

Fabrication and Installation Guidelines for Creating  
Postformed Decorative Laminate Countertops with:

## **A PROFESSIONAL FIT**

A special report from VT Industries on how fabricators and installers can help their customers achieve a professional fit for their residential or commercial postformed laminate countertop projects.





## INTRODUCTION

The blending of technology and creativity by postformed laminate manufacturers has resulted in an explosion of colors, patterns, tints, tones and surface textures for high pressure decorative laminate (HPDL) countertops. When matched to multiple profiles available from postformed countertop manufacturers, the result is literally thousands of creative possibilities.<sup>1</sup>

As a professional fabricator/installer, it's important to be prepared when your customers have questions about selecting the postforming laminate pattern and edge style that will achieve the aesthetic look and feel they're after. A few considerations that can help them make the right decision are:

- Take a selection of laminate sample chips home to view in the kitchen or other rooms where the countertop is being installed. View the samples in the lighting the top will be installed in, daylight, as well as the evening, taking into account all of the other materials and colors being used in the new construction or remodeling project when choosing a design. Or visit laminate manufacturer Web sites to preview available patterns.<sup>2,3,4,5</sup>
- Some laminate designs contain characteristics or color variations that are not apparent on a 2 inch x 3 inch sample chip, so it may be necessary to request a larger sample from the manufacturer.<sup>2</sup>

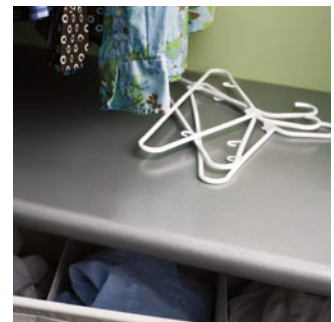


Hotel Kitchenette: Caprice, Formica Sisal Mat

- Pay particular attention to laminate finishes that afford varying degrees of texture and gloss. Improved surface technology is now available that provides enhanced scuff resistance and better abrasion resistance. Invite your customers to test sample chips by drawing the rough bottom of a coffee cup or cutting knife across its surface and checking for scratches.<sup>5,6,7</sup>
- Postforming laminate patterns with high visual texture — whether it's micro-texture or a larger, heavier texture — appear cleaner even with some soiling.<sup>2</sup>
- Different laminate surface textures impart dimensions and depth to add interest and value by creating a sense of "material". Some laminates are textured so they not only appear like stone or brushed aluminum, they feel like it, too.<sup>1,2</sup>
- Consider the different postformed countertop edge profiles available when choosing a laminate design. Some designs lend themselves to the traditional or European postformed edges, while others are suited to a beveled or square edge that maintains a solid, monolithic appearance.<sup>1</sup>
- Wood edging that can be stained to match cabinetry is a popular option in the traditional kitchen environment.<sup>1</sup>
- Postformed laminate surfaces complement the trend toward mixing and matching different surface materials at a fraction of the cost of quartz, granite/natural stone, ceramic tile and solid surfacing.<sup>1,3</sup>
- Postformed laminate surfaces are easily adapted to residential applications such as utility room counters, garage work benches, computer work areas and children's play areas, as well as kitchens and baths.<sup>1</sup>



Textured laminate:  
Futura, Wilsonart Deepstar Fossil



Look of metal:  
Nova, Wilsonart Satin Stainless



Wood edging: Fleetwood II,  
Nevamar Marrakesh Market

## PERFORMANCE PROPERTIES

If your customers want proof of durability and easy maintenance, their assurance can be found in the American National Standards Institute/National Electrical Manufacturers Association (ANSI/NEMA) LD 3-2005. More than a dozen different performance properties, ranging from impact and wear resistance to cleanability, are covered by these standards.<sup>8</sup>

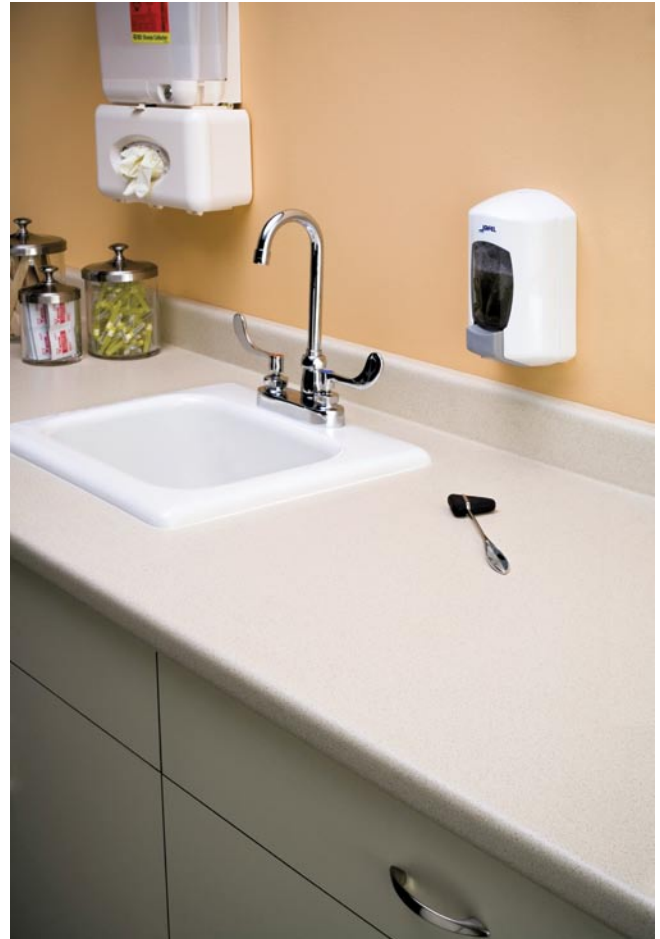
In one test that measures the ability of laminate to resist fracture due to spot impact with a stainless steel ball, results are measured as height of impact resistance before failure. The NEMA standard is 30 inches for 1.0 mm (0.039 inch) thick postforming HPDL, typically used on countertops. Laminate manufacturers report typical ball impact resistance values of more than 55 inches using NEMA testing procedures.

**TABLE 1 - NEMA TEST REQUIREMENTS AND PERFORMANCE PROPERTIES**

STAIN	SCORE
Distilled water	0
50-50 ethyl alcohol	0
Acetone	0
Household ammonia	0
10 percent citric acid	0
Vegetable oil	0
Fresh coffee	0
Fresh tea	0
Catsup	1
Yellow mustard	2
10 percent povidone-iodine	2
Black permanent marker	2
No. 2 pencil	2
Wax crayon	3
Black paste shoe polish	4
	Total Score = 16

Source: NEMA LD 3-2005

Postforming HPDL performs above NEMA's minimum requirement for wear resistance, which is based on the ability of a decorative overlaid surface to maintain its design or color when subjected to a Taber abrader test. In this test, laminate is placed on a rotating disc with two abrasive wheels placed over the disc. As the disc rotates, the wheels abrade the laminate sample.



*Hospital Patient Room: Futura, Wilsonart Neutral Glace*

NEMA's standard for wear resistance is 400 revolutions of the abrasive wheels. Laminate manufacturers report wear resistance up to 2,000 revolutions for their various grades of HPDL. In addition, some HPDL manufacturers enhance wear resistance by applying a coating of "grit" across the surface of the laminate that creates a shield to resist wear and abrasion.

The standard for stain resistance is "no effect" when a laminate surface is tested using distilled water, ethyl alcohol solution, acetone, household ammonia, 10 percent citric acid, vegetable oil, fresh coffee, fresh tea, catsup and yellow mustard. The standard allows a "moderate" effect when the laminate surface is tested using 10 percent povidone-iodine, black permanent marker, No. 2 pencil, wax crayon and black paste shoe polish. A typical test example from LD 3-2005 is shown in Table 1.

Other NEMA tests for postformed decorative laminate measure its resistance to light, boiling water, high temperature, dart impact, radiant heat, dimensional change and blistering.

## THE INSIDE STORY

Most customers will want information on the different edge options that are available. Popular edge styles include:<sup>9</sup>

- Double-radius that provides the “slab” effect of solid surface or stone. (Futura)
- Waterfall with a 1/2-inch radius for a contemporary look. (Tempo)
- 180 degree wrap, with its rounded profile, is a popular choice for homes with young children as well as school and commercial applications. (Nova)
- A slightly raised “No Drip” front edge that keeps spills from running over. (Caprice)
- Full-wrap edge and graceful contours for classic sophistication. (Valencia)
- Striking double-waterfall edge, which adds distinction and flair to modern and traditional designs. (Barcelona)
- Clean, attractive modern drop edge that emanates subtlety and understated class. (Geneva)
- The traditional square edge. (Classic)
- Wood available in different profiles and species that can be stained to match or complement cabinetry. (Fleetwood II)
- 45 degree bevel can feature the same laminate pattern used on the countertop surface, or a contrasting color for added interest. (Regal)



School Art Classroom: Caprice, Wilsonart Barcoo Brush

<p><b>FUTURA</b> DOUBLE RADIUS EDGE</p>	<p><b>TEMPO</b> WATERFALL EDGE</p>
<p><b>NOVA</b> 180° WRAP EDGE</p>	<p><b>CAPRICE</b> NO-DRIP EDGE</p>
<p><b>VALENCIA</b> FULL-WRAP OGEE</p>	<p><b>BARCELONA</b> CONTEMPORARY OGEE</p>
<p><b>GENEVA</b> MODERN DROP EDGE</p>	<p><b>CLASSIC</b> SQUARE EDGE</p>
<p><b>FLEETWOOD II</b> SOLID WOOD EDGE</p>	<p><b>REGAL</b> 45 DEGREE BEVEL</p>

When describing these edge options, explain how postformed HPDL countertops are formed from a single piece of laminate, shaped with or without a backsplash at the rear and a rounded edge in the front with no seams to collect dirt and grime.<sup>1,7</sup>

Remind your customers that laminate countertops never need to be resealed or polished like stone and solid surface products, making them an ideal surface for preparing food. Laminate’s melamine coating does not facilitate the growth of bacteria, microbes or fungi.<sup>1,10</sup>

And inform your customers that environmentally friendly postformed laminate countertops are available as an option. These countertops are made from particleboard cores that use no added urea formaldehyde in the manufacturing process. Countertops sold under the EQcountertops brand use only low emitting laminates and biodegradable, water-based adhesives that eliminate unsafe volatile organic compounds (VOCs).

This product will especially appeal to architects or specifiers who are pursuing a LEED (Leadership in Energy and Environmental Design) certification in a residential or commercial application.<sup>11</sup>

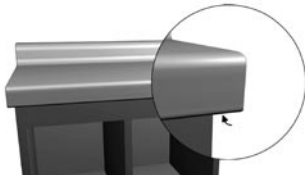


## FABRICATION TIPS

The basis for all professional fabrication and installation work is the careful measurement of the residential or commercial space where the postformed countertop is being installed. It's critical to note plumbing and structural features such as electrical outlets and window frames which could affect the placement of the backsplash.<sup>8,11,12</sup>



Measure cabinetry from back wall.



Add 3/4-inch for overhang.

Always measure cabinet depth, especially in older homes built in the 1940s and 1950s, which may have cabinets measuring 20 to 21 inches deep instead of 25-1/4 inches, which is standard for postformed laminate countertops. Remember to allow an extra 3/4-inch to the total length for overhang when the countertop does not butt up to a wall or an appliance.<sup>10,11,13</sup>

Homebuilders are seeing a trend toward "supersizing" kitchen countertops to make them taller than the 36-inch standard recognized by the National Kitchen and Bath Association (NKBA). This demand for taller countertops and fixtures can be traced to increased awareness of workspace ergonomics, along with the fact that people today are taller compared to earlier generations. Taller custom cabinets could affect installation where backsplash height is a consideration.<sup>3,14</sup>



Be aware of backsplash height.

Standard backsplash heights can range from 3 inches to 3-13/16 inches, depending on the style of countertop being ordered. If the backsplash is taller than the one it's replacing, or the cabinets are taller than standard size, there may be issues related to electrical outlets, window sills or the condition of the wall behind the countertop.<sup>11</sup>



Precision countertop saws used in fabrication are easily adjusted to any angle for cutting miters that have a professional fit.



Precision miter cutting.

Fabricating postformed laminate countertops in the shop is always preferable to jobsite fabrication, where space is often limited. Whether fabrication is done in the shop or in the field, it's important to use the proper tools, including:<sup>11,15,16</sup>

- An electric drill with assorted bits (e.g., high-speed steel, twist drill, forstener or brad point bits).
- Disc sander, belt sander or block plane for contouring the countertop to the wall during scribing.
- Electric- or air-powered routers with adequate horsepower to maintain cutting speeds of 16,000 to 22,000 rpm.
- A woodworking or metal-cutting saber saw for curved or straight cuts when smooth edges or close tolerances are not required.

- Triple chip grind tooth configuration is recommended for blades. Both tungsten carbide- and diamond-tipped blades have been shown to be excellent tools for sawing postformed HPDL countertops. Typical blades are shown in Table 2.<sup>17</sup>
- Decorative laminates may dull tools more rapidly than wood, so it may be necessary to sharpen them more frequently to prevent chipping. Carbide-tipped tools are recommended.<sup>18</sup>
- An iron, roller and hardwood block are needed when applying endcaps that are pre-coated with hot melt adhesive for attachment to the edge of the countertop. Specialized heaters designed especially for hot melt glue lines are also available for high-volume fabricators.<sup>13</sup>
- Seam clamps with electric vacuum pumps designed to pull mitered sections of countertop together.<sup>19</sup>
- C-clamps, rubber mallet, level, carpenter's square, hammer, handsaw, scribe-compass, adjustable wrench, sandpaper, pencil, screwdriver, measuring tape or ruler and caulk gun.

**TABLE 2**

PARAMETER	BONDED PANEL - 19 mm (3/4")
Diameter	203.2 to 355.6 mm (8" to 14")
Speed per minute	2,438 to 4,572 mm (8,000 to 15,000 ft.)
Pitch	13.21 mm or less (0.520" or less)
Rake angle	10 to 15 degrees
Kerf	2.39 to 3.43 mm (0.094" to 0.135")

Source: NEMA LD 3-2005

## END FINISHING

Many professional fabricators prefer hot melt adhesive with a minimum softening point of 65 degrees C (150 degrees F) for edge banding operations. When applied correctly, it provides a strong bond between the endcap and countertop edge with minimal clean up.<sup>11</sup>

Hot melt adhesive will set quickly after it is applied to the substrate, which absorbs heat from the adhesive. The colder the particleboard, the quicker it absorbs heat from the adhesive. Once the adhesive is heated, apply

the endcap immediately to the edge of the countertop using a roller or hardwood block. Pressure should be applied across the entire surface of the endcap while the adhesive is still hot to ensure a uniform seal. If the hot melt adhesive cools before pressure is applied to the entire endcap, the bond could fail.<sup>11</sup>

Always keep the laminate side of the endcap as cool as possible when heating pre-coated hot melt adhesive. If the laminate side of the endcap is allowed to become too hot, it will tend to curl when applied to the countertop. Commercial heating units used by some fabricators can be modified with removable sliding trays that stay cool when not in use. The laminate side of the endcap is placed face down on the tray during heating, while the side that's pre-coated with hot melt adhesive is directly exposed to the heat source. This technique allows the laminate side to stay relatively cool to prevent curling.<sup>11</sup>

Commercial heating units are used by some fabricators to prepare endcaps that are pre-coated with hot melt adhesive. The laminate side of the endcap is placed face down with the hot melt adhesive directly exposed to the heat source (**Step 1**). The endcap is then applied to the countertop (**Step 2**), seam-rolled (**Step 3**) and cooled with a wet rag (**Step 4**), which helps the adhesive to set. Paste wax is then applied along the countertop where it meets the endcap (**Step 5**) to serve as a lubricant for the router to glide across and prevent scratching of the laminate during removal of excess endcap material (**Step 6**). The backsplash is then sanded smooth (**Step 7**).<sup>11</sup>



**STEP 1** Heat endcap.



**STEP 2** Apply endcap.



**STEP 3** Roll.



**STEP 4** Cool with wet rag.





**STEP 5** Apply wax.



**STEP 6** Remove excess material.



**STEP 7** Sand backsplash.

When using a household iron to apply pre-coated endcaps, apply pressure with a rag soaked in cold water to cool the laminate face. Avoid drafts from open doors or windows, which can drop the temperature and cause the hot melt adhesive to set even quicker than normal.<sup>11</sup>

Some fabricators prefer using contact adhesive to apply endcaps, which takes longer to set than hot melt and, if applied unevenly, can lead to a streaky appearance on the laminate surface from residual glue.<sup>20</sup> Obtaining uniform coverage of contact glue on the bonding surfaces can be difficult with a brush.<sup>21</sup>

One laminate manufacturer reports that assemblies made with contact adhesives are less resistant to stress cracks than those fabricated with Polyvinyl Acetate (PVA), or white glue.<sup>22</sup>



*Kitchen: Futura, Formica Flint Crystall.*

## AVOIDING STRESS

Quality postformed laminate countertops are manufactured in a controlled environment (approximately 75 degrees F and a relative humidity of 45 percent to 55 percent) to minimize the occurrence of stress cracking or warpage from humidity conditions that are too moist or too dry.<sup>22</sup>

PVA glue lines used by postformed laminate countertop manufacturers provide the strongest possible bond between the substrate and laminate, making them more crack resistant.<sup>23</sup> Poor adhesive bonding can result in the laminate separating from the substrate, as well as open joints and seams.<sup>24</sup>



*Assisted Living Kitchen Area: Barcelona, Formica Sand Crystall*

Good fabrication techniques in the shop or jobsite can also help to prevent stress cracking, open joints or seams and other problems associated with decorative laminate countertops. Recommended techniques include:

- Avoiding cutouts with sharp corners and rough edges, as square cutouts can cause stress cracks from the corners that radiate from the cutout to the edge profile/backsplash. All cutouts should be routed or filed to ensure smooth edges, and corners should have a radius of 1/8-inch or larger. A 1/4-inch diameter router bit is normally used to create a radiused corner.<sup>22,24</sup>

- Making drill hole diameters 0.002 inch larger than the specified diameter of the hole.<sup>25</sup>
- Always using wood to back up material being drilled to prevent breakout at the bottom of the drilled hole.<sup>25</sup>

Precision sink cutout machines are used by large volume fabrication shops, while others rely on routers with template guides to cut sink holes with properly radiused corners.

Depending on the size of mitered countertop sections, fabricators may choose to assemble the miter with the laminate side down, then turn it over to apply the endcap. Assembly can be performed either on the cabinets or with the countertop laid across two saw horses for easier access to the miter joint. Positioning of the assembled countertop onto the cabinets will require two to three people. With larger L-shaped countertops, it's usually easier to assemble the miter with the laminate side up.<sup>11</sup>



Precision sink cutout machines are used by fabrication shops.

## INSTALLATION TIPS

Scribing the backsplash is the key to installing postformed HPDL countertops with a professional fit. Countertops and cabinets seldom fit squarely against the walls, which is why postformed countertops with backsplashes come standard with a 5/8-inch thick scribing strip that can be trimmed to eliminate gaps or variations in the wall. Failure to fit the countertop to these contours can result in spaces behind the backsplash that detract from the project's appearance.<sup>11,16,26,27,28</sup>

Depending upon the skill level of the fabricator, scribing can take from less than 15 minutes for a single section of countertop to a half-day for more difficult U-shaped designs. The preferred method for scribing the backsplash is to place masking tape along the "lip" of the scribing strip, then position the countertop so it aligns parallel to the front face of the base cabinets (**Step 1**). Next, set the points of a compass at the widest gap between the backsplash and wall and draw a scribe line across the tape along the backsplash (**Step 2**).<sup>12,21,22</sup>

Use a disc sander or belt sander to remove material down to the scribe line. High-speed disc sanders, or grinders, are often preferred by experienced fabricators (**Step 3**). Place the countertop on the cabinets to check the fit, making sure it is level and stable and that the drawers open freely. It's not uncommon to scribe some countertops more than once to achieve a perfect fit (**Step 4**).<sup>12,23</sup>



**STEP 1** Observe backsplash.



**STEP 2** Draw scribe line.



**STEP 3** Remove excess material.



**STEP 4** Achieve a perfect fit.



An alternative to the traditional scribing method uses a tool called the QuickScribe™, which is an accessory plate that attaches to an offset router including Bosch and Porter Cable brands. The router's bit is centered in a wheel that attaches via a plate to the bottom of the router. Once the plate is attached (**Step 1**), fasten the countertop less than 1-inch away from the wall with clamps or a couple of screws from underneath. Place the accessory plate onto the countertop with the wheel touching the wall. The wheel will keep a constant distance of 1-inch from the wall to where the cut is made. The non-marking and non-sticking wheel is then free to roll along the wall, guiding the router while the router does the cutting (**Step 2**). With the wheel being centered on the router bit, the router can be rotated during use without loss of accuracy. The tool eliminates having to remove the countertop from the cabinets to do trimming, and with a precise fit (**Step 4**), there is no need to caulk. For more complex, multi-sided or curved wall countertop placement, a router accessory called the ScribeMate™ uses a wheel to follow templates made with the QuickScribe.<sup>29</sup>



**STEP 1** Attach the plate.



**STEP 2** With the countertop fastened less than one inch from the wall, the router does the cutting.



**STEP 3** There is no need to caulk when you achieve a precise fit.



Position the countertop so the lip on its front edge extends over the cabinets, allowing enough clearance for drawers and built-in dishwashers to open and close freely. On some modular cabinetry, buildup may be required to allow for the necessary clearances of the drawers and appliances. The buildup should be applied to the bottom of the countertops, making sure that some of the blocks are positioned over the point where the cabinets come together.<sup>11,28</sup>

Finish the installation by assembling mitered sections where necessary and attaching the postformed HPDL countertop to the cabinets with wood screws. Use high-quality woodworking glues in the miter, or a silicon colored sealant adhesive. Coat the edges of both miters with 100 percent silicone sealant before positioning them together with miter bolts (**Step 1**).<sup>26,27,28</sup> Align the top of the miters by tapping on a wood block placed over the high side and tighten the bolts when the miters are flush (**Step 2**).<sup>30</sup>



**STEP 1** Apply silicone sealant.



**STEP 2** Tighten the bolts.

Seam clamps with electric vacuum pumps that provide a consistent grip can replace the use of several manual clamps required to level and pull countertops into place. The tool can make installation of mitered countertop sections faster and easier, enabling one person to install a countertop at the jobsite.<sup>19</sup>

Postformed decorative laminate countertops can also be installed on legs or braces or anchored to walls for a variety of residential and commercial uses where cabinets are not required. Spans up to 12 feet in length have been installed in wall-to-wall applications where wood strips or cleats are secured to each wall for the countertop to rest on. A 4-inch strip of wood attached underneath the countertop, behind its front edge at a 90-degree angle and secured to the walls, will provide added support in applications where cabinetry is not used. In these applications where runs of more than 12 linear feet are used, it is recommended that the countertops have backer applied to them to help elevate the natural movement of the countertops.<sup>11</sup>



Assisted Living Bathroom: Futura, Wilsonart Villa Roca

## PROTECTING THE SURFACE

Fabricators should advise customers on the use and care of their new postformed HPDL countertops with these guidelines from laminate manufacturers:<sup>31</sup>

- Use a cutting board or other protective surface for chopping, slicing, pounding or hammering.



Hotel Guest Bathroom: Tempo, Formica Metal Ocean

- Placemats or coasters can protect the surface against scratching from ceramic items.
- Avoid placing hot irons, cigarettes or cookware — including utensils like electric skillets and waffle irons — directly on the surface. Prolonged exposure to temperatures of 140 degrees F or higher may cause the laminate to separate from its core. Always use a hot pad or trivet beneath heated objects.
- Clean the surface with a damp cloth or sponge and a mild detergent or household cleaner.

- Difficult stains such as coffee or tea may require applying a paste of baking soda and water on the affected area and scrubbing the stain with a nylon bristled hand or vegetable brush using a circular motion.
- Avoid using cleaners containing acid, alkali or bleach, which can cause marring, etching and corrosion, and permanently discolor the laminate surface.
- Always rinse laminate surfaces after cleaning to avoid damage. Even a dry residue may be activated when it becomes wet.
- Avoid flooding the surface when cleaning, especially near seams.
- Remove oil-based paints with a suitable solvent; water-based paints can be removed with an ammoniated household cleaner.
- Never use steel wool or abrasive scouring pads.



School Science Classroom: Futura, Formica Chalk Solidz



## SUMMARY

- Postformed HPDL countertops are available with or without a backsplash in a variety of edge profiles and thousands of laminate designs that include the look and feel of stone or brushed aluminum.<sup>1,2,3,4</sup>
- Postformed laminate countertops exceed a wide range of industry requirements for impact, wear, high temperature, cleanability, stain and scratch resistance, dimension change and radiant heat.<sup>8</sup>
- Accurate measurements are critical to fabricating and installing a postformed HPDL countertop.<sup>5,11,12</sup>
- Use the proper tools to fabricate and install postformed laminate countertops.<sup>11, 15, 16</sup>
- Hot melt adhesives provide a strong, clean bond for applying endcaps to the countertop substrate.<sup>11</sup>
- Walls and corners are often uneven and out of square, so always scribe postformed laminate countertops for a professional fit.<sup>11</sup>
- Use build-up strips when necessary to add stability and provide clearance between the edge of the countertop and cabinet drawers.<sup>11</sup>
- Advise customers on the proper care and maintenance of their new postformed laminate countertop.<sup>31</sup>

## THE HISTORY OF LAMINATE<sup>32</sup>

Originally used as a replacement for heavy ceramic insulators in the electrical industry, laminate continues to be covered under the National Electrical Manufacturers Association (NEMA). Following is a brief timeline of laminate:

- **1907** – Dr. Leo Baekeland invents phenolic resin, the plastic that, when coated on paper, constitutes the core of a sheet of laminate. The brand name of this material is Bakelite.
- **1913** – Two former Westinghouse employees formed the company that would later be known as the Formica Corporation. Formica is the first major producer of sheet laminate made of paper.
- **Early 1920s** – Laminates are used to make radio cabinets.
- **1927** – A layer of color is added to the surface of phenolic sheets, resulting in the first decorative laminate.
- **1931** – Cigarette-proof laminate is developed.
- **1938** – Melamine resin, synthetic beetle lacquer, is perfected by American Cyanimide, making a durable decorative surface possible.
- **1947** – Brooks Stevens, the first notable designer of laminates, is hired by the Formica Corporation.
- **1950** – Formica introduces two Brooks Stevens designs that will have a profound effect on the history of laminate: Luxwood, the first faux-wood laminate collection, and Skylark, renamed Boomerang in the 1980s.
- **1956** – Ralph Wilson Plastics, later renamed Wilsonart International, is founded in Temple, Texas, becoming one of 16 laminate producers in the U.S. By the end of the 20th century, the number will be reduced to four.
- **1956** – Van Top, Inc., renamed VT Industries, begins making postformed laminate countertops in Holstein, Iowa.<sup>33</sup>
- **Late 1950s** – A post-forming (bendable) grade of laminate is perfected, allowing the material to wrap around corners.
- **Early 1960s** – Nevamar introduces the ARP finish, which provides extraordinary abrasion resistance.
- **1980s** – The laminate industry switches inks based on solvents to those based on water.
- **1996** – Digitally printed laminate is introduced.

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- <sup>31</sup> Technical data from Nevamar® Decorative Surfaces, Formica® Corporation and Wilsonart® International, Inc.
- <sup>32</sup> Jeffers, G., "The History of Laminate," *Interiors*, February 2000, pgs. 41-42
- <sup>33</sup> VT Industries, *Corporate Brochure*, pg. 2



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