

Technical Guide

for lightweight Cimento®

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Achieving a modernist,
exposed concrete aesthetic
at a fraction of the weight,
time and cost



The Cemento Lightweight Technical Manual has been produced to assist architects, designers and developers. Here you can find everything you need to know when specifying, ordering & installing the material.

Cemento UK Ltd is the UK partner of the Italian company Sai Industry which has developed the revolutionary concrete product known as Cimento®

Cimento® is applied to a backing substrate, to a thickness of a few millimetres, replicating the strength of concrete cast in a mould. It's produced in a shorter time and weighs considerably less.

Ideal for:

- ✓ Wall panelling
- ✓ Ceiling panelling
- ✓ Column cladding
- ✓ Doors
- ✓ Furniture e.g. Reception desks
- ✓ External facades

Not appropriate for:

- ✗ Flooring
- ✗ Worktops
- ✗ Urban furniture (outdoor)
- ✗ Sinks & Vanity units

■ **Natural product**

No resins used & made from natural elements

■ **Interior or exterior use**

■ **Environmentally friendly & sustainable**

ISO 14001, FSC®, PEFC and E1 class MDF compliant with BREEAM projects and EU regulations

■ **Vast range of colours, textures and finishes**

Any RAL, NCS or Pantone colour can be added to the natural concrete

■ **Fast & dry install**

No wet trades required

■ **Italian Made**

Manufactured in Italy and delivered in panel/sheet format

■ **Short lead-time**

Dependant on quantities, design/ details and resource in the workshop, lead time can be as quick as 5 weeks from signed off drawings.

■ **Panels can accommodate site changes**

Scribing, extra cut-outs, etc. Can be executed on site

■ **Flexible curved sheets available**

Minimum curved radius 300mm

■ **Removable and reusable**

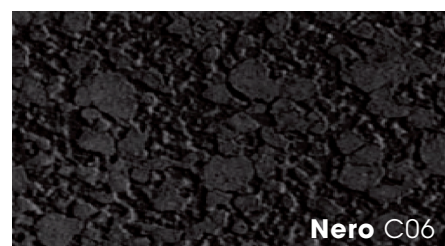
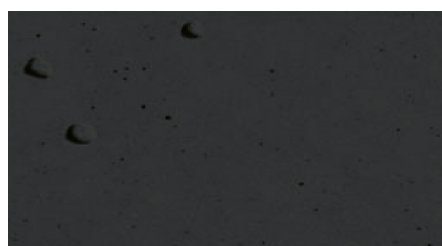
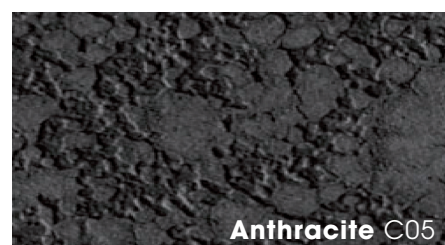
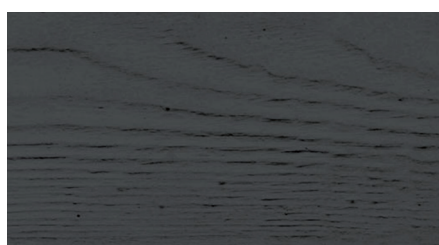
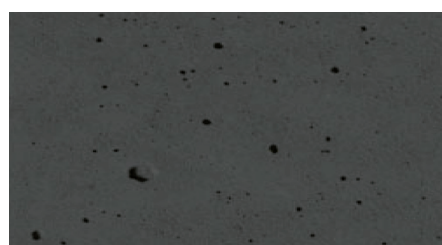
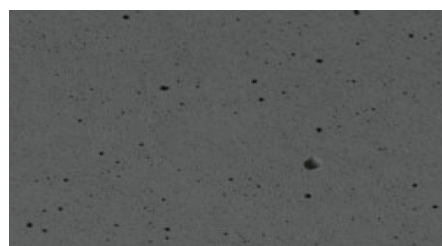
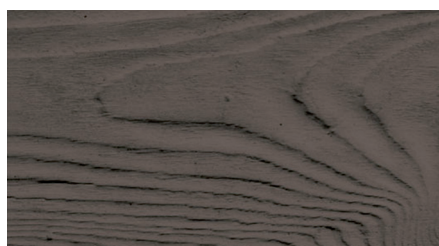
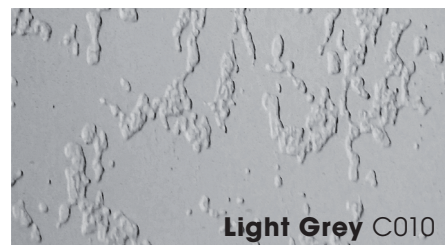
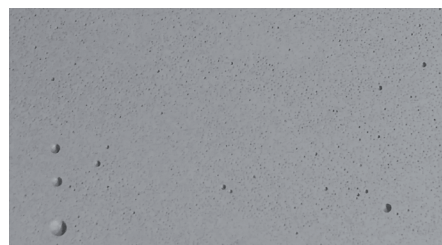
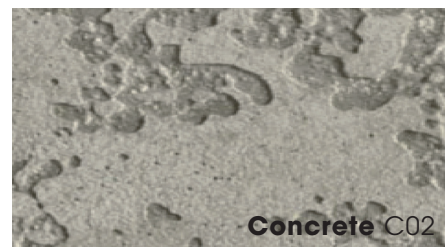
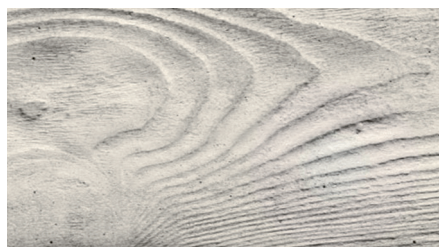
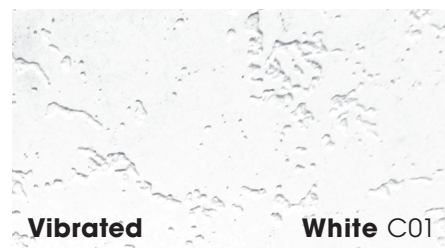
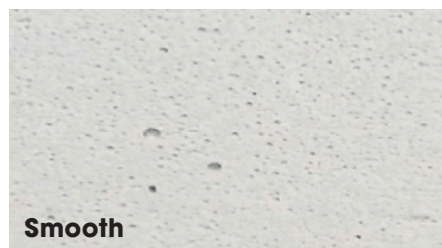
■ **Fire rated**

We can use fire rated timber and sealants to achieve Euro-Class B (Class 0)

■ **Exciting applications**

Our products have been described as 'concrete for joiners'

Surface Library



Colours

Many other colours available on request. Colours shown are used for reference only and may look different in reality.

Please contact Cemento to receive a colour sample or more information

Textures

Smooth - A finish that replicates fair-faced concrete, obtained from a silky-smooth mould. The concrete's porosity is emphasized with small blowholes forming on the surface of the finished panel

Vibrated - A finish replicating irregular coarse concrete, due to the use of chalky stone, clay and silicone sediments

Timber Planked - A finish that replicates planks of wood, obtained from a mould made of wooden slabs

Polished - Currently available in C010

Sealants

•SF1 - Stain Resistant Treatment

Water and stain resistant. Used in most common applications

•SF2 - Anti-Graffiti Finish

Extra durability for high use areas such as shopping malls

•SF3 - Exterior Finish

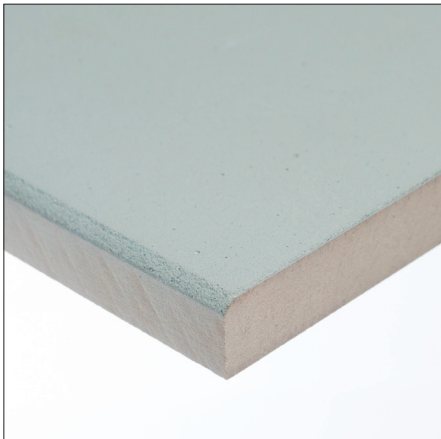
A natural finish for external use

Lead Time

This is dependent on the quantity needed & the complexity of the design. For a straight forward panelling product in the most conventional format, a lead time of **4-5 weeks is possible**. Up to 10 weeks may be needed from the date of purchase order in complex cases. We gauge the time needed for manufacture and advise on a programme once drawings and details have been reviewed

Substrate Information

	Maximum size mm	m2 Weight	Substrate Thickness	Overall Thickness	Ando Detail	Chamfered Edge
MDF	3500 x 1200	17kg (19 mm)	16 or 19 mm	18 or 21 mm	●	●
HPL	2900 x 1200	4 kg	1 mm	3 mm	x	x
FBC	2450 x 1200	17 kg	10 mm	12 mm	●	●
PanPVC	3000 x 1150	6 kg	25 mm	27 mm	●	●
PLY	2440 x 1200	14 kg	18 mm	20 mm	●	●



FSC MDF

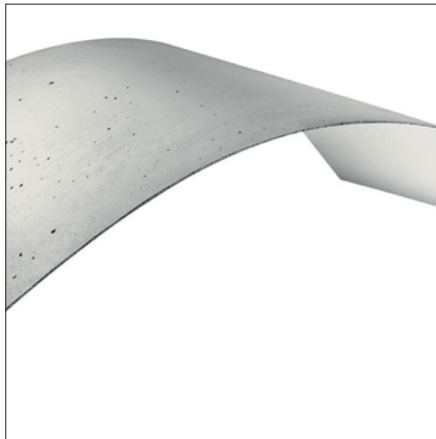
Standard thickness: 19mm (4,6,8,10,12 16 mm available on request).

Ideal to use: As wall panels, reception desk cladding.

Details: Can include chamfered edge, 'Ando' hole, mitred edge, preformed corners.

FR: Available in Class B1 (B-S2-d0)

FSC & PEFC accredited.



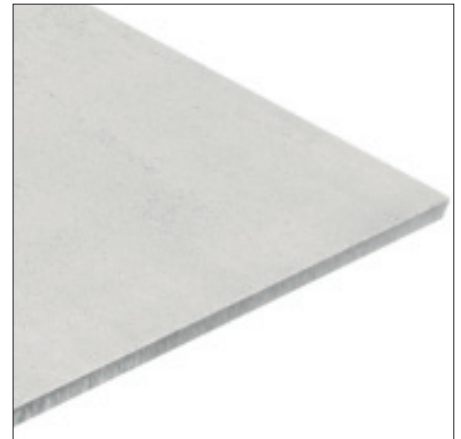
FSC HPL

Ideal to use: On curved surfaces, door faces. Door blanks should be balanced with a laminate when product is applied to door face.

Unusual flexibility: Can form minimum radius of 300mm.

FR: Available in Class B1 (B-S2-d0).

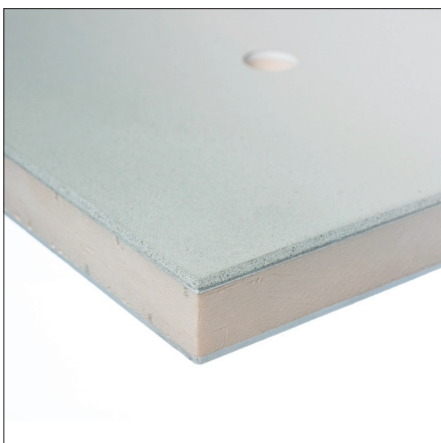
FSC & PEFC accredited.



FBC

Ideal to use: As exterior cladding. Must have nominal gap at joints between panels.

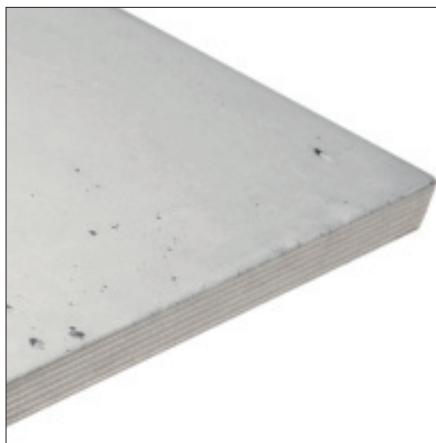
FR: Available in Class A2 (A2-S1-d0) Concrete face sprayed on to market leading Marley Eternit fibre cement board.



Pan PVC

Ideal to use: as ceiling and soffit panelling (Currently being tested for use as wall panelling).

FR: Available in Class E.



SFC PLY

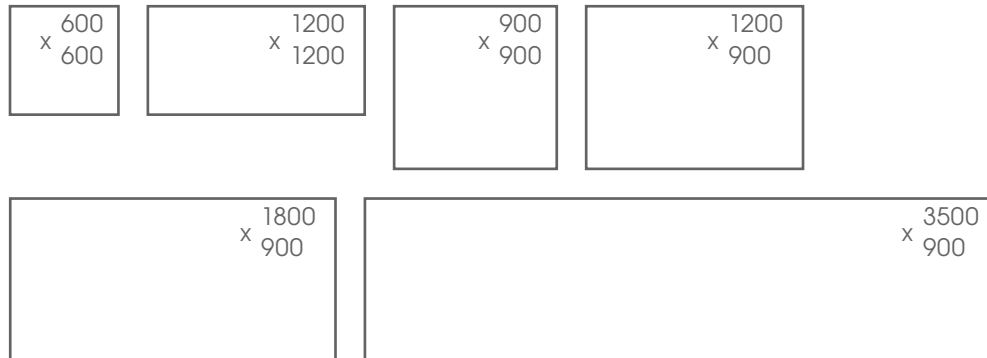
FR: Available in Class B1 (B-S2-d0).

FSC & PEFC accredited.

Standard Panel Sizes

The most economical way to use Cemento Panels is to order a standard panel size. The following are available:

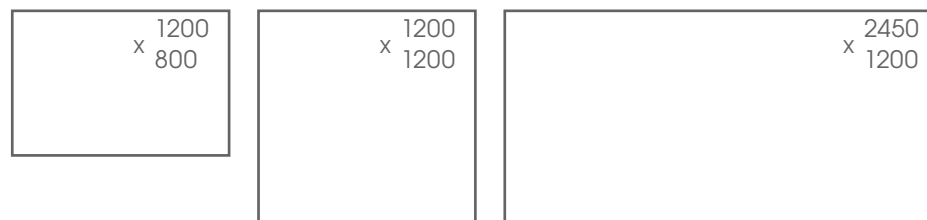
MDF



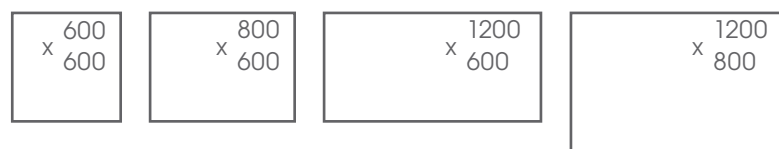
HPL



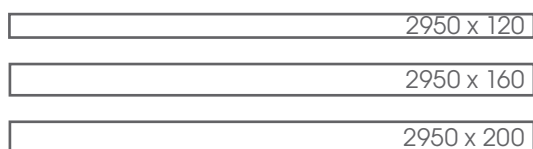
FBC



PLY

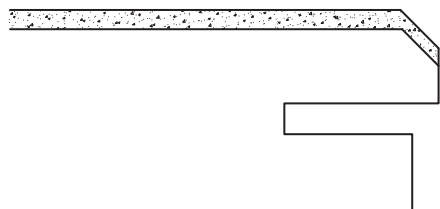


Planking - MDF, PLY, FBC

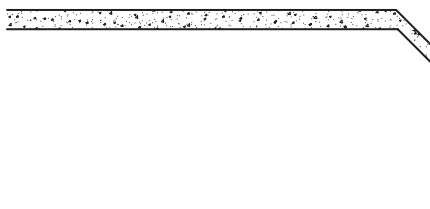


Edges & Joints Details

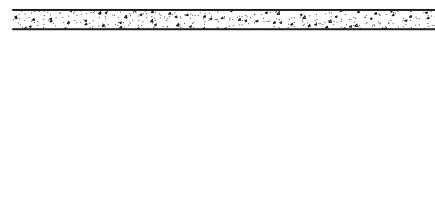
Cimento offers various edge details to create different joints and returns.



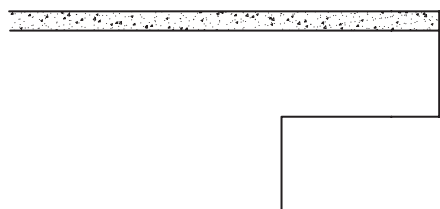
01. **Standard Chamfered Edge**
£



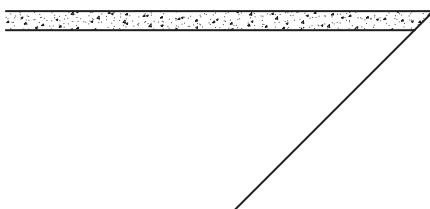
02. **Square Chamfered Edge**
£



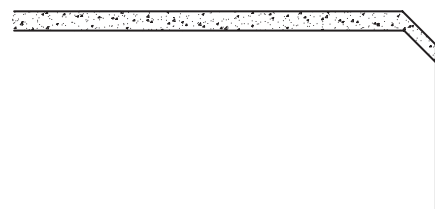
03. **Square Edge**
£



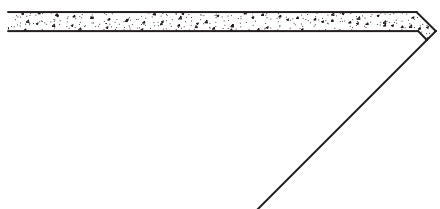
04. **Scribe Edge**
£



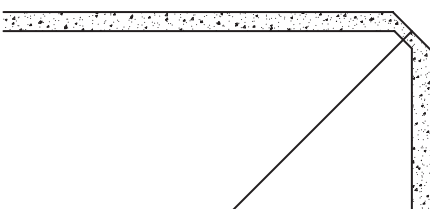
05. **Mitred Cut Edge**
£



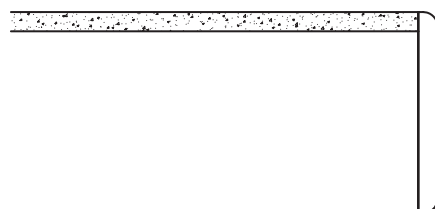
06. **Painted Chamfered Edge**
££



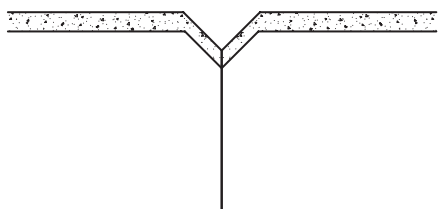
07. **Mitred Cut Edge with Chamfer**
££



08. **Finished Edge**
£££

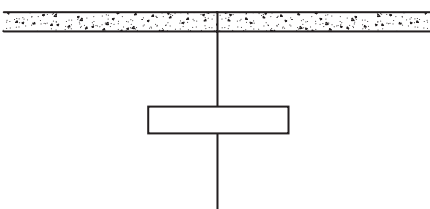


11. **PVC Edge**
££



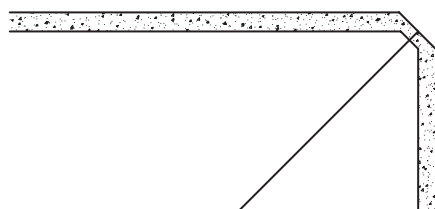
V Groove Joints

As butt joints between panels cannot be made invisible, we advise emphasising them with a 'V' joint. This is conducive to achieving a cast in-situ concrete aesthetic. Chamfers on the edge of the panels meet to create the 'V' shaped profile. To create this look, please refer to the cut and chamfer instructions.



Butt Joints

Stepping can occur between panels at Butt Joints. This is because of the concrete thickness varying from 1-3mm in 'smooth' and 2-6mm in 'Planking'. This is encountered when using the planking texture as it results in realistic cast in-situ aesthetic.



Corners / Returns

These are created by mitering the edges and gluing together. The corner is then sanded and dressed with a concrete fill to result in a constant concrete surface. To create this look, please refer to the panel ends instructions.

Design Details



Ando Detail

This finish is inspired by the talented Japanese architect Tadao Ando. It recreates the architectural poetry of the "tie-holes", which is present in all his extraordinary works realized in reinforced concrete. The "holes" are obtained by the perfect design and positioning of the DYWIDAG bars.

The Ando detail is available on all finishes (Smooth, Timber Planked, Vibrated & Polished)

Ando detail panels can be fitted by screwing through to a sub-wall (fixing system D). The hole is then capped with a Cemento disk. It is a circular cap with 2-3 mm of concrete on the surface. The touch-up kit can then be used to create a softer junction between the cap and the edge of the painted hole. Bespoke Ando disks are also possible.



Laser Etching

Dependant on panel size and placement on laser machine bed, the surface can be laser etched to create lettering, logos and images. The laser burns the top surface of the cementitious material and exposes and blackens the aggregate underneath. This can be used to create a subtle shadow effect, perfect for company branding etc.



CNC machines

It is possible to use a CNC machine to create recess, cut-outs, lettering and logos (recesses can be cut into the surface and inlays glued in). Internal minimum radius for CNC cuts is 3mm. Maximum cutting depth is 10mm.



Edging / Trim Detail

This detail is great if you need to protect edges. Combining brass or stainless steel trim with the concrete results in

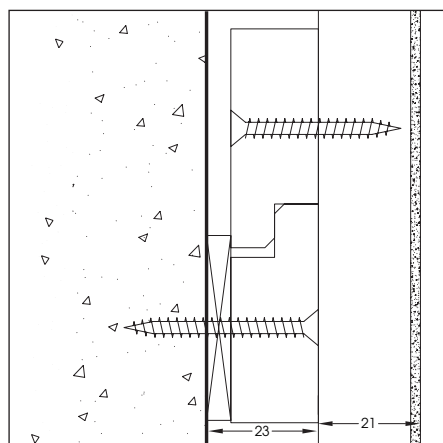


Chamfered edge V groove Joints

To create this look, please refer to the cut and chamfer instructions.

Fixing Systems

	MDF Split Baton	Z-bar	Ci Clip	Screw through Ando Hole	Adhesive	Nvelope System
MDF	●	●	●	●	●	X
HPL	X	X	X	X	●	X
FBC	X	X	X	X	X	●
PanPVC	●	●	X	X	●	X
PLY	●	●	●	●	●	X



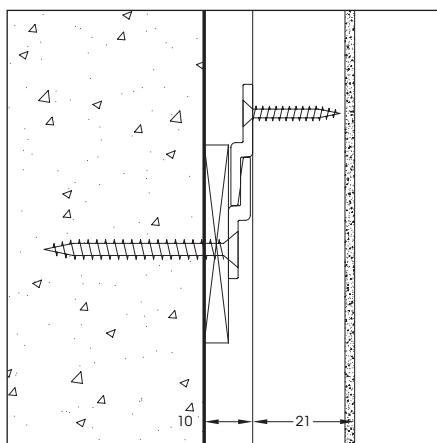
A. MDF Split Baton

Benefits: Traditional install method. Simple, strong & quick.

Suitable for internal use.

18mm thick MDF split baton

screw fixed to back of panel using appropriate screw length to avoid puncturing the concrete on face of panel. 600mm max distance between split batons. Screws fixed at centres deemed appropriate for the panel weight. Depending on orientation of panel, batons should be short enough to aid sliding the panel on baton fixed to the sub-wall where appropriate. Include appropriate number of rows of split baton to ensure panel sits as flat as possible on the wall, & reduces undulation over the length of a panel. Include wood glue as well as screw fixing where necessary.



B. Aluminium Z-bar

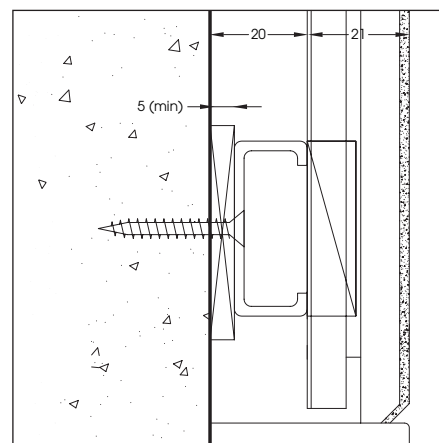
Benefits: Traditional install method. Simple, strong & quick.

Note: Flex in Z-Bar should packing out from sub-wall be necessary.

Suitable for internal use.

Traditional aluminium Z-bar

can be used to hang the panels on interior elevations. Just as a traditional veneered panel for example. Short screws with a flanged head and appropriate thread diameter are used to fix the Z-bar to the back of the panel at 200mm centres. This system can be used should the space between the sub-wall and back of the panel want to be limited and gluing the panel is not desirable.



C. Ci Clip

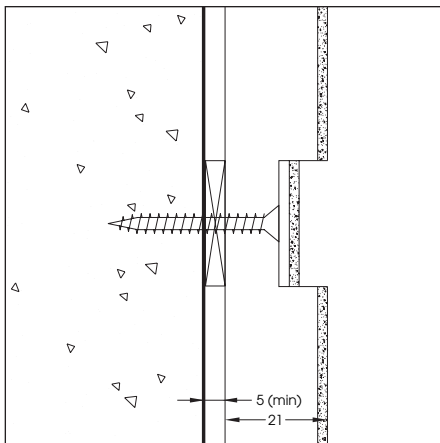
Benefits: 15 - 40 mm cavity between panels and sub wall is ideal for passing cables, services & insulation. The system is non-invasive. Can be easily removed. Quick to install.

Note: must be built from the bottom up.

Suitable for internal use.

Purpose built clip system allows space for cables and services behind the panelling. The system is appropriate for building a wall from bottom up. Refer to the Cemento design manual for drawings & dimensions. The clip system is fixed thanks to a recess milled into the MDF substrate. Panels can be offered onto wall and slid into place.

Note : Adjustment may be necessary should the wall sit between 2 elevations left and right limiting the install of the final panel to the left or right.

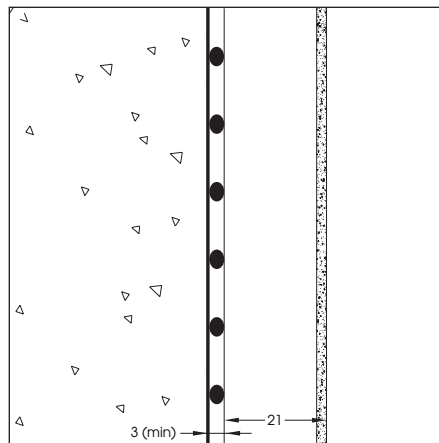


D. Face Fixed Screw

Benefits: Non-invasive installation, minimal obstruction. Screw is fixed through 'Ando' hole detail. Screw head capped with Cemento disk.

Suitable for internal & external use.

'Ando' detail panels can be fitted by screwing through to a ply sub-wall. The hole is then capped with a Cemento disk. It is a circular cap with 2-3 mm of concrete on the surface. The touch-up kit can then be used to create a softer junction between the cap and the edge of the painted hole. This is an extra cost.



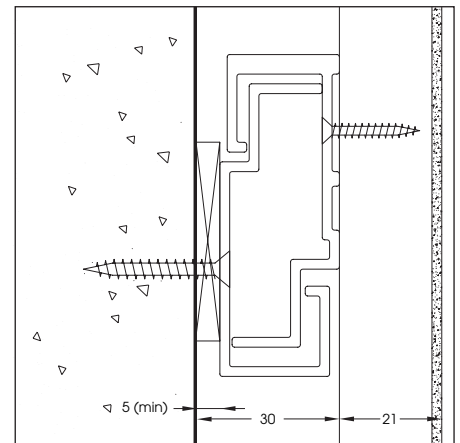
E. Adhesive

Benefits: Panel adhesion on surface is perfect.

Note: Use specific glues according to panel and surface specs. The glue must not be water based.

Suitable for internal & external use.

Adhesive can be used to fit some of the products. This creates a nominal 2mm build up behind the panel and can save time. An appropriate method of holding the product in place while the adhesive sets must be considered.



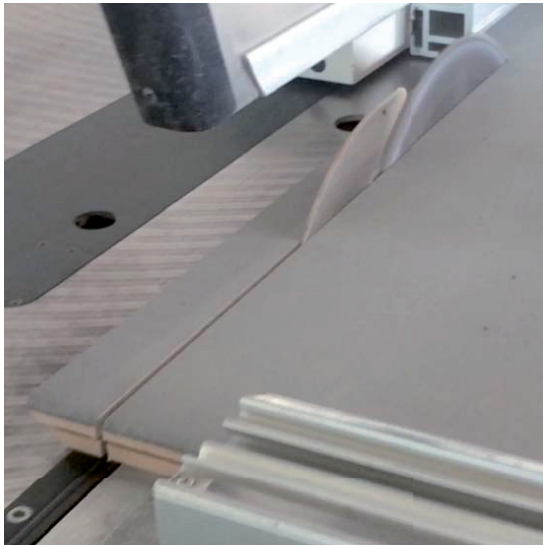
F. Nvelope / Fischer System

Benefits: Off the shelf approved fixing system. Traditionally used for rain screen cladding. Strong, accurate and durable.

Suitable for external use.

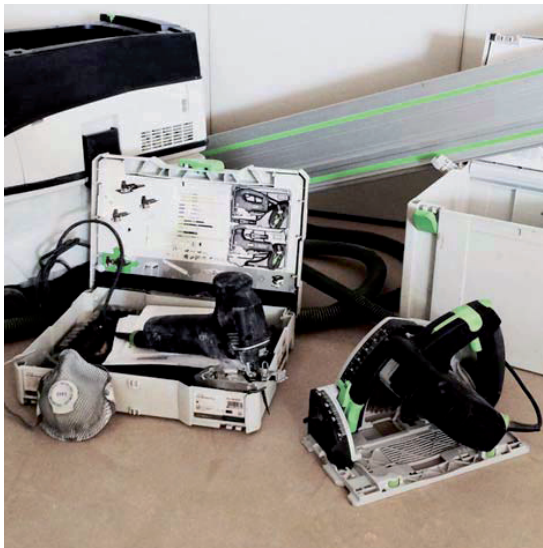
For exterior panelling a rain screen hanging system is used. The back of the panels are milled to accept a fixing bolt. From there, an off the shelf aluminium fixing system (by Fischer or Nvelope) is used to fit the panels.

Drilling & Cutting Instructions



Product can be cut in workshop/on site using bespoke circular blade in 20mm bore plunge saw. Blade available to buy from Cemento. Traditional timber blade will last 15 linear meters. Bespoke diamond coated saw can last 500+ linear meters depending on type of product being cut.

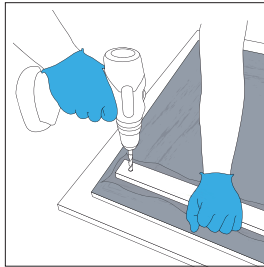
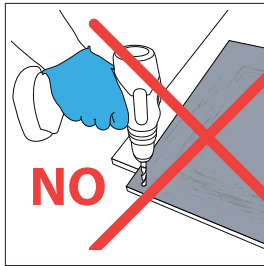
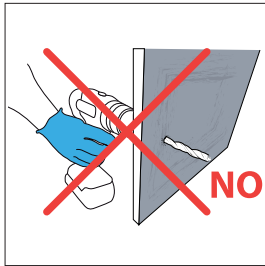
Jigsaw, multitool and drills can be used to create holes in the surface in the workshop and on site. This is especially beneficial when dealing with wall panelling, ie late introduction of socket outlets. Traditional cutting attachments can become blunt quicker than normal due to the 2 mm of concrete on the surface.



Tools Required

- Circular Saw
- Jig Saw

Please use specific devices for the power aspiration and/or ventilation during the manufacturing of the panels. If power aspiration is not sufficient, protective masks have to be used as per EN 149:2001 regulation.



Drilling Instructions

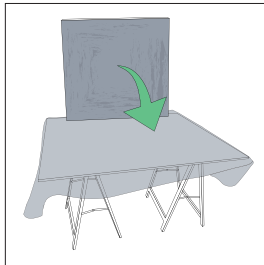
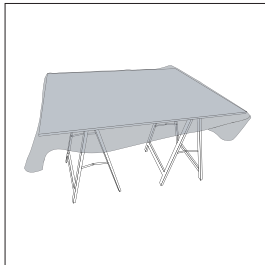
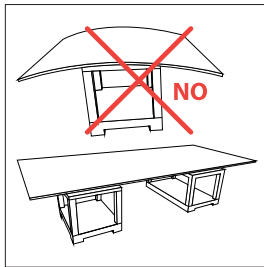
Never drill the hole starting behind the panel. This will cause damage to the Cimento

Never drill the hole without protecting the finish.

Never drill a hole over an edge

Step One: The panels need to be supported around the point where the hole is going to be made. Lay the sheet onto a uniform surface (eg wood). The Cimento finish should be pointing upwards

Step Two: To obtain a clear hole, please lay a wood slat on a piece of polyurethane sheet. This ensures the Cimento is protected. Drill the slat as per drawing.



Cutting Instructions

Never cut the panel directly upon two tressels as this will cause tension and vibration

Support the panel adequately during the cutting process to avoid any bending

Never drill a hole over an edge

Step One: Ensure the work surface is stable and without vibrations

Step Two: Use a polyurethane sheet as protection for the Cimento finish

Step Three: Lay out the panels on the surface - with the Cimento finish flat against the polyurethane sheet.

Never cut the panel with the finish side facing up

Step Four: Measure and mark up panel. Lean the rail of the circular saw on the backside of the panel; it has to correspond with the cutting line

Step Five: Complete cut

Warning: Cut remains need to be removed immediately, if not they can cause permanent stains.

Touch Up Instructions

Appropriate Usage:

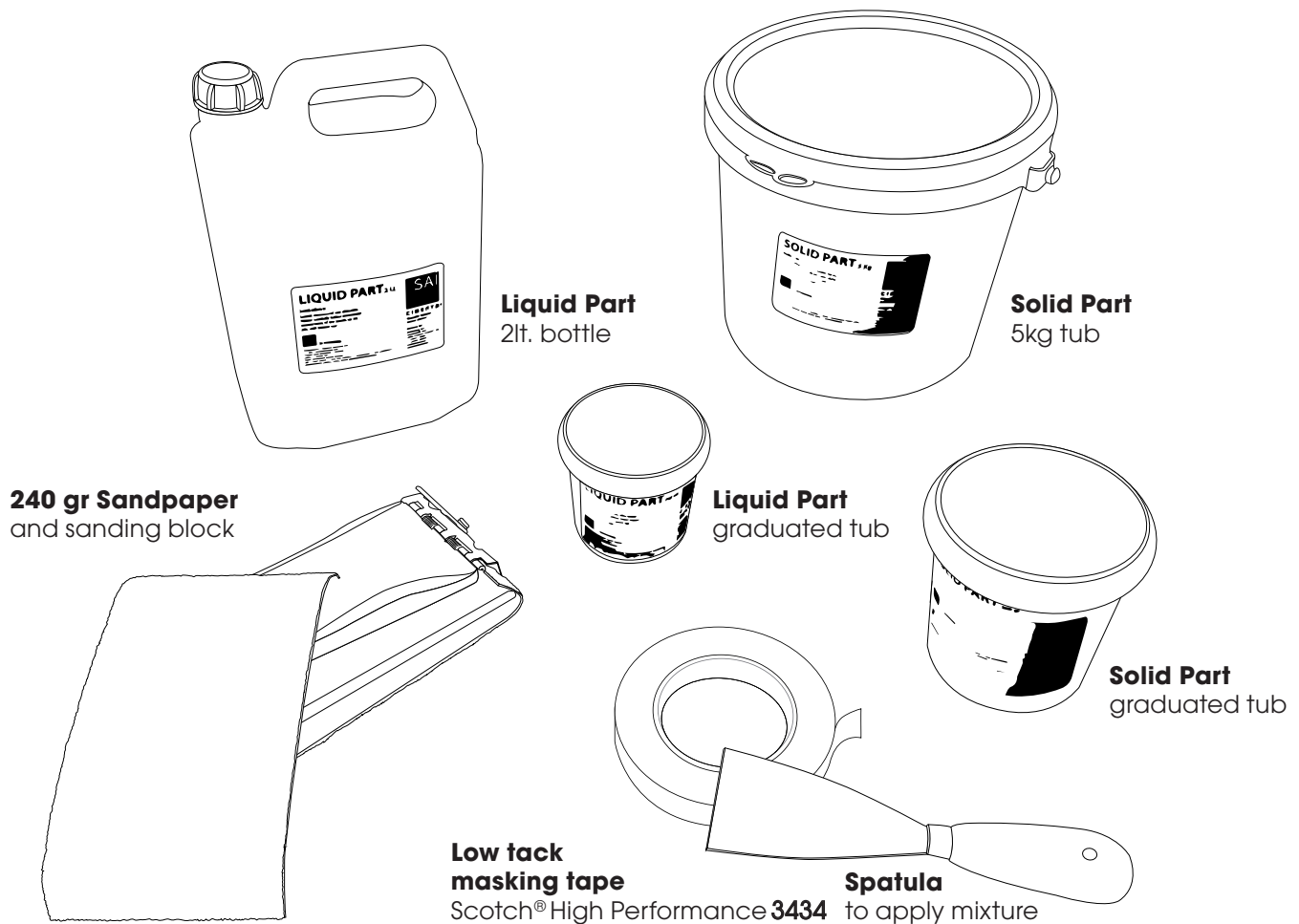
- Edge touch up
- Panel Returns
- Chamfered Edges

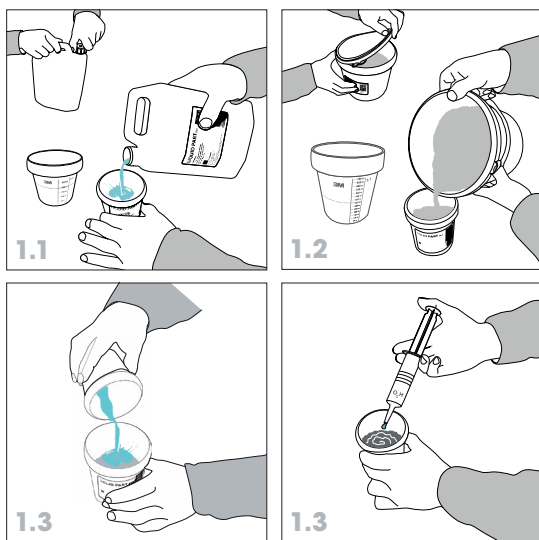
The touch up kit is designed for touching up edges only. Minor surface cracks are best left alone. Larger cracks could indicate structural flaws and advice should be sought out immediately. The following instructions should be used to touch up minor damage only. If in doubt, please send the Cemento team a photograph so we can confirm the best process with you.

To complete a Cemento touch up:

You will need the following components

- Touch Up Kit (can be requested from Cemento)
 - Liquid Part 2lt. bottle
 - Liquid Part graduated bottle
 - Solid Part 5kg tub
 - Solid Part graduated bottle
- low tack masking tape
 - Scotch® High Performance **3434** or
 - FrogTape Delicate Surface
- Spatula to mix and apply mixture
- Sandpaper & sanding block
 - 200 — 240 grit





Step One: Prepare the Mixture

1.1 Prepare the Liquid Part

Open the 2L bottle labelled 'LIQUID PART' and fill the smaller 3M tub (also labelled 'LIQUID PART') to the 200ml level.

1.2 Prepare the Solid Part

Open the 5Kg tub labelled 'SOLID PART' and fill the smaller 3M tub (also labelled 'SOLID PART') to the 365ml level (1mm above the 350ml level). Quantities can be altered depending on how much mixture is needed. Ratio is important. Workable/stable consistency is advised

1.3 Mix components

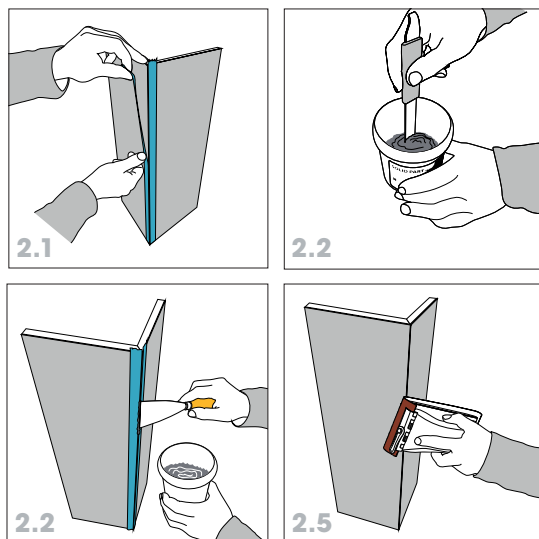
Pour the liquid part into the solid part. Mix the components to form a smooth and consistent paste. Be sure there are no dry lumps in your mixture.

Add small quantities of water to alter the consistency of the concrete mix:

- if using a brush, the mixture should be more fluid.
- if using a spatula, the mixture should be thicker.

Warning: Mixing the components initiates a chemical reaction.

This chemical reaction is affected by the ambient heat of where it is being mixed and used. The duration of this reaction can be extended by small quantities of water being added and occasionally mixing. Once the mixture has hardened, it cannot be used again.



Step Two: Application

2.1 Prepare surface

Remove any loose concrete. Cover the edges of the panels using low tack masking tape. Sticking the tape to the panels will help prevent the concrete mix coming into contact with areas of the surface where it is not needed.

2.2 Apply the mixture

Apply the wet concrete mix using a spatula, brush or suitable finishing tool. Please avoid applying the mix to areas of the panels that do not require repair. **Note** the colour will seem different because the mixture is wet. The concrete will dry close to the same colour as the panels. More of the aggregate will be visible in the corners filled and areas where repairs are needed.

2.3 Remove tape

Masking tape must be removed immediately to avoid any damage to the surface.

2.4 Allow to dry

Curing time will take between 4-6 hours. Drying time may shorten depending on the heat in the working environment. Please be sure Concrete is completely dry before continuing.

2.5: Lightly Sand

Use 200/240 grit sandpaper on the fully cured & hardened touched-up areas. Lightly sand to remove any excess concrete. If sanding is too vigorous, the substrate may become visible. If this happens simply repeat application to cover.

Useful Links

[Installation Manual](#)

[Touch Up Instructions](#)

[Chamfering Instructions](#)

[Cleaning Instructions](#)

[Panel Return Instructions](#)

[Design Guide](#)