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System Recommendation SR0618

Date Prepared: December 11, 2006
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Prepared For: Decor 8 Tiles Pty Ltd.
10 Albert St, Richmond, VIC 3121.
Application: Installation of Lightweight Stack Stone to Wall Substrates.

INTRODUCTION.

This system recommendation is for the adhesive fixing of lightweight stack stone pieces to wall substrates where the stack stone has been manufactured from thin stone sections to achieve a total weight below the 32 kg per sq.m. maximum weight for adhesives fixing methods. The actual weight of these stack stone pieces is advised as approximately 28 kg per sq.m.

The stack stone pieces are supplied in nominal sizes between 395 x 100mm and 400 x 125mm. Each piece is composed of stone laths (between 8 to 15mm thickness) bonded together with an epoxy resin.

QUALIFICATIONS

These recommendations are to be read in conjunction with the nominated Ardex product data sheets and the Ardex Technical Bulletins TB001 & TB148.

Where the stack stone installation is to exceed 3m in height up a wall surface, supporting angles mechanically fixed to the wall must be provided.

For all installations, the wall structure must be capable of supporting the load of the tile finish and installations onto high walls particularly, should be referred to suitably qualified engineers for confirmation of the load bearing capacity of the wall structure.

This recommendation does not include fixing details for moisture sensitive stone pieces which may undergo dimensional change and/or colour change when in contact with cement based tile adhesives. Ardex has other systems should moisture sensitive stone be used.

WALL SUBSTRATES

The stack stone tiles may be fixed to walls constructed of sheet linings such as fibre cement, plasterboard sheeting, concrete or cement render finishes, and nominated Ardex Undertile Waterproofing membranes.

Sheet Linings – Internal walls only

Where sheet linings (fibre cement or plasterboard) form the substrates, ensure the sheets are mechanically fixed to the support framing at 200mm centres in accordance with the sheet manufacturers' instructions. All joints in the sheet linings are to be filled and smoothed using the base coat compound only and allowed to dry.



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All the fibre cement sheet surfaces and all the jointing compound over plasterboard sheet joints must be primed with Ardex Multiprime and allowed to dry (approx. 10 -20 minutes) prior to fixing the stack stone.

Sheet wall linings must be protected from water when used in internal wet areas, water features and the like by the application of suitable Ardex Waterproofing membranes that are fully compatible with selected Ardex tile adhesives.

Note: Fibre cement sheeting generally is not recommended as a substrate for external walls to receive tile finishes and we recommend the sheet manufacturers be consulted where the stack stone tiles are to be fixed in external applications.

Concrete and/or Cement Renders – Internal and External.

All concrete surfaces must have completed the recommended (AS3958.1-1991) curing and drying period of a minimum of 28 days prior to fixing the stack stone tiles. The surface must be dry, free of all curing compounds, form release agents, and contaminants such as debris from other trades, waxy or oily films, excessive laitance and paint over-spray. All contaminants may be removed, and very smooth, steel float finished concrete scarified by mechanical methods such as grinding, abrasive blasting or similar treatments to achieve an open pored surface.

Cement render is applied over brick and concrete block substrates in accordance with the recommendations of AS3958.1-1991, prior to the adhesive fixing of the stack stone tiles. The render should have completed at least 7 days curing and drying and be wood float finished. Porous render must be primed with one coat of Ardex Multiprime and allowed to dry (approx 10 -20 minutes) prior to fixing the stack stone.

Ardex Waterproofing Membranes.

Ardex Undertile Waterproofing Membranes may be applied to the prepared wall surfaces prior to the installation of the stack stone pieces. These membranes include the Ardex WPM 001, Ardex WPM 002 and the Ardex WPM 390 membranes. These membranes must be applied in a minimum of two coats to achieve the minimum 1mm dry film thickness. Allow each membrane to fully cure and dry in accordance with the product instructions before fixing the stack stone tiles using the nominated adhesives.

STACK STONE TILES

Ensure the tiles are clean and dry, with minimum epoxy resin showing over the back. The epoxy resin coverage over the back of the stack stone shall not exceed more than 15% of the total area of each stack stone tile.

ADHESIVES.

The stack stone tiles may be fixed to the prepared wall using the following Ardex adhesives.
Ardex Optima 2 part white premium adhesive.
Ardex STS8 mixed with (Ardion) E90 additive.
Ardex Abaflex.



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Apply the mixed adhesive to the prepared wall surfaces using a (minimum size) 10 x 10 x 10mm notched trowel, spreading the adhesive in the same direction across the surface so the adhesive forms parallel lines. Work in small areas at a time so the stack stone pieces may be embedded before a 'skin' develops on the adhesive.

The stack stone pieces should be placed with a sliding action back and forth across the lines of spread adhesive while pressing each piece firmly onto the wall. The sliding action collapses the lines of spread adhesive and achieves full contact between the adhesive and the back of the tile. Occasionally remove tiles and check there are no voids in the adhesive layer. If necessary, apply the adhesive using a larger size notched trowel and/or butter additional adhesive directly onto the back of each tile.

Note: the adhesive must fully cover the back of each piece as these thin stack stones are only bonded together at the thin edges of each stone lath. A full bed of adhesive behind each piece is therefore essential to achieving a durable finish able to withstand the occasional knock.

GROUTING

Stack stone installations do not normally require grouting between each piece.

MOVEMENT JOINTS

Movement joints are required in the stack stone finish in accordance with the recommendations of AS3958. These joints should be at least 6mm wide and filled with a permanently compressible flexible sealant. In external applications the sealant must be stable when exposed to Ultra-violet light.

Ardex SE silicone sealant is recommended for use only with stack stone using granite pieces but is not recommended for use with other natural stone such as marble.

The movement joints shall be located as follows:

- Over all existing movement joints in the wall structure.
- At each storey rise in the height of a wall.
- At all locations where a metal supporting angle has been installed to fill the gap under the metal to the stone below.
- At a maximum of 3.5m intervals along the length of a wall.
- Around all penetrations through the stack stone tile finish, and around any brackets fixed to the wall substrate.
- Around all joinery fittings such as door and window frames.
- Over all changes in the nature of the wall substrates.
- Along the line of change in direction in the plane of the wall substrates.

Deep movement joints may require a closed cell polyethylene backing rod to be placed in the joints prior to application of the sealant to maintain the recommended ratio where the sealant thickness is half the joint width.

Fixing Instructions

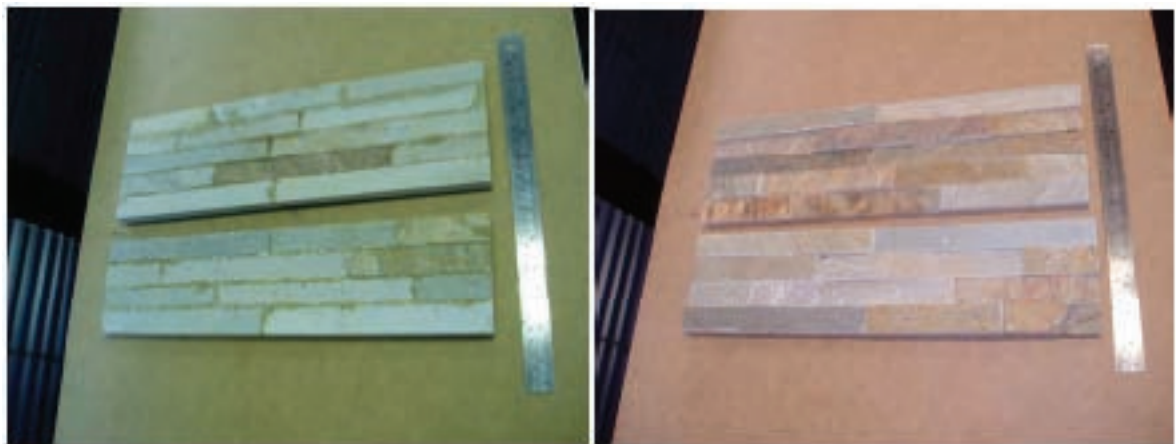
Stone Wall Light Weight



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The above pictures of the stack stone pieces show the back (left) and front (right) with minimum epoxy showing on the back and allowing good contact with the tile adhesives.



The above pictures of the stack stone tiles show the Back (left) and front (right) with minimum epoxy showing on the back and allowing good contact with the tile adhesives.

Graeme Robb
Technical Details

Frequently asked questions

Can this product be used in a water feature?

Yes but the water action will speed up the natural weathering process. The substrate, frame and adhesive should all be suitable for use in a wet environment. The stone surface is not impervious to water. A suitable waterproofing membrane must be used over the substrate. Panel Stone is not recommended for water features in areas subject to freeze/thaw conditions.

Can I recycle swimming pool water over this product as a water feature above the pool?

This is not recommended as salt crystals can form in the fissures in the stone, which can expand and cause de-lamination of sections of the natural stone face.

Are there matching corners available?

Due to the colour variation in natural stone, the best match is achieved using stone from the same batch. For internal and external corners a mitre cut should be made with a quality stone cutting blade on a wet saw. Cut both sides of the corner from the same panel at opposing 45 degree angles and bring together. See the installation guide for more details.

Will this product develop rust marks like other external slate and quartzite?

You may notice some increased brown colouring develop over time as pyrite (Iron Sulphide) in the stone oxidises as it is exposed to the air. This is part of the natural weathering process of natural stone. This can be cleaned but will reoccur as part of the natural weathering process. Sealing may reduce the rate of oxidation.

Can this product be sealed?

A surface sealer to enhance the natural colours of the stone or a penetrating sealer can be applied to reduce staining after the installation has cured. This is generally 4 weeks. Any sealer must be reapplied as part of a regular on-going maintenance program. Consult the sealer manufactures for advice and test on a small inconspicuous area first.

Fixing Instructions

Stone Wall Light Weight

stiff brush. Sealers will alter the colour of the product but will increase stain resistance.

What is a suitable adhesive to use with this product?

See the installation section for full details, but Ardex recommend the following on suitably prepared walls:

- Ardex Optima 2 part white premium adhesive
- Ardex STS8 mixed with Ardion E90 additive
- Ardex Abaflex

Other suitable comparable products may also be used.

How high up is it safe to install Panel Stone?

Ardex recommend adhesive fixing Panel Stone only to 3.0 metres high. Above that height, mechanical fixing such as supporting metal angles fixed to the wall should be used in conjunction with the adhesive. See Ardex Technical Bulletin TB 148 for details.

How do I cut Panel Stone?

The best way to cut Panel Stone is with a wet saw fitted with a masonry cutting blade. Angle grinders fitted with masonry blades are only useful for cleaning up small burrs. They should not be used to cut or mitre products. The stone laths are thin and care should be taken when cutting, ensuring each piece is fully supported and is not jolted. Individual stone laths may become dislodged but this is normal. These can be used for further cuts or pieced back together when laid in the adhesive bed.

Fixing Instructions

Stone Wall Light Weight

DIY General installation Guide

STONE WALL LIGHT WEIGHT/PANEL STONE

Light weight natural stone panels

1. All surfaces must be clean, square, structurally sound and able to support the average installed weight of 32kg per square metre. Note: Blue Board is not recommended to support this weight, particularly when exposed to moisture.
2. Suitable substrates include concrete block, cement render, brick, correctly fixed fibre cement sheet. New concrete should be fully cured before installation.
3. Waterproof the substrate if required with a suitable product such as Ardex Under-tile Waterproofing membrane. Ensure any waterproofing is compatible with the adhesive to be used. Follow the manufacturer's recommendations.
4. Use an appropriate adhesive for the installation such as Ardex Optima, Ardex STS8 with E90 additive or Ardex Abaflex. Check the suitability of the adhesive for the specific installation and follow the manufacturer's recommendations.

Fixing Instructions

Stone Wall Light Weight

5. Complete one row of panel stone before beginning the next.



6. Check the first row is level then every 3 rows. If shims or packers are used under the bottom row to make it level, ensure they are not removed until the adhesive is fully cured.



Fixing Instructions

Stone Wall Light Weight

7. Apply the adhesive to the substrate using a 10mm notched trowel. Work in small areas so adhesive does not 'skin'. Adhesive must fully cover the back of each panel. Additional adhesive can be applied directly to the panel if required.



8. Press panels firmly into position using a sliding action. Tap gently into place.



Fixing Instructions

Stone Wall Light Weight

9. Install panels in a brick pattern offsetting the joints.

10. Sponge adhesive residue off the panel surface immediately.



11. Movement joints should be incorporated every 3 metres, along changes of plane and substrate. Supporting angles mechanically fixed to the wall are required for installation heights over 3 metres.

12. Mitre cut corner pieces if needed using a diamond blade wet saw. Bring the two cut ends together. Use appropriate safety equipment when cutting.



Fixing Instructions

Stone Wall Light Weight



13. Only use water and a wire brush to clean. Do not use acidic cleaners.
14. Sealing the installed stone surface is recommended using a penetrating stone sealer.

Important Note

Colour variation occurs with all natural stone. Check for acceptable blend of colour before installation. Mix panels from different packs together when installing. Some stone colour may leach or bleed when exposed to water.

These instructions are intended as a guide only. More details can be obtained from www.decor8tiles.com. Consult a structural engineer or professional installer for further advice or to answer specific installation questions