



# Standard Terminology of Nails for Use with Wood and Wood-Base Materials<sup>1</sup>

This standard is issued under the fixed designation F547; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

## INTRODUCTION

The terms included in these definitions are listed in alphabetical order under six headings to facilitate quick reference. They are intended to apply to metal nails. Some of these terms are also applicable to plastic nails. Omitted are terms relating to tacks, pins, drift pins, dowels, studs, spikes, staples, and other fasteners, such as nail plates. Also omitted are terms relating to the testing and the performance of nails, that is, their drivability, withdrawal resistance, lateral load transmission, creep, protrusion resistance, and splitting; and methods of use, such as face, toe, side, and end-nailing, spacing, loading conditions, etc. These subject matters will be covered in a separate definition of terms relating to mechanical fasteners.

Common acceptance and usage are the basis for most of the definitions listed. In some instances, this common usage results in more than one definition for a given term. In other cases, registered trademarks have become generic in nature; hence, they are included among the terms listed.

Any such listing cannot be complete. As additional terms are referred to the Society’s attention, they will be included.

An asterisk (\*) behind the name of a nail indicates that this particular nail type is described in Specification **F1667**.

Whereas dimensions are normally not part of a definition, they are included in this standard because they are essential in fully describing the fastener under consideration.

The definitions are listed under the following headings:

Nail Nail Types	Nail Heads Nail Points	Nail Threads Miscellaneous Terms
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## 1. Referenced Documents

### 1.1 *ASTM Standards*:<sup>2</sup>

**A510** Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel

**A700** Practices for Packaging, Marking, and Loading Methods for Steel Products for Shipment (Withdrawn 2014)<sup>3</sup>

**F1667** Specification for Driven Fasteners: Nails, Spikes, and Staples

<sup>1</sup> This terminology is under the jurisdiction of ASTM Committee F16 on Fasteners and is the direct responsibility of Subcommittee F16.05 on Driven and Other Fasteners.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard’s Document Summary page on the ASTM website.

<sup>3</sup> The last approved version of this historical standard is referenced on www.astm.org.

## 2. Terminology

### NAIL

**nail**—straight, slender fastener, usually pointed and headed; 6 in. or less in length; designed to be driven; to hold two or more pieces together or to act as support. (See **screw nail**; **drive screw**.)

**DISCUSSION**—In contrast to screw—fastener, usually pointed and headed; designed to be turned with a screwdriver or other device; having in its simplest form one or two continuous spiral threads (such as a wood screw thread) or a helical thread (such as a machine screw thread) or combinations thereof (such as a sheet-metal screw thread).

### NAIL TYPES

**aluminum common nail\***—plain-shank, aluminum-alloy, 1 by 0.072 to 6 by 0.262-in. nails with flat 5/32 to 17/32-in. head and medium diamond point.

**apple-box nail**—coated, regular-stock-steel, 1 5/8 and 1 3/4 by 0.080-in. nails with flat 1 5/64-in. head and medium diamond point.



**asbestosboard nail**—galvanized, hardened-steel, helically threaded, 1¼ and 1½ by 0.083-in. screw nails with flat, slightly countersunk, ⅜-in. head and blunt diamond point.

*asbestos-shingle nail*— See **shingle nail**.

*asphalt-shingle nail*— See **roofing nail**.

**auto nail**—nail of ¼ to 5¼-in. length, sheared off bright, smooth, knurled, or helically fluted, regular-stock-steel or stiff-stock, 0.032-in. (21-gage) to 0.162-in. (8-gage) wire and driven subsequently by the same machine at a rapid rate. This nail has a sheared-bevel or sheared-square point.

**barrel nail\***—bright or coated, regular-stock-steel, ⅝ by 0.067 to 1½ by 0.092-in. nails with flat 0.148 to 0.219-in. head and medium diamond point.

**basket nail**—bright, regular-stock-steel, ⅝ and ¾ by 0.048-in. nails with large flat head and medium needle point.

**beer-case cleat nail**—bright, regular-stock-steel, 1 by 0.080 to 1⅞ by 0.106-in. nails with ⅜ to ¼-in. oval head and duckbill or clinch point.

**beer-case hinge, lock and latch nail**—bright, regular-stock-steel, ⅝ by 0.080 to 1⅝ by 0.092-in. nails with oval ⅜ to ⅞-in. head and duckbill or clinch point.

**beer-case strap nail**—bright, regular-stock-steel, 1¼ by 0.092 to 2 by 0.113-in. nails with oval 1⅝ to -in. head and medium diamond point.

**berry-box nail**—bright, regular-stock-steel, ¾ to 1¼ by 0.054 and 0.062-in. nails with flat and medium diamond or needle point.

**boat nail\***—light-duty or heavy-duty, bright or galvanized, regular-stock-steel, 1½ by ⅜ to 4 by ⅜-in., round-wire nails with oval, countersunk, 1⅜ to ¾-in. head and medium chisel point. Also, bright, annularly or helically threaded, nonferrous or stainless-steel, 1 by 0.062 to 3 by 0.165-in., round-wire nails with flat or oval, slightly countersunk, ⅞ to ⅝-in. head and medium diamond point. Also, galvanized, regular-stock-steel, 2 to 2 ½-in. square, cut nails with oval head.

**box nail\***—bright, coated or galvanized, regular-stock-steel, 1 by 0.058 to 5 by 0.162-in. nails, made of lighter-gage wire than common nails and sinkers, with flat 1¼ to 1⅜-in. head and medium diamond point.

**brad\***—small nail with small head.

*brad, common wire*— slender, regular-stock-steel, ⅜ by 0.035 to 6 by 0.262-in. wire nails with brad 0.050 to 0.331-in. head and medium diamond point.

*brad, cut*—slender, usually small, regular-stock-steel nails of same thickness throughout, but tapering in width; with slight projection on one side serving as head. Also, tapering, square-bodied, finishing nail with countersunk head.

**brick-siding nail**—galvanized, colored (baked-lacquer finished), plain-shank barbed or annularly threaded, regular-stock-steel, ⅞ by 0.092 to 2 ½ by 0.099-in. nails with flat checkered ⅜ or ¼-in. head and medium diamond point.

**broom nail\***—bright, regular-stock-steel, ⅝ to ¾ by 0.072 or 0.080-in. nails with flat 1⅜ or ⅞ in. head and medium diamond point.

**cap nail**—bright, galvanized or electroplated, plain-shank or threaded, regular-stock-steel, ¾ by 0.105 to 6 by 0.135-in. nails with integral nominal 1-in. cap head and medium diamond point.

**car nail**—light-duty or heavy-duty, bright or coated, barbed or helically threaded, regular-stock-steel, 1½ by 0.105-in. (light) or 0.135-in. (heavy) to 6 by 0.225-in. (light) or 0.244-in. (heavy) nails and screw nails with flat or oval countersunk head and medium diamond point. Also, light-duty or heavy-duty, coated, barbed or helically threaded, regular-stock-steel, 1½ by 0.092 or 0.106 to 6 by 0.207 or 0.225-in. nails with oval countersunk 1⅝ to 1⅜-in. head and medium diamond point.

**casing nail\***—bright or galvanized, slender, regular-stock-steel, 1 by 0.067 to 3½ by 0.135-in. nails with flat or cupped 0.099 to 0.177-in. casing head and medium diamond point for countersinking where concealment is important.

**cigar-box nail**—bright, smooth, or barbed, regular-stock-steel, ½, ⅝, ¾, and by 0.044-in. nails with flat slightly countersunk 0.099-in. head and medium diamond point.

**cleat**—L-shaped nail.

**cleat nail**—bright, regular-stock-steel, 1⅞ by 0.080 to 1 ⅞ by 0.106-in. nails with oval ⅜ to ¼-in. head and duckbill or clinch point. (See **clinch nail**.)

**clinch nail**—any nail designed for clinching after driving. Bright, regular-stock-steel, 1 by 0.080 to 4 by 0.177-in. nails with oval ⅜ to ⅝-in. head and duckbill or clinch point. (See **cleat nail**.)

**clout nail**—bright, regular-stock-steel, ¾ by 0.072 to 1 ½ by 0.092-in. nails with large flat 0.225 to 0.262-in. head and long side point or duckbill point.

*collar nail*—See **collar head, gudgeon, projection head**.

*common brad*—See **brad**.

**common cut nail\***—normally, wedge-shaped, ½ to 6-in. nails of various types sheared from stiff-stock-sheet steel, with sheared-square point end narrower than upset head end.

**common nail\*, common wire nail**—bright, plain-shank, regular-stock-steel, ½ by 0.035 to 6 by 0.262-in. nails with flat 1¼ to 1⅜-in. head and medium diamond point. Diameter is larger than that for sinkers, coolers, corkers, and box nails of same length.

**concrete nail\*, concrete stub nail**—hardened-steel, ½ by 0.135 to 3 ½ by 0.207-in. nails with flat countersunk ⅝ to ½-in. head and medium diamond point.

**conduit nail**—bright or copper-plated, regular-stock-steel or hardened-steel, 1¾ to 3½ by 0.161-in. nails with annularly threaded shank; bent, curved hook head, and medium needle point. Different types of head designed for fastening ½, ¾, or 1-in. conduit, tubing, pipe, cable, etc.



**cooler nail**—usually coated, slender, regular-stock-steel, 1 by 0.062 to  $2\frac{7}{8}$  by 0.120-in. nails with flat  $\frac{1}{64}$  to  $\frac{19}{64}$ -in. head and medium diamond point, with head diameter same as or smaller than that of common wire nail of same length.

**copper common nail\***—bright, solid-copper,  $\frac{5}{8}$  by 0.065 to 6 by 0.284-in. nails with flat head and medium diamond point.

**corker nail\***—usually coated, slender, regular-stock-steel, 1 by 0.062 to  $5\frac{7}{8}$  by 0.244-in. nails with  $\frac{5}{32}$  to  $\frac{1}{2}$ -in. sinker head and medium diamond point.

**cork-insulation nail**—galvanized, regular-stock-steel, 3 to 9 by 0.148-in. nails with flat  $\frac{1}{2}$ -in. head and medium diamond point.

*corrugated roofing/siding nail*—See **roofing nail**.

**dating nail**—galvanized, regular-stock-steel, copper or brass,  $1\frac{1}{2}$  by  $\frac{1}{4}$  to  $2\frac{1}{2}$  by  $\frac{3}{16}$ -in. nails with  $\frac{3}{8}$  to  $\frac{1}{2}$ -in. flat numeral head and medium diamond point.

**diaphragm nail**—stout, bright or galvanized, regular-stock-steel or hardened-steel, helically threaded,  $1\frac{1}{2}$  by 0.135 to  $2\frac{1}{2}$  by 0.148-in. nails with flat slightly countersunk  $\frac{5}{16}$ -in. head and medium diamond point.

**double-headed\*, duplex-head, dual-head, nail**—bright or coated, regular-stock-steel,  $1\frac{3}{4}$  by 0.113 to 4 by 0.207-in. nails with double  $\frac{3}{16}$  to  $\frac{7}{16}$ -in. head, medium diamond point, and  $\frac{1}{4}$  to  $\frac{7}{16}$ -in. distance between head to be struck by hammer and bearing head. Length of nails measured from bearing surface of head.

**drive nail, drive screw**—terms applied to helically threaded nails, twisted nails, and annularly threaded shoe nail. (See **nail, thread**.)

*drywall nail*—See **gypsum-wallboard nail**.

*dual-head nail*—See **double-headed nail**.

*duplex-head nail*—See **double-headed nail**.

**egg-case nail**—coated, regular-stock-steel,  $1\frac{1}{8}$  by 0.072-in. nail with flat  $\frac{7}{32}$ -in. head and sharp medium diamond point.

**escutcheon pin**—small, regular-stock-steel or nonferrous,  $\frac{1}{4}$  by 0.035 to 2 by 0.092-in. nails with oval head and medium diamond point.

*face nail*—See **siding nail**.

**fence nail**—stout, bright, regular-stock-steel,  $1\frac{3}{4}$  by 0.135 to 4 by 0.225-in. nails with large flat  $\frac{9}{32}$  to  $\frac{15}{32}$ -in. head and medium diamond point.

**fetter ring nail**—term applied to annularly threaded nail. (See **thread**.)

**fiberboard nail**—bright or electroplated, regular-stock-steel or hardened-steel 1 by 0.054 to 2 by 0.062-in. nails with flat  $\frac{3}{32}$  or  $\frac{7}{64}$ -in. head and medium needle point.

**field-box nail**—coated, barbed, regular-stock-steel, 2 by 0.099 to  $2\frac{1}{4}$  by 0.106-in. nails with  $\frac{1}{4}$ -in. oval head and medium diamond point.

**file-grip nail, file-thread nail**—terms applied to helically threaded nails provided with file threads. (See **thread**.)

**fine nail\***—slender, bright, regular-stock-steel,  $\frac{1}{2}$  by 0.035 to  $1\frac{1}{8}$  by 0.072-in. nails with flat  $\frac{1}{8}$  to  $\frac{1}{64}$ -in. head and medium diamond point. Also, slender, electroplated, hardened-steel,  $1\frac{1}{4}$  by 0.054 to  $2\frac{1}{2}$  by 0.083-in. nails with brad head and short diamond point.

**finishing nail\***—slender, bright, regular-stock-steel, 1 by 0.058 to 4 by 0.135-in. nails with flat or cupped 0.086 to 0.177-in. brad head and medium diamond point for countersinking where concealment of head is important. (See also, **fine nail, moulding and trim nails, wallboard nails**.)

**fire-door nail**—bright, regular-stock-steel, barbed,  $1\frac{1}{4}$  by 0.092-in. nail (3d shingle nail) with flat  $\frac{1}{4}$ -in. head and medium diamond point and 2 by 0.099-in. nail (6d box nail) with flat  $\frac{1}{64}$ -in. head and medium diamond point.

**flattened-shank nail**—round wire nail with portion of shank flattened for a certain distance between point and head to facilitate driving of nail between steel members and wrapping of flattened portion of shank around steel rod during driving.

**flooring brad**—bright, regular-stock-steel, 2 by 0.120 to 4 by 0.192-in. nails with deep (32°) countersunk flat or cupped 0.162 to 0.244-in. head and medium diamond point. Also, slender, bright, regular-stock-steel,  $1\frac{1}{4}$  by 0.076 to  $2\frac{1}{2}$  by 0.113-in. nails with deep (32°) countersunk flat or cupped or brad 0.128 to 0.155-in. head and blunt diamond point.

*machine flooring brad*—bright, regular stock-steel, 1 by 0.072-in. nail with special 0.113-in. brad head with cylindrical rim and medium diamond point.

**flooring nail\***—bright, stiff-stock or hardened-steel, helically threaded, 1 by 0.072 to  $3\frac{1}{2}$  by 0.148-in. nails with flat or checkered  $\frac{9}{64}$  to  $\frac{9}{32}$ -in. countersunk or casing head and blunt diamond point.

**foundry nail, smooth foundry nail**—bright, regular-stock-steel,  $\frac{3}{4}$  by 0.120 to 9 by 0.162-in. nails with large thin flat  $\frac{7}{16}$  to  $\frac{1}{2}$ -in. head and medium diamond point.

*framing nail*—See **common nail, threaded common nail, threaded nail**.

**fruit-box nail**—coated, regular-stock-steel,  $1\frac{3}{8}$  by 0.072-in. nail with flat  $\frac{7}{32}$ -in. head and medium diamond point.

**furniture nail**—plated, regular-stock-steel or brass,  $\frac{3}{8}$  to  $\frac{3}{4}$ -in. nails with extra large, decorative head and long diamond or needle point.

**furniture-carton nail**—bright, regular-stock-steel,  $\frac{3}{4}$  to 2-in. nails with circular 1-in. cap head and medium diamond point. (See **cap nail**.)

*furring nail*—See **self-furring nail**.

*general-purpose nail*—See **common nail**.

**glulam rivet nail\***—plain or galvanized, flat, hardened-steel,  $2\frac{3}{8}$  by  $\frac{1}{4}$ -in. nail with sheared V-shaped point and flat upset wedge-shaped head; designed to be driven through undersize truncated apertures in regular-stock-steel connector plates from which nails cantilever into wood.



**gudgeon**—bright, regular-stock-steel nails with annular flange or collar located along shank. (See **tile nail**, **acoustical**.)

**gypsum-deck nail**—helically threaded cap nails with special type of thread with extra large lead angle.

**gypsum-lath nail**—bright or blued, regular-stock-steel, 1 by 0.092 to 1¼ by 0.166 and 1¾ by 0.092-in. nails with large flat 1⁄64 to 3⁄8-in. head and long diamond point. Also, regular-stock-steel, 1 by 0.120 to 1½ by 0.148-in. nails with flat ½-in. head and medium diamond point. Also, aluminum-alloy, 1⅛ by 0.099 to 1½ by 0.105-in. nails with flat 1⁄64 or 5⁄14-in. head and medium diamond point.

**gypsum-sheathing nail**—galvanized, barbed, regular-stock-steel, 1¾ by 0.120-in. nail with flat 7⁄16-in. head and medium diamond point.

**gypsum-wallboard nail\***, **gypsumboard nail\***, **drywall nail\***—bright or blued, regular-stock-steel, annularly threaded, 1 ⅛ by 0.098 to 2 by 0.105-in. nails with flat, nub, or crossed slightly countersunk ¼ to 1⁄64-in. head and long diamond point. Also, slender, colored (baked-lacquer finished), regular-stock-steel, smooth or annularly threaded, 1⅛ by 0.062 to 2 by 0.083-in. nails with slightly countersunk 0.181-in. head and medium diamond or long needle point.

**hardboard nail**—slender, usually colored (baked-lacquer finished), stiff-stock or usually hardened-steel, usually annularly threaded, 1 to 1⅝ by 0.058-in. nails with small flat head and long needle point for fastening plain or prefinished ⅛ and ¼-in. hardboard for interior applications. Also, slender bright or colored (baked-lacquer finished), galvanized, stiff-stock, or usually hardened-steel, usually helically threaded, 2 to 3 by 0.105 and 0.120-in. nails with countersunk 3⁄16 or 13⁄64-in. head and pilot needle point for fastening hardboard for exterior applications.

**hardened nail**—heat-treated medium-low or medium-high carbon-steel nail.

*heavy nail*, *heavy-gage nail*—See **stout nail**.

*high-density fiberboard nail*—See **shake nail**, **shingle nail**, **wood shingle** and **asbestos shingle nail**.

**hinge nail**—light or heavy, bright, regular-stock-steel, 1¼ by 3⁄16 to 4 by 3⁄8-in. nails with flat or oval countersunk (95°) or oval ¼ to ½-in. head and long diamond or chisel point.

**hob nail**—stout, regular-stock-steel, 3⁄8 to 5⁄8-in. nails with large decorative (high square, fancy, round bevel, checkered, grooved, etc.) head and sheared-bevel point.

*hook-head metal-lath nail*— See **metal-lath nail**.

**hoop fastener nail**—bright, blued or galvanized, regular-stock-steel, 3⁄8 by 0.092 to 1 by 0.162-in. nails with thin flat 3⁄8 to 11⁄16-in. long, 0.207 to 3⁄8-in. wide hook head and medium diamond point.

*insulating-siding nail*— See **brick-siding nail**.

**insulation building-board nail**, **tileboard nail**—galvanized, electro-galvanized or cadmium or nickel-plated, regular-stock-steel, 1¼ and 1¾ by 0.054-in. nails with flat 3⁄32-in.

head and medium needle point. Also, plain or colored (baked-lacquer finished) hardened-steel, smooth or annularly threaded, 1¼ by 0.054 to 1¾ by 0.062-in. nails with slightly countersunk 0.109-in. head and medium diamond or long needle point.

**insulation-lath nail**—blued, regular-stock-steel, 1⅛ and 1¾ by 0.092-in. nails with flat 3⁄8-in. head and long diamond point. (See **gypsum-lath nail**.)

**insulation-sheathing nail**—galvanized, barbed, regular-stock-steel, 1¾ and 2 by 0.115 or 0.120-in. nails with flat 7⁄16 or ½-in. head and medium diamond point.

*lath nail\**—See **metal-lath nail**, **wood-lath nail**.

*lead-head nail*—See **roofing nail**.

**lino-nail**—bright, regular-stock-steel, 5⁄8 by 0.062-in. nail with oval head and medium diamond point.

*marking nail*—See **dating nail**, **marking head**, **numeral head**.

**masonry nail\***—plain, electro-zinc-plated or galvanized, hardened-steel, knurled (longitudinally or nearly longitudinally threaded or fluted), ½ to 4 by 0.148 or up to 0.250-in. nails with flat or checkered 5⁄16 to 9⁄16-in. head and medium diamond point.

**metal-lath nail**, **hook-head metal-lath nail\***—bright, blued or galvanized, regular-stock-steel, 1⅛ by 0.106-in. nail with thin flat 7⁄16 or ½-in. hook head and medium diamond point. (See **self-furring nail**.)

**moulding and trim nail**—bright zinc-plated, slim, hardened-steel, 1¼ by 0.054 to 2½ by 0.083-in. nails with blunt point and button head. (See **finishing nail**, **fine nail**, **hardboard nail**, **insulation building-board nail**, **tileboard nail**, **wall-board nail**.)

**orange-box nail**—coated, regular-stock-steel, 1¼ by 0.072-in. nail with flat 7⁄32-in. head and medium diamond point.

**pallet nail\***—bright, stiff-stock or hardened-steel, helically threaded (with medium lead angle) or annularly threaded, 1½ by 0.105 to 4 by 0.177-in. nails with smooth or checkered flat 9⁄32 to 7⁄16-in. head and medium or blunt diamond or blunt chisel point.

**parquet flooring nail**—hardened-steel, annularly threaded, 1⅛ by 0.062 to 1¼ by 0.072-in. nails with deep countersunk 0.080 to 0.113-in. casing head and diamond or needle point.

**peerless cut nail**—name for small, regular-stock-steel, cut nails with broad flat circular head and sheared long-tapered square point to facilitate clinching.

**pin**—small headless nail.

*plaster-base nail*, *plasterboard nail*, *plaster-board nail*—See **gypsum-lath nail**, **wood-lath nail**.

*pole-barn nail*—See **post-frame shank nail**.

**post-frame shank nail (formerly pole-barn nail)**—bright or galvanized, steel ring shank nail, ranging from 3 by 0.131 in. to 8 by 0.207 in., with flat head and diamond point, meeting



minimum bending yield requirements of Supplementary Section S1 and Table S1.2 of Specification F1667.

**purlin nail, “straw”**—galvanized, regular-stock-steel, aluminum-alloy or copper, 4 to 16 by  $\frac{1}{8}$ -in., 0.135 or 0.148-in. nails of desired length with flat  $\frac{11}{32}$ -in., curved or  $\frac{15}{32}$ -in. head,  $\frac{9}{16}$ -in. cast lead head or plastic washer and sheared-square or diamond point; for securing corrugated roofing to I-beams.

**ratchet nail**—bright, regular-stock-steel,  $\frac{3}{4}$  to 2 by 0.120-in. nails with single-crest annular ratchet thread, flat  $\frac{3}{8}$ -in. head and medium diamond point.

**ring nail, ring-barbed nail, ring-grooved nail, ring-grip nail, ring-shank nail**—terms applied to annularly threaded nail. (See **thread, annular**.)

**roll-grooved nail**—bright or plated, helically grooved, round-wire, stiff-stock, 1 by 0.086 to 4 by 0.164-in. drive-screw nails with no clearance between flutes and head, with flat or slightly countersunk head and medium or long diamond point, with crest diameter being referred to as diameter.

**roof-deck nail**—galvanized, regular-stock-steel and bright, hardened-steel, plain or annularly threaded, 3 by 0.135 to  $\frac{1}{2}$  by 0.177-in. nails with flat or slightly countersunk  $\frac{9}{32}$  to  $\frac{25}{64}$ -in. head and medium diamond point.

*roofing fastener*—See **purlin nail**.

**roofing nail\***, **asphalt-shingle nail, corrugated-roofing nail, sheet-roofing nail**—bright or galvanized, plain-shank, barbed or threaded, regular-stock-steel,  $\frac{3}{4}$  by 0.092 to 3 by 0.148-in. nails with flat, checkered, large, reinforced, umbrella lead or cast-lead  $\frac{1}{4}$  to  $\frac{9}{16}$ -in. head and medium or long diamond or needle point, often provided with lead conical neoprene or flat plastic washer. Also, aluminum-alloy, plain-shank or helically threaded,  $\frac{3}{4}$  by 0.120 to  $2\frac{3}{4}$  by 0.150-in. nails with flat or checkered  $\frac{3}{8}$  to  $\frac{9}{16}$ -in. head and medium diamond or needle point, often provided with conical neoprene washer. (See **cap nail**.)

*scaffold nail*—See **double-headed nail**.

**screw nail, screw nail, screw-grip nail, screw-shank nail, screw-shank nail, screw-thread nail**—terms applied to helically threaded nail and screw-threaded nail. (See **thread**.)

**self-furring nail**—galvanized, regular-stock-steel,  $1\frac{1}{4}$  to  $2\frac{1}{2}$  by 0.106-in. nails with  $\frac{3}{8}$ -in. flat head, medium diamond point, and washer or spacer on shank; for fastening reinforcing wire mesh and spacing it from nailing member.

**shade bracket nail**—bright, regular-stock-steel,  $\frac{3}{4}$  to 1 by 0.080 or 0.092-in. nails with slightly countersunk  $\frac{1}{2}$  or  $\frac{9}{32}$ -in. head and needle point.

**shake nail, cedar-shake or shingle nail, wood-shake face nail**—enameled (baked-lacquer finished), galvanized, regular-stock-steel, plain-shank or annularly threaded, aluminum-alloy, plain-shank or helically threaded, or stainless-steel, annularly threaded,  $1\frac{1}{2}$  by 0.080 to  $2\frac{1}{2}$  by 0.092-in. nails with flat  $\frac{1}{8}$  to  $\frac{9}{64}$ -in. head and medium diamond point. Also, aluminum-alloy  $1\frac{1}{4}$  by 0.086 to  $1\frac{3}{4}$  by

0.092-in. nails with flat  $\frac{5}{32}$ -in. head and blunt diamond point. Also, aluminum-alloy, annularly threaded,  $1\frac{3}{8}$  and 2 by 0.099-in. nails with special type of thread and with flat slightly countersunk  $\frac{5}{32}$ -in. head and long needle point; for fastening cedar shakes to fiberboard nail-base sheathing.

*sheathing nail*—See **common nail, threaded common nail, diaphragm nail, fiberboard nail, gypsum-sheathing nail, hardboard nail**.

**sheathing/siding nail**—stainless-steel, annularly threaded,  $1\frac{1}{2}$  by 0.120-in. nail with slightly countersunk  $\frac{7}{64}$ -in. head and sharp medium diamond point.

**sheet-metal nail**—nail stamped out of sheet metal and formed to desired shape. (See **roofing nail**.)

*sheet-roofing fastener nail*—See **purlin nail**.

*sheet-roofing nail*— See **roofing nail**.

*shingle-backer nail*— See **shake nail**.

**shingle nail\***

*wood-shingle nail*—bright or galvanized, regular-stock-steel, plain-shank or annularly threaded,  $1\frac{1}{4}$  by 0.076 to 2 by 0.106-in. nails with flat  $\frac{7}{32}$  to  $\frac{9}{32}$ -in. head and medium or blunt diamond point. Also, bright or colored (baked-lacquer finished), aluminum-alloy, plain-shank or helically threaded,  $\frac{7}{8}$  by 0.080 to  $1\frac{3}{4}$  by 0.099-in. nails with flat  $\frac{5}{32}$  to  $\frac{9}{32}$ -in. head and medium or blunt diamond point. Also, aluminum-alloy, annularly threaded,  $1\frac{3}{8}$  and 2 by 0.101-in. nails with special type of thread and with flat slightly countersunk  $\frac{5}{32}$ -in. head and long needle point for fastening cedar shingles to fiberboard nail-base sheathing.

*asbestos-shingle nail*—bright or galvanized, regular-stock-steel, annularly threaded, 1 to 2 by 0.113-in. nails with flat  $\frac{13}{32}$ -in. head and long diamond or needle point. Also, aluminum-alloy, helically threaded,  $1\frac{1}{8}$  to  $2\frac{1}{2}$  by 0.099 to 0.135-in. nails with smooth or striated flat  $\frac{3}{16}$  to  $\frac{7}{16}$ -in. head or  $\frac{9}{64}$  to  $\frac{5}{32}$ -in. casing head and medium diamond or needle point. Also, aluminum-alloy, annularly threaded,  $1\frac{3}{8}$  and 2 by 0.101-in. nails with special type of thread and with flat slightly countersunk 0.190-in. striated head and long needle point; for fastening asbestos shingles to fiberboard nail-base sheathing.

*asphalt-shingle nail*—See **roofing nail**.

*siding nail\**— See **brick-siding nail, hardboard nail, roofing nail, sheathing/siding nail**.

*aluminum-siding nail*—plain-shank or helically threaded, aluminum-alloy 1 by 0.099 to  $2\frac{1}{2}$  by 0.135-in. nails with flat  $\frac{1}{4}$  to  $\frac{5}{16}$ -in. head and medium diamond point.

*asbestos-siding face nail*—bright, colored (baked-lacquer finished) or galvanized, regular-stock-steel, hardened-steel, bronze, aluminum or stainless-steel, annularly threaded, file-grip or screw-thread,  $1\frac{1}{4}$  by 0.080 to 2 by 0.105-in. nails with smooth or striated flat  $\frac{3}{16}$ -in. or button head and medium diamond or needle point.

*common siding nail*—bright or colored (baked-lacquer finished), galvanized, regular-stock-steel or hardened-steel, plain-shank or threaded,  $1\frac{3}{4}$  by 0.080 to 3 by 0.128-in. nails with flat  $\frac{5}{32}$  to  $\frac{19}{64}$ -in. head and medium diamond point.

*corrugated-siding nail*—See **roofing nail**.



*hardboard-siding nail*—See **hardboard nail**.

*insulated-siding nail*—bright or colored (baked-lacquer finished) aluminum-alloy, 1½ by 0.113 to 2½ by 0.135-in. nails with flat 7/32 to 9/32-in. head and medium diamond point.

*insulating-siding nail*—See **brick siding nail**.

*wood-siding nail*—bright and colored (baked-lacquer finished), plain-shank or helically threaded, aluminum-alloy, 17/8 by 0.106 to 27/8 by 0.148-in. nails with 9/64 to 11/32-in. casing or 17/64 to 5/16-in. sinker head and medium or blunt diamond point. Also, bright or colored (baked-lacquer finished), stainless-steel, annularly threaded, 21/8 and 23/8 by 0.083 and 0.095-in. nails with slightly countersunk 3/16-in. head and medium diamond point. (See **common siding nail**.)

**sinker\***—bright or coated, slender, regular-stock-steel, 1 1/8 by 0.067 to 53/4 by 0.244-in. nails with 11/64 to 1/2-in. sinker head and medium diamond point, with diameter of head smaller than that of cooler and common nail of same designation.

**slating nail\***—galvanized, regular-stock-steel, 1 by 0.106 to 2 by 0.148-in. nails with slightly countersunk 5/16 to 7/16-in. flat head and medium diamond point. Also, aluminum-alloy, 7/8 by 0.106 to 1 1/2 by 0.135-in. nails with large flat 5/16 to 3/8-in. head and medium diamond point. Also, solid copper, 7/8 by 0.109 to 3 by 0.148-in. nails with large flat head and medium diamond point.

**slender, slim nail**—nails with shank diameter usually at least one gage smaller than common nails of same length.

**smooth-edge carpet plywood strip nail**—hardened-steel, 11/16 by 0.105-in. nail with countersunk flat 7/32-in. head and long diamond point.

**square-wire nail**—bright, diagonally barbed, square-wire, regular-stock-steel, 2 by 0.113 to 4 by 0.192-in. common nails with 1/4 to 3/8-in. flat head and medium diamond point; also, 2 by 0.099 and 2 1/2 by 0.113-in. box nails with 1/4 and 17/64-in. flat head and medium diamond point; also, 2 by 0.091 and 2 1/2 by 0.099-in. finish nails with 0.124 and 0.131-in. flat head and medium diamond point; also, 1 1/2 by 0.131-in. truss nail with 9/32-in. flat head and medium diamond point.

**stout nail**—nails with shank diameter usually at least one gage larger than common nails of same length.

**straight nail**—nail not bent or bowed.

**strap nail**—bright, regular-stock-steel, 1 1/4 by 0.092 to 2 by 0.113-in. nails with oval 15/64 to 17/64-in. head and short diamond point.

*straw*—See **purlin nail**.

**strip nail**—steel, 1 1/4 to 2 1/2-in. nails spot welded to disposable metal strip that feed nails into nailing machine provided with staple-type magazine. During punching of nail from strip, small washer is formed under head. Also, nail stored in special strip to serve as magazine for feeding nailing machine.

*subflooring nail*—See **threaded sinker (annularly threaded), diaphragm nail**.

**T nail**—bright, etched, coated, galvanized, aluminum-coated, plastic-coated, knurled or annularly threaded, stiff-stock or aluminum-alloy, round-wire, 1 by 0.080 to 2 1/2 by 0.131-in. nails of T shape with 5/32 or 17/64-in. round, square or oval-finish head of sinker, with or without heavy fillet, and with diamond or chisel point; driven with special nailing machine provided with staple-type magazine.

#### **threaded nail**

*threaded common nail, threaded nail, threaded sinker, n*—bright or galvanized, regular-stock-steel, stiff-stock or hardened-steel, annularly or helically threaded, 1 by 0.072 to 6 by 0.262-in. nails with flat 3/16 to 17/32-in. head and 1 1/8 by 0.072 to 53/4 by 0.238-in. sinkers with 11/64 to 1/2-in. sinker head and medium diamond point.

*threaded shear-resistant nail*—stout, short, helically threaded, 1 1/2 to 2 1/2 by 0.135 and 0.148-in. nails with 5/16 -in. sinker head and medium diamond point.

**tile nail**—*acoustical-tile nail* slender, electroplated, regular-stock-steel or stiff-stock, 1 to 1 3/4 by 0.062-in. nails with 1/4-in. projection head with 0.135-in. collar and sharp, blunt, or medium diamond point.

*asbestos-tileboard nail*—stainless steel or other nonferrous metal nails with casing or oval head. (See also **asbestosboard nail**.)

*roofing-tile nail*—galvanized, regular-stock-steel, 5 to 7 by 0.148-in. nails with flat 5/16-in. head and medium diamond point.

*tileboard nail*—See **asbestosboard nail, fiberboard nail, insulation building-board nail**.

**toothed nail**—flat, L-shaped, 1/2 to 1 15/16-in. cleats, sheared from 16-gage steel sheet; provided with toothed serrations along narrow sides of long shank and with slightly tapered, dull point; driven with special nailing machine provided with staple-type magazine.

*trim nail*—See **moulding nail**.

**trunk nail**—bright, regular-stock-steel, 1/2 to 1 3/4-in. nails with rivet or oval head and extra long “V” point.

*trussed rafter nail*—See **threaded nail**.

*tubing nail*—See **conduit nail**.

**twisted nail**—helically twisted, squarewire, 1/2 by 0.072 to 6 by 0.250-in. drivescrew nails, usually of tempered stiff-stock, with flat or countersunk head and medium diamond point, with crest diameter being referred to as diameter.

**twist nail**—slender, copper or aluminum nails with flat head and medium needle point for twist clinching, that is, for having part of nail shank twisted to form a clinched point.

**underlay nail, underlayment nail\***—bright, regular-stock-steel, stiff-stock or hardened-steel, annularly threaded, 1 by 0.080 to 3 by 0.148-in. nails with flat or slightly countersunk 3/16 to 5/16-in. head and medium diamond point.

**upholstery nail**—bright, regular-stock-steel, two-piece nails with extra-large specially formed head and medium diamond or needle point.

**“V” nail**—headless nails with central V-shaped slot at head end.

**veneer-box nail**—coated, regular-stock-steel, 1½ by 0.080-in. nail with flat ⅝ or ¼-in. head and medium needle point.

**wagon nail**—annealed, barbed, regular-stock-steel nails with round, oval, cone, flat countersunk, or steeple head and medium diamond point.

**wallboard nail**—slender, colored (baked-lacquer finished), regular-stock-steel or hardened-steel, smooth or annularly threaded, 1⅛ by 0.062 to 2 by 0.083-in. nails with slightly countersunk 0.109 to 0.181-in. head and medium diamond or long needle point.

**wire nail**—nail manufactured from metal wire or rod.

**wood-heel attaching nail**—bright, regular-stock-steel, annularly threaded or helically threaded, ⅝ by 0.054 to ⅞ by 0.072-in. nails with slightly countersunk flat head and medium or long diamond point.

**wood-heel top-lift nail**—bright, regular-stock-steel, ½ by 0.041 to ¾ by 0.048-in. nails with flat or brad head and long diamond point.

**wood-lath nail**—blued, regular-stock-steel, 1 and 1⅛ by 0.054 and 0.072-in. nails with flat ⅛ to ⅛-in. head and medium diamond point.

**NAIL HEADS**

**head**—upset or deformation of shank, usually at or near end of shank opposite point end; formed during manufacture of nail to provide area to be struck by hammer during driving and to offer bearing resistance (see Fig. 1).

**angle**—on countersunk head, total included angle formed by conical underportion or bearing surface.

**ball head**—spherical head.

**bearing surface**—underside of head in contact with nailed member.

**bent head**—wire bent and upset to form head. (See **hook head**.)

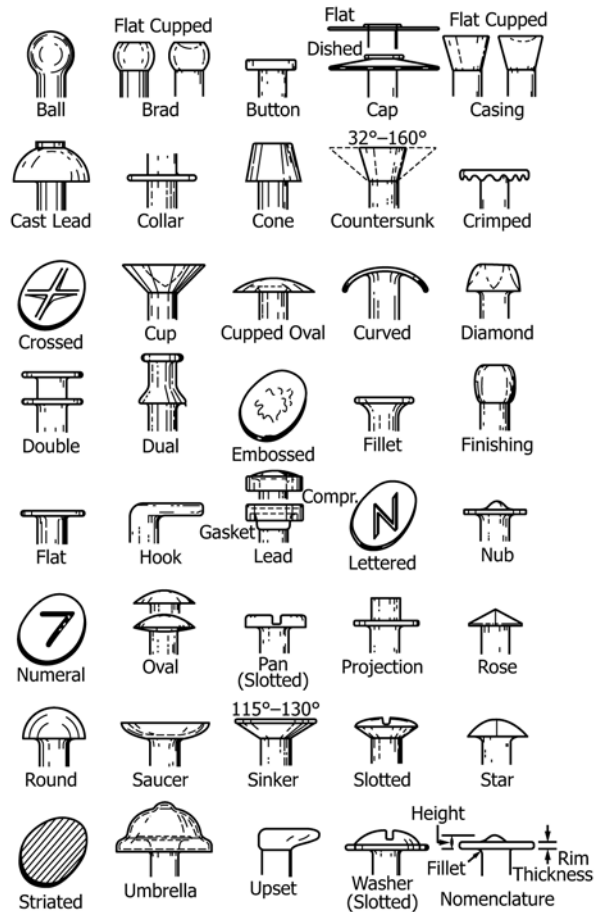
**brad head**—small-diameter, deep, circular, barrel-shaped head with flat or concavely cupped top surface, as found on finishing nails and common brads for countersinking where concealment is important.

**broad head**—See **large head**.

**button head**—cylindrical head with flat upper and bearing surfaces, smaller in diameter and thicker than flat head for same size nail shank.

**cap head**—extra large, flat or dished, round or squared sheet-metal head applied to nail shank during nail manufacture.

**capstan head**— See **dual head**.



**FIG. 1 Various Types of Nail Heads**

**casing head**—deep countersunk (32°) head with flat or cupped, circular top surface as found on casing nails to facilitate flush driving of nail.

**cast lead head**—half-round or bell-shaped lead head serving as head and washer requiring approximately 25 % more lead than compressed lead head. (See **lead head**.)

**checkered head**—flat head with raised or depressed, checker or grid marks of various designs.

**collar head**—intermediate flat head with shanks protruding in both directions of nail axis.

**cone head**—head consisting of truncated cone with large diameter usually nearest shank of nail.

**conical head**— See **countersunk head**.

**convex head**—See **umbrella head**.

**countersunk head**—head with bearing surface conically shaped: “deep” having 32° to 74° included angle; “medium” having 75° to 99° included angle; “slight” having 100° to 160° included angle.

**crimped head**—head with undulating or pronged rim, or both.

**crossed head**—cup head with raised lines in cup forming cross. Also known as X head.





**cup, cupped head**—head with concave or recessed, instead of flat, top surface to accommodate nail set and to prevent its slipping during countersinking.

**cupped oval head**—head with oval or convex top surface and concave bearing surface. (See **umbrella head**.)

**curved head**—head with hemispherical or nearly hemispherical bearing surface and flat top surface. Also, head of plain, flat-headed nail with two opposite edges cupped downward.

**diameter**—length of longest straight line through center of largest cross section of head.

**diamond head**—square head of trapezoidal longitudinal section, with flat upper and bearing surfaces and bearing surface larger than upper surface.

*dished head*— See **cup head**.

**double, duplex, dual head**—thick flat head to be stuck by hammer, with a second head, flange, or collar spaced slightly below to act as bearing head to prevent nail head from sinking into material into which nail is driven and to facilitate withdrawal after temporary use of nail. On double and duplex heads, the first and second heads are flat; whereas the second head of dual head is a cone head.

**embossed head**—head with raised or impressed figure or design.

**extra-large head**—usually more than 3½ times shank diameter, normally referring to head of regular-stock-steel nail.

**fillet head**—head with extra large curved intersection of head and shank.

**finishing head**—brad head, as found on finishing nail.

**flat head**—most common head, having flat, circular, parallel top and bearing surfaces and slightly rounded edge or rim.

**head height**—total height of head; the sum of all head elements measured parallel to nail axis; for practical purposes, measured from top of fillet to top of head.

**head length**—on a hook-head or similarly headed nail, projected distance between shank and extremity of head.

**headless**—nail without upset or bend at head end.

**head rim**—peripheral part of head.

**hook head**—head, usually flattened; formed by bending wire at right angle to shank; resulting in fastener shaped like “L.”

**large head**—larger than standard head, usually more than 3 to 3½ times shank diameter.

**lead head, cast lead head, compressed lead head**—lead encasement pressed or cast onto or around small ⅜-in. steel head, or both.

**lettered head**—head with raised or depressed, identifying letter or letters on top surface of head.

*marking, marker head*— See **lettered head, numeral head**.

**nub head**—head with protruding knob. (See **washer head**.)

**numeral head**—head with raised or depressed, identifying number or numbers on top surface of head.

**oval head, oval rivet head**—circular head having convex top surface, with its height smaller than its radius.

**pan head**—flat head with rim having rounded upper edge and squared lower edge, usually slotted.

**projection head**—flange or collar spaced at short distance from end of wire, with wire projecting from upper side of flange or collar forming part of head and wire projecting from other side of flange or collar forming the shank. (See **gudgeon**.)

**rim thickness**—thickness of peripheral part of head, measured parallel to nail axis.

*rivet head*—See **oval head**.

**rose head**—pyramidal head with four triangular faces meeting at common vertex, having a square, rectangular, or circularized flat bearing surface.

**round head**—circular head having convex top surface with height equal to its radius.

**saucer head**—circular, cupped head with concave top surface and convex bearing surface.

*screw head*—See **slotted head**.

**sinker head**—flat, slightly countersunk (115° to 130°) head, as found on sinkers and corker nails; smaller in diameter than head on cooler and common nails.

**slotted head**—head provided with cut or struck slot for insertion of screwdriver or to simulate head of wood screw.

*spring head*—See **cupped oval head, umbrella head**.

**star head**—slightly raised pyramidal head with multiple triangular faces meeting at common vertex, having a polygonal or circularized flat bearing surface.

*steeple head*—See **cone head**.

**striated head**—head with parallel ridges and grooves to identify high-density fiberboard nail.

**taper**—included angle of countersink.

**umbrella head**—extra-large cupped oval head, provided with slight projection of nail shank above head to provide striking surface during driving.

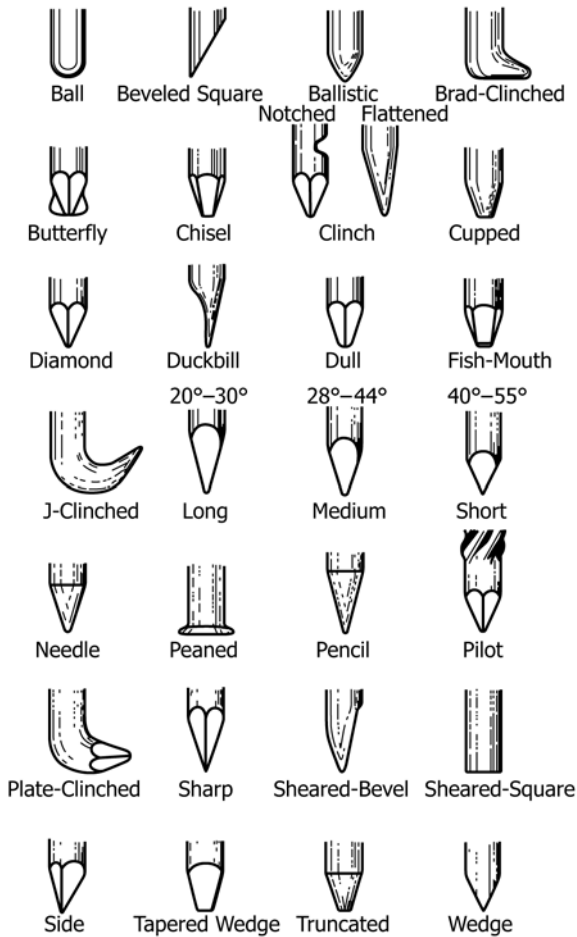
**upset head**—metal slightly upset, with deformed portion serving as head.

**washer head**—head with washer-like flange to serve as bearing surface for head. (See **nub head**.)

## NAIL POINTS

**point**—end of shank opposite head, usually tapered; formed during manufacture of nail to facilitate driving (see **Fig. 2**).





**FIG. 2 Various Types of Nail Points**

**included angle**—angle between the sides of the point in the longitudinal section through the nail in the direction perpendicular to the point sides.

**ballistic point**—bullet-shaped point.

**ball point**—spherical point on shank of nail, having a diameter equal to that of shank.

**beveled square point**—extremity of nail shank opposite head sheared obliquely to shank axis. (See **sheared-bevel point**.)

**blunt chisel point, short chisel point**—chisel point with large included angle.

**blunt diamond point, short diamond point**—diamond point with large included angle.

**blunt point, short point**—point with large included angle; designed to punch and not to split. (See **dull point**.)

**blunted-point**—point end of nail purposely dulled by nail user prior to driving of nail. (See **dull point**.)

**brad-clinched point**—pointed end of nail, having been driven through member, flattened and bent sideways to a limited extent when striking flat anvil plate.

**butterfly point**—a defective point with one or two thin fins projecting. (See **burr**.)

**chisel point**—point with two major planes forming “V” and pair of minor planes on each flank; forming hexagonal cross section.

**clinch point**—end of wire flattened or notched or both for easy clinching when striking anvil plate or “nail buck.” (See **self-clinching**.)

**clinched point**—pointed end of nail, having been driven through member bent sideways. (See **brad-clinched point, J-clinched point, plate-clinched point**.)

**cupped point**—incomplete needle point; resulting from breaking of tip of point during forming.

**diamond point**—symmetrical point having four approximately equal bevelled planes forming a pyramid; its length measured along cut edge of point. Usually applied unless otherwise specified.

**duckbill point**—end of wire flattened to thin elliptical cross section having sharp periphery, in appearance somewhat like bill of duck, to facilitate clinching at predetermined point, slight transverse depression may be formed across point.

**dull point**—end of point rounded in contrast to being sharp.

**fin**—thin projection from cut edge of point, a defect. Occasionally found on rim of head.

**“fish-mouth” point**—incomplete chisel wedge point with two narrow ridges at end, a defect resulting from premature breaking of wire during forming.

**J-clinched point**—pointed end of nail having been driven through member against curved anvil plate, bent sideways and driven back into member.

**length**—distance between beginning and end of point, measured along edge of point.

**long point**—point with 20° or smaller included angle for 0.040 to 0.065-in. wire diameter; 25° or smaller included angle for 0.072 to 0.225-in. wire diameter; 30° or smaller included angle for 0.250 to 0.325-in. wire diameter.

**medium point**—point with 28° to 35° included angle for 0.040 to 0.065-in. wire diameter; 32° to 38° included angle for 0.072 to 0.225-in. wire diameter; 37° to 44° included angle for 0.250 to 0.325-in. wire diameter.

**needle point**—point forming circular cone.

*offset point*—See **side point**.

**peaned point**—point formed like that usually found on rivets.

**pencil point**—long needle point.

**pilot point**—point of threaded nail with plain portion of shank between top of point and threaded portion of shank.

**plate-clinched point**—pointed end of nail, having been driven through member against anvil plate, bent sideways.

**pointed**—provided with sharp point.

*pointless*—See **sheared-square point**.

- regular point**—denoting medium diamond point.
- sharp point**—end of point being keen, instead of being slightly rounded or dull.
- sheared point*—See **sheared-bevel point, sheared-square point.**
- sheared-bevel point**—one directional point having one flat surface; formed by shearing nail wire off at angle to shank axis, inducing nail to diverge from straight penetration unless countermeasures are introduced.
- sheared-square point**—extremity of nail shank opposite head end of nail sheared at right angle to shank axis.
- short point**—point with 40° or greater included angle for 0.040 to 0.065-in. wire diameter; 45° or greater included angle for 0.072 to 0.225-in. wire diameter; 55° or greater included angle for 0.250 to 0.325-in. wire diameter.
- side point**—an eccentric nonsymmetrical point.
- square point**—sheared square point; also known as no point or square-cut point.
- tapered wedge point**—point with two major planes forming “V” and with single minor plane on each flank; forming rectangular cross section.
- truncated point**—needle point with its tip sheared square.
- wedge point**—point with two convergent planes forming “V.”

### NAIL THREADS

- thread**—annular and helical and, sometimes, longitudinal deformations rolled onto shank; in general, with deformations passing entirely around body; usually resulting in expanded ridges and depressions, larger and smaller, respectively, than wire diameter. (See **knurled**.)
- angle*—See **lead angle.**
- annular thread**—multiple ring-like threads rolled completely around shank in planes perpendicular to nail axis; having a lead angle of zero degree.
- buttress-type thread**—thread with flank on head side of crest almost perpendicular to nail axis; while flank on point side of crest is noticeably inclined.
- crest**—outermost part of thread, joining flanks. (See **double crest**.)
- crest diameter**—twice the distance between nail axis and crest, measured perpendicular to nail axis. Thread crest diameters for given shank diameters:

Wire Diameter, in.	Helically Threaded Nails		Annularly Threaded Nails, Stiff-Stock and Hardened, in.
	Stiff-stock, in.	Hardened, in.	
0.120	0.134 to	0.140 to	0.132 to
	0.138	0.144	0.136
0.135	0.161 to	0.161 to	0.149 to
	0.166	0.166	0.154
0.148	0.173 to	0.173 to	0.161 to
	0.180	0.180	0.166
0.165	0.196 to	0.196 to	0.180 to
	0.201	0.201	0.185
0.177	0.209 to	0.209 to	0.193 to
	0.213	0.213	0.197

- double crest**—crest having two ridges separated by slight depression.
- file thread, file-grip thread**—large number of fine, closely spaced helical threads, with large or extra large lead angle, rolled onto shank. Usually applied to certain aluminum asbestos-shingle face nails.
- “fish-hook-like” thread*— See **buttress-type thread.**
- flank, side**—surface between root and crest; “leading” flank being on point side of crest and “following” flank being on head side of crest.
- flattened thread, flat-bottom thread**—thread having flat root. Flattened thread occasionally referring to flattened thread crest.
- flute**—helical and, sometimes, vertical deformation rolled onto shank.
- height**—distance between root and crest, measured perpendicular to nail axis.
- helical thread**—continuous multiple helical depressions rolled onto nail shank with resulting expansion approximately equal to depression. Unless otherwise specified, medium lead angle is implied.
- helix angle*—See **lead angle.**
- incomplete thread**—thread not fully formed.
- lead angle, helix angle**—angle made by helix of thread with plane perpendicular to nail axis; measured at pitch line; small lead angle usually refers to less than 20°; medium lead angle usually refers to 55° to 65°; large lead angle refers to 65° to 75°; extra large lead angle refers to 80° to 85°.
- longitudinal thread**—multiple flutes parallel or nearly parallel to nail axis, rolled onto nail shank, having a lead angle of or closely approaching 90°.
- pitch diameter**—for all practical purposes, the diameter of the smooth shank prior to threading.
- pitch line**—line parallel to nail axis located at distance equal to one-half of pitch diameter from nail axis.
- ratchet thread**—type of buttress thread, usually annular for engagement with nailing channels, retaining clips, etc.
- ring thread, ring-barb thread, ring-groove thread, ring-grip thread, ring-shank thread*—See **annular thread.**
- root**—innermost part of thread, rounded or flattened; joining flanks of adjacent threads.
- root diameter**—twice the distance between nail axis and root, measured perpendicular to nail axis.
- rounded thread, round-bottom thread**—thread with rounded root extending to pitch line. Rounded thread also referring to rounded thread crest.
- screw, screw-grip thread, screw-shank thread, screw-shank thread, screw thread*—See **helical thread, screw thread.**
- screw thread**—helical thread with small lead angle rolled onto nail shank.

**shoulder**—edge, when present, at junction of thread crest and flank. If double crested, primary shoulder is nearer head and should be equal to or larger in diameter than secondary shoulder, which is closer to point.

**spacing**—distance between centers of adjacent crests, measured perpendicular to crests.

**spiral thread**—misnomer for helical thread.

**symmetrical thread**—thread where following flank is a mirror-image of leading flank about line through crest and perpendicular to nail axis.

**“V” thread**—thread with leading flank of one thread intersecting with following flank of adjacent thread at thread root.

**vertical thread**—misnomer for longitudinal thread.

*width*—See **spacing**.

### MISCELLANEOUS TERMS

**acid-etched**—treated in an acid bath, usually phosphoric, to provide a rough surface.

**aluminized**—dipped in molten aluminum for coating purposes resulting in smooth, continuous, and adherent aluminum coating.

**annealed**—heated and subsequently cooled to provide increased ductility.

**anodized aluminum**—natural-colored or surface-colored aluminum having increased anodic corrosion resistance.

**barbed**—shank provided with repetitive, shallow or deep, symmetrical or nonsymmetrical, cross-wise or oblique, diagonal or perpendicular indentations and ridges, excluding grip marks.

*barrel-galvanized*— See **hot-galvanized**.

**blued**—heated to result in oxidized bluish surface of steel nail.

**bonderized**—phosphate coated. (See **parkerized**.)

**bright**—term applied to nails with natural bare finish resulting from cleaning of nails which have not undergone treatments affecting finish, such as hardening, bluing, coating, plating, etching, painting, etc. Also applied to polished appearance after plating.

**bright finish**—non-coated wire finish.

**bulge**—doughnut-like protrusion perpendicular to nail shank below nail head.

**burr**—thin, wing-like ridge protruding from side or edge of point or underside of top of head; defect formed during pointing or heading process and intended to be removed during manufacturing process. (See **whisker**.)

*carton*—See **packaging**.

**case-hardened, surface-hardened**—surface of steel nail carburized and subsequently hardened, by suitable heat treatment, leaving a soft core.

**cement-coated**—surface coated by tumbling or immersion in natural resin or shellac to produce a limited temporary bond between driven nail and surrounding wood, provided coating is not removed during driving, and to reduce rusting during storage.

**clad**—surface sheathed.

**cleaned**—oil and other foreign matter removed from surface by tumbling with sawdust or by chemical process.

**clearance**—plain section of shank between head and shank deformation (disregarding gripmarks).

**clinch**—point end bent sideways to provide increased holding power or to eliminate protrusion of point end of excessively long fastener, or both.

**coated**—covered fully or partially with natural resin or conversion coating to provide ease of driving, increased holding power, or corrosion resistance, or a combination of these.

**cohered**—fastened together in strip form, usually with adhesive. (See **collated**.)

**collated**—fastened next to each other in strip form. (See **cohered**.)

*colored*—See **anodized, blued, enameled, lacquered, painted**.

**coppered, copper-washed**—all surfaces chemically plated with copper, usually by chemical rather than electrolytic process. (See **electroplated**.)

**corrosion-resistant**—term used to describe a material or treatment designed to inhibit corrosion. (See **rustproof**.)

**count**—approximate number of nails per pound influenced by sizing of individual elements.

*deformed*—See **mechanically deformed**.

**diameter**—length of longest straight line through center of cross section of wire from which nail is formed. Diameter of pointed nail is that immediately below the grip marks. Diameter of nail with roll-threaded shank is that of wire or nail prior to being threaded. In the case of fluted, roll-grooved, and twisted nails, formed diameter refers to crest diameter. Diameter does not include coating except cladding. (See **thread-crest diameter**.)

*die marks*—See **grip marks**.

**dipped**—dipped in bath of molten zinc for coating purposes, with excess zinc removed; resulting in coating essentially free from blisters, lumps, gritty areas, acid spots, dross warts, and flux.

*electro-galvanized, electro-zinc plated*—See **zinc-plated**.

**electroplated**—surface provided with usually thin electrochemical deposit of brass, cadmium, copper, nickel, tin, zinc, etc., as a result of immersion in electrolytic bath.

**enameled**—coated with enamel of desired color and often baked.

**etched**—cleaned of grease and oil, with slightly dulled, microscopically roughened surface, usually by a chemical process.

**fillet**—curved intersection of head and shank, specified by its radius.

*fin*—See **burr**.

*flake-galvanized*—See **hot-galvanized**.

**fluted**—deformed with continuous, symmetrical, helical, or longitudinal depressions. Four or five of these flutes are usually formed onto wire from which fluted nail is made, in contrast to threading where shapes are rolled onto nail shank in a thread-rolling process. Flutes resulting from this manufacturing process extend the full length of the nail shank. (See **roll-grooved** and **mechanically deformed**.)

**flutes**—continuous symmetrical depressions along nail shank.

*formed*—See **mechanically deformed**.

*galvanized*—See **zinc-coated**.

**gauge, gage**—instrument used to measure wire diameter. (See **wire gage**.)

**grip mark, gripe mark, gripper mark**—indentations and ridges along shank, usually near head, made by gripping devices that hold wire during heading; often used with other markings to classify nail manufacturer.

**grooved**—general term sometimes used to denote threaded, fluted, twisted, knurled, barbed, etc.

*gummed*—See **coated**.

**hardened**—heat-treated medium-carbon or medium-high-carbon-steel, with treating process resulting in toughened nail with greater stiffness at high flexural loads. (See **heat-treated**.)

**heat-treated**—heated above critical temperature and subsequently quenched, which may be followed by tempering for the purposes of obtaining certain desirable conditions or properties, such as hardness, toughness, and stiffness at high flexural loads.

*high-carbon steel*— See **steel grades**.

*hot-dipped, hot-dip galvanized, hot-dipped zinc-coated*—See **dipped**.

**hot-galvanized, barrel-galvanized, flake-galvanized, tumbler-galvanized, wean-galvanized**—zinc coating applied in heated tumbling barrel containing zinc-flakes.

*identification*—See **grip mark**.

**japanned**—tumble-pointed.

**keg, nail keg**—synonymous with 100 lb (45.36 kg) of nails. Round, bulging container for bulk nails, made of wooden staves, steel hoops, and flat heads, usually holding 100 lb of nails. Terms no longer in common usage.

**knurled**—loose term used to denote threaded, fluted, or grooved parallel or nearly parallel to nail axis with deformations not passing around body (see **thread**); also, barbed or deformed in repetitive pattern along surface.

**lacquer-finished**—coated with lacquer and often baked, usually in such colors as to match or blend with color of item to be fastened.

**length**—distance measured parallel to shank axis from maximum diameter of bearing surface of head to extreme end of point; except in case of cement-coated, brad-headed, and oval-countersunk-headed nails where measurement includes complete head.

Discussion—In evaluating nail performance, length is measured to and including one third of length of point.

**liquor finish**—very thin wire coating produced by wire immersion in metallic salts, usually copper, offering very limited corrosion resistance.

*low-carbon-steel*—See **steel grades**.

**machine quality**—term applied to nails manufactured with closer tolerances than usual and selected for close adherence to specification and freedom from foreign matter.

**mechanically deformed**—nails with rollthreaded or formed shanks to improve holding power.

*roll-threaded*—with helical, annular, or longitudinal deformations rolled on fastener shank.

*formed*—with barbed, angular, serrated, longitudinally or helically fluted, longitudinally or helically roll-grooved or twisted deformations formed on wire from which nail is made.

**mechanically plated, peen-coated, peen-galvanized**—covered with coat of zinc through peen-coating, that is, by tumbling in a container holding powdered zinc and numerous glass beads.

*medium-high carbon*— See **steel grades**.

*medium-low carbon*— See **steel grades**.

*multi-ribbed*—See **thread, vertical**.

**oil-tempered**—heated above the critical temperature, quenched in oil, and tempered.

**oxidized**—darkened or dulled by surface treatment or by the natural oxidizing of metal.

*packaging*—See Practices **A700**.

*pack-hardened, pack-carburized*—See **case-hardened**.

**painted**—coated with paint or plastic by dipping or barrel-tumbling.

**parkerized**—chemically treated to provide iron and steel with dark corrosion-resistant protective coating by boiling in solution of manganese dihydrogen phosphate and subsequently applying coating of paraffin oil.

*peen-coated, peen-galvanized*—See **mechanically plated**.

**penny size, penny weight**—denoting length of nail, indicated by “d” (not indication of diameter). Because of standardization of sizes of common nails, sinkers, and cooler nails, penny weight denotes, in addition to length, the head and shank diameter of these nails. For other nail types, sizes are referred to by length and diameter.



**phosphate-coated, phosphatized**—chemically treated to provide iron and steel with gray protective ferric-phosphate coating; to provide increased nail holding power by surface roughening.

**pilot**—plain-shank section between point and threaded portion of shank.

**plain-shank**—term applied to nail without shank deformations, disregarding grip-marks.

**plain steel**—bright steel.

**plastic coated**—covered fully or partially with polymer to provide ease of driving, increased holding power, or corrosion resistance, or a combination of these.

*plated*—See **electroplated**.

*polished*—See **tumbled**.

*quench-hardened*—See **hardened**.

**resin-coated**—covered with natural resin to provide ease of driving, increased holding power, or corrosion resistance, or a combination of these.

**roll-grooved, rolled-grooved**—provided with four or more continuous symmetrical, longitudinal or helical flutes; resulting from roll-grooving of round wire prior to heading and pointing of nail. Flutes resulting from this manufacturing process extend all the way from head to point (See **fluted**.)

**round shank**—term applied to nail with shank of circular cross section, made from round wire.

**rustproof**—made of nonferrous material or protectively coated, plated, galvanized or aluminized. (See **corrosion-resistant, rust-resistant**.)

**rust-resistant**—term used to describe a material or treatment designed to inhibit rusting; not synonymous with rustproof.

**self-clinching**—term applied to nail with point or shank designed in such a way that nail clinches automatically while fully driven.

**self-spreading**—term applied to nail with split shank designed in such a way that two or more legs penetrate material in divergent directions.

*serrated*—See **barbed**.

**shank**—main body of nail extending from head to point.

*shank, formed or deformed*—See **barbed, fluted, grooved, knurled, threaded, or twisted**.

*shank diameter*— See **diameter**.

*shear-resistant*— See **threaded shear-resistant nail**.

*smooth shank*— See **plain shank**.

**square shank**—term applied to nails with shank of essentially square cross section with or without longitudinal flutes or diagonal barbs; usually found on nails made from square wire. Shank-diameter of nails measured across diagonal (see **diameter**).

**steel grades**—steel classified by carbon content. The following grades are generally used for wire or raw material purchase;

but do not restrict nails to specific analysis. When the steel grade is referred to in the definition of a nail type, it is intended only as a general indication of the likely material used. Any steel of suitable analysis may be used in nail manufacture unless specified otherwise in the product standard.

*low-carbon steel*— a grade of steel (see Specification **A510**) wherein the maximum of the carbon range is up to and including 0.15 %.

*medium low-carbon steel*—a grade of steel (Specification **A510**) wherein the maximum of the carbon range exceeds 0.15 % up to and including 0.23 %.

*medium high-carbon steel*—a grade of steel (Specification **A510**) wherein the maximum of the carbon range exceeds 0.23 % up to and including 0.44 %.

*high-carbon steel*— a grade of steel (Specification **A510**) wherein the maximum of the carbon range exceeds 0.44 %.

**stock steel**—standard steel of regular or stiff stock.

*regular*—bright, non-hardened, usually low or medium low-carbon steel.

*stiff*—bright, non-hardened, usually medium low or medium high-carbon steel, having higher hardness, toughness, and stiffness than regular steel.

**tempered**—reheated after hardening to some temperature below the critical range and subsequently cooled to increase toughness and ductility.

**threaded**—annular, helical or longitudinal, symmetrical or nonsymmetrical, flat-bottom or round-bottom deformations with single or double crest shoulders and with rounded or flat flanks; formed onto nail shank after heading by passing through roll-threading dies. (See **mechanically deformed, knurled, thread**.)

*tinned*—See **electroplated, wash-tinned**.

**tolerances**—dimensional limitations established by manufacturers, customers, associations, and government agencies.

**tumbled**—cleaned and polished by agitation in rotating drum containing polishing compound, such as sawdust or other burnishing media.

*tumbler-galvanized*— See **hot-galvanized**.

**twisted**—provided with four or more continuous, symmetrical, helical deformations; resulting from twisting of square nail wire about its own longitudinal axis prior to heading and pointing of nail. Helical deformations resulting from this manufacturing process extend all the way from head to point, thus preventing inclusion of clearance between head and thread.

**water-hardened**—quenched in water after heating to critical temperature.

*wean-galvanized*—See **hot-galvanized**.

**whisker**—two triangular pieces of metal formed during cutting of nail point.



**wire gage**—measure used to describe, by system of arbitrary numbers, diameter of shank or wire from which nail is made. Because several systems of gage designations are in use, reference to particular gage system should be indicated. (See [Table 1.](#))

**zinc coated, galvanized**—generic terms covering barrel-galvanized, dipped, electro-galvanized, electro-zinc-plated, flake-galvanized, hot-dipped, hot-dip galvanized, hot-dipped zinc coated, hot-galvanized, mechanically plated, peen-coated, peen galvanized, tumbler-galvanized, and wean-galvanized.

**zinc-plated**—surface provided with usually thin electrochemical deposit of zinc as a result of immersion in electrolytic bath or with mechanical deposit of zinc as a result of peen coating.

TABLE 1 Steel Wire Gage

Gage No.	Decimal Equivalent, in.	Metric Equivalent, mm
7/0	0.490	12.45
6/0	0.462	11.73
5/0	0.430	10.92
4/0	0.394	10.01
3/0	0.362	9.19
2/0	0.331	8.41
1/0	0.306	7.77
1	0.283	7.19
1½	0.272	6.91
2	0.262	6.65
2½	0.253	6.43
3	0.244	6.20
3½	0.234	5.94
4	0.225	5.72
4½	0.216	5.49
5	0.207	5.26
5½	0.200	5.08
6	0.192	4.88
6½	0.184	4.67
7	0.177	4.50
7½	0.170	4.32
8	0.162	4.11
8½	0.155	3.94
9	0.148	3.76
9½	0.142	3.61
10	0.135	3.43
10½	0.128	3.25
11	0.120	3.05
11½	0.113	2.87
12	0.106	2.69
12½	0.099	2.51
13	0.092	2.34
13½	0.086	2.18
14	0.080	2.03
14½	0.076	1.93
15	0.072	1.83
15½	0.067	1.70
16	0.062	1.57
16½	0.058	1.47
17	0.054	1.37
17½	0.051	1.30
18	0.048	1.22
18½	0.044	1.12
19	0.041	1.04
19½	0.038	0.97
20	0.035	0.89

**APPENDIX**
**(Nonmandatory Information)**
**X1. METRIC EQUIVALENTS**

X1.1 The metric units listed in **Table X1.1** are for information only and are not intended to be used for ordering purposes.

**TABLE X1.1 Metric Conversions**

Nail Length					
in.	cm	in.	cm	in.	cm
1/32	0.008	1 3/8	3.49	3	7.69
1/16	0.016	1 1/2	3.81	3 1/2	8.89
1/4	0.64	1 5/8	4.13	4	10.16
3/8	0.95	1 3/4	4.44	4 1/2	11.43
1/2	1.27	1 7/8	4.76	5	12.70
5/8	1.59	1 5/16	4.92	5 1/4	13.34
1 1/16	1.75	2	5.08	5 3/4	14.60
3/4	1.90	2 1/8	5.40	5 7/8	14.92
7/8	2.22	2 1/4	5.72	6	15.24
1	2.54	2 3/8	6.03	7	17.78
1 1/8	2.86	2 1/2	6.35	9	22.86
1 1/4	3.18	2 3/4	6.98		
1 5/16	3.33	2 7/8	7.30	16	40.64

Nail Diameter					
in.	mm	in.	mm	in.	mm
0.001	0.025	0.109	2.769	0.165	4.191
0.002	0.051	0.113	2.870	0.166	4.216
0.035	0.889	0.115	2.921	0.173	4.394
0.040	1.016	0.120	3.048	0.177	4.496
0.041	1.041	1/8	3.175	0.180	4.572
0.048	1.219	0.128	3.251	0.185	4.699
0.054	1.372	0.131	3.327	3/16	4.762
0.058	1.473	0.132	3.353	0.192	4.877
0.062	1.575	0.133	3.378	0.193	4.902
0.065	1.651	0.134	3.404	0.196	4.978
0.067	1.702	0.135	3.429	0.197	5.004
0.072	1.829	0.136	3.454	0.201	5.105
0.076	1.930	0.138	3.505	0.207	5.258
0.080	2.032	0.140	3.556	0.209	5.309
0.083	2.108	0.142	3.607	0.213	5.410
0.086	2.184	0.144	3.658	0.225	5.715
0.092	2.337	0.148	3.759	0.228	5.791
0.095	2.413	0.149	3.785	0.238	6.045
0.098	2.489	0.150	3.810	0.244	6.198
0.099	2.515	0.154	3.912	0.250	6.350
0.101	2.565	0.155	3.937	0.262	6.655
0.102	2.591	0.161	4.089	0.284	7.214
0.105	2.667	0.162	4.115	0.325	8.255
0.106	2.692	0.164	4.166	3/8	9.525

Head Diameter					
in.	mm	in.	mm	in.	mm
0.050	1.27	0.177	4.50	19/64	7.54
0.080	2.03	0.181	4.60	5/16	7.94
3/32	2.38	3/16	4.76	0.331	8.41
0.109	2.77	0.190	4.83	11/32	8.73
7/64	2.78	13/64	5.16	3/8	9.52
0.113	2.87	0.207	5.26	29/64	9.92
1/8	3.18	7/32	5.56	13/32	10.32
0.120	3.05	0.219	5.56	7/16	10.86
0.128	3.25	0.225	5.72	15/32	11.90
9/64	3.57	15/64	5.95	1/2	12.70
0.148	3.76	1/4	6.35	17/32	13.50
0.155	3.94	0.262	6.66	9/16	14.29
5/32	3.97	17/64	6.75	5/8	15.88
11/64	4.37	9/32	7.14	11/16	17.46
				3/4	19.05

## SUMMARY OF CHANGES

Committee F16 has identified the location of selected changes to this standard since the last issue (F547 – 01) that may impact the use of this standard. (Approved Aug. 1, 2006.)

- (1) Definition for “pole-barn nail” was replaced with a reference to the term “post-frame shank nail.”      (2) Definition for “post-frame shank nail” was added.

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