

weber.pral site specification

The recommendations laid out in the relevant codes of practice, especially BS5262 Code of Practice for External Renderings and BS 5628-3 : 2001 Code of Practice for use of masonry reflect the guidance given in this document. Experience gained by **Weber** over many years has also influenced the procedures in this guide.

The site specification should be read entirely as it contains information on handling, desirable weather conditions, protection advice, preparation and application etc, which may have implications on labour costs and prelims, which would influence the tender price.

As far as possible the operations involved are in sequence and reflect normal site practice.

Allowance should be made for complying with Safe Working Procedures as laid down by the Statutory Authority and/or Controlling Body relevant to particular operations, as these may have implications, which would influence the tender price.

1 GENERAL INFORMATION FOR WEBER.PRAL PRODUCTS

1.1 MATERIAL HANDLING FOR WEBER.PRAL PRE-BAGGED CEMENTITIOUS PRODUCTS

weber.pral cementitious products are made to **Weber** formulations using ingredients of their approval. Consideration shall be given to the health and safety guidance with regard to cementitious materials. Material safety datasheet are available on request from **Weber**.

Additives must not be added without specific approval as it will invalidate any guarantee with regard to the weber.pral material.

weber.pral cementitious products are available as factory batched, dry bagged mortar mixes, ready for use simply by adding water.

1.2 STORAGE

Dry bagged factory batched products must be stored off the ground and protected from the weather. All contain cement and are therefore made useless if affected by dampness. Manufacturers use stretchwrap on pallets of material to provide stability during transportation. It should not be relied upon to protect materials against wet weather.

The material required for complete and adjoining panels should all be from the same batch number or be thoroughly dry mixed together before use.

Stored under proper conditions, dry-bagged weber.pral products have a shelf life of 12 months.

1.3 WATER REGULATION

Any water used for mixing of renders should be clean and free from contaminants. (i.e. potable). The water supply must be freely accessible throughout the project. Note that when applying by pump some machines require connection to a dedicated, uninterrupted supply. Failure in that supply will stop application.

1.4 WEATHER CONSTRAINTS

COLD

- Don't work with frosted materials or on frosted substrates.
- Don't use cementitious materials unless temperature is 5 degrees Centigrade and rising.
- In cold weather, if frost is forecast, stop work in time to allow the material to set sufficiently to prevent frost damage. The drying conditions will vary according to wind, temperature and humidity and may take several hours.
- In frosty weather where minimum temperature conditions cannot be met work can only proceed when suitable protection is provided and the temperature raised.

HOT

- In extremes of hot weather avoid working on elevations subject to direct sunlight or walls, which will become sunny during the application. Apply material preferably after direct sunlight has passed elevation/panel.
- Too-rapid dehydration will cause a cementitious material to fail. When rendering use water spray to damp-down walls thoroughly prior to application to control suction, and shade from direct sunlight.

WET

- Don't work during rainfall or if rainfall is anticipated during initial set unless full protection is provided.
- Don't allow rain to strike newly applied material, particularly if strong colours have been chosen for rendering.
- Don't render on saturated backgrounds as this can impair bond strength and cause unsightly lime bloom to occur.
- The sorptivity (suction property) of the background is critical and if there is doubt as to the amount of water in the substrate, sample panels should be carried out on trial areas to determine the effect on the render.
- Backgrounds containing an excessive amount of water are more likely to give problems where work has been stopped for a period due to inclement weather.

NOTES

- Temperatures should be taken in the area of work and regularly monitored.
- Any areas suspected of damage by frost should be inspected as soon as possible after the surface has thawed.

2 SUBSTRATES

2.1 GENERAL

The substrate should be constructed of durable and moderately strong materials specifically designed to receive modern renders.

Renderings adhere by a combination of moderate suction and good mechanical key. In a designed background the cement particles in the material are drawn, by capillary action, into the pores of the substrate. In addition, the larger render constituents lock into the physical key of the background to provide a strong durable bond. To ensure this occurs, all substrates should be clean, suitably dry, sound and free from anything that may interfere with the adhesion, such as oil, grease, organic matters and soluble salts.

2.2 BLOCKWORK

Generally a block is manufactured with an open texture or a designed key for rendering. Relying on the raking of mortar joints is not sufficient to provide the key alone.

Smooth dense blocks with little mechanical key should have the key enhanced by an application of weber.rend-aid stipple coat. It is important that the block chosen for the scheme is suitable for external cement renderings. Most block manufacturers will give guidance on the suitability of a block to receive renderings and also the correct bedding mortar mix appropriate to the construction. The weber.pral products have similar characteristics to those of a 1:1:6 cement : lime : sand mix as classified in BS5262. In our experience a general-purpose medium density concrete block will generally meet the criteria as detailed in this section.

2.3 BRICKWORK

In our experience brickwork can offer the most stable surface to render onto. To provide sufficient key, new brickwork should be laid with the mortar joint recessed 10–12 mm by width and depth squarely. Existing brickwork will require the joints raking back to the above dimensions. If the joint is too hard, the key should be provided through using a stipple coat of weber.rend-aid.

Some common bricks may contain deleterious sulphate salts. If possible, advice should be sought from the brick manufacturer regarding their use as a substrate for rendering in that location, particularly in high exposure or potentially damp areas. An application of weber.rend-aid will deter sulphates from crystallising and impairing the bond of the render.

2.3 CONCRETE

Concrete generally offers little key and insufficient suction for weber.pral products. We would recommend that concrete surfaces be coated with weber.rend-aid stipple coat to provide satisfactory key. No-fines concrete will provide a satisfactory key.

2.4 SUCTION CONTROL

Suction control, particularly when using lower density block, should be achieved by spraying the wall with an even mist of clean water prior to rendering. If there is a combination of issues, such as varying suction or insufficient key in addition to high suction, then an application of weber.rend-aid is in order. Please note that mist spraying with water should be done in a controlled manner in order to avoid saturation of the blockwork. Excessive watering will increase drying shrinkage and can induce cracking in the block. Any such cracking is likely to be reflected in applied materials.

3 CRACK CONTROL FOR CONSTRUCTION

3.1 GENERAL

weber.pral materials are manufactured from carefully selected and graded aggregates to minimise drying shrinkage of the applied render. Providing that good practice, appropriate design and suitable preparation is undertaken, the rendering will be fully bonded to the substrate and restrained from movement by that surface and will not crack. It is therefore most important that stress/crack control be considered prior to construction in order to reduce the likelihood of cracking.

When the construction is correctly divided into appropriate panels separated by suitable movement joints, the stresses caused by drying shrinkage and normal building movement will dissipate to the detailed relief joints. Movement joints are not a requirement in the render alone as this is fully bonded to the substrate. They should however, reflect and follow through from the relief joints detailed in the construction.

Additional information on movement control can be obtained from Datasheet 12, as produced by the Concrete Block Association (CBA).

3.2 MOVEMENT JOINTS

Guidance on the placement of movement joints should be gained from the specified block manufacturer and used in conjunction with the BS 5628-3 Code of practice for use of masonry and BS 6093 Code of practice for design of joints and jointing in building construction. The guidance given in these standards is that joints should usually be included at 6m intervals and 3m from corners, however, this will vary depending upon the type of construction and the strength of the brick or block.

3.3 MORTAR BEDDING JOINT REINFORCEMENT

The exact spacing of joints can generally be adjusted by the use of mortar bedding joint reinforcement. The amount and positioning of this reinforcement should be detailed in conjunction with the block manufacturer.

In **Weber's** experience cracking of the substrate can be considerably minimised if mortar bedding joint reinforcement is used, specifically at weak points in the construction, such as above and below window and door openings. We would therefore recommend its use in these areas at all times.

3.4 MESH REINFORCEMENT TO WEBER.PRAL MATERIALS

The ability of the render to resist cracking and spread any stresses transmitted from the substrate can be increased by the inclusion of **Weber** standard mesh cloth, alkali resistant fibre mesh, in the render in areas of typical stress points in the construction, i.e. above and below all openings such as windows and doors and at horizontal junctions of dissimilar substrates e.g. ring beams.

Mesh should be cut into strips that will extend past the junction or point of weakness by approximately 500mm and pressed evenly into the freshly applied render with a trowel or spatula, ensuring that it is not in contact with the substrate, and then overlaid with further render to encapsulate the mesh. If using a weber.rend-aid key coat it is better embedded in this application.

4 CONSTRUCTION ISSUES

4.1 ALIGNMENT OF BACKGROUND

The background construction should be sufficiently true, in line and plumb to accommodate the product specified and its constraints. The render alone should not be used to correct gross irregularities. As a guide, the maximum that can be achieved is a correction of a deviation of 5mm underneath a 2m straight edge placed anywhere on the surface of the substrate.

BS 5628-3 makes this commentary. *The permissible deviations given in Table A2 and Table A3 are intended to provide satisfactory structural performance of the masonry. They should not be regarded as defining acceptability of appearance. Furthermore they do not necessarily accord with standards of accuracy required for the fit of associated building components (e.g. door and window frame) or with the provision of flat backgrounds for wall finishes or linings. Higher levels of accuracy may need to be specified where such components or finishes are to be installed.*

Table A2 quotes straightness in any 5m length as $\pm 5\text{mm}$.

Applied render will follow the line of its substrate and cannot be expected to correct all deviations in the background especially over long distances. While there are no tolerances quoted in current standards for the alignment of what is basically a hand-finished material, **Weber** would expect that a standard of 3mm deviation underneath a 1.8 metre rule placed anywhere on the surface can be achieved. Over longer lengths the render will follow the general line of the background.

4.2 CURING OF CONSTRUCTION

It is important that a freshly constructed substrate be allowed to cure properly before the application of any render materials. If the substrate is not fully cured, creep and shrinkage of the background can occur. This could result in the formation of cracks in the substrate, which will more than likely be reflected through into the render material. It is recommended that the substrate be allowed to cure for a minimum of 28 days before the application of render.

4.3 CLEANLINESS OF SUBSTRATE

Substrates to receive render must be clean, sound and dry. The construction must be free from oil contamination, dust, fungal growth, crystallised salts and any other factors that may impair the adhesion of the applied system or form a weak intermediate layer. Fungal or algae growth can be removed using a wash of weber.CL150.

4.4 MOISTURE CONTENT OF SUBSTRATE

Temporary guttering should be in place prior to rendering to avoid the substrate getting saturated and the resulting increased drying shrinkage of the construction. Temporary down pipes should direct water away from the wall throughout the project. Saturation of the substrate can mobilise any salts that it contains and allow them to pass to the face of the background. It will also encourage algae/fungal growth. Both of the above will have an adverse effect on the bond between the substrate and the render. In addition, saturation of the substrate will prolong the drying and curing of the applied render increasing the likelihood of lime bloom (efflorescence) on the finished elevation and allow adverse environmental effects such as freeze/thaw to take place.

4.5 PROTECTION OF CONSTRUCTION

A building fabric exposed to rain and allowed to become saturated will be subject to a greater amount of movement due to drying shrinkage than one that is protected from the elements. This will put additional strain on the building envelope increasing the risk of cracking within the substrate, which will inevitably be reflected in the applied render.

Protecting elevations during the construction programme has the additional benefit of helping to enable application to continue during inclement or cold weather.

4.6 BUILDING FITTINGS

Before rendering is started on an elevation, all the major building components must be fitted. This includes copings, cappings and flashings, windows and doors, soffits and fascias etc. The fittings must be detailed to protect the finished render from staining due to localised water run off. Flue pipes, air bricks and weep holes should also be in final position prior to the application of render to remove the need to breakout and repair finished render after their installation. Repairs in finished render often result in differences of appearance compared to main wall areas and are often visible on completion.

5 ARCHITECTURAL DETAILING

5.1 GENERAL

With regard to detailing, there are two main considerations. The vulnerable part of any render is the vertical bond to the wall. Isolated run-offs of water from sills, weep hole details and the like are likely to lead to staining over a period of time especially in areas where the atmospheric conditions are polluted. All detailing therefore has to protect the vertical bond interface and throw water away from the wall.

Careful design is required at the base of walls to prevent the rendering bridging the damp proof course (DPC). A bell cast feature will assist in the shedding of water and providing a drip. The DPC should never be bridged, as doing so will allow water to track up behind the render face. In addition to the DPC detail, consideration should be given to the use of a French drain at the base of the wall to prevent splash back staining the completed render and promoting fungal/algae growth. A minimum of 150mm should be allowed between the base of the render and ground level.

5.2 FORMING ANGLES

Angles in floated, scraped and spray textured finishes can be formed by splayed timber rules that are temporarily fixed during application. This method is a necessity when specifying an Ashlar render finish, as profiled beads will interfere with the continuity of the Ashlar joint. For scraped renders, some render may spall away from the nose of a standard angle bead profile during the scraping process. Proprietary Y-section plastic beads are available and form the best solution, after traditional methods, by promoting an even thickness of render right up to the corner point.

5.3 MOVEMENT JOINTS

The traditional method of expressing a movement joint is with the use of 'greased' temporary battens to create the joint in the fresh rendering. The formed joint is then filled with a suitable elastomeric sealant after rendering. This method is recommended for Ashlar work where the cut detail may pass through the movement joint position. In all other finishes, the use of proprietary sealed movement beads is acceptable. These can be obtained in either plastic or stainless steel depending on the finish required.

5.4 STOP BEADS AND BELLCAST BEADS

Temporary timber battens can be used to form stops and bellcast details, particularly when Ashlar work is specified. For all other finishes, the use of proprietary beads in stainless steel or plastic can be used to form vertical render stop details and a bellcast bead used for horizontal details.

6. SITE ORGANISATION AND APPLICATION OF WEBER.PRAL MATERIALS

This section of the Site Specification contains information on correct specification, assessment of site issues and application of the weber.pral products.

The various operations are covered in a number of parts to this section, all of which should be read prior to commencing work with this particular product range.

It should be read in conjunction with the information contained in the General Clauses section at the beginning of the Site Specification and with reference to the **Weber** document, available from your local **Weber** representative.

As far as possible the operations involved are in sequence and reflect normal site practice.

6.1 THICKNESS OF RENDER

The thickness of a render and the number of coats required is largely dependent on the exposure of the building to which the material is to be applied. The following information provides guidance on the suitable thickness of weber.pral for the range of exposure categories.

BS5262 defines categories of exposure, which are calculated against the driving rain index. These fall into the three ranges of sheltered, moderate and severe.

For sheltered and moderate exposures a minimum finished application of 15mm render coat at the lowest point is necessary to provide the correct level of weather protection. For severe exposure the render thickness should be increased to a minimum finished thickness of 20mm. The maximum finished thickness for weber.pral materials should not exceed 25mm unless forming feature bands, keystones or quoins

Ashlar finished work when using weber.pral M should reflect the above thicknesses at the lowest point of the render detail, for example a 25mm application with a 10mm recessed ashlar would be suitable for a sheltered/moderate exposure and a 5mm cut would maintain protection for a severe exposure.

6.2 ACCESS

Scaffolding should be tied independently of the elevation to avoid the necessity for render repairs after completion at points where the scaffold has been tied to the wall. It should be erected with the physical process of render application in mind

Full access should be available between scaffold and the wall to enable a continuous wet edge of material to be maintained across the complete bay/elevation. Both standards and ledgers should be spaced sufficiently away from the wall to allow applicators to handle straight edges or pumping equipment without obstruction.

Note: With the above in mind, current HSE guidance with regarding scaffold safety should always be followed. Scaffold should only be erected or modified by certified scaffolding personnel.

6.3 ASSESSMENT OF SUBSTRATE SUCTION

The suction of a substrate has implications on the finish, performance and the workability of the product applied. It is therefore important that an assessment of the suction is made prior to the application of material.

The substrate should be tested to identify its initial suction. This can only be done by the visual inspection of water applied to the surface. Ideally the substrate should slowly draw the water into the surface leaving a wet residue.

If the test reveals the suction to be high (i.e. water disappears at a rapid rate leaving an apparently dry surface) then the substrate should be dampened evenly with a light spray of clean water, re-tested and the process repeated until the correct suction is achieved. During this process, over wetting must be avoided to prevent impairing the bond of the render and possible increases in drying shrinkage in the construction due to saturation.

If the test reveals the suction to be poor (i.e. water readily runs from the surface without drawing in) then the substrate is either too damp to be rendered or is too dense and may need an application of weber.rend-aid to offer additional key. If the substrate is too damp then it should be protected and allowed to dry until the test procedure reflects the required suction.

6.4 ENHANCEMENT OF KEY

If the substrate cannot provide sufficient support to the rendering, as in the case of smooth concrete, high-density concrete blockwork, engineering brick etc, then a weber.rend-aid stipple coat should be used.

Using a hawk and trowel apply weber.rend-aid to a thickness of 2-3mm. Apply no more than 2-3 square metres before producing a deep texture with well loaded roller or brush

Allow to cure for a minimum period of 24 hours.

6.5 INTRODUCTION TO RENDERING USING WEBER.PRAL

In theory, panels of any size can be successfully completed providing there are enough applicators available. It is important to have a suitable number of operatives in proportion to the panel size that will enable a flowing wet edge to be maintained in applied material across the entire panel.

The use of a render pump will increase speed of application and productivity in comparison to traditional methods of application. The machine will also give a more consistent output over that of a manual application. However, with renders that require manual finishing techniques, e.g. scraped textures and Ashlar, it is important to consider how the area can be finished within the open time of the product. Application areas should therefore be limited in relation to the resources available to finish them. Consideration should be given to the rendered work so that any panel and those adjacent to it can be completed in a progressive sequence. This will help to avoid long delays between finishing dates, which in itself may contribute to differences in appearance between the panels. Any changes in application procedure, due to differences in climatic conditions for example, can result in shade variation between rendered bays. Whenever possible the panels should be finished on an external angle.

6.6 SETTING UP THE PREPARED SUBSTRATE

Masking products should be used to give protection to adjacent work and to give clean straight edges. It should be removed immediately after finishing. During this process consideration should be given to the protection of glass and aluminium surfaces. Splashes of cement products can lead to surface etching and synthetic materials are not easily removed.

6.7 MIXING WEBER.PRAL MATERIALS

The key methods of mixing for weber.pral products are as follows:

- Render pump (when specified by product)
- Drill and whisk/paddle

When mixing the following should be considered:

- Use only materials directed in correct quantity.
- Discard suspect materials, which are damp or contaminated.
- Add proportion of gauging liquid first to prevent clogging the mixer.
- Don't over mix. Only mix sufficiently to combine materials - then use immediately.
- Once material has been mixed do not attempt to re-temper it to a workable consistency by adding more water.

6.8 APPLICATION OF WET MATERIALS

weber.pral renders are full thickness renders applied in either one or two passes designed to hydrate together as one monolithic coat. The thickness of the passes is determined by the method of finishing and upon the chosen means of application. As an example; for a 15mm finished thickness, a single 18mm pass can be applied with a machine in one application. By hand, this same thickness would be achieved by the application of two 9mm passes (on average). The initial pass in this instance would normally be allowed to gel prior to the second pass. In areas of high stress (i.e. around a door or window opening) the reinforcement mesh can be added into the fresh initial pass. It is important to note that to ensure a finished monolithic render, application the second pass is generally applied within an hour of the initial pass depending on conditions.

To avoid exposing the interface between the two passes during the finishing process, with either application method the final pass for scraped finishes must not be less than 8mm. Exposing the cement rich interface between the passes produces a 'halo' effect, which is only exaggerated by further scraping.

6.9 REINFORCEMENT MESH

The mesh should be cut into strips that will extend past the junction of dissimilar materials or point of weakness by 200-500mm and pressed evenly into freshly applied render with a trowel or spatula, ensuring that it is not in direct contact with the substrate, and then overlaid with further render to encapsulate the mesh. If using a weber.rend-aid stipple coat it is better embedded in this application.

6.10 RULING OFF/LEVELLING OF RENDERS

To achieve a flat level finish, passes of material should be applied in even thickness and levelled with a straight edge of suitable length. Regardless of the method of application (machine or hand) it is recommended that **Weber** levelling tools be used as part of the process. Specialist **Weber** serrated edges for levelling weber.pral materials tend to be easier to handle and help to remove air pockets trapped in the wet render during application, particularly from hand application.

The applied material should be ruled level and flattened with a spatula to allow for finishing. This should be done during application whilst the material is still workable. It is important to avoid over troweling of cement renders, as this will bring an excessive amount of cement laitance to the surface. This can create a harder surface to scrape when working with weber.pral renders.

6.11 SCRAPED FINISH

Between 5 and 16 hours after application, depending on weather conditions, renders will be ready to scrape finish.

In **Weber's** experience the render is ready to be scraped when 2-3mm of material can be easily removed without clogging the scraping tool. Scraping the product early within the set will create a deeper texture and give the appearance of a darker colour shade. Scraping too late in the set will give the appearance of a much lighter colour shade.

Within the 5–16 hours after application there is on average a 2–3 hour period within the set where the product is ideal for scraping. This point of material set should be kept consistent throughout the works, and especially adjacent panels, to avoid colour variation. The surface should be scraped with a circular action keeping the scraper flat and under even pressure to avoid scoring the finished surface. Excessive pressure during scraping should not be required.

Ensure the surface is thoroughly scraped, as any missed areas will dry to a much lighter shade and become evident in the finished work. This effect is referred to as 'misses'. During the finishing of scrape renders, undulations (high points) created during application can be removed with the **Weber** I-section scraping tool. This is particularly relevant for ashlar finishes, as the feature lines may highlight any undulations in the surface.

Following the scraping process the finished work should be brushed down with a soft bristled broom head to remove any free dust and highlight any 'misses' in the scraping, which can and must be remedied at this point.

6.12 ASHLAR DETAILING (SCRAPED FINISHES)

Replicating stonework within weber.pral M or weber.pral MF can be achieved by cutting recessed joints into the finished render with specialist tools. Vertical, horizontal and radial recesses can be formed using square, V and chamfered cutting profiles. Designs may be executed with both vertical and horizontal cuts to fully describe stone blockwork or as deep horizontal profiles that provide effective shadow lines to replicate traditional 'ashlar'.

Directly after scraping and before brushing the elevation ashlar lines can be formed with reference to the guidance below:

- The required ashlar profile should be chosen to reflect the depth in relation to the thickness of render
- The ashlar lines should be set out from a datum line. It is important not to use string courses or plinths as reference points
- Avoid ashlar lines to the corners of windows or in line with window details.

6.13 SPRAY TEXTURED FINISH

The initial basecoat should be applied by machine at a thickness relevant to the exposure rating. Additionally, any variances in suction of the substrate should be unified particularly between the mortar joint and the block. The base coat should be ruled level and flat and then allowed to pick up for a period of between 1 and 2 hours before application of the second pass.

The second pass, applied by render pump gives the textured finish to the desired affect. Various textures can be achieved from a Tyrolean fine finish through to a heavy roughcast effect.

The process of achieving these textures is by lowering the pressure of the render pump for heavier textures and speeding up for finer finishes. Additionally the nozzle size of the spray gun can be varied to assist in these textures.

A consistent texture is normally produced by moving the spray gun with a circular action, maintaining a regular distance and orientation between the nozzle end and the render panel. During the application of this pass a flowing edge must be maintained and thought should be given regarding potential obstructions when applying texture (design of scaffolding). The less number of interruptions to this operation will allow for the best finish.

Regardless of texture chosen it is imperative that the combined final thickness of the render at its lowest point relates to the exposure rating. Due to extensive choice of different textures it is advisable to prepare an on site sample for client approval prior to commencement of works.

All the information contained in this site specification is applicable for the weber.pral products.

For further information regarding the **weber.pral** rendering products, please refer to the **Weber** specifiers handbook or contact:

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