

# Bondaglass-Voss Ltd

158-160 Ravenscroft Road Beckenham Kent Tel: 081-778 0071



## G4

FS10011

### Product Description

G4 is moisture hardened one component polyurethane resin, with a high solids or resin content. Because G4 actively uses moisture or humidity to cure it can be applied to damp but not wet surfaces. G4 can also be applied in poor application conditions with temperatures down to 0°C and high relative humidity without effecting the curing system.

A continuous surface film of G4 provides a non porous coating on brick, porous stone, metal and wood. The cured coating is tough but flexible, hard wearing and resistant to many acids and alkalis in normal concentrations.

### Typical Uses

- \*A damp sealer for brick, concrete – cement render.
- \*Non porous coating for metal.
- \*Primer coating for cast iron ballast keels.
- \*Bonding primer for polyester resin to metal – wood – concrete.
- \*For sealing ponds
- \*A sealer (varnish) for wood, for internal use only, unless protected by opaque topcoat.
- \*For sealing dusting concrete floors.

### Specifications

Flash Point	42°C		
Volume Solids	55%		
Specific Weight	0.99 grs/cm <sup>3</sup>		
Viscosity	Approx. 14 sec – cup		6mm
Film Thickness	Wet Film (non absorbent surface)		63 microns
	Dry Film		35 microns
Compressive strength	DIN 1164	Approx.	45N/mm <sup>2</sup>
Flexural strength	DIN 1164	Approx.	20N/mm <sup>2</sup>
Young's Modulus determined by the flexural test		Approx.	8200N/mm <sup>2</sup>

### Surface Preparation

Remove all existing coatings such as paint, varnish and other sealants. Ensure area to be coated is clean, free of oil or other surface contaminants. On walls and floors ensure that any loose material is removed and repaired before application. Porous surfaces should be as dry as possible to enable maximum penetration. It is sensible to abrade or sand metal surfaces to ensure good mechanical key.

### Application

Application is by brush or roller. G4 is not intended for external use unless a topcoat is applied to protect it from ultra violet light.

Three coats of G4 are normally recommended to build a continuous surface film. Each coat can be applied when the previous coat is finger tacky but no longer than 4 hours should elapse between coats.

Full mechanical cure is achieved in 24 hours and full chemical resistance in 72 hours.

### Cleaning

Brushes and rollers should be cleaned immediately after use with Bondacleaner, acetone or cellulose thinners. Then washed out thoroughly in a strong detergent and hot water.

### Storage

Store in a cool dry place. Once opened G4 will have a limited storage time since it is moisture hardened material.

### Health & Safety

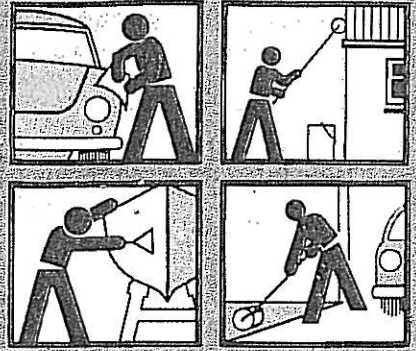
Work in well ventilated area. Do not breathe vapour. Do not spray. Wear gloves. Keep out of reach of children.

A Health & Safety leaflet is available.

Bondaglass-Voss Ltd., is only responsible for replacement of material proven to be defective. Before using the user shall determine the suitability of the product for the intended use.

# BONDAGLASS-VOSS LTD.

BECKENHAM KENT Telephone: 01-778 0071



## G.4. Floor Coat

- Non-porous stops rising damp.**
- Tough hard wearing plastic surface.**
- Super adhesion - bonds dusty surfaces.**
- Resistant to many chemicals.**
- Easy to apply - brush or applicator.**
- Moisture cured.**
- Quick - 3 coats in a day.**
- Easy to clean.**
- Available in red-green-grey and standard.**



Concrete floors in factories, warehouses, workshops and vehicle maintenance areas including aircraft hangers are subjected to high stress loads and impact as well as attack from aggressive chemicals. Forklift-trucks, moving pieces of machinery, heavy crates, sack barrows and ordinary foot-traffic all have a continuous wearing action on the floor. An un-treated concrete floor will soon show the deep scars of the work-load it cannot withstand.

An increase in cost and difficulty of cleaning is the first evidence of this wearing action with ever increasing amounts of gritty concrete dust being swept up. Not only does the dust cost more to sweep up but airborne it mixes with oil and grease to

become a most effective abrasive. This leads to shorter intervals between overhauls, unpredictable break-downs and higher replacement costs of equipment and machinery. On many floor areas not only do higher work loads have to be withstood but attack from aggressive chemicals as well.

### G.4. FLOOR SEAL MEETS THESE TWO REQUIREMENTS:-

Abrasion resistance.  
Chemical resistance.

The G.4. floor system is based on the very latest 'state of the art' moisture cured polyurethane systems. The high P.U.content in G.4. seals the surface and the cement lying below the surface so that this zone, which suffers extreme stress under load, is reinforced. Most concrete contains some moisture and being moisture cured means that G.4. is not inhibited from cure by the presence of moisture providing of course that the moisture does not prevent the G.4. from penetrating into the substrate.

### G.4. FLOOR SEAL WITHSTANDS PRESSURE

Besides its properties as a floor seal it also has a damp sealing ability and under test has withstood hydrostatic pressure of 5 bars. This is equivalent to withstanding and preventing moisture penetration through concrete 60 metres below ground.

### TOUGH AND HARD WEARING

G.4. provides a hard wearing brush or applicator applied coating that consolidates the surface. Impact resistance is also good due to the flexibility of the material which is greater than many other resins. The coating is a non-porous liquid D.P.M.

### CHEMICAL RESISTANCE

G.4. resists a range of acids and alkalis that would destroy other systems:- sulphuric acid 50%, lactic acid 10%, citric acid 50%, caustic potash solution 50%, kerosene, fuel oil and skydrol are amongst them.

### NON-SLIP

By adding VP 81/31 non-slip granules to the last coat the floor, or areas of the floor, can be made non-slip eg. gangways for forklift trucks.

### RAPID APPLICATION

With the 3 coat G.4. system, coats 2 and 3 are applied as soon as the previous coat is 'finger tacky' or can be walked carefully upon with a maximum time between coats of 4 hours. This is to ensure maximum chemical adhesion. Time between coats varies slightly according to humidity but this is normally 60-90 minutes. Three coats are easily applied in a day and can be walked freely upon after 6 hours. Full mechanical hardness in 24 hours and chemically resistant in 72 hours. At low temperatures particularly sub zero the cure time will be prolonged. Avoid puddles since they can, due to the curing method, form blisters.

## SUBSTRATES AND PREPARATION

All substrates must be clean and swept free of loose material and dust. The floor must also be free of oil, grease or wax otherwise this will act as a release coat for the G.4. Any holes or worn areas should be repaired first either with a sand/cement mix or for high strength with a mortar made with G.4. as the binder. G.4. Floor Seal is suitable on most porous substrates-concrete, brick, cementitious screeds, smoothing compounds, cork and most types of wood. G.4. should not be used on floors with a non-porous surface such as quarry tiles, Terrazzo or Granolithic without consulting Bondaglass. As a general rule if there is no porosity G.4. cannot obtain a mechanical grip and should not be used, unless it is only being used as a D.P.M. and not taking direct foot traffic. G.4. should not be used on bitumen coated floors unless discussed with our technical department.

## COVERAGE AND CURE TIMES

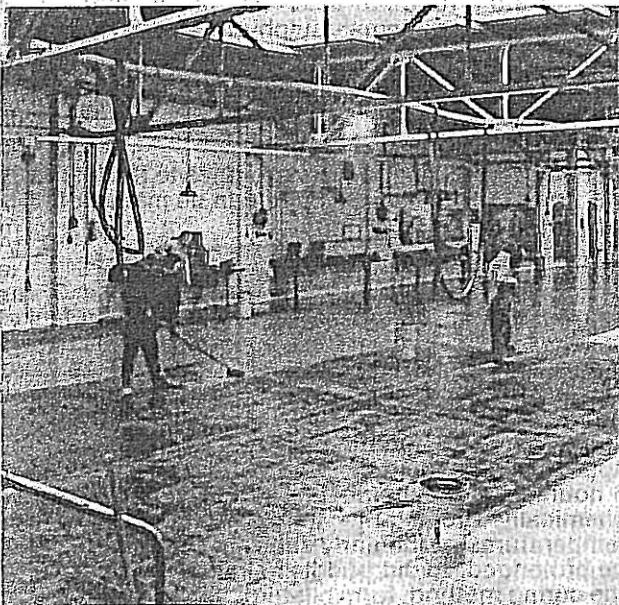
Coverage and cure times will vary depending on porosity and humidity but as an approximate guide:-

	Consumption (Standard)	Consumption (Pigmented)	Cure Time
1st Coat =	215grms/sq.m.	Standard G4	30-60 mins.
2nd Coat =	195grms/sq.m.	320grms/sq.m.	90-120 mins.
3rd Coat =	130grms/sq.m.	215grms/sq.m.	6 hours
Total:-	540grms/sq.m.	Standard 215grms/sq.m. Pigmented 535grms/sq.m.	

Full mechanical cure is achieved in 24 hours and full chemical cure is achieved in 72 hours. On non-porous surfaces the 3rd, coat figures can be taken as an approximate guide to coverage.

## G.4. REPAIR MORTAR

Areas that are badly worn first need to be filled. This can be done using a sand and cement mix which is allowed to cure. G.4. also makes a tough hard mortar for repairing worn patches. Remove any loose material and prime the area with G.4. - allow to become finger tacky. Then make up a mix of 6 parts dry coarse sand 3mm grit size, 1 part dry cement and 1 part G.4. (by volume) keeping the mix as lean as possible. When filling deep cavities the mortar should not be applied in layers thicker than 10mm allowing each to harden before applying the next. At 15°C with a R.H. of 65% though hardening should occur in 8 hours.



## G.4. AND FLOOR COVERINGS

Rising damp beneath floor coverings is a problem that lies there, does not go away, and is a very common cause of failure in the adhesive bond between the floor and floor covering. The result is inevitable, the floor covering becomes loose or alternatively distorted and possibly discoloured.

It may take several months for this to show depending on the covering and the adhesive used but some floor coverings such as cork tiles expand and distort within a few days when laid on a damp sub-floor. Therefore it is always best to test a solid floor for moisture content before proceeding with laying a floor covering. The moisture (water vapour) rises through the concrete by capillary action and becomes 'bottled up' in the sub-floor by the floor covering laid over it. Smoothing (screeding) underlayments do not in any way restrict the passage of moisture. A 3 coat application of G.4. with sand sprinkled into the wet third coat will provide a D.P.M. preventing moisture from attacking the smoothing underlayment and adhesive.

Once this has happened there is only one possible remedy and that is to up-lift and re-lay the floor covering, both a time consuming and costly exercise. More costly than it would have been several months or weeks earlier with the floor in an unprepared state.

Ask for the Bondaglass leaflet 'G.4. - a Damp Proof Seal on Solid Floors!'

## G.4. FOR WOOD FLOORS

G.4. makes a good seal for wooden floors, tough and hardwearing with good gloss retention. Since it is a moisture cured material it does have advantages over more conventional varnish systems.

In particular G.4. can be applied in conditions unacceptable to other varnishes, at low temperatures and high humidity. G.4. is not recommended for external use and when applied to wood the first of the three coats should be thinned with 20% (by volume) G.4. - Thinners to ensure maximum penetration. Do not apply a G.4. coating to any floor that has not settled and stabilised otherwise when the wood shrinks the finish will split due to its high bond. With old floors very careful attention has to be paid to the removal of wax since this can have penetrated deeply into the grain of the wood.

## CLEANING

Brushes and applicators should be cleaned immediately after use with Bondacleaner, acetone or cellulose thinners and then thoroughly washed out in detergent and hot water and dried.

## STORAGE

Store in a cool dry place. For maximum shelf life decant into smaller tin to reduce air moisture content. Storage life for part full containers is limited.

## HEALTH AND SAFETY

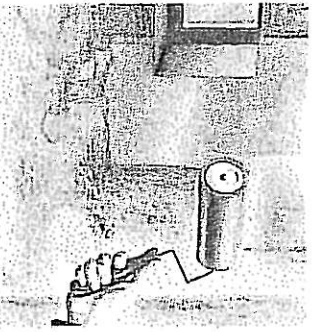
Work in well ventilated area. Wear gloves and protective glasses. Separate Health and Safety leaflet available.

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# G4 seals damp walls and floors

G4 is a one component moisture cured polyurethane. A continuous surface coating provides a highly durable non-permeable seal on porous materials, sealing out damp. Cured by moisture it can be applied onto damp, but not wet, surfaces without the cure being inhibited. G4 can be used in poor application conditions with temperatures down to 0°C and in areas with high relative humidity.



G4 seals damp out of concrete, brick, stone and wood. The coating is hard wearing but flexible and resistant to many acids and alkalis in normal concentrations. It withstands boiling water. Sealing with G4 is easy and quick, three or more coats can be applied in a day. G4 is for internal use unless topcoated to protect it from U.V. light.

## WHERE TO USE G4

G4 was developed as a damp proof coating for walls and floors. It's tough hard wearing properties also make it ideal for consolidating dusting and worn concrete floors as well as coating new floors in factories, warehouses and garages. G4 seals concrete floor screeds prior to laying of cork or vinyl tiles or other floor coverings and prevents moisture from destroying flooring adhesives.

G4 seals water into concrete garden ponds making them waterproof and easy to clean as well as preventing contamination of the water from films.

## G4 - DAMP WALLS AND FLOORS

Preventing damp penetrating through brick or concrete walls and floors is difficult when the brick and concrete are porous. G4 makes it possible to seal the porous materials from the inside with a non-porous plastic film. Because it is a thin liquid it penetrates into the substrate obtaining a strong mechanical bond and sealing the open pores ensuring a permanent water tight seal.

## SURFACE PREPARATION

For maximum effectiveness G4 should be applied onto the bare substrate. All existing coatings, paint or other treatments should be removed. In practice this may prove impossible but it must be understood, in such cases, that the sealing ability and bonding strength will be between the existing coating and the G4. Any loose pointing in brick walls should be repaired before application. Cracks or worn areas in floors should be repaired.

G4 can be applied on top of plaster or cement renderings providing they are securely bonded to the primary substrate. Whilst G4 is cured by moisture it is necessary for the substrate to be as dry as possible to enable maximum penetration. If the surface is too wet the G4 cannot bond into it and can delaminate or blister. It may be necessary to reduce the moisture content by artificial means before the G4 is applied. Should there be any doubts test a small area to establish whether adhesion is impaired.

A similar test should also be made if it is suspected that the floor is too dense and non-porous for the G4 to obtain a proper bond even though the floor itself may be dry, for example quarry tiles, granolithic or other similar dense floor finishes. G4 cannot be applied onto surfaces that have been treated with bitumen.

# G4 seals dusty concrete easily and rapidly

## APPLICATION OF G4

Applying G4 is quick, simple and easy by brush or roller. For most damp proofing a three coat application is recommended to build up a continuous surface film. Each coat may be applied as soon as the previous coat is finger tacky (similar to the surface of cellophane) but each coat must be applied within four hours of the previous coat to ensure good intercoat adhesion. If the walls are to be re-plastered or screeded then it is advised that the last coat of G4 is 'blinded' with dry sharp sand whilst the G4 is wet so as to provide a mechanical key. In the case of floor coatings the G4 has to be sufficiently dry to walk carefully upon.



## PAINT AND WALLPAPER

Enamel, emulsion and other synthetic paints can be applied to G4 as soon as it is dry. Wallpaper adhesives will take longer to dry since the moisture is only able to evaporate in one direction, when applying a vinyl or heavily embossed wallpaper it is necessary to apply a lining paper first to provide initial grip for the wallpaper adhesive. With it's sealing abilities G4 can be used to seal out soot and other wall stains.

## G4 REPAIR MORTAR

G4 mixed with dry sand makes a hard tough mortar for repairing worn patches on floors. Remove any loose material and prime the area with G4. When the G4 is finger tacky make up the following mix of 6 parts dry sand and 1 part G4 (by volume) keeping the mix as lean as possible. Do not mix more mortar that can be used in 20 minutes. When filling deep cavities the mortar should not be applied in layers thicker than 10mm allowing each to harden before applying the next.

## G4 SEALS DUSTY CONCRETE - EASILY AND RAPIDLY

Concrete floor surfaces are subjected to constant wear which grinds the surface to dust. If not checked the wearing action forms holes and broken joints that are dangerous particularly in industrial locations. In addition to the safety consideration dust is the number one enemy of machinery, mixing with oil and grease and acting as an abrasive. In warehouses and stores dust contaminates and covers finished products.

G4 penetrates into the surface, coating the floor with a hard but flexible plastic skin resistant to wear. It is very easy and quick to apply by brush, roller or fine broom and this keeps application costs and time down to a minimum. The new dust free surface is ready to walk on the next morning. Providing the concrete is clean and dry the surface preparation is minimal a good sweep with a broom or vacuum cleaner is all that is required. Oil or grease will have to be removed either chemically or mechanically otherwise it will act as a release coat for the G4. G4 is not suitable for dense surfaces such as quarry tiles or granolithic floors since it cannot obtain a mechanical bond nor for floors coated with bitumen.

## G4 IN COLOURS

G4 is brown translucent but it is also available in mid-grey, green and red. When pigmented G4 is used the first coat should always be G4 standard followed by two coats of the pigmented G4

# G4 seals concrete ponds

## G4 - NON-SLIP SURFACES

With industrial floors it may be necessary for areas such as gangways or where fork lift trucks are being used to have a non-slip surface. This is simple to apply with fine carbonium grit evenly scattered into the wet second coat then sealed with a third coat. Alternatively Bonda V.P 81/31 anti-slip additive can be well stirred into the final coat just before it is brushed on.

## G4 SEALS CONCRETE PONDS

Leaking concrete fish ponds are easily and economically sealed with a three coat application of G4. It gives the concrete a non-porous, durable, deep bonding plastic coating. In a single day a three or four coat application can be applied, on the following day the pool can be thoroughly washed out with fresh water and put into use. Prevents cement liner contamination of the water.

## COVERAGE AND CURE TIMES

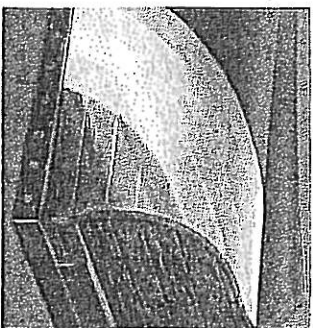
The coverage and cure time will vary according to the porosity of the substrate. The chart below is for the use of G4 both as an anti-damp and floor coating seal.

Consumption (standard)	Consumption (pigmented)	Tack Time
1st Coat = 215grms/sq.m.	Standard G4	30-60 mins.
2nd Coat = 195grms/sq.m.		90-120 mins.
3rd Coat = 130grms/sq.m.	215grms/sq.m.	6 hours. walkable.
TOTAL = 540grms/sq.m.	Pigmented 535grms/sq.m. + 215grms/sq.m. G4	

Full mechanical cure is achieved in 24 hours and full chemical cure in 72 hours. On non-porous surfaces the third coat figures can be taken as an approximate guide to coverage.

## CLEANING

Brushes and rollers should be cleaned immediately after use with a detergent, acetone or cellulose thinners and then thoroughly washed out in detergent and hot water and dried.



# G4

as a bonding agent  
for G.R.P laminates

# G4

## G4 SEAL AND FLOOR COVERINGS

Rising damp beneath floor coverings is a common cause of failure in the adhesive bond between the floor and the floor covering. The result is inevitable, the floor covering becomes loose, distorted, discoloured and curls at the edges. Up-lifting and re-laying is a costly exercise when it is considered that a three coat application of G4 would have prevented it happening in the first place.

G4 is applied in the same way as for sealing damp floors but there are several other important considerations. Therefore ask for our Leaflet - Floor Coverings and G4 Seal. G4 makes an ideal hard wearing tough and flexible sealant for both cork and wooden floors. A three coat application is recommended.

## G4 FOR WOOD SEALING

G4 can be satisfactorily used for sealing (varnishing) wood and since it is a moisture cured material it does have advantages over more conventional systems. In particular G4 can be applied in conditions unacceptable to other varnishes, at low temperatures and high humidity. However G4 is affected by U.V light which tends to yellow it although in general terms G4 will perform better than most other varnishes.

However because of this it is advisable for external varnishing to use Bonda-Seal Clear.

## BONDA-SEAL CLEAR

Clear Seal is formulated from high performance moisture cured resins and provides a non-porous seal with excellent non-yellowing properties. It has good gloss retention and forms a tough hard flexible coating that can be applied in poor conditions and at low temperatures. Each coat cures quickly and since the next coat can be applied as soon as the first coat is finger tacky three or four coats can be applied easily in a day. This will provide a smooth high gloss surface but if super smooth glass like finishes are required then allow each coat to harden, lightly flat down, remove dust and apply another coat.

Either way Clear Seal gives a super seal to wood enhancing the grain and appearance.

Both G4 and Bonda-Seal Clear can be used for coating cork or lino floors and gives a new gloss and sparkle to old and worn floors.

## G4 AS A BONDING AGENT FOR G.R.P. LAMINATES AND POLYESTER RESINS

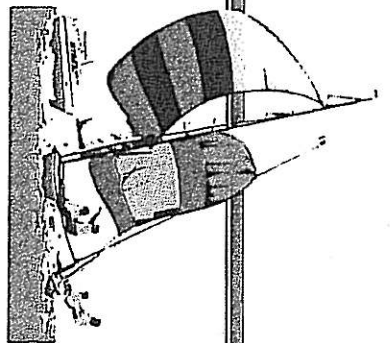
G4 is probably the best primer for ensuring a good bond between polyester resin (G.R.P.) and surfaces such as metal, wood and concrete. It is recommended by several leading manufacturers of polyester resins for this purpose. G4 should always be used when applying a G.R.P. coating to a wooden hull boat. On a clean bare substrate brush on the G4. As soon as it becomes finger tacky but within four hours apply the polyester resin and glassfibre (G.R.P) laminate.

## 15 YEAR WHITE PAINT

A one component, moisture cured, white gloss paint. Using highly U.V. light stable resins and premium quality white pigment 15 Year White gives a long term non-chalking and high gloss protection to wood and metal. It is possible to paint with 15 Year White when it would be impossible with other coatings, at low temperatures down to 0°C and at high relative humidity.

Florida U.V. light stability tests have shown that paints based on these systems will last and outlast more conventional finishes.

# BONDA MARINE



## SHEATHING A HULL

Sheathing wooden or metal hulls boats reduces maintenance and the Bondaglass system has proven to be a very practical and effective method. G4 is used as a bonding primer between the polyester resin and the wood, metal or ferro cement. The hull should be dry and down to bare wood or metal. The G4 is applied, left until finger tacky (but no longer than four hours) and the G.R.P. laminate is applied. Consumption approximately 200gms/sq.m. on wood and 165gms/sq.m. on metal. Detailed instructions are given in our 'G.R.P. Repairs To Boats' leaflet.

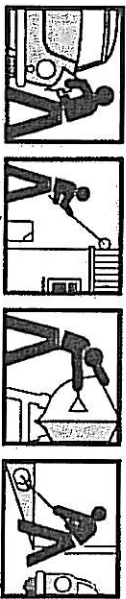
## G4 PRIMING CAST IRON BALLAST KEELS

When anti-fouling cast iron ballast keels G4 has proved, in practice, to be a first class bonding primer and it also forms a non-porous seal that helps to prevent rusting. G4 can be applied in conditions when it would be impossible to use other systems, down to 0°C and high relative humidity. The keel must be clean and the first coat of the anti-fouling applied whilst the G4 is finger tacky to ensure good chemical adhesion. There can be a reaction between some anti-foulings and G4 and it is therefore advisable to carry out a test before the major application is made.

## BONDA MARINE - WOOD SEAL

Wood seal is formulated from high performance moisture cured resins and provides a clear non-porous seal with excellent non-yellowing properties. Wood seal has good gloss retention and forms a tough flexible coating that can be applied in poor conditions and at low temperatures. Each coat cures quickly and since the next coat can be applied as soon as the first coat is finger tacky three or four coats can be applied easily in a day. This will provide a smooth high gloss surface but if super smooth glass like finishes are required then allow each coat to harden, lightly flat down, remove dust and apply another coat.

Either way Wood Seal gives a super seal to wood.



## BONDAGLASS-VOSS LTD.

158-164 Ravenscroft Rd, Beckenham, Kent, BR3 4TW.  
Telephone: 01-778 0071  
Sunderland Rd, Sandy, Bedfordshire, SG19 1DQ.  
Telephone: 0767 81432

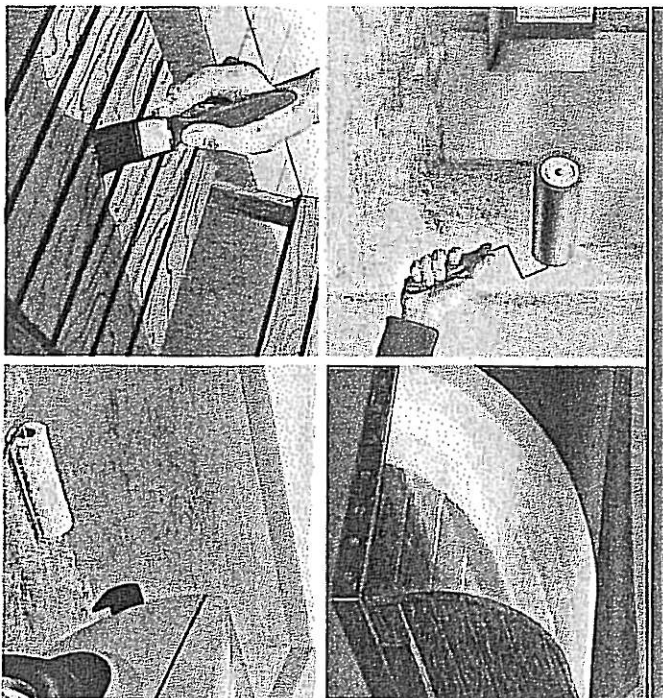
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# G4

## DAMP SEAL

A Moisture Cured Polyurethane



Forms a Non-Porous Seal on  
Concrete - Brick - Stone - Plaster -  
Metal - Wood

## Other Bonda Surface Coatings

- BONDASEAL CLEAR
- BONDA MARINE WOOD SEAL
- BONDA MARINE G4
- 15 YEAR WHITE PAINT