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MAINTENANCE GUIDE

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TABLE OF CONTENTS

1.	INTERIOR FINISHES	4
1.1	Manual Use	4
1.2	Periodical Inspection	4
1.3	Interior Surface Cleaning	4
1.4	Repairs	4
1.5	Repair Process	5
2.	EXTERIOR FINISHES	6
2.1	Periodical Inspection	6
2.2	Surface Cleaning	6
2.3	Minor Damage Repairs	6
2.4	Major Damage Repairs	6
2.5	Recoating	6
3.	MAINTENANCE OF PAINTED SURFACES	8
3.1	General Overview	8
3.2	Criteria for Assessing When to Repaint	8
3.3	Pre-treatment Before Painting	9
3.4	Treatment of Surfaces Affected by Mould	10
3.5	Treatment of Surfaces Affected by Moss and Lichen	10
3.6	Repair of Surfaces Affected by Spalling Concrete	11
4.	GAP FILLING	12
4.1	Timber	12
4.2	Plaster	12
4.3	Hardboard	12
4.4	Exterior Surface or Surfaces in Areas Subject to Wetting	12
5.	PAINTED SURFACES IN GOOD CONDITION - All Substrates	13
6.	SURFACES IN POOR CONDITION - Paint Removal Techniques	14
6.1	Removal of Paint	14
6.2	Heating	14
6.3	Abrasive Grit or Water Blasting	15
6.4	Grinding and Sanding	15
6.5	Chemical Stripping	16
6.6	Scraping	16
6.7	Hammer Gun	16
7.	REPAIR AND MAINTENANCE OF TIMBER AND HARDBOARD SURFACES	17
8.	REPAIR AND MAINTENANCE OF PLASTER AND PLASTERBOARD	18

9.	REPAIR AND MAINTENANCE OF MASONRY AND CONCRETE SURFACES	19
9.1	Crumbling Mortar	19
9.2	Corroded Brick	19
9.3	Filling Cracks and Crevices	19
10.	REPAIR AND MAINTENANCE OF METALWORK IN POOR CONDITION	20
11.	REPAIR AND MAINTENANCE OF PLASTICS	21
12.	PROCEDURES FOR THE REMOVAL OF DISCOLOURATION/STAINING	22
12.1	Efflorescence	22
12.2	Dust	22
12.3	Sulphide Stains	22
12.4	Iron Stains	23
12.5	Tannin Stains	23
12.6	Grease	23
13.	YELLOWING	24
13.1	Enamel Paints	24
13.2	Alkyd Enamel Paint	24
13.3	Polyurethane	24
13.4	Varnished Timber	24
13.5	Epoxy and Polyurethane Coatings	24
14.	VANADIUM STAINING	25
15.	INDUSTRIAL COATING	26
15.1	Maintenance Guide	26
15.2	Suggested Cleaning Process	26
15.3	Organic Finishes	27
16.	RENDER CRACK INSPECTION/REPAIR	28
16.1	Crack Repair	28
16.2	For Cracks Under 1mm	28
16.3	For Cracks Under 2mm	28
16.4	For Cracks Over 2mm	28

1. INTERIOR FINISHES

1.1 Manual Use

The intent for this manual is to provide the basis for periodic inspection, cleaning and repair of the coated areas relating to interior finishes on walls, ceilings and floors. This guide may be useful and specifying maintenance and remedial coating works describing methods of inspection, cleaning and removal of surface contaminants.

1.2 Periodical Inspection

Yearly visual inspection is recommended for all coated areas. High traffic areas such as floors and walls as well as areas subject to contact should undergo a more regular inspection based on the volume of traffic. a rating system is useful in determining the severity of wear and tear.

- Clean
- Dusty / Loose Surface Dirt
- Soiled / Stained / Ingrained Dirt
- Minor Damage such as Cracking, Flaking or Erosion
- Major Damage such as Film Failure Over Large Areas

1.3 Interior Surface Cleaning

Dusty areas or areas covered, and loose surface should be swept, dusted or vacuumed to maintain optimum appearance. Daily treatment is recommended for floors and eye level surfaces. This can be achieved using a soft cloth or soft bristle brush where possible. Test your preferred cleaning methods to ensure they do not damage the finish.

Areas nominated as soiled, stained or ingrained with dirt should be washed with mild detergent using a soft cloth or soft bristle brush. Rinse with clean water once and allow to fully dry. Repeat process to remove residual marks. When attempting to remove stains, avoid excess rubbing as this may cause glossy patches. Those stains that resist mild detergent should be treated with domestic solvent cleaners such as 'Spray and Wipe'. Spray directly on the stained coating and allow penetration for the recommended time. Rub clean with a soft cloth. Avoid burnishing caused by excessive rubbing. Stains are easier to remove as soon after soiling as possible to minimise penetration and setting in the coating. The longer that stain is left on the coating the harder it is to remove and damage to surface may be more prevalent. High visibility stains should be treated immediately.

These cleaning methods will not remove stubborn stains such as spray paint or marker pen graffiti. Stains such as these should be sealed with the appropriate impervious sealer and over coated as per the original finish.

1.4 Repairs

Areas with damage should be assessed for the cause of film fracture to identify underlying weakness or design faults. Early identification and elimination of design faults will prevent further damage and minimise the cost of repairs.

1.5 Repair Process

1. Having eliminated any design fault, proceed with spot repairs to areas showing minor damage. Ensure the surface around the damaged area is sound and clean. Where appropriate feather the edge of the existing coating.
2. Spot prime with the primer or sealer used in the original system overlapping onto the existing coating.
3. Apply topcoats as specified in the original paint system. For best results, use retained samples of the original topcoats supplied by **Baxta Engineered Coatings**. Apply this coat using the same application method and equipment to reproduce the original surface texture. Where original samples are no longer available confirm the colour match on a sample board before proceeding with repair.
4. Areas showing major damage should be cleaned, prepared and repainted using the original painting system over the entire area to the nearest architectural breaks such as corners, floors, ceiling, windows or doors.
5. Confirm the colour match on a sample board against neighbouring areas bearing in mind the tolerances are slightly larger in areas which are not viewed in the same plane.

2. EXTERIOR FINISHES

2.1 Periodical Inspection

Yearly inspections allow for the opportunity to address potential problems with usually a simple touch up. Areas requiring specific attention include:

- Parapets
- Window Sills
- Areas of Effloresce
- Vertical/Horizontal abutments
- Rust Stains
- Foundation Lines
- External Corners
- Substrate Cracks
- External Soffits
- Hydrostatic Pressure

2.2 Surface Cleaning

All exterior coatings will respond to periodical cleaning with mild household detergent (biodegradable) and rinsing with clean water or low-pressure wash. Stubborn areas may require multiple applications or the use of a lightly abrasive cleaner. Care must be exercised when aggressive cleaning mediums are used. Surface cleaning is recommended on a yearly basis.

2.3 Minor Damage Repairs

Make sure the surface around the damaged area is sound and clean, spot prime with the appropriate coating system primer (refer to application data manual) followed by topcoat application. Endeavour to identify original colour and batch number for best results. Some material should be made available or a reference colour sample for subsequent repair work to maintain colour uniformity.

2.4 Major Damage Repairs

Make sure the surface around the damaged area is sound and clean. Where areas larger than one square meter are involved, it is best to recoat the entire section up to natural breaks in the surface e.g. corner or joints. For these larger areas it is best to enlist the services of an experienced paint contractor.

Contact **Baxta Engineered Coatings** to direct you to a professional painter.

2.5 Recoating

Yearly long term aesthetic integrity and protection of the substrate can be enhanced by the repair methodology discussed above. Eventually a complete over coating will be required to rejuvenate the appearance and protective properties of the coating. This can be achieved

with the application of a PREMIUM QUALITY EXTERIOR COATING in one or two coats relative to the coating environment. Surfaces must be clean and generally no priming is required. Consultation with your local **Baxta Engineered Coatings** representative will establish the most appropriate specification.

Specific Maintenance

The accompanying manual entitled *Maintenance of Painted Surfaces* provides detailed information for more specific needs.

Further Assistance

Baxta Engineered Coatings
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3. MAINTENANCE OF PAINTED SURFACES

3.1 General Overview

In most situations, the service life of a paint coating is much shorter than the specified life of the building to which it is applied. Good quality paints have a relatively long life on interior surfaces and repainting is normally undertaken only when soiling has occurred or when there is a desire for a colour change. However, in external conditions of service, paint life varied with the environment, the nature of the material painted, the degree of surface penetration, the quality of the paint and the number of coats applied.

To assess the effectiveness of a painting system, it is necessary to inspect the painted surface at regular intervals e.g. annually. Occasional washing of exterior paint surfaces to remove accumulated dust, dirt or coastal salts (particularly metal substrates) will assist to maintain paint serviceability. Removal of surface chalking can often restore the decorative value of exterior paintwork.

The build-up of excessively thick coats of paint on some surfaces particularly timber, is undesirable. Repainting too frequently may be harmful and give rise to flaking and blistering particularly where temperatures are high and moisture is present. The minimum thickness of paint that will adequately protect the surface should be maintained. For preference, the application of new paint should balance that lost by weathering; however, this balance is difficult to achieve in practice. Following a number of successive repainting, it may be necessary to remove the existing paint system before repainting the surface, as in the case of new work.

The existence of lead paint on old buildings (typically pre-1970) can cause public health and environmental hazards and management procedures should be in accordance with **AS 4361.2** in Australia.

3.2 Criteria for Assessing When to Repaint

The reason for repainting may be a requirement for a colour change or gloss level, to suit climatic conditions, to freshen up generally the appearance of a building and to prevent deterioration of the substrate where coatings have blistered and are flaking.

The most important factor to be considered is the need to repaint before substrates start to deteriorate. This is particularly critical for timber surfaces.

Maintenance should be undertaken prior to the commencement of coating failure. This point is not easy to detect, but heavy chalking or paint defects are indications that maintenance is necessary. In any case, it is always preferable to repaint before existing paintwork starts to disintegrate, i.e. while a sound continuous coating persists. Washing to avoid the need to repaint may possibly reinstate the decorative appearance of a chalked finish.

A paint film that has weathered to the stage of cracking and flaking or shows poor adhesion is not a satisfactory base on which to apply fresh coats of paint.

When repainting metallic surfaces for long term protection, guidance on assessment criteria is given in **AS/NZS 2312**.

3.3 Pre-treatment before Painting

Where maintenance is undertaken at regular intervals, it is seldom necessary to strip off the old paint before painting, but thorough surface preparation is most important. The criteria for removal of the paint system are largely dictated by the soundness of the existing coating and the type of substrate.

The testing of paints for adhesion is by no means a simple task because the selection of the most appropriate type of test will depend on the generic paint type, substrate and service conditions. **AS 1580** has four different methods covered by Methods **408.2**, **408.4**, **408.5**.

Method **408.5** allows the qualification of coating adhesion by determining the tensile force, (perpendicular to the coating surface) necessary to dispatch the film. It is appropriate for coating on very cohesive, rigid surfaces such as metal, concrete and masonry. It is however, time consuming and usually only used in verification of other semi quantitative procedures.

Method **408.4** (Adhesion Cross Cut) describes a semi quantitative test, which involves making series of parallel cuts through the coating and a further similar series of right angles to form a grid pattern. On applying, then removing, pressure sensitive adhesive tape the extent of detachment of the coating measure. This method is not suitable for friable substrates such as plaster, where the cutting actions may impair the substrate. Results also vary between coating types because of the variation in the shear force necessary to cut through film. Thus, a hard cohesive coating will tend to be judged more severely than a soft friable coating.

Method **408.2** provides two simplified variations of the cross-cut test; Method **A** is a pass/fail test with just two parallel cuts while Method **B** allows a diversity of thicknesses and coating types to be tested. As with the cross-cut test, the value obtained will vary greatly with coating type.

Another approach, usually suitable for conventional decorative finishes on interior broad wall areas is the application of an agreed quality pressure sensitive tape (refer Method 408.4) - applying it to the wall for 30 seconds and quickly pulling the tabs off at right angles to the surface. A variation of this is to apply tape over an area where the paint has been cut through to the substrate.

For all adhesion tests involving pressure sensitive tapes, it is important that the surface be free of dirt, grease and chalking prior to adhering the tape.

For all these tests and any painted surface, the acceptability or otherwise of adhesion must be gauged in the context of what is reasonably achievable for the specific coating on the specific substrate.

Practices for the repairing of different substrates are set out below. These Clauses cover the repainting of surfaces in both good and poor conditions.

3.4 Treatment of Surfaces Affected by Mould

After verification that mould is present it is necessary to sterilise and remove surface mould before painting. The following procedure is recommended:

1. Wash the entire area with detergent to remove grease and dirt and all surface contaminants.
2. Wash or sponge the entire surface with freshly diluted solution of sodium hypochlorite household bleach and final hypochlorite concentration of 1 to 1%. Sponges and clothes should be regularly washed with clean water to prevent recontamination and the spread of mould spores.
3. Allow bleach to remain moist until the stain is decolourised, typical 15-30 minutes.
4. Reapplication may be required for dry conditions or persistent stains.
5. Rinse the surface with copious quantities of clean water. Where one application of bleach fails to remove the mould, a repeat application may be necessary.
6. Severely infested surfaces should be treated with an anti-mould solution as directed by the manufacturer.

To prevent the occurrence of mould, improve ventilation if possible and paint surfaces with high mould resistant products.

NOTES:

- Mould treatments do not remove rust stains
- If infestation is heavy or recurrent, a critical examination of the area should be carried out with a view to reducing any structural or environment moisture. If the ground under the building is excessively damp the sub floor ventilation should be improved, refer to building regulations for guidance. Improving ventilation can reduce environmental moisture. In severe situations, mechanical ventilation may be required.

3.5 Treatment and Procedure for Removal of Surfaces Affected by Moss and Lichen

TREATMENT:

- Remove all loose and powdery growth in moss affected areas
- Treat the affected surface with one of the following solutions:
 1. Copper Sulphate (hydrated) 20g
 2. Benzalkonium Chloride Solution

3. Other equivalent proprietary solution

NOTES:

- The solution containing copper sulphate should not be applied to zinc coated or aluminium surfaces because of the discolouration and corrosion. No run off should impinge on such surfaces.
- Copper sulphate, Benzalkonium chloride and some proprietary solutions are poisonous and should not be applied into drinking water or stormwater drains.

PROCEDURE:

1. Apply the solution to the affected area and leave until the moss and lichen turn brown and become loose. This usually occurs within 3-6 days.
2. Scrub down with a hard bristle brush, hose liberally with water and allow to fully dry.
3. Swab the treated areas using a solution of one volume of household bleach diluted with two volumes of water. Allow to dry for 30 minutes.
4. Treat the surface with algaecide solution following the manufacturer's instructions.
5. Wash down with clean water and ensure surface is fully dry before painting.
6. After treatment to remove moss and lichen surfaces may be discoloured. Surrounding surfaces should be protected to avoid unnecessary staining.

3.6 Repair of Surfaces Affected by Spalling Concrete

This is usually caused by the expansion of rusting metal reinforcements. This process can cause surface concrete to fall off. For method and treatment refer to **SAA HB84**.

4. GAP FILLING

All cracks, holes, indentations and damaged surfaces should be made good as far as practicable with such preparations as linseed oil putty, plaster filler, wood filler, and plastic wood and flexible paintable sealants, as appropriate. All such fillers should be used in accordance with the manufacturer's instructions and allowed to dry or set before being sanded back level with the surface. Flexible paintable sealants (e.g. acrylic latex types) need to either be well cured (typically 48 hours) or cracking of the finish coat may occur.

4.1 Timber

To prevent oil-based putty from shrinking and falling away owing to absorption of oil by the timber, all timbers should be prime-coated before being filled with putty. This is especially important with timber, which has deteriorated through exposure.

4.2 Plaster

To assist the adhesion of plaster filler, all plasters should be dampened and cracks dovetailed before application of the filler. Large gaps should be undercut before filling. For deep cracks, several applications may be necessary because of shrinkage. Where cracks extend into the structure behind the plaster, these will need to be repaired first.

4.3 Hardboard

The stopping and filling of large holes in hardboard is not recommended. However, nail holes and small indentations can be filled with putty, plastic wood or multi-purpose filler. All damaged sections should be replaced.

4.4 Exterior Surface or Surfaces in Areas Subject to Wetting

For exterior surface or surfaces in areas subject to wetting, only Portland cement based or water insoluble organic base gap fillers should be used. Rigid rapid fillers are not suitable where there is excessive timber moisture content. These should only be applied to the bare dry surface.

5. PAINTED SURFACES IN GOOD CONDITION - ALL SUBSTRATES

Paintwork in good condition first requires cleaning to remove surface contaminants. Next a thorough sanding or equivalent to achieve a dull or flat finish should be undertaken to ensure good adhesion of succeeding coats / For epoxy, polyurethane and other thermosetting coatings, the surface needs to be heavily sanded or lightly ship blasted to provide a key for subsequent coats.

Most surfaces can be adequately washed down with warm water or ordinary household detergent (5ml/L to 10ml/L) or with a solution of commercial sugar soap. Soap powders leave a residual deposit and are hence not recommended.

To be effective, washing down requires frequent changes of water and a second wipe over with clean absorbent rags to prevent surface smears.

Heavy smoke and grease deposits sometimes found in kitchens may not respond to washing with water. These can often be removed with mineral turpentine and then wiped over with clean absorbent rags. Heavy smoke deposits may be cleaned with ammonia based detergent solution or with a sugar soap solution, followed by rinsing.

6. SURFACES IN POOR CONDITION - PAINT REMOVAL TECHNIQUES

6.1 Removal of Paint

Paint, which is blistering, flaking or cracking, should be completely removed. This may be an indication of a wider adhesion problem and adhesion checks of the entire paint film should be undertaken. In the case of a breakdown of solvent borne paint systems on only a part of the area, some of the paintwork may appear sound and resist removal by scraping and sanding. It is possible; however, that this paintwork will also fail and repainting may hasten such failure. Adhesion checks to determine if the integrity of the existing layers should be undertaken. In cases where poor adhesion is observed, the removal of the existing coating may be necessary to give maximum life to new coatings. Similarly, surfaces exhibiting excessive chalking should be washed to give a sound base for further painting.

Selection of paint removal system is based on a number of concerns including the substrate, pertinent environmental considerations and the cost of labour materials. In particular the mechanical method of paint removal on different substrates is restricted to those materials that leave a uniform surface suitable for painting if so desired. The desired outcome will depend on the integrity of the surface and the system of paint removal used.

Paint removal may be achieved by one of the following methods:

6.2 Heating

- Applying heat using a flame from a LPG torch or hot air gun to painted surface. The paint softens and swells. Paint is then scraped off.
- This method is effective on surfaces which are not affected by heat for both interior and exterior use and is the most effective method of removing old solvent based borne paint.
- Gum exudation problems are well treated with heat.
- Scarring the substrate should be avoided.

SAFETY PRECAUTIONS FOR THE USE OF HEAT TO REMOVE PAINT

- Heat removal may be a dangerous process and requires care.
- Paint scrapings may ignite and set alight grass and surrounding materials.
- Wetting nearby shrubs and grass should occur prior to starting.
- Fire equipment such as a hose, fire blanket and fire extinguisher should be readily available.
- Removal of any flammable materials such as leaves, bird's nests or straw is necessary prior to starting.
- If definite fire hazards exist an alternative paint removal system should be employed.
- Some regulations may require the fire brigade to be notified prior to work commencing
- This process should not be carried out in windy weather.
- To avoid the risk of delayed fire, paint removal should be stopped at least 90 minutes before ceasing all operations of the operative working day. This allows for smouldering

embers in cracks or crevices to be detected early avoiding the possible danger of fire after the building or site has been evacuated.

- Any charred material should be removed at the close of daily operations.

WARNING: The fumes from paints and paint scrapings may be toxic to your health. Operators should avoid inhalation and use the appropriate protective equipment.

6.3 Abrasive Grit or Water Blasting

- Blasting involves projecting a substance at high pressure onto a surface removing the paint film by grinding away and lifting the surface.
- This process may be carried out in wet or dry conditions.
- Environmental considerations need to be considered.
- Blasting is typically used on surfaces such as concrete, masonry, metals and paving and in areas where residue can be contained. (See **AS1627.4**)

NOTES:

- Grit blasting may be prohibited in some jurisdictions and containment requirements render this option impractical in many situations.
- Water blasting is a common preparatory technique water use authorisations may be required before using this technique. Consult your local Council for water use permits.
- Additional sanding or scraping may be necessary following the use of this technique to ensure complete paint removal.

6.4 Grinding and Sanding

- Grinding and sanding involves the use of abrasive materials to wear the paint film. This may be achieved manually using the following materials on smaller areas:
 - Abrasive garnet paper
 - Carborundum paper
 - Glass paper
- The process may also be performed mechanically using the following equipment and area generally used on larger areas:
 - Disc sander for preparing the areas
 - Orbital or belt sander used for finishing the areas
 - Abrasive wheel
- Use of such equipment can be dangerous and proper safety precautions and equipment should be used at all times.
- This process can be used on both interior and exterior surfaces.
- The use of organic vapour/particulate respirator complying with **AS1716** is recommended.

WARNING: Airborne dust from sanding can be hazardous to your health. Appropriate protective equipment should be used at all times.

6.5 Chemical Stripping

- Chemical stripping involves the use of a chemical means of removing paint and is broken down into three general classes. Not all methods will work on all paint film types and the effectiveness should be established by trial with a test area or reference to the manufacturer's recommendations.
- Chemicals may be variously applied as thixotropic gel, a poultice or tape to prolong the stripping action and provide greater effectiveness of removal.
- Three classes of chemical stripping are as follows:

FAST ACTING SOLVENT STRIPPING

- Effective for removal of single layers
- Old paint films "fry" and are easily removed by scraping
- Methylene chloride-based strippers are commonly used on solvent borne paints
- This solvent is highly toxic, appropriate safety precautions are to be followed at all times. (see manufacturer's guidelines for use).

6.6 Scraping

- The removal of old paint by scraping with a sharp edge
- This technique is usually followed by sanding to achieve the desired finish and can be used on both internal and external surfaces.

6.7 Hammer Gun

- The process of using mechanical devices including needle gunning and power wire brushes to remove paint.
- Typically, useful on metal, concrete and other robust surfaces.
- Hearing protection is necessary with the use of this equipment as well as all other safety equipment and precautions.

WARNING: Airborne dust from sanding can be hazardous to your health. Appropriate protective equipment should be used at all time. In particular, appropriate ear and eye protection should always be used in conjunction with other safety equipment when using mechanical devices.

7. REPAIR AND MAINTENANCE OF TIMBER AND HARDBOARD SURFACES

Holes or depressions in timber due to mechanical damage or natural defects such as resin or gum pockets, knots holes and surface splits should be scraped clean of any loose or soft material and after priming, should be filled with fillers compatible with the proposed paint system. Timber is particularly resinous and many need to be heated using a hot air gun to allow subsurface resin to diffuse to their surface for subsequent mechanical removal prior to painting.

Some timbers including radiata pine are susceptible to resin bleed. Where solvent borne, preservative treatments are used e.g. light organic solvent preservative, resin bleed is more common. Resin exuding on the surface of timber or through paint, should be scraped off before painting. Where resin is still soft, wiping with mineral turps will help remove residues. Heating with a hot air gun will bring resin to the surface. Heavy resin bleed is likely to re-occur over summer months and the only completely successful treatment for badly affected timber is replacement.

Where the appearance of timber has discoloured or otherwise deteriorated due to weathering, it should be sanded, exposure of timber substrates for even a few weeks of weathering will have a detrimental effect on the adhesion of paint coats.

Where timber has decayed, the source of moisture causing the decay should be eliminated. Leaking spouts or pipes, floor flashing and improperly sealed butt joints are frequent causes. Areas of damaged or decayed timber should be scraped out, or where areas are extensive cut out and be neatly replaced.

Corroded nails, which have sprung or become loose should be withdrawn and corrosion resistant nails placed in a new position. If adequate fixing is achieved, it may be preferably in some conditions to re-punch loose or sprung nails. After punching, all nail holes should be primed and filled.

8. REPAIR AND MAINTENANCE OF PLASTER AND PAPER COVERED PLASTERBOARD

Paint flaking from loose, powdery or otherwise unsatisfactory surfaces should be completely removed and the surface treated as specified for plaster.

Paint applied to interior walls should first be scrapped and then sanded. If the remaining paint is considered unsound, it should be removed with appropriate chemicals or solvent stripper (Chemicals or solvent strippers should not be used on paper faced plasterboard).

Bare surfaces should then be treated as for new work. All surface cracks, pores and irregularities should be filled with appropriate filler, trowelled smooth and allowed to dry. When dry, the treated areas should be lightly sanded to a smooth finish.

9. REPAIR AND MAINTENANCE OF MASONRY AND CONCRETE SURFACES

Because of the absorbent nature of masonry and the consequent penetration of paint into the surface, the use of abrasive grit blasting is the most efficient method of cleaning. This is only satisfactory on exterior surface, whereas solvent or chemical strippers are satisfactory on interior surfaces.

The following faults in surfaces of concrete, cement render or brick masonry should be treated as indicated before painting.

9.1 Crumbling Mortar

- Locate and remove the source of moisture
- Dry out all moisture before painting
- Use a moisture meter to establish if surface is ready for painting

9.2 Corroded Brick

- Replace isolated soft or under fired brickwork before painting
- Alternatively, the consolidation of corroded bricks may be an option

9.3 Filling Cracks and Crevices

- Remove all loose matter and fill with an appropriate compound
- Clean out deep holes in masonry
- Wet with water and fill with mortar no stronger than the existing substrate
- Allow to dry

10. REPAIR AND MAINTENANCE OF METALWORK IN POOR CONDITION

Most stripping systems are satisfactory for metal surfaces. Interior and Exterior limitations should be considered.

In severe environmental conditions, repainting should be in accordance with **AS 2412**. In mild environments, reinstatement may be deferred to suit the maintenance program owing to significant reduced steel corrosion rates. It will be necessary for corroded areas to be appropriately cleaned and spot primed before application of the recommended system.

Recommended systems for metal work exposed to the elements are listed in **AS 2312**.

11. REPAIR AND MAINTENANCE OF PLASTICS

Plastic surfaces are not generally resistant to abrasives or solvents; however, the use of chemical strippers and mild abrasives offer the most suitable methods for stripping painted surfaces.

12. PROCEDURES FOR THE REMOVAL OF DISCOLOURATION / STAINING OF PAINT FILMS

Staining of paint films is comparatively rare but cases which are unsightly and difficult to remove do occur. Further difficulty may be experienced in identifying a stain.

Procedures for the treatment of Stains are as follows:

12.1 Efflorescence

Efflorescence is caused by the migration of moisture from certain substrates, bringing salts to the surface. Efflorescence will continue unless the source of the moisture is determined and eliminated if possible.

- While efflorescence from plaster, concrete and masonry consists mainly of calcium carbonate.
- These alkaline salts can be removed by brushing with a stiff bristled brush and wiping down with mild acid solution such as **5% acetic acid (white vinegar)**
- The whole area should then be wiped down with a damp cloth and allowed to dry thoroughly. When dry apply a solvent-based sealer.

12.2 Dust

Dust provides a nutrient source for mould and needs to be eliminated to prevent contamination.

- Vacuum cleaning or brushing the affected area with a clean dry brush is sometimes sufficient to restore the appearance. However, surfaces affected by the deposition of dust may also be susceptible to occasional condensation which leads to adhesion of the dust particles resulting in a stain that cannot be completely brushed away.
- Smoky atmospheres aggravate this condition. In such cases, the surface should be washed with a diluted detergent solution.
- Smoke stains often occur on acoustic tiles, especially if the backing is faulty. If this occurs, an attempt should be made to reseal the back of the tile, as the stain will probably reoccur if air continues to find a passage through the tile.

12.3 Sulphide Stains

This type of stain is caused by lead or mercury compounds in old style paint which form sulphides with contaminants in the air. These stains are dark, ranging in colour from brownish or purplish hues to grey and are usually easy to diagnose.

Once a source has been contaminated with lead compounds, some difficulty may be experienced in eliminating their effect. Repainting hides the stain for a while but the lead usually succeeds in penetrating the covering paint film.

- Lead sulphide stains are usually easy to remove by treatment with **hydrogen peroxide** which can be applied either by spraying or with a cloth soaked in the agent
- Mercury sulphide stains are removed by **sodium hypochlorite** however this treatment may not be permanent. Permanent treatment may be achieved by sealing prior to repainting with an appropriate sealer specified by the manufacturer. Improved ventilation to reduce humidity may prevent reoccurrence.

WARNING: direct contact of undiluted hydrogen peroxide with the skin should be avoided. Refer to manufacturer's instructions for use of this product.

12.4 Iron Stains

Iron stains variously show up as spots arising from contamination of surfaces with metallic iron or more generally from contamination by iron compounds in the substrate.

- These stains are removed by treatment of a solution of **8g oxalic acid in 100ml water**. Unless the iron contaminant is gouged out, staining will reappear.
- To prevent the stain from reappearing after treatment the area should be coated with a solvent borne sealer.
- For more persistent staining the addition of **2g of sodium fluoride** to the solution is recommended. Following stain removal, remove any residual acid from the surface with **5g/10-0ml of sodium bicarbonate solution**.
- Clean rust from surfaces.
- Use inhibitive metal primer (refer to **AS 2312** for details)
- Surfaces which are inaccessible for painting such as lintel and other gaps which allow moisture ingress should be sealed where possible.

WARNING: Oxalic acid can be harmful to your health. Appropriate safety precautions and equipment should be used at all times.

12.5 Tannin Stains

- Tannin stains are derived from various timbers and can be avoided by priming the timber before painting.
- Timbers with excessive tannin migration e.g. cedar, merbau and similar, a **solvent borne primer** is necessary.

12.6 Grease

- Wash surfaces with warm water and sugar soap preparation (1:4) or household detergent which has been dissolved.
- Repeat until the grease is removed
- Rinse area with water
- Allow to dry thoroughly

13. YELLOWING

13.1 Enamel Paints

Enamel paints on interior trim areas often dry to a yellowish “*off colour*” due to application of the enamel while fumes from latex based oil and ceiling paints or undercoats are still present in the room.

This discolouration is permanent and can only be avoided by **providing ample ventilation to ensure that all fumes have been eliminated prior to application of enamel trim paints.**

13.2 Alkyd Enamel Paint

Alkyd enamel paints discolour to a cream/yellow colour in rooms or areas where there is little or no sunlight such as passageways, behind doors and inside cupboards. This discolouration is reversible and **allowing sunlight into the area for a few days** will usually restore the colour to its original shade.

13.3 Polyurethane

Polyurethane based enamels and varnishes discolour permanently when exposed to strong sunlight for extended periods.

13.4 Varnished Timber

Varnished timber may discolour over time by prolonged exposure to sunlight e.g. pinus radiata. Other species may fade thereby mask the colour change of the varnish e.g. cedar and redwood.

13.5 Epoxy and Polyurethane Coatings

Epoxy and polyurethane coatings discolour under the influence of sunlight.

Care is needed to specify non-yellowing resin combinations for these materials if colour retention is a critical property.

14. VANADIUM STAINING

Vanadium stains consist of yellow, green or reddish-brown discolouration of paint applied over light coloured bricks. They can be chemically treated as follows:

- Caustic soda or caustic potash applied as a 10% by weight aqueous solution, or
- Hypochlorite bleach applied as a 10% solution of liquid pool chlorine.

Both these treatments should be rinsed thoroughly with copious amounts of clean water after the stain has disappeared.

Hypochlorous acid which is often applied to brick work to remove mortar stains and residues should be avoided where vanadium stains are present as the vanadium darkens in the presence of this chemical and becomes more difficult to remove.

WARNING: Caustic Soda, caustic potash, hypochlorite bleach and liquid pool chlorine require care when handling. Appropriate safety precautions and equipment should be used when handling these substances. Observe all safety precautions set out by the manufacturer before use.

15. INDUSTRIAL COATING

Different coating types do deteriorate at different rates, but even **high-performance** protective coatings will perform far more effectively for longer if they are regularly maintained. Dirt, grime and airborne salt deposits from the atmosphere can damage the coating surface and must be regularly cleaned off. Also, any mechanical damage to the coating must be promptly repaired to restore the original protection to the substrate. All this must be accomplished in a controlled, planned way.

15.1 Maintenance Guide

It is important that maintenance be done on a regular basis. A maintenance program includes a regular cleaning process, followed by an inspection report and repair and maintenance guidelines based on the inspection report.

High rise exteriors should generally be washed down annually or semi-annually (every 6 - 12 months) to prevent the buildup of dirt, grime, pollution and mould. However, in harsh environments such as coastal areas with high salt exposure or city centres with heavy traffic pollution, a more regular (every 3 - 4 months cleaning is recommended.)

Darker colours with an LRV (Light Reflective Value) of less than 40% should also generally be washed down every 3 - 4 months

15.2 Suggested Cleaning Process

The following is a guide only; details may vary according to the conditions the surface is subject to and the nature of the coating system. Do not use bore water, as the minerals can stain the coating and may cause long term coating failure.

- Wash and degrease the surface in accordance with **AS 1627.1** with a free-rinsing, alkaline detergent (such as **Gibson F310B** or **Gamlen CA No 1**) in strict accordance with the manufacturer's written instructions and all safety warnings. The use of warm water may aid the emulsification, of heavy oily deposits. (Care must be taken not to use excessively hot detergent solution on single pack coatings as this may affect gloss/and or adhesion)
- Persistent deposits may be removed with a soft bristle brush. Do not use abrasive tools on the coating.
- Rinse with fresh potable water and ensure all solvable salts are removed in accordance with **AS 3894.6** methods A&D. Repeat until the surface is clean.
- For deposits, resistant to detergents, such as adhesive residues, a solvent can be used effectively to dissolve the deposit. Choice of solvent is critical, however, as certain coatings (particularly single pack coatings) are very sensitive to solvents and will easily lose gloss, or worse still, dissolve. The most benign solvents recommended are methylated spirits, white spirits or isopropanol. Two pack coatings, however, are generally resistant to most common solvents, so the choice of cleaning agent is much broader. A small test area should be checked prior to cleaning to ensure that no softening or colour change will occur. Ensure the contact time for the solvent is minimal, and that the solvent and dissolved residues are thoroughly rinsed from the surface.

15.3 Organic Finishes

All organic finishes are prone to some degradation on outdoor exposure, and after long service some change of colour and gloss or chalking is expected. The integrity of the film and its protective qualities are generally not affected, however, and unless the coating is damaged, and/ or shows signs of substrate deterioration, the coating can be left as is. If, however, the coating is in a shopping mall or residential or commercial building facade where aesthetics are important, the coating should be restored to the original appearance.

16 RENDER CRACK INSPECTION/REPAIR

16.1 Crack Repair

Depending on the system chosen, Baxta render systems have some ability to bridge cracks

It is important that during the annual clean, checks are made for any cracks and that these cracks are sealed to prevent any water ingress issues.

16.2 For Cracks Under 1mm

Generally, these cracks can be filled with touch-up Baxta MCM.

Simply clean down the area, allow to dry and then brush in the Baxta MCM into the cracked area and feather slightly out to the sides.

These cracks should then be monitored over subsequent annual checks.

16.3 For Cracks Under 2mm

Seal with a good quality polyurethane sealant such as Sikaflex Pro.

Simply clean down the area, allow to dry and then brush in the Baxta MCM into the cracked area and feather slightly out to the sides.

These cracks should then be monitored over subsequent annual checks.

16.4 For Cracks Over 2mm

These cracks are major and should be checked for any structural issues before repairing. Contact Baxta for a rectification specification for these types of cracks.