BUILDER'S GUIDE TO Vinyl Siding

inyl now accounts for about 30 percent of the siding installed on new homes in the U.S., a percentage that has remained virtually flat since 1995. Because of vinyl's reputation as a low-cost

by Martin Holladay

substitute for wood siding, it has had an uphill battle gaining acceptance with discern-

ing homeowners, especially in areas of the country with a strong tradition of wood siding. However, vinyl siding manufacturers have made a concerted effort to overcome some of the problems associated with early vinyl siding installations. Since vinyl siding never needs to be painted, homeowners looking for a low-maintenance exterior often prefer it to wood.

Neither vinyl siding manufacturers nor homeowners want their vinyl siding to look like vinyl. Manufacturers' brochures describe vinyl with "a deeply embossed wood-grain texture," vinyl with "the look of expensive hand-sawn siding," and vinyl with "the ambiance of real wood." Many types of vinyl siding sold today do, in fact, look more like wood than earlier versions. Yet when it comes to aesthetics, perhaps the best advice is: "look, but don't touch." Vinyl siding is thin — $^{50}/_{1000}$ of an inch or less — and hangs somewhat loosely from a building. When pressed, it gives — making it unlikely that anyone up close will confuse it with cedar clapboard.

What is Vinyl Siding?

Siding made from polyvinyl chloride has been available since the late 1950s. At least three companies — ABTco,



For the best-looking job, choose a stiffer product and pay attention to fastenings and lap joints



Figure 1. When installing vinyl siding, nails are never driven home. Vinyl siding needs to be able to slide back and forth as it expands and contracts with changes in the temperature.

Figure 2. Several types of vinyl siding, including Alcoa's Grand Sierra, at left in photo, have a folded nail hem. These double-thickness hems are less likely to rip in a windstorm.

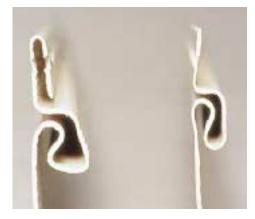




Figure 3. Vinyl siding is very flexible. The stiffer the panel, the easier it is for the installer to handle, especially when working alone.

Crane and Mastic — claim to have invented or pioneered vinyl siding. Early manufacturers had to overcome many technical hurdles in order to create a siding material out of PVC.

Vinyl needs a variety of additives or modifiers to make it suitable for use outdoors. Because unmodified vinyl can shatter, especially at low temperatures, manufacturers add acrylic modifiers to improve impact resistance. Since sunlight tends to make unmodified vinyl brittle over time, titanium dioxide, which absorbs and therefore screens ultraviolet radiation, is added to the plastic resin.

As a material, vinyl has the distinct disadvantage of having a relatively high coefficient of thermal expansion — a 12-foot length of vinyl siding can expand ⁵/8 inch from winter to summer. Since this is an unchangeable characteristic of vinyl, designers have devised ways to accommodate movement — by developing trim with pockets that disguise length changes, by the use of wide nail slots, and by training installers not to drive nail heads home (see Figure 1). Properly installed vinyl siding should be able to slide back and forth with temperature changes.

Limited colors. The hotter vinyl siding gets, the more it expands, and the more it softens and wants to droop. In order to minimize expansion and maximize stiffness, vinyl siding is manufactured in light colors, which help keep the vinyl as cool as possible. Over the years, manufacturers have made incremental formula improvements to allow somewhat darker colors. But the range of colors available is still limited, in spite of the inventive profusion of color names offered: beige, bone, champagne, clay, cream, flint, frost, gray, ivory, khaki, linen, pearl, pewter, pine, sand, snow, tan, wheat, white, and wicker.

"Every manufacturer would like to have darker colors," says Alan Hoying, technical services manager for Alcoa Building Products. "But there are two problems: fading and heat distortion. There are some developments from the resin producers, but we're not there yet."

Manufacturers are continually trying to improve the appearance of vinyl siding. "Early vinyl siding was very glossy," says Kathy Richardson, marketing manager at Alside. Manufacturers now realize that it takes more than wood-grain embossing to make vinyl look like wood. "We've gone to the lower gloss finishes," says Allen Duck at Heartland.

Co-extrusion and fillers. By the early 1980s, the chemical properties necessary to create a weatherable vinyl were fairly well understood. Since then, there have been few major improvements in vinyl resin formulas, although manufacturers have made great strides in lowering their manufacturing costs.

"Originally, the entire thickness of the vinyl siding was very well protected against ultraviolet light," says Ella Rabinovich, a research scientist at Geon Co., a manufacturer of vinyl resin. "That's kind of expensive, and the marketplace is such that we had to find a different way to do things. Vinyl siding evolved into a composite product, consisting of two layers — the substrate and the cap-stock." This type of siding is produced through a process called coextrusion. "Vinyl siding is mainly co-extruded today," says Rabinovich. "Typically about 20% of the total thickness of the siding is the cap-stock. The substrate is not exposed to sunlight or weather, so it is not as well protected against UV light." Because of this development, the expensive additives necessary for weather resistance are present only in the 8- to 10-mil-thick top layer of siding.

Manufacturers have also found new ways to increase the percentage of fillers used in vinyl siding. "Calcium carbonate is used as a filler," says Alan Kupfer, technical service engineer at Georgia Gulf Corp., a manufacturer of PVC resin. "Vinyl siding cap-stock is usually 3% to 5% filler. To reduce cost, the manufacturers are trying now to get the level of filler in the substrate up to 10%."

Vinyl's Strengths and Weaknesses

Manufacturers are acutely aware of vinyl siding's mixed reputation. One vinyl siding manufacturer's brochure shows photos of vinyl siding gone bad — in all cases, of course, the examples are "the other guy's" siding. The photos show vinyl siding that is cracked from hail damage; mottled siding that has faded unevenly; buckling siding exhibiting "oil canning"; and drooping siding suffering from heat distortion. These days, if an installer chooses a quality siding and installs it carefully, such problems are very unlikely. Still, homeowners should be warned not to put their barbecue too close to the house, or the siding could melt.

Chalking. As vinyl siding ages, it can develop a chalky surface or white staining. "The biggest negative to vinyl siding is oxidation," says Doug Price of Norandex. "It appears as a white film. Wood rots, steel rusts, and vinyl siding oxidizes." Several siding manufacturers have noticed that regions with more rainfall have more chalking complaints.

"Chalking is a result of a photocatalytic mechanism," says Walter Pye, a technical representative at DuPont, a major supplier of titanium oxide. "You have to have oxygen and moisture to promote it. That's why you get more chalking in humid climates." Doug Price agrees. "In the South, where there is a lot of sunlight, you don't have the problem," says Price. "Eighty percent of our chalking

Polypropylene Siding

n the last few years, several vinyl siding manufacturers have begun selling polypropylene siding. Polypropylene siding can be distinguished from vinyl siding by its thickness. While vinyl siding is between .038 and .050 inches thick, polypropylene siding is much thicker — usually .090 or .100 inches thick. Most polypropylene siding is designed to appear from a distance like cedar shingles (see photo). Polypropylene is expensive; it generally costs about four times as much as vinyl siding.

The manufacturer that pioneered polypropylene siding in the U.S. is Nailite International of Miami. Although Nailite has been selling polypropylene siding for 22 years, the weatherability of polypropylene is not as well established as vinyl, if only because so much less of it has been installed. "The UV resistance of polypropylene depends on UV inhibiters and a coating we put on top," says Vince Sciarrabba, vice president of sales for Nailite. "After about 10 years the coating wears away, and then the resin starts to weather. It's hard to say how long it will last. The siding will probably last another



Most polypropylene siding, like CertainTeed's Half-Round Shingles, has the appearance of cedar shingles. Polypropylene siding is about twice as thick as vinyl siding.

 $10~{
m or}~12~{
m years}$ after the coating wears away. After $20~{
m years}$, if people need new siding, they put new siding on."

Vinyl siding manufactures, including CertainTeed, Heartland, and Wolverine, insert descriptions of their polypropylene products into their vinyl siding catalogs. Some buyers of these products may not be aware that they are made of polypropylene rather than vinyl.

Unlike polypropylene, vinyl siding must comply with ASTM standard D3679. "There currently is no standard for polypropylene siding," says John Hausoul, technical director for the Vinyl Siding Institute.





Figure 4. Siding with a thicker butt dimension, like the Mastic Quest-3 siding at left, is stiffer than siding with a smaller butt. Stiffness is more affected by the butt dimension and the profile of the lock than by the gauge of the vinyl.

Figure 5. Variegated or twotone siding, like this Cedar Lane vinyl from Georgia-Pacific, has color streaks intended to mimic the look of stained wood.



claims are in the northeast." Most experts advise that white siding will be the least likely to show any staining from oxidation.

Impact resistance. In cold climates, many vinyl installers are concerned about impact resistance. "When it's cold, the vinyl is going to get brittle," says Julian Ketchum, sales support representative at Certainteed. "If there's impact to the siding when it's cold, it could crack." Cold vinyl siding can shatter when hit with a hammer during installation — or later, when the kids start playing baseball.

"Impact resistance varies from manufacturer to manufacturer," says Mark Logan, a vinyl siding installer in Essex Junction, Vt. "I've found Wolverine to be very good — much less brittle than a CertainTeed panel." Manufacturers can toughen their siding by adding more impact modifiers to the resin formula.

Although some manufacturers claim that thicker siding is more impact resistant than thin siding, test results do not back up the claim. "I have never seen a study that would show a correlation between the gauge of the vinyl and impact resistance," says John Hausoul, director of technical and regulatory affairs at the Vinyl Siding Institute. However, Hausoul reports that some wood-grain embossing patterns can lower impact resistance. Doug Price, vice president of marketing at Norandex, agrees. "Deep embossing creates thin areas, and the panel will have more of a tendency to break."

Wind resistance. Vinyl siding is more likely to blow off a building than wood siding. "The other day I was looking at a building that faces Lake Superior," says Robert Long, marketing manager for vinyl siding at Louisiana-Pacific. "A lot of siding had blown off that building."

Some siding manufacturers have criticized the ASTM standard used to test vinyl siding for windload resistance (see "Vinyl Testing and Certification," page 7). But laboratory testing, whatever its deficiencies, has helped show how siding can fail in wind. "When a product fails the nail test, the panels pull through the nail slots, and the nail slot breaks," says Kathy Richardson, marketing manager at Alside.

Many manufacturers — including CertainTeed, Louisiana-Pacific, Mastic, and Norandex — are now offering siding with reinforced nail hems created by folding over the vinyl. With a double layer of vinyl at the nail hem, the siding is less likely to be torn off in a storm (Figure 2, page 2). "I think the doubled nailing hems make a big difference in how the siding holds to the wall," says installer Mark Logan. "You need to know the area where you're working. If it's a windy area, you'll also want to put more nails in."

How thick should it be? In the U.S., vinyl siding must meet ASTM standard D3679, which specifies a minimum thickness of .035 inch (35 mils). The thinnest siding offered by most manufacturers is .040 inch, although Ashland-Davis and Wolverine offer an .038-inch siding. "Premium" siding is usually .044 to .048 inch thick. A few manufacturers, including Norandex, offer a siding that is .050 inch, and Wolverine sells a .055-inch-thick siding.

The main difference between a thinner and a thicker siding is price. "One way we drive down costs is to manufacture an .040 siding," says Robert Long of Louisiana-Pacific. An "economy" siding that is .038 or .040 inch thick may cost as little as \$34 a square, while a "premium" .048-inch siding can cost \$65 or more a square.

Opinions differ as to whether the thicker siding is always better. Thicker siding won't last any longer than thinner siding, and some installers feel that overlaps are more obvious with thicker siding, producing a stronger shadow line. "The thinner the siding, the better lap you're going to get, because there is less material," says Robert Long of Louisiana-Pacific.

According to conventional wisdom, a thicker siding, being stiffer, hangs straighter on the wall, helping to address a common criticism from homeowners. "People say, 'It's wavy, it doesn't look straight," says Kathy Richardson, marketing manager at Alside. "That's one that we hear and see every day." Installers, too, care about stiffness, since some "economy" siding handles like a wet noodle, especially on a windy day (Figure 3, page 2). All other factors being equal, it's true that thicker siding is somewhat stiffer than thinner siding. But vinyl stiffness depends on the profile shape as well as the gauge of the vinyl. Siding with a thick butt dimension (forming the thickest part of the "clapboard") will be stiffer than siding with a thin butt. Vinyl butt thickness ranges from about $^{3}/8$ inch to $^{3}/4$ (Figure 4, page 4). "The higher the butt, the more rigid the product will be," says Robert Long of Louisiana-Pacific.

Most installers end up satisfied with a "midrange" vinyl thickness of .042 to .044 inch. "The mid-range panels hang well on the wall," says installer Mark Logan. "With a thicker gauge, you're not going to notice any improvement. If the wall is crooked, it's going to look crooked, no matter what siding you use."

Flapping panels. When vinyl is installed on a new two-story home, it sometimes comes unlocked above the first-floor top plate, and begins to flap in the wind. "It's a common problem," says Robert Long, marketing manager for vinyl siding at

How To Identify a Vinyl Siding Brand

Remodelers are sometimes faced with the challenge of trying to match existing vinyl siding for an addition or dormer. In many cases, the homeowner has no idea where the siding came from.

To identify the manufacturer of any vinyl siding, the first step is to remove a panel. Sometimes, by feeling the siding, it's possible to find a lock that feels a little loose. This is a good place to start to unlock a panel. Pry the lock of the siding gently with the claw of a hammer or a zip tool. Once the lock is hooked, pull down. Then slide your tool along the lock horizontally to unzip the panel. "If you can get hold of one end of a loose lock, it is often possible to unlock the vinyl siding with your bare hands," says vinyl siding installer Doug Hodge of West Burke, Vt. Unzipping the lock exposes the row of nails on the course below. It is then a simple matter to remove the nails from a panel and take it off the wall.

The next step is to take the panel to the nearest vinyl siding distributor. Most distributors will be able to identify their own siding — and often their competitor's siding — on sight. There are several clues they look for, starting with the code numbers embossed or printed on the nailing hems. These numbers — variously called run numbers, date codes, or quality-control codes — allow a siding manufacture to identify the plant and date of manufacture. Siding distributors can also identify distinctive wood-grain embossing patterns. Even the shape of the weepholes can be an important clue; for example, the weepholes of Heartland siding are all heart-shaped.

If the goal is to match existing siding, however, be fore-warned: Since all vinyl siding fades over time, a color match is unlikely in any case. For some clients, this may not be a problem, as long as they don't expect a perfect match. When building an addition, it may make more sense to use a deliberately contrasting color or siding style, to avoid the awkward appearance of a near match.

Figure 6. Several manufacturers have introduced innovations to improve the stiffness of vinyl siding. Wolverine's Benchmark 44 siding includes a sliding fiberglass rod that locks adjacent panels together.



Figure 7. Tight nailing prevents vinyl siding from expanding freely, leading to buckling. An exception is Wolverine's Millennium siding, which includes a flexible nailing hem designed to accommodate tight nailing.



Figure 8. A very popular profile of vinyl siding is the "double-five," like this siding manufactured by Heartland. Each 10-inch-wide panel mimics two courses of 5-inch-exposure clapboard.



Louisiana-Pacific. "It's the worst thing that gives vinyl siding a bad name."

The cause of the problem is joist shrinkage and settlement. "Where you see unlocking panels is usually at the band between the first and second floor," says Doug Price of Norandex. "When the joists shrink, the short return leg of the siding comes loose from the lock. You'll sometimes see bowing or oil-canning of the siding at that plate."

Some installers try to prevent the problem by pulling the siding up tight in areas where shrinkage is expected. "The manufacturers recommend letting the lock drop before you nail," says installer Mark Logan. "But I like to pull it tight. By starting tight, especially in the band joist area, it allows for some settlement." How tight to pull it is a matter of judgment, since many manufacturers warn against pulling up too tightly on the siding. "Some installers stretch the siding up as they nail it, instead of letting it drop," says Doug Price of Norandex. "But that causes fish-mouthing at the laps."

The Latest Developments

In the last few years, manufacturers have introduced a variety of new vinyl siding products, hoping to stand out in a crowded market. Whether or not the innovations are useful depends partly on the preferences of the installer.

- At least five manufacturers Heartland, Mitten, Norandex, Reynolds, and Vytec — sell panels designed to be installed vertically, to mimic boardand-batten siding.
- Several manufacturers, including Heartland, Mastic and Mitten, sell two-tone or streaked panels designed to look like stained wood (Figure 5, page 4).
- Vipco sells vinyl siding fused to a panel of foam insulation.
- Norandex sells siding with a nail hem with a builtin "hammer stop" to inhibit nails from being driven too tightly. The siding is also designed to permit stapling.
- CertainTeed sells siding with a special nailing hem, called the "Stud-Finder," with graphics permitting the installer to easily locate 16-inch-oncenter studs.
- Wolverine's "Benchmark 44" siding has an integral fiberglass rod to increase stiffness (Figure 6).
- Wolverine's Millennium siding has a flexible nailing hem connected to the siding by string-like plastic fibers. The hem is designed to permit nails or staples to be driven all the way home, without restricting expansion (Figure 7).

Not all of these innovations have been greeted enthusiastically by installers. Some siders, for example, complain that the fiberglass rod in the Benchmark 44 siding makes the panels impossible to cut with shears. Others note that the flexible nail hem on the Millennium siding makes it harder for the installer to adjust courses of siding up and down, to make them line up at the corners.

There may also be technical disadvantages to some new features. "The two-tone variegated products are more impact-susceptible," says Doug Price of Norandex. "The combination of the two-color concentrates weakens the cap on the product. Everybody in the industry has experienced the same problem." Laminated two-tone products, which are significantly more expensive than non-laminated siding, do not have this problem.

"Everybody is coming out with gimmicks," says John Karp, national product manager for vinyl siding at Georgia-Pacific. "But I haven't seen many real improvements lately." To some extent, vinyl siding is a fairly generic product. "Vinyl siding is vinyl siding," says Alan Hoying of Alcoa. "A lot depends on the skill of the installer. A good installer can make a bad panel look good, and a bad installer can take a good panel and make it look disappointing."

Installing Vinyl Siding

Since the skill of the installer has a big effect on the appearance of a vinyl siding job, a siding sub should be chosen carefully. "When a vinyl siding job goes bad, it generally goes bad in a big way," says installer Mark Logan.

Many complaints about poor installation concern the appearance of the trim. Trimming vinyl siding usually requires both vinyl trim profiles and aluminum coil stock, so every vinyl siding installer needs to know how to use a brake (see "Aluminum Trim for Vinyl Siding," 4/99). "Trim work is an art in itself," says Alan Hoying.

Most vinyl siding manufacturers provide detailed installation instructions. An excellent resource is *Vinyl Siding Installation: A How-To Guide*, which can be downloaded free from the Vinyl Siding Institute's website (www.vinylsiding.org/install/index.htm).

Minimize laps. Most vinyl siding has a double-clapboard profile, with each vinyl panel mimicking two courses of clapboard (Figure 8, page 6). Since joints in wood siding are never stacked, vinyl siding laps tend to spoil the illusion that the siding "looks just like real wood."

Using up short lengths may make sense when installing hardwood flooring, but not vinyl siding. Ideally, the siding will run continuously from trim to trim. This often isn't possible, since most vinyl siding is sold in lengths between 12 feet and 12 feet 6 inches. But at least three manufacturers —

Vinyl Testing and Certification

The major U.S. residential building codes require vinyl siding to meet ASTM standard D3679, which includes specifications for weatherability, heat shrinkage, impact resistance, wind resistance, surface distortion, linear expansion, and camber.

By all accounts, the existing ASTM standard is not as rigorous as it could be.

"In some cases, some of the numbers in the standard were devised by individuals in the late '70s," says Alan C. Kupfer, chairman of the ASTM subcommittee on plastic building products. "Arbitrary numbers were set."

"The wind tests are an absolute joke," says Doug Price of Norandex. In fact, Norandex distributes a brochure explaining the deficiencies of the ASTM wind-load test: "The truth is, you can get just about any kind of wind-load resistance you want, depending on how you set up the test installation," the brochure reads. "Use washers and screws. If that doesn't work, use *bigger* washers and screws."

"The whole test has been recognized as being not very realistic," agrees Kupfer. "It is assumed that the test is being done with the same fasteners as are recommended by the manufacturer, but the ASTM protocol does not specify a fastener."

The wind-load resistance test involves depressurizing a volume of air on one side of a wall of vinyl siding until the siding fails. Many manufacturers, in their advertising, translate the pressure reading at which the siding failed the test — which is recorded in pounds per square foot — into a wind speed measured in miles per hour. "They are probably using some kind of fudge factor based on the results of the test, but there is no uniform way to do that," says Kupfer.

When it comes to flexibility and impact resistance, the existing Canadian standard for vinyl siding, CGSB-41.24-95, is more stringent than ASTM D3679. The Canadian standard requires that vinyl siding be tested for impact resistance at freezing (0°C), whereas the U.S. testing is performed at room temperature, or 23°C (73°F). The Canadian standard also includes low-temperature flexibility and shearability tests — both lacking in ASTM D3679.

VSI certification. Because compliance with ASTM standards depends upon a manufacturer's statements rather than third-party verification, the Vinyl Siding Institute started a more rigorous program of certification. This program is voluntary. VSI-certified vinyl siding must meet the same ASTM standard required for non-certified siding, but compliance is verified by an independent laboratory, Architectural Testing Inc. (ATI) of York, Pa. In addition, independent inspectors make periodic unannounced visits to manufacturing plants to verify that a company's siding continues to comply with the ASTM standard.

The Vinyl Siding Institute, in conjunction with the ASTM sub-committee on plastic building products, is actively working to improve the ASTM specification and the testing methods. "What the certification program has done, from a technical perspective, is to force the issue of improving each of the test methods," says John Hausoul, director of technical and regulatory affairs for VSI. "We need to reduce the variability in the testing."



Figure 9. A snap-lock punch creates small lugs in the edge of the siding. These lugs keep the siding in place when it is slid into undersill finish trim.

Figure 10. Vinyl siding can be cut with shears (right) or a circular saw (below). When using a circular saw, a fine-toothed plywood blade is used, inserted backwards.





Heartland, Norandex, and Wolverine — sell extralong vinyl siding measuring either 16 feet or 16 feet 8 inches. Mitten Vinyl will sell vinyl siding in any length up to 40 feet.

Although longer panel lengths help installers avoid laps, there are hazards to using very long panels. "The longer the panel, the more thermal expansion you have," says Doug Price of Norandex. "To do it right, manufacturers should be expanding the nailing slot on these extra-long panels, but most of them don't. Without an adjustment in the nailing slot, you'll have problems. I wouldn't use anything over 20 feet. It could contract out of the corner post, or pop out of the J-channels."

Here are some key points to remember for any vinyl siding installation:

- Essential tools for vinyl siding work include a zip tool for panel removal, a slot punch for making elongated nail slots, and a snap-lock punch (Figure 9). These can be purchased from most vinyl siding manufacturers, or from MTD Building Supplies at www.mtdbuildingsupplies.com.
- If possible, don't face-nail aluminum coil stock, or it will oil-can.
- Use mounting blocks for attaching anything to the exterior of the house, including electric meters, hose spools, light fixtures, and doorbells. Vinyl mounting blocks are available from most siding manufacturers, or from Mid-America Building Products (800/521-8486).
- Flashing should be used at the bottom of the vertical J-channels around windows, in order to direct water back out onto the siding (see "Durable Details for Vinyl Siding," 6/97).
- To cut vinyl siding, use a circular saw with a plywood blade inserted backwards (Figure 10).
- Vinyl siding should be nailed at 16 inches on-center, into the studs. Most manufacturers require that nails penetrate at least ³/₄ inch into a nailable substrate.
- Siding overlaps should be separated from each other by three feet, if possible, and should not align vertically.
- Plan the direction of siding laps so they face away from high traffic areas. Someone looking into a lap will see a more prominent shadow.
- Siding shouldn't overlap more than one inch.
- Never overlap J-channel.



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Vinyl Siding Manufacturers

Alcoa Building Products

2600 Campbell Rd. Sydney, OH 45365-0132 800/962-6973 www.alcoahomes.com Mastic vinyl siding

Alside

P.O. Box 2010 Akron, OH 44309 800/922-6009 www.alside.com

CertainTeed

750 E. Swedesford Rd.
Valley Forge, PA 19482-0101
800/233-8990
www.certainteed.com
Ashland-Davis, CertainTeed, and
Wolverine siding

Crane Plastics

P.O. Box 1058 Columbus, OH 43216 800/366-8472 www.crane-plastics.com Vipco siding

Gentek Building Products

29325 Chagrin Blvd. Cleveland, OH 44122-4613 800/548-4542 www.gentekinc.com Alcan, Gentek, and Revere siding

Georgia-Pacific

133 Peachtree St. Northeast Atlanta, GA 30303 800/284-5347 www.gp.com Distributes Variform siding under the Georgia-Pacific name

Jancor

28300 Kensington Ln., Ste. 300 Perrysburg, OH 43551 800/671-7735 Bird, Heartland and Master Shield siding

Kaycan

3075 Trans-Canada Hwy. Pointe-Claire, PQ H9R 1B4 Canada 800/952-9226 www.kaycan.ca

Louisiana-Pacific

111 S.W. Fifth Ave.
Portland, OR 97204
877/777-6158
ABTco and Louisiana-Pacific siding

Mitten Vinyl

P.O. Box 2005 Paris, ON N3L 3T2 Canada 800/265-0774 www.mittenvinyl.com

Norandex-Reynolds

8450 S. Bedford Rd. Macedonia, OH 44056 800/528-0942 www.norandex.com Norandex and Reynolds siding

Rollex

2001 Lunt Ave. Elk Grove Village, IL 60007 847/437-3000 www.rollex.com

Royal Building Products

1 Royal Gate Blvd. Woodbridge, ON L4L 8Z7 Canada 905/850-9700 www.royalbuildingproducts.com

Variform

303 W. Major Kearney, MO 64060 800/800-2244 www.variform.com

Vytec

25 Midpark Crescent London, ON N6N 1A9 Canada 519/681-4080 www.vytec.com