

A large, stylized yellow fish logo is the central focus of the page. The fish is oriented horizontally, facing right. It has a simple, rounded body with a white circular dot for an eye. The background is a light blue gradient, and the fish is set against a white outline that follows its shape. The overall design is clean and modern.

KARADON

FABRICATION & INSTALLATION GUIDE

This guide is intended for use by Authorized Professional Fabricators and Installers as a reference. The guidelines in this publication must be adhered to in order for the product warranty to be valid. Any deviation from these procedures must be approved in writing by FAMA Industries Corporation prior to commencement.

The Fabricator /Installer must be factory authorized and trained, as the contents of the training seminar outline specific procedures and techniques, not entirely included in this guide, which must be followed in order for the product warranty to be valid.

Karadon™ Solid Surfacing Material
Manufactured by FAMA Industries Corporation

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STORAGE AND HANDLING:

Protect the surface from possible scratching and support adequately to protect damage from flexing in shipment. Carry materials on edge, as you would glass. Handling on the flat could create undue stress. When transporting pre-fabricated Karadon, especially if cutouts are pre-cut, take extra care. Karadon should be crated before carrying or support rails clamped to the tops to prevent breakage during transit to installation site.

GETTING STARTED WITH KARADON:

1. Inspect sheet stock to ensure materials have uniform pattern and colour and are free of damage or defects prior to beginning layout.
2. Record the pour date of sheets used on your work order for future reference. The pour date is stamped on the back of the sheet approximately every 2 linear feet. Should fabrication hide the pour date from view, record the pour date in a visible location on the underside of the sheet for customer reference. The Pour date is a reference to the batch produced, and is a mandatory requirement for processing warranty claims.
3. Check your stock of adhesives and check colour match of sheet and glues. A chart is available in the adhesive section of the guide indicating recommended Seam Tight™ adhesives to use with corresponding Karadon sheets.
4. Confirm colour match and uniformity of colour prior to cutting material.

Colour Match:

Karadon produces slight variations batch to batch due to the blending of natural minerals and polymers. While the variations between cycles are typically acceptable, it is recommended to fabricate using materials from the same pour date. Using products with differing pour dates require a trial colour match.

A) Sheets should be matched using the Pour Date located on the back of the sheet

B) If, the pour date has been removed, a trial match is necessary as detailed below

To check colour consistency, place sheets to be matched side by side on a level surface.

Sand with 400 grit sandpaper and wet both sheets. This will give a clear indication of colour match for installation with a satin finish. If sheets are to be installed with a high gloss, polishing a small area will verify colour matching.

- Colour matching pieces should be evaluated under similar lighting conditions to that of the job.
- Due the randomness and varied intensities of the veining patterns offered in the Artisan Collection colour matching can only be guaranteed of the background and vein tones.

Pattern uniformity:

Check pattern uniformity between sheets for particulate colour and distribution on sheets that are to be seamed together. Karadon is designed to have a random dispersement of particulate of varied size throughout the sheet that adds a natural beauty to the product. This occasionally causes particulate to appear slightly intensified in some areas and scattered in others, and is not considered a manufacturing defect. Typically, using consecutive sheets, and butting the edges from the same side of the pallet achieve the best match. If the pattern appears off, try spinning one of the sheets 180 degrees.

SHEET TOLERANCES:

Dimensional:

Collection	Length	Width	Thickness
Ambient	144" +/- 6.4mm (1/4")	760mm (30") +/- 6.4mm (1/4")	12.7mm (1/2") +/- 1.2mm (3/64")
World	144" +/- 6.4mm (1/4")	760mm (30") +/- 6.4mm (1/4")	12.7mm (1/2") +/- 1.2mm (3/64")
Cool Cravings	144" +/- 6.4mm (1/4")	760mm (30") +/- 6.4mm (1/4")	12.7mm (1/2") +/- 1.2mm (3/64")
Artisan	121" +/- 6.4mm (1/4")	760mm (30") +/- 6.4mm (1/4")	12.7mm (1/2") +/- 1.2mm (3/64")

Maximum thickness variance within a sheet: 1.2mm (3/64")

Tapered Edge: Where the edge taper is greater than 1.2mm (3/64") and cannot be incorporated into fabrication

Dimensional Deflection (Warp): Dimensional deflection of sheet goods not exceeding 1.2 mm (3/64") per 760mm (30") through either the length or width is considered acceptable

Face side Black and/or white spots - Allowable surface defects:

- Black spots less than 0.20mm (0.0508")
- White spots less than 0.20mm (0.0508")
- Foreign matter less than 0.20mm (0.0508")

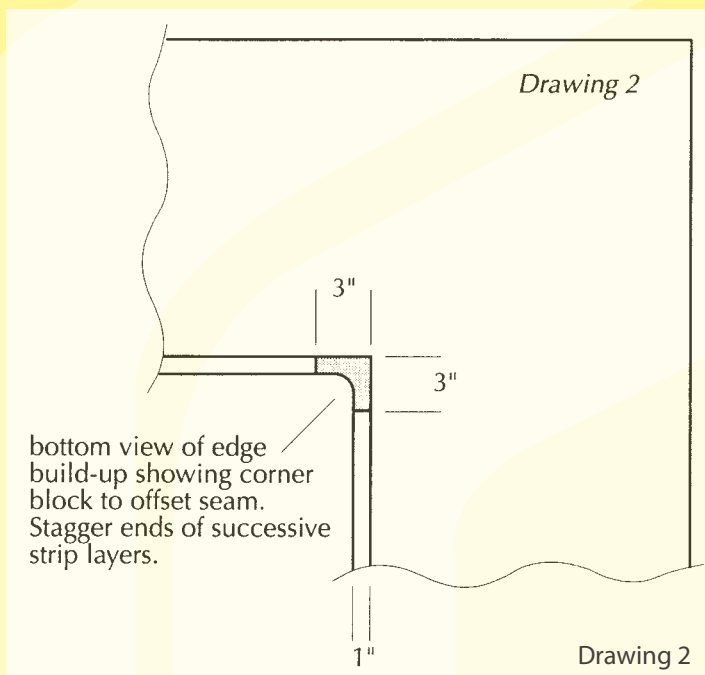
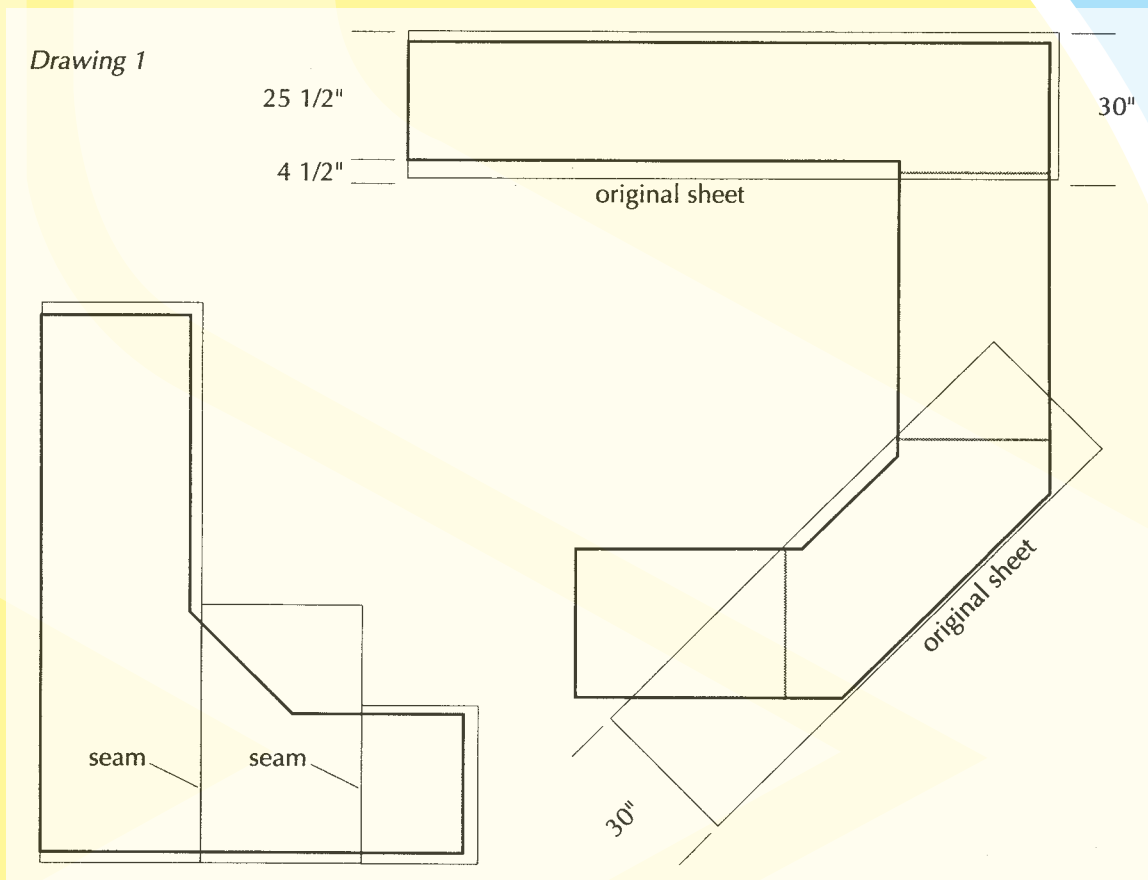
Face side voids, pinholes, and ripples: When minor defects such as scratches, voids, bumps, or ripples occur on the face side of the sheet, sanding the surface using an orbital with 120 grit or equivalent abrasive paper for about 3 minutes per square yard/ metre may resolve the problem

Backside voids, pinholes, and ripples: Voids occurring on the backside of the sheet that are below 6.4mm (1/4") in diameter and 3.2mm (1/8") deep are considered acceptable, as are ripples and bumps +/- 1.6mm (1/16")

Edge Cracks and/or Chips: Corner chips of 6.4mm (1/4") wide/deep off the length, as well as edge chips or nicks of the same dimensions, represent allowable limits

SHEET LAYOUT & JOINT PLACEMENT:

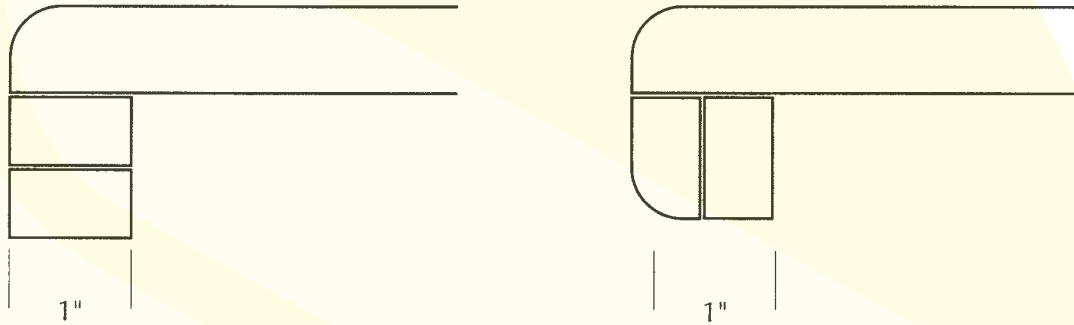
Use offset butt joint method (See Drawing 1). This also applies to all inside angles (i.e., 45°), etc. Please note that there should never be joints in corners.



1. All edge build-ups must have continuous up-jointed material at inside corners with a minimum 1" radius. Do not join edge strip at corner (see Drawing 2). Use a block of solid Karadon (L Block) at least 3" x 3". – This will increase the strength of corners, especially over lazy susan cabinets.

2. All edge build-ups are recommended to be double thickness (see Drawing 3). V-grooving and single layer dropped edges are acceptable if corner blocks and a tolerance of no more than 1/8" per 4' length is achieved.
Note: Extra care is required to ensure single layer drop edge are installed on flat rigid support, as the countertop will conform over time to the substrate on which it is placed.

Drawing 3



PREPARING JOINTS:

1. Router all joints with a straight flute bit 1/2" diameter or larger using a straight edge that has been machined within 1 or 2 thousandths of an inch.
2. Check dry fit, if any gap is visible, re-router the seam and re-check fit.
3. Sand joint edges to remove any tool marks and improve adhesion with approximately 60-micron sandpaper on a hard sanding block or fold paper and sand from bottom side of sheet (be careful not to round top edge of sheets).
4. Clean edges with de-natured alcohol or methyl hydrate on clean white cloth or lint-free paper towel.

ADHESIVE: (as per instructions provided at time of purchase)

Seam Tight™ Adhesive is pre-coloured and requires no pre-mixing. Ensure you have the correct colour and enough adhesive on hand for your job. A 10 oz. (250 ml) cartridge of seam tight adhesive produces a single bead approximately 40 linear feet in length. 1 oz. (30 gr.) Seam kits will provide approximately 4 - 5 feet of seam.

Storage & Handling:

1. Open Cartridges should be recapped and stored in a cool dark place.
2. Sealed Cartridges have a shelf life of approximately 18 months
3. Storage at temperatures above 75°F or 24° C. may minimize shelf life and affect performance of adhesive.

Caution: Discard empty containers in safe place, as contents are poisonous and flammable. Adhesive and activator must never come in contact with the eye or mucous membranes. If this happens, flush with water for at least ten minutes, then seek medical attention. Contains "organic peroxide". (Refer to Safety Data Sheets)

Seam Tight™ Adhesive Chart for Karadon:

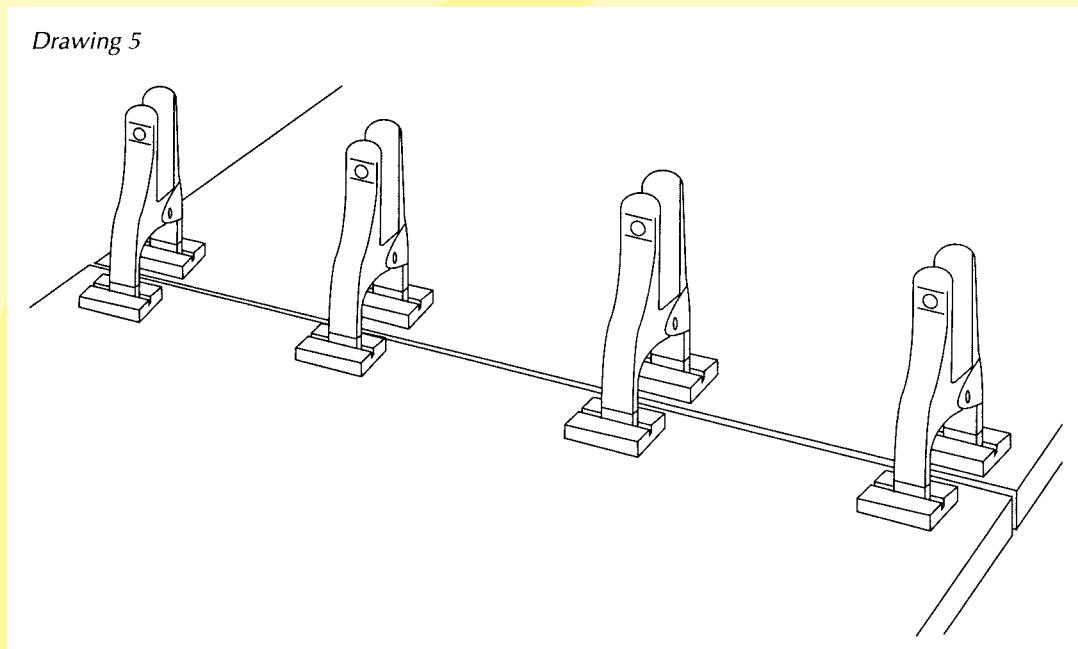
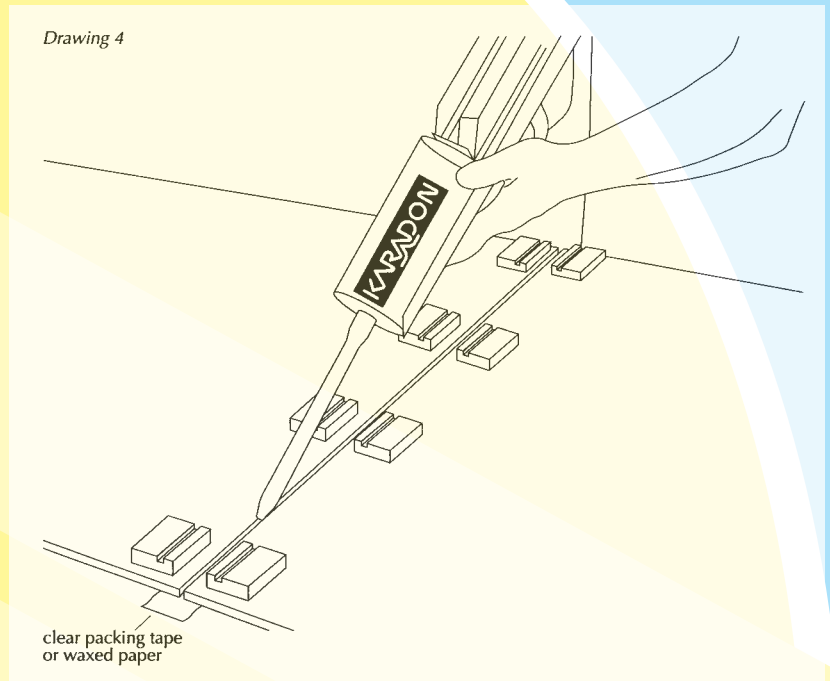
	Polyester Name	Seam Tight™ Adhesive Name	Seam Tight™ Adhesive Code
7010	Michelangelo Marble	Snow	p2180
8173	Ayres Rock	Clear	p2000
8815	Toffee	Clear	p2000
8740	Alabaster	Tan	p9103
8717	Bahamas Sand	Clear	p2000
8804	Black Sea	Clear	p2000
8812	Madagascar	Clear	p2000
8503	Puget Sound	Clear	p2000
8962	Siberian Black	Tran black	p9127
8324	Candle Glow	Clear	p2000
8316	Egyptian Sky	Clear	p2000
8119	Glowing Embers	Tran black	p9127
8900	Moon Penny	Tran black	p9127
8915	Mystic Night	Clear	p2000
8926	Northern Stars	Tran black	p9127
8902	Silver Night	Tran black	p9127
8515	Winter Dream	Clear	p2000
8317	Cecilia Cream	Tan	p9103
8418	Luminous Gold	Clear	p2000
8980	Kona	Tran black	p9127
8905	Luminous Platinum	Thunder	p9142
8318	Carioca Gold	Tan	p9103

Seam Tight™ Adhesive Chart Karadon Acrylics:

	Acrylic Name	Seam Tight™ Adhesive Name	Seam Tight™ Adhesive Code
AP00	Bright	Arctic	p2010
AP301	Warm	Bisque	p9131
AG911	Ankara	black	p2140
AG002	Bora Bora	Pearl	p2200
AP810	Cairo	Charcoal	p9113
AP714	Casablanca	Tan	p9103
AP407	Dublin	Charcoal	p9113
AP408	Havanna	Pearl	p2200
AP812	Kobe	Charcoal	p9113
AP303	Manila	Oatmeal	p9104
AP716	Portofino	Tan	p9103
AC090	Rio	TransBlack	p9127
AP102	Shiraz	Brownie	p9151
AN475	Bonsai	Charcoal	p9113
AN036	Cotton	Oatmeal	p9104
AN501	Deep Sea	Charcoal	p9113
AN732	Desert	Oatmeal	p9104
AN990	Midnight	TransBlack	p9127
AN010	Oat	Oatmeal	p9104
AN715	Palm	Oatmeal	p9104
AN915	Rain	Pearl	p2200
AN703	Seashore	Oatmeal	p9104
AN210	Terra	Camel	p9124

SEAMING:

1. Place material to be seamed about 1/8" apart. Fill joint with a double bead of adhesive. Once dispensed, spread adhesive over bonding surface to thoroughly blend the adhesive with the hardener (see Drawing 4).
2. Push sheets together to squeeze out adhesive being careful not to over clamp the joint, starving the deck seam of adhesive. Do not sand or disturb the glue until completely set.
3. Should you be required to leave the job site prior to seam being fully cured, leave a sign to notify sub-trades to stay clear for 24 hours.
4. To clamp the joint together, use a hot melt glue gun to attach blocks on to the top of the counter on either side of the joint. Use a spring clamp to draw the two edges together and leave in place until glue sets. Remove blocks and hot melt glue with a sharp putty knife, taking care not to scratch the surface. Do not remove blocks with impact – pry off slowly. Using de-natured alcohol or methyl hydrate helps soften hot melt glue (see Drawing 5).



5. Alternate method of clamping is to use vacuum clamp type system.
6. Do not over-tighten clamps, as this will force all of the adhesive from the joint. The use of a pipe clamp or bar clamp is not recommended.
7. Cure time (approximately 60 minutes) depending on the temperature of the work area, can be shortened by mildly elevated temperatures. Glue will not cure properly below 60° F. Cured Adhesive should not dent or feel rubbery although some stickiness may be evident.
8. Use a router on ski's or a seam leveller type tool to remove excess glue and level the joint.
9. Finish the joint by sanding with an orbital sander with 60-micron sandpaper, followed by a light sanding of entire surface to produce an even finish. Continue with specified finishing techniques to achieve desired finish (see polishing section).
10. Try to avoid seams in areas that may be exposed to direct sunlight (i.e., bay windows, skylights, etc.) Deck seams must be reinforced with a 3–4" strip of Karadon, keeping seams 3" away from cut outs wherever possible (see Drawing 11). If a seam falls through a dishwasher, the same application of reinforcing must be applied.
11. Avoid seaming together materials of strong colour contrast if they may be exposed to direct sunlight. The rate of heat absorption will differ between the light and dark colours causing dissimilar rates of expansion and potentially warping the material. Karadon has a thermal expansion rate of 11.7 microns per metre per degree C. This would equate to approximately 5.0 mm per 12' per 80 degrees C. Allowing a 5.0mm (3/16") gap per 12' between the Karadon and the wall will allow sufficient room for expansion and contraction in nearly all applications.
12. Overhangs up to 8" must be supported with minimum 3/4" plywood, thereafter bracing supports or brackets are required. The plywood support for overhangs must extend at least two times as far in the opposite direction to the unsupported area (i.e. an 8" overhang support must extend 16" under the counter in the opposite direction). The steel frame support method used by some fabricators is acceptable. If there is a need for solid build-up to countertop overhang, 3" holes must be cut into the plywood section that does not overhang at approximately 9" centres. This will not sacrifice structural integrity of the plywood and will allow heat dissipation.
13. Cook top cutouts must be made with a template and router and be reinforced with Karadon corner blocks 1/2" x 2" x 6" with a minimum 1/4" inside corner radius. In addition, one layer of 3 mil. foil heat reflective tape, at least 2 1/2" wide, must be applied to the inside perimeter of cook top opening. This is to prevent damage in cook top cut- outs due to excessive heat. Failure to conform to this procedure will void the 10-year warranty (see Drawing 11).

KARADON OPTIONAL FEATURES:

Edge Treatments:

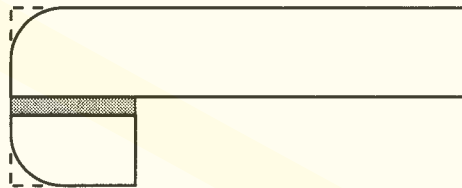
The variety of edge treatment possibilities is endless. The design and styles are chosen by each individual fabricator based on their ability and the market demands.

Karadon to Karadon bonding must be done with Seam Tight™ Adhesive. Prepare surfaces to be bonded by sanding with a sanding block to 'scuff' surfaces and clean with de-natured alcohol or methyl Hydrate. Apply an even bead of adhesive to the surface. Place spring clamps 2" apart. Keep clamps straight with even pressure in the centre of the edge.

Do not laminate Karadon to wood in a sandwich construction. Recommended method for inlays is to use a brass or wood veneer strip. (See Drawing 6)

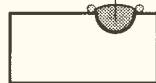
Drawing 6

A) Solid Karadon Inlay



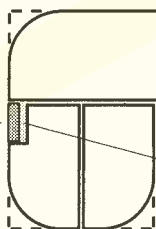
B) Liquid Inlay

Caulking Bead



A groove may be routed into the Karadon and filled with a liquid inlay kit. create a dam on either side of the groove and over-fill to compensate for shrinkage when curing. After curing the excess can be removed with a thickness planer.

C) Wood or Brass Veneer Inlay



silicone or adhesive tape

the edge may then be attached to the sheet that forms the horizontal surface.

FINISHING:

High gloss finishing is not recommended in kitchen use for horizontal work surfaces or in any application that may subject the material to abrasion.

Satin finish may be supplied in a number of grades. Most commonly satin finishes are produced with a 30-micron abrasive.

Sanding and Polishing Procedures:

The finish of Karadon solid surface material in its raw state from the factory is 60 micron or a 220-grit finish. To achieve the desired finish always begin your sanding process with a 60 micron or equivalent sanding disc on a 6" or 8" random orbital sander.

Move your sander with a slow and even pace in a back and forth pattern overlapping 50% with each pass. Be sure to clean sanding dust off between each sanding step with a dry cloth or air nozzle and compressed air. ** When sanding Karadon never skip more than two successive grits of sandpaper, as previous scratch patterns may not be entirely removed. **

The degree of gloss can be increased to a near mirror finish with the use of consecutively finer grades of abrasive.

Several manufacturers produce abrasives specifically designed for this purpose. Following are steps of a few options:

Option #1:

Norton Norax U288 film discs are available for solid surface polishing, each kit comes with a colour-coded guide and the desired finish is achieved by sanding using the selected abrasive films.

The Part numbers are as follows:

U288 X45 Tan	-	Matte finish
U288 X35 Green	-	Satin finish
U288 X10 Blue	-	Semi-gloss
Bear-Tex MF S/C disc	-	High gloss

Option #2:

Norton No-Fil Microfinishing Film Q130:

Q130-100 micron	-	Scratch removal
Q130-60 micron	-	Matte finish
Q130-30 micron	-	Satin finish
Q130-15 micron	-	Semi gloss finish
Q130-9 micron	-	Gloss finish

Follow the 9-micron sanding with a two-step polishing procedure to be performed with an orbital polisher and polishing pad:

1. 3M - Marine High Gloss Gel Coat compound (#06025)
2. 3M - Perfect It III (#05936)

Option #3:

Standard grade abrasives can also be used however the abrasive media is often less consistent and swirl marks and scratches can be left on the surface.

# 150	-	Scratch removal
# 220	-	Matte finish
# 400	-	Satin finish
# 600	-	step # 4
# 800	-	Semi Gloss Finish
# 1000	-	Gloss finish

Follow the # 1000 sanding step with a two-step polishing procedure to be performed with an orbital polisher and polishing pad:

1. 3M - Marine High Gloss Gel Coat compound (#06025)
2. 3M - Perfect-It III (#05936)

Most of these products or their alternates are available through automotive (Auto-body) supply stores.

Sandpaper Conversion Chart

*CAMI Coated Abrasives Manufacturers Institute (North America) **FEPA Federation of European Producers Association

	*CAMI (US standard)	**FEPA (P-Scale)	Finishing Scale	Average Particle Size	
				Micron	Inches
F I N I S H I N G S M O O T H I N G R O U G H I N G	1200	P2000	A16	9.6	0.00042
	1000				
	800				
	600	P1500	A25	12.3	0.00051
	500	P1200			
		P1000			
	400	P800	A30	15.8	0.00060
		P600			
	360	P500	A35	16.0	0.00062
	280	P360	A60	19.7	0.00077
	220	P280	A75	23.6	0.00092
	150	P220	A110	28.8	0.00112
	100	P150	A160	35.0	0.00137
	60	P80		40.5	0.00158
40	P50		46.2	0.00180	
					36
30	P36		53.5	0.00209	
					24
	P24		65.0	0.00254	
			66.0	0.00257	
			78.0	0.00304	
			93.0	0.00363	
			97.0	0.00378	
			116.0	0.00452	
			127.0	0.00495	
			141.0	0.00550	
			156.0	0.00608	
			192.0	0.00749	
			197.0	0.00768	
			260.0	0.01014	
			268.0	0.01045	
			326.0	0.01271	
			351.0	0.01369	
			412.0	0.01601	
			428.0	0.01669	
			524.0	0.02044	
			535.0	0.02087	
			622.0	0.02426	
			638.0	0.02488	
			715.0	0.02789	
			740.0	0.02886	

CUTTING BOARDS / HOT PADS:

Karadon makes an excellent loose cutting board – however the cutting board should always be made from colour matched material, just in case you need it for a repair down the road. Two layers ½" thick, laminated together with Seam Tight™ adhesive to produce a 1" thick cutting board, or hot pad is recommended. Always place rubber feet on hot pad. This will prevent warping and carries the feeling of substance that is created with the built up front edge of the countertops. ½" thick cutting boards will eventually warp as they may reach thermal forming temperature when used as a hot pad. Avoid putting cutting boards in the dishwasher to prolong the life of them.

KARADON INTEGRAL SINKS:

1. Karadon sinks are adhered to Karadon Solid Surface material with Seam Tight™ adhesive. It is recommended that a rough cutout is made bearing an opening of approximately 1" smaller than the size of the sink used (inside sink dimensions).
2. With the countertop upside down, position the sink in its exact location. Block the sink with Karadon blocks made from scrap pieces and attach them around the edge of the sink with hot melt glue. Make sure not to put the blocks too tight against the sink edge so the sink can be pulled and dropped back in place easily.
3. Pull sink, turn it upwards and clean the sink flange and countertop where sink will be glued with de-natured alcohol or methyl hydrate.
4. Apply a double bead of colour matching Seam Tight™ Adhesive on to the sink flange and spread with a Popsicle stick. Turn sink upside down and drop it in place between blocks.
5. Clamp sink to countertop by using appropriate clamps (C-clamps, vice type clamps etc.)
6. Allow glue to fully cure. Carefully remove blocks. Turn Countertop right side up and flush trim inside of sink then profile with a sink bowl bit of your choice and sand to desired finish.

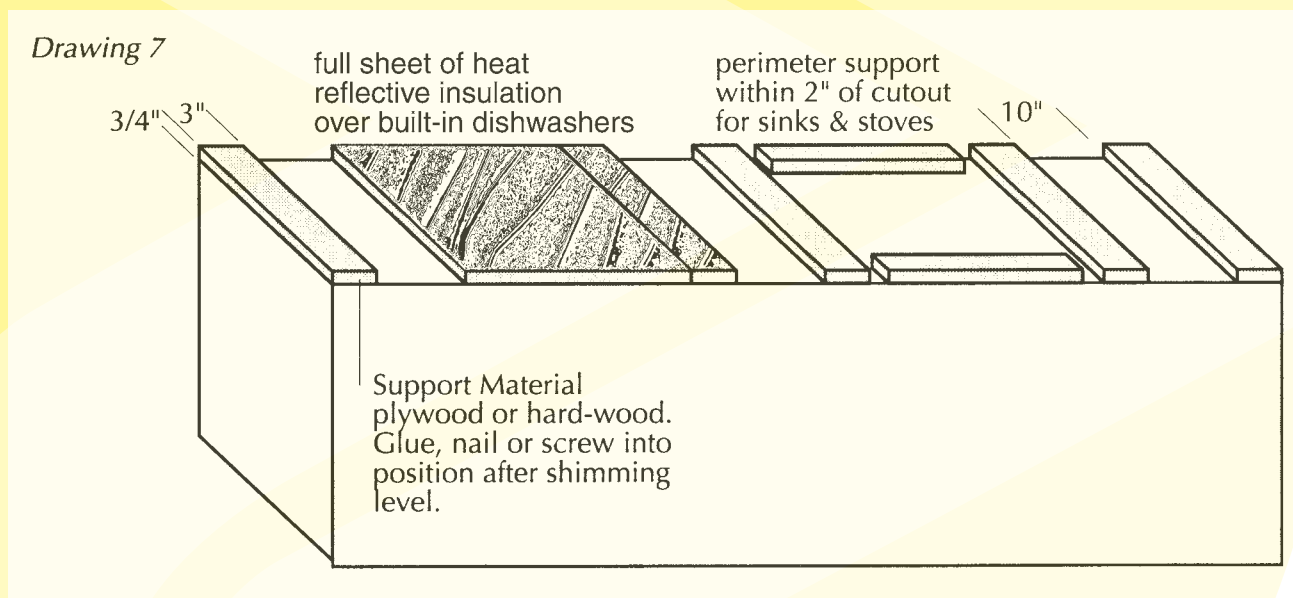
NOTE: NEVER POUR BOILING WATER DIRECTLY INTO A KARADON SINK. ALWAYS RUN COLD WATER SIMULTANEOUSLY TO AVOID POTENTIAL CRACKING. ENSURE THAT PLUMBING FITTINGS ARE NOT OVERTIGHTENED AND INSTALLED GARBURETORS DO NOT EXCEED ¾ HP. FAILURE TO COMPLY WITH THESE GUIDELINES VOIDS THE KARADON WARRANTY.

CABINET PREPARATION:

1. Make sure cabinets are secured to the wall and each other.
2. Level cabinets, use shims if required. Shim between cabinet and build-up, not between build-up and Karadon.
3. Cabinets over 36" in width must have a vertical post support.
4. On lazy susan cabinets or cabinets with solid cut out all but perimeter of top and support with strips as required. A section of cabinet top can be left adequate to support turntable rod.
5. For the underside of countertops above dishwashers and other heat generating appliances, we recommend installing a 24" x 24" piece of heat reflective foil insulation (Hot Water Tank) (see Drawing 7).

This product serves two purposes:

1. It reflects heat downwards keeping the Karadon cool when dishwasher is running.
2. It is an excellent vapour barrier and prevents mould build-up on the underside of the countertop due to steam from the dishwasher and can easily be installed with insulating adhesive or by stapling directly to the plywood build-up.



6. Sink and appliance supports must be within 2" of cut-out around total perimeter
7. Due to the endless variety of installation situations, it is nearly impossible to cover each in detail. It is the responsibility of the fabricator to provide support for the Karadon adequate to withstand the load typical of the situation (i.e., support an adult's weight without deflecting enough to cause damage or stress). Inadequate support voids the warranty.
8. If these specifications do not appear to cover your project, contact Karadon Technologies at 1-800-KARADON, for recommended procedure prior to commencement of project. Any deviations must be agreed to in writing.

9. On all inside corner cabinets and cabinets with wide drawer openings or cutouts, pay extra attention to strength of support. Where required, re-enforce with an oak or metal bracket/strip on edge below build-up. Areas must be able to support an adult's weight without deflecting, as any bending out of the material will create stress on the material a considerable distance away.
10. Cabinets that allow for a build-up of less than $\frac{3}{4}$ " must have additional support recessed into cabinet frame

PREFERRED INSTALLATION METHOD:

1. With countertop trimmed, profiled and sinks or sink cut-outs done, Turn countertop upside down on workbench.
2. Cut plywood build-up strips to specified width (minimum 3")
3. Chamfer the bottom edge along the length of the build-up strip that will go along the front edge of the countertop. This will allow the plywood to be positioned close to the edge build-up without touching the glue bead along the edge, therefore minimizing the chance of the edge being 'blown' due to expansion / contraction of the product.
4. Proceed by applying dabs of silicone onto plywood strip while upside down and use small amounts of hot melt glue approx. Every 16". Quickly turn plywood, positioning appropriately and apply pressure for a few seconds until Hot Melt adhesive sets. Follow the same steps to adhere plywood strips to rest of countertop allowing 10" on centre minimum for spacing.
NOTE: This method will allow you to apply plywood build-up near cut-outs and corners, providing excellent support when countertops are set on cabinets and also makes installation a lot easier by only having to fasten the tops to cabinets with screws from the underside of the cabinet cleats especially when you are dealing with site seams.
Also, when using single edge or V-Grooved edge etc., installing the plywood strip close to the Karadon edge makes the edge more impact resistant and gives a solid 'feel' when running your fingers along the underside of the countertop.

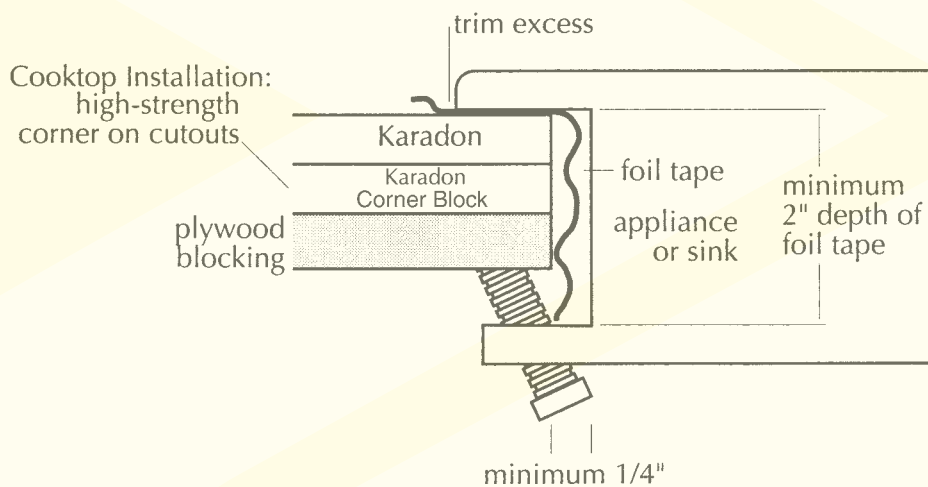
Work Area Preparation:

1. Prepare a work area preferable outdoors to minimize dust. Ensure adequate room for comfortable movement and good lighting. Use this area for cutting build-up strips, etc.
2. Try to minimize dust by covering furnace vents and closing doorways. Taping plastic over window and door openings also helps to contain the dust. During renovation work, completely empty kitchen cabinets, or have the homeowner do so.
Always use power tools with proper dust collection attachment.

Field Cut-Out & Countertop Installation:

1. Position fabricated countertops on cabinets and examine for proper fit at joints. Allowing 5.0mm (3/16") per 12' between the Karadon and the wall will allow sufficient room for expansion and contraction in nearly all applications.
2. Shim as required aligning joint. Remember to shim between cabinet and build-up – not between Karadon and build-up as the shim can create a pressure point. Make necessary cutouts remembering to support pieces to prevent them from falling into the cabinet causing damage to the cabinet.
3. Use a template with minimum 1/4" radius at inside corners to make an appliance cut out (See Drawing 10). Use only a router with a minimum 1/2" diameter bit to make the cut into the countertop, then smooth the sharp edge with a 1/8" radius round over bit, or sand the top and bottom edges for a smooth, chip-free finish.
4. Support the cutout close to the edge of the opening. Maximum setback for support is 2".
5. Allow minimum 1/4" space from sides of all heat-generating appliances to provide for expansion and heat dissipation. (See Drawing 9)

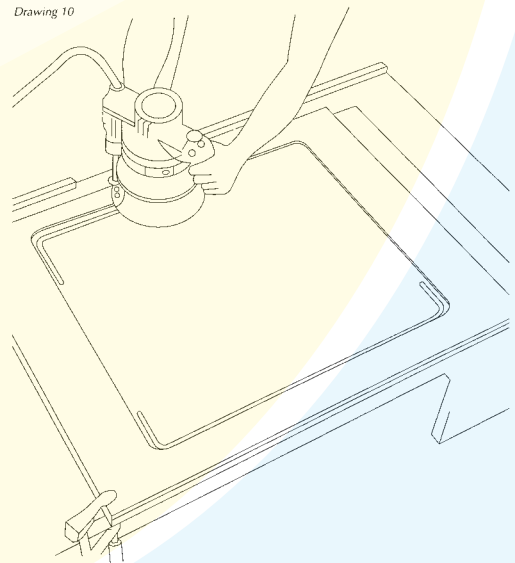
Drawing 9



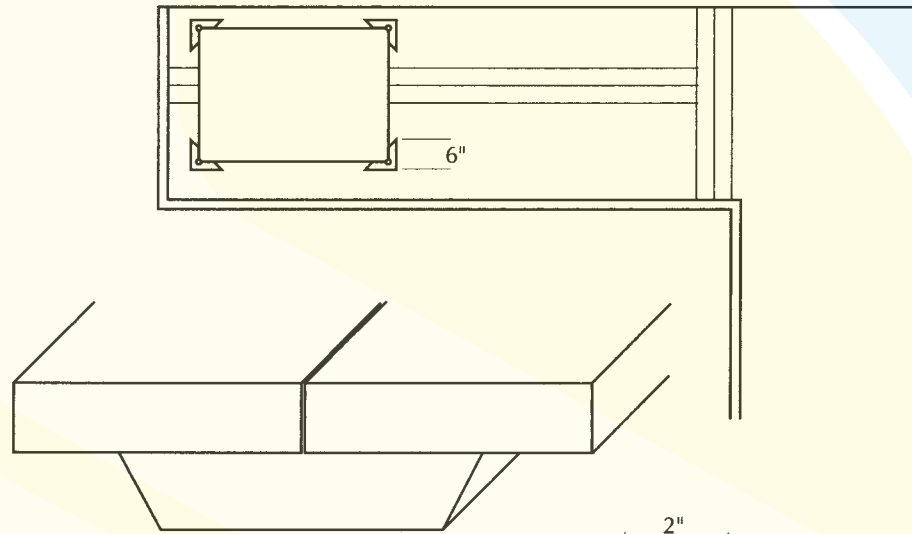
If hold-down screws must be used, they must be left only hand tight, as excessive pressure will prevent movement during expansion and contraction.

6. Seams should not run through or near appliance cut outs. As this is not always practical, seams that run close to or through cut outs must be supported by laminating a piece of Karadon under the seam 1/2" thick by approximately 3" to 4" wide. (See Drawing 11).
- There is not warranty coverage when a seam runs through a cut out.
 - In order for any seam to be covered under the Karadon 10 year warranty, seam-reinforcing strips must be bonded in place using the Seam Tight™ adhesive.

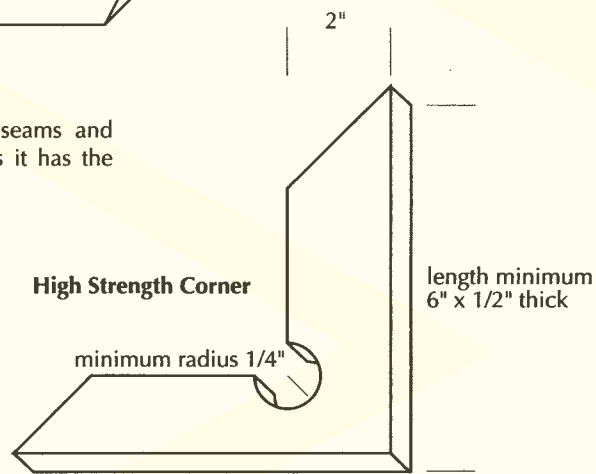
Drawing 10



Drawing 11



*material used for high-strength seams and cutouts should be solid colour, as it has the highest tensile strength.



7. For cook top installation, apply a single layer of 2.5" aluminium heat reflective tape around the cut-out so that it folds over the top surface and extends beyond the outer edges of the cooktop flange. Trim excess after installation. Tape should create an apron approximately 2" deep (See Drawing 9). Certain brands of cooktops have been found to transfer excessive heat, damaging the solid surfacing material. This damage is not covered by warranty.
8. Remove hold down screws and position cooktop using only silicone to affix cooktop to the counter. If hold down screws must be used, always insert a wood spacer between Karadon and screw. Screw is not to come in direct contact with Karadon, or be tight enough to restrict movement with expansion and contraction.

Field Seams:

1. Arrange all necessary supplies and tools for adhering joints. Apply one dab of silicone caulking every 12" on front, rear and centre supports.
2. Place first sheet on cabinet, position and clamp to restrict movement. Place and align second sheet on cabinet and leave approximately 1/8" space at joint to allow for joint adhesive.
3. Use clear packing tape between Karadon and cabinet to prevent seam adhesive from bonding Karadon to cabinet.

BACKSPLASHES:

Up to 5" High:

1. Apply dabs of Silicone every 8 – 10" to back of backsplash with just enough hot melt adhesive to hold in place until silicone sets.
2. Karadon adhesive can also be used to attach the back splash to the countertop providing a coved splash, by using a router with a tilt base and a core box bit. Many coving systems are commercially available. Contact Karadon technical support for a recommended system.

Full Height Backsplashes:

1. Apply dabs of silicone every 8-10" across and down on a clean and dust free surface.
2. Apply hot melt glue in dabs, just enough to tack panel to wall until silicone sets. Insert small spacers to raise full height splashes at least 1/16" off horizontal surface.
3. Install the backsplash and hold in place for a few seconds until hot glue sets.
4. This procedure also applies to tub and shower surrounds

Ceramic Tile Backsplashes:

1. Allow a 1/8" gap between top of counter and bottom row of tiles; fill this gap with silicone. Fabricator must leave suitable information to make tile-setter aware of installation specifications or inform contractor of specifications. Do not use a cement grout between tile and countertop.

THERMOFORMING:

The following are the recommendations for thermoforming Karadon...

- For best results, a convection oven is recommended for even heat distribution
- An alternative method using a heat gun is possible but not recommended due to the inconsistency of heat distribution. (When using a heat gun, have the setting on high and continuously move the gun back and forth to prevent scorching)
- To thermoform Karadon, a core temperature of 260 degrees F is required. Care should be taken to prevent the product from exceeding 300 degrees F, as excessive heat may produce burns.
- While thermoforming, use padded spring clamps every 3-4" to hold shape and prevent clamp edges from marking product.
- Thermoforming difficulties increase as the width to be formed increases, this can be attributed to the difficulty in maintaining thermoforming temperatures uniform
- While tighter radius's are possible with experience and practice, Karadon products should achieve a thermoformed radius of 12"

Due to the chemistry of the product, thermoforming is not recommended for veined and backlit products.

Thermoforming Karadon Acrylics:

Templating:

- template to the shape required using plywood.
- Other materials than plywood have inappropriate cooling times

Thermoforming Process per Thickness

Thickness of Product (inch)	¼"	½"
Oven temperature degrees F	320-370	320-370
Heating time in minutes	20	40
Minimum radius in inches	R=2.25	R=3

Notes:

- Peel protective film from the sheet surface
- Oven temperature should not exceed 390 degrees F
- Additional heating time may be required to pull minimum radius
- A Blushing effect may occur if product is subject to prolonged heat or excessive temperature
- Never remove product from the template until it has cooled to at least 150 degrees F or it may distort shape.
- Sufficient cooling time should be achieved in 15-20 minutes for ¼" and 30-45 minutes for ½" products

On the spot thermoforming:

For on the spot thermoforming a torch or heat gun may be used. Make sure to never let the flame or heat source contact the surface of the material.

Example:

- Prepare plywood template
- Preheat back of product using the torch or heat gun. Do not allow heat source to contact material
- Turn over product and heat the surface
- Place product over template and clamp immediately. Reuse the heat source to go over any areas of the product that do not contact the template
- Allow product to cool back to at least 150F minimum and loosen the clamps.
- Ideally remove the piece from the template once the product has returned to room temperature (80
- If proper cooling occurs there will be no change in shape

INSPECTION & CLEAN-UP:

1. **IMPORTANT: FABRICATOR/INSTALLER MUST LEAVE CUT-OUT PIECES OR OFF-CUTS OF ALL KARADON COLOURS USED IN A PERMANENT LOCATION ON SITE. INSTRUCTIONS MUST BE WRITTEN AND LEFT WITH THE OWNER – TO BE KEPT FOR POSSIBLE FUTURE (COLOUR MATCHED) REPAIRS. THOSE PIECES MUST BE HOT MELT GLUED OR AFFIXED TO THE INSIDE OF CABINET UNDER OR BEHIND THE SINK, AGAINST THE CABINET WALL.**
2. Check to ensure all work is complete, sand to remove minor scratches, lightly sand entire surface to provide an even finish. Clean up work area and adhere Care & Use of the product installed so as to ensure that the end user does not void the manufacturer's warranty through misuse or abuse.
3. In the event that a customer requests an installer to provide Karadon in a manner that does not meet the Karadon installation specifications, the installer must fill out a four part memo to notify the parties concerned and to remove any liability from themselves. Note any changes that are required to bring the installation up to specification. Retain one copy and leave one copy at site. Forward one copy to Karadon Technologies, and if applicable, one copy to the dealer.
4. Once installation is complete, be sure to leave the homeowner a Care and Maintenance Package including Warranty Registration Card.

Scratches: To remove scratches, try random sanding the area using a swirling motion with 400-grit (or equivalent) sandpaper followed by 600-grit. The area should then be cleaned with a less abrasive white Scotch Brite pad and a mild abrasive cleaner. To return the finish to its original lustre a spray on polish, such as "Countertop Magic™".

CARE AND MAINTENANCE:

Each Customer must receive a Care and Maintenance kit to ensure a proper understanding of the care and maintenance involved with Karadon surfacing and be eligible to register for the ten year Limited Warranty.

Guidelines:

- Always use hot pads or trivets under hot pots or heat producing appliances (NOT GLASS TRIVETS)
- Try not to use high gloss finishes in high traffic areas
- Always use a cutting board
- Felt pads should be placed under hard objects or pottery to protect high gloss finishes
- Avoid the use of harsh chemicals (paint remover, drain cleaners, etc...) on Karadon surfaces
- Never stand on your countertops

The finish of Karadon surfacing should be specified as one of the following:

Matte Finish:

Cleaning: To clean Karadon surfaces, soap and water will remove most stains. For the removal of more stubborn stains the use of a burgundy Scotch Brite pad and a mild abrasive cleaner should remedy the problem.

Scratches: To remove scratches, random sanding using a swirling motion with 240 grit or equivalent sandpaper, followed by cleaning with a burgundy Scotch Brite pad and a mild abrasive cleaner should remedy the problem.

Satin Finish:

Cleaning: To clean Karadon surfaces, soap and water will remove most stains. For the removal of more stubborn stains the use of a less abrasive white Scotch Brite pad and a mild abrasive cleaner should remedy the problem.

High Gloss Finish:

Cleaning: To clean Karadon surfaces, soap and water will remove most stains. More stubborn stains should be removed by using a polishing compound, such as 3M Perfect-It III with a soft cloth.

Scratches: To remove scratches from a high gloss finish, progressive random sanding starting from 400 grit (or equivalent) sandpaper, up to 1000 grit. The surface should then be machine polished to achieve its high gloss finish. It is recommended to contact a certified Karadon fabricator to restore Karadon surfacing to High Gloss, should the customer not own or have access to the necessary tools.

Seams – Trouble Shooting

Problems with seams can usually be attributed to one or more of the following:

1. Excessive clamping pressure forcing all glue out of seam.
2. Failure to provide a seam block under seam.
3. Improper shimming or support at joint or on an overlap.
4. Consumer:
 - Hot pot placed directly on or next to seam
 - Climbing onto counters that have inadequate support.
5. Shearing glue from seam by movement of material prior to curing of glue. Adjusting top surfaces material to level seam should be done prior to clamping as the scissor action of the two pieces may shear most of the glue from the joint.
6. Sanding or stressing the seam area prior to glue being fully cured.
7. Contamination in seam area (i.e. wax, oil or dye from cloths, residue from unclean tools, gloves, wiping cloths, solvent.)
8. Wide temperature changes in material during curing process (i.e., gluing cold material in a warm room will cause materials to expand as they reach room temperature, this may cause seam failure and brittleness.
9. Settling of structure (i.e., building settles or cabinets not properly installed).
10. Use of stale-dated or expired glue (check for crystallization). Refrigerating glue will extend shelf life – store in a cool dark area.

PATCHING SYSTEM FOR LARGE PARTICLE PRODUCTS

Repair system designed to allow for invisible repairs of cracks or chips with out removal or replacement of material from service.

Repair Technique:

1. Cut a groove in the counter along the crack line using a router or carving tool with a flexible shaft. The groove must be approximately 5/16 inch wide. (1/4 to 3/8 inch) and extend almost through the material (7/16 inch).
2. The groove should be cut with a straight flute router bit of 1/8 to 1/4 inch diameter.
3. The groove should be irregular along the edges and the contour should follow the pattern of the granules.
4. Next using a cutter with a pointed tip carve out some of the granules along each edge of the groove. (This irregular pattern will make the repair more invisible)
5. Clean the groove with methyl hydrate or de-natured alcohol on a clean white cotton cloth or paper towel.
6. Using the Seam Tight adhesive apply a small bead of adhesive along the bottom of the groove to seal the opening and prevent the repair resin from leaking out during the next step. Tape up the edges of the crack to prevent resin leakage at the ends or on vertical section repairs.(modeling clay may also be used)
7. After the adhesive sealing layer has set up, inspect to ensure that the seal is complete and that there is no place for the resin fill to escape.

Ambient Collection repairs:

**** In the case of repairs using Pearlescent or Metallic pigments in the resin base, follow the procedure below Prior to adding the catalyst****

- a) Thoroughly mix the resin base
 - b) Add bag/vial of pearlescent/metallic pigment into the resin base
 - c) Some pigment will remain inside the bag, but 95% should be removed.
 - d) Thoroughly blend the pearlescent pigment into the resin base until the base is consistent in colour. Continue repair procedure from Step 8
8. Following the instructions on the repair kit container, mix the catalyst into the resin base, stir well and pour into the groove until it is level with the top edge.
 9. Pour a small amount of styrene into the dry granules. (Just enough to dampen the surface, not wet)
 10. Shake the granules while rotating the container to evenly wet the particles and prevent particle segregation.

11. Wearing gloves sprinkle granules into the resin in the groove until it is over filled. Tamp the granules down into the groove and refill as needed. This step is critical in achieving a good match. When finished the granules should be piled up about a quarter of an inch above the surface and extend out a quarter of an inch or more beyond each side. Ensure that the particles are saturated with resin, if needed pour a small amount of additional resin onto the granules.
12. Watch the repair for any sign of the resin level dropping and granules drying out which may indicate a leak in the sealing layer. Add more resin as needed until the resin gels.
13. The repair should be left to cure for 24 hours at 70 degrees f.
14. Sand off the excess material using coarse grit abrasive until just above the plane of the repaired surface.
15. Sand of the balance of the material with a random orbital sander using water to lubricate the surface and to minimize dust. (Start with 100 micron and progress down to 15 micron)
16. Polish the surface using a cutting compound on a polisher with a lamb's wool pad at approximately 1000 to 2000 RPM.
17. Observe repair for any defect

Trouble shooting and other Applications:

Surface voids: Small voids (up to approximately 1/16 inch) may be filled with repair resin that can be sanded off when set. If the voids are close to the size of a granule or larger they should be enlarged and abraded to improve adhesion using a dremel tool. Glue a granule or granules into place using the resin as an adhesive. Sand when fully cured. For a fast repair in a very small area substitute Karadon adhesive for the resin and sand in one hour. The problem with using Karadon resin in a repair is that it is harder to sand and has a higher degree of gloss: when polished this will cause a variation in the appearance of the finished repair.

Surface appears textured when polished: This is caused by sanding the repair before it is completely cured, or from heating the material by aggressive polishing. To repair let the material cure and cool if applicable, then re-sand with the 30 and 15-micron sandpaper. Polish as per instructions being careful not to over heat the material.

Insufficient filling, especially on vertical surfaces can cause large voids. These should be repaired using the same technique as per steps # 1 to # 16. (No short cuts here)

In the case of repairing chips, follow steps 4 through 16 omitting steps 6 and 7

For further information on Repair Techniques, please contact our Customer Service Department.

10 YEAR LIMITED WARRANTY

FAMA Industries, KARADON division, (the Company) warrants to the end use purchaser that, at its sole option and to the extent hereafter provided, the Company will, for a period of ten (10) years of the purchase date, with respect to any new KARADON solid surface sheet stock, and for a period of ten (10) years of the purchase date of any KARADON moulded products, purchased after April 1, 1991 either repair, or replace without charge or reimburse the purchaser for the reasonable costs without charge or replacement of same, or refund the suggested list price prevailing at the time of sale if such material develops visible defects or otherwise fails, due to the Company's manufacturing defects, within ten (10) years of the date of initial installation.

This warranty applies only to KARADON product that has been installed by KARADON Authorized Fabricator/Installers in accordance with the Fabrication and Installation Guides and which has been used and maintained by the purchaser in accordance with the care and cleaning instructions, both of which are provided by the Company. Copies of the KARADON Fabrication and Installation Guides and Care and Cleaning Instructions are available from your dealer or from the Company at the address provided below.

For coverage under this warranty, you must provide proof of the date of initial installation when you seek service. For service under this warranty, you must notify either the dealer from whom you purchased the material, or the Company, in writing, providing your name, address and warranty registration number, a description of the product involved and the nature of the defect or failure, together with the name and address of the KARADON Authorized Fabricator/Installer. Repair or replacement shall include reasonable labour charges needed to repair or replace the defective product, which charges shall in any event shall not exceed the wholesale value of KARADON material initially purchased, based on the Company's wholesale invoice for such materials, but shall not include any costs for the removal, repair, cleaning beyond removal of scrap material or replacement of fixtures, hardware or decorative treatments (such as floor, wall or ceiling treatments) or the removal of plumbing or gas fitting or fixtures or electrical wiring.

Warranty Conditions:

1. This warranty does not cover:
 - a) minor conditions such as stains, scratches, water spots or burns which, due to KARADON's unique properties, may be corrected by techniques specified in the Care and Cleaning instructions available from the Company.
 - b) defects caused by the failure to comply with KARADON Fabrication and Installation Guidelines or the Care and Cleaning Instructions, or where the installation of material was made other than by a KARADON Authorized Fabricator/Installer acting in accordance with specifications set out in the KARADON Fabrications and Installation guide in effect at the time of installation.
 - c) the costs of any repair or replacement not authorized by the Company.
 - d) damage from heat generating appliances, user abuse, or any defects other than manufacturing defects.
 - e) any materials for purposes other than normal interior use as counter surfaces, wall cladding and custom furniture or other uses as approved by the manufacturer.
2. This warranty is voided by any unauthorized repairs.
3. This warranty is fully transferable
4. Where the Company elects to repair, repairs shall be made as close to the original finish or colour as reasonably possible, custom colour match charges are at the expense of the purchaser and are not covered by this warranty.

5. This warranty is offered in conjunction with the warranty of the original Authorized Fabricator/Installer. In the event that this Authorized Fabricator/Installer is not available to provide the service required, the Company will not be responsible for any travel costs beyond those normally incurred, had the initial Authorized Fabricator/Installer been available (within a twenty-five (25) mile radius of the facility). The Company reserves the option to supply the necessary material and to pay repair labour costs, directly to the purchaser based on the Company's warranty tariff rates in effect at that time.

The Company's obligation under this warranty is limited to the remedies specified in the first paragraph of this warranty. No implied or expressed warranty or merchantability or fitness for a particular use or for any other warranty except those specifically stated in this warranty, or required by law is granted, except for those remedies described in this warranty. The Company has no liability for any loss or any damage, including direct, or consequential or incidental damages, arising out of the use or inability to use KARADON materials.

This warranty gives you specific legal rights. You may also have other rights which will vary from State to State, or in Canada, from Province to Province. Federal Law does not permit the disclaimer or modification of implied warranties arising under applicable State or Provincial Law for consumer products. However, any such implied warranties shall expire at the earlier of the expiration of the stated warranty required under State or Provincial Law. Some jurisdictions do not allow limitations on how long an implied warranty lasts or the exclusion or limitation or incidental or consequential damages, so the above limitations and exclusion may apply to you.

Any questions about this warranty should be addressed to

FAMA Industries Corporation
Bldg. 7, 15050 54A Avenue
Surrey, British Columbia
Canada V3S 5X7

WARRANTY CLAIMS PROCESSING PROCEDURES

To resolve warranty claims, we ask that our Distributor Representatives or Warranty Service Agents prepare a Warranty Claim Report. You can help us expedite the processing of warranty claims and achieve improved customer satisfaction by cooperating in the following areas:

1. **Warranty Claim Report Form:** Please fill this out completely so that information needed to make decision is readily available for us. This information helps us tremendously in claim processing.
2. **Quality Inspection Checklist:** We ask your assistance in completing this form in detail, as this helps us to identify how the defect occurred. Your help in this area in the past has led to the advanced fabrication procedures that now exist in the solid surface industry, further improving our industry's reputation.
3. **Job Layout:** Include a detailed diagram of the job, complete with all measurements, along with distances to seams and seam locations. This helps us to accurately estimate the cost of fabrication and material, thereby reducing error and allowing us to validate a repair/replacement quote.
4. **Photos:** Take three to four photographs of the defective area and a photograph of the overall kitchen. If the claim were in regards to a cracked sink, we would like a photo of the sink, although you may feel we cannot see the cracks. Also, in the case of surface cracking or warping, we would like a photo of the underside of the countertop showing the substrate.
5. **Quotation:** Submit a written quotation on the repair or replacement of the job, including materials required from KARADON to complete the job. Repair is encouraged over replacement. However, if repair is not possible, a quote of the replacement is needed. This quote should include labour and any required materials.
6. **Proof-of-Purchase Document:** We must have some form of "proof of purchase" on all warranty claims. This document could include a copy of a receipt, cancelled check, warranty card, etc. This document should include the date of purchase or install and the type of material used.

Warranty claims that are submitted with this information will be resolved in a timely manner. Without this information the processing of a claim will be delayed. We ask for your continued cooperation and we thank you for your assistance.

KARADON TECHNICAL SERVICE DEPARTMENT
1-800-KARADON
(1-800-527-2366)

TECHNICAL DATA: PHYSICAL PROPERTIES

KARADON Polyester Surfacing

PROPERTY	STANDARDS	NOTES	Solids and Sandstones	Large Texture
Density			Approx. 1600 kg/m ³	Approx. 1500 kg/m ³
Elongation	ASTM-D-638		0.43%	0.66%
Tensile Strength	ASTM-D-638		4045 psi	2,290 psi
Tensile Modulus	ASTM-D-638		1.04 x 10 ⁵ psi	0.98 x 10 ⁵ psi
Flexural strength	ASTM-D790			3,620 psi
Flexural Modulus	ASTM- D790			0.88 x 10 ⁵ psi
Thermal Expansion	ASTM-D-696		11.7x10 ⁻⁵ m/m°C	11.7x10 ⁻⁵ m/m°C
Hardness	Barcol		60	55
Impact Resistance	ASTM-D-256 ISO 4586-2-13		.069 ft. Lb. >155 cm	0.42 ft/lb/in
Boiling water Surface Resistance	US Standard		Passed	Passed
Water Absorption	ASTM-D-570 ISO 4586-2-5		.03% 0.15%	.03%
High Temperature Resistance	Nema-LD3		No change in colour or texture	No change in colour or texture
Dry Heat	ISO 4586-2-8		4	
Stain Resistance	ANSI Z-124 5.1 ISO 4586-2-15	Acetone	43	40
		Coffee	5	No change
		Hydro Peroxide	5	No change
		Show Polish	5	No change
		Citric acid	5	No change
Fire Reaction	CAN4 S102.2		FSCI 9	
Blue Wool	ISO 4586-2-16		>6	
Grey Scale	ISO 4586-2-16		>4	
Light Stability	CSA	200 Hours Atlas Xenon	Passed	Passed
Cigarette Burn	ISO 4586-2-17		Stains removed with abrasive cleaner	Stains removed with abrasive cleaner

Karadon Acrylic Technical Specs

Physical Property	Test Method	Karadon Acrylic
Specific Gravity		1.77
Tensile Strength	ASTM D-638	6000 psi
Tensile Modulus	ASTM D-638	1.5 x 10 ⁶ psi
Flexural Strength	ASTM D-790	8000 psi
Flexural Modulus	ASTM D-790	1.38 x 10 ⁶ psi
Elongation	ASTM D-638	0.35%
Rockwell Hardness	ASTM D-785	87
Barcol Hardness	ASTM D-2583	60
IZOD Impact Strength	ASTM D-256	0.39 ft-lbs-in
Thermal Expansion	ASTM D-696	3.7 x 10 ⁻⁵ in/in/oC
Water Absorption	ASTM D-570	0.6% Long Term
Flammability	ASTM E-84	Class 1 / Class A
Weatherability (1000 hours)	ASTM D-1499	No Change
Color Stability	Nema LD-3.3 10	No Change
Abrasion Resistance	Nema L3.3.01	No Loss
Boiling Water Surface Resistance	Nema LD3-3.05	No Change
High Temperature Resistance	Nema LD3-3.5	No Change
Wear and Clearability	ANSI Z. 124.3&ANSI Z. 124.6	passes
Stain Resistance	ANSI Z. 124.3&ANSI Z. 124.6	passes