

# SELECTING THE RIGHT FASTENER

## WHAT'S THE DIFFERENCE?

In woodworking and construction, a nail holds materials together by friction in the axial direction and shear strength laterally. In general, nails are typically made of steel, and are often dipped or coated to prevent corrosion in harsh conditions or improve adhesion. Ordinary nails for wood are usually of a soft, low-carbon or "mild" steel (about 0.1% carbon, the rest iron and perhaps a trace of silicon or manganese). Nails for concrete are harder, with 0.5-0.75% carbon.

A screw is characterized by a helical ridge, known as a thread, wrapped around a cylinder. The most common uses of screws are to hold objects together and to position objects. Some screw threads are designed to mate with an internal thread (often in the form of a nut). Other screw threads are designed to cut a helical groove in a softer material as the screw is inserted. The screw head allows it to be driven, and is usually larger than the body of the screw. This keeps the screw from being driven deeper than the length of the screw and provides a bearing surface. The majority of screws are tightened by clockwise rotation.

## NAIL OR SCREW?

Many nails and screws in the market are designed to perform the same function, so when determining which to use, consider the following:

1. If your application has sideways pressure where material would have the tendency to move left or right, use a nail – for example, when you have a frame, you will get a lot more side-to-side pressure.
2. If you have material that will try and separate from the top or bottom, then use a screw. An example is hanging drywall. You use a screw because the up and down pressure is the greatest. If you were to use nails, over time you would see the nail heads pop.

Generally, nails penetrate quickly and work well for any application where pull out is not a concern. They are commonly used in structural framing, but are also used for decking, masonry, drywall, roofing, trim, flooring and siding. Nails also work well for temporary work, and tend to be cheaper and quicker to use in those applications where there is no clear choice between screws or nails.

Screws tend to have more holding power, and can be removed and reinstalled more easily than nails. They can be used in many of the same materials as nails, but are exclusively recommended when fastening to steel.

**To choose the right fastener for the job, consider the following selection criteria:**

### • The Purpose

Nails and Screws are made in a wide variety of forms for specialized purposes, and the head, shank, point, gauge, rigidity and coating play key roles. Fasteners are differentiated in part by these characteristics, and it is these differences that make one nail or screw better suited for use in a specific application. Selecting the right fastener starts with understanding what, where and how it will be used.

### • The Application

Understand how the fastener will be used. Applications such as drywall, siding, finish, roofing, decking, etc. have unique fastener requirements. For example, if you're laying shingles, it makes sense to select a galvanized roofing nail – the large head and heavier shank provide greater holding power; when you put down roofing underlayment or housewrap, the holding power and moisture protection of a cap nail or staple is the better choice.

### • The Location

Is the fastener being used in an interior or exterior location? Exterior applications may require a finish or coating to provide fastener protection from rust and corrosion (chemicals that prevent rot and insects, tanins in hardwoods, or saltwater environments can quickly corrode brite (uncoated) fasteners).

### • The Material

The wide variety of building materials available today make it more important than ever to understand what materials the fastener will join. Treated lumber contains chemicals like ACQ that require specially coated fasteners or stainless steel to resist their corrosive nature – even if you are using composite lumber on a deck, for example, chances are you will be fastening it to a substructure made from treated lumber. Ring shank fasteners provide greater holding power in softwoods, and stainless steel is recommended for many hardwoods to eliminate streaking that can be caused by tanins. When attaching to steel, the thickness of the metal will determine if a self-drilling point (for thick steel), or a sharp or self-piercing point (for thinner steel) will be required.

### • The Length




The fastener length required is determined by the thickness of the materials being used. Nail length is measured from the center of the head (the bearing surface) to the end of the point. Screw length is also measured from the head to the tip; however, depending on the screw, that measurement may be from the top of the head (flat head) or the bottom (hex head). The general rule for nail length is about three times as long as the thickness of the wood through which it is driven. Nails are normally driven through a thinner piece of wood into a thicker one. This allows 2/3 of the fastener to provide holding power in the thick piece of wood.

- **Project Fastener Requirements** How many screws will you need? See table at right.

Application	Project	Qty Required (lbs.)
Roofing	3 squares of shingles	5
Siding	2 squares of siding	5
Drywall	9 - 4'x8' sheets	1
Decking	500 lineal feet	5
Framing	10" - 16" on center	1

# FRAMING

**FRAMING NAILS** are used for general construction where a thinner shank for driving ease is desired. Pro-Fit® Framing nails come in three basic styles - Sinker, Common and Box - and are used in building walls, roofs, applying sheathing, sub-flooring, and just about anywhere construction lumber is used.

NAIL TYPE	PROFILE	APPLICATION
<p><b>SINKER</b></p> <ul style="list-style-type: none"><li>• Checkered flat countersunk head to prevent hammer slippage and provide a flush finish</li><li>• Round, smooth, thin shank reduces splitting; same thin diameter as a box nail</li><li>• Diamond point</li><li>• Vinyl Coated to enhance holding power and drivability</li></ul>		<ul style="list-style-type: none"><li>• For construction, carpentry and framing</li></ul>
<p><b>COMMON</b></p> <ul style="list-style-type: none"><li>• Flat head typically 3 to 4 times the diameter of the shank for solid holding power</li><li>• Round, smooth, thick shank provides greater resistance to bending; common nails have larger shanks than box nails of the same size</li><li>• Available with ring or spiral shanks to provide greater holding power</li><li>• Diamond point</li><li>• Brite; and Electro Galvanized or Hot Dipped Galvanized to enhance corrosion resistance</li></ul>		<ul style="list-style-type: none"><li>• For construction, carpentry and framing</li></ul>
<p><b>BOX</b></p> <ul style="list-style-type: none"><li>• Flat head for solid holding power</li><li>• Round, smooth, thinner shank reduces wood splitting, but offers less holding power than a common nail</li><li>• Diamond point</li><li>• Brite; Vinyl or Phosphate Coated for ease of penetration; and Electro Galvanized or Hot Dipped Galvanized to enhance corrosion resistance</li></ul>		<ul style="list-style-type: none"><li>• For construction, carpentry, framing and box making</li></ul>



- PRO-FIT FRAMING NAILS CONFORM TO ASTM F1667
- HOT DIPPED GALVANIZED PRODUCTS CONFORM TO ASTM A153

# FRAMING

## SINKER NAILS



- For construction, carpentry and framing
- Checkered flat countersunk head
- Round, smooth, thin shank
- Diamond point
- Conforms to ASTM F1667

VINYL  
COATED

DESCRIPTION	SIZE	COATING	APPROX. CT./LB.	1# BOX	5# BOX	25# BOX	25# PAIL	50# BULK
3D Sinker Framing Nails	1-1/8"	Vinyl Coated	740	0065078	0065075	0065073	-	0065072
4D Sinker Framing Nails	1-3/8"	Vinyl Coated	469	0065098	0065095	0065093	-	0065092
6D Sinker Framing Nails	1-7/8"	Vinyl Coated	266	0065138	0065135	0065133	0065139	0065132
7D Sinker Framing Nails	2-1/8"	Vinyl Coated	194	-	0065145	-	-	0065142
8D Sinker Framing Nails	2-3/8"	Vinyl Coated	141	0065158	0065155	0065153	0065159	0065152
10D Sinker Framing Nails	2-7/8"	Vinyl Coated	105	0065178	0065175	0065173	0065179	0065172
12D Sinker Framing Nails	3-1/8"	Vinyl Coated	76	0065188	0065185	0065183	0065189	0065182
16D Sinker Framing Nails	3-1/4"	Vinyl Coated	62	0065198	0065195	0065193	0065199	0065192
20D Sinker Framing Nails	3-3/4"	Vinyl Coated	41	0065208	0065205	0065203	0065209	0065202
30D Sinker Framing Nails	4-1/4"	Vinyl Coated	28	-	-	-	-	0065212
40D Sinker Framing Nails	4-3/4"	Vinyl Coated	22	-	-	-	-	0065222

## COMMON NAILS



- For construction, carpentry and framing
- Flat head
- Round, smooth, thick shank
- Diamond point
- Conforms to ASTM F1667

BRITE

DESCRIPTION	SIZE	COATING	APPROX. CT./LB.	1# BOX	5# BOX	25# BOX	25# PAIL	50# BULK
3D Common Framing Nails	1-1/4"	Brite	478	0053078	0053075	0053073	-	0053072
4D Common Framing Nails	1-1/2"	Brite	268	0053098	0053095	0053093	0053099	0053092
6D Common Framing Nails	2"	Brite	161	0053138	0053135	0053133	0053139	0053132
8D Common Framing Nails	2-1/2"	Brite	100	0053158	0053155	0053153	0053159	0053152
10D Common Framing Nails	3"	Brite	65	0053178	0053175	0053173	0053179	0053172
12D Common Framing Nails	3-1/4"	Brite	59	0053188	0053185	0053183	0053189	0053182
16D Common Framing Nails	3-1/2"	Brite	46	0053198	0053195	0053193	0053199	0053192
20D Common Framing Nails	4"	Brite	29	0053208	0053205	0053203	0053209	0053202
30D Common Framing Nails	4-1/2"	Brite	23	-	0053215	0053213	0053219	0053212
40D Common Framing Nails	5"	Brite	16	-	0053225	0053223	0053229	0053222
50D Common Framing Nails	5-1/2"	Brite	13	-	0053235	-	-	0053232
60D Common Framing Nails	6"	Brite	10	-	0053245	0053243	0053249	0053242

ELECTRO  
GALVANIZED

3D Common Framing Nails	1-1/4"	Electro Galvanized	497	-	-	-	-	0131072
4D Common Framing Nails	1-1/2"	Electro Galvanized	286	-	-	-	-	0131092
6D Common Framing Nails	2"	Electro Galvanized	169	-	0131135	-	0131139	0131132
8D Common Framing Nails	2-1/2"	Electro Galvanized	92	0131158	0131155	-	-	0131152

(-) indicates non-stocked National Nail Corp. product.