

# Ladders

How to choose them, how to use them

by Bruce Greenlaw

**T**he superstition that claims it is bad luck to walk under a ladder has nothing to do with the threat of getting bonked on the head by a falling paintbrush. Rather, it stems from the fact that a ladder leaning against a wall forms a triangle, which to many ancient cultures symbolized a sacred trinity of gods. Mortals who walked beneath a ladder were considered guilty of violating a sanctified space. But it's probably more dangerous to climb some of my ladders than it is to walk under them.

My ladder collection includes a perilous group of rickety, old, wood stepladders with splintered rails, half-missing steps and broken paint trays, an aluminum combination step-extension ladder with a bent foot (I ran over it), and a 40-year-old wood extension ladder with round rungs that make my feet hurt. When I bought a new 20-ft. aluminum extension ladder last year, I had no idea what type it was (the type of ladder—IA, I, II or III—designates the recommended carrying capacity of a ladder). Now I know better.

While researching this article I discovered that there are sturdy, cleverly designed ladders built for just about every home-building job you can imagine, from installing siding to painting stairwells. And these ladders are fortified by an impressive assortment of easy-to-install accessories that make them safer, more versatile and easier to use than their predecessors.

**Torture tests**—There's an easy way to verify that a new ladder has the integrity you're looking for. Check the labels on it to make sure it complies with all applicable ANSI (American National Standards Institute) and OSHA (Occupational Safety and Health Administration) standards.

Compliance with ANSI standards is voluntary, giving manufacturers sole responsibility for product testing and quality control. OSHA standards, however, are federal laws written to protect construction workers and mandate that ladders used on construction sites in the United States be built in compliance with ANSI standards.

ANSI tests subject ladders to a slew of load, torque, deflection and slip tests. Ladders get overloaded, dropped, twisted, dragged and bent to make sure they're strong and stable. Fiberglass ladder rails get boiled, baked and weathered. Stepladder bucket shelves have to support a distributed load of 100 lb. for one minute with the ladderset in the open position and the spreaders locked (spreaders are the hinged metal brackets that hold the front and back rails apart). Even

applied labels get dunked in water, scratched and baked to make sure they won't fall off.

Based on their design and test scores, ladders are assigned one of four "duty ratings," which is stamped on a ladder label. A duty rating indicates the recommended weight capacity of a new ladder (including the climber's weight, plus that of any tools or materials he or she carries). Type-IA ladders are rated for 300 lb., Type I for 250 lb., Type II for 225 lb. and Type III for 200 lb. Generally, Type-IA and Type-I ladders are recommended for most professional work. Type-II ladders are for light maintenance and painting, and Type-III ladders are for household use.

Frankly, as helpful as they are, I've always found duty ratings to be a bit confusing. I've nev-

*As soon as a worker on a ladder jumps on a step, leans over to hold a beam or to tighten a lag bolt with a wrench, the applied force on the ladder can skyrocket.*

er seen a ladder fail because someone selected the wrong duty rating. Indeed, ladders that comply with ANSI standards must support at least four times their rated carrying capacity without failing (except for some Type-IA ladders, which must support 3.3 times their capacity).

So why should anyone spring for a Type-IA ladder if a Type II will work fine and costs less? The answer is twofold. First, weight distribution on a ladder is complex. As soon as a worker on a ladder jumps on a step, leans over to hold a beam or to tighten a lag bolt with a wrench, the applied

force on the ladder can skyrocket. Consider the overkill in ladder ratings as insurance. Second, duty ratings imply relative durability, though two ladders of the same duty rating can vary in design, composition and workmanship.

**Wood, aluminum or fiberglass?**—Except for a handful of offbeat steel ladders, most ladders are made of wood, aluminum or fiberglass. I might be a hopeless romantic, but I still think there's nothing like a good wood ladder. It has plenty of mass for stability, it isn't as bouncy as fiberglass and aluminum, and it's nonconductive when clean and dry. The main drawback of wood ladders is their weight. The average wood Type-IA 6-ft. stepladder, for example, weighs about 32 lb., or about 10 lb. more than its aluminum or fiberglass counterparts. Also, an untreated wood ladder will wick moisture if it's left outdoors, which can cause its joints to loosen and can eventually cause the ladder to rot. And a wet wood ladder will conduct electricity.

Wood ladders used to be far cheaper than aluminum and fiberglass ones. Nowadays, the price of ladder-grade wood fluctuates wildly. Earlier this year, for instance, prices jumped anywhere from 15% to 45%. But right now wood stepladders are still the cheapest. Wood extension ladders, on the other hand, are fast approaching the cost of aluminum extension ladders, and wood extension ladders are becoming harder to get.

Most builders I know have already switched from wood ladders to aluminum or fiberglass ones. Aluminum ladders have an exceptionally high strength-to-weight ratio, and a global aluminum glut keeps prices down.

Aluminum does have significant drawbacks, though. Foremost, it conducts electricity. According to the National Institute for Occupational Safety and Health (NIOSH), about 4% of all work-related electrocutions in the United States from 1980 to 1985 were caused by metal ladders bumping overhead power lines. This is why an aluminum ladder is a bad choice for electricians or anyone else who works around hot wires. Also, acids and alkalis attack aluminum. An aluminum ladder will corrode in saltwater, for example, and shouldn't be exposed to muriatic acid, which is sometimes used for cleaning brick and stone. Despite all this, it's hard to beat the combination of strength, light weight and affordability of aluminum ladders.

Fiberglass ladders are gaining a strong foothold in the construction industry. They're strong,



**Stepladders.** On the left, a wood stepladder with a center pull spreader that enables the ladder to be folded with one hand. In the center, an aluminum stepladder with knee bracing on the first and last steps. On the right, a two-way stepladder with treads on both sides that enable two workers to climb the ladder at once. Left and middle photos: courtesy of R. D. Werner Co., Inc. Right photo: courtesy of Keller Industries.



**Extension ladders.** At left, a fiberglass extension ladder. Note the two-way safety shoes that can be turned so that metal spurs hold firmly on soft surfaces. A wood extension ladder is shown in the middle. Steel rods are bolted under each tread for strength. The right photo shows an aluminum extension ladder. These three ladders have a rope and pulley for raising and lowering the fly (or top) section. Left photo: courtesy of R. D. Werner Co., Inc. Middle and right photos: courtesy of Louisville Ladder Corp.



**Specialty ladders.** Clockwise from top left: Available in aluminum and fiberglass, articulated ladders have four sections that unfold into straight ladders or bend into two-way stepladders or scaffolds. Platform ladders have wide landings for safe standing and comfort when working at fixed heights. Extension trestle ladders adjust to support

scaffold planks at various heights. It's OK to climb either side of the base or the extension section itself. The wood bipod ladder fits into tight spaces and won't wobble on uneven ground. Top left and bottom right photos: courtesy of Louisville Ladder Corp. Top right photo and bottom left photo: courtesy of R. D. Werner Co., Inc.



corrosion-resistant and nonconductive. And though fiberglass extension ladders can be as heavy as wood ones, fiberglass stepladders can be as light as aluminum ones. On the downside, fiberglass ladders cost about 10% to 30% more than comparable aluminum ladders. Fiberglass is also springier than wood or aluminum, which is why you don't see 20-ft. fiberglass stepladders, 60-ft. fiberglass extension ladders or fiberglass Type-H or Type-III ladders of any kind.

If you own a fiberglass ladder, a few precautions will help protect your investment. Fiberglass ladders should not be exposed to solvents, nor stored where temperatures exceed 150° F, which could cause permanent structural dam-

age. Also, it's best to store fiberglass ladders indoors. If you must store them outdoors, a semi-annual application of a slip-resistant paste wax will add to their longevity.

**Stepladders**—Every time I climb a stepladder, I read the safety sticker on the last step. "This is not a step," it says. Sure it is, I think; it looks just like all the other ones. But ladder manufacturers warn against standing on either the top step or the top cap of stepladders because you can lose your balance. For this reason, when selecting a stepladder, subtract about 2 ft. from its height to determine the highest recommended standing level.

Common stepladders, also called one-way stepladders, are designed to be climbed on one side only. They're available in lengths of up to 20 ft. in aluminum and wood, and up to 16 ft. in fiberglass (see Shopper's guide, p. 55).

One-way stepladders consist of a pair of step-supporting front rails that are hinged on top to a pair of horizontally braced back rails. A structural top covers the hinge, and a pair of metal spreaders holds the ladder open. For stability, each pair of rails is spaced about a foot apart at the top and flare out at least 1¼ in. per ft. from top to bottom.

The treads on wood stepladders are usually dadoed into the rails (sometimes they fit into metal brackets instead) and are supported underneath by steel rods that pass through and attach to the rails. In most cases a metal or wood truss block between each rod and step at mid-span stiffens the step (metal angle braces occasionally substitute for rods and truss blocks). Metal knee bracing on the front and the back of the ladder prevents racking. The steps and the rear horizontals on aluminum and fiberglass stepladders are single-riveted or, better yet, double-riveted to full-channel rails (two rivets per flange) and are also knee-braced (top middle and right photos, p. 51).

Stepladders are available with fold-up bucket shelves that will hold a paint can or a handful of tools. But there are subtler options available, too. For instance, some stepladders come with center-pull spreaders (also called H-spreaders, bail spreaders or hand-grip spreaders), which allow one-handed closure (top left photo, p. 51). This can be especially handy for painters who frequently have to carry a ladder with one hand while holding a can of paint with the other. More conventional pinch-proof spreaders have two pivot points in the middle to help prevent your fingers from getting squeezed when you close the spreaders. For maximum durability, look for internal spreaders. They're mounted on the inside of the rails instead of the outside, making them less vulnerable to damage.

Aluminum and fiberglass stepladders now routinely come with aluminum or molded copolymer tops that hold everything from hammers to paint-roller trays.

Manufacturers haven't agreed on what to call stepladders that are designed to be climbed on either side or on both sides simultaneously. Depending on who you talk to, these stepladders are called a twin, twin-front, double, double-front, mechanic or two-way stepladder (top right photo, p. 51). They're available in lengths of up to 20 ft. in wood and aluminum, and up to 16 ft. in fiberglass (same as oneway ladders). Duty ratings of two-way stepladders apply to each side, which means that a Type-IA model is rated for 300 lb. per side. Kas Jaunzemis, a timber framer, tells me two-way stepladders are great for his line of work because they allow two people to climb a stepladder while carrying a heavy beam.

**Extension ladders**—My vote for the scariest ladder on the market goes to the 60-ft., three-section extension ladder. These monster ladders come in wood or aluminum, weigh about 175 lb. and cost



about \$850 to \$950. I've also seen fiberglass two-section extension ladders up to 40 ft. long, wood ones up to 44 ft. long and aluminum ones up to 48 ft. long, plus a 35-ft. long, three-section fiberglass ladder.

Most extension ladders consist of a base section and a top section called the fly; three-piece models have an intermediate section. Upper sections almost always ride over lower ones and are extended either by pushing them up (on push-up models) or by hoisting them using a built-in rope and pulley. All extension ladders have a pair of rung locks that hook over or under rungs to allow the ladder to telescope rung by rung.

All of the wood extension ladders I've seen are either Type-IA or Type-I models and have round hardwood rungs mortised into western hemlock or Douglas fir rails (bottom middle photo, p. 51). Eastern-style extension ladders have parallel rails. For extra stability, Western-style ladders have rails that flare at the bottom section, allowing a wider stance. Some manufacturers simply nail or rivet the rungs to the rails to hold the ladders together. On better-quality ladders, some or all of the rungs are reinforced underneath by steel rods that pass through and attach to both rails. The rods also prevent the rails from spreading. Some models add metal knee bracing for extra stability.

Aluminum extension ladders feature extruded I-beam or modified I-beam rails and striated rungs that pass through and are swaged, or crimped, to the rails (bottom right photo, p. 51). The I-beams on adjacent sections usually interlock so that the fly section slides between the rails of the base section. Heavy-duty models usually have metal or plastic rail guides attached for extra support and smoother operation.

Most fiberglass extension ladders have full-channel fiberglass rails that support striated, heat-treated aluminum rungs. The rungs are either swaged directly to the rails or to aluminum plates that are riveted to the rails. Riveted rungs add some weight and expense, but they're stronger than directly swaged rungs and can be replaced more easily if they're damaged. Fiberglass rails may or may not interlock. Either way, metal rail guides help hold adjacent sections together.

Aluminum and fiberglass extension ladders come with either round rungs or D-rungs. Round rungs are supposed to be slightly stronger, but most people prefer D-rungs because the rungs are flat on top, which makes them more comfortable to stand on.

Ladder shoes warrant a close look. The most versatile type I've seen is the two-way safety shoe offered by most manufacturers. It can either be positioned tread-down on hard surfaces or swiveled so that a spur digs into grass, dirt and other soft surfaces (bottom left photo, p. 51).

Some extension ladders separate into single ladders (straight, nonadjustable ladders). Before you use a fly as a single ladder, though, make sure it has nonslip shoes on it, which indicate that it's designed for this purpose.

**Working with extension ladders**—One of the most befuddling traits of extension ladders is that they're sized according to the combined lengths

## Safety resources

**Workers who fall off ladders are 2.31 times more likely to have had their driver's license revoked or suspended than workers who haven't fallen off ladders. At least this held true in a recent survey by California researchers H. Harvey Cohen and Lee-jean Lin of 123 workers who had fallen off ladders at work vs. 142 control subjects who hadn't. Overall, however, Cohen and Lin found that job-related factors such as boredom, fatigue and improper ladder use have more of an impact on ladder-related accidents than such personal characteristics do. In other words, your best bet in avoiding a ladder accident is to take a break if you're tired or bored up there, and learn how to use your ladders correctly.**

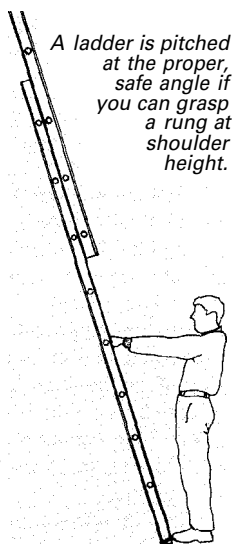
**Fortunately, there is plenty of information available on the proper use of ladders. For straight-from-the-horse's-mouth tips on ladder safety, as well as information on OSHA regulations that apply to the use of ladders on job sites, contact your state or regional OSHA office (or call 202-2198151). Ask for copies of *Safety Standards for Stairways and Ladders Used in the Construction Industry* (#29 CFR Part 1926) and *Stairways and Ladders* (#3124), which summarizes the safety standards.**

**ANSI's A14 ladder standards not only address ladder design and testing, but they also offer tips on ladder safety and maintenance. You can buy copies from the American National Standards Institute, 11 W. 42nd St., 13th floor, New York, N. Y. 10036; (212) 642-4900.**

**On request, the American Ladder Institute (401 N. Michigan Ave., Chicago, Ill. 60601-4267; 312-644-6610) will send a copy of the *Ladder Safety Resource List*.**

**It's an annotated directory of more than two dozen publications and videos on ladder safety.**

**Most ladder manufacturers and distributors have reams of information on ladder safety, maintenance and repair, too. Don't hesitate to ask them for it. —B. G.**



of their sections and not according to their maximum extended length. A 24-footer, for instance, extends to 21 ft. Keep this in mind when you're shopping for a ladder (maximum extended length is posted on ladders). Also, when using an extension ladder to climb onto a roof or a platform, remember to extend the ladder at least 3 ft. above the edge to make it easy to mount and dismount the top of the ladder.

Whenever possible, extension ladders should be tilted up, then extended. This is best done by planting the bottom of the ladder against a solid surface (such as a step or a wall) and then, starting from the top, walking the ladder hand over hand, one rung at a time, to the vertical position. If the ladder is too heavy to raise by yourself, brace its bottom against a colleague's feet, then have him or her pull on a rung while you walk the ladder up. Lower the ladder by walking it back down hand over hand.

Extension ladders should be pitched at a 75½° angle for maximum stability. This means the horizontal distance from the top support to the foot of the ladders should be one-quarter of the working length of the ladder. The easiest way to check the approximate slope of a ladder is to stand with your toes against the bottom of the ladder and your arms extended straight out. If you can grasp a rung at shoulder height, the ladder is pitched at the proper angle (drawing below).

I've heard examples of extension ladders sliding out at the base after being pitched on such diverse surfaces as a drop cloth, a phone book, a wet deck, horse manure and a 40-ft. high scaffold (for more on safety, see sidebar, left). The obvious lesson is to make sure you pitch your ladders on stable surfaces. Also, never stand on the top three rungs of an extension ladder, or you could lose your balance. For the same reason, keep your belt buckle between the rails (a study of 123 ladder falls found that the number-one cause was overreaching). Always face a ladder when climbing it and wear shoes with slip-resistant soles. Shoes with heels are nice for gripping ladder rungs.

**Specialty ladders**—This article wouldn't be complete without mentioning several alternatives to the basic stepladder and extension ladder. The wood tripod ladder (bottom left photo, facing page) has three legs—great for stability on uneven surfaces and for working in cramped quarters. You can even poke its back leg between studs, which is one reason why electricians like it. Type-I and Type-II models up to 12 ft. long are available from several manufacturers. Don't mistake an orchard ladder for a tripod ladder; they may look almost identical, but several manufacturers assure me that they're not.

The extension trestle ladder (bottom right photo, facing page) is a two-way stepladder that supports a vertically adjustable midsection. This midsection can be extended rung by rung to support scaffold planks at various heights, and it can also be climbed. The base also supports scaffold planks. Some, but not all, models allow removal of the midsection for use as a single ladder.

Extension trestle ladders are available in wood (with round rungs) or in aluminum or fiberglass



**Accessories.** Clockwise from top left: Leg levelers conform to uneven surfaces, then lock in place when you let go of the ladder. Surface protectors are giant rubber pads that also grip the wall. A pole strap wraps around poles or pipes and provides stability. Ladder



jacks hook either over or under ladders to support scaffold planks. The adjustable ladder cinch ties off a ladder's midsection to a pole to reduce bouncing. Top photos and bottom left photo: courtesy of R. D. Werner Co., Inc. Bottom right photos: Keller Industries.



(with steps on the base and rungs on the extension). The biggest aluminum and fiberglass models I know of, sold by several companies, are Type-IA units that extend to about 20 ft. high.

Probably the most innovative ladder to come on the market in recent years is the articulated ladder. This ladder serves multiple purposes, and if you are going to buy only one ladder, an articulated one might be the right choice. The ladder (top left photo, p. 52) has four hinged sections, allowing it to serve as a two-way stepladder or a straight ladder. It can also bend into all sorts of scaffolds that support planks, even in stairwells. It's available in aluminum and fiberglass in lengths of up to about 16 ft. To prevent toppling, these ladders usually come with flared legs or with a stabilizer bar at one end or both ends.

Two companies make a ladder that expands into a telescoping two-way stepladder, an extension ladder, a staircase ladder or two scaffold trestles. They're available in four sizes and meet ANSI and OSHA standards. Wing Enterprises' version, called the Little Giant, is available in aluminum or fiberglass. Bauer Corporation's version, the Unifers, is made of fiberglass.

I've long wondered whether the Little Giant is a godsend or a hassle, so I asked several owners for their opinions. All of them gave it thumbs up. Herrick Kimball, a remodeling contractor in Moravia, New York, has used a Type-II 17-ft. model for four years. He says it is convenient to use and surprisingly strong.

The platform ladder might be the best-kept secret in the ladder business (top right photo,

p. 52). I've never seen one on a job site, but one ladder man I spoke to told me they are big sellers in Europe. Sold by most ladder manufacturers, platform ladders are available in wood, aluminum and fiberglass. They resemble stepladders, except they have a platform where the second step from the top would be (which adds a few pounds). The platform is hemmed in on three sides by the rails and a notched top cap that gives plenty of leg room. This configuration makes the platform safe and comfortable to stand on. If you routinely work at a fixed height, a platform ladder might be worth considering.

**Accessories**—You can buy almost as much optional equipment for a ladder as you can for a car. Ladder caps are solvent-resistant rubber beanies that fit over the tops of ladder rails to help prevent the top of the ladder from sliding on whatever surface the ladder is leaned against. Ladder caps can also prevent the scarring of a surface, say a newly painted clapboard wall.

A step up from ladder caps are ladder standoff and surface protectors (photo left). These grip walls for traction and protect against marring. The standoff stabilizer does the same thing, but its wide breadth also allows it to straddle architectural features like windows.

There are also many top-mounted ladder accessories for gripping poles and pipes. Ladder lashes wrap around poles or pipes, and pole straps hug them (photo left). Related products include padded steel and aluminum brackets that conform to poles and corners. Ladder cinches (photo left) strap a ladder's midsection to a pole to reduce ladder bounce and twist.

Aluminum or steel ladder jacks hook onto the rungs of Type-IA or Type-I ladders to support scaffold planks. Some, like the one pictured in the photo at left, can be installed either underneath or on top of the ladder. Most manufacturers that sell ladder jacks also sell aluminum and wood planks (with extension planks) for them. Steel guard-rail brackets are also available that hold a 2x4 rail a few rungs above the plank. (These work with under-mounted ladder jacks only.)

A hoisting wheel is a die-cast aluminum pulley housed in a steel frame that hooks to ladder rungs. For roofers, a variety of roof hooks are available that mount to ladder tops and hook over roof ridges, allowing easy ascent of steeply pitched roofs. Some roof hooks fold out of the way for storage. I've even seen one that has wheels on it, allowing a ladder to be rolled up a roof, then flipped over and hooked to the peak.

Several companies sell the 3-way tray, a shelf that hooks to ladder rungs to support paint cans, paint trays and tools. You can stand on it, too.

For my money, the most useful accessory of all is the leg leveler (photo left). Several types are available; some adjust by hand, and others adjust with foot pedals.

Perhaps most important, most manufacturers sell replacement parts and repair kits for their ladders. So there's no reason why your old ladders can't be just as sturdy as your new ones. □

*Bruce Greenlaw is a contributing editor of Fine Homebuilding.*



## Shopper's guide to ladders

Here's an annotated list of national and regional players in the ladder industry. The list is far from complete; there are too many manufacturers and distributors out there to mention them all. For an expanded list of ladder makers, consult the *Thomas Register of American Manufacturers* in the reference section of your local

library. Most ladders are made of either aluminum, fiberglass, wood or a combination thereof. Type-IA ladders are rated for 300 lb.; Type I for 250 lb.; Type II for 225 lb.; Type III for 200 lb. A two-way stepladder has treads on both sides; two people can work on a two-way stepladder at once. —B. G.

### **Baxter Corp.**

1505 East Bowman St.

P. O. Box 165

Wooster, Ohio 44691; (800) 321-4760

Offers wood, aluminum and fiberglass ladders and accessories. Highlights of Bauer's product line: the Unifers Type-IA fiberglass articulated telescoping ladder; wood, aluminum and fiberglass platform ladders with extra-steep back rails that get close to the work; 48-ft. long two-section and 60-ft. long three-section aluminum extension ladders; and the finest Type-IA wood stepladder I've seen, which features slip-resistant safety shoes and treads, copolymer tops, center-pull spreaders and a polyurethane finish.

### **Davidson Ladders, Inc.**

700 Swan Dr.

P. O. Box 818

Smyrna, Tenn. 37167; (800) 999-7297

Makes wood ladders and sells reasonably priced fiberglass and aluminum ladders that are made in Mexico.

### **Green Ball, Inc.**

147 North Clay St.

Louisville, Ky. 40202; (502) 589-5575

Offers a basic line of wood, aluminum and fiberglass ladders and accessories, including 20-ft. one-way and two-way aluminum stepladders and three-part aluminum and fiberglass estimator ladders (hinged single ladders) that fold up to fit in a car trunk.

### **Howard Manufacturing Co.**

P. O. Box 1188

Kent, Wash. 98035; (206) 852-0640

Serving 11 western states, Howard makes aluminum and fiberglass ladders, plus a diverse line of wood ladders and wood/aluminum hybrids. Highlights include a Type-IA fiberglass extension ladder with internal rail guides for durability; 20-ft. one-way and two-way wood stepladders; a wood trestle ladder that has rungs staggered on opposite sides to allow maximum adjustability in the height of scaffold planks; a wood combination step-extension ladder; and AlumWood single and extension ladders, which have wood rails and aluminum rungs.

### **Keller Industries**

18000 State Road Nine

Miami, Fla. 33162; (305) 651-7100

Caters mostly to do-it-yourselfers but also offers a professional line of wood, aluminum and fiberglass ladders, including a 16½-ft. long aluminum articulated ladder, a 12-ft. wood tripod ladder and platform ladders. Also markets most of the accessories you'll need.

### **Ladder Man, Inc.**

3005 Silver Dr.

Columbus, Ohio 43224; (800) 783-8887

Ladder Man's mail-order catalog offers just about every climbing device you can imagine, including the longest ladders available in almost every category—16-ft. fiberglass one-way and two-way stepladders, 60-ft. three-section wood and aluminum extension ladders, a 30-ft. aluminum straight ladder and 18-ft. aluminum and wood platform ladders. Specialty ladders include a sectional welded-steel roofing ladder with built-in roof hooks and raised steel rungs that make it easy to climb pitched roofs. Also sells ladder-safety videos and handbooks, plus the *Ladder Inspection and Repair Guide*.

### **Louisville Ladder Corp.**

1163 Algonquin Parkway

Louisville, Ky. 40208; (800) 666-2811

Sells wood, aluminum and fiberglass ladders and accessories. Makes one of the nicest Type-IA fiberglass stepladders I've seen (called the Monarch), which has double-riveted, fully knee-braced steps, fully braced rear horizontals, a copolymer top and metal reinforcement throughout. Also offers 20-ft. one-way and two-way aluminum stepladders, 48-ft two-section and 60-ft. three-section aluminum extension ladders, a sectional steel roofing ladder and the only I-beam-rail fiberglass extension ladder I know of (which is supposed to be extra heavy duty). Sells replacement parts and ladder-repair kits.

### **Lynn ladder and Scaffolding Co., Inc.**

P. O. Box 346, 220 South Common St.

West Lynn, Mass. 01905-0646; (800) 523-5463

Serving the east coast, Lynn offers a good selection of wood ladders, plus a complete line of aluminum and fiberglass ones. Sells a wood V-back stepladder that's designed to clear plumbing and electrical work and an unusual fiberglass extendable sectional ladder that reaches a maximum 24½ ft. high and doubles as a stepladder. Accessories include ladder racks for trucks and vans.

### **Maria Soccorro Industries, Inc.**

7791 Capital Blvd., Suite 1

Macedonia, Ohio 44056; (800) 628-1322

Makes two accessories that fit into the hollow-rungs of aluminum extension ladders. The Ladder-Brace, which is sold in pairs, is a welded steel bracket that serves as a ladder jack, a roof-ramp support, a roof hook or a roof standoff that holds the top of an extension ladder away from a gutter. The Paint Caddy is a plastic and steel shelf that holds a can of paint just outside either rail.

### **Putnam Rolling Ladder Co., Inc.**

32 Howard St.

New York, N. Y. 10013; (212) 226-5147

Best known for its rolling ladders (the kind you see in old libraries), Putnam also sells a rolling oak stepladder that locks automatically when you step on it and sells beautiful polished-hardwood step stools. In the mainstream, Putnam sells an impressive line of wood ladders, plus standard fiberglass and aluminum ladders and accessories.

### **R. D. Werner Co., Inc.**

93 Werner Road

Greenville, Pa. 16125-9499; (412) 588-8600

Makes a full range of wood, fiberglass and aluminum ladders, plus a wealth of accessories. Werner offers everything from a 35-ft. three-section fiberglass extension ladder that separates into a double and a single, to the popular five-way aluminum ladder, which works as a two-way stepladder, an extension ladder, two single ladders or a stairway ladder. Also makes all the replacement parts and repair kits you need. In a pinch, they'll even send parts direct from the factory.

### **Roofmaster Products Co.**

P. O. Box 63309

Los Angeles, Calif. 90063-0309; (213) 261-5122

Manufactures hoisting wheels that hook to ladder rungs—great for lifting materials up to a roof.

### **Wing Enterprises, Inc.**

1325 West Industrial Circle

P. O. Box 3100

Springville, Utah 84663-3100; (800) 542-9464

Makes the Little Giant series of aluminum and fiberglass combination ladders. The compact ladders work as telescoping stepladders, staircase ladders, straight ladders and extension ladders, or they break down into a pair of scaffold trestles. Wing also makes the MXZ series of Type-IA telescoping two-way stepladders, the largest of which adjusts from 11 ft. to 20½ ft. high. One side will telescope independently for use on stairs. Wing's accessories include a movable work platform that hooks onto a pair of rungs and supports 300 lb.