EchoPanel®

PANEL INSTALLATION GUIDE
7MM, 12MM, 24MM



Note: Please read this application guide before beginning installation. This application guide is presented in good faith to help in the use of Kirei EchoPanel® products. Kirei accepts no responsibility for installation actions taken or not taken. This document is not intended as an all-encompassing guide, your knowledge as an experienced installer needs to be applied. This application guide contains only recommendations; if you have any questions about installation techniques please contact Kirei at info@kireiusa.com or 619.236.9924

ECHOPANEL SPECIFICATIONS

WHAT IS ECHOPANEL®?

EchoPanel® is a decorative acoustically absorbent panel with a felt-like finish. EchoPanel® is made from 100% PET plastic which depending on the color, contains up to 60% post-consumer content. EchoPanel® is also recyclable in the PET waste stream.

HOW IS ECHOPANEL® USED?

EchoPanel® is used as a decorative sound reducing panel. It can be installed on walls, ceilings, in office furniture systems, decorative tiles, and even finished products. It is also tackable for a multipurpose solution in office spaces or educational facilities.

ECHOPANEL® PANEL SIZING

7MM	.23" x 3.97' x 8.86' (7mm x 1210mm x 2700mm)
12MM	.47" x 3.94' x 7.87' (12mm x 1200mm x 2400mm) Note on Color #500: .47" x 4.00' x 7.93' (12mm x 1220mm x 2420mm)
24MM	.94" x 5.97' x 7.87' (24mm x 1820mm x 2400mm)

NOTE: ECHOPANEL PANELS ARE MANUFACTURED WITH +/- 10MM DIMENSIONAL TOLERANCE AND PANEL EDGES MAY NOT BE SQUARE. WHEN ABUTTING PANELS TRIM OF UP TO 1/4" MAY BE REQUIRED TO PROVIDE SQUARE PANELS AND SQUARE EDGES FOR BEST PANEL ABUTTING. FOLLOW PANEL TRIM INSTRUCTIONS FOR BEST RESULTS.

CUSTOM ECHOPANEL® SIZES:

Custom thickness and sizes may be available. Minimum order quantities will apply. These sizes and quantities are available on request through Kirei at info@kireiusa.com or 619.236.9924.

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NOTE ON SCREENPRINTED ECHOPANEL PANEL SIZING

EchoPanel® standard Screenprinted panels are not printed to the edges of the panels and will have an approximate 1 cm border around the printed area of the panel to protect panel prior to installation. This border should be trimmed to abut panel edges and once trimmed patterns will edge-match from panel to panel. EchoPanel® Screenprinted panels will have pattern repeats at regular intervals across panels. Kirei recommends a mechanical trimmer to ensure a straight and vertical cut. Please check the EchoPanel® Prints spec sheet for detailed pattern repeat information.

FIRE RATING:

EchoPanel® 12mm and 24mm panels are Class C fire rated by the ASTM E84 test. EchoPanel® 7mm and 12mm panels can be treated to satisfy Class A requirements. ASTM E84 test results can be obtained by contacting Kirei at info@kireiusa.com or 619.236.9924.

LOW VOC MATERIAL:

EchoPanel® is considered a low-VOC emitting material making it a healthy building option for interior finishes. EchoPanel® total VOC emission rate is <0.02 mg/m2/hr. (over 7 days).

HANDLING AND STORING:

EchoPanel® panels and tiles should be stored flat. Storage areas should be clean, dry, cool, and well ventilated. EchoPanel® is a soft material which may be damaged by impression or impact, and may be soiled by contact with dirty surfaces or hands. Maintain clean work surfaces and wear clean gloves while handling EchoPanel®. All EchoPanel® products are inspected prior to shipment. Kirei is not responsible for damage in shipment or in storage; customers should carefully inspect all items at time of delivery and note any obvious damage on the delivery receipt. For the customer's protection subsequently discovered concealed damage must be reported immediately to the carrier. Claims to Kirei will not be considered if the sheet has been worked by the customer or others. No claims for labor charges will be allowed in any circumstances.

HANDLING AND STORAGE GUIDELINES:

- Carefully inspect all material at time of delivery and note any obvious damage on the delivery receipt.
- Store EchoPanel® sheets horizontally, with support under full sheets.
- Keep EchoPanel® sheets as clean as possible during storage. Both sides of EchoPanel® should be kept free from grease, wax, dust, and chips that could leave impression.
- Store EchoPanel® sheets indoors, in a dry, cool, well-ventilated area.
- Avoid exposure to heat 150°F (65°C) or greater.
- Keep table tops clean to avoid scratching the sheets.
- Before cutting the sheets, inspect the whole sheet for defects, then recover for protection during fabrication.
- Wear clean gloves when handling the sheets.
- Do NOT store EchoPanel® sheets near radiators, steam pipes, or in direct sunlight.

CLEANING AND CARE:

Remove dust and dirt by dusting, vacuuming, or with a soft cloth or sponge and a solution of carpet or upholstery shampoo. Always use a soft, damp cloth and blot dry. Spot cleaner such as ZEP Commercial Instant Spot Remover has been used with success for light soil. No guarantee is given for cleaning results with this product.

CUTTING ECHOPANEL

CUTTING/MACHINING:

EchoPanel® panels can be worked with most tools used for machining wood. Tool speeds should be such that the EchoPanel® sheet does not melt from frictional heat. In general, the highest speed at which overheating of the tool or sheet does not occur will give best results. It is important to keep cutting tools sharp at all times. Hard, wear-resistant tools with greater cutting clearances than those used for cutting metal are suggested. High-speed or carbide-tipped tools are efficient for long runs and provide accuracy and uniformity of finish. Bring the blade to full speed before starting the cut. Secure the sheet during cutting operations to minimize vibration. As EchoPanel® is 100% PET, it has characteristics similar to plastic and overheating may cause it to melt or fuse slightly on the heated contact points. A method of reducing heat is by making several passes while cutting or trimming the sheet rather than trimming "deep" through the sheet.

CUTTING AND DRILLING GUIDELINES:

- Wear proper safety equipment.
- Always practice on pieces of scrap material before cutting parts.
- Use sharp, clean blades and bits with a slow, consistent feed rate.
- Hold sheet firmly while cutting to minimize vibration; use just enough clamp pressure to prevent vibration but not so much as to cause indentation.
- Feed against the rotation of the blade or tool.
- Don't cut or drill with a dull blade, cutter, or bit.
- If pre-drilling by hand, a tapered pilot bit works the best
- Don't apply excessive clamping pressure.
- Don't use a blade with side-set teeth.
- Don't remove safety guards from equipment.

SAWING:

Any of the following saw types, commonly used for wood or metal, should be satisfactory for cutting EchoPanel® sheet: circular saws, band saws, saber saws, jigsaws, hacksaws, or handsaws. However, some saw designs are better suited than others for sawing EchoPanel® because they produce smoother or faster cuts. Circular saws and band saws usually produce the best surfaces, and they can be used in most sawing operations. Blade design plays an important part in successful sawing of EchoPanel® sheet material. A skip tooth band saw blade is preferred because the wide gullet provides ample space for the plastic chips to be carried out of the kerf (the cut made by the saw). For best results, the teeth should have zero rake and some set. For a curved cut, the blade should be narrower and have more set than for a straight cut. The blade must be kept sharp to prevent melting or chipping of the sheet, and the blade guide should be placed very near the cut to minimize vibration. A circular saw is preferred to a band saw for straight cuts even though it tends to generate more heat. A perforated saw blade will run cooler than a solid blade. It is essential that the spindle bearing be tight so that the saw will run true. Test saw on scrap material before cutting finished goods.

CNC AND MANUAL CUTTING:

EchoPanel® can also be cut in other ways including CNC (oscillating or drag knife preferred), die cutter, water jet or even using manual techniques such as guillotining or cutting with a sharp utility knife. Custom cutting is available through Kirei. Please inquire about this by contacting Kirei directly at info@kireiusa.com or 619-236-9924.

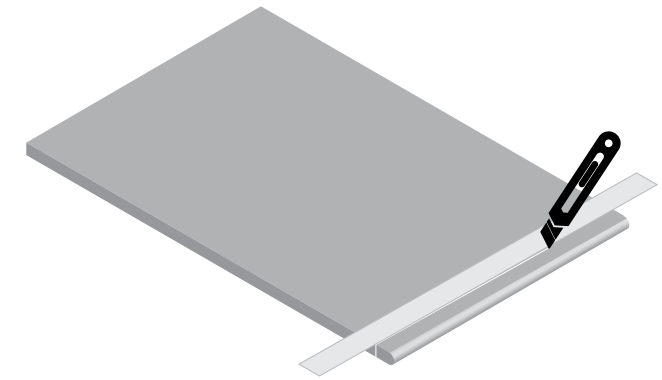
NOTE: INSTALLERS SHOULD TEST CUTTING OR MACHINING TECHNIQUES ON SCRAP MATERIAL PRIOR TO FINAL CUTTING TO ENSURE THE BEST POSSIBLE RESULTS.

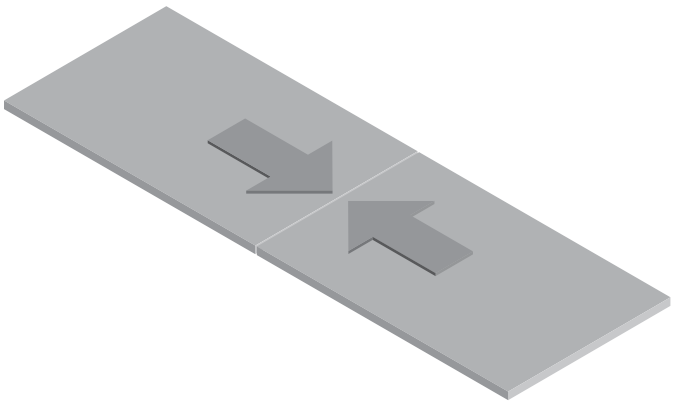
TRIMMING PANELS

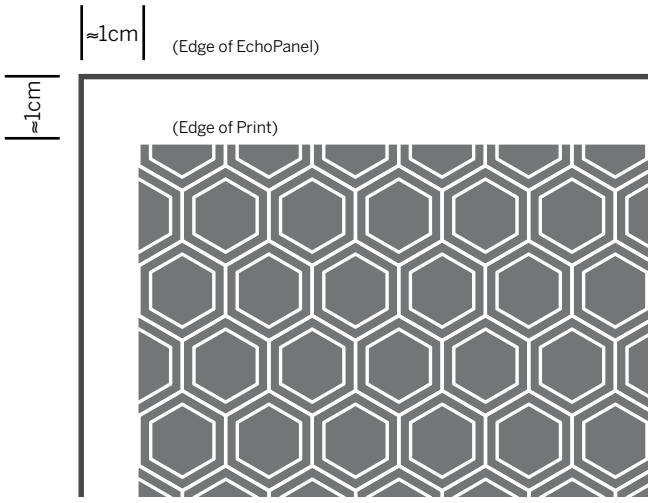
EchoPanel® panels may have an irregular edge. Trimming may be necessary to remove factory supplied edges if a perfect square edge is required. Trimming may be done with a straightedge and new sharp razor to create straight cut edges for edge joining.

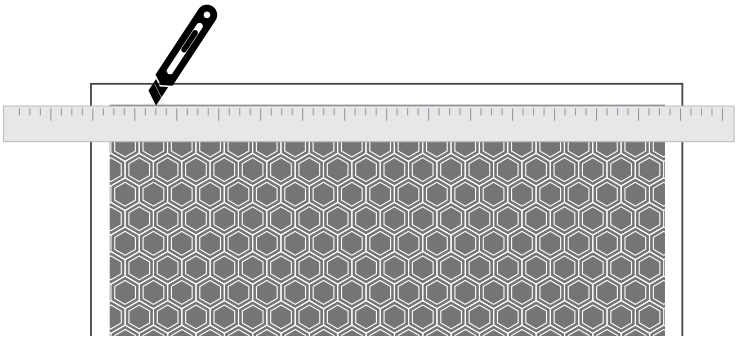
PRINT PANEL TRIM

EchoPanel® screenprinted panels will have an unprinted border approximately 1cm wide to ensure proper print placement and sizing on panels. This border can be trimmed at the print edge to remove this border and create a clean edge to join panels. Patterns are designed to edge match after trimming.









TRIMMING FACTORY EDGES

EchoPanel® factory edges may require trimming for ideal edge matching. Edges may be trimmed with a straightedge and Stanley-type razor knife.

TRIMMING PRINTED PANELS

EchoPanel® screenprinted panels will have an unprinted border to ensure proper print placement and sizing. This border can be trimmed at the print edge to abut panels and pattern match at panel edges. Trim panels at print edge and create clean edge for panel join.

DRILLING:

Drills designed especially for plastics are available and their use is suggested on EchoPanel®. Standard twist drills for wood or metal can be used; however, they require slower speeds and feed rates to produce a clean, non-gummed hole. Optimum bit speed, feed rate, and applied pressure will depend on the hole size and sheet thickness desired. Drill speeds up to 1,750 rpm are best for smaller holes, while speeds as low as 350 rpm can work for larger holes. Tapered "pilot" drills work best for hand pre-drilling smaller holes. Twist drills used for plastics are suited to working EchoPanel® - they should have two flutes, a point with an included angle of 60 to 90 degrees, and a lip clearance of 12 to 18 degrees.

Wide, highly polished flutes are desirable since they expel the chips with low friction and thus tend to avoid overheating and consequent gumming. Drills with substantial clearance on the cutting edge of the flutes make smoother holes than those with less clearance. Drills should be backed out often to free chips.

NOTE: WHEN DRILLING BE SURE TO HOLD OR CLAMP THE SHEET SECURELY TO PREVENT IT FROM SLIPPING AND PRESENTING SAFETY HAZARD TO THE OPERATOR, BUT NOT SO HARD AS TO CAUSE INDENTATION.

ROUTING:

Routing with sharp two-flute straight cutters can produce a smooth edge, although melting or fuzzy edges may result. Routers are useful for trimming the edges of flat or formed parts, particularly when the part is too large or irregular in shape for a band saw. Routing can also be used to cut intricate designs and patterns inside the sheet. Portable, overarm, and under-the-table routers work equally well. The EchoPanel® sheet should be fed to the router slowly to avoid excessive frictional heating. The router or sheet, whichever is moving, must be guided with a suitable template. Compressed air can be used during the routing operation to cool the bit and aid in chip removal. Drag knife or oscillating knife tools on CNC routers may result in cleaner cuts than rotating bits.

NOTE: INSTALLERS SHOULD TEST DRILLING OR ROUTING TECHNIQUES ON AREAS OF SCRAP MATERIAL TO ENSURE THE BEST POSSIBLE FINISH.

MOUNTING ECHOPANEL

MOUNTING ECHOPANEL TO SURFACES

EchoPanel® panels can be fixed to surfaces by adhesives or mechanical fasteners, or hung using mechanical fasteners or hanging hardware. For best acoustic results it may be desirable to leave an air gap behind the EchoPanel® panels. This may be done with wood or other battens, standoffs, or by cutting strips of EchoPanel® to use as furring strips.

MECHANICAL FASTENING

EchoPanel® can be fastened to surfaces using mechanical fasteners such as nails, screws or staples where appropriate. Ensure proper fastners to match substrate are used.

The benefit of using mechanical attachments is that they can be removed completely without leaving residue in order to allow the EchoPanel® to be recycled fully. Many standard mechanical fasteners can be used to affix EchoPanel® in multiple installation styles.

MECHANICAL FASTENING GUIDELINES:

- Clean all surfaces prior to fastening.
- Drill holes minimum 15mm center offset from each corner and slightly oversized to allow for thermal expansion and contraction.
- Insure drilled holes have smooth edges.
- Use washers for better load distribution and to prevent pull-through.
- Use metal inserts if frequent assembly/reassembly is required.
- Nails or screws should be fastened into battens or suitable substrates.
- Don't over tighten fasteners to avid denting or pillowing EchoPanel® surface.
- Don't use self-tapping screws to hang large panels.

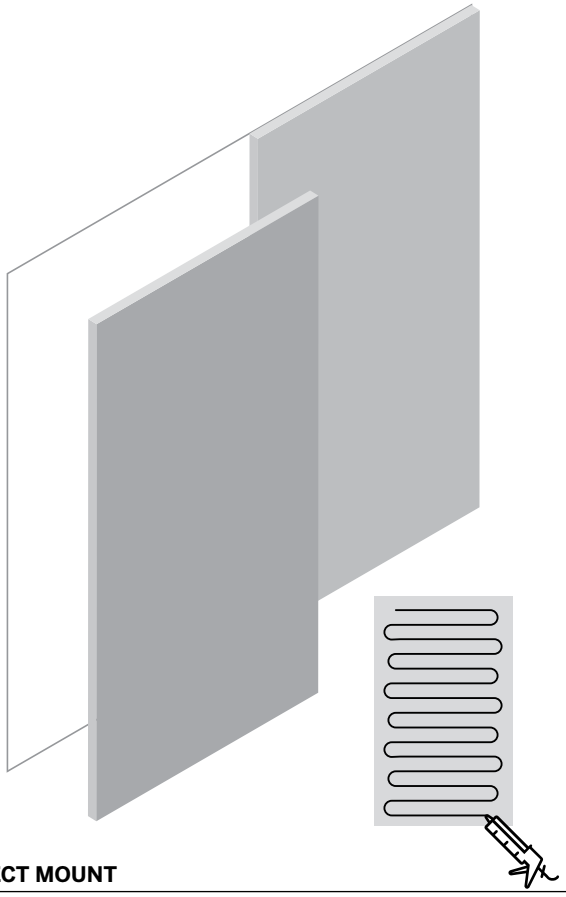
ADHESIVES:

EchoPanel® may be adhered to walls with adhesives, double sided tape or hook-and-loop removable products. There are many options with using adhesives; however these leave some residue on the EchoPanel® that must be removed when recycling the panels.

a. Recommended adhesives include standard construction adhesives such as Liquid Nails, or for a low VOC application we recommend Liquid Nails or Max Bond – Fast Grip. (DO NOT USE PVA GLUE). Follow manufacturer instructions on all adhesives.

b. Recommended double sided tape includes Uline 1" industrial double sided tape (product code S-3792W). Other double sided tape could be used although testing may be required specifically in relation to product adhesive strength. Follow manufacturer instructions on all adhesives.

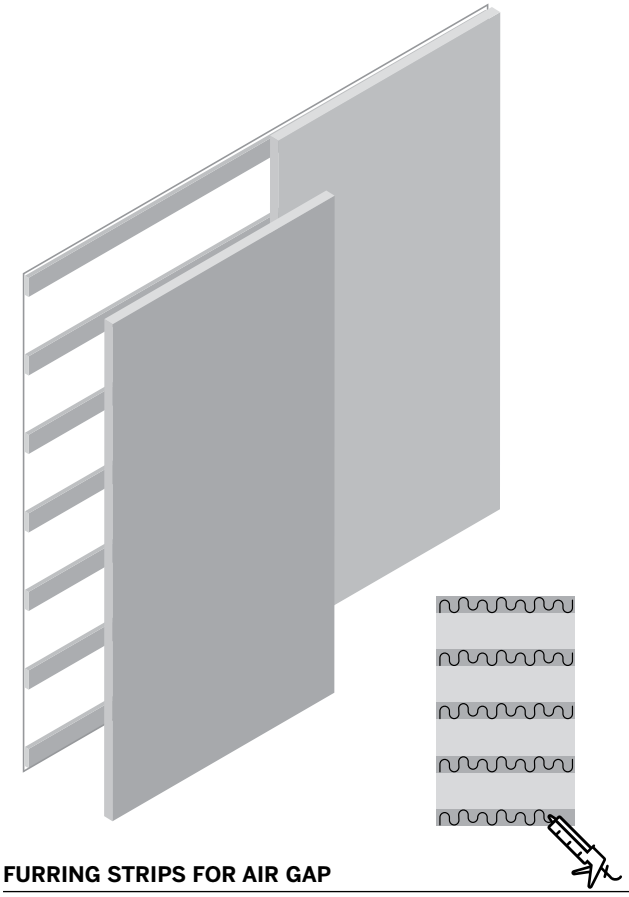
c. Recommended hook-and-loop includes Velcro® brand industrial strength heavy duty 2"black tape. Other Velcro® can be used although testing may be required specifically in relation to product adhesive strength. Follow manufacturer instructions on all adhesives. When using glue, hook-and-loop or double sided tape we recommend a test panel be used on the substrate to determine the most suitable fixing method and process.



DIRECT MOUNT

Use standard construction adhesives i.e. Liquid Nails/Titebond (NOT PVA glue)

- Clean and prepare surface per adhesive guidelines.
- Spread adhesive evenly on panel back, leaving 2" space at edges
- Adhere to wall surface, providing bracing to hold material against surface per adhesive open time/instructions



FURRING STRIPS FOR AIR GAP

Furring strips may be used to provide air space behind EchoPanel®. These strips can be made from wood or EchoPanel. Recommended width 3". Furring strips should be placed every 6-18" along the panel depending on expected potential impact. Edges may be covered with EchoPanel® strips or other surface for clean edge.

Spread adhesive on furring strip surface and place panel to furring strips, bracing per adhesive instructions

ECHOPANEL SPAN DISTANCE

EchoPanel®, like most sheet panel products, has a tendency to flex over large spans. Although there is no set formula for acceptable span distance, it is reasonable to expect that placing attachment hardware between 6 to 12 inch spans both vertically and horizontally would cause the panel to remain rigid in most circumstances.

JOINING PANELS:

EchoPanel® panels are sold with up to +/- 10mm dimensional tolerance and may have an irregular factory-supplied edge. Trimming will be necessary to remove factory supplied edges if a perfect square panel and panel edge is required. This should be noted particularly when butt joining panels together. If butt joining, panels may need to be trimmed (up to ¼") to create exact rectangular dimensions and edges before joining panels. Trimming may be done with a straightedge and new sharp razor to create straight cut edges for edge joining. Edges may be pinned and glued to create a strong seam join.

FRAMING SYSTEMS:

EchoPanel® can be mounted to walls or used as a freestanding panel by using aluminum or other metal/plastic extrusions such as T, J, H or L trim strips as frames. These are ideal for using with EchoPanel® as they create lightweight, easily assembled systems that avoid the use of non-recyclable glues and tapes.

HANGING ECHOPANEL

EchoPanel® can be cut into a variety of shapes such as hanging baffles or signage. Kirei can provide hanging hardware for baffles or other hanging materials. In addition, several companies supply hanging hardware compatible with 7mm, 12mm and 24mm EchoPanel®.

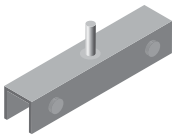
HANGING AND MOUNTING HARDWARE:

The following companies manufacture hardware that has been used with EchoPanel®. Other manufacturers also may have compatible hanging hardware. Kirei makes no warranty for hardware from other manufacturers:

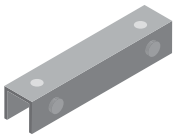
1. Griplock - Multiple designs available – www.griplocksystems.com
2. Gyford Standoff Systems – Cap and barrel standoffs, wire clips and suspension systems, metal rod suspension systems, hinges, clamps and brackets – www.standoffsystems.com
3. EFI Wall Framing – Wall extrusions, sliding door systems, moveable walls – www.efi-us.com
4. Schluter Trim – Finishing and edge protecting trims - http://www.schluter.com/index.aspx
5. Fry Reglet Molding – Metal wall reveals and moldings - http://fryreglet.com/

GripLock
1/2" gripper

Gyford
1/2" gripper



MUC Bracket
1/4-20 threaded rod
or I-Bolt

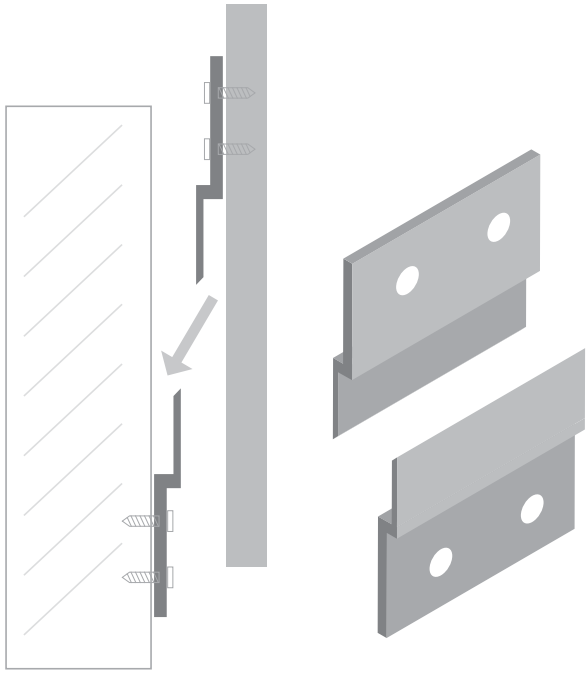


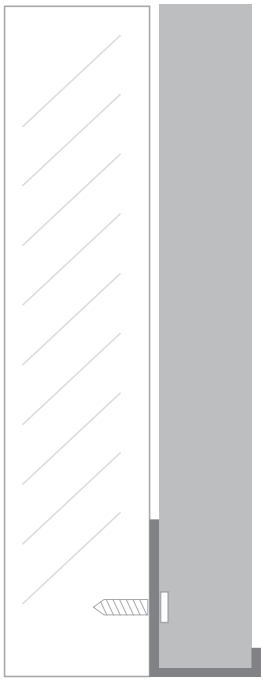
Simple U-Channel Bracket

MOUNTING HARDWARE

Kirei offers standard mounting hardware including Gyford and GripLock hanging systems.

CUSTOMIZE IT!
EchoPanel baffles can be cut, printed and shaped into an infinite set of possibilities. Contact us to turn your idea into reality!





Z-CLIPS

Z-clips may be used with EchoPanel® by screwing clips into surface and into EchoPanel®. Use screws that will not extend past panel surface. Adhesive may also be used in addition to mechanical fasteners. Z-clips are recommended every 18-24" across the panels.

FRAMED/MOLDING

EchoPanel® may be framed with standard J-molding or other trim molding as per molding instructions. Please note metric sizing of EchoPanel® (7mm, 12mm, 24mm) when selecting moldings/trim.

CUSTOMIZING ECHOPANEL:

INTRICATE CUTTING AND SHAPING:

EchoPanel® can be cut to form logos or specific shapes. Intricate and detailed graphics can be cut out of EchoPanel® using digital imagery and computer controlled razor knife, laser cutting or water-jet tools. Mechanical shaping methods are knife cutting, die-cutting and guillotining. Caution should be used when laser cutting as heat may result in melting. A test sample should be performed prior to final cutting to ensure desired results. It is also important to note that when water jet cutting, grey water is often used. Clean water should be specified to cut EchoPanel® as discolored water will seep into the board and discolor the EchoPanel®. Abrasive used in water jet cutting may also discolor light colored panels. Test prior to final cuts to ensure desired results.

FORMING:

Being 100% PET, EchoPanel® has the characteristics of most plastic type products when thermoforming. Heat can be applied to the panel while it is held in-form and then allowed to set. Specialist thermo-formers should be consulted to work with EchoPanel®. These businesses would typically work in shaping plastics and foams.

Alternatively EchoPanel® can be fixed to a framework to take on an induced form. The flexibility in a large panel allows it to be handled in this way. It should be fixed to the backing material with the use of adhesives, pin, screw, nail fixing or supported within channels or angles. Folded corners are achieved seamlessly by carving out an appropriate miter to the back of the panel, leaving about 5mm thickness of panel to bend around the required angle. The miters can be routed out or cut with a knife. The angle of the miter should correlate to the angle required to wrap the panel around – e.g. a 90° corner would require a 90° miter.

DIGITAL PRINTING:
EchoPanel® is an ideal base to print on utilizing the latest in inkjet technology and specialized graphics programs. Ideal for signage and full color images, EchoPanel® can be used both as individually printed panels and for multi-panel displays. Specific repeat sizes are not required and anything can be printed from logos, photographic imagery and graphics. If it can be scanned and digitized, it can be printed onto EchoPanel®. As it is an inkjet printing process your color choice and number is unlimited. 12" x 12" custom print samples are available at cost. Images should be a minimum of 10" wide at 300DPI. Images smaller than this may print with pixelization or appear blurry. We are happy to take your images and make them print-ready. Contact Kirei at info@kireiusa.com or 619.236.9924 for more information.

WORK SAFETY:

In the interest of work safety, it is recommended that people working with Kirei EchoPanel® wear the appropriate safety equipment. Although the product emits zero off-gases, masks and gloves should be worn to ensure the maximum possible safety precautions. For an MSDS form, please contact Kirei at info@kireiusa.com or 619-236-9924.