

Guidelines for Choosing and Applying CCS Sealers



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Sealers for Concrete Guidelines for use



sealer types >

acrylic >

urethanes >

Why Seal Decorative Concrete?

- Protects the integrity of the substrate from weather and surface abrasion.
- Helps to resist staining and marking.
- Enhances the colour and in most cases, the lustre of the surface.
- Makes the surface easier to clean and maintain.
- Assists in restricting the flow of lime through the surface causing efflorescence (white powdery contaminant).
- Helps to retain consistent colour in CCS pigment through substrates.



This photo shows the difference between an unsealed (right hand side) and sealed section (left hand side) of the same concrete surface after several years of weathering. The sealed section of the concrete remains clean after many years, whereas the unsealed section (with the pen) is dirty due to the accumulation of dirt and grime.

What Is The Best Type Of Sealer To Apply To Coloured Concrete?

There are four main types of sealers that are applied to concrete. They can be divided into four main families called acrylics, silicones, epoxies and urethanes.

Each of these sealers have different features which make them suitable for a particular situation. The relative strengths and weaknesses of each sealer type are as follows.

The all purpose Acrylic Sealers

Acrylic sealers, such as CCS Hardseal Advanced, Hardseal Matt or Hi-Build Enduro, are the most widely used coating in the concrete industry. They are UV resistant, relatively easy to apply, can be applied very soon after concrete installation, are economically priced and have excellent recoating abilities.

For all of the above reasons they are the preferred coating for most decorative concrete finishes such as exposed aggregate, full depth coloured concrete, stencil concrete, pattern concrete and Stylepave resurfacing systems.

The very tough Urethanes

Urethanes such as the CCS Armourthane and CCS Decrathane, are provided in a single or 'two pack' form. They are extremely resistant to physical and chemical attack and as a result will usually last for several years prior to requiring reapplication.

CCS Decrathane sealers are water based and low VOC and are therefore ideal for environments where application of solvent based products is restricted.

Sealers for Concrete

Guidelines for use

Their drawbacks mostly relate to the application procedure and;

- they emit a strong odour during application which can cause inconvenience to any surrounding businesses or people (except for the water based urethanes such as CCS Decrathane WB Satin or Semi-gloss).
- they are relatively sensitive to airborne moisture during application which means they need to be applied during daytime.
- they are approximately four times more expensive than acrylic sealers.
- when renewing the sealer (after several years) the existing surface will require sanding in order to create an effective bond for the new coating.

None of the above drawbacks are significant for new construction sites however they will require consideration when used to renovate floors in an occupied building.

epoxies >



Water based Epoxies for internal applications

Epoxies have a well-earned reputation for their strength, abrasion resistance and durability. They are widely used for repairing and protecting concrete against chemical and physical damage.

From a decorative concrete point of view their major drawback is that they are not UV stable and will yellow as they age. Consequently they are only suitable for protecting internal coloured floors.

Even when installed internally it is important that they are not exposed to sunlight that filters through windows as this will be sufficient to cause the coating to yellow in the affected area.

For areas not exposed to sunlight the water based CCS Ultra Epoxy WB is a low odour, low gloss durable sealer that will provide excellent protection for many years. Due to its low odour and slightly cheaper cost it is the ideal sealer to use in situations where CCS Armourthane can not be used.

penetrating > sealers



Penetrating Sealers – such as CCS Natural Seal Supreme HV, CCS Streetscape Sealer and CCS Stain Block protect concrete by penetrating into the capillaries of the concrete – rather than lying on the surface. Penetrating sealers repel moisture and at the same time allow the transmission of vapour from within the concrete or structure. They are used on both floors and vertical walls of concrete buildings. Often a penetrating sealer is applied to vertical concrete walls, to protect them from the ingress of driving rain and airborne salts which can ultimately attack the steel reinforcing contained in the concrete.

Because they don't alter the texture of the concrete, penetrating sealers such as CCS Streetscape Sealer and CCS Stain Block are ideal for horizontal surfaces where slip resistance may be an issue. These two products also contain special fluoro polymers and additives which effectively protect the surface from the ingress of water as well as oil based stains. Applying Stain Block to high traffic pedestrian and alfresco areas also greatly assists with the removal of stains from food and pollutants such as chewing gum.

Sealers for Concrete Guidelines for use

suitability >

hospitality > areas



What is the best sealer for each location?

Café, restaurant and fast food outlet floors

Integrally coloured concrete, polished or burnished concrete, stained or coloured overlays are often used in such locations.

Sealer Performance Criteria

The objective of the sealer is to enhance the surface while providing protection against the staining of the decorative concrete finish from the effects of oil, grease and various types of food and drink stains. The sealer also needs to withstand abrasion from moving chairs and the chemicals used in the regular cleaning of the floor.

Recommended Sealers

CCS Armourthane two pack urethane sealer

Provides excellent resistance against chemicals and abrasion in a gloss finish.

CCS Decrathane Satin or Semi-Gloss

Single component, low VOC urethane sealers which provide very good resistance against chemicals and abrasion.

CCS Ultra Epoxy's

Provide a satin, chemically and abrasive resistant finish in either a water based formulation or a 100% solids, solvent free formulation. They are not UV resistant and therefore should only be used where there is minimal direct exposure to sunlight.

CCS Natural Seal Supreme HV, Streetscape Sealer and Stain Block

These three are penetrating sealers that repel water borne chemicals without altering the natural look of the concrete.

pedestrian > areas



Pedestrian Precincts

Pathways, bikeways, malls, footpaths and general open areas are consistently finished in coloured concrete, be it exposed aggregate, trowel finished coloured concrete or concrete paving.

Sealer Performance Criteria

The objectives of the sealer are to enhance the colour, inhibit the incidence of efflorescence and resist the ingress of dirt, grease and stains resulting from spillage of food and drinks.

Recommended Sealers

CCS Hardseal Advanced Acrylic or CCS Hi-Build Enduro Sealer

Provides a wet-look, tough coating that can be resealed as and when required.

CCS Natural Seal Supreme HV, Streetscape Sealer or Stain Block

Penetrating sealers that repel moisture and inhibit the growth of moss in low points and the capillaries of the concrete. Will not dramatically affect the final concrete colour.

Sealers for Concrete Guidelines for use



retail >



CCS Armourthane

A very tough sealer with excellent resistance against abrasion and most chemicals.

CCS Decrathane Satin or Semi-Gloss

Single component, low VOC urethane sealers which provide very good resistance against chemicals and abrasion.

Retail Floors

Includes floors in clothing, hardware, showrooms and liquor outlets. Floors are normally constructed from integrally coloured concrete in a burnished or polished finish or may consist of a coloured overlay.

Sealer Performance Criteria

Needs to provide a professional looking, non slip, easily cleaned finish that enhances the colour yet provides good abrasion resistance against foot traffic.

Recommended Sealers

The two pack CCS Armourthane, single component low VOC urethanes CCS Decrathane Semi-Gloss and Satin, CCS Ultra Epoxy WB and Ultra Epoxy High Build are best suited to these types of floors.

Due to its water based formulation, CCS Ultra Epoxy WB is more suitable for use in occupied shopping centres as it will not emit a solvent odour during the two day curing period.

Its' satin finish also assists in ensuring a consistent floor finish is maintained and overcomes the 'goat track' type effect that can occur in higher traffic areas with high gloss epoxies.

CCS Armourthane is a harder wearing sealer and is ideal for application in non occupied shopping centre environments due to its strong odour.

external retail >



Shopping Centre External Pathways

Integrally coloured concrete, exposed aggregate, stencil concrete or the CCS Stylepave Resurfacing System are frequently used to colour the concrete surrounds to shopping centres.

Performance Criteria

The sealer must be resistant to UV light, pedestrian traffic and regular cleaning

Recommended Sealers

CCS Hardseal Advanced, Hardseal Matt or Hi-Build Enduro, CCS Armourthane and CCS Natural Seal Supreme HV are best suited to these areas. CCS Armourthane is the most durable of the three.

CCS Hardseal Advanced or Hardseal Matt are economical, easy to apply alternatives available.

CCS Natural Seal Supreme HV provides a natural looking water-repellent finish. Note: Natural Seal Supreme HV is not suitable for the CCS Stylepave Resurfacing System (however CCS Decrathane Satin is).

Sealers for Concrete Guidelines for use

vertical >



Vertical or Precast Walls

Integrally coloured walls and panels are manufactured in factories or onsite for use as building facades.

Sealer Performance Criteria

With walls, abrasion is not an issue so sealers are normally used for graffiti protection, enhancing the colour of the concrete, water proofing or minimising the growth of moss and lichen.

Recommended Sealers

CCS Natural Seal Supreme HV is ideal for providing protection against wind blown rain and any air borne pollutants. CCS Armourthane is suitable as a non-sacrificial, anti-graffiti coating.

car parks >



Car Park Floors, Service Station Aprons and Fast Food Drive Throughs – Internal or External

External car parks are commonly coloured with black pigment to disguise the effects of dripping oil and tyre marks from cars. Internal car parks often use brighter colours for safety and lighting purposes.

Sealer Performance Criteria

To provide ongoing resistance against oil, tyre marking, and traffic and in exterior environments, the effects of UV light.

Recommended Sealers

CCS Petrol Resistant Sealer in a clear and black colour is ideal for areas exposed to dripping petrol and oil.

CCS Densifier, CCS Armourthane and the CCS Ultra Epoxy's are both ideal for internal car parks while CCS Armourseal is also suitable for exterior car parks.

residential > driveways



Driveways and Pathways Surrounding Homes and Unit Developments

Stencil concrete, pattern concrete, coloured exposed aggregate, coloured trowel finished concrete or modified cement based overlays are all used regularly in these environments.

Sealer Performance Criteria

Protection against UV light, dirt, oil, plants, leaves, and minor traffic is normally required.

Recommended Sealers

CCS Hardseal Advanced or Hardseal Matt are the well-proven sealer for this type of finish.

Should a natural finish be desired, one of the CCS penetrating sealers such as CCS Natural Seal, Supreme HV or CCS Streetscape Seal can be used.

residential > internal floors

Internal Floors in a Home or Unit Development

Polished or honed concrete or a coloured overlay is commonly used for internal floors.

Sealer Performance Criteria

The need to enhance the colour while providing protection against food and normal household spills.

Sealers for concrete Guidelines for use



Recommended Sealers

There are generally four CCS sealers to choose from when sealing interior honed or polished concrete surfaces.

The level of gloss and the depth of coating protection desired, will determine the sealer system that is used.

Gloss Level	Depth of Coating	Min number of Coats	CCS Sealer System	Low VOC Green
High Gloss	High Build	2	CCS Ultra Epoxy 100% Solids as base coating.	✓
		2	CCS Decrathane Satin Sealer as top coat.	✓
Semi Gloss	Medium Build	2	CCS Ultra Epoxy water based base coating.	✓
		2	CCS Decrathane Satin Sealer as top coat.	✓
Semi to low Gloss	Regular Build	2	CCS Decrathane Semi Gloss sealer.	✓
Satin	Regular Build	2	CCS Decrathane Satin sealer	✓
Natural	Regular Build	2	CCS Stain Block	✗

As noted in the table, all of the above CCS sealers contain low volatile organic compounds (VOC's).

In an unoccupied dwelling CCS Armourthane can also be used and although it emits a strong odour during application, it will prove to be a very durable sealer.

Recommended Sealers

Café or Restaurant Floor Internal Areas:- CCS Armourthane; CCS Ultra Epoxy WB or CCS Ultra Epoxy HB, or CCS Decrathane Satin
External Areas:- CCS Armourthane; CCS Decrathane Satin, CCS Streetscape Sealer

Food Preparation or Wet Areas Please contact us on 1800 077 744 or 07 3287 6444 for further details.

Pedestrian Footpaths CCS Hardseal Advanced , CCS Hardseal Matt or CCS Hi-Build Enduro; CCS Armourthane, CCS Streetscape Sealer.

Retail – Occupied Premises CCS Ultra Epoxy WB, CCS Ultra Epoxy High Build, CCS Decrathane Satin, CCS Densifier, CCS Galaxy Flooring

Retail Floor – Unoccupied Premises CCS Armourthane, CCS Ultra Epoxy WB, CCS Ultra Epoxy High Build, CCS Decrathane Satin, CCS Densifier, CCS Galaxy Flooring

Shopping Centre – External Pathways CCS Hardseal Advanced , CCS Hardseal Matt or CCS Hi-Build Enduro; CCS Armourthane, CCS Streetscape Sealer

Carpark – Internal Floor CCS Petrol Resistant Sealer, CCS Ultra Epoxy WB or CCS Ultra Epoxy HB, CCS Densifier

Carpark – External Floor CCS Armourthane, CCS Petrol Resistant Sealer, CCS Densifier

Drive Through Areas CCS Armourthane, CCS Petrol Resistant Sealer

commercial >
projects

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*residential >
projects*

Vertical Walls	CCS Natural Seal Supreme HV, CCS Stain Block or CCS Armourthane (for Graffiti only)
Precast Walls	CCS Natural Seal Supreme HV, CCS Stain Block or CCS Armourthane (for Graffiti only)
Masonry Walls	CCS Natural Seal Supreme HV
Clay Pavers	CCS Streetscape Sealer
Concrete Pavers	CCS Natural Seal Supreme HV or CCS Streetscape Sealer
Driveways	CCS Hardseal Advanced , CCS Hardseal Matt or CCS Hi-Build Enduro, CCS Armourthane, CCS Colour Master Sealer. Prime with CCS Same Day Sealer on day of pour if there is likelihood of concrete being soiled before top coat can be applied; then coat with Hardseal range
Pattern Concrete	CCS Hardseal Advanced, CCS Hardseal Matt or CCS Hi-Build Enduro; CCS Colour Master Sealer
Stencil Concrete	CCS Hardseal Advanced , CCS Hardseal Matt or CCS Hi-Build Enduro, CCS Armourthane, CCS Colour Master Sealer
Internal Polished or Smooth with a natural appearance	CCS Stain Block or CCS Streetscape Seal
Polished Concrete – Internal	CCS Armourthane, CCS Decrathane Satin or Semi-gloss, CCS Densifier
Machine Trowelled Smooth – Internal	CCS Armourthane, CCS Decrathane Satin, CCS Ultra Epoxy High Build, CCS Densifier
Polished Concrete or smooth/trowel – external	CCS Natural Seal Supreme HV, CCS Armourthane, CCS Decrathane Satin, CCS Streetscape Sealer
*See note below re: enhancing traction	
Exposed Aggregate	CCS Natural Seal Supreme HV, CCS Armourthane, CCS Hardseal Advanced , CCS Hardseal Matt or CCS Hi-Build Enduro, CCS Petrol Resistant Sealer - Clear, CCS Streetscape Sealer
Landscaped Areas/ Patios/paths in broom finish	CCS Hardseal Advanced , CCS Hardseal Matt or CCS Hi-Build Enduro; CCS Natural Seal Supreme HV, CCS Armourthane, CCS Colour Master Sealer, CCS Petrol Resistant Sealer, CCS Streetscape Sealer
Rendered Walls	CCS Natural Seal Supreme HV
Resurfacing	CCS Hardseal Advanced , CCS Hardseal Matt or CCS Hi-Build Enduro, CCS Armourthane
Sandstone	CS Natural Seal Supreme HV and CCS Streetscape Sealer
Slate	CCS Natural Seal Supreme HV and CCS Streetscape Sealer

For further information on the number of coats of sealer required please refer to individual product data sheets.

Note: For adequate traction enhancement you must ensure your concrete surface has a textured profile before you add a coating to it. As a general statement, the application of a coating to concrete will reduce the existing slip resistance of that surface.

Sealers for Concrete Guidelines for use



differences >
between
penetrating
sealers and
coatings

Penetrating Sealers Versus Coatings

Penetrating Sealers such as CCS Natural Seal Supreme HV, CCS Streetscape Sealer and CCS Stain Block are silicone or silane/siloxane based and protect concrete by penetrating into the capillaries of the concrete - rather than lying on the surface.

Penetrating sealers repel moisture and at the same time allow the transmission of vapour from within the concrete or structure. They can be used on both floors and vertical walls of concrete buildings.

Often a penetrating sealer is applied to vertical concrete walls, to protect them from the ingress of driving rain and airborne salts which can ultimately attack the steel reinforcing contained in the concrete.

Because they don't alter the texture of the concrete, penetrating sealers such as CCS Streetscape Sealer and CCS Stain Block are ideal for horizontal surfaces where slip resistance may be an issue. These two products also contain special fluoro- polymers and additives which effectively protect the surface from the ingress of water and oil based stains.

Coating sealers like CCS Hardseal and CCS Hi-Build Enduro acrylics effectively cover as well as penetrate into the surface of concrete.

Because they coat the surface, they usually impart a gloss finish which can enhance the colour.

Many of the 'coating sealers' create a 'wet look'. If the 'wet look' is not desired then the penetrating sealers are the best alternative.

As a general rule, coating sealers will make an existing concrete surface more slippery, so consideration should be given to the texture and its intended usage.

Coating sealers are usually diluted in solvent, which ultimately helps them to seep into the concrete. The solvent soon evaporates allowing the residual resin to dry anchor into the concrete surface.

Sealers that are film forming (non penetrative) rather than penetrate, generally provide better resistance against abrasion.



Sealed and unsealed. Sealing concrete with one of the gloss CCS acrylic, epoxy or urethane sealers will give concrete that wet look.



Penetrating Sealers penetrate deep into the concrete to effectively repel water and protect the surface. Most penetrating sealers provide a matt finish.

Sealers for Concrete Guidelines for use

Why Use > Low VOC Sealers

There is a current trend to utilise more environmentally and applicator friendly coatings. Low VOC (Volatile Organic Compounds) Sealers have a low odour and are ideal for densely populated and sensitive environments such as schools, hospitals, and certain commercial areas. The sealer should be considered at the initial stages of placement of concrete and thought needs to be given to the maintenance schedule required and desired.

Included in our range of concrete sealers are six low VOC (volatile organic compounds) sealers and are suitable for streetscapes, commercial, residential and industrial projects.

Low VOC > Sealers



CCS Streetscape Sealer

A waterborne, single component, penetrating silane-siloxane sealer designed to improve stain resistance and protect concrete, masonry, pavers, and porous natural stone from the ingress of water, salts and staining from oil based contaminants (such as food and beverages).



CCS Decrathane Satin

A water based polyurethane coating specifically formulated for concrete, porous natural stone and tiles. It is an ideal surface coating for environments where application of solvent based products is restricted and provides durability and excellent resistance to marking.



CCS Decrathane Semi Gloss

Like Decrathane Satin, Decrathane Semi-Gloss offers durability and excellent resistance to marking, but in a semi-gloss finish.



CCS Densifier

A low sheen, water-based penetrating hardener, densifier, and dustproofer designed to increase abrasion resistance and reduce the surface absorption of liquids on concrete floors.

CCS Ultra Epoxy High Build

CCS Ultra Epoxy High Build is a 100% solids, solvent free epoxy coating system for internal concrete floors. It provides a high level chemical and abrasion resistance, while being easy to clean.

CCS Ultra Epoxy WB

CCS Ultra Epoxy WB is a water based, low odour, low gloss durable sealer that provides excellent protection for many years.

Sealers for Concrete Guidelines for use

gloss >

Gloss level options

The range of CCS Sealers includes sealers with different levels of gloss. The sealers and their gloss levels are as follows:

CCS Armourthane Urethane	gloss
CCS Decrathane Satin	satin
CCS Decrathane Semi Gloss	semi gloss
CCS Ultra Epoxy High Build or WBased	WB=satin HB=gloss
CCS Hardseal Advanced Acrylic	gloss
CCS Hardseal Hi-Build Enduro	gloss
CCS Hardseal Matt Acrylic	matt (natural appearance)
CCS Natural Seal Supreme HV	matt (natural appearance)
CCS Streetscape Sealer	matt to satin (depending on number of coats)
CCS Stain Block	matt (natural appearance)

lifespan >



When should a sealer be re-applied?

Sealer life spans are dependent on the resin used and the intensity of abrasion, chemical and weathering factors that they are subjected to.

In a domestic driveway situation the first application of an acrylic sealer such as CCS Hardseal Advanced will last approximately two years. After recoating, the lifespan should increase to two to four years before another application is required. In a busy commercial flooring situation the effective life span could reduce to twelve months before reapplication is required.

In contrast, urethanes and epoxies such as CCS Armourthane and CCS Ultra Epoxy High Build will last much longer with the second coating normally not required until four years after the initial application.

Penetrating sealers such as CCS Natural Supreme HV, CCS Streetscape Sealer and CCS Stain Block will require re-sealing every three to five years, depending on exposure to weather, pollutants and foot traffic.

Do Sealers Make Concrete Slippery?

As a general rule, application of a film forming sealer will reduce the slip resistance of the surface it is coating.

The magnitude of any change is really dependent on the nature of the surface texture that the sealer is applied to and the thickness of the actual coating.

As a guide, in-house slip resistance tests conducted by CCS on broom finished concrete, showed a reduction in slip resistance from a rating of 56, (pendulum test rating) before sealer application, to 54 after application of two coats of CCS Hardseal Advanced.

The overall slip resistance of the concrete is far more dependent on the profile and texture of the concrete surface than the coating that is placed on it.

For example, application of two coats of a sealer to concrete will typically only produce a film thickness of 0.04mm.

Consequently, it is essential that where slip resistance is a key issue, the concrete must be finished in an appropriate manner so that, regardless of whether a sealer is subsequently applied, the concrete surface will maintain an adequate slip resistance level for the use that it is being subjected to.

slip >

resistance

Sealers for Concrete Guidelines for use

slip >
resistance

What Additives Can be Used to Increase the Slip Resistance of Sealed Surfaces?

Very fine kiln dried sand or glass beads can be used with epoxy and urethane sealers (not acrylics) to increase the slip resistance of the surface.

The beaded glass or fine sand is broadcast into the first coating of sealer while it is still wet. A second coating of sealer is then applied to lock the grit into the surface.

Specially manufactured synthetic powders such as CCS Sealer Grip can be used with CCS acrylic sealers. The CCS Sealer Grip additive is added to, and then mixed with the final coat of sealer prior to application. Note: in all cases, the surface should be appropriately textured prior to application of traction aid. This will ensure the surface is appropriate even if the traction aid is not maintained.

protection >

How to Protect New Coloured Concrete From Being Damaged During Project Construction.

Due to access requirements and the busy nature of the construction site, it is almost impossible to keep newly coloured concrete surfaces free of dirt and other materials for more than one or two days after placement. Consequently, to maintain colour integrity it is very important to seal the surface as soon as possible after placement of concrete.

With most concrete sealers it is mandatory that the concrete is completely dry before application can begin, unfortunately this means that most sealers cannot be applied to concrete until 14-28 days after placement.

After this time the concrete surface is typically quite polluted by site traffic and materials and as a result, sealer application is not feasible unless intensive cleaning is first implemented.

To overcome all of the above difficulties, coloured concrete should be coated with one application of CCS Same Day Sealer on the day of pour followed several days later with a coating of CCS Hardseal Advanced, Hardseal Matt or Hi-Build Enduro Sealer.

Under most circumstances, application of CCS Same Day Sealer can be made to the concrete within a few hours of initial placement.

CCS Same Day Sealer is specially formulated for application to fresh concrete. Benefits of early application include:

- it assists with the curing of the concrete slab
- it minimises opportunities for efflorescence (the free white lime powder which forms deposits on the surface) to occur
- it provides an immediate coating which protects the surface from subsequent staining
- it enhances and deepens the appearance of the coloured concrete.

As this coating will gradually wear away through abrasion, more durable sealers such as CCS Hardseal Advanced, Hardseal Matt or Hi-Build Enduro should be applied several days after concrete placement to provide longer lasting protection.

Where a penetrative coating is to be used, apply CCS Slab Clad R then remove after 21-28 days and place the penetrative sealer.

