Demo-Blade Showdown

We pushed 18 recip-saw blades to their limits to determine their ability to cut quickly and resist wear

For timed cuts, a plank was clamped into a test rig and cut with a saw attached to a pivot arm. The nose of the tool was weighted to provide downward pressure — approximately 23 pounds at the blade.

by Michael Springer

A recip-saw blade may not have to work that hard in new construction, but on a remodeling site it undergoes a real torture test, cutting abrasive roofing, nail-embedded wood, and anything else that stands in the way.

Many tool companies produce one or more blades designed for this kind of work. To see how the various choices stack up, I tested blades suitable for cutting nail-embedded wood and doing general demolition.

Blades of this type usually have six teeth per inch (tpi), though some have fewer and others have variable spacing. All but two of the blades I tested were bimetal — hardened steel tips on a softer steel body. The other blades were carbide-tipped specialty models.

For ease of testing I stuck with 6-inch models — though many of the same blades can also be found in 9- and 12-inch lengths. Standard recip saw blades are .035 inch thick; I tested thicker models, without distinguishing between .050-inch blades and the thicker .062-inch models typically referred to as demolition blades. Both will cut the same things — one is just a little stiffer.

Since my focus was on tooth wear and cutting speed, I counted and timed cuts while running the blades to destruction.

Test Planks

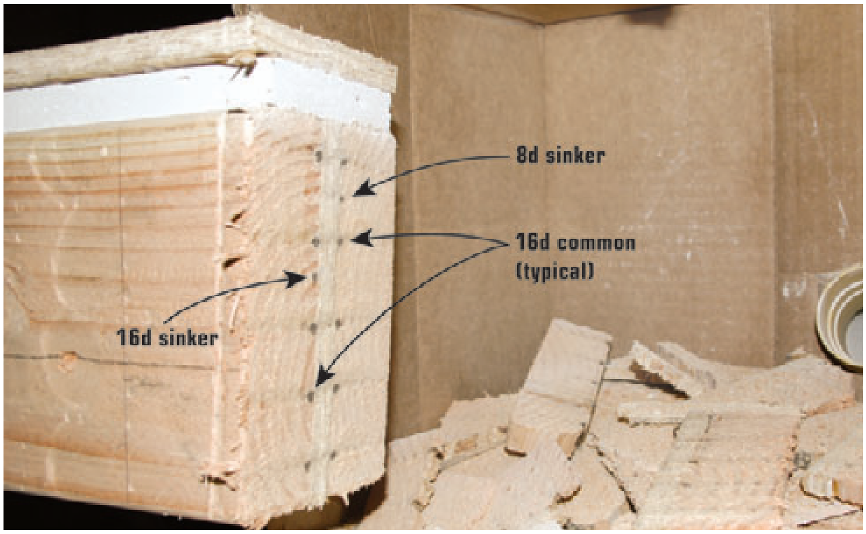
My first challenge was to come up with something to cut that would wear blades out quickly enough to separate the top performers from the also-rans. Yet I also wanted the test to be as realistic as possible, so I chose not to use stainless steel, hardened fasteners, or cement board, because those materials are not often cut during demo work.

Nail-embedded wood. After much trial and error, I came up with a test plank of two 2x6s on edge glued up with a layer of OSB in between and capped with one layer each of drywall and OSB.

Each 8-foot plank contained a dozen rows of nails — 96 feet in all — laid end-to-end in kerfs cut into the 2x6s: ten rows of 16d commons, one of 16d sinkers, and one of little 8d sinkers that proved to be the assembly's secret weapon. By locating the nails along both sides of the central piece of OSB, I was able to concentrate wear on a limited number of teeth and hasten the destruction of the blades.

Building the planks was time-consuming but worthwhile, because it created a difficult but realistic test that would challenge every blade equally.

Simulated roof. Since cutting openings for skylights and vents is a common remodeling task, I designed a test plank to mimic that operation on a three-layer roof. The blank consisted of six asphalt shingles sandwiched between two 6-inch rips of 7⁄16-inch OSB (the second layer of OSB held things together). To avoid having to cut wide of any connecting fasteners, I glued the planks up with thin beads of polyurethane construction adhesive.



The test plank consisted of a piece of OSB sandwiched between 2x6s and capped with drywall and more OSB. The central piece of OSB was flanked by 12 rows of nails — so the recip blade had to cut 12 nails each time it went through the plank.

Test Rig

It's easy to count cuts but difficult to accurately time them while cutting by hand, so I had to build a test rig.

The rig consisted of a woodworking vise for holding the test plank and a sturdy pivot arm for holding the saw. Both were bolted to the thick LVL top of a worktable. For the test saw, I chose the most powerful Milwaukee Sawzall, a 15-amp model with a 1 1⁄4-inch stroke. To ensure adequate feed pressure, I strapped the weights from a 25-pound dumbbell to its nose. The feed pressure measured 23 pounds at the center of the blade.

During testing, I cut at high speed in nonorbital mode; the rig was so solid it transferred nearly all of the saw's energy to the blade. There was none of the shaking and vibrating you get when holding a saw.

Cutting Nail-Embedded Wood

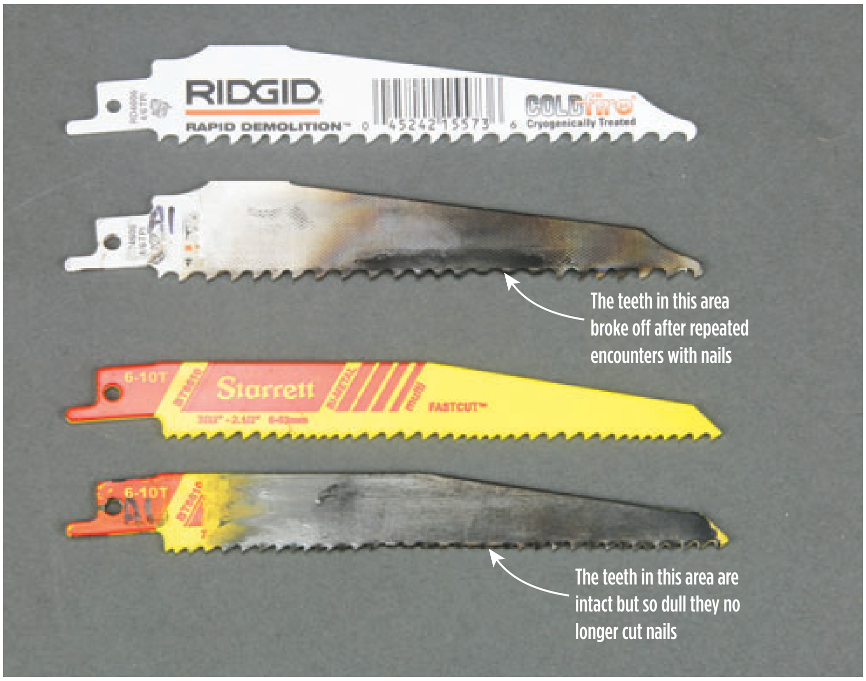
At first I planned to make all the cuts in the test rig, but repositioning the test plank for every cut proved to be very time-consuming. Also, the blade sometimes wandered out of the end of the plank when I made thin cuts. To avoid these problems, I alternated between timed cuts in the rig and untimed cuts with the same blade in a hand-held saw.

I timed cut numbers 1, 11, and 21, and — as the blades began to wear — every fifth cut after that (26, 31, and so on). I made the cuts in between by hand. After every 20 cuts I rested the blade and went on to the next model. I continued in this manner until each blade failed.

When is a blade dead? My original benchmark for failure was 45 seconds. (In other words, the blade would be considered dead if it could not make it through the plank in that amount of time.) I chose this number after speaking to manufacturers about the way they test blades. But in my testing, most blades failed rapidly at times between 35 and 40 seconds, so I adjusted the cutoff down to 37.5 seconds — the halfway point between those numbers.

It was pretty obvious when blades failed — they smoked, sparked, and ceased to

The author used a stopwatch to time cuts through the test planks. A blade was considered dead when it took more than 37.5 seconds per cut; by that point, most blades could barely get through and were hot enough to char the wood.



Tooth size alone is not a good predictor of longevity. The widely spaced teeth of the Ridgid blade (at top) cut quickly at first but were prone to snagging on nails. The more tightly spaced teeth of the Starrett didn't lose teeth to shock, but friction and heat eventually wore them down.

The author tested for resistance to abrasion by sawing through shingles sandwiched between pieces of OSB (left). As was typical of the bimetal blades tested, the teeth at the center of this model (shown below after 22 cuts) were completely worn away. Only the carbide-tooth blades survived for long in shingles.

make progress through the nails. In all cases, I stopped timing if a blade couldn't complete a cut in one minute and 30 seconds.

Test Results in Wood

The nail-embedded test boards worked as I had hoped: They wiped out the blades after an average of 60 cuts each while effectively highlighting the longest-lasting and fastest-cutting models.

To put the rigors of test cutting in perspective, the first-place model made 204 cuts, cutting through 187 feet of 2x6s, 153 feet of OSB, 60 feet of drywall, and 2,448 nails.

Keep in mind that this test was designed to wear out blades — you will probably never encounter 12 nails in a single cut, so I would expect blades to last much longer under normal use.

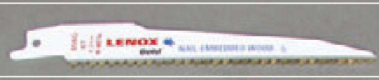
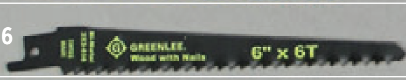
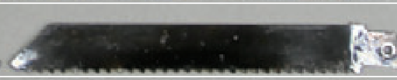
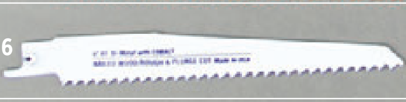
Snagged nails. I was surprised by the amount of damage caused by the single row of 8d sinkers in the test plank. You'd think 16d commons would be tougher to cut — but the 8d nail snagged in the blades' gullets and sheared off the adjacent teeth. As soon as one tooth was gone, its neighbors tended to fall like dominos. The 16d sinkers found their way into some of the larger gullets, but the 8d nails seemed to get there first.

Fresh teeth. Another surprise was how drastic an improvement a few fresh teeth can make. The hand-held saw's foot prevented me from using the first $^1/_4$ inch of teeth out from the tang, but those teeth were in use in the rig saw. The blade could be smoking and sparking during freehand cuts but still cut fast in the rig.

This suggests that you can get immensely more life out of your blades if your saw has an adjustable shoe and you make use of it.

Orbital action. I performed all test cuts in the nonorbital setting, because while every saw can make lineal cuts, only some have orbital. When the main tests were complete, I performed limited testing in

Blade Specs and Test Results

Brand/ Model	Thickness	TPI	New Blade	After Cutting Nail-Embedded Wood	Cuts in Nail-Embedded Wood*	Time for First Cut (in seconds)	Average Time per Cut (in seconds)
Lenox Gold 656G	.050″	6			204	13.4	14.7
Lenox 656R	.050″	6			148	14.1	14.2
Diablo Demo Demon**	.050″	6			126	13.5	25.1
Milwaukee "The Ax" 5021	.062″	5			109	11.7	20.9
Bosch RDN6V	.062″	5-8			66	14.4	21.0
Starrett BT6610	.050″	6-10			66	21.1	25.0
M.K. Morse RBMC65005	.050″	5.5			62	13.3	20.1
Hilti WN15	.050″	6			58	12.6	16.8
Ridgid Rapid Demolition	.050″	4-6			56	10.4	18.1
DeWalt DW4862	.062″	6			53	13.4	14.6
Greenlee 353-656	.050″	6			50	11.8	17.0
Makita 723054-A	.050″	6			49	11.1	16.4
Hitachi 725312	.050″	6			48	12.6	14.1
Diablo DS0612AW	.050″	6-12			36	14.6	23.0
Disston Blu-Mol 6480	.050″	6			30	14.3	25.8
Kobalt 282919	.050″	6			30	16.0	22.3
Irwin Marathon 372666	.062″	6			23	19.8	27.9

*cut had to take less than 37.5 seconds   **carbide-toothed; not tested to destruction

Not shown: Lenox 6563RCT (carbide-toothed) — not intended for cutting nails orbital mode, and the blade cut noticeably faster and made twice the number of cuts it made in linear mode. I had assumed the blade would wear more quickly cutting metal at this setting, but it didn't. The reason, a tool-company engineer explained to me, is that inline action drags the teeth over the nails on every return stroke, whereas in orbital mode, the teeth lift off the surface on the return stroke. That lack of friction on the return stroke more than makes up for the deeper biting action of the cutting stroke.

Cutting the Shingle Sandwich

For the roofing planks, I timed cuts 1 and 2, 11 and 12, and 21 and 22. In between, I made hand-held cuts. At cut number 22, I stopped cutting with the bimetal blades, because the teeth in the middle were completely worn away. The only reason they could still cut was that some of the outboard teeth never hit the shingles, so they still cut the OSB. The toothless part of the blade literally melted through the shingles.

The carbide-tipped blades held up better, so I continued with them until cut number 122. At that point I stopped; the blades were cutting more slowly but showed no signs of wearing out soon. Eventually, the carbide tips would have worn away — by my estimate, after two to three times the number of cuts already made.

This test really demonstrated the durability of carbide blades over bimetal blades in abrasive materials. If I had plunge-cut into an actual roof, the bimetal blades would have worn more evenly, and the outboard teeth would have dulled and slowed or stopped in the OSB. I chose not to show the cutting time of bimetal blades in roofing, because no tradesman in his right mind would continue to use a blade that looked as bad as mine did at 22 cuts.

Carbide-Tooth Models

I tested two carbide-tooth models, a Lenox 6563RCT and a Diablo Demo Demon DS0606CW.

The Lenox blade is not intended for use in nail-embedded wood, and sure enough, it failed that test, quickly losing most of its teeth when it hit fasteners. But it did amazingly well in the shingle sandwich, cutting and cutting with hardly any loss of speed.

Both of these blades are Demo Demons; the lower one has made 126 cuts through nail-embedded wood. Although the carbide tips have been dulled, they remain intact and can still cut — though at a slower rate than when sharp.

Lenox's carbide-toothed blade may not cut nails, but it's great in abrasive material. The blade at the bottom was still going strong after making 122 cuts through shingles and OSB. The tips were worn but not damaged.

When I quit at cut number 122, the blade was still going strong. It was designed to cut abrasive materials and does very well as long as the teeth don't experience any shock load.

The Diablo Demo Demon, by contrast, is intended for use in nail-embedded wood. It slowed noticeably as it dulled, but nails couldn't hurt it. I called it quits when it reached 150 cuts and a 45-second cut time — even though the blade had all its teeth and plenty of life left in it.

The Demo Demon performed admirably in the shingle sandwich but was much slower than the Lenox. That said, if I were cutting into an actual roof I would go with the Demo Demon, because its teeth won't chip or break off if they hit nails.

Bottom Line

Despite the complexity of this test, I found some simple answers: Of the bimetal blades, the Lenox Gold — which has a thin ceramic coating on its teeth — is the fastest and longest lasting, followed closely by the standard Lenox blade. Third place goes to the Milwaukee Ax, which was well ahead of the rest of the blades.

Because of the speed and longevity of the top bimetal blades, I would not recommend carbide-tooth blades for nail-embedded wood — but for cutting more than a few feet in highly abrasive materials like asphalt shingles, carbide is the way to go. For sawing abrasive material that is free of fasteners, nothing outruns the Lenox carbide. Due to the fragility of the Lenox's teeth, however, I would recommend the slower but far tougher Diablo Demo Demon carbide for cutting abrasive material that might contain hidden nails.

Michael Springer *is the former executive editor of* Tools of the Trade, *which is where this article first appeared. He covers the tool industry from Longmont, Colo.*

Thanks to Grip-Rite for providing the nails used in this test.