



## INSTALLATION INSTRUCTIONS

### ~ SMARTROCK™ TECHNICAL INFORMATION ~

#### **MORTAR**

The mortar is the most important factor in the application. Be sure all measures are consistent and mixed thoroughly. The mortar is used to affix SMARTROCK™ to each of the three optional sub-strates listed below. All substrates are to be primed. As Australia has a great variance in its sand content and type, the following is a guide suitable for sand in Victoria. We are able to forward further advice on sand type interstate.

#### **PRIMER**

All surfaces are to be primed.

Mix SMARTROCK™ bonding agent with cement, blend to a milky paste. Apply with brush or roller to the wall face. Best adhesion is reached when the stone is applied whilst the primer is moist.

#### **Standard Mortar Mix.**

Use a 9 liter ( laundry bucket) as one part.

5 part washed sand, (sand is to be low in clay content).

1 part general purpose Portland cement, (colour is to be advised pending on rock type selected, refer to manufacturer).

0.5 part lime, (additional lime may be required pending on sand quality to aid workability).

3 Litres of SMARTROCK™ Bonding agent.

#### **Water**

Colour oxide, no greater than 8.3% of cement content. Colour to be advised pending on rock selection.

Mortar is best when mixed wet similar to brickies "wet mix". Moisture is usually sucked out of the mix due to the dry cement block or render wall. During hot conditions we recommend each rock to be dipped into a bucket of clean water, this aids in enabling the mortar to ooze out from the back of the rock to the face. No voids are to be seen between each rock. Joints are to be fully loaded during installation to make grouting easier and prevent moisture penetrating through to the sub-structure.

#### **Sub –strates**

##### **Option 1.**

Bracing ply

Set 90 x 45mm studs at 400mm centers.

Nail off 12mm A Bond DD, F11 ply bracing with 40mm galvanized clouts @ .150 centers.

Staple Building paper to ply brace.

(a) Using 40mm galvanized clouts, affix expanded metal lathe @ .200mm centers. All laps should be a minimum of 70mm. Corner wraps are to be continuous. Note the correct side up in the form of the lathe, this is to aid in catching the mortar.

(b) Mortar can now be trowel over the face of the expanded metal. Be sure all area is covered. Required thickness is 5-8mm. Allow the mortar to dry before applying SMARTROCK™.

#### **Fibro Cement Sheet.**

##### **OPTION 2.**

Please read cement sheet manufacturers specification. Fibro cement sheet manufacturer's do not warranty gluing directly onto cement sheet. SMARTROCK™ recommends the following.

Set 90 x 45 studs @.400mm centers.

Fix F.C sheet to manufacturers specification.

Using 40mm galvanized clouts, nail expanded metal lathe at .150mm centers. Follow remaining steps in item 4 above.

Apply mortar as in step 4(b) above.

Block work – brick work – Tilt Panel. PRIME ALL SURFACES

All surfaces are to be free of bond breaker, dust, loose aggregate, grease, paint, or similar.

All surfaces are to be dry and out of a sound stable structure.

Tilt up panel – acid etch to remove all release products. Apply primer. Mechanically fix expanded metal lath at .600 centers. Follow step 4(b)

Expansion joints

Expansion joints are to be left exposed. Do not apply SMARTROCK™ over expansion joints or weep holes.

#### **SHELF ANGLES.**

Shelf angels are to be installed at 2.400 meter maximum centers vertically.

Installation of drystack

If installing onto long run walls, a gauge of 95mm can be used. First select the corner rock and load the back fully with mortar. Apply it to its location by slowly rolling in to position. Ensure the excess mortar expels from behind and forms around all sides, do not wipe off any excess mortar from the rock, it should be left to dry until biscuit-like; during this step the air in the mortar is being forced out causing suction. Be sure the rock is set both square and level. This step must be repeated should the rock be knocked or disturbed in any way.

Once each corner is set, a line can be strung. The flats can now be laid. Again, load the back of the rock with mortar, roll into position keeping the rock parallel to the line and abutting up tight to the already set rock. The perp joint is to be full. *Note:* be sure not to nudge the already set rock, this can cause the suction set to break. As you lay the following courses, mortar is to be spread as a bed on the top of the prior course. Random lengths will give varied appearance, avoid laying stack bond. Install 30mm x 30mm shelf angle into

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course at centers no greater than 2.4 meters vertically.

#### Installation of fieldstone

Rocks are to be laid random. It is good practice to go through all crates and pre-lay out the rocks on the ground, or sizeable work bench prior to laying; this will aid in familiarizing oneself with the rock type and size. Again, liberally apply mortar to the back of the rock, the selection of rock is to be suited so as to compliment each other rock. Keep the rock slightly away from its proposed final position, engage a slow rolling rotating feel working toward the position required, cease this movement once in position. *Note:* repositioning a rock will require the mortar to be removed and repeat the above mentioned steps. As with all SMARTROCK™ installations, do not wipe off or remove excess mortar, this will be modeled later into the grout finish.

Affix 20mm x 20 mm shelf angle to the wall face at centers no greater than 2.400 meters vertically. Use a four inch angle grinder to cut a groove into the back of the stone, this will let in the angle.

Suitable for both Field & Ledge stone applications.

#### Installation of ledge stone

Ledge stones do have a laying sequence. You will find a large rock will be the equivalent to three small rocks in height; one medium size rock will be the equivalent to two small sized rocks and so on. Grout lines can be made either wide or tight pending on the required finish. Ensure rocks are laid level by chalking horizontal lines if installing over expanded metal; brick – block work will provide mortar beds as a level guide. Use the above mentioned techniques for setting the rock.

#### Cutting the rock

All rocks can be cut easily with a hand held angle grinder using a masonry blade. It is recommended drystack rocks are cut square to abut tight to its partner. Its vertical joint is to be full. Field and ledge stone can be cut in many ways so as to retain the rough irregular edge. Cut thicker rocks by passing the blade of the grinder two thirds of the way through at the required cut off point; by tapping this point with a brick hammer the rock will separate. It is recommended to point cut edges away from the direction being viewed, apply mortar to this cut face. Rocks can be cut to fit with the aid of a brick hammer or trowel. SMARTROCK™ recommends safety equipment be used whilst carrying out these procedures.

#### Grouting

Grouting is a simple and quick procedure. It is vitally important to grout when the excess mortar is part way through its curing time. The optimum time is when the excess grout breaks off the rock in a clean form leaving no residue behind. The use of tools such as a *Dutch Joiner*, *Small Tool*, are suitable. Start at the bottom of the wall and work upwards methodically. Field and Ledge stone require the mortar to be cut away cleanly to emphasize the rock shape. Any dags can be removed at this stage. Brush down the face with a hand held straw broom. Don't use a wire brush, do not use high pressure water. Rock face is to be washed down using clean water and soft brush once mortar is dry. Next day is optimum. Simply cover completed work with plastic to avoid further soiling.

#### Rock dimensions

##### Drystack

Variety of over 40 individual rock faces.

Flats	- Height	90mm
	- Thickness	45mm variable
	- Length	500mm, 450mm, 400mm, 300mm, 100mm
Corners	- Internal Dimensions	90mm x 200mm

##### SUPERSTACK

Flats	- Height	150mm
	-Thickness	55mm variable
	-Length	600mm
Corners – Internal Dimensions		100mm x 265mm

##### Fieldstone

Variety of over 300 individual rocks

Both flats and corner rocks vary in diameter from 40mm up to 350mm

Thickness ranges from 15mm up to 75mm

##### Ledge stone

Variety of over 300 individual rock faces.

Size variation similar to that of Fieldstone.

##### Packaging

All rocks are packed tightly by hand on to pallets or wooden crates with foam sandwiched between each layer. The total item is then pallet wrapped. Details of rock type, quantity, date of manufacture are displayed.

Each pallet / crate contains between 12 m2 and 15 m2 pending on rock type. Corner stones are packed in a similar way. Pallets can be stored and transported on top of crates.

**Weight** – 1 m2 of SMARTROCK™™ weighs approximately 40kgs. (Weight varies with rock type)

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One pallet of SMARTROCK™™ weighs approximately 400kgs  
**Weight can be reduced up to 40% if required. This formula will increase mpa.**

#### Transportation

SMARTROCK™ will provide forklift to load truck in our yard. Pallets must be top loaded. Others are to arrange delivery and unloading at point of destination.

#### SMARTROCK™ PTY LTD CONDITIONS OF SALE

Payment of sales. A minimum of 40% deposit is payable at point of sale. The remainder to be paid in full prior to stock leaving the yard.

Goods returned. A minimum surcharge of 40% will apply on all goods returned for credit.

Cartage, transport, delivery by others.

All goods sold are subject to the SMARTROCK™ warranty, guarantee and trading terms ( if any).

All prices are subject to market fluctuation and prices charged will be those ruling at the time of sale.

It becomes the responsibility of others to ensure the structure upon which SMARTROCK™ is being installed is sufficient to sustain the weight of the SMARTROCK™ product.

I/We acknowledge that in this application :

(i) "The Customer" means the individual/s, company or firm named as such on the face of this document, or on any other document between SMARTROCK™ P/L and the Customer and includes such party's successors transferees and assigns; and

(ii) "The Goods" means any goods and / or materials the particulars of which are specified on this document or any other document in terms of which are specified by SMARTROCK™ P/L to the customer.

(iii) the singular number shall include the plural and vice-versa;

(iv) words importing any gender shall include the other gender, and

(v) "persons" shall include corporation, company, society, partnership and firm.

Notwithstanding anything contained elsewhere in this application, the Customer accepts, upon delivery of the Goods, all risk for loss or damage to the Goods whether caused by the Customer or not, and further indemnifies SMARTROCK™ P/L against all claims, demands, suits and actions for loss or damage caused by or arising from the handling, transport, storage, display or use of the Goods after the Customer has taken possession of the Goods.

Ownership, property and title in and to the Goods shall only be transferred to the Customer when payment in full has been made by the customer to SMARTROCK™ P/L for all sums owing to SMARTROCK™ P/L whether under this agreement or any other contract, agreement or arrangement.

No documentation affixed to or referring to the Goods shall be removed from the Goods and / or destroyed by the customer until such a time as title to the Goods has passed to the Customer under the terms of this application.

Notwithstanding any other agreement, monies owing in respect of the goods shall become immediately due and payable upon a bankruptcy petition or winding up application as the case may be in respect of the customer,(whether voluntary or otherwise) being presented in court;

a receiver, trustee in bankruptcy, a liquidator, a provisional liquidator, or an administrator or other like person is appointed over the Customer or a mortgage or an agent for a mortgagee is appointed pursuant to any security interest or Court order; upon breach of this agreement.

If payment of any monies is overdue in whole or part, SMARTROCK™ P/L may recover and / or resell all or any of the goods.

For the purposes of clause (f), SMARTROCK™ P/L is hereby authorised to enter any premises occupied by the Customer and the Customer indemnifies SMARTROCK™ P/L against any loss claims or damages in connection with the re-taking of possession of the Goods provided by SMARTROCK™ P/L (including its servants and agents ) act/s with reasonable care and caution and commit/s no act/s of trespass in so retaking possession of the Goods and do not willfully damage any other goods or property not belonging to SMARTROCK™ P/L and do not willingly breach or induce any breach of any other legal rights vested in any other person associated with such premises entered upon or goods and / or property so dealt with.

If one or more provisions (or part thereof) shall remain in full force and effect.

All claims to be lodged within 7 days of receipt of Goods.

Acceptance of Goods is acceptance of the above terms and conditions. No other conditions as implied by Customers order, etc. will be considered unless accepted in writing by SMARTROCK™ P/L

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