



INSTALLATION GUIDE

2D Shapes & EPS Sheets (CNC Hot-Wire Cut)

Flame-retardant EPS cut to order: a CNC hot-wire-cut 2D profile to your drawing (bed 3000 x 1240 mm, 10 to 1030 mm thick) or a plain cut-to-size flat sheet from the price-list menu (widths 1200 / 1220 mm, lengths 2000 to 7500 mm, thickness 5 to 600 mm), in nominal density grades 12 to 30 kg/m³.

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TP-IG-2D-SHAPES

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PRODUCT
2d-shapes

STATUS
Issued for use

BEFORE YOU START

Installation is application-dependent - a cut EPS part may be glued to a wall, laid on a deck, suspended from a ceiling grid or rendered in place - and Technopol supplies no mechanical fixing system with it. The fixing method is the specifier's, and it must be on the drawing before anyone opens a pack. Three things must be true before you start. (1) The substrate is dry, sound, free of dust, oil, curing compound and loose material, and flat enough that the part is supported across its full bearing area. EPS is rigid: it will not conform to a hollow, and an unsupported cut part cracks. (2) The fixing has been designed. EPS at 12-30 kg/m³ has effectively no screw pull-out capacity - a screw driven into bare foam holds nothing. Any part that carries its own weight off a fixing (suspended ceiling features, signage, cornices on a soffit) must engage an embedded plate, a rod, a frame or a designed adhesive bond area. (3) Every adhesive, primer, sealant and coating that will touch the part has been tested on an offcut. Solvents dissolve polystyrene, the damage is done in minutes, and it cannot be repaired to a finish standard.

TOOLS

- Sharp hot-wire cutter, or a fine-toothed handsaw or long blade for site trimming (a blunt blade tears the cell structure)
- Straightedge and marker for setting out
- EPS-safe adhesive: PU6 two-part solvent-free urethane for structural bonds, or DB one-part acrylic dispersion sealant/adhesive for cornices and light foam-to-foam work
- Notched trowel or spreader (PU6 goes on one face only)
- Accurate scale for PU6 mixing - the ratio is 6:1 by weight, not by eye
- Clean mixing vessel and paddle; mix only what can be used inside the pot life
- Clamps, straps, tape or props to hold bonded joints for the full clamp time
- Offcuts from the same delivery, for compatibility testing
- Fine abrasive paper or a sanding block for dressing joints once cured
- PPE for PU6 Part B: gloves, eye protection and respiratory protection. It is an MDI isocyanate - a respiratory and skin sensitiser (GHS: DANGER, H315 / H317 / H319 / H332 / H334)

SEQUENCE

1 1. Take delivery and check the grade

The grade is the whole specification. Check the delivery ticket and the pack labels against the order. EPS12 and EPS30 look identical and behave nothing like each other - λ 0.045 against 0.033 W/m.K, safe working load 15 against 100 kPa. If the parts are not labelled with a grade, do not accept them.

Check what you ordered against what arrived. Plain flat sheet comes in standard sizes - 1200 or 1220 mm wide, 2000 to 7500 mm long, 5 to 600 mm thick - and arrives in one piece. Only a cut PROFILE larger than the 3000 x 1240 mm hot-wire bed arrives as segments. If flat boards turn up jointed, query it before anything is fixed.

Count the segments against the cutting schedule. A missing segment stops the job.

Store the parts flat, on a clean level surface, off the ground, under cover, out of direct sun, and away from any hot-work or welding area. Do not stack heavy material on cut parts.

CHECK BEFORE MOVING ON

- Every pack labelled with the ordered grade
- Flat sheets delivered in one piece at the ordered standard size - no joints that were not designed
- Segment count matches the cutting schedule for oversized profiles
- Parts measured against the tolerance agreed in writing before cutting
- No crushed corners, no torn faces, no solvent damage in transit
- Stored flat, dry, out of sun, away from hot works

2 2. Compatibility-test every wet product on an offcut, before it touches a part

This is not paperwork and it is not optional. Take a 100 mm offcut from the same delivery. Apply the adhesive, primer, sealant, filler or paint you intend to use. Wait 30 minutes and look at it closely.

If the surface pits, craters, softens, dishes or smells of solvent, that product will destroy the work.

Aerosol spray cans, contact adhesives, lacquers, polyester resins and solvent-based primers all fail this test. Water-based, EPS-safe products pass it.

A product that will only ever sit on top of a hard coat still gets tested - on a hard-coated offcut, because a single pinhole in the coat lets the solvent through.

CHECK BEFORE MOVING ON

- Offcut test done for every wet product, including the ones the crew always uses
- Offcut left the full 30 minutes, not glanced at after two
- No pitting, cratering, softening or dishing of the offcut surface
- Test offcut kept and labelled until the job is signed off

3. Dry-fit and set out before any adhesive is mixed

Lay the segments out on the floor or the deck in cut order and number them to the drawing. Offer the part up to its actual position and check the fit before you commit.

Decide where the joints will land. A joint line between segments telegraphs through a thin paint or skim coat, especially in raking light. Move it onto a shadow gap, an arris, a reveal or a natural break in the form. If the drawing will not allow that, tell the designer now, not after the render goes on.

On enclosed letterforms - A, D, O, P, R, and any closed profile with an island - find the deliberate perimeter break. The wire has to complete the cut in one continuous pass, so the break is by design, not a defect. Note where it is and plan to glue it closed.

CHECK BEFORE MOVING ON

- Every segment numbered and dry-fitted
- No joint line lands on a highlighted or raking-light face
- Enclosed-letter breaks identified and turned to where the closed joint will be least visible
- Substrate re-checked: dry, dust-free, flat, supporting the full bearing area

4. Bond segments and glue enclosed letterforms closed

Use a solvent-free adhesive. Nothing else.

PU6 two-part urethane, for structural and load-carrying bonds. Mix 6:1 by weight (Part A : Part B) on a scale. Do not mix 6:1 by volume - the volume ratio is 4.5:1, and a 6:1 volume mix is short of hardener. Spread 300-400 g/m² on one bonding face only. Pot life is 20-30 minutes at 20 C and 50% RH, so mix only what you can place and clamp in that window, and get clamping pressure on within 20 minutes of mixing. Clamp for at least 4 hours. Do not apply below 5 C; cure is greatly extended below 10 C. Full cure takes 7 days at 25 C - do not load, render or coat a bond before it gets there. Cured service range is -40 to +50 C.

DB one-part acrylic dispersion sealant/adhesive, for cornices and light foam work. It cures by water evaporation to a soft plastic-elastic rubber and takes water-based paint. A 5 kg pail bonds roughly 50 m of cornice; a 280 ml cartridge about 5 m.

Wear gloves, eye protection and respiratory protection when handling PU6 Part B. It is an MDI isocyanate - a respiratory and skin sensitiser, carcinogenicity Cat. 2 - and sensitisation is permanent.

Glue the enclosed-letter break closed with the same EPS-safe adhesive, tape it up and leave it. Dress the cured joint flush with fine abrasive paper.

CHECK BEFORE MOVING ON

- PU6 mixed 6:1 by weight on a scale, not estimated
- Adhesive applied to one face only, at 300-400 g/m²
- Clamping pressure applied within 20 minutes of mixing
- Clamps, straps or tape left on for the full 4 hours minimum
- No gap greater than 1 mm at the closed letter break
- Nothing loaded, rendered or coated over a PU6 bond before full cure
- Ambient temperature above 5 C throughout
- Gloves, eye and respiratory protection worn for PU6 Part B

5. Fix the part in position, to the designer's detail

Technopol supplies no mechanical fixing system for cut EPS. The method - adhesive bond, embedding in plaster or render, mechanical suspension, or capture in a frame - is the specifier's, and it must exist on paper before anything is fixed.

The rule that gets broken on site: a screw or a hook driven into bare EPS carries nothing. Foam at 12-30 kg/m³ has no thread and no pull-out capacity. Every suspension point on a hanging part - ceiling features, signage, soffit mouldings - must engage an embedded plate, a rod, a frame or a designed bond area. If you find yourself reaching for a longer screw, stop and phone the engineer.

Where the fixing is an adhesive bond to a substrate, the bond area is designed, not a few dabs. Check that the substrate itself can take the tension.

Where the part carries sustained compressive load - a tapered board under a warm-roof membrane, a cut-to-falls board, an under-slab piece - the sustained stress must sit at or below the grade's safe working load at 1% strain: 15 / 17 / 21 / 45 / 70 / 100 kPa for EPS12 / 15 / 16 / 20 / 24 / 30. Anything designed against the 10%-strain figure (60-200 kPa) will creep.

CHECK BEFORE MOVING ON

- A fixing detail exists on the drawing and is being followed
- No fixing relies on thread or friction in bare foam
- Suspension points engage an embedded plate or frame designed by the engineer
- Sustained load checked against the 1%-strain safe working load, not the 10% figure
- Boards laid on a flat, fully supporting substrate - no hollows, no rocking

6. Roof build-ups: settle the membrane before the boards go down

In a warm-roof build-up the EPS sits above the deck and below the membrane, and the membrane decides whether the insulation survives.

Use a cold-applied, self-adhesive, loose-laid and ballasted, or mechanically fixed membrane. If the roof calls for a torch-on system, overlay the EPS with a separating board - a cement-bonded or fibre-reinforced overlay - and do the torch-on work on that board, never on the foam. Hot bitumen poured or torched straight onto EPS melts a void through it, and the loss of support is invisible from above. Plasticised PVC membranes need a separating layer as well.

Lay the boards close-butted on a flat, fully supporting deck, break the joints between rows and keep the falls running. Check the sustained stress from ballast, pavers and maintenance traffic against the grade's 1%-strain safe working load before the boards are ordered, not after they are laid.

CHECK BEFORE MOVING ON

- Membrane confirmed as cold-applied, self-adhesive, loose-laid and ballasted, or mechanically fixed - or a separating board specified and installed under a torch-on system
- No naked flame, hot bitumen or torch used on or over bare EPS
- Separating layer continuous wherever a PVC membrane will contact the foam
- Boards close-butted, joints broken between rows, falls continuous
- Ballast, paver and traffic load checked against the 1%-strain safe working load

7. Protect and finish

Every part that will live outdoors, or take any abrasion, gets a hard coat or a render. Uncoated EPS degrades under prolonged UV and is mechanically soft.

Use water-based, EPS-safe primers and coatings, over the compatibility test you already did in Step 2. If a solvent-based topcoat is unavoidable, it goes on only over a fully cured, continuous hard coat - never onto bare foam, and never over a coat with pinholes in it.

Dress and fill the segment joints and the closed letterform break before finishing, so the joint does not read through.

CHECK BEFORE MOVING ON

- Coating manufacturer's EPS compatibility confirmed in writing
- Hard coat continuous - no pinholes, no bare foam at arrises, joints or cut edges
- Joints dressed flush and filled before the finish coat
- Outdoor parts fully coated, including hidden faces and cut edges

8. Keep heat and hot works away from the installed work

EPS softens and creeps above roughly 70-80 C, and all EPS is combustible - the fire-retardant grade is treated, not non-combustible. B-s1,d0 is a reaction-to-fire class, not a fire rating.

Once the parts are in, keep hot works away from them for the rest of the build. No cutting discs, no welding, no grinding sparks, no torch-on membrane, no hot-applied bitumen, no halogen work lamps against the foam, no site heaters nearby.

Where the installed part sits under a roof build-up that will later take torch-on or hot-applied work, that work happens on the layer above a separating board or slab, never on the foam.

CHECK BEFORE MOVING ON

- Hot-work permit explicitly excludes the EPS zone
- No temporary lighting, heaters or torches within reach of the installed foam
- Torch-on and hot-bitumen work done above a separating layer, never on the EPS
- Fire watch briefed on where the EPS is

FIXINGS AND FASTENERS

Mechanical fixing system supplied with the product	None. The fixing method is the specifier's, and it must be on the drawing before work starts.
Structural adhesive	PU6 two-part solvent-free urethane. Mix 6:1 by weight (the volume ratio is 4.5:1). Spread 300-400 g/m2 on one face only.
PU6 pot life	20-30 minutes at 20 C and 50% RH. Clamping pressure must be on within 20 minutes of mixing.
PU6 clamp and cure	Clamp 4 hours minimum; solidifies in about 4 hours at 25 C; full cure 7 days at 25 C. Do not load, render or coat before full cure.
PU6 application temperature	+5 to +50 C. Do not use below 5 C; cure is greatly extended below 10 C.
PU6 service temperature	-40 to +50 C (the cured bond is heat-resistant to 148 C short-term).

PU6 health hazard	Part B is an MDI isocyanate. GHS signal word DANGER - skin and respiratory sensitiser, carcinogenicity Cat. 2. Gloves, eye and respiratory protection are mandatory.
Cornice and light adhesive	DB one-part acrylic dispersion sealant/adhesive. Cures by water evaporation; paintable with water-based paints. About 50 m of cornice per 5 kg pail; about 5 m per 280 ml cartridge.
Screws into bare EPS	Not a load path. Foam at 12-30 kg/m³ has no pull-out capacity. Suspension must engage an embedded plate or a frame designed by the engineer.
Solvent-based adhesives, primers, lacquers, aerosols, polyester resin	Not to be used. They dissolve EPS on contact.
Hot-applied bitumen in direct contact	Not to be used. It is far above the softening point and melts a void into the part. Use a cold-applied, self-adhesive, loose-laid or mechanically fixed membrane, or a separating board under a torch-on system.

WHAT ACTUALLY GOES WRONG ON SITE

- Reaching for the aerosol can, the contact adhesive or the solvent primer because it is what is on the van. It craters the surface in minutes and the part is scrap. Test on an offcut first, every time.
- Driving a screw or a hook into bare foam to hang a part. It carries nothing - the pull-out capacity of EPS at 12-30 kg/m³ is effectively zero.
- Mixing PU6 6:1 by volume instead of by weight. The volume ratio is 4.5:1, so a 6:1 volume mix is short of hardener and the bond never reaches strength.
- Taking the clamps off early because the adhesive feels hard. PU6 needs 4 hours clamped as a minimum and 7 days to full cure. Rendering or loading a green bond pulls the joint open later.
- Torching a membrane straight onto the insulation boards. Hot bitumen melts a void through the foam and the loss of support cannot be seen from above. Use a cold-applied, self-adhesive or mechanically fixed membrane, or lay a separating board first.
- Cutting flat sheet into segments because the 3000 x 1240 mm bed limit was quoted at you. That limit applies to cut PROFILES. Plain boards come in one piece up to 1220 x 7500 mm, 5 to 600 mm thick - order the sheet size and lose the joint.
- Putting a segment joint across a face that will be lit by raking light or finished with a thin skim. The joint reads through. Move it to a shadow line at the dry-fit stage, not afterwards.
- Losing the enclosed-letter break - not glueing it closed, or glueing it with a bead that sits proud and telegraphs through the paint. Glue it, tape it, dress it flush.
- Ordering by thickness and not by grade. EPS12 and EPS30 are visually identical and differ by a factor of six in safe working load. Check the label on delivery.
- Designing sustained load against the 60-200 kPa figure at 10% strain. That is the failure region. Use the 1%-strain safe working load (15-100 kPa by grade), or the part creeps for the life of the building.
- Storing cut parts in the sun on the deck for a fortnight before installation, then wondering why the faces have chalked and yellowed.
- Leaving a hard coat with pinholes at the arrises and cut edges, then applying a solvent-based topcoat over it. The solvent finds the pinholes and eats the core behind the coat, invisibly.
- Resting a halogen lamp, a site heater or a grinder near installed EPS. It softens above roughly 70-80 C and it is combustible - the fire-retardant grade is treated, not non-combustible.

- Reading B-s1,d0 as a fire rating. It is a reaction-to-fire class, established on one bare 60 mm sheet. It is not a fire-resistance rating and it describes no assembly.

How to read this document. Every technical value carries a label saying where it came from — whether an accredited laboratory measured it, whether Technopol measured it, or whether it is simply the figure the standard tabulates for that class of material. Values we have not tested are marked as such rather than presented as test results.

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