paint products are approved against these specifications and are to be produced only in APAS approved manufacturing plants.

APAS is active in environmental and occupational health and safety, including setting limits for volatile organic compounds (VOCs) in paints and coatings. A recent reduction strategy sets VOC limits reduction

targets for the paint manufacturing industry on environmental air quality by 2011. See section 1.1.3 - Green Paint Selection

APAS has withdrawn approval for many products containing lead, chromates and other toxic ingredients over the years and specifiers should monitor paints or coatings approval status.

All paint types or protective coating systems specified in project paint systems shall conform to the appropriate APAS specification. http://www.apas.gov.au/

Standards

The following Australian / New Zealand standards are referred to in this section for compliance where appropriate: |AS 1530|Methods for fire tests on building materials, components and structures.

AS/NZS 1580	Paints and related materials - Methods of test
AS 1627	Metal finishing - Preparation and pre-treatment of surfaces
AS 1851.7	Fire Doors
AS/NZS 2310	Glossary of paint and painting terms.
AS/NZS 2311	Guide to the painting of buildings
AS/NZS 2312	Guide to the protection of iron and steel against exterior atmospheric corrosion.
AS 2700	Colours for general purposes.
AS 3750	Guide to Properties of Paints for Buildings - Introduction and list of Guides
AS 3750	Paints for Steel Structures - Introduction & List of Standards
AS 4025	Paints for Equipment [including ships]
AS 4049	Paints and related materials - Pavement marking
HB 73.1	Handbook of Australian Paint Standards [General]

Paint Selection

Preference shall be given to selection of paint that complies with the APAS program to reduce Volatile Organic Compounds [VOCs] in Australian manufactured paints.

VOCs negatively impact on indoor air quality through emissions during application, during and after curing. These emissions may impact on individual health and well being, including personal allergic reactions, aggravation of pre-existing medical conditions e.g.: asthma.

Manufacturers provide current information of aspects of their paints and other building/surface preparation products. Low i.e. less than ten percent Volatile Organic Compounds (VOCs) or no VOCs are required. Ecospecifier and Good Environmental Choice Australia have information on a range of environmental attributes including potentially hazardous ingredients of products they have assessed.

Submission

The proposed brand(s) of paints and paint lines in the tender shall be specified in accordance with the University Paint system. See Section15.5

15.1.10 The Contractor or specifier shall provide, on a representative portion of substrate(s), 1 m2 samples of each of the total coating systems which meet the specified requirements for colour, gloss and texture as per the University paint system.

15.1.11 The physical and chemical properties of proposed paints or coating systems shall be assessed against AS/NZS 1580 and any other above relevant standard for technical & functional suitability.

15.1.12 Paints shall not be a Schedule 1 or 3 paint within the meaning of the Uniform Paint Standard [UPS], which forms part of the Standard for the Uniform Scheduling of Medicines and Poisons [SUSMP] and which is issued by the National Health and Medical Research Council [NHMRC]. http://www.tga.gov.au/ndpsc/paintgui.pdf

15.1.13 Paints classified as either Schedule 1 or 3 shall not be used in human contact areas or applications as prohibited by UPS e.g.: roofs or surfaces to be used for the collection or storage of potable water. Refer to http://www.anztpa.org

15.1.14 High performance paints - submit the manufacturers' specifications for each system using two-pack or other high performance paint.

Health, Safety & Environment - MSDS

Provide a Material Safety Data Sheet (MSDS) for each proposed paint or paint line as part of the submission.

A full set of MSDS for final paint system shall be provided to and held by the Contractor on site during construction and must be available for inspection by USP Superintendent or client upon request.

Health Risk Management

Careful assessment must be taken in the planning of painting jobs, of the impact on indoor air quality,[including readiness of HVAC systems to adequately ventilate areas] and the potential effects on University staff in remaining in occupied areas during painting, or when moving them into newly painted work areas. Strong odours and off gassing of curing paint surfaces may induce health symptoms such as asthma, sensitivity or headaches in some individuals.

Appropriate precautions must be taken in planning to remove or protect persons from paint product vapours or preparation dusts.

These include but are not limited to:

15.1.15 Careful selection and assessment of safer paint products to minimise potential health effects. [Select Low VOC paints where available].

15.1.16 Painting tasks scheduled - out of hours

15.1.17 Relocation of staff for duration of project [larger projects].

15.1.18 Alter working arrangements for known sensitised or allergic individuals e.g. work from home, other non-affected area.

15.1.19 Ensure all paint containers remain sealed and when brushes are soaking.

15.1.20 Clean up any spills promptly to reduce vapour load in indoor environments.

15.1.21 Remove doors or other movable structures to external open air spaces to paint and cure before reinstalling or rehanging if possible.

15.1.22 Ensure paint vapours and preparation dusts do not enter HVAC systems or adjacent buildings - tradespersons to locate painting activities away from air intake areas and natural building airflow corridors e.g. automatic doors.

15.1.23 Empty drying paint cans shall be resealed and with other paint debris, removed from the site immediately upon completion of the painting session to avoid paint vapours accumulating in indoor spaces.

Environment Care

Contractors shall practice water saving work techniques wherever possible.

This may include:

15.1.24 Minimise wash out of rollers by storing overnight in clean plastic bags or specially designed roller covers to continue use

15.1.25 Store brushes in a bucket of water overnight, spin water out next day and continue use

15.1.26 Paint or paint waste shall not be put down stormwater drains or sewers. Small amounts of unwanted paint should be brushed out on newspaper, allowed to dry, and then placed in normal waste

15.1.27 Larger projects should use a paint waste water recycling systems

Inspections

Contractor shall give the University project manager sufficient notice to allow inspections as required at the following work hold points:

15.1.28 Completion of preparation of surfaces

15.1.29 After application of prime or sealer coats

15.1.30 After application of undercoat

15.1.31 After application of each subsequent coat

Asbestos in Substrates

The University maintains an Asbestos register which lists the known or suspected locations of asbestos materials in existing buildings or structures. Contractors must consult this Register, prior to planning or undertaking surface preparation in existing University work areas or where the presence of asbestos is otherwise suspected.

No construction work shall proceed until the Superintendent confirms asbestos material is not present or has been properly removed and scientific testing confirms this state.

Work undertaken to remove asbestos material prior to painting must comply with the Qld WH & S Regulation 1997 and National Code of Practice for Safe Removal of Asbestos.

15.2 Paint Materials

Brands

Only first quality lines from approved manufacturers shall be used. Approved manufacturers are:

15.2.1 Dulux
15.2.2 Taubmans
15.2.3 Bristol
15.2.4 Wattyl
15.2.5 Resene

SikkensOther APAS approved paint products may be considered for use, but only after documented agreement and full assessment by the University Project Manager for eco friendly, functional and technical suitability.

Containers of paint materials specified by APAS numbers shall be labelled as such by the manufacturer.

Materials

Contractors shall be informed that secondary or substituted brands/ generic lines are not acceptable to USP. Paint brands or

paint lines shall not be changed without documented approval of the Superintendent.

Paints and/or colours from different manufacturers shall not be combined in a paint system.

Colours shall be from manufacturers' standard range. Variation by tinting to the standard palette shall only be by the manufacturer or supplier unless otherwise approved.

Gloss Levels

'Flat', 'low-gloss', 'semi-gloss', 'gloss' and 'full-gloss' as per AS/NZS 2310 and AS/NZS 2311, or other relevant AS/NZ standard.

Primers, Sealers, Undercoats

Ensure that primers, sealers and undercoats are suitable for the substrate and compatible with the finish coat and each other.

Except for stains and other clear or translucent finishes each coating shall be of a noticeably different tint from the preceding coat.

15.3 Workmanship

Area Preparation
As per relevant sections AS/NZS 2311 and AS/NZS 2312

Ensure the work of all other trades is complete as far as is practicable within the area to be painted, except for installation of fittings, floor sanding and laying flooring materials, before commencing to paint.

Deliver paint containers to the site in the manufacturers labelled and unopened containers.

Painting shall not be done in dusty conditions, or in unsuitable weather such as when the relative humidity exceeds 85%, or when the surface temperature of the substrate is less than 10oC or more than 50oC, unless the paint is suitable and recommended for such conditions.

Before painting in any section of the project begins, ensure the area is cleaned out and protected against dust entry or sources of paint contamination.

Drop sheets and masking shall be specified and used to protect finished work or other surfaces liable to damage during painting. Any accessories or surfaces that are damaged directly or indirectly as a result of painting shall be repaired or replaced by the contractor. Cleaning of areas where paint has fallen should not allow the paint to enter drains, sewers or areas of natural drainage / waterways.

Special care must be taken in protecting items which remain in the area or which cannot be moved for the duration of the job e.g. computers, desks and furniture.

Paint shall be mixed and applied in accordance with the manufacturer's recommendations. Paint shall

not be mixed in areas or on surfaces liable to damage from spillage.

Door furniture, switch plates, light fittings, pin boards, whiteboards and shelving and the like shall be removed before painting, and replaced on completion.

15.3.1 Identifying fire door tags or barcodes on the stile of a fire door must not be removed or painted over at any time. There items must be painted around.

During preparation of surfaces, painting and inspection, light levels shall be maintained such that the luminance (photometric brightness) of the surface is at least equal to that produced under daylight and/or maximum permanent artificial illumination conditions.

Putty or fillers may be stained to match the colour of the substrate.

The areas in which painting is to be done shall be adequately ventilated either through natural ventilation e.g. open windows, or use of functioning HVAC systems. In or near occupied areas, arrange for continued HVAC ventilation until painting is completed to aid in dilution and dispersal of paint odours and vapours. Refer section 1.1.5 - Health, Safety and Environment

Paint and related materials shall be stored and prepared in the area assigned by the project manager to comply with Qld Dangerous Goods Safety Management Act & Regulations 2001.

Precautions shall be taken to prevent fire and accumulation of solvent vapours through paint-soiled rags or empty drying containers or other waste. These shall be removed at the end of each day's work or stored in sealed metal containers.

Marks, paint spots and stains shall be cleaned off throughout the work area as soon as possible; maintaining and restoring damaged surfaces to their original condition.

Where necessary for aesthetic reasons, damaged paintwork or misses shall be touched up only with the paint batch used in the original application.

Equipment

Refer to relevant sections AS/NZS 2311 and AS/NZS 2312 where appropriate, and other related standards or WH & S legislation as applicable.

Painting equipment and ladders, planks and other plant shall be appropriate and properly maintained by the Contractor.

Conventional or airless spray equipment must be of an appropriate capacity so as to satisfactorily atomise the paint being applied. Spray equipment shall be fitted with the correct nozzle/tip assembly to avoid the need to thin paint beyond the maximum amount recommended by the manufacturer. The air supply shall be free from oil, water and other contaminant.

Wet Paint Notices shall be placed conspicuously and not removed until paint is dry, unless approval is given and access is restricted to all persons except painting staff.

Application

Refer to relevant sections AS/NZS 2311 and AS/NZS 2312 where appropriate, and other related standards as applicable.

Paint and related materials shall be applied in accordance with the manufacturer's recommendations. The application of thinned prime or seal coats, consistent with the paint manufacturer's recommendations, and which may be necessary on porous surfaces, or of any additional finishing coats necessary to achieve the required colour, opacity, texture or film thickness shall be at the contractor's expense.

The standard of workmanship with regard to final colour, gloss and texture shall match the sample areas specified.

15.4 Substrates

Substrate Preparation
Refer to relevant sections AS/NZS 2311 and AS/NZS 2312 where appropriate, and other related standards as applicable.

Substrates shall be properly prepared to receive the specified paint systems.

Preparation shall include, but not necessarily be limited to:

Clean down and remove oil, grease and loose foreign matter, including laitance, efflorescence, moss, lichen, dirt and corrosion products, in a manner which causes neither undue damage to the substrate nor damage to, or contamination of, the surroundings.

Mould and other fungal presence must be treated according to Australian Mould Guideline -AMG-2005 -1 by recommended mould remediation methods and by trained and accredited mould remediators in severe cases.

For glossy surfaces, adequately scuff and/or solvent or chemically etch as appropriate to provide satisfactory adhesion for subsequent paint coats. Opt only for substances free of hazardous and carcinogenic substances with as low a VOC content as possible.

Minimal amounts of recycled water only should be used where cleaning with water is required. Green cleaning products that do not contain potentially hazardous ingredients and are readily biodegradable should be used. (See those recommended by Good Environmental Choice Australia and Ecospecifier Australia). Excess suds and other materials generated such as paint scrapings, fines, residual paint and dirt likely should be collected and / be prevented from entering natural drainage, stormwater or sewer system. Any material suspected of containing hazardous substances (e.g., asbestos or lead) must be disposed of as regulated waste.

Fill cracks and holes with fillers, sealants or grouting cements as appropriate for the finishing system and substrate, and sand smooth. Again low VOC and non-hazardous products should be used.

Unless otherwise specified, ensure that surfaces are cured and dry before painting commences.
Apply the first coat of paint immediately after cleaning and before contamination of the substrate can occur. Where contamination of intermediate coats occurs, clean in accordance with the coating manufacturer's recommendations and to the Superintendent's approval, immediately prior to over-coating.

Moisture Content of Substrate
Refer to AS/NZS 2311 relevant section

At time of priming, test the substrate with a moisture meter if required.

Metal Surfaces Preparation
Refer to AS 1627, AS 4025 as appropriate to the requirements of the specification.

Iron and Steel Surfaces

Ensure removal of weld spatter, slag, burrs or any other objectionable surface irregularities.

a)	Degreasing: to AS 1627.1, by solvent or alkaline cleaning.
b)	Hand or power tool cleaning: to AS 1627.2 or .7 respectively. A final surface at least equal to preparation grade 'St2' of AS 1627.9 shall be specified.
c)	Abrasive blast cleaning: to AS 1627.4, to the class specified in the specified protective treatment. A surface roughness appropriate for the specified treatment shall be specified.

Masonry, Plaster and Cementitious Surfaces

a)	Concrete and Masonry: Before application to very smooth concrete, brick or masonry, specify acid etch, grind, or abrasive blast to the surface as appropriate to provide a suitable key for the subsequently applied coating and to remove laitance. Loose friable matter shall be removed before filling surface discontinuities.
b)	Set Plaster and Fibrous Plaster Surfaces: Solvent-borne paint or other impervious coatings shall not be applied if the moisture content at the surface, tested with a moisture meter, exceeds 12%.

Timber Surfaces

15.4.1 Large resinous knots and decayed areas shall be cut out and replaced with sound timber.

15.4.2 Remove any defective putty and punch nails.

15.4.3 For painted surfaces, spot prime small knots, cracks, open joints, holes and bare timber with specified wood primer.

15.4.4 Fill as necessary with polymeric fillers or oil-based putty, which in the case of clear or lightly pigmented finishes, shall match the substrate.

15.4.5 Use appropriate inert filler if the finish is a two-pack epoxy or polyurethane.

15.4.6 Dressed surfaces shall be lightly sanded in the direction of the wood grain with appropriate grade 'free cut paper' and powdery deposits removed.

15.4.7 One coat of wood primer to the back of external fascia boards, timber door and window frames, bottoms of doors, associated trims and glazing beads shall be applied before fixing in position.

15.5 Paint Systems

All paint types or protective coating systems specified in project paint systems shall conform to the appropriate APAS specification. http://www.apas.gov.au/

Selected paint systems will be applied in accordance with the manufacturer's written specification.