BRITISH STANDARD

BS 8000-12: 1989

Workmanship on building sites —

Part 12: Code of practice for decorative wallcoverings and painting

CAWS M52, M60

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Committees responsible for this British Standard

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Building Employers' Confederation
Chartered Institute of Building
Consumer Policy Committee of BSI
Department of the Environment (Building Research Establishment)
Department of the Environment (Property Services Agency)
Federation of Associations of Specialists and Sub-Contractors
Institute of Clerks of Works of Great Britain Inc
Institution of Civil Engineers
Institution of Structural Engineers
National Building Specification Ltd.
National Council of Building Materials Producers
National House Building Council
Royal Institute of British Architects
Royal Institution of Chartered Surveyors
Society of Chief Architects of Local Authorities

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Contents

Foreword

This Part of BS 8000 has been prepared under the direction of the Council for Building and Civil Engineering. It makes recommendations and gives guidance on basic workmanship for conventional types of building work.

The recommendations given are not necessarily comprehensive; particular project documents, e.g. project specifications, may need to cover particular recommendations not dealt with by this code of practice.

This code of practice is unique in that unlike other British Standards, it draws together recommendations given in other codes of practice.

The purpose of this code of practice is to encourage good workmanship by providing the following:

a) the most frequently required recommendations on workmanship for building work in a readily available and convenient form to those working on site;

b) assistance in the efficient preparation and administration of contracts;

c) recommendations on how designers' requirements for workmanship may be satisfactorily realized;

d) definitions of good practice on building sites for supervision and for training purpose; this guidance is not intended to supplant the normal training in craft skills;

e) a reference for quality of workmanship on building sites.

It is recognized that design, procurement and project information should be conducive to good workmanship on site.

During the preparation of this code of practice the Building Industry's Co-ordinating Committee for Project Information (CCPI), produced a Common Arrangement of Work Sections (CAWS) for building work. This code of practice has generally been arranged in accordance with the Common Arrangement so that it can be used easily with project specifications and bills of quantities using this arrangement. Other major documents are being restructured in accordance with the Common Arrangement.

NOTE The CCPI was sponsored by the Association of Consulting Engineers, the Building Employers' Confederation, the Royal Institution of Chartered Surveyors and the Royal Institute British Architects.

When complete BS 8000 will comprise the following Parts.

— *Part 1: Code of practice for excavation and filling*;

— *Part 2: Code of practice for concrete work*;

— *Part 3: Code of practice for masonry*;

— *Part 4: Code of practice for waterproofing*;

— *Part 5: Code of practice for carpentry, joinery and general fixings*;

— *Part 6: Code of practice for roof, slate, tile covering and cladding*;

— *Part 7: Code of practice for glazing*;

— *Part 8: Code of practice for plasterboard partitions and dry linings*;

— *Part 9: Code of practice for cement/sand floor screeds and concrete floor toppings*;

— *Part 10: Code of practice for plastering and rendering*;

— *Part 11: Code of practice for wall and floor tiling*;

— *Part 12: Code of practice for decorative wallcoverings and painting*;

— *Part 13: Code of practice for above ground drainage and sanitary appliances*;

— *Part 14: Code of practice for below ground drainage*;

— *Part 15: Code of practice for hot and cold water services (domestic scale).*

Technical Committees BDB/7, Building protection and maintenance, and FHM/35, Wallcoverings, have also participated in the preparation of this Part of BS 8000 and the content is based on and consistent with that of BS 3046, BS 5493 and BS 6150. However, BS 3046, BS 5493 and BS 6150 cover the subject matter more comprehensively and include materials and other related aspects in addition to workmanship on site.

The text of this Part of BS 8000 includes commentaries. These commentaries are separately identified and are intended to be for guidance only and do not form part of the recommendations. They refer, unless otherwise stated, to the clause which immediately precedes each commentary.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 14, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

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Section 1. General

1.1 Scope

This Part of BS 8000 gives recommendations on basic workmanship on building sites and covers those tasks which are frequently carried out in relation to decorative wallcoverings and painting.

For other aspects of decorative wallcoverings and painting reference should be made to BS 3046, BS 5493 and BS 6150.

NOTE 1 This part of BS 8000 has been written on the basis that its use will be supported by documentation such as a detailed specification.

NOTE 2 This code of practice includes supplementary elements in the form of commentaries to assist in its use and understanding. Compliance with the commentaries is not necessary in order to be able to claim conformity with the standard.

1.2 References

1.2.1 Normative references

This Part of BS 8000 incorporates, by reference, provisions from specific editions of other publications.

These normative references are cited at the appropriate points in the text and the publications are listed on the inside back cover. Subsequent amendments to, or revisions of, any of these publications apply to this Part of BS 8000 only when incorporated in it by amendment or revision.

1.2.2 Informative references

This Part of BS 8000 refers to other publications that provide information or guidance. Editions of these publications current at the time of issue of this standard are listed on the inside back cover, but reference should be made to the latest editions.

1.3 Definitions

For the purposes of this Part of BS 8000, the definitions given in BS 2015:1965, BS 6100-1.3.1:1987, BS 6100-1.3.2:1985 and BS 6100-1.3.3:1987 apply.

Section 2. Materials handling and preparation

2.1 Checking, handling and site storage of materials and components

2.1.1 Checking

Check delivery tickets and certificates against the specification. Examine marks and labels and condition of all materials and containers. Record the manufacturer's product batch numbers stamped or labelled on containers or wrappings if they are not otherwise already recorded on the delivery ticket.

If necessary refer to the supplier immediately.

In particular check that:

a) the materials for wallcoverings are clean, undamaged and dry and, if the outer wrappings have been damaged, that the contents are not affected;

b) liquid adhesives and water-borne paints are in good condition, e.g. not lumpy or mouldy;

c) paint containers are clean, sealed and leak free. Unless otherwise indicated, paints other than water-borne and bituminous paints are to be delivered in containers not exceeding 5 L capacity.

COMMENTARY. *In the case of wallcoverings where large quantities of a particular pattern are required, it may not be possible for the supplier to supply them all as one shade number. This will generally not be important where they are to be used in different rooms or where the recommendations set down in* **3.1.1.4** *are followed.*

One cause of lumpiness in adhesives is freezing. If the adhesive has been subject to freezing temperatures its quality may have deteriorated.

2.1.2 Handling and site storage

2.1.2.1 *Handling.* Unload and handle materials with care to avoid crushing, tearing or damage to packaging, and denting or unsealing of containers.

Do not allow wallcoverings to become dirty or wet.

2.1.2.2 ***General storage***

a) Store all materials in a clean dry store providing protection from frost and extremes of temperature within the range of 5 °C and 30 °C; set aside any material that has been exposed to temperatures outside those stipulated by the manufacturer, until advice has been obtained on its suitability for use;

b) Store all materials so that they can readily be used in order of delivery and issued from store before the expiry of any shelf life period stated by the manufacturer.

2.1.2.3 ***Storage of wallcoverings***

a) Keep wallcoverings out of direct sunlight.

b) Keep them in their boxes or wrappings until required for use.

c) Keep them away from other materials which might damage or contaminate them.

d) store rolls of wide width wallcoverings on their sides.

e) avoid damage to the ends of rolls.

2.1.2.4 *Storage of flammable products.* If the total quantity of flammable paints, etc. exceeds 50 L at any one time store them in either:

a) metal lockers; or

b) a detached store of non-combustible construction; or

c) the open air at least 4 m from buildings, boundaries and sources of ignition and sheeted over to provide protection from weather; or

d) a room of half-hour fire resisting construction, ventilated to the outside.

Display "NO SMOKING" signs.

COMMENTARY. *In the case of highly flammable liquids there are statutory requirements and attention is drawn to the Highly Flammable and Liquified Petroleum Gases Regulations 1972 [1]. "Flammable" liquids have flash points between* 32 °C *and* 66° C. *"Highly Flammable" liquids have flash points below* 32 °C.

For the purposes of this clause liquids include materials such as ready mixed adhesives.

Further guidance is contained in Department of Environment Standard Fire Precautions P5 [2] and Health and Safety Executive HS(G). Highly Flammable Materials on Construction Sites[3].

2.2 Preparation of work, materials and components

2.2.1 Liaison

Liaise with manufacturers, suppliers and other trades on the timing, sequence and environmental conditions for wallcovering and/or painting operations. Do not commence preparation unless and until satisfied that work will not be adversely affected.

The hazards of working in confined spaces, particularly if flammable or toxic materials are to be used, should be noted. Spraying in such areas can be especially hazardous and reference should be made to the Health and Safety Executive publication HS(G) [3].

Discuss and agree the need for protection of components prior to painting. Ensure that proper regard is paid to their protection against dirt, mechanical damage and moisture.

COMMENTARY. *The sequence of working can only be determined by the particular circumstances of the whole project. The logical order is that external work should be carried out from top to bottom and as the last operation before removal of the scaffold. Dust from preparation or other work in one area should be contained so that it does not contaminate work in another.*

2.2.2 Protection

Protect, with covers as appropriate, fittings and other surfaces during the preparation and application of wallcovering and painting materials.

a) Do not stand on finished work, fixtures or fittings to gain access.

b) Clean off splashes and marks immediately from finished surfaces and other surfaces if they are likely to be difficult to remove later.

c) Do not lean ladders or support equipment in such a way as to cause damage to construction or finishes.

2.2.3 Fixtures and fittings

Before commencing hanging decorative wallcoverings and/or painting, remove or ensure the removal of cover plates from electrical fittings, after ensuring that live contacts are not exposed, and of fittings such as ironmongery, or appliances, such as radiators, that obstruct operations. Replace these as appropriate at completion. If there are practical difficulties or dangers, seek advice.

COMMENTARY. *It may be necessary or advisable for other trades to carry out the removal (which may include partial removal or easing) and replacement of obstructing items. The responsibilities for doing this work should be agreed beforehand.*

2.2.4 Lighting

Ensure the provision of artificial lighting where the existing lighting is inadequate for the proper execution of work. Check that the lighting simulates, as far as practicable, the final lighting scheme in intensity and direction of lighting.

COMMENTARY. *Where the final lighting is to be very subdued it is obviously unsatisfactory to use a similar level of lighting when applying wallcoverings or paint.*

2.2.5 Moisture content

Before applying coatings check that the moisture content of the substrate will not adversely affect the completed work.

COMMENTARY. *For the application of paints on plastered, rendered, concrete, brick, block and stone surfaces and substrates, it should be judged whether or not the work has had good drying conditions for at least four to six weeks before decorating. It is impractical to carry out measurements of moisture content for all cases but when in doubt a measure of suitability for decorating can be obtained with a hygrometer. An equilibrium humidity of less than* 75 % *measured in an airspace in contact with the surface is considered to be generally satisfactory (see BS 6150).*

Ideally wood should be coated when its moisture content is near to that at which it will stabilise in service. The moisture content of timber to receive paint should not be more than approximately 18 % *and if there is any doubt about this, a sufficiently accurate simple check can be made using, for example, an electrical moisture meter; however, those of the conductive type may give incorrect readings on timber treated with water-borne preservatives or fire retardants.*

Timber treated with preservative may need to be allowed time to dry on site before being primed.

2.2.6 Surface irregularities

Seek advice if irregularities in the surface are likely to produce an unsatisfactory finish of the wallcovering or paint.

2.3 Surface preparation

2.3.1 General

2.3.1.1 *Proprietary materials.* Follow the manufacturer's sitework instructions for all proprietary materials used in the preparation of surfaces.

2.3.1.2 *Surfaces containing asbestos.* Obtain instructions before commencing any preparatory work on surfaces containing asbestos. Never disturb asbestos-containing substrates.

NOTE The manufacture of all asbestos based products is covered by the requirements of the Control of Asbestos at Work Regulations 1987 [4], introduced on 1 March 1988. These set out comprehensive provisions covering work activities involving exposure to asbestos. Advice on how to comply with these regulations can be obtained from the manufacturers of the material, from the Asbestos Information Centre, St Andrew's House, 22-28 High Street, Epsom, Surrey KT19 8AH, from the local area office of the Health and Safety Executive or from the Environmental Health Department of the Local Authority.
WARNING. Breathing asbestos dust is dangerous to health and precautions have to be taken during the manufacture and use of these products.
Particular note has to be taken of the Asbestos Products (Safety) Regulations 1985 [5], made under the Consumer Safety Act 1978 [6] and of the Asbestos (Prohibitions) (Amendment) Regulations [1)][7] made under the Health and Safety at Work etc. Act 1974 [8], which prohibit the supply of products containing amosite or crocidolite and set out requirements for the labelling of all products containing asbestos.

[1)] Parallel regulations for Northern Ireland came into force on 6 March 1986.

All the above legislation implements European Directives.

2.3.1.3 *Unsound surfaces and substrates.* If, during the course of the work, any surface or substrate is found to be unsound obtain instructions immediately.

2.3.1.4 ***Cleaning and rubbing down.***

a) Clean and rub down the surfaces generally with appropriate materials such as cloth, brush, abrasive paper or pad, or scraper, either dry, or wet with water and soap powder or detergent or with proprietary emulsion cleaner, as appropriate to the particular surface.

b) Where an abrasive has been used to rub down surfaces ensure that the surfaces are thoroughly cleaned to remove dust and particles. Avoid using ferrous abrasives including wire wool, residues of which might cause rust staining where emulsion paints are to be used, on certain timbers, such as oak, or in damp environments.

c) Where surfaces have been wet rubbed, rinse them thoroughly with clean water so that there is no contaminant left. Wipe them and allow to dry.

d) If rubbing has been done with dry materials, vacuum clean and carefully brush or wipe, e.g. with a tack-cloth.

COMMENTARY. *For preparation of surfaces which contain or are suspected to contain lead or chromates, procedures given in* **2.3.2.3** *should be followed.*

2.3.1.5 *Contaminants and spillages.* Remove mortar and plaster splashes to the extent that they will not affect the surface texture or smoothness of the coating applied. Remove contaminants, spillages and flaking materials. Seek advice if contaminants have been absorbed into the substrate and cannot be removed except by specialized treatment or cutting out.

2.3.1.6 *Efflorescence.* Remove surface salts with a coarse dry cloth or stiff dry brush, then wipe over the surface with a damp cloth wrung out frequently in clean water. Avoid excessive wetting. Repeat this process at intervals of a few days until efflorescence has ceased. Seek advice if the efflorescence persists after three attempts at removal.

COMMENTARY. *Where paint is to be applied the loose salts are likely to disrupt impermeable paints and may affect the adhesion of permeable paints so that they are best removed before application of any paint system. Hard films of efflorescence which cannot be wiped or brushed off can be overpainted if the substrate is substantially dry and the surface is abraded to form a key.*

2.3.1.7 *Use of white spirit for cleaning.* Use the minimum amount of white spirit necessary.

COMMENTARY. *A solvent-sodden rag should not be used. Proprietary dispensers are available which deliver small quantities of solvent to the cloth.*

Avoid skin contact with the solvent (use suitable protective gloves) and ensure that the work area is well ventilated to prevent a build up of solvent vapours. Allow sufficient time for the solvent to evaporate before proceeding with the next stages.

2.3.2 Previously decorated surfaces

2.3.2.1 ***General***

Prepare all parts of surfaces that are to be recoated. Ensure all loose and defective material is removed to leave a firm edge (see also **2.3.5.2**).

COMMENTARY. *It should not be assumed that any part of a surface does not require the full preparatory work, whatever its apparent condition.*

2.3.2.2 *Pre-primed surfaces.* Immediately before overcoating check that the primer is adhering firmly and is in good condition.

If not, clean and prepare back to a sound surface as appropriate to provide a key before overpriming and/or touching up. Use only compatible primers.

If in doubt, obtain instructions for preparation and repriming.

2.3.2.3 ***Gloss painted surfaces***

a) Where the surface is sound wash it down with warm detergent solution and/or cleaning powder to remove dirt, grease and tobacco staining. Rub it down with wet abrasive paper or block to remove the gloss.

b) Where a chemical stripper is used follow the manufacturer's instructions carefully. Ensure that all traces of the stripper are removed when stripping is complete.

c) If the existing paint system is suspected of containing lead, obtain instructions before commencing preparation.

COMMENTARY. *The manufacture, use and maintenance of all lead-based products are covered by the Control of Lead at Work Regulations 1980 [9]. Until the 1960's, paints were often formulated with what are now considered to be dangerous quantities of lead compounds. Modern paints are less likely to contain substantial quantities of lead compounds, if any.*

If paint containing lead is rubbed with dry glasspaper, the resulting dust will contain lead which can be breathed in or may be consumed with food if hands are not washed. Clothing may be contaminated and the dust taken by operatives to their homes. Therefore, all rubbing down should be done with waterproof glasspaper, or a block, and water.

Blowlamps and hot air strippers can release the lead in the form of toxic fumes.

The general advice for paints containing lead is:

a) *if the surface is sound, do not strip; use only wet abrasives;*

b) *if stripping is necessary, use a chemical stripper;*

c) *collect all waste into sealed bags and dispose of it safely as toxic waste. Do not burn it.*

2.3.2.4 ***Other painted surfaces***

a) Completely remove water-soluble finishes by washing with water and scraping.

b) Wash washable finishes with detergent solution to remove dirt, grease and tobacco staining. Scrape to remove loose and defective areas of paint.

c) Rinse surfaces with clean water and allow to dry.

d) Smooth irregularities and fill cracks, then rub down with fine abrasive paper flush with surface and remove dust (see **2.3.11**).

e) Prime, seal, size or prepare surfaces if and as required.

2.3.2.5 *Surfaces with wallcoverings.* Where wallcoverings are not to be overpainted or otherwise covered:

a) wet or dry strip all wallcoverings and wash the surface with warm water to remove old paste and size;

b) when the surface is dry, smooth irregularities and fill cracks, then rub down with fine abrasive paper flush with surface and remove dust;

c) prime, seal, size or prepare surfaces if and as required.

COMMENTARY. *Vinyl wallcoverings may produce toxic fumes if burnt and these should not be burnt on site.*

2.3.3 Surfaces infected with mould or other biological growths

2.3.3.1 ***Undercoated surfaces***

a) Apply a biocidal solution, e.g. fungicide, appropriate to the growth being treated, to infected areas and over surrounding surfaces for a distance of about 600 mm and in accordance with manufacturer's recommendations regarding dilution, application, drying times and safety precautions. Wear suitable protective clothing and avoid contact of the skin with the chemical.

b) Completely remove dead growths by scraping or brushing.

c) Carefully collect all dust and debris and burn it immediately or, if this is impracticable, keep it in sealed plastics bags and remove it from site.

d) Treat the surface with a biocidal solution which is appropriate to the growth being treated and which has a residual effect to inhibit as far as possible any re-establishment of infections.

e) Smooth irregularities and fill cracks, then rub down with fine abrasive paper flush with surface and remove dust.

f) Prime, seal, size or prepare surfaces if and as required.

COMMENTARY. *It is not sufficient to wipe or simply wash off mould stains with water, as residual spores will remain active. Several types of proprietary and non-proprietary toxic substances are available; some types have a residual activity, some types, including household bleach, do not.*

Similarly, in weathered and eroded surfaces of, for example, concrete or masonry, residual biological growth may remain entrapped and more vigorous methods such as water pressure jetting may be appropriate.

2.3.3.2 ***Previously decorated surfaces***

a) Where previously decorated surfaces are heavily infected strip off all previous decoration by suitable means, then follow steps c) to f) in **2.3.3.1**.

b) If the surfaces are only lightly infected, wash them with a warm fungicidal detergent solution, rinse with clean water, wet scrape or wet glasspaper off loose material, then follow steps c) to f) in **2.3.3.1**.

COMMENTARY. *See commentary to* **2.3.2.5** *advising that vinyl products should not be burnt on site.*

2.3.4 Concrete, brick, block, plaster, render surfaces

2.3.4.1 *Undecorated surfaces.* Brush undecorated surfaces with a stiff, but not wire, brush to remove dirt and loose particles; if necessary wash with warm detergent solution. If heavy oil or grease layers or concrete release agent residues are to be removed, use proprietary emulsion cleaners in accordance with the manufacturer's instructions. Rinse the surfaces with clean water and allow to dry. Apply primer, sealer or size if and as required.

2.3.4.2 *Previously decorated surfaces.* For previously decorated surfaces, the recommendations given in **2.3.2** and **2.3.3** should be followed.

COMMENTARY. *Water should be used with discrimination, taking into account the cleaning requirement and the effect of water in the particular situation.*

2.3.5 Timber and plywood surfaces

2.3.5.1 *Undecorated surfaces*

a) *Cleaning.* Clean off dirt and grease by scraping, brushing or wiping with a clean cloth, dampened with water or white spirit (see **2.3.1.7**) as appropriate.

b) *Degreasing.* Where hardwoods contain an excess of natural oils, wash them down with white spirit (see **2.3.1.7**) immediately before priming or varnishing. Remove any surface oils from building boards with white spirit, and lightly roughen the surface with fine abrasive paper.

COMMENTARY. *Teak and some cedars contain an excess of oils.*

c) *Knots.* Remove any patches of resin and apply two thin coats of knotting to all resinous wood and knots. Ensure that the knotting extends beyond the affected areas and on to sound wood and that each coat is allowed to dry hard. Lightly glasspaper the surface to provide a key for the priming paint. Remove any loose and dead knots, and make good with appropriate interior or exterior filler.

COMMENTARY. *Knotting alone may not effectively prevent resin exudation from very resinous timber.*

d) *Surface finish.* Bring surfaces to a smooth, even finish with dry glasspaper and soften arrises.

COMMENTARY. *Wet paint will not give full cover over sharp arrises and will leave them thinly coated. In external work, particularly, this allows the paint film to start to break down more rapidly along the arris and permits moisture to enter the timber. If the arris is softened to approximately* 1 mm *radius the paint film will have more even thickness.*

2.3.5.2 *Previously decorated surfaces.*

(See also **2.3.2** and **2.3.3.**)

a) *Loose and cracked putties.* Cut out, reprime rebates, allow to dry and reputty to match the existing work.

COMMENTARY. *Manufacturer's instructions should be obtained for non-putty glazing.*

b) *Overpainting.* Wash down with warm detergent solution. Where previous paint has been weathered away, rub down to sound wood, apply primer, make good imperfections with an appropriate internal or external grade filler and/or stopper.

c) *Knotting.* Apply two thin coats of knotting to all resinous areas and knots after paint has been removed (see **2.3.5.1** c)).

d) *Sealed/varnished surfaces.* Wash down with soap powder or detergent and warm water solution to remove grease and dirt. Rub down rough areas with abrasive paper or block used wet. Where necessary scrape back and rub down to remove loose or defective material to firm smooth edge.

Rinse with clean water and allow to dry before applying sealer/varnish to bare areas.

If stripping is required use a chemical stripper in accordance with the manufacturer's sitework instructions. Carefully remove traces of stripper from the surfaces, allow to dry and rub the timber down smooth.

e) *Stain finished surfaces.* Brush down to remove loose dust and dirt. Clean with cloth moistened with soap powder or detergent and warm water solution. Wipe with cloth moistened with clean water and allow to dry.

2.3.6 Fibre building board, wood chipboard and plasterboard surfaces

Dust down boards. Make good nail and screw holes and minor damage. Prime, seal, size or prepare surfaces if and as required.

2.3.7 Woodwool surfaces

Clean woodwool surfaces with a stiff, but not wire, brush and remove loose dust with a soft fibre brush.

COMMENTARY. *Dust may be strongly alkaline and vacuum cleaning to remove it may be desirable.*

2.3.8 Plastics surfaces

Where painting of unplasticized polyvinylchloride (UPVC) is required, wash down with detergent solution or white spirit (see **2.3.1.7**) to remove dirt and grease and rinse off with clean water. Avoid abrasion of new UPVC as this may reduce its impact strength.

Obtain instructions before commencing any preparation work on other plastics surfaces (see **2.2.1**).

2.3.9 Iron and steel surfaces

NOTE The procedures described in **2.3.9.1** and **2.3.9.2** are not necessarily adequate for structural steelwork for which reference should be made to BS 5493.

2.3.9.1 ***Undecorated surfaces***

a) Chip, scrape and wire-brush undecorated surfaces by manual or mechanical means as necessary to remove rust and loose scale, welding slag and spatter. Clean out crevices, openings, angles and around rivets, bolts and joints. Remove oil, grease and dust by swabbing with white spirit (see **2.3.1.7**). Only carry out abrasive blasting where permitted.

COMMENTARY. *Although these methods can be used to remove varying amounts of rust, etc. only abrasive blasting will achieve complete removal.*

b) On pre-primed surfaces, remove any areas of defective primer, rust and loose scale and patch prime with appropriate primer. Wipe down primed surfaces generally with white spirit (see **2.3.1.7**) to remove any dirt and grease.

COMMENTARY. *Bare patches should be primed as soon as possible after surfaces have been prepared and after ensuring that they are dry.*

2.3.9.2 ***Previously decorated surfaces.*** (See **2.3.2.**)

Prepare defective areas as in **2.3.9.1** b). Prime bare areas. Refer to **2.3.1.4** for general preparation of the surface for overpainting.

2.3.10 Non-ferrous metal surfaces

2.3.10.1 *Etching primers.* Use etching primers strictly in accordance with the manufacturer's instructions, particularly with regard to the avoidance of excessive film thickness.

COMMENTARY. *The next coat in the system is preferably applied as soon as possible after the etching primer is dry.*

2.3.10.2 ***Undecorated surfaces***

a) *Copper surfaces.* Remove corrosion with a fine abrasive paper, stainless steel wire wool or a non-metallic abrasive pad. Swab surfaces with white spirit (see **2.3.1.7**) to remove dirt and grease, renewing the swabs frequently. Generally abrade uncorroded smooth surfaces with fine abrasive paper.

b) *Aluminium surfaces: weathered, cast and smooth.* Remove corrosion on weathered surfaces and swab surfaces with white spirit (see **2.3.1.7**), as for copper surfaces in a). For smooth surfaces then either treat with etching primer or abrade with fine abrasive paper.

COMMENTARY. *If small areas are involved it will probably be more convenient to use an abrasive paper. If a substantial area is involved etching primer is likely to be more satisfactory.*

c) *Zinc and zinc coated surfaces.* Clean off any gross contamination with an appropriate cleaning fluid, e.g. white spirit (see **2.3.1.7**). Wash surfaces with a detergent solution, thoroughly rinse with water and allow to dry.

Wash the surfaces vigorously to remove any area of zinc salts (white rust).

Use fine abrasive paper, stainless steel wire wool or a non-metallic abrasive pad to abrade unweathered zinc surfaces which have been passivated, i.e. treated to prevent storage staining and white rusting, at works.

Apply the specified primer, and/or other specified pre-treatment.

If zinc coating is defective in any way obtain advice before proceeding.

COMMENTARY. *All galvanised sheets and strip are likely to have been passivated at works and the need for abrasion would apply to components formed from them. It may not apply, for example, to hot rolled sections.*

Zinc sprayed components are usually delivered to site in a sealed or primed condition and further site preparation is not required. If they are not delivered in this condition seek advice.

d) *Lead surfaces.* Swab with white spirit (see **2.3.1.7**) to remove dirt and grease, renewing swabs frequently, and either treat the surface with an etching primer or abrade wet with fine abrasive paper.

COMMENTARY. *The preparation of lead surfaces is covered by the requirements of the Control of Lead at Work Regulations 1980 [9]. Dry abrasion is a greater hazard to health because of the increased risk of breathing in the resulting dust (see commentary to* **2.3.2.3***).*

2.3.10.3 ***Previously decorated surfaces.*** **(See 2.3.2.)**

Carefully remove any defective material and corrosion products with fine abrasive paper, stainless steel wire wool, or a non-metallic abrasive pad, back to a firm edge. Take care not to damage protective metal coatings. Swab bare areas with white spirit and prepare, prime and bring forward. Refer to **2.3.1.4** for the general preparation of surfaces for overpainting.

2.3.11 Stopping and filling

2.3.11.1 *Types.* Use the appropriate type of stopper and filler depending on the substrate and coating system.

COMMENTARY. *The traditional distinction is that stoppers are for filling deep holes, wide cracks, open joints and similar imperfections, and that fillers are for filling and levelling shallow depressions, open grain and surface roughness. A number of different type materials are available for use as stoppers or fillers and some are available as general purpose stopper/fillers. Some can and should be used before priming, others should be applied after priming. The manufacturer's recommendations for the use of proprietary products should be followed. Exterior quality materials should be used for exterior work.*

2.3.11.2 ***Surface defects generally***

a) Stop and fill neatly and soundly, with appropriate material, any holes, cracks and other defects in all surfaces and rub down so that the filling will not be noticeably visible when decoration is complete.

b) Stop and fill unwanted imperfections or large voids and large air holes in cast concrete surfaces with masonry cement or epoxy resin mortar, or ensure they are filled by others. Stop and fill minor surface defects, if required, with interior or exterior grade water-mixed fillers, as appropriate. Allow to dry before proceeding with the next stage.

2.3.11.3 *Nail and screw heads.* Ensure all heads are below the surface where so intended. For wallcoverings, touch heads in with appropriate primer if required and allow to dry. Where stoppers are used ensure that heads are adequately countersunk.

COMMENTARY. *Countersinking will usually be carried out before decorating work commences; heads should normally be not less than* 2 mm *below the surface.*

2.3.11.4 ***Surfaces for painting***

a) Stop nail and screw holes and surface depressions, pressing the stopper well in to remove trapped air. Finish off flush with surface.

b) Fill pore and grain irregularities with filler applied with brush or knife. Remove surplus filler when dry and rub down to leave a smooth, even surface.

COMMENTARY. *If stoppers or fillers are oil based, surfaces should be pre-primed.*

Filling of open grain timbers is necessary to prevent air being trapped in the pores leading to breakdown of the paint film.

2.3.11.5 ***Surfaces for clear coating***

Stop and fill surfaces to the extent required with materials to match the colour of the substrate. Press in well to remove trapped air. Ensure that any plugging and pelleting carried out by others has been completed.

Section 3. Applying decorative wallcoverings and painting

3.1 Decorative wallcoverings

3.1.1 General

3.1.1.1 *Internal conditions.* As far as practicable, before, during and after hanging, maintain the temperature and humidity at levels approximating to those which will prevail after the building is occupied.

COMMENTARY. *It is advisable not to attempt to accelerate drying after hanging decorative wallcoverings.*

3.1.1.2 *Selvedge.* If wallcoverings are delivered untrimmed, trim off the selvedge neatly to give a true straight edge, unless manufacturer's hanging instructions require joints to be formed by overlapping and cutting through.

3.1.1.3 *Metallic wallcoverings.* Check the provisions for electrical safety with the specifier.

COMMENTARY. *Contact with faulty electrical fittings, e.g. around switch point boxes, may be dangerous. It should be noted that any wallcovering may be electrically conductive while still wet with adhesive.*

3.1.1.4 ***Shade numbers***

a) Wherever practicable use only rolls with the same shade batch number in any one room or area.

b) If it is not practicable to use only one shade in a room use the same shade on any one wall and form the junction between the two shades in the internal angle between two walls. Do not change shade numbers on an external angle.

3.1.1.5 ***Priming/sealing/sizing***

a) Apply one coat of alkali resisting primer/sealer in accordance with manufacturer's sitework instructions to new concrete, new lime plaster, thin-coat plaster and asbestos-based board surfaces.

COMMENTARY. *Alkaline surfaces need to be sealed so that the alkali will not be drawn out by the application of adhesive. Staining of the wallcovering would otherwise result. Some thin-coat plasters need to be sealed to protect them from water which may be used later for stripping when wallcoverings are removed for redecoration.*

b) Ensure that the surfaces of plasterboard dry linings that are not finished with plaster are primed with one coat of primer according to the plasterboard manufacturer's sitework instructions.

COMMENTARY. *This is essential to ensure that wallcoverings can be wet stripped from the plasterboard at a future time without damaging the plasterboard face. Excessive application of primer should be avoided as a full sealed surface can result in poor adhesion and encourage mould growth with vinyl wallcoverings.*

c) Where sizing is required use one containing a fungicide and apply one coat to porous surfaces. Allow to dry. If the surface remains porous apply a further coat to reduce porosity to a level where moisture will not be drawn from the adhesive on the wallcovering.

COMMENTARY. *"Size" usually consists of hanging adhesive, suitably thinned. Glue size is not generally recommended.*

d) Prime, seal or size other surfaces if and as required by the wallcovering manufacturer's sitework instructions.

3.1.1.6 *Gloss paint patches.* Rub down with abrasive paper any patches of gloss paint on the wall surfaces left by the painting of skirtings, frames, etc., without damaging the finished paintwork.

COMMENTARY. *Strong colours may bleed into vinyl wallcoverings and should be removed completely or, if this is impracticable, lined over.*

3.1.1.7 *Condition of surfaces.* Do not commence hanging until:

a) the work of all tradesmen, which might affect the surfaces to be covered, is complete;

b) the surfaces to be covered have dried out;

c) efflorescence has ceased;

d) the painting of adjacent surfaces is complete and dry.

COMMENTARY. *It is particularly important to ensure that the surface to be covered has dried out thoroughly if the wallcovering is to be a vinyl or other impermeable material, as this will trap moisture and may encourage mould growth.*

3.1.1.8 *Final cleaning and checking before hanging wallcoverings.* Before commencing hanging wallcoverings remove dust and debris, resulting from cleaning down, from surfaces. Make a final check that doors, windows and other fitting edges function properly and have sufficient clearances to ensure they will continue to do so after decoration.

3.1.2 Adhesives

3.1.2.1 *General.* Use only adhesives stated by the wallcoverings manufacturer or by the adhesive manufacturer to be suitable for the type of wallcovering to be hung. Prepare adhesives in accordance with the manufacturer's sitework instructions.

3.1.2.2 *Fungicidal adhesives.* Use fungicidal adhesives in accordance with the manufacturer's sitework instructions:

a) wherever the wallcovering is to be hung on a surface previously affected by mould;

b) for impermeable wallcoverings;

c) for wallcoverings to concrete or plaster containing lime;

d) for wallcoverings in areas that may be humid, e.g. bathrooms. If in doubt about the likely humidity, use fungicidal adhesive.

COMMENTARY. *The most common types of impermeable wallcovering are those with a vinyl coating. Since there are no disadvantages in using a fungicidal adhesive, a fungicidal type should be used wherever possible. Take care to observe any safety recommendations made by the manufacturer.*

3.1.2.3 ***Applying adhesive.***

a) Paste adhesive evenly over the whole surface of the wallcovering and/or the wall, as directed by the manufacturer's sitework instructions.

b) Allow sufficient time, as recommended by the wallcovering manufacturer's sitework instructions, between pasting and hanging.

COMMENTARY. *In the case of some wallcoverings, the adhesive may be applied to the wall surface, or both to the wall surface and to the wallcovering.*

3.1.2.4 *Cleaning.* Remove adhesive and scraps of wallcovering:

a) from the face of covering as work proceeds;

b) from adjacent walls, ceilings, and floors.

3.1.2.5 *Pre-pasted and self-adhesive wallcoverings.* Apply in accordance with the manufacturer's sitework instructions.

3.1.3 Lining papers

3.1.3.1 *Joints.* Butt the joints; do not overlap lining papers.

3.1.3.2 *Direction.* Hang linings as follows.

a) Where they are to form the base for a decorative wallcovering, cross line the wall, aligning the strips at right angles to the direction of the final wallcovering; use the same adhesive as for the final wallcovering.

b) Do not combine linings with impervious wall coverings, which are hung using the overlap and cut through technique.

c) Where they are applied to walls which are to be painted, apply linings vertically.

3.1.4 Wallcoverings

3.1.4.1 ***Joints***

a) Use a plumb line to ensure the first length of wallcovering on each wall in any room is vertical.

b) Butt joints accurately. Where incomplete widths are required or when materials do not have straight edges, overlap and cut through using a sharp knife and straight edge.

c) Do not form cross joints unless the length is greater than a roll length or unless part of a length would have to be cut around a fixture or fitting resulting in a very narrow strip for part of the length.

COMMENTARY. *This situation can arise, for example, at a fireplace surround where the practical solution is to fit the narrow strip at the side of the surround separately and ensure the short cross joint is made as nearly invisible as possible.*

d) Over expressed substrate joints, ensure that the return edges of the wallcoverings at the joints adhere well to the substrate. If there are practical difficulties seek instructions.

COMMENTARY. *This is partly dependent on the flexibility of the covering and the effectiveness of the adhesive at the extreme edge.*

3.1.4.2 *Edges.* Trim the edges of wallcoverings neatly at junctions with features such as architraves, skirtings, etc.

3.1.4.3 *Colour matching.* Check each piece in the dry state for colour match in the lighting conditions described in **2.2.4**. After the first three lengths have been hung, check for differences of shade in the hung pieces.

COMMENTARY. *If a colour matching problem is found or suspected, the wallcovering supplier should be contacted before any further work is carried out.*

3.1.4.4 *Pattern.* Match patterned materials correctly at joints. Ensure that patterned wallcoverings are hung the correct way up.

COMMENTARY. *Patterns with shadow lines or suspended features are more obviously intended to be hung one way.*

3.1.4.5 *Mismatching.* If mismatching of a patterned wallcovering cannot be avoided, decide where this is to be located before commencing hanging.

3.1.4.6 *Reversing.* Do not reverse alternate lengths unless this is in accordance with the manufacturer's sitework instructions.

3.1.4.7 *Appearance.* After hanging the first three lengths and on completion, check for faults in the wallcovering to see that the surface is free of air bubbles, wrinkles, gaps, tears and marks and the covering is adhering securely. If not, strip off and replace.

COMMENTARY. *It is essential to check for faults after the first two or three lengths have been hung to avoid abortive work, and the related loss of time and materials.*

3.1.4.8 *Spare materials.* Retain all labels and instructions until work has been completed. Hand back spare rolls and parts of rolls.

3.2 Painting

3.2.1 General

COMMENTARY. *The use of materials from more than one manufacturer in any one system may result in failure due to incompatibility. It should therefore be ensured wherever possible that all paints in any one system are obtained from the same manufacturer.*

Where flammable paints or solvents are used, no smoking should be permitted. If highly flammable liquids are used, all sources of ignition, including hand lamps, blow torches, etc., should be excluded from areas where flammable vapour may be present. Appropriate signs and barriers should be erected accordingly.

3.2.1.1 *Incorrect or defective materials.* Remove from site any materials that, on opening containers, are found to be incorrectly labelled or defective. If materials are found to be defective in any way when in use, set them aside.

3.2.1.2 *Unsuitable conditions.* Do not apply painting materials:

a) to surfaces affected by damp or frost;

b) when the air or substrate temperature is below, or likely to fall below, 5 °C;

c) when condensation is likely to occur before the paint is touch dry;

d) when rain or snow is likely to affect the paintwork;

e) when heat is likely to cause faults to develop;

f) when airborne dust is likely to spoil wet paint;

g) when the light is insufficient;

h) to substrates not adequately dried out (see **2.2.5**).

3.2.1.3 *Ventilation.* Ensure there is adequate ventilation for all painting processes.

COMMENTARY. *In cases of doubt on matters relating to health and safety, reference to the Factory Inspectorate of the Health and Safety Executive, is essential. Good ventilation is necessary for two reasons: firstly, to remove unpleasant, toxic or flammable vapours arising from painting materials and secondly, to ensure that paints dry and harden.*

3.2.1.4 *Protection.* Maintain protection of surfaces other than those being painted (see **2.2.2**).

3.2.1.5 *Service components.* Do not paint radiator valves, stop valves, sprinkler heads, fusible links or any other service components where painting might interfere with their proper functioning.

3.2.1.6 ***Cleanliness***

a) Keep all brushes and equipment in a clean and serviceable condition.

b) Avoid skin contact with paints and solvents, and thoroughly clean out brushes and equipment before applying different materials.

c) Do not empty washings, waste materials, etc., into any sanitary fittings or into the drainage system.

d) Use metal or plastics containers for slops, washings and waste painting materials. Keep containers covered when not in use and located where they will not create a fire hazard. Ensure a safe method of disposal.

e) Keep surfaces to be decorated clean while work is proceeding.

3.2.2 Preparation of materials

3.2.2.1 *Mixing.* Do not mix different materials or similar materials made by different manufacturers.

3.2.2.2 *Stirring.* Unless the manufacturer's sitework instructions state otherwise, stir painting materials before use and at intervals during use, either manually with a broad bladed stirrer or with a mechanical stirrer to obtain an even consistency throughout the container.

3.2.2.3 *Thinning.* Do not thin any painting materials or use any thinners except in accordance with the manufacturer's sitework instructions.

3.2.2.4 *Paint skins.* Before stirring completely remove any skin which forms on the surface of painting materials.

3.2.2.5 *Bittiness.* If there is any bittiness in paints strain through a fine mesh before use.

3.2.2.6 *Two-pack materials.* Ensure that the manufacturer's sitework instructions are strictly observed in respect of proportions, mixing, temperature, standing time and pot life.

COMMENTARY. *Some materials require time for the chemical action to take place after they have been mixed. Hence the need to observe the manufacturer's sitework instructions in every respect.*

3.2.3 Application: general

3.2.3.1 *Brush painting.* Apply all painting materials by brush unless otherwise specified or unless the manufacturer's instructions require application by some other method.

3.2.3.2 *Roller painting.* Where the use of rollers is specified or permitted, use them in accordance with the paint and roller manufacturer's sitework instructions. Use a brush to paint parts of surfaces inaccessible by roller.

3.2.3.3 ***Spray painting***

a) Where specified or permitted, spray paint in accordance with the paint manufacturer's sitework instructions.

b) Use the correct equipment for the material to be sprayed. Ensure the equipment is in good working order.

c) Mask adjoining surfaces.

d) Take all necessary safety precautions.

COMMENTARY. *Good ventilation is essential, and all sources of ignition excluded, if the paint (particularly in its thinned form) is flammable. Where a toxic hazard exists, respiratory protective equipment may be needed. Careful note should be taken of any warnings on container labels and if necessary further advice should be sought from the manufacturer or supplier.*

e) Minimize overspray by controlling the delivery pressure.

f) Spray paint perforated acoustic surfaces at an angle of about 30°.

3.2.3.4 *Time between coats.* Follow the manufacturer's sitework instructions on the time to be allowed between coats, taking account of the effects of temperature.

3.2.3.5 *Rubbing down between coats.* Rub down all priming coats and undercoats with a fine abrasive paper and remove all dust before applying the next coat.

3.2.3.6 *Delays in overpainting.* Make good any deterioration in any coat of paint due to delay in overpainting.

3.2.3.7 *Cutting in to edges.* Cut in paint neatly to all edges where there is a change of colour or of material.

3.2.3.8 *Marking lines.* Set out lines accurately and ensure edges are clean cut.

3.2.3.9 *Painting preservative treated timber.* Do not apply the priming or first coat to preservative treated timber until it is surface dry.

3.2.4 Application of primer

3.2.4.1 ***General***

a) Work the primer well into surfaces, joints, angles and, on timber, into end grain.

b) apply priming coats of adequate and even thickness, especially on arrises.

3.2.4.2 ***Joinery***

a) If cut surfaces have been preservative treated, ensure that the cut faces have been allowed to dry before priming.

COMMENTARY. *This should have been done at the time of cutting the timber and exposing the untreated substrates.*

b) Where joinery is to be primed or sealed, apply primer or first coat sealer to joinery items as soon as possible after their manufacture or preparation.

c) Prime surfaces of external joinery that will be hidden from view, before joinery is fixed in position.

COMMENTARY. *The bottom edges of external doors should be coated before fixing, with the same paint system as specified for the external faces.*

3.2.4.3 *Metal.* Prime metal surfaces not later than 4 h after their preparation.

3.2.4.4 *Uniform suction on porous surfaces.* If the primer/sealer or first coat of emulsion paint does not produce a surface of uniform suction obtain instructions before proceeding with following coats.

3.2.4.5 *Glazing compounds.* Where required prime and paint or seal glazing compound but not before the surface is sufficiently hard. Ensure the paint covers the joint between compound and glass and forms a neat margin on the glass not less than 1 mm and not exceeding 3 mm wide.

Do not coat glazing putties before 7 days after glazing or after the latest time advised by the putty manufacturer.

3.2.4.6 *Glazing rebates.* Where components are to be primed, apply priming paint to rebates and beads which will be concealed and allow to dry before glazing.

3.2.5 Application of undercoating and finishing coats

3.2.5.1 *Application.* Apply undercoats and finishing coats evenly to give a continuous film, free from runs, brush marks and other imperfections.

3.2.5.2 *Undercoat tints.* Where more than one undercoat is specified make each of a different tint and apply in the same order throughout the job.

COMMENTARY. *This assists application and ensures that the number of coats applied can be checked. The tints should be identifiable but not strong enough to have any effect on the finished colour. Where the finished colour is to be white the last undercoat should also be white.*

3.2.5.3 *Two finishing coats.* Where two hard gloss finishing coats are specified, apply the second coat not less than 16 h and not more than 48 h after the first coat. If 48 hours is exceeded, rubbing down of the first coat may be required; seek advice.

3.2.5.4 *Stippled surfaces.* When paints which are to be finished with a stippled surface are specified, follow the manufacturer's sitework instructions and ensure the surfaces are evenly and uniformly finished.

3.2.5.5 *Exterior wood stains.* Apply stain in accordance with the manufacturer's sitework instructions ensuring that:

a) the surface to be stained is primed if necessary;

b) the stain is evenly applied to produce a uniform depth of colour;

c) time for drying is allowed between coats.

Index

List of references (see 1.2)

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