CRITICAL.

CLEANSTONE

Design + Install

V1.0 | APRIL 2026

ecollec

Intro

Cleanstone is a versatile solid panel designed for use in both **building product** and **furniture** applications.

Manufactured in Aotearoa, New Zealand, the panels are crafted by Kiwi company Critical. , who convert hard-to-recycle plastic waste into pre-finished panels. The panels are composed of 100% recycled plastic, with no additives. Furthermore, they can be recycled *again and again* through Critical.'s Take Back Programme.

Featuring a range of colour options, each panel incorporates a blend of locally-sourced post-consumer and industrial plastics (soft plastics, packaging, fishing nets, etc), resulting in unique pattern variations.

Note: *Due to Cleanstone composition and production processes, designers and installers must allow for thickness variation and material movement when detailing, cutting, and fixing.*

Sustainability + Recycling

Critical. operates a Cleanstone Take Back Programme.

When cutting, sanding, or finishing Cleanstone, use a vacuum cleaner to capture plastic chips and dust. If possible, dedicate a vacuum solely for plastic waste, collect the material in a bag, along with offcuts. This material can then be recycled into new Cleanstone indefinitely.

All Cleanstone panel waste can returned for recycling, provided any screws or non-plastic components are removed.

NEW ZEALAND RETURNS:
3 Glasgow Ave, Papatoetoe, Auckland

AUSTRALIA RETURNS:
Revert Group, 48–50 Export Drive,
Brooklyn, Melbourne, Victoria

Read Me First

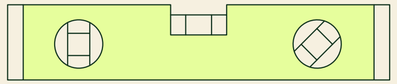
Safety

- Maintain a safe working environment that is well organised, tidy, and free from obstructions.
- Always wear appropriate personal protective equipment (PPE), including eye protection, gloves, a dust mask, and safety footwear.
- Operate all tools and equipment strictly in accordance with the manufacturer’s instructions and supplier manuals.
- Ensure tools and equipment are regularly serviced and maintained to guarantee correct and efficient operation.
- Where possible, work in a well-ventilated area or use mechanical dust extraction systems, particularly when cutting, drilling, or sanding Cleanstone panels.
- When working at height, ensure the correct selection and proper use of approved safety gear.
- A qualified electrician may be required if there is a risk of touch voltage or electrical hazards.

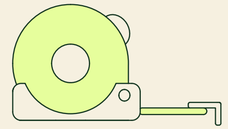
For more info, refer to Cleanstone Safety and Handling Guide.

Tools you may need

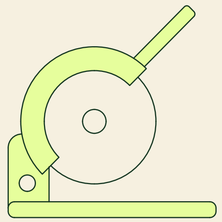
Screws



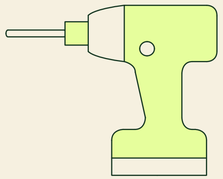
Level



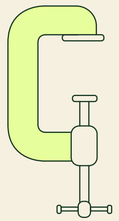
Measuring Tape



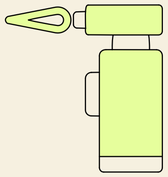
Drop-Saw



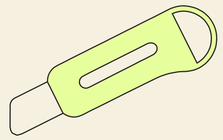
Screw Driver/Drill



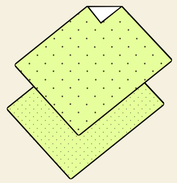
Clamp



Butane Torch



Craft Knife



Sander/ Sandpaper

CONSIDERATIONS

Surface Finishing

Before commencing any work with Cleanstone, determine the desired finish for your panels, including the selection of colour, surface texture, and the degree of sanding or polishing required. For example, a matte, textured finish is generally preferred for worktops, reducing visible scratches.

DISCLAIMER:

Cleanstone is a 100% recycled plastic panel with a semi-gloss finish. Due to manufacturing processes, the surface may contain minor surface variation associated with reclaimed feedstock and mould cooling. These are cosmetic characteristics only and do not affect panel integrity.

Note: Darker/solid-colour panels will show handling marks and scratches more readily than lighter/speckled panels. Refer to Cleanstone Care and Maintenance for care guidance.

OPTIONAL: Post-Production Finishing

Note: Sanding changes the surface finish and may make it cloudier than the original mould finish.

All Cleanstone panels have an ‘A Face’ and a ‘B Face’. The A Face is the primary, finished surface, while the B Face is intended as the underside or non-facing side.

LIGHT / SPECKLED PANELS:

1. Use a 320 grit random orbital sander with a wide disc on ‘A Face’ of the panel.
2. Apply even pressure across the surface. to smooth bumps and create a white-washed matte finish.
3. For a mirror finish, progress through grits: 240 → 800 → 1000 → 3000 → 5000 → 7000. Take account for time as this is a labour-intensive process.
4. For edge finishing, refer to Page 12 for guidance on flame-polishing cut Cleanstone panels.

DARKER PANELS:

1. Generously apply water to the ‘A Face’ of the panel with a microfibre cloth.
2. Use a 3000 grit wet sanding disc with a soft foam backing on a random orbital sander.
3. Apply consistent pressure until the sander visibly slows down, then sand the surface evenly in a single pass.
4. Wipe down the surface with the cloth to rehydrate and repeat if desired.
5. For edge finishing, refer to Page 12 for guidance on flame-polishing.

IMPORTANT: Do not flame-polish the flat face of Cleanstone panels.

CONSIDERATIONS

Thermal Movement

The thermal expansion values referenced for Cleanstone are based on published data for polyethylene (PE) sheet materials and are considered directionally accurate.

MATERIAL	COEFFICIENT OF LINEAR THERMAL EXPANSION
rHDPE	150 µm/m·K
rLDPE	180 µm/m·K
Indicative Coeff. of Linear Thermal Expansion: **150–180 µm/m·K**	

DISCLAIMER:

These values fall within established ranges for polyethylene materials. However, as Cleanstone is manufactured from 100% recycled plastics, variation in feedstock (HDPE and LDPE mixes) may occur between batches. As such, these values are indicative only and not lab-tested, but represent a safe design range.

Expansion and Contraction

Note: Cleanstone must always be installed with allowance for thermal expansion. Tight or friction-fit installations may lead to stress, bowing, warping, and joint failure.

Allow for **1.5–1.8 mm** movement per metre per 10°C change in panel temperature. In higher-risk conditions (such as sunlight exposure, near glazing, darker colour panels, areas near localised heat sources), allow up to 2 mm per metre per 10°C change.

PERIMETER CLEARANCES:

Do not install panels hard against adjacent elements such as walls, cabinetry, window frames, benchtop upstands, or other panels.

MECHANICAL FIXINGS:

Where panels are mechanically fixed, use oversized or slotted fixing holes in the direction of expected movement.

Fixings should secure the panel without restricting movement.

LOCALISED HEATING EFFECTS

Thermal movement may not be uniform across the panel. Areas exposed to sunlight or near localised heat sources may expand more than surrounding areas. This can result in localised movement, particularly around cut-outs.

Where adjacent to appliances, allow increased clearances in accordance with the appliance manufacturer’s installation requirements.

I am using Cleanstone as...

Option A - Building Product

- [ ] Fixed to the building
- [ ] Affects building consent or compliance
- [ ] Forms part of the building or fit-out

If you ticked ANY of the boxes above

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Option B - Furniture

- [ ] The item is freely movable
- [ ] Not referenced in consent documentation
- [ ] Is a standalone item

If you ticked ANY of the boxes above

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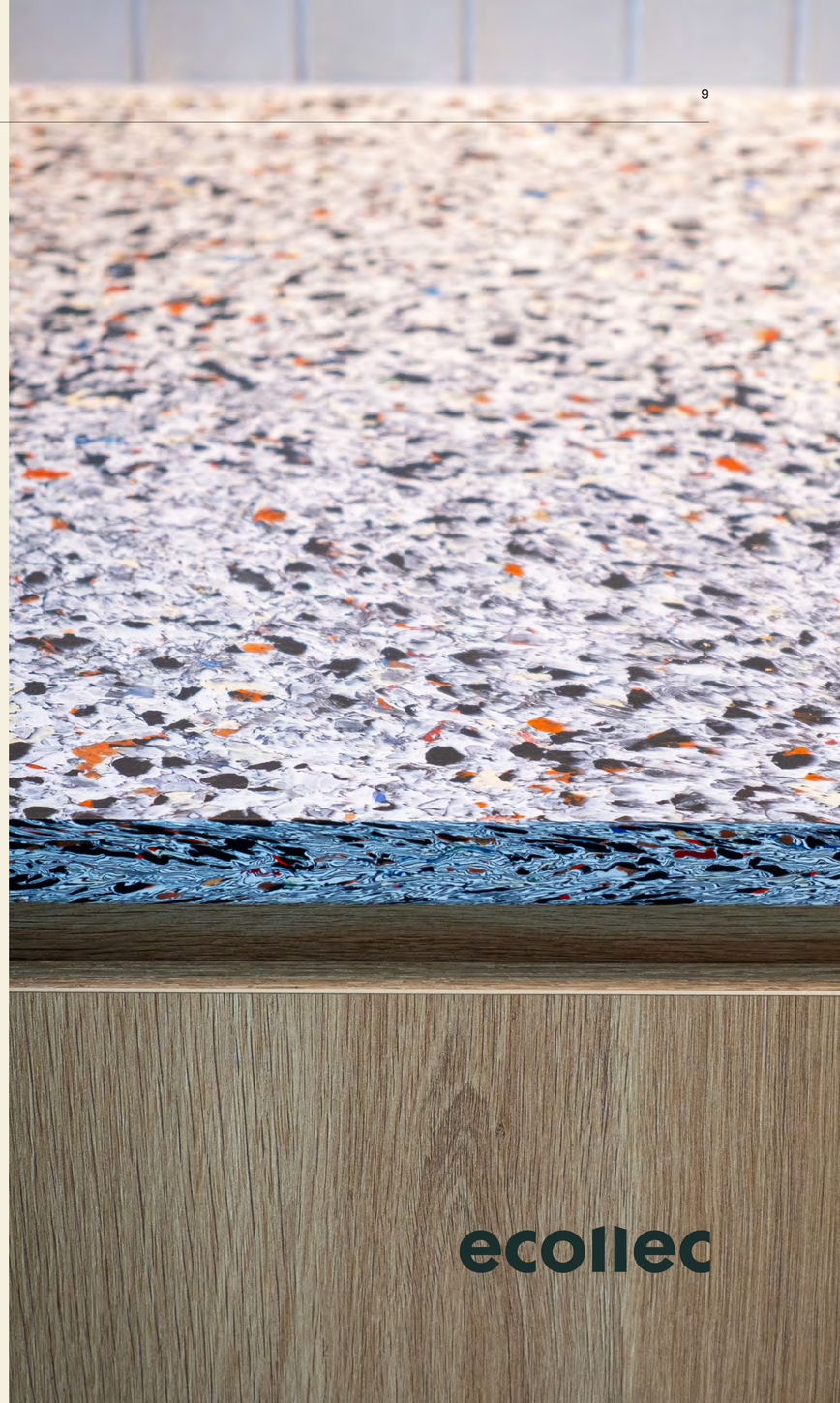
Building Product

Joinery : Cabinets + Shelving · Surface Finishes : Countertops & Worktops · Decorative Internal Linings : Feature Walls · Signage & Display · Fixed Privacy Partitions : Bathroom & Changing Areas

Contents



GENERAL INFO

Documents

Alongside this guide, Ecollec provides the following documents to support Cleanstone's specification, installation, and ongoing maintenance.

- **Minor Variation** (where a consented product is to be substituted with Cleanstone)
- **BPIR Declaration**
- **Care + Maintenance Guide**
- **Product Warranty**

VERSION CONTROL

All documents are controlled; ensure the most current versions are used. Refer to www.ecollec.com for the latest documents.

Specification

Cleanstone is a non-structural panel, intended for internal applications. It may be installed in a vertical or horizontal orientation.

SUBSTRATE

Cleanstone may be installed over existing or new supporting structure/substrates.

The supporting substrate must be securely braced in accordance with this guide, or fixed to a structure that complies with the New Zealand Building Code, or to an existing structure providing stiffness equivalent to the framing requirements of NZS 3604:2011.

CLEANSTONE INSTALLATION

Dry joint installation methods are preferred, although panels may be installed using the specified surface preparation, primer, and adhesive system.

Note: the suitability of glue-only fixing depends on the application. See Page 16.

Building Consent

Where the specification of Cleanstone is part of a building consent application, the following documentation must be submitted:

- **Design + Install Guide**
- **Care and Maintenance Guide**
- **BPIR Declaration**

Product Substitution

Where Cleanstone is to be used as a substitute for the consented product, the following documentation must be supplied to the building inspector before installation of the Cleanstone:

- **Minor Variation**
- **Design + Install Guide**
- **Care + Maintenance Guide**
- **BPIR Declaration**

DESIGN

Design + planning at the beginning of your project helps ensure the finished Cleanstone installation achieves the intended appearance and function. It also reduces material waste and improves installation efficiency.

STEP 1: Application and Scope

Review the Scope of Use on the BPIR Declaration. Cleanstone is suitable for use as:

- Joinery (Cabinets, Shelving)
- Surfaces (Countertops, Worktops)
- Internal Linings (incl. Signage and Displays)
- Partitions

Note: if your intended application is not listed above, please contact Ecollec for design support.

STEP 2: Bracing/Substrate

Check that the substrate and supporting structure are suitable for your intended application. For horizontal installation, refer to Cleanstone Bracing Guide on Page 13 for beam spacing, and fixings centres.

STEP 3: Fixing Method

Where possible, design for mechanical fixing or dry-joint assembly so components can be disassembled at end of life. Adhesives may be used only for selected low-stress details and vertical applications. Refer to Page 16 for guidance.

STEP 4: Your Cleanstone

Choose the thickness and density (high/low) of your Cleanstone panels.

High-density: Stiffer and tend to machine with cleaner edges.

Low-density: More flexible and suitable for curved fabrication. Requires slower cutting speeds and more edge finishing.

STEP 5: Junctions and Openings

Identify adjoining materials, fixtures, and openings. Plan for panel orientation, required sizes, and edge treatments.

Allow for clearances and access where required.

IMPORTANT: Cleanstone is not suitable as a splashback behind a stovetop or other heat sources. Refer to BPIR Declaration.

STEP 6: Review Design

A review of your layout and design covers the bracing/structure, fixing methods, and required fabrication prior to installation.

Any questions? Contact Ecollec for advice.

PRE-INSTALL

IMPORTANT: Refer to Safety + Handling Sheet prior to working with Cleanstone panels. Visit ecollec.com.

Prepare Bracing/Structure

For horizontal installation, prepare the appropriate bracing for your Cleanstone thickness and spans. For vertical installation, confirm that the substrate is flat and securely fixed to the supporting framing. Ensure all surfaces are clean and free from contaminants.

Cutting Cleanstone

Note: Before cutting, confirm the A / B Face orientation and ensure workspace and CNC beds are clean and free of debris.

CNC MACHINE:

Secure the panel to the CNC bed to ensure it is held flat while cutting. If bowing occurs, use additional clamps.

- For a roughing pass, use a 1 Flute Up Cut (“O” Flute) Solid Carbide.
- For a finishing pass, use a 3-4 Flute Up Cut Carbide End Mill.

Allow a 0.2 mm excess when making a roughing pass to leave room for the finishing pass. Start at 10,000 RPM and step down in increments no greater than the tool diameter to avoid heat build-up. Use the conventional milling direction to minimise vibration.

Note: Low-density panels are prone to vibration and swarf adhesion, requiring stronger hold-down, slower cutting, and edge finishing.

SAW CUTTING:

Ensure all cutting blades are clean and sharp prior to use. Protect the panel surface by using masking tape along the cut line.

- Use a fine-toothed aluminium cutting blade or TCT (Tungsten Carbide Tipped) triple-chip grind blade.

Cut in multiple shallow passes depending on panel thickness; at least 2 passes for panels over 12 mm, and 3 passes for 18 mm panels.

For low-density Cleanstone, variable-speed saws are preferred. Manage swarf build-up and melting by regularly cleaning blade and using a vacuum system to tidy working environment.

EDGE FINISH:

After cutting, check the quality of the panel’s cut edges; low-density Cleanstone edges may appear matte/white. Scrape off any swarf with a craft knife. Soften sharp corners using an edge knife tool, and sand down to smooth edges (recommended 400 - 800 grit sandpaper).

To restore clarity and shine, hold a butane torch set to a medium flame at approx. 300 mm from the edge, and lightly flame-polish.

Note: Ensure to flame-polish in light, multiple passes. Overheating can burn, warp or distort the panels. Always test on a small area first. DO NOT flame-polish 3 mm/4.5 mm Cleanstone panels.

INSTALLATION | Horizontal

Bracing

Cleanstone will flex, bow, or sag if it is not well supported. Proper bracing counteracts the material's deflection and movement, keeping panels flat and stable.

Bracing can be achieved using timber, aluminium, or steel supporting structure.

We recommended that the thickness of structural beam is no less than the thickness of the panel.

Note: Cleanstone must not overhang more than 100mm.

CLEANSTONE BRACING GUIDE

PANEL	MAX. BEAM SPACING	FIXING CENTRES
18 mm*	400 mm	max. 300mm
24 mm	400 - 500 mm	
30 mm	500 mm	

** Minimum recommended thickness for large horizontal surfaces. If you require thinner panels, use a 12 mm option, and install over a continuous full-sheet substrate with a minimum thickness of 12 mm.*

Mechanical Fixing

Oversize pilot holes (0.5 mm larger than screw ø) and use wide-thread screws to mechanically fix Cleanstone to the supporting structure. Refer to Expansion and Contraction considerations on Page 6.

For higher-loads or high-use applications, install female metal inserts and use M6 bolts to fix Cleanstone panel to the bracing.

Joining

Cleanstone thicknesses may vary slightly due to production processes. To achieve a flush seam and minimise height differences, use the following leveling technique:

1. Identify which panel is thinner.
2. Place plastic packers under the thinner panel at the seam. Ensure to pack across the joint until both panels sit level.
3. Mechanically fix both panels to the support structure.
4. Use an orbital sander (start at 120 grit) to lightly sand the seam until flush. Finish off surface with a finer sandpaper.

Note: If packing is not suitable, CNC skim one or both panels until level. Alternatively, run the panels through a plastic-compatible thickness planer.

FIXING THE JOINT

All butt joints must be fully supported from below. Position a beam, bracket/plate, or full substrate directly beneath the seam to support both panels. All Cleanstone joints must be mechanically fixed using any of the following fixing methods:

- Wide-thread screws (not machine screws)
- Metal inserts with bolts
- Cam-lock fasteners

Tip: for added stiffness, use biscuit joiners, dowels, or woodworking fasteners. Always test to confirm fit before full fabrication.

BENCHTOP APPLICATIONS

Cleanstone (24 mm and 30 mm) panels may be used for internal benchtop applications, subject to the limitations below.

Note: Cleanstone is a recycled HDPE/LDPE-based panel and must be treated as a heat-sensitive decorative surface, not a heat-proof material.

HEAT LIMITATIONS

- Do not expose Cleanstone to direct flame, gas burners, or high localised heat.
- Not recommended for use adjacent to gas cooktops or open-flame appliances.
- Do not place hot cookware, trays, or heat-generating appliances directly onto the surface. Always use trivets, heat pads, or protective stands.
- Induction cooktops may only be used where the appliance manufacturer permits installation into a heat-resistant benchtop, and all ventilation, clearance, and cutout requirements are met.
- Radiant electric or ceramic cooktops require additional caution due to higher residual surface temperatures.

INSTALLATION AROUND INDUCTION COOKTOPS

Where a drop-in induction cooktop is specified:

- Follow the appliance manufacturer’s installation instructions.
- Provide adequate ventilation and clearance around the cooktop.
- Seal all exposed cut edges and protect the cutout from heat and moisture.
- Avoid over-tightening fixing clamps or introducing concentrated stress at the cutout.
- Ensure heat is not trapped between the appliance and surrounding benchtop.

INSTALLATION | Vertical

Mechanical Fixing

Pre-drill pilot holes (0.5 mm smaller than screw ø) and use wide-thread screws to mechanically fix Cleanstone through the substrate to the supporting structure.

MAX. FIXING CENTRES:

- Vertical fixings: 300mm ctrs.
- Horizontal fixings: 400mm ctrs.

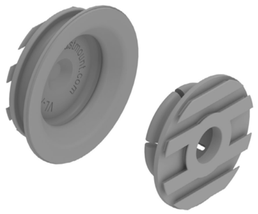
Note: Nails and staples are not preferred, as panel movement can cause loosening.

Decorative Wall Linings

REMEMBER: Cleanstone is non-structural and intended for internal use in dry areas. Refer to BPIR Declaration.

HIDDEN FASTENER SYSTEMS

For a fastener-free clean finish, utilise a Fastmount (Low Profile/ Very Low-Profile Range) hidden panel mounting system or similar.



Designed for decorative wall linings, the Fastmount system comprises a male clip used in conjunction with a female socket to provide a high-shear, flush-fit connection.

Optional: Finish the seams and edges of your Cleanstone layout using selected trims such as H-joiners or L-profiles.

Privacy Partitions

Cleanstone panels can be installed using commercially available washroom partition fixing systems.

These systems typically include wall brackets, floor-mounted or ceiling-hung pilasters, and panel hardware that securely support the partitions.

Note: Always refer to the partition system manufacturer's instructions for a compliant assembly.

Vertical Joinery

For openable vertical joinery components such as cabinet doors, standard hinges can be mounted directly into Cleanstone.

Note: Always refer to the hardware manufacturer's instructions.

On larger doors, brace the panel onto a supporting frame (timber, aluminium, or steel), appropriately sized for the door's dimensions and weight.

Refer to the Furniture Chapter of this Design + Install Guide for instructions on fabricating panels for joinery shelving, and cabinetry carcasses. As well as, advice on installing fixtures to joinery components.

INSTALLATION | Adhesive

Where possible, dry-joint methods are preferred to allow for deconstructability at Cleanstone's end of life. If adhesives are required, follow the recommended methods and products specified for use with Cleanstone.

Note: As the fabricator or installer, ensure the method suits the specific application and project conditions and is installed in accordance with the following information.

Adhesive bonding is suitable only for selected internal applications where the joint is not relied on as the primary structural fixing. Where exposed to movement, load, UV, or heavy use, combine adhesive bonding with mechanical fixing.

Glue-only fixing can be used for low-stress applications, such as cosmetic edge details, or folded corners (V-cut) where Cleanstone is heated and folded rather than joined as two separate pieces.

Specified Products

- Permabond POP Polyolefin Primer
- Loctite Professional Super Glue
- Sika Showerbond
- Sike MS Joint Sealant (optional)

Adhesive Fixing

APPLICATION 1: CLEANSTONE TO CLEANSTONE

1. Clean bonding surfaces thoroughly with acetone.
2. Line bonding areas with masking tape to keep the bond line neat.
3. Prepare the bonding areas using sandpaper (100 grit) in circular and 45° crosshatch motions until the surface is evenly matte.
4. Clean both surfaces again with acetone to remove sanding dust and allow to dry completely.
5. Review the manufacturer's instructions for all specified products and use them in accordance with the supplier's technical documentation.
6. Apply Permabond POP Polyolefin Primer to both surfaces and allow to dry.
7. Apply a generous layer of Loctite Professional Super Glue (thick cyanoacrylate) to both surfaces and press together firmly. Initial bonding occurs within seconds, but full strength may take several hours.

APPLICATION 2: CLEANSTONE TO SUBSTRATE

Cleanstone may be adhered to vertical substrates that are compatible with the specified products. Follow all Steps 1-5 from Application 1.

6. Apply Sika Showerbond to the Cleanstone Panel and press firmly onto substrate.
7. Use clamps or temporary tape to support the panel for 24-48 hours to ensure proper adhesion.

OPTIONAL: Where an MS or silicone sealant finish is required at joints, perimeters, or edges, lightly coat the prepared (sanded) area with Loctite Professional Super Glue and allow it to cure. This creates a bondable surface for use of Sika MS Joint Sealant along edges.

POST-INSTALL

After installation, inspect all panels to ensure they are correctly aligned, securely fixed, and free from visible damage.

Clean the panels using a soft cloth and warm soapy water to remove fingerprints or installation residue.

Recycling Offcuts + Waste

All Cleanstone panel waste can returned for recycling, provided any screws or non-plastic components are removed.

See Page 3 for Critical.'s Take Back Programme locations.

Care + Maintenance

Following Cleanstone's care practices will help maintain the appearance and performance of the panel over time.

For more info, refer to the Care + Maintenance Guide.

DISCLAIMER: *This guide provides design + installation advice for Cleanstone. Installers must ensure the final result complies with local building codes and project-specific requirements. If you require assistance or further advice, please contact Ecollec.*

Cleanstone is your project’s zero-carbon statement.

Furniture

Freestanding Cabinets · Tabletops : Desks + Tables · Seating Components : Chairs + Stools + Benches · Partition Panels : Movable Space-Dividing Panels + Freestanding Privacy Screens

Contents

CUTTING

Choose your Cleanstone

Determine the thickness, density (high/low) and desired colour.
High-density is stiffer and machines with cleaner edges, while low-density is more flexible and suitable for curved fabrication, but requires slower cutting speeds and additional edge finishing.

Cutting Cleanstone

Note: Before cutting, confirm the A / B Face orientation and ensure workspace and CNC beds are clean and free of debris.

CNC MACHINE:

Secure the panel to the CNC bed to ensure it is held flat while cutting. If bowing occurs, use additional clamps.

- For a roughing pass, use a 1 Flute Up Cut (“O” Flute) Solid Carbide.
- For a finishing pass, use a 3-4 Flute Up Cut Carbide End Mill.

Allow a 0.2 mm excess when making a roughing pass to leave room for the finishing pass. Start at 10,000 RPM and step down in increments no greater than the tool diameter to avoid heat build-up. Use the conventional milling direction to minimise vibration.

Note: Low-density panels are prone to vibration and swarf adhesion, requiring stronger hold-down, slower cutting, and edge finishing.

SAW CUTTING:

Ensure all cutting blades are clean and sharp prior to use. Protect the panel surface by using masking tape along the cut line.

- Use a fine-toothed aluminium cutting blade or TCT (Tungsten Carbide Tipped) triple-chip grind blade.

Cut in multiple shallow passes depending on panel thickness; at least 2 passes for panels over 12 mm, and 3 passes for 18 mm panels.

Manage swarf build-up and melting by regularly cleaning blade and using a vacuum system to tidy working environment.

EDGE FINISH:

After cutting, check the quality of the panel’s cut edges. Scrape off any swarf with a craft knife. Soften sharp corners using an edge knife tool, and sand down to smooth edges (recommended 400 - 800 grit sandpaper).

To restore clarity and shine, hold a butane torch set to a medium flame at approx. 300mm from the edge, and lightly flame-polish.

Note: Ensure to flame polish in light, multiple passes. Overheating can burn, warp or distort the panels. Always test on a small area first. DO NOT flame-polish 3 mm/4.5 mm Cleanstone panels.

FABRICATION

Folding

SIMPLE KERF CUTTING

Cut a series of slots into the area of the panel where the fold is required. The patterned slot width and spacing will depend on the desired curve. This can be done using either a CNC router or a table saw.

Tip: Leave approximately 1.5 mm of remaining material so the panel can be folded by hand.

Once flexible, the panel can be folded over a rigid frame and mechanically fixed with screws.

Kerfed edges may be plastic-welded by an experienced fabricator. Contact Ecollec for advice.

PARAMETRIC KERF CUTTING

To achieve more complex forms and folds, use a waterjet cutter, or a CNC machine with a very fine router bit.

Tip: For parametric kerf designs, thinner panels (such as 9 mm Cleanstone) are recommended.

Thermoforming

Note: Thermoforming requires specialised equipment and technique. It is recommended to engage an experienced plastics fabricator (such as Acryform).

Cleanstone can be thermoformed to create curved or bent shapes.

This process involves heating the panel, forming it into the desired shape while softened and warm, then allowing it to cool so the shape is retained.

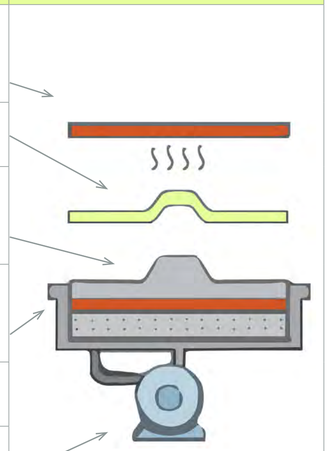
FABRICATION

Vacuum Forming

Note: It is recommended to engage an experienced plastics fabricator (such as Acron Plastics).

Cleanstone 3 mm panels can be vacuum formed to create curved shapes, soft edges, and complex forms.

1. Ensure the panels are clean and free of dust, or other contaminants.
2. Load and secure the Cleanstone panel on the vacuum-forming frame with the A face (finished surface) down.
3. Prepare the vacuum-forming machine by preheating the forming chamber to stabilise the air temperature. Check all pressure, seals, and heating elements are functional.
4. Cleanstone Vacuum-Forming Parameters:

PARAMETER	SETTING	DIAGRAM
Top Heater Temperature	460 °C	
Cleanstone	LDPE, 3 mm	
Mould	Aluminium, MDF, or epoxy-resin	
Bottom Heater Temperature	320 °C	
Heating Time	115 seconds	
Vacuum Activation	Immediate after heat cycle	
Cooling Under Pressure	190 seconds	
Demould Temperature	≤ 40 °C	*Note: Do not pre-blow. Cleanstone 3 mm softens without pre-stretch.*

Note: Vacuum forming should only be carried out on LDPE-based, 3 mm Cleanstone panels. Always trial first before full production.

5. Heat until the sheet begins to sag slightly (approx. 25–30 mm) before forming.
6. Raise the mould vertically into the softened Cleanstone sheet and engage the vacuum immediately to draw the sheet tightly over the form. Maintain full vacuum pressure for 190 seconds.
7. Continue active cooling while maintaining vacuum to prevent deformation. Do not demould early. Once the surface temperature reaches ≤ 40 °C, release the vacuum and remove the Cleanstone.
8. After forming, trim using 1 Flute Up Cutters (“O” Flute) in 6 or 10 mm ø. Lightly scrape any flash lines; no flame finishing should be required.

INSTALLATION | Horizontal

Large Tabletops

Cleanstone will flex, bow, or sag if it is not well supported. Proper bracing counteracts the material's deflection and movement, keeping panels flat and stable.

Bracing can be achieved using timber, aluminium, or steel supporting structure.

We recommended that the thickness of structural beam is *no less than the thickness of the panel*.

Note: Cleanstone must not overhang more than 100mm.

CLEANSTONE BRACING GUIDE

PANEL	MAX. BEAM SPACING	FIXING CENTRES
18 mm*	400 mm	max. 300mm
24 mm	400 - 500 mm	
30 mm	500 mm	

** Minimum recommended thickness for large horizontal surfaces. If you require thinner panels, use a 12 mm option, and install over a continuous full-sheet substrate with a minimum thickness of 12 mm.*

Small + Medium Surfaces

For tabletops or seating 800 - 1200 mm in diameter or width, use a mounting plate or window frame structure with cross supports.

Mechanically fix bracing to the underside of the panel at max. 300 mm spacing around the perimeter and through the centre.

Note: for smaller surfaces under 800 mm in diameter or width, use a mounting plate.

Fixing

Oversize pilot holes (0.5 mm larger than screw ø) and use wide-thread screws to mechanically fix Cleanstone to the supporting structure. Refer to Expansion and Contraction considerations on Page 6.

For higher-loads or high-use applications, install female metal inserts and use M6 bolts to fix Cleanstone panel to the bracing.

Note: If adhesive-fixing is required, refer to Page 16 for specification and guidance.

Joining

Cleanstone thicknesses may vary slightly due to production processes.

Where two panels are joined to form a butt joint, refer to the guidance on Page 13.

INSTALLATION | Vertical

Partitions/Room Dividers

Cleanstone panels may be installed using commercially available partition base systems designed for freestanding privacy screens and modular partitions (often including castor wheels for mobility).

These bases typically support panels through clamping brackets or mechanically fixed through slot channels.

Note: Always refer to the base manufacturer's instructions.

Ensure the selected partition base is compatible with the panel thickness and weight of your Cleanstone, and that adequate support is provided to prevent tipping.

Joinery

When using Cleanstone in joinery applications such as shelving, cabinetry carcasses, or components that slot into one another, panel thickness variations should be considered when designing joints.

1. Identify the two joining parts:
   Part A: the panel that *inserts* into the slot
   Part B: the panel that *receives* the slot
2. CNC cut or router a relief channel in Part B that extends slightly beyond the slot area. For example, for an 18 mm Cleanstone panel, machine a 5 mm deep channel. This creates a consistent 13 mm thickness slot.
3. Cut the slot in Part A to 13 mm with a ±0.5 mm tolerance to allow for thermal movement. Refer to Expansion and Contraction considerations on Page 6.
4. Always run a test cut and check the fit before full fabrication and installation.

HINGES

For openable joinery components such as cabinet doors, standard hinges can be mounted directly into Cleanstone.

On larger doors, brace the panel onto a supporting frame (timber, aluminium, or steel), appropriately sized for the door's dimensions and weight.

HANDLES + ACCESSORIES

"Stick-on" furniture accessories are not recommended. All fixtures should be mechanically fastened for secure installation.

Note: Always refer to the hardware manufacturer's instructions.

POST-INSTALL

After fabrication and installation, inspect all panels to ensure they are securely fixed, and free from visible damage.

Clean the panels using a soft cloth and warm soapy water to remove fingerprints or fabrication residue.

Recycling Offcuts + Waste

All Cleanstone panel waste can returned for recycling, provided any screws or non-plastic components are removed.

See Page 3 for Critical.'s Take Back Programme locations.

Care + Maintenance

Following Cleanstone's care practices will help maintain the appearance and performance of the panel over time.

For more info, refer to the Care + Maintenance Guide.

DISCLAIMER: This guide provides design + installation advice for Cleanstone. Installers must ensure the final result meets and project-specific requirements. If you require assistance or further advice, please contact Ecollec.

Ngā mihi | Thank you

CRITICAL.

CLEANSTONE

ecollec

IDEAS BUILT FOR IMPACT

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