

12. DROP EDGES & DOWNTURNS

FABRICATION GUIDELINES

Solid Surface Material

HIMACS offers exceptional machining capabilities, empowering fabricators to fully explore their design creativity when shaping edges. With a wide variety of router bits available and the use of high-quality adhesives, the possibilities for edge design are virtually limitless.

The expertise of the fabricator plays a critical role, particularly when executing intricate or advanced edge profiles. Furthermore, a high level of craftsmanship is essential for producing seamless joints, which are fundamental to achieving superior edge finishes—whether the design is straightforward or complex.

1. Consideration Between Design & Fabrication

Design and Fabrication of Drop Edges and Downturns

Drop edges and downturns offer a range of design possibilities. Certain styles may be more appropriate for specific HIMACS colours, particularly those featuring veining, pearl or glitter effects, large chips, or translucent properties.

The fabrication techniques outlined in this section are generally best suited to solid colours and granite finishes with small to medium-sized chips. Using incorrect or unsuitable fabrication methods can result in structural failures such as cracking due to stress. In some cases, improper techniques may lead to stress concentration or an increase in internal stress. Correctly fabricated drop edges and downturns contribute to the structural integrity of the HIMACS sheet assembly. Therefore, it is essential that the design and fabrication methods are appropriately matched to ensure long-term durability.

Fabrication Risks in Drop Edges and Downturns

Proper fabrication of drop edges and downturns is essential to ensure the structural integrity and aesthetic quality of HIMACS surfaces. Failure to adhere to recommended methods can result in various issues, some of which may compromise the durability and performance of the final product.

1. Cracking Due to Stress Concentration

- **Risk:** Incorrect fabrication techniques, such as sharp internal corners or uneven bonding, can lead to stress concentration.
- **Impact:** Cracks may develop over time, especially under thermal or mechanical load.
- **Prevention:** Use smooth transitions and ensure even adhesive application. Avoid abrupt changes in geometry.

2. Material Failure from Incompatible Design

- **Risk:** Designs that do not match the physical properties of the selected HIMACS colour or pattern (e.g., veined, translucent, or large-chip finishes) may lead to failure.
- **Impact:** Delamination, warping, or visible defects may occur.
- **Prevention:** Match design complexity with material characteristics. Use solid or fine-chip colours for high-stress areas.

3. Joint Weakness

- **Risk:** Poorly executed joints, including misalignment or insufficient adhesive coverage, can weaken the structure.
- **Impact:** Visible seams, reduced load-bearing capacity, and potential separation.
- **Prevention:** Ensure precise alignment and use recommended adhesives. Skilled craftsmanship is essential for seamless joints.

4. Thermal Expansion Issues

- **Risk:** Inadequate consideration of thermal expansion during fabrication may cause stress build-up.
- **Impact:** Buckling, cracking, or joint failure under temperature fluctuations.
- **Prevention:** Allow for expansion gaps where necessary and follow thermal guidelines for HIMACS materials.

5. Incompatibility with Colour Effects

- **Risk:** Some fabrication methods may not be suitable for colours with special effects (e.g., glitter, pearl, translucent).
- **Impact:** Visual inconsistencies, uneven finishes, or structural weaknesses.
- **Prevention:** Select fabrication techniques that complement the visual and structural properties of the chosen colour.

6. Improper Adhesive Use

- **Risk:** Using non-recommended adhesives or incorrect curing procedures.
- **Impact:** Weak bonds, discolouration, or joint failure.
- **Prevention:** Always use HIMACS-approved adhesives and follow curing instructions precisely.

7. Over-Machining or Excessive Routing

- **Risk:** Excessive removal of material during edge shaping can reduce structural integrity.
- **Impact:** Thinning, warping, or increased susceptibility to damage.
- **Prevention:** Follow machining guidelines and avoid unnecessary material removal.

2. Fabrication Of Straight Components

The fabrication of straight components requires precision and adherence to recommended procedures to ensure structural integrity and aesthetic consistency. Straight parts are typically easier to manufacture than curved or complex profiles, but attention to detail remains essential

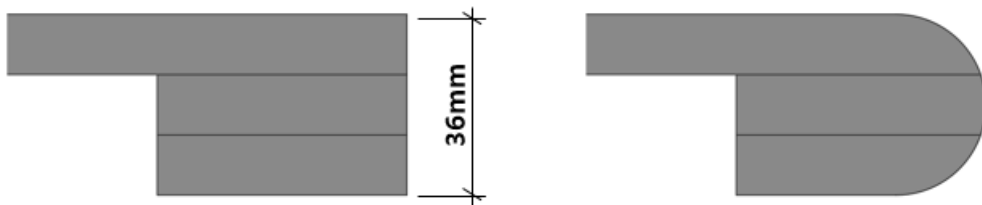
Key considerations include:

- **Material Preparation:** Ensure HIMACS sheets are clean, dry, and free from surface contaminants prior to cutting or bonding.
- **Cutting Accuracy:** Use appropriate cutting tools to achieve clean, straight edges. Maintain consistent feed rates and blade sharpness to avoid chipping or uneven cuts.
- **Edge Finishing:** Straight edges should be smoothed and finished using recommended sanding techniques to achieve a uniform appearance and prepare the surface for bonding.
- **Bonding and Assembly:** Apply HIMACS-approved adhesives evenly along the bonding surfaces. Use clamping tools to maintain alignment and pressure during curing.
- **Stress Management:** Avoid introducing stress through improper handling or misalignment. Ensure that joints are properly supported and that thermal expansion is accounted for in the design.
- **Quality Control:** Inspect the finished component for straightness, surface finish, and joint integrity. Any deviations should be corrected before final installation.

Proper fabrication of straight components contributes to the overall durability and visual quality of HIMACS installations.

One of the most straightforward techniques for producing a drop edge involves stacking layers of HIMACS material beneath the primary sheet. This method is particularly suitable for the Solid and Granite colour ranges.

Typically, for a sheet with a thickness of 12 mm, either two layers (resulting in a total thickness of 24 mm) or three layers (36 mm) are stacked to achieve the desired drop edge profile.



Fabrication Process for 12 mm HIMACS Sheets

1.Preparation of Strips

Cut the required strips slightly oversized. Sand the underside of each strip using 120-grit abrasive paper. Clean thoroughly using denatured alcohol and a lint-free white cloth.

2.Adhesive Application

Apply an adequate amount of HIMACS joint adhesive to each strip. Spread the adhesive evenly using a wooden or plastic spatula to ensure full coverage.

3.Clamping and Curing

Secure the strips using "A"-type spring clamps, spaced at intervals of 70 mm to 80 mm. Allow the adhesive to cure for approximately 45 minutes at a temperature of +20°C.

Ensure that a visible bead of adhesive is expelled from the joint upon clamping, indicating sufficient adhesive application and proper bonding pressure.

4.Finishing Process After Adhesive Curing

Once the adhesive has fully cured, level the surface using a circular table saw. Subsequently, machine the desired profile using either a portable hand-held router or a table planer.

Complete the process by sanding and polishing the surface to achieve a smooth and refined finish.

Limitations of the Stacking Method for 20 mm Sheets

The stacking method is not advised for HIMACS sheets with a thickness of 20 mm. This is due to the inherent thickness tolerance associated with 20 mm sheets, which may result in noticeable discrepancies when layers are stacked, potentially compromising the structural and visual integrity of the finished component.

Rebating for Extended Skirts and Aprons

Rebating techniques for extended skirts and aprons must be executed with precision to ensure a secure and seamless fit. This process typically involves machining a rebate along the edge of the HIMACS sheet to accommodate the adjoining component, allowing for a flush and structurally sound joint.

Key considerations include:

- **Depth and Width of Rebate:** Ensure the rebate dimensions are appropriate for the thickness and type of material being joined.
- **Tool Selection:** Use suitable routing or rebating tools to achieve clean, consistent cuts.
- **Adhesive Application:** Apply HIMACS-approved adhesive within the rebate to ensure strong bonding.

- **Alignment and Clamping:** Carefully align the components and use appropriate clamping methods to maintain pressure during curing.
- **Finishing:** Once bonded, sand and polish the joint area to achieve a smooth, uniform finish.
- Proper rebating enhances both the mechanical strength and visual quality of long skirt and apron assemblies.

Application of Drop Edges for Deep Downturns

Drop edges may occasionally be applied directly to the edge of the sheet, particularly when deeper downturns are required. The most effective method for achieving this detail involves rebating the underside of the sheet to a depth of approximately 1-2 mm prior to assembly.

Advantages of the Rebating Method Over Boot Seam Fabrication

The rebating method offers several advantages when compared to boot seam fabrication, particularly where the latter is poorly executed. Rebating provides the following benefits:

- **Enhanced Bond Strength:** The rebate allows for improved adhesive contact, resulting in a stronger and more reliable joint.
- **Reduced Impact of Particle Irregularities:** It helps to minimise the visual and structural effects caused by uneven particle distribution within the sheet.
- **Improved Surface Quality:** Rebating eliminates the rough sanding finish typically found on the underside of the sheet, contributing to a cleaner and more professional result.
- **Precise Edge Termination:** It enables the edge to be stopped cleanly along a fine line, removing the need for gluing blocks, rulers, or other alignment templates.



Rebating



Boot seam

Rebating and Bonding Procedure for Drop Edges

For HIMACS sheets, create a rebate as follows:

- **12 mm sheet:** rebate dimensions approximately 13 mm × 2 mm
- **20 mm sheet:** rebate dimensions approximately 21 mm × 2 mm

Pre-Bonding Inspection

- Carefully inspect all edges prior to bonding.
- Ensure there are no broken chips, visible saw blade marks, or whitening along the edge.

Surface Preparation

- Sand both the internal edges of the rebate and the corresponding edges of the downturn using 150/180-grit abrasive paper.
- Clean thoroughly with denatured alcohol and a lint-free white cloth.

Adhesive Application and Clamping

- Apply enough HIMACS-approved adhesive.
- Secure the edge using screw clamps spaced at intervals of 70–80 mm.
- Confirm that continuous adhesive beads are visible along both the internal and external edges of the joint.

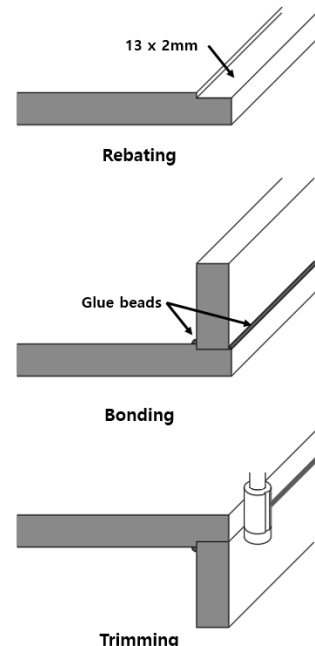
Finishing

- Once the adhesive has fully cured, invert the sheet and remove any excess adhesive using a portable hand router fitted with a straight cutter and nylon bearing.
- Complete the process by sanding and polishing the surface to achieve a smooth, professional finish.

Rebating Guidelines for 12 mm HIMACS Sheets

When working with HIMACS sheets of 12 mm thickness, the required rebating depth varies depending on the colour family to ensure optimal visual consistency and edge quality:

- **Large Chip Colour Families** (e.g., Volcanics, Lucia):
Increase the standard rebating depth from 2 mm to **5 mm**. This adjustment enhances the uniformity of chip distribution along the edge.
- **Veined and Glittering Colour Families** (e.g., Marmo, Perna, Sparkling):
A deeper rebate of **9 mm** is recommended. This helps to conceal the absence of veining or glitter effects along the edge, resulting in a more seamless and aesthetically pleasing finish.



Boot Seam and V-Groove Edge Techniques

The **boot seam method** (non-rebated) and the **V-grooving technique**, which involves a 45° cut, are alternative approaches for edge fabrication in HIMACS sheets.

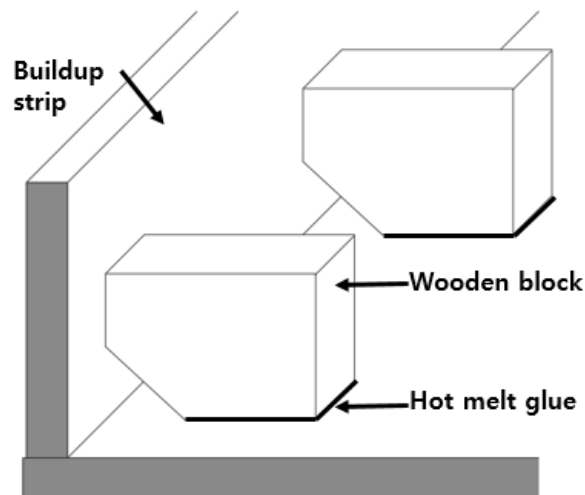
- **Boot Seam (Non-Rebated):** This method involves joining edges without creating a rebate. While simpler, it may offer less structural integrity and visual consistency compared to rebated joints.
- **V-Grooving (45° Cut):** This technique entails cutting the sheet at a 45° angle to form a mitred joint. It is commonly used for achieving sharp, clean edges and is particularly effective in applications requiring precise corner detailing.

Both methods require careful execution to ensure proper alignment, adhesive coverage, and finishing quality.

Boot Seam Drop Edge Fabrication Procedure

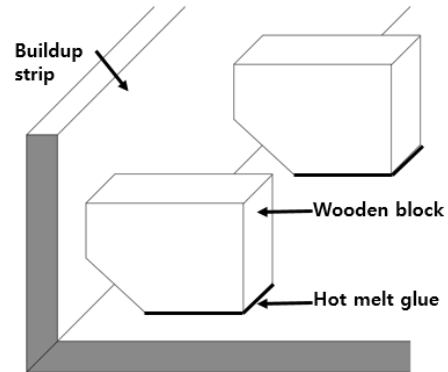
When fabricating boot seam drop edges, it is essential to inspect the underside of the HIMACS sheets for any defects prior to bonding. The underside of both the sheets and the buildup strips should be sanded using 120-grit abrasive paper to ensure proper surface preparation. Wooden stop blocks secured with hot melt adhesive can be employed to assist in the accurate alignment of the buildup strips during assembly.

Note: While this method is functional, the **rebating technique is generally preferred**, as it offers superior structural integrity and visual consistency.



The V-Grooving fabrication method is effective for concealing colour variations in certain shades that exhibit veins and/or glitter.

V-grooving fabrication



Without drip Edge

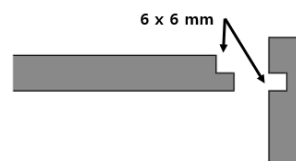
No-Drip Front Edge Fabrication

A no-drip front edge may be specified for any horizontal surface fabricated from 12 mm material.

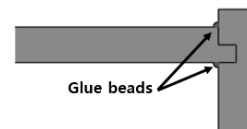
Process:

- Cut a rebate 6 mm deep and 6 mm high at the top of the front edge of the countertop surface.
- Cut a corresponding groove in the apron material so that, when joined, the apron projects approximately 12 mm above the horizontal countertop surface.
- Use joint adhesive to bond the apron to the countertop.
- Once the adhesive has cured, use a router to round over the top edge and sand the surface as required.

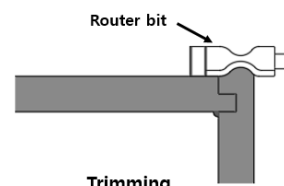
Rebating Process



Rebating



Bonding



Trimming

■ 3. Manufacturing Internal Corners

Recommendations for Internal Corners of Worktops

A minimum radius of 5 mm must be maintained for any internal corner in HIMACS sheets; a larger radius is preferable where possible.

The vertical joint line between the edge and the top seam should be at least 25 mm apart.

All jointed sections of the edge must be reinforced with a HIMACS back block. The worktop should be fabricated 1.5 mm oversize to allow for precise edge trimming.

(See details on the following pages)

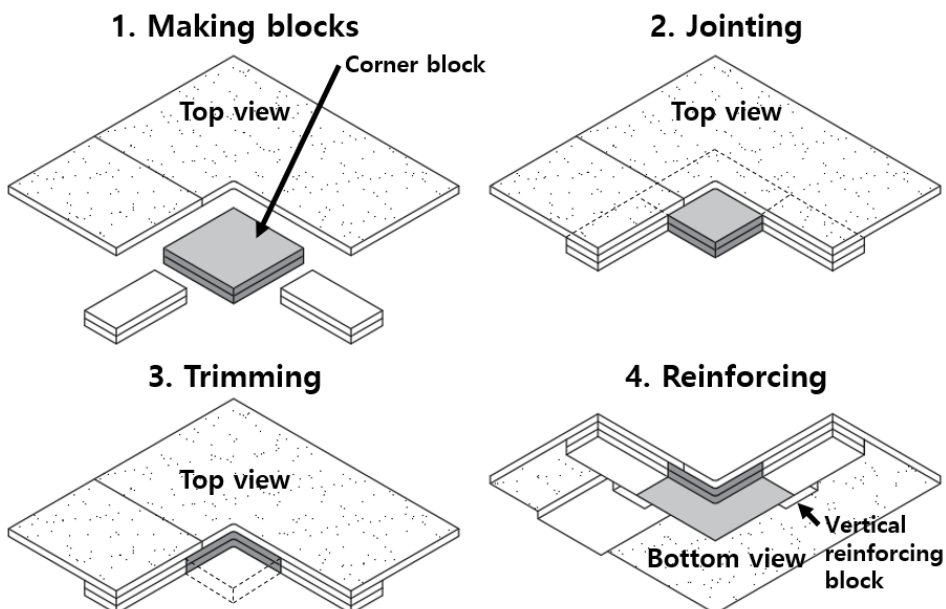
Fabricating an Internal Corner – Stacking Procedure

Begin by preparing blocks from HIMACS sheet. For the following conditions, a minimum block size of 130 x 130 mm is required:

Edge depth: 50 mm
 Internal corner radius: 5 mm
 Distance from corner to seam line: 50 mm
 Distance from seam line to block edge: 25 mm
 (Total: $50 + 5 + 50 + 25 = 130 \text{ mm}$)

- Sand the underside of the blocks using 120-grit abrasive paper. Clean thoroughly with denatured alcohol and a white cloth.
- Stack and bond the blocks and strips for the edge material on the underside of the internal corner, using a sufficient quantity of HIMACS joint adhesive.
- Secure with "A" style spring clamps and allow to cure for approximately 45 minutes at +20°C. Ensure that, once clamped, a reasonable amount of adhesive is expelled from the joint.
- If the structure of the corner is not sufficiently robust, reinforce the vertical joint line formed by the corner blocks and strips with a 50 mm wide, 12 mm thick HIMACS back block.
- Once the adhesive has fully cured, trim the blocks to match the shape of the internal corners and remove any excess adhesive using a router.
- Complete the process by sanding and polishing the surface as required.

Internal corner of cut out top



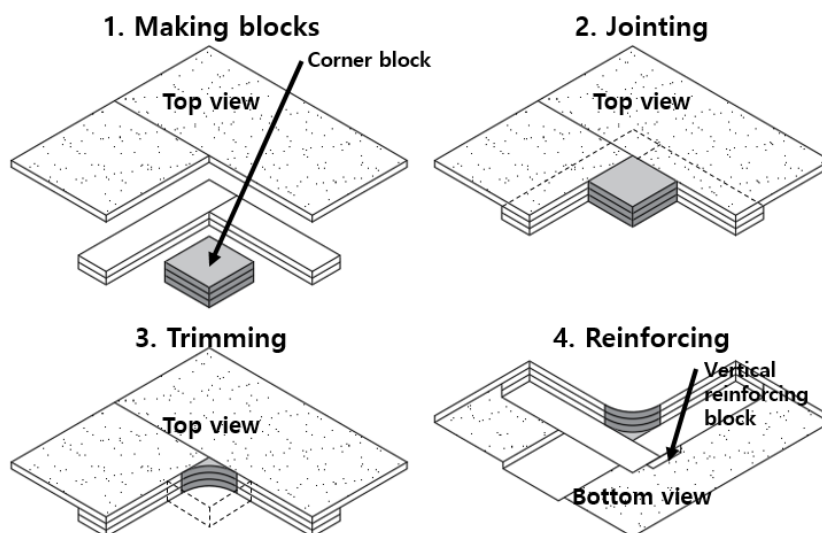
Internal Corner of Jointed Worktop

Begin by fabricating blocks from HIMACS sheet. For the following conditions, a minimum block size of 125 x 125 mm is required:

Internal corner radius: 50 mm
 Distance from corner to seam line: 50 mm
 Distance from seam line to block edge: 25 mm
 (Total: $50 + 50 + 25 = 125 \text{ mm}$)

- Sand the underside of the blocks using 120-grit abrasive paper. Clean thoroughly with denatured alcohol and a white cloth.
- Stack and bond the blocks onto the edge strips for the underside of the internal corner, using a sufficient quantity of HIMACS joint adhesive.
- Secure with "A" style spring clamps and allow to cure for approximately 45 minutes at +20°C. Ensure that, once clamped, a reasonable amount of adhesive is expelled from the joint.
- If the structure of the corner is not sufficiently robust, reinforce the vertical joint line formed by the corner blocks and strips with a 50 mm wide, 12 mm thick HIMACS back block.
- Once the adhesive has fully cured, trim the blocks to match the shape of the internal corner and remove any excess adhesive using a router.

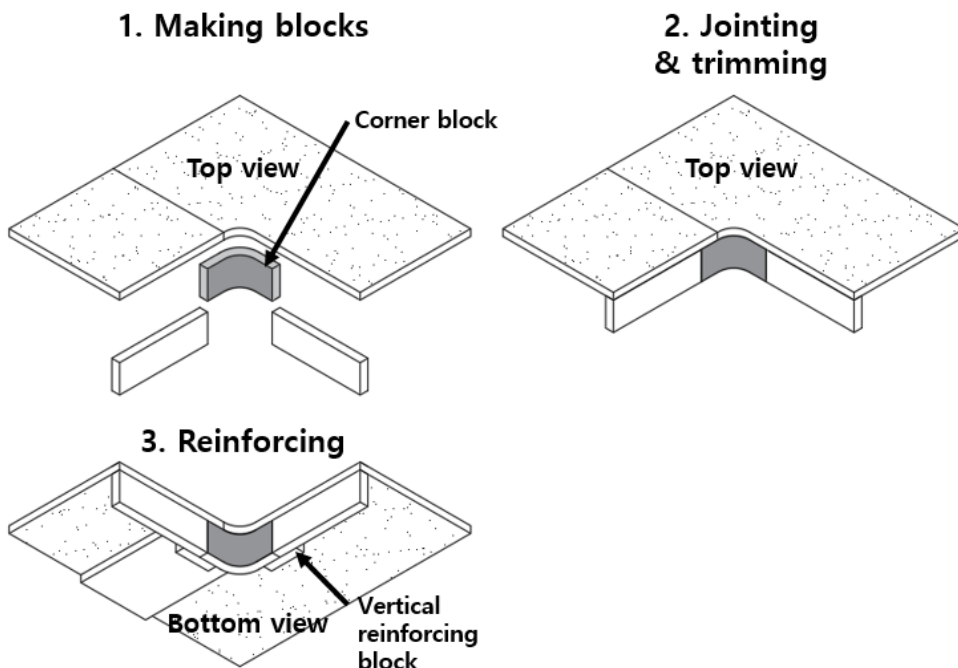
Internal corner of jointed top



Internal Corner with Extended Skirt

- Begin by fabricating a thermoformed corner block.
- Sand the underside of the block using 120-grit abrasive paper. Clean thoroughly with denatured alcohol and a white cloth.
- Bond the thermoformed block and edge strips to the underside of the internal corner using a sufficient quantity of HIMACS joint adhesive.
- Secure with "A" style spring clamps and allow to cure for approximately 45 minutes at +20°C. Ensure that, once clamped, an adequate amount of adhesive is expelled from the joint.
- If the structure of the corner is not sufficiently robust, reinforce the vertical joint line formed by the corner block and strips with a HIMACS back block measuring 50 mm in width and 12 mm in thickness.
- Once the adhesive has fully cured, trim the blocks to match the shape of the internal corner and remove any excess adhesive using a router.
- Complete the process by sanding and polishing the surface as required.

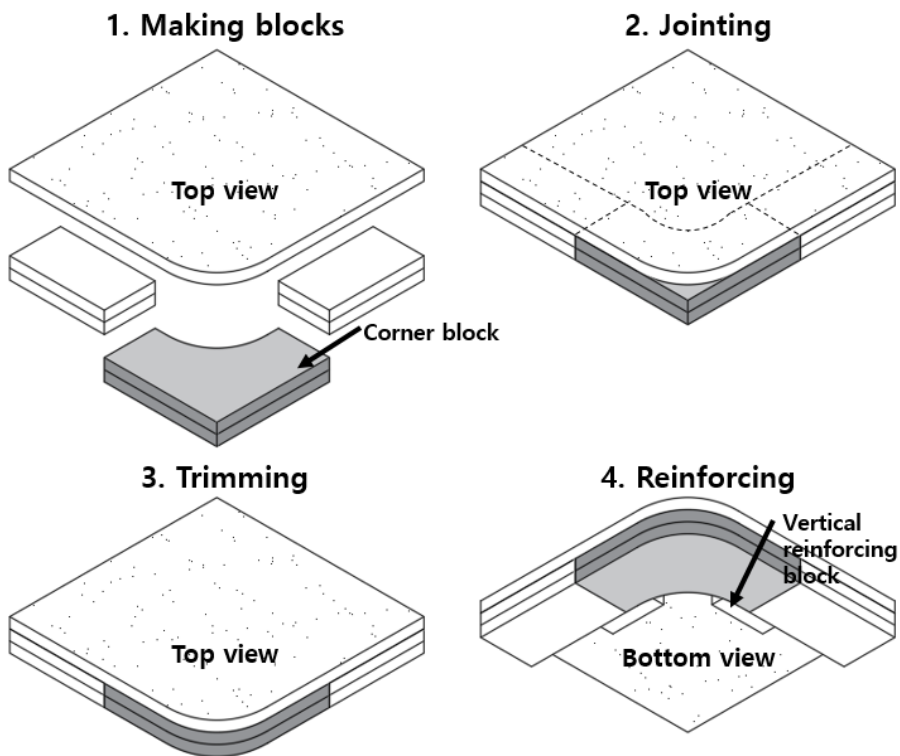
Internal corner with extended skirt of jointed top



4. Fabricating External Corner

External corners may be fabricated using either the stacking method or the thermoforming method. The fabrication procedures and key recommendations for ensuring long service life are identical to those for internal corner fabrication

External corner by stacking method



If a small-radius external corner is required, the corner may be reinforced by cross-stacking the edge strips.

Reinforcing a Small-Radius External Corner by Cross-Stacking Edge Strips

1.Preparation:

Cut the required number of edge strips from HIMACS sheet, ensuring they are of suitable width and thickness for the intended corner.

2.Sanding:

Sand the bonding surfaces of each edge strip with 120-grit abrasive paper to promote adhesion. Clean thoroughly with denatured alcohol and a white cloth.

3.Positioning:

Arrange the edge strips so that each layer is oriented perpendicular (crosswise) to the previous layer. This cross-stacking method increases the structural strength of the corner.

4.Bonding:

Apply a sufficient amount of HIMACS joint adhesive between each layer of edge strips.

5.Clamping:

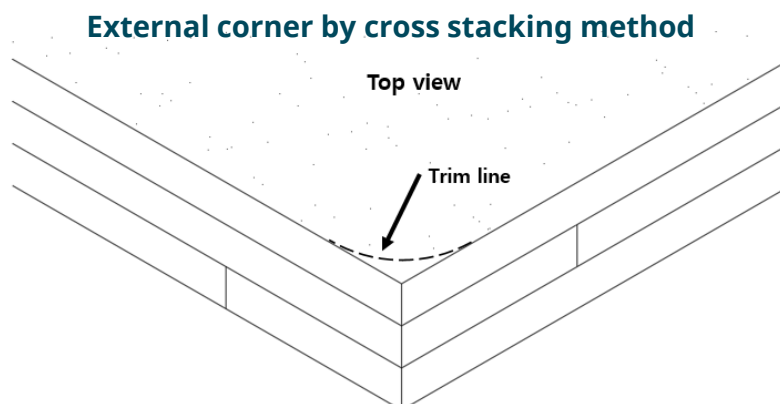
Secure the stacked strips in position using "A" style spring clamps. Allow the adhesive to cure for approximately 45 minutes at +20°C. Ensure that excess adhesive is expelled from the joints during clamping.

6.Shaping:

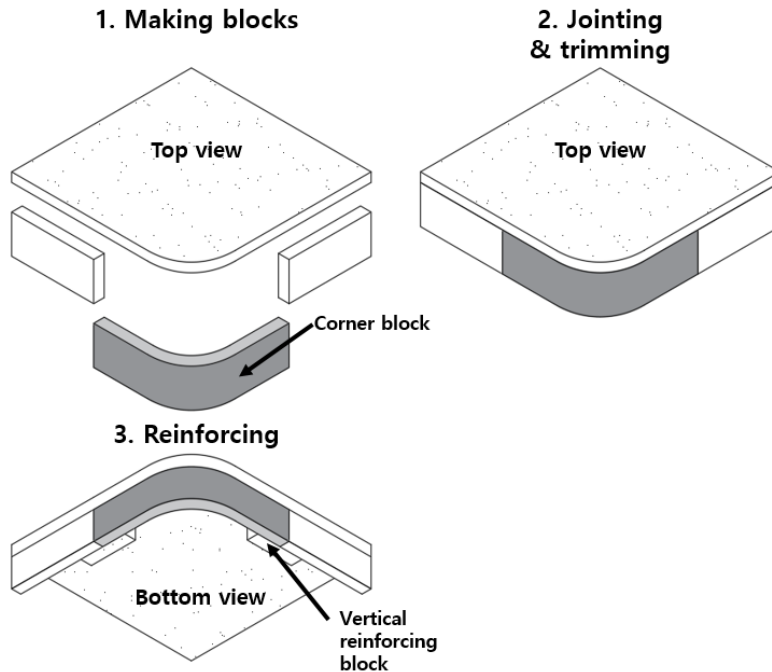
Once the adhesive has fully cured, trim the stacked edge strips to match the required small-radius external corner profile using appropriate tools.

7.Finishing:

Remove any excess adhesive with a router. Sand and polish the finished corner to achieve a smooth, uniform appearance.



External corner by thermoforming method



Minimum Recommendations for Fabricating Corners with HIMACS Sheets

- Always create the largest possible corner radius; never fabricate a square corner.
- Ensure there is adequate distance between the corner and the seam line on the worktop and minimise the number of joints at the corner.
- Where possible, employ sufficient reinforcement methods at the joints.
- Provide additional structural support to ensure the stability of the corner.

Impact on Durability

Adhering to the recommended fabrication practices for corners—such as providing a generous corner radius, maintaining adequate distance between the corner and seam lines, minimising joints at the corner, and reinforcing with suitable support—significantly enhances the durability of the finished product.

Sharp or square corners are more susceptible to stress concentration, which can lead to cracking or failure over time. Sufficient reinforcement and support help distribute mechanical loads more evenly, reducing the risk of structural weaknesses. By following these guidelines, the likelihood of premature wear, damage, or failure is minimised, thereby extending the service life of the installation.

This guideline has been created to provide technical information for successful fabrication and installation of HIMACS, and it is intended to be used in a safe environment considering their own discretion and risk by who has technical skill for fabrication and installation of HIMACS.

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