

“TECHNO-ROCK” INSTALLATION GUIDE

Determining the quantity of stone needed

The basic component of the “Techno-rock” building system is the full tile.
Most installations will utilize far greater numbers of full tiles than any other component.
Requiring only eight tiles to cover one square metre, even large expanses of wall can be covered very quickly and economically.

Estimating flat stone requirements

For full tiles, the easiest way to do this is to multiply the length by the height of your chosen wall, (in metres), then subtract the area of any doors and windows, and then just add 10%. This allows for trimming, wastage, and the unforeseen breakage.

Alternate courses are best started off with half tiles, as this adds to the realism of the project, and makes it very difficult for anyone to pick out tile joints. Chances are, that a course started with a full tile will end with a half tile, and vice versa, so when ordering for a job, it’s best to order as many half tiles, as there are courses of tiles in a project. E.g.: a wall that is 2.7 metres high, needs 11 courses to cover it. (Each tile course is 0.25 metres high). In this instance, the tiles that comprise the top course will need to be trimmed to 0.2m (200mm) to fit perfectly.

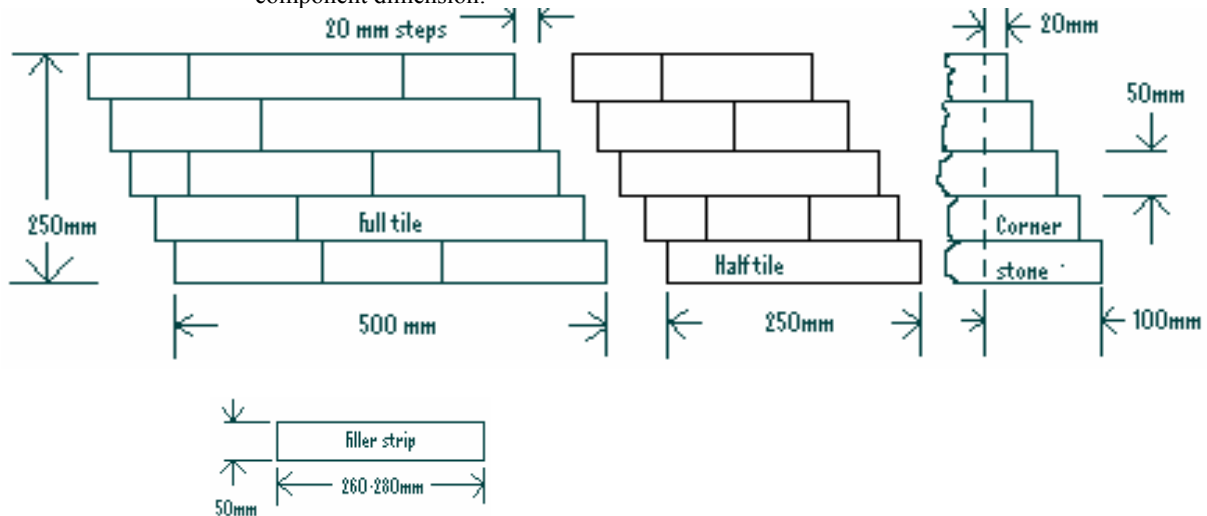
Five filler strips make up one tile height. Thus, for the project example above, it would be best to order $11 \times 5 = 55$ strips.

Calculating lineal metreage of corner stones

Each corner stone is 0.25 metres high (250mm).
You would need four corner stones per lineal metre.
Thus, an external corner on a wall that is 2.7 metres high would need 11 corner stones.

Other options...

- 1) Send your project plan to **COUNTRY STONE**, and we shall assist you in the calculation and costing of your requirements.
- 2) You can draw a scale drawing of your job, then calculate your requirements using these component dimension:



Preparing the surface

The aim of any surface preparation is to ensure that the “Techno-rock” tiles stick and will remain stuck to the substrate. The adhesives recommended for the installation of “Techno-rocks” will not adhere to painted, oily or iron surfaces. All flexible or “drummy” surfaces have to be made rigid, or the adhesive will eventually lose its grip, and will lead to the delamination of the stone veneer.

Brick, block, concrete or other masonry surfaces

These are ideal substrates that in general require very little surface preparation. Make sure that these surfaces are free from dirt, dust, paint, etc, and in the case of tilt-up concrete slabs, free from form-oil. Once these surfaces are deemed “clean”, apply a scratch-coat (see below), or in the case of brick walls with deep jointing, first fill the joints with “Super Flexcrete” or similar, then apply a scratch-coat.

Rigid boards, Cement sheet, Corrugated iron, Plaster sheet

There would be a couple of installation options.

Method a) Fix 9mm cement sheet, (B.G.C. Stonesheet or similar) over existing cladding with flat-head screws. Space screws at 150mm centres along stud, penetrating studs by at least 25-30mm. Where possible, screw the whole of the cement sheet panel to the substrate at 300 x 300 mm centres. Fix the cement sheet horizontally, rough side out. Stagger vertical joints over studs. Apply scratch coat (see below) with a roller. When this is dry, you’re ready to apply the “Techno-rock” tiles.

[Old fibro cladding may be brittle, and would best be removed. Then follow installation instructions under “*open stud frame*” (see below).]

Method b) Cover substrate with a water resistant barrier (builder’s paper, or Tyvek type paper.) Lap horizontal joints 100mm shingle fashion. Install diamond mesh galvanized metal lath, with its small cups pointing upwards. Overlap lath sides by at least 25mm. Lap lath around both internal and external corners by about 75mm. Attach lath by screwing at 150mm centres along studs, penetrating studs by at least 25-30mm. Screw rest of lath to substrate at 300 x 300mm centres. Apply a 12-13mm render coat. When dry, apply “Techno-rock”.

Open stud frame

Internal Installation: Attach 9mm B.G.C. “Stonesheet” (or tested equivalent) to studs with flat-head screws at 150mm centres. Apply scratch-coat, then “Techno-rock” stone veneer.

External Installation: Nail 12 mm A Bond DD, F11 bracing ply to studs with 40mm galvanized bracing nails at 150mm centres. Apply water resistant barrier, metal lath and render coat as in “*Method b)*” above. Allow render to set and dry, then apply “Techno-rock” stone veneer. Alternatively, cover framing with water resistant barrier. Fix 50x20mm vertical battens (either timber or galvanized steel) at 300mm centres to framework with 90 x 2.5mm hot-dipped galvanized nails. Have one continuous batten fixed to top plate also.

Screw 9mm B.G.C. “Stonesheet” to battens with 6 x 20mm wafer-head screws at 150mm centres. Where sheets create a vertical joint, apply a continuous bead of polyurethane sealant. Apply a scratch-coat, then apply “Techno-rock” veneer with cement-based adhesive.

Scratch-coat

Use a roller to apply a slurry made of:
1 part Portland cement
1 part sand
1 part Davelastic

Render coat

1 part Portland cement
3 parts washed sand

First, thoroughly mix dry ingredients (say in a wheelbarrow with a hoe or shovel,) then by adding a liquid mix consisting of 1 part Davelastic to 3 parts water, mix to a firm, moist consistency.

Apply to substrate with a flat trowel to a thickness of 12-13mm. A wooden float finish is desirable, as this will give a slightly rough surface to which the adhesive will bond easily.

Allow to set and dry before applying “Techno-rocks”.

Alternative to a full thickness render coat is to use Warren’s Super Flexcrete that is mixed into a workable consistency using a liquid made by adding one part Davelastic to three parts water.

Installation

Level

Check that the course you will be laying is level. If the ground abutting the wall to which the “Techno-rocks” are to be fixed is undulating, or slopes in either direction along the plane of the wall, attach a temporary level batten to the wall, that will support the first course of tiles being laid. This batten can then be removed at a later stage. The resultant gap that is left under the first course can be left as is, giving the illusion that a natural stone wall has been installed on a footing or foundation. Alternatively, this space can be filled in by trimming individual tiles to fit, or using whole or trimmed filler strips.

Corners

On projects requiring the fitting of corner stones, (say, the base of a rectangular barbeque that is to be covered with “Techno-rock” on all four sides), install the four corner stones but only for the first course to be laid. Apply adhesive to the substrate with a 10mm notched trowel, lightly butter the back of the corner stone that you will be laying with adhesive also. (Taking care not to get adhesive onto it’s face .) Press it into position, and hold it there while applying light pressure for a few seconds. As the moisture is sucked out of the adhesive by both the stone and the substrate to which it is being applied, the adhesive becomes firmer, and after some seconds will hold the stone in place. With a square-ended scraper (or similar), remove any adhesive that has squeezed out from behind the corner stone. If this is done properly, subsequent tiles may be butted up closely, thus hiding tile joints. Apply the other three corner stones in this manner, making sure that their tops are level. Once each corner is set, a line can be strung, or a chalk-line snapped onto the substrate to assist with the set-up of the first course.

Tiles

Start the first course with a full tile, but on the left hand side of a wall.

Courses are laid from left to right!

Apply adhesive to the substrate with the notched trowel, then lightly butter the back of the tile with the adhesive. Place the tile carefully next to the corner stone you have already set, so that the “steps” of the tile sit upon the “steps” of the corner stone. Apply hand pressure to the tile, and hold in place firmly, until sufficient suction develops behind it to hold it in place. Scrape away any mortar that has exuded from the top, and the “steps” of the tile.

Alternate courses should preferably be started with half tiles. This not only staggers the tile joints to add to the real appearance of the project, but also increases the strength of the installation.

When you are about one metre from the right hand corner stone with the first course, pause for a moment and consider how you will link this course to the corner stone that is already in place. In all probability, the course will not terminate with a full tile, or even a half tile for that matter.

If you were to lay two full tiles now, and the resultant gap between the last tile and the corner stone would be less than 150mm, lay one full tile, followed by a half tile, and then the remaining gap can be filled in with “filler strips”.

Filler strips

As their name suggests, these stones are used to fill gaps. These gaps usually occur when a course of tiles has to be linked in with the right hand corner stone.

Ideally, these gaps should be “created”, so they are from 150-400mm long.

You will need five strips to fill the gap in a tile course. To maintain the staggered stone look of the rest of the wall, try not to fill this gap with five identically long filler strips. Incorporate a joint or two, by cutting some filler strips shorter, others longer, and then use two of these random lengths to make up the actual length of filler strip that is required. (See “cutting and trimming”, below).

If the gap is much shorter than 150mm, you would need to cut and lay five equally long filler strips, and when these are installed, would look a bit out of place.

As the filler strips have to but up to, and fit under the right hand corner stone's "steps", a little trimming on their ends or their edges may be required. Use a small hand-held angle grinder fitted with a masonry grinding wheel. Prior to installing the fifth filler strip row in a course, check that it will not protrude above the string/chalk line you are working to. One edge of it may need a slight skimming with the grinder. If any aggregate is visible on cut or ground surfaces, using just your finger, lightly smear a little mortar onto these surfaces that has been coloured by the addition of a little iron oxide pigment.

Second and subsequent courses

Look along the top of the first course on all four sides of the project. Should you notice a slight bump anywhere along the course, you can compensate for this, and prevent its replication in further courses by setting the corner stones of the second course 1-2mm higher as you lay them. (Those small tiler's plastic wedges are ideal to prop components up if they need to be). You must of course make sure that the tops of these four corner stones are also level.

If the top of the first course sags slightly in the middle of the course, use those little wedges to help "prop-up" the second course, and bring everything back to level.

Lay no more than three tile courses in one day, then allow adhesive to set over-night. The following day lay another three courses, and so on, until the project is completed.

Cutting and trimming

All "Techno-rock" components can be cut very easily and in any direction using table saws, mitre saws or angle grinders fitted with masonry or diamond cut-off wheels.

Any cutting/grinding operation generates dust, noise, and flying bits of debris, so preferably do this outside, and adequately protect yourself.

Cleaning of the finished installation

Work carefully and meticulously, to avoid adhesive dropping onto the tile faces. Should a little adhesive drop onto a tile face, allow it to dry until it is crumbly, then pick it off carefully, and use a bristle brush or old tooth brush to lightly scuff the spot where the adhesive may have left a slight mark.

Never use acid to clean a "Techno-rock" installation. Do not brush with a wire brush, or use pressure washers on tile surfaces. When your project is completed, clean off all loose dust from the stone surface, using a hose and a soft brush. On internal applications, use a brush and a vacuum cleaner. Once the stone surface is deemed dry and clean, apply appropriate sealer.

Sealing "Techno-rock" installations

To protect the finished "Techno-rock" installation, we recommend that it be sealed. All masonry surfaces are absorbent. A sealer correctly applied will protect walls, etc from staining by muddy water, food/drink and dirty hands. Sealing also helps protect people's clothes from soiling, should they inadvertently brush up against the wall. Dirt and dust are also easier to remove from a wall that has been sealed.

Sealers usually fall into two broad categories:

1) Breathable penetrating types generally contain a silicon fluid in a volatile solvent base. When applied to the stone, it soaks in deeply, the solvent then evaporates, leaving a water resistant surface that is porous, which allows moisture to escape from within the stone, but prevents water from penetrating it. (e.g. Thompson's Water Seal, etc.)

Water will generally bead on, then run off surfaces treated with such a sealer. As the smell of the solvent may linger for quite some time, these are best used on outside applications.

2) Sealers that form a "skin", like a polyurethane varnish (matt Estapol is one), can be used for internal applications. Make sure that the installation is thoroughly dry before applying such a finish!

There are lots of stone sealers on the market. Consult with the retailer or the manufacturer to see if their product is the right one for you. As some sealers may darken stones slightly, or leave a gloss or satin finish, always try them on a few surplus stones prior to applying to the finished installation.

Sealers can be applied by brush, but due to the strongly textured surface of the "Techno-rock" components, it would be quicker and easier to apply sealers with an airless spray gun. Whichever sealer you choose, follow the manufacturer's recommendations.

Maintenance cleaning

Inside: Use a soft broom, duster, or vacuum cleaner with nozzle brush fitted.

Outside: Simply hose down, or clean with a soft broom, water and a little detergent. Never use a wire brush or pressure washer to clean “Techno-rock” components.

Helpful hints and suggestions

Weather conditions

If installing “Techno-rock” veneer in hot or dry conditions, it is advisable to wet both the stone and the substrate to prevent excessive moisture absorption from the adhesive.

Spray water onto the wall and the back of the tiles, then allow to dry for a few minutes to eliminate excess surface water.

Skirtingboards and architraves

To enhance the appearance of an internal “Techno-rock” installation, remove both skirting boards and cornices. Installations can be butted up against architraves, so there is no need to remove them.

Lighting

Installing a light on or above the wall improves its appearance. Cross-lighting dramatically emphasizes the textured surface of “Techno-rocks”.

Flashing/capping off

Tops of exterior walls should be protected by eaves or appropriate flashing.

(Especially important when installing “Techno-rock” veneer over open stud frame construction, where cement sheeting or plywood are the primary supporting substrate.)

Retaining wall's waterproofing

Retaining walls should be waterproofed and drained on the fill side.

Swimming pools and salty air

Salt and chlorine attack all types of masonry. “Techno-rocks” installed near swimming pools, or in areas subject to salt spray should be properly sealed.

Finishing-off vertical edges

e.g., when building a feature wall:

1)The “steps” can be cut off “Techno-rock” tiles to give a straight edge. Smearing coloured mortar on these cut edges hides any exposed aggregate. To minimize wastage, cut a tile across, some distance in from the end. This results in two pieces; one will give you a straight edge on the left hand side of an installation, while the other piece can be used to finish the same course on the right hand end.

2)Two vertical timber battens could be installed, one at each end of the feature wall, thus effectively framing the installation.

3)If you prefer the look of natural-edge stone, by cutting the “back” steps off corner stones, these can be used to start and finish each course.

Internal corners

These can be created by mitre-cutting tiles.

Alternatively, a batten can be fixed into the corner, and square-cut components butted up to this on both sides.

Expansion Joints

Expansion joints (where they occur) should be left exposed.

Do not apply “Techno-rock” veneer over expansion joints.

Water features

Where water will be splashing onto or running over a “Techno-rock” installation, the individual components should be sealed with a breathable sealer prior to installation, thus preventing water penetration.

Adhesives

Some of the adhesives mentioned above are grey in colour. Others are almost white. Choose the one that best complements the base colour of the “Techno-rock” you are installing. Adhesives may also be coloured by the addition of iron oxide pigments.

Building code requirements

The above installation guide has been prepared with care, and endeavors to reflect sound building practices. Building codes and local regulations can vary from one area to the next. Before undertaking extensive renovations or improvements to a house, please check with your local Authority.

This is a guide only, and a structural engineer should be consulted for further details.