

# STUDY GUIDE: HARDWARE & FASTENERS

### Learning Objectives:

- · The features and benefits of the products you sell.
- How to answer your customers' product-related questions.
- How to help your customer choose the right products.
- How to increase transaction sizes by learning more about add-on sales and upselling techniques.

## Chapter 1: Fasteners

#### Module 1: Screws

Before we get into the different types of screws, let's take a look at the different types of head styles and drive types. The head style refers to the shape of the head. The drive type refers to the type of driver needed to secure the fastener.

#### Here are the Head Styles:

Flat











Hex Washer



Here are the Drive Types:





Hex



Slotted



Star



Combination



Square

## Product Knowledge:



#### Sheet Metal Screw

- · This screw fastens thin metal to thin metal.
- It is threaded its entire length.
- Can have flat, oval, round or binding heads.
- Typical lengths range from 1/8" to 2".
- Starting holes are either drilled or punched and should be slightly smaller than the screw diameter.



### Machine Screw

- · Intended to be screwed into pre-threaded holes in metal.
- Another type is a Thread-Cutting Machine Screw, which has a head that cuts its own threads as it goes into a hole.
- May look like a bolt, but user drives it with a screwdriver instead of a wrench.
- Thread is measured in threads per inch, or tpi. Comes in coarse (24 threads per inch) and fine (32 threads per inch) sizes.
- Can have round, oval, flat and fillister heads.
- They are sized according to diameter, thread and length. Example: a 6-32x3/4 means the screw has a 6-gauge diameter with 32 threads per inch and is 3/4" long.



- · Used to secure wood together.
- · Usually made of unhardened steel, stainless steel, aluminum or brass.
- Steel screws can have a choice of several coatings: bright-finished, blued, or plated with zinc, cadmium or chrome.
- Threads on this screw run from the point along three-fourths of the length and heads are slotted.

#### Lag Screw

- Also called a lag bolt.
- Stronger than a wood screw, it is not threaded all the way up to the head and can come in large sizes and lengths.
- Lag screws are a sturdy fastener used to connect heavy lumber and other materials that must bear an intense load.
- Lag screws require a pre-drilled hole to install.
- They are used for wrenching into wood surfaces or inserting into lag shields in masonry.
- · They have a hex head and coarse threads.

#### Structural Screw

- Structural screws are also known as construction screws. They are used in construction as an alternative to lag screws because they are easier and faster to install.
- They do not require pre-drilling to install. They are usually self-tapping, which means
  they have tips designed to remove wood as the screw spins, making it easier to install
  the screw.
- The tips are usually sharp to reduce wood splintering.
- They are thinner than a lag screw, but constructed from strong, heat-treated steel to meet engineering standards.
- Structural screws typically have drive heads with six or eight contact points to eliminate stripping and improved torque.
- They typically have a washer built in to the head.

## **Drywall Screw**

- Drywall screws can be used on drywall, plywood, particleboard and other interior projects.
- They are used to install drywall in place of a nail.
- They are coated to prevent rust.
- They are available in fine or course threads.

### **Deck Screw**

- Use on decking, fencing, siding and other exterior projects.
- Some screws have a self-countersinking feature so no screw heads are above the surface of the wood.
- Newer deck fastening systems use hidden fasteners so there are no visible screws for a clean installation.
- Coated to resist corrosion. Different types of coatings are available.
- Electrogalvanized screws have a thin zinc coating. This type is inexpensive and moderately effective at resisting corrosion.
- Some screws have a layer of epoxy or ceramic for reliable corrosion resistance.
- Hot-dipped galvanized screws have a coating of zinc and are more effective at resisting corrosion.
- Stainless steel screws have the best corrosion resistance, especially for areas exposed to saltwater.





#### Self-Tapping Screw

- Often used for attaching gutters, window frames, electrical fixtures or any material typically requiring a starter hole.
- Sharp point eliminates the need to pre-drill a starter hole.



## Screw Eye/Hook

- A screw eye consists of screw thread at one end and a ring or hook at the other.
- Use the hook to hang tools or utensils or for holding the eye and hook together.

## Taking it to the Floor:

### **Frequently Asked Questions**

Q: What do the numbers—such as 8-32—mean on a machine screw?

A: The first number is the diameter. The bigger the number the bigger the screw. The second number is the number of threads per inch.

#### O: What screw do I use to anchor a knob onto a drawer?

A: If you do not have the knob to identify the size, it's probably an 8-32 screw. It may not be the right one, but it's the best guess that may keep you from making another trip.

#### Q: What is the difference between a sheet metal screw and a wood screw?

A: A sheet metal screw has threads along its entire length and has more threads per inch. A wood screw threads along about two-thirds of its length. A wood screw has a pointed tip to "bite" into the wood. A machine screw generally requires a pre-drilled hole and is usually self-tapping, which means it creates its own threads as it goes into the hole.

#### O: What is the best screw to use outside?

A: Stainless steel screws are the most popular. They will not rust, but are more expensive and not as hard as galvanized steel screws. You can also use aluminum screws, which are softer but not as strong as stainless. They also provide some corrosion resistance when used in aluminum materials.

## Q: Why would I use brass screws?

A: Brass is also softer than and not as strong as stainless, and its main use is when you want the decorative look of brass. It also will not rust.

#### Q: What is the difference between threads per inch and pitch?

A: Threads per inch, or TPI, is a measurement used to count the number of threads along the length of a standard fastener. Pitch measures the thread count on a metric fastener.

## Module 2: Bolts, Nuts & Washers

### Product Knowledge:



## Carriage Bolt

- Has a square shoulder under the head that pulls into soft materials such as wood and prevents the bolt from turning while the nut is tightened.
- Has coarse, partial threads and a smooth, rounded head.



### Machine Bolt

- Use with a nut or in a threaded hole.
- Comes with regular, square, hex, button or countersunk heads.
- Square heads fasten joints and materials where bolt requirements are not too severe.
- Button heads work best where smooth surfaces are necessary.
- · Use countersunk heads for flush surfaces.
- Sometimes called a hex bolt or a machine screw.
- Some types are called a stove bolt.





























- Small metal circles that provide a hard surface against which you tighten a screw.
- It matches the size of the screw it is being used with.
- · Comes in flat, countersunk or flush shapes.
- A fender washer has a larger outside diameter for covering large holes.
- Use a lock washer to prevent nuts from loosening.
- Use a finishing washer on a surface where you want to obtain a finished look. Usually use with oval head screws.

#### Nut

- Screws onto the threaded end of a bolt to help tighten the bolt.
- Most common are hex and square nuts, also called full nuts.
- A slotted nut has slots at the top of the nut that can accommodate a cotter pin. This prevents the nut from easily loosening.
- Wing and knurled nuts are used where frequent adjustment or disassembly is necessary.
- · The locknut type has a self-locking feature that allows it to be locked into position without additional lock washers, cotter pins or locking wire.
- Use a tee nut to fasten wood or composite materials together while leaving no fastener showing above the surface.
- The tee nut creates a threaded hole in the wood and the prongs keep it from moving.

#### Cotter Pin

- · Versatile fastening device.
- Inserts into a hole in a bolt, shaft or similar part. An eye on one end prevents the pin from going through while prongs at the other end are bent back to lock the pin in place.

#### Cap

- Use this to cover fasteners while tightening them.
- Has a high crown, mainly for appearance.

## Turnbuckle

- Used to tighten wire or for bracing doors. It is used to pull gates back to square alignment.
- Consists of a barrel-shaped metal device with a threaded rod inserted into each end.
- Rods have eyes at both ends, or some types have a hook on one end and an eye on the other.

## Threaded Rod

- Rod with continuous thread from one end to the other.
- · Available in different diameters.
- Used where extra-long bolts are required.
- · Can be bent to make U-bolts, eye bolts and J-bolts.

## Taking it to the Floor:

#### **Frequently Asked Questions**

Q: I've broken the head off a bolt. Is there some way I can get it out?

A: You should use a bolt extractor kit. It has a tap and an insert with a left-hand thread so that it can be turned to remove the bolt.

Q: Even with a lock washer, I continue losing the nut off my mower.

A: Use a lock nut with a nylon insert. This arrangement will not vibrate loose as easily.

Q: What is the meaning of USS and SAE as it pertains to bolts?

A: USS are coarse threads, while SAE are fine threads.

Q: I have a bolt that is not threading in properly. Can I fix this?

A: Yes, a thread repair kit allows you to retap it, put in an insert and rebuild it.

Q: What do the marks on the head of a bolt mean?

A: The marks on the head of a bolt indicate the hardness or strength of the bolt. No marks indicates the least hard, three marks is medium hardness and bolts with six marks are the hardest.

Q: What can I use to tighten up a sagging clothesline?

A: A turnbuckle installed at one end permits you to tighten the line to the desired tautness.

Q: How can I square up my wooden screen door? It is rubbing on the sill.

A: A screen door turnbuckle, applied diagonally, will raise the sagging edge.

#### Module 3: Anchors

## Product Knowledge:



#### Hollow Wall Anchor

- For medium- to heavy-duty applications.
- · Also known as Molly bolt.
- · Consists of a screw in a metal sleeve.
- When the sleeve is inserted into a pre-drilled hole and the screw is turned, the sleeve spreads.
- Screw can be removed and inserted in the fixture to be mounted and replaced.



### Toggle Bolt

- · For heavy items.
- Requires a pilot hole. The holding arms open after the screw and holder are inserted into the hole, gripping the wall as the screw is tightened.
- Select bolts according to the thickness of the diameters from 1/8" to 1/2".
- Fixture to be mounted must be assembled with screw and holder before inserting it into the wall.



### Wall Driller Anchor

- For medium-duty applications.
- Fastener makes its own hole in the drywall.
- May be made of plastic, nylon or metal.



## Plastic Screw Anchor

- For light-duty applications.
- Use with wood or sheet metal screws.
- Insert the anchor into a pre-drilled hole. User drives the screw through the anchor into the wall.
- Sizes range from 3/4" to 1-3/8" long.



#### Toggle Anchor

• The toggle anchor is a plastic anchor that functions like a toggle fastener with sizes from 3/4" to 3-1/2".

### Zip Toggle



- · A zip toggle anchor is used to anchor into drywall.
- It is easier to use than a toggle anchor.
- It is designed for fast installation.
- It is self-drilling so there is no need to pre-drill a hole.
- It also requires a smaller hole than other toggle bolts.

#### Strike Anchor



- · A strike anchor is used to anchor an item into solid concrete.
- It must be inserted into a pre-drilled pilot hole. When the nail is struck, the anchor expands, locking it in place.
- It is made of carbon steel, with a drive pin of hardened steel.

### Self-Tapping Concrete Screw

- Hardened steel screws designed to cut threads in pre-drilled holes.
- Holes can be drilled through the item to be fastened without moving the fixture.
- · Head styles are Phillips, flat or hex-washer.
- Used in poured concrete, concrete block or masonry.
- Pull-out resistance of concrete screws is much greater than in plastic screw anchors because they bite directly into the concrete.



#### Drop-In Anchor

- Expandable concrete anchors set in pre-drilled holes.
- Accepts standard coarse thread bolts or threaded rod.
- Drop-in style anchors do not require patching after sinking.
- Comes in sizes to fit 1/4" to 3/4"



#### Wedge Anchor

- Has a shank similar to a sleeve anchor—a solid shank, threaded at the top and with a cone-shaped plug at the bottom.
- · Shank is grooved on opposite sides.
- As the nut on top is tightened, the washer pushes the rectangular shank down and spreads the wedges over the plug.



### Sleeve Anchor

- Has a steel sleeve on the shank, split at the bottom so it can expand.
- The bolt has a cone-shaped plug at the base and a nut at the top.
- When the user places the anchor in the hole and tightens the nut, it draws the bolt upward, pulling the plug into the sleeve and expanding it against the hole.



#### Lag Screw Shield

- Used inside drilled holes to provide anchors in the hole for lag bolts as they are wrenched into the shield.
- As the screw enters the shield, the shield expands and grips the interior.
- Horizontal fins prevent the shield from turning in the hole while tapered ribs ease insertion and ensure against slips.



#### **Expansion Shield**

- · Also known as lead shield.
- Used with lag and machine bolts.
- As the bolt is tightened, the cone draws up through a slotted sleeve and expands against the interior of the drilled hole with great force.
- Requires no caulking and is excellent for heavy holding of problem material such as cement, cinder blocks, hollow tile and other concrete mixes.
- · Requires a large hole. Use a power drill and masonry bit.



#### Split-Drive Anchor

- A split-drive anchor is made of high-strength steel for driving in hard material, such as solid concrete or stone.
- It is driven into a pre-drilled hole where it is compressed and forced against the wall of the hole.
- It comes in three head styles: round, countersunk and duplex. The duplex type provides a temporary attachment of items that must later be removed.

## Taking it to the Floor:

#### **Frequently Asked Questions**

Q: What can I use to anchor a drapery rod on drywall?

A: A plastic anchor will support a lighter rod. Rods supporting heavier weights will need a molly wall grip. To install the molly wall grip, drill the proper size hole to insert the molly. Turn the screw head until you feel the molly expand and grip the drywall. Next, remove the screw for intended use. Some plastic wall anchors can be installed without pre-drilling a hole.

#### Q: How do I install a toggle bolt?

A: Drill a proper size hole and insert the bolt. Don't forget that you have to insert the bolt through the item you are fastening to the wall. Collapse the toggle and push the bolt through the hole until the toggle springs open. Now, tighten the bolt to complete the anchoring.

Q: Is a toggle bolt a good choice for anchoring something to my wall?

A: Yes, a toggle bolt is a hollow wall anchor. It is designed to disperse the weight of the item being hung over a larger area. Use of a toggle bolt instead of a plastic anchor is largely dependent on the weight of the object being hung.

Q: What kind of anchor should I use if I'm attaching conduit to a foundation wall?

A: Use either hammer drive anchors or a concrete/masonry screw.

Q: What kind of anchor should I use to attach machinery to a concrete floor?

A: Use a heavy expansion anchor such as a sleeve or wedge anchor.

## Add-on Items

- Suggest the proper size drill bits to make a hole for inserting the anchor.
- Your customer will need a hammer for setting the anchor in the hole, and a screwdriver for tightening the screw in the anchor.
- Help your customer find the proper size bolt or screw to go with the anchor.
- Suggest a measuring tape and level for determining the right place in the wall where the anchor should go.
- Always remind customers to use safety glasses and gloves when using a drill to make a hole for the anchor.

#### Module 4: Nails

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## Product Knowledge:

These three nails are used in general construction applications:

#### Box Nai

- Box nails have a smooth, thin shank to prevent wood splitting.
- They are used for lighter structural loads in general carpentry and for making boxes or crates. They can also be used for framing and light duty construction.

#### **Duplex Nail**

- Has a double head to allow for easy removal in temporary construction applications.
- Used for concrete forming and scaffolding.

#### Common Nail

- Common nails have larger shank diameters than other nails, making them the strongest and stiffest type of nail.
- They are available in a variety of sizes and finishes.
- Common nails are general purpose nails that can be used where shear strength is needed, such as in framing and general construction.

These nails are used for finish work:

#### Casing Nail

- A casing nail is similar in appearance to a finishing nail, but is thicker.
- Casing nails are used for case molding, exterior trim and window frames, or wherever trim requires additional strength. They are often used in exterior applications.
- Casing nails have a small head so they can be countersunk beneath the wood surface so the hole can be filled and finished.

### Finish Nail

- A finish nail is used for finish work around window and door frames, trim, paneling or anywhere nails cannot show.
- They may also be referred to as trim nails. Some trim nails are pre-painted to match standard colors.
- Finish nails have a small head so they can be countersunk beneath the wood surface so the hole can be filled and finished.

These nails are used for flooring applications:

## Flooring Nail

- Screw-shanked.
- · Used for laying tongue-and-groove hardwood flooring.

#### **Underlayment Nail**

- · Bright-finished, ring-shanked.
- For laying plywood or composition subflooring over existing wood floors or floor joists.

The following nails are used for exterior construction.

### **Roofing Nail**

- · Has large heads and diamond points.
- · Galvanized to resist corrosion.
- Barbed shank for greater holding power.
- Nails for a new roof are typically 7/8" long with 7/16" head.
- Carefully choose size to match the thickness of the roofing.
- Sealing roofing nails have a plastic or rubber washer under the nail head for watertight seal.

### **Decking Nail**

- · Has a spiral shank to enhance holding power.
- · For use with pressure treated lumber.
- Decking nails are typically galvanized or stainless steel to resist corrosion. Some types have a ceramic coating.

#### Siding Nail

- Galvanized or with some other non-staining finish.
- For applying residential wood lap siding to plywood or fiberboard sheathing.

## Capped Nail

- Has a plastic or metal flat cap at the head.
- Used for installing house wrap, roofing underlayment and foam insulation to exterior surfaces.
- Some types are made for hammering into masonry.

## Drywall Nail

- Ring-shanked nail used for attaching sheets of drywall gypsum board to interior wood wall studs.
- They are coated to prevent rust.
- Flat, slightly countersunk head permits driving just below the surface, forming a depression that can be covered with drywall joint compound or spackling.

## Masonry Nail

- · Made of hardened and tempered steel.
- Shank comes round, flat, fluted or square.
- Often used to fasten framing parts such as sills, furring strips, window and door trim to masonry and concrete.

#### Wire Brad

• Used for household jobs requiring small fasteners where heads will be concealed.









- Securely fastens something that can be reached from just one side.
- The multi-grip type expands to fill over-sized and irregular holes and self-adjusts for misaligned holes.
- Used in metal, plastic and composite materials.
- Ideal for installing gutters and drop ceilings or repairing large appliances.
- Available in 1/8", 3/32", 3/16" and 1/4" diameters.
- Can have dome, countersunk and large flange head styles.

#### Collated Fastener



- Collated fasteners are designed specifically for use with pneumatic power tools.
- Collated fasteners are essentially fasteners, such as nails, screws or staples, that are
  collated, or connected to each other. Fasteners may be collated in coils, sticks or with paper
  tape. The type of fastener and way they are collated must be chosen to match the tool.
- Many styles and finished of fasteners are available collated. The main types are deck, framing, drywall and finish.

## Taking it to the Floor:

### **Frequently Asked Questions**

Q: How long of a nail should I use?

A: If the board you are fastening to another is not going to bear weight, the nail should be 1/2" longer than the board is thick. If it is going to bear weight, it should be 2-1/2 times the thickness of the material to be fastened.

Q: What is the advantage of cement-coated nails?

A: Friction heat from driving the nail softens the cement coating and causes the nail to adhere to wood more firmly.

Q: When would I use a galvanized nail?

A: Galvanized nails resist rust, and you should use them whenever you are building a project that will be exposed to the elements. Aluminum nails are rustproof but must be thicker to prevent them from bending.

Q: Are there nails that match my walnut paneling?

A: Yes, paneling nails come in a variety of colors.

Q: Is there a nail I can use that is less likely to split my wood?

A: Pointless nails or thin shank nails protect against wood splitting because they cut through fibers rather than following the grain of the wood. You can also pre-drill the holes to help prevent the wood from splitting.

#### Add-on Items

- If a customer is buying finishing or casing nails, recommend a nail set for sinking the heads of the nails.
- Also recommend wood putty for filling in the holes left by the nail set.
- · Ask if the customer has a good hammer suited for the project.
- Recommend safety glasses and gloves when nailing into any surface.
- Ask if the customer needs a nail pouch for carrying nails.

## Module 5: Framing Straps & Ties

### Product Knowledge:



#### Joist Hanger

- This tie connects two framing members, usually a joist
- This type of connection is an improvement over the traditional way of attaching two framing members, which was to nail them together. A joist hanger provides more support and can better resist the strong forces of high winds and earthquakes.
- · Has pre-drilled holes for nails or screws.
- Sized according to the size of the framing member used with it.



### Hurricane Tie

- This tie connects the roof framing to the wall framing.
- It helps the structure resist the strong forces of hurricane wind.
- · Has pre-drilled holes for nails or screws.



#### Tie Plate

- Use this tie to splice or reinforce wood-to-wood connections on flat surfaces.
- Often used for home repair.
- · Has pre-drilled holes for nails or screws.



#### Nail Plate

- The nail plate stops nails from accidently being nailed into a framing member, and then into a pipe or wire.
- · Has pre-drilled holes for nails or screws.



#### Plywood Clip

- Use these clips to support the edges of a panel that are not supported by a framing member, typically on a roof.
- The sheathing clip must match the thickness of the panel.



#### Strap

- Use this tie to reinforce connections between two pieces of wood.
- Available in a variety of shapes, including L, T and straight (shown here).
- · Has pre-drilled holes for nails or screws.



#### Post Base

- Use this tie to anchor a post to a concrete floor. The tie also helps the post resist lateral and uplift loads, which are forces inflicted on the post by high winds.
- Because it raises the post off of the concrete base (referred to as the Standoff), it helps reduce decay at the bottom of the post.
- Sized according to the size of the framing member used with it.

#### **Frequently Asked Questions**

### Q: Why should I use a framing connector?

A: Framing connectors, also called structural connectors, are used to connect and strengthen the frame of a home. These help the home resist the damage caused by earthquakes, high winds and hurricanes.

### Q: Why is using straps better than the traditional way of building a house?

A: The traditional way of connecting framing materials was by nailing them together in what is known as a toe-nailing connection (two nails nailed together in opposite directions). However, nails are likely to pop out during severe weather. Framing connectors, such as straps and ties, can better resist the various forces nature puts on it.

### Q: Can I retrofit my home with framing straps?

A: It's possible to retrofit some parts of your home with framing straps. A good example would be joist hangers, but you need a basement or crawlspace with easy access to floor joists. Always check with your local building codes to find out the requirements for your area.

## Q: Should I use framing straps and ties when I'm building my deck?

A: Yes. A deck built with framing straps and ties is much safer than one without. There are three types of pressures on a deck, and framing straps and ties help strengthen the deck against those pressures:

- Gravity, a downward pressure caused by people standing on it;
- Lateral pressure, the horizontal motion caused by people walking back and forth on it or leaning on a railing, or from wind and earthquakes; and
- Uplift pressure, caused by wind flowing under the deck and from people standing on the overhand of the deck.

### Q: Can I use a galvanized nail with a stainless steel framing strap?

A: No, you should only use stainless steel fasteners with stainless steel framing straps. Mixing galvanized with stainless steel will cause corrosion.

## Q: What type of fastener should I use with treated wood?

A: You may use either galvanized, ceramic coated or stainless steel fasteners with chemically treated wood.

#### Add-on Items

- Ask the customer if he or she has enough nails or screws for the project.
- Recommend galvanized fasteners for using outdoors.
- Recommend stainless steel fasteners for using with stainless steel straps and ties.
- Ask the customer if he or she needs a hammer.
- Always recommend the customer use safety glasses and gloves when using a hammer to fasten framing straps.

# STUDY GUIDE: HARDWARE & FASTENERS

## Chapter 2: Door & Window Hardware

## Module 1: Hinges

### Product Knowledge:



#### **Butt Hinge**

- Fits between the butt of the door and the frame.
- This type of hinge mounts in a mortise, a cutout in the frame and the door.
- Only the hinge pin is exposed on the inside of the door.
- The most common type is the loose pin hinge that has a removable pin for easy removal
  of the door.
- · Use for interior and exterior doors.
- These hinges are available with either a square or radius corner.



### Spring Hinge

- Closes the door automatically.
- Double acting types are commonly used on café doors that swing in both directions.



### T-Hinge

- Shaped like the letter T.
- Because it is exposed, some are available in ornamental styles.
- The vertical strap is secured to the frame while the horizontal strap is secured to the door.
- · Commonly used on heavy doors, gates and cabinet lids.



### Continuous Hinge

- Fits along the entire length of the door.
- Provides protection against warping.
- · Also called piano hinges.
- Frequently used on chest lids and cabinets.



### Surface Hinge

- A surface hinge, also called a non-mortise hinge, mounts on the surface of the door and does not require a mortise.
- It is typically used for shutters, bifold doors and small closet doors.



#### Gate Hinge

- Consists of an L-shaped screw that screws into the post.
- The L shape holds a strap that screws into the gate.

#### **Frequently Asked Questions**

### Q: Do you have a hinge that will fit my door?

A: The best option is to bring the old hinge in. But as a standard, an exterior door uses a hinge that is 4" long with four holes on each side. An interior door usually has a hinge that is 3-1/2" long and has three holes on each side. You might also want to consider choosing a finish that coordinates with the other décor in the room.

#### Q: Where do I position hinges on a door?

A: If you are installing hinges on a door that already has cutouts, or a mortise, for hinges, put the new hinges where those cutouts are. When positioning the hinge on the door, leave a space of 1/8" between the hinge and the edge of the door. As a general rule, place hinges 5" from the top of the door and 10" from the bottom. If there is a third hinge, center it between the other two.

### Q: What type of hinges should I use for a very heavy door?

A: I recommend heavy-duty hinges that have ball bearings. These can be lubricated to reduce friction on hinge knuckles.

#### Add-on Items

- Drill and drill bits for predrilling holes for the screws, if needed.
- Customer may need a carpenter's pencil for precise marking.
- Recommend a try square and a measuring tape for marking the place for the mortise cut.
- The customer will need a wood chisel for cutting a mortise in the door and frame for the hinge.
- · Mallet or hammer to use with the chisel.
- Always recommend using safety glasses when using a chisel.

### Module 2: Door Hardware

## Product Knowledge:



# Door Closer

- Closes the door at a controlled speed. There are two basic types.
- The exterior door closer operates with a spring and piston. When the door is pulled
  open, the spring inside the cylinder is depressed, thus exerting pressure to pull the door
  closed automatically. The piston controls the speed. An adjusting screw allows the user
  to change the speed of the closing.
- Interior door closers have a canister-like apparatus mounted on the door and a knuckle-joint arm to push the door closed.
- Use closer reinforcements to attach to the frame to provide a stronger anchor.



### **Door Plates**

- There are several different types of plates available for doors.
- Kick plates protect the bottom of the door from scuffing.
- Push plates provide a non-marring surface where the user can push the door open.
- Pull plates provide a handle to open doors.
- · Door plates add a decorative touch to doors.
- Available in a variety of materials, including brass, stainless steel and anodized aluminum.





#### Bi-fold Door Hardware

- Bi-fold doors are connected by hinges in pairs. They hang and slide on a track.
- Often sold as a set, but you can also order custom fit doors. Order hardware separately.
- A bi-fold door kit includes tracks, pins, pivot plates, hinges and knobs.



### Screen/Storm Door Hardware

- Includes a variety of latches, strikes and pulls available as original or replacement hardware for screen and storm doors.
- Most are designed for easy installation and are weather-resistant.
- Heavier patio doors may use a larger handle set with a built-in latch or key feature.
- Most are designed for specific types of doors (wood vs. aluminum) and door thicknesses.



#### Barn Door Hardware

- Made of zinc or galvanized, heavy-gauge steel especially for barns and outbuildings where rough, heavy-duty use is required.
- Consists of a hanger similar to a four-wheel trolley with a box-shaped track that acts as a guide.
- Use either roll or ball bearings. Ball bearings are considered the superior choice.
- Capable of supporting loads from 100 lbs. to 3,000 lbs.
- The track is usually mounted to the building by brackets, although some track requires no brackets and is mounted directly to the building with screws.
- · Other hardware includes door pulls and stay rollers.



#### Gate Hardware

- A variety of latches, pulls, hinges and locking bolts are designed specifically for use on gates.
- Usually made of heavy-gauge steel or with a tough polymer housing that is rust-free.
- Types of latches include sliding bolt locks, magnetic, thumb action or padlock.
- Hinges come in tee, strap, spring and hook-and-strap configurations. They are usually reversible for use on left or right-swinging gates.
- Ornamental hardware is often finished in black. Stainless steel hardware offers an extra level of corrosion resistance.
- · Anti-sag kits are available that eliminate gate sag.



#### Garage Door Opener

- Consists of a motor unit that raises and lowers overhead doors upon command of a remote control unit. There are three types of drive mechanisms.
- Openers with 1/3 or 1/2 hp motors are most common. Heavy duty openers can have up to a 1-1/2 hp motor.
- A belt-drive system uses a belt drive to lift and lower the door. While they are more expensive than other types, they are very quiet and smooth. They're a good choice for someone wanting a quieter garage door opener or for those with living spaces above or near the garage.
- A screw-drive system uses a threaded steel rod to lift and lower the door. It has few moving parts, and therefore requires little maintenance.
- A chain-drive system uses a metal chain to open and shut the door. This type is the least expensive, but it can be the noisiest of the three types.
- A safety feature is a device that automatically reverses the descent of the door when it encounters resistance when closing. All residential garage door openers must incorporate an optical sensor that will prevent the door from closing if it senses an obstruction.



#### **Frequently Asked Questions**

Q: Will this garage door opener stop if my small children get in the way?

A: Yes, since 1990 all garage doors are required to have an optical sensor and/or a door edge sensor that will stop or reverse the door.

Q: How do I know which latch fits my storm door?

A: If you are going to use existing holes, you need to know the spacing of the holes, or there are adjustable models available. Make a paper template to identify the bolt pattern and use that to help determine if you are buying the correct latch.

Q: Will a door closer work on my heavy storm door?

A: A traditional screen door closer may not be strong enough. However, they make heavy-duty ones that will work. They also have the advantage of staying open automatically if they are opened all the way. Some newer doors have two closures—one on top and one on bottom.

#### **Upselling Skills**

- Quality garage door operators have personal security codes, making it unlikely that another door unit will accidentally open the door.
- · Quality garage door operators also have overhead lights that automatically turn on when the door is activated.
- The control unit may be either key or wireless operated. If key operated, the user must leave the car to unlock the door. Wireless versions may be operated via a transmitter that starts the opener motor. Some newer garage door opener systems allow you to open and close the door through controls on a smartphone.

#### Add-on items

If your customer will be installing a garage door opener, here are the add-on sales you can suggest for that project.

- Tools needed for this project include drill and drill bits, an adjustable wrench, a screwdriver and a measuring tape.
- · Ask if the customer needs a step ladder for reaching the area where the opener will be mounted.
- The customer may also need a few pieces of lumber and slotted angle iron if the opener will be mounted to a drywall ceiling.

#### Module 3: Window & Curtain Hardware

### Product Knowledge:



## **Casement Operator**

- · Limits and controls the swing of an unlatched casement window.
- · Consists of a lever and a handle crank. Cranking the handle opens the window.
- Certain models allow the window to be opened outward without removing the screen.



#### Crescent Sash Lock

- Sash locks tightly lock window sash to prevent opening them from the outside. There
  are two basic types.
- The crescent sash lock has a crescent-shaped lock that rotates into the lock position.
- The cam action lock uses a lever to pull together window sills for a tight seal.
- · Both are available in a variety of metals and finishes to match window and room decor.





- Used to hang curtains over both upper and lower window sashes.
- · Usually suspended from rings encircling the rods.
- Decorative and available in a variety of finishes.
- Café rod sizes vary according to use and range from 3/8 inch to 2 inches in diameter, and 28 to 120 inches long.
- Wood pole café rods have larger diameters and are often used with pleated draperies and high headers.



#### Traverse Rod

- Allows opening and closing of drapes with a downward pull on a cord.
- · Usually used with heavy drapes.
- · Can be wall-mounted or attached to the ceiling.
- Draperies close from each side of the window to meet in the center.

### Spring Pressure Rod

- Holds the adjustable tension rod in place when it must be mounted inside the window casing or when screws cannot be used to hold brackets.
- Sash rods are generally used to hold the top and bottom of curtains stationary and close to the window.

### **Swinging Drapery Crane**

- Swings clear and projects outward from the window to keep curtains clear of venetian blinds.
- Also used to push curtains close to the wall, to lengthen or shorten to suit drapery width and to tilt out to allow easy window or trim washing.
- · Good for French doors or windows.



## **Drapery Accessories**

- Rings must be 1/4" larger in diameter than the rod for free movement. Some have eyelets for insertion of a drapery hook.
- Ring Clips are oval or round. When pressed on the sides, the prongs open. When pressure is released, the prongs grasp the top of the drapery.
- The Slip-On Hook fits over a rod or into an eyelet on the rod. The drapery heading fits between the two close-facing shanks on the opposite side of the hook.
- The Pin-On Hook works the same way except that the drapery heading is hooked into the sharp pin, which is opposite to the side that hangs on the rod.
- The Pleater Hook is used with pleater tape sewn to the drapery heading. Three or four prongs, or shanks, form pleats when the heading is placed onto the shanks.
- Swagholders make decorative window treatments with ordinary fabric by draping and forming poufs, rosettes, bishop's sleeves and festoons.

#### **Frequently Asked Questions**

Q: Will this casement window operator work on my window?

A: There are both left-opening and right-opening ones, as well as many lengths of arms. Make sure you get the correct one. Knowing the manufacturer of the window will help in selecting the correct operator.

Q: What can I use to anchor a drapery rod to a wall?

A: If you're fastening it into drywall, a plastic anchor will support a lighter rod. Rods supporting heavier weights will need a molly wall grip. Other fasteners include hollow wall screw anchors, toggles and plastic anchors. These work well in drywall, plaster walls, concrete blocks and other masonry materials.

Q: What are the different types of traverse rods available?

A: There are several different types, depending on which direction you want the curtain to open and how much of the window you want to see.

- One-way draw rods draw the drape fully to the left or fully to the right. They are usually used with patio doors or corner windows.
- Made of two telescoping track sections, adjustable to desired length.
- One variation of a traverse rod allows the drapes to be drawn completely clear of the window at the sides, giving the effect of a wider window.
- Another type holds a curtain rod in front of the traverse rod and supports a full-width balance.
- One type holds a sheer curtain behind the traversing draperies.

## Add-on items

Here are some products you can suggest to customers hanging a curtain rod.

- Suggest a wall anchor for attaching the rod to an area where there is no stud.
- A level and a measuring tape will be essential in determining the correct placement of the curtain rod hardware.
- Suggest a carpenter's pencil for marking on the walls prior to making a hole for the wall anchors.
- Your customer will also need a screwdriver for hanging the window hardware.
- · Suggest a stud finder to find an anchoring point and eliminate unnecessary holes in the wall.

#### Module 4: Cabinet Hardware

### Product Knowledge:









Cabinet Hinge

The four basic cabinet door designs that determine the type of hinge required are: flush-mounted, lipped/inset, flush-overlay or reverse bevel.

- Full surface hinge: Use a full-mortise butt hinge or full-surface hinge for flush-mounted doors. You can also use an ornamental strap hinge or a concealed hinge for this type of door.
- Variable overlay hinge. With this hinge, the part of the hinge that fastens to the frame is exposed, while the part of the hinge that attaches to the door is concealed behind the door. Use it for doors that overlay the frame of the cabinet.
- Semi-wraparound hinge. With this hinge, only the knuckle of the hinge is showing. Use it for flush, inset or overlay doors.
- Frameless hinge. Use a frameless hinge for a full overlay or inset door. This is a
  concealed hinge that can support a heavier door. You can also use it on a faceframe
  cabinet door.
- Some hinges have a self-closing feature that closes the door automatically from about a 10° opening. These operate on a spring-loaded cam and are made from heavy-gauge steel.



#### Cabinet Knob

- · Used on cabinet doors and drawers.
- Basic consideration in choosing a knob will be style.
- Pulls are generally on 3" mounting centers.
- Adding a decorative backplate can provide additional support for hollow-core doors and drawers.
- When replacing an old knob, remind the customer to make sure the new knob will
  use or cover the holes left by the old one. Use a backplate to cover the second hole if
  replacing a pull with a knob.



#### Friction Catch

- Operates by pressure of the catch on the strike.
- Catch mounts on a doorframe, jamb or underside of a shelf while the strike mounts on the door so that upon closing, it is inserted into the catch.
- Two common types are alligator and lever spring-action.



#### Roller Spring Catch

- Available in single and double roller types.
- Features quiet operation, easy installation, long life and easy adaptability to many door and frame designs.



#### Magnetic Catch

- Uses a magnet that sticks to a metal strike.
- The holding power is reduced if only part of the magnet makes contact with the strike. Therefore, the magnet must be installed carefully to properly align the catch and the strike.
- Quality features include a floating or self-adjusting action to ensure proper alignment and contact.



## Elbow Catch

- Mounts on the door with the strike installed on the frame or on a shelf.
- Can only be released from the inside of the cabinet and thus is used on one side of a pair of doors.



#### Drawer Slide

- Slide guide the drawer to open and shut smoothly. There are several types.
- The monorail type uses a single track under the center of the drawer with drawer rollers on the left and right side. It is easy to install because it requires minimum measuring and templates. It is low in cost and fits both new and old installations.
- The side-mounting type uses four tracks, one attached to each side or bottom of the drawer and one on both the left and right sides of the cabinet. It has rollers on which the drawer rides.
- Some types of slides are self-closing. They close when the drawer comes to within 4" to 5" of the back, regardless of the load or its position in the drawer.
- The full-extension type allows the drawer to open completely to its maximum length.



#### **Frequently Asked Questions**

Q: Is there anything I can do to fix sagging cabinet doors?

A: Sagging cabinet doors may be due to loose hinges. Here is one way to fix it.

- If the screws on the hinge won't tighten, the screw holes may be worn.
- · Remove the hinge.
- Take a wood dowel or something similar, like a golf tee, that is the same size as the hole, coat it with glue and insert it into the screw hole.
- After the glue dries, cut the end of the dowel off so it is flush with the cabinet face. Now drill a new pilot hole for the screw and reattach the hinge.

Q: These pulls don't fit the existing holes in my cabinet door. Are there other sizes?

A: Most pulls are generally on 3" mounting centers. You will need to drill new holes and look for pulls that are designed to cover the previous holes. There are also decorative plates that will cover the previous holes. Mount these plates under the new pulls. Some larger pulls may have 96mm, or 3-3/4" mounting center holes.

Q: Is there anything I can do to fix loose drawer pulls?

A: First tighten the screw that attaches the pull to the drawer. If that does not help, loose drawer pulls on a cabinet drawer may indicate a worn screw hole. Here is one way to fix it:

- · Remove the cabinet pull or knob.
- Fill the screw hole with wood putty. The kind of putty that is mixed with water tends to dry harder than other types of products.
- Wipe off excess with a damp cloth and let dry.
- Drill a pilot hole and reattach the pull.

### **Upselling Skills**

- The main feature of the knob or pull you'll want to concentrate on is the finish. Better finishes on cabinet hardware offer greater durability. They are usually electrostatic and baked lacquer, not air-dried.
- Quality slides permit little side movement, prevent accidental drawer pullout, have high-quality rollers and are
  precision-made to close tolerances.

# STUDY GUIDE: HARDWARE & FASTENERS

# Chapter 3: Home Security

## Module 1: Locksets, Deadbolts

### Product Knowledge:



### Passage Latchset

- An interior latch used inside the home in hallways or closets between rooms where privacy is not important.
- Has two, non-locking knobs, one on each side of the door. Some models use levers instead of knobs.
- · Available in a wide variety of styles and finishes.



### **Privacy Lockset**

- · An interior lockset.
- Designed for privacy rather than for security.
- Has a locking button on the inside knob but no key device on the outside knob.
- · Can be either a knob or a lever.
- In an emergency, the lock can be opened from the outside by inserting a narrow object through the small hole in the outside knob and either depressing or turning the locking mechanism inside, depending on the type of lock.
- · Available in a wide variety of styles and finishes.



#### Dummy Knob

- A dummy knob is used on only one side of the door and is mostly for decoration.
- It has no latching mechanism and does not turn.
- It is available in a wide variety of styles and finishes.



#### **Entry Lockset**

- An entry lockset consists of an interior and exterior knob or lever that can be locked from both the inside and the outside.
- A standard residential entry lock locks from the inside by turning or depressing a small button, while a key must unlock the outside knob.
- Some models must be locked with a key on both the inside and outside. These are typically commercial lockets.
- In other models, only the inside knob can lock or unlock both sides of the set.
- This is a medium security entrance door lock.
- A quality feature on some entry locksets is a deadlatch.
- Another type is the storeroom lockset, which automatically locks from the outside when shut but remains unlocked on the inside.



#### Deadbolt Lock

- · Provides maximum security on a door.
- Called "dead" because there are no springs to operate the bolt. It is only operated manually with a key or a thumb turn from the inside.

- The bolt locks the door to the frame and helps prevent someone from prying the door open.
- The throw is the length the bolt is extended from the lock housing. The industry standard is a 1" throw.
- Locks are designed to fit specific size holes and backsets. Backset refers to the distance between the edge of the door and the center of the handle.
- A single-cylinder deadbolt is operated with a key from the outside and with a turn button on the inside. It is used mostly with solid metal or wood doors.
- A double-cylinder deadbolt is operated with a key on both the inside and outside. It is best used on a door with glass in or around them as the style prevents someone from breaking the glass, reaching in and unlocking the door.



#### Surface-Mounted Deadbolt

- · Mounted on the surface of the inside of the door.
- The bolt may be turned with a key or a turn knob.
- Instead of sliding into the door frame, the bolt slides into a surface-mounted strike.



#### Handleset

- Usually an entry set that combines a lockset with a deadbolt, the deadbolt is located just above the knob or handle. Can be a one- or two-piece unit.
- · Available with both single- and double-cylinder deadbolts.
- · Available in a variety of styles and finishes.



- Consists of a flat, rectangular box that fits into a recess in the door from its edge. Also includes two faceplates that include the knobs and keyholes.
- · Available in right- or left-handed styles.
- Has a pin tumbler locking mechanism in a cylinder.
- Latch operates from either side except when the outside knob is locked.
- · Deadbolt operates by a turn of the inside knob.
- A key from the outside operates both the deadbolt and latchbolt.
- Used on many types of doors, from heavy entrance doors to apartment buildings and residential doors.



### Keyless Entry System

- · For advanced home security and convenience.
- Uses a keypad or touchscreen on the door to open the door. May also have the option
  of a key.
- Some models will sound an alarm after the incorrect code has been entered more than three consecutive times.



#### Electronic Entry System

- An electronic entry system can be opened using a fob or a cell phone.
- Most locks still have the option of using a physical key and some have a keypad. Many provide a combination of technologies for operating the lock.
- A popular type is a smart lock that uses Bluetooth, WiFi or RFID technology to communicate with other smart devices in the home.
- They offer increased home security and convenience.





#### Strike

- The metal plate the latch slides into on the doorjamb or frame.
- All new locksets come with strikes, but some homeowners may want to replace them with high-security strikes or replace damaged ones.
- Adjustable strikes are available that provide 1/4" adjustment to allow for door and frame warpage.



#### Latch Guard

- A latch guard is a metal plate that protects the latch in a lock.
- If the gap between the door and the frame is wide enough, it may expose the latch. Someone wanting to gain forced access may try to cut or pry a latch open. The latch guard covers the exposed latch to prevent this from happening.
- Different types are available for outswing and inswing doors.



#### Door Reinforcer

- Use when repairing or reinforcing the edge of a door. It helps prevent forced entry.
- Pre-drilled holes for installing a deadbolt or handleset.
- · Made of brass or stainless steel.
- · Sized according to the thickness of the door.

## Taking it to the Floor:

#### **Frequently Asked Questions**

### Q: Will any lock fit my door?

A: Most locks come in two sizes: 2-3/8" or 2-3/4" backset. This is how far the center of the hole is away from the edge of the door. Most common household locksets sold today come with an adjustable backset that will fit both.

#### Q: Can locks be rekeyed so that more than one uses the same key?

A: Locksmiths can re-key existing or new locks to the same key. However, they have to be the same brand and use the same key blank. New styles of locks allow for instant rekeying from the exterior of the cylinder using a special tool.

## Q: What is a pin tumbler lock?

A: A pin tumbler lock has five or more pins and offer greater resistance for picking. Depending on the number of pins, this lock offers many key changes. Better locks have five or more pins. Pin tumbler mechanisms are used in padlocks, deadbolts, cabinet locks, locksets and more.

### Q: What do you mean when you say the door is right-handed?

A: The "handing" of the door refers to which side of the door the knob is on and may affect how the door locks. Stand on the side of the door so that the door opens towards you. If the knob is on the right, then it's a right-handed door. If the knob is on the left of a door that opens towards you, it's a left-handed door. Many lockets are reversible so they can be used on a door that is handed in either direction.

## Q: Would you recommend a double-cylinder deadbolt for my door?

A: Double-cylinder deadbolts are good for glass doors, because no one can open the lock by breaking the glass and turning the turn button common on single-cylinder bolts. However, double-cylinder deadbolts can pose a danger during an emergency. If the key is missing or not readily available, people could be trapped inside a locked house. In some areas, codes may not permit this style of deadbolt.

#### **Upselling Skills**

- The finish of the lockset will be an important selling feature. Some lockset manufacturers offer anti-tarnish finishes with lifetime guarantees.
- The wide variety of styles and finishes make handlesets and locksets good items for special order. Some consumers will want to match finishes with other fixtures inside their home.
- Suggest deadbolts with features that will increase security, such as stainless steel bolts with a roller insert that resists sawing and cutting, deadbolts with throws longer than 1" and a strike plate that is secured using 3" screws.
- Some keyless locksets allow the user to use a remote control or internet enabled device to open the door. Some systems are compatible with some garage door openers so the homeowner only needs one remote.

### Add-on Skills

Here are the add-on sales you can suggest for customers installing a lockset or deadbolt.

- Your customer will need a drill with hole saw and spade drill bits. You can also suggest a lock installation kit which has all of the necessary drill bits in one package.
- · Remind the customer to get a chisel and hammer for making the slot in the door and frame for the lockset.
- A screwdriver will be necessary for finishing the installation.
- Remind your customer to use safety glasses when using a chisel or drill.

## Module 2: Hasps & Other Locks

### Product Knowledge:





#### Hasp

- Consists of a metal hinge and an anchoring bolt so locks can be secured to gates, sheds and garages.
- Conceals the mounting screws when the lock is in place.
- Insert a padlock through the ring and lock to secure the hasp.
- Another type is the hasplock, which has a padlock attached to it, which makes it impossible to lose the padlock when the hasp is open.



#### **Barrel Bolt**

- A sliding lock mechanism used to provide security for average weight doors and windows.
- Is surface mounted where the bolt slides into a catch on the door frame.
- Available in decorative finishes and with surface or universal strikes.
- Some have spring action to hold the bolt in place, and some are lockable.



#### Chain Door Guard

- Used for entry doors.
- Allows the door to be open slightly and provide some ventilation and viewing, while
  offering some security.
- Another variation is the Swingbar style, which has a bar that slides along a track to allow the door to open slightly while providing security.



## **Combination Lock**

- User must dial a combination to open the lock.
- · Hardened solid steel alloys make better locks and shackles.
- Other types of locks have a push-button combination or a dial with a resettable combination. Locks that require a longer combination are more secure.



#### Pin-Tumbler Padlock

- · Provides maximum security for valuables.
- Pin-tumbler locking mechanisms make padlocks harder for thieves to pick.
- Tumblers with five or more pins provide the best security, while four pin is the next best.
- Hardened solid steel and steel alloys make better locks and shackles.



#### **Tubular Cylinder Padlock**

- · Offers many key changes by replacing the cylinder.
- Usually used in electronic security systems, but some owners of motorcycles and expensive bikes use them as well.
- Pins are arranged in a circle and are exposed.
- · The key is cylindrical.



#### Cable Lock

- Uses the combination of a lock and cable to lock and secure objects in a variety of applications.
- Some models have a chain or cable permanently attached to a combination or keyed lock.
- Chain or cable often has a protective plastic coating to prevent scratching.



### **U-Bar Lock**

- Provides maximum protection for bicycles, gates, etc.
- · Hardened steel shanks resist cutting.
- Available in combination lock or keyed lock versions.



### **Gun Lock**

- Fits over the trigger housing of guns to prevent firing of the weapon.
- Some models have a sound alarm to warn that the gun is being tampered with.
- Some have tamper-evident devices to alert owners that the gun has been disturbed.
- Some models can lock multiple guns at once.

#### **Frequently Asked Questions**

Q: What can I do to add security to my door?

A: Consider installing a stronger strikeplate—these are larger and have much longer screws. To make it easier to install the strikeplate, try one of the adjustable ones which makes the installation process easier.

Q: What type of padlock holds up best in the weather?

A: Brass padlocks will hold up better in the weather than standard ones, and they provide a decorative option. Another option is a padlock with protective rubber covers and casings. These will cover both the body of the lock and the shackle, as well as provide a cover for the keyhole to prevent water from getting inside the lock and causing corrosion. Stainless steel locks provide superior corrosion resistance.

## **Upselling Skills**

- Manufacturers continue to improve the strength of their padlocks so they're more secure. When selling a
  padlock, always recommend the best product you have. Better padlocks have a hardened solid steel shackle,
  more durable and will provide greater security.
- The high-security padlocks have a shrouded collar that makes it harder to get bolt cutters on the shackle.
- Also look for plastic covers that protect the surface of the object where the lock is attached.

## Module 3: Emergency Devices

### Product Knowledge:



#### Ionization Fire Detector

- Measures the changes in electric current caused by invisible particles ionized in the heat of combustion.
- Transforms air inside the detector into a conductor of electric current. When smoke enters the detector and impedes the flow of current, the alarm sounds.
- Responds particularly well to the smoke caused by a flaming fire.
- · Requires little power and is powered by household batteries.
- Slower to respond to a smoldering fire.
- Detectors are required to emit a low warning when batteries are weak.



### Photoelectric Fire Detector

- Uses a small lamp adjusted to direct a narrow light beam across the detection chamber.
   Smoke entering the chamber scatters this light beam, causing it to hit a sensor and set off the alarm.
- Usually more sensitive to smoke from a slow, smoldering fire than an ionization detector, but reacts less quickly to flaming fires.
- Available in both battery-operated and plug-in versions.



#### Carbon Monoxide Detector

- Detects carbon monoxide, a colorless, odorless gas that poses a potentially deadly health risk to people.
- Measures the amount of carbon monoxide over time and sounds an alarm before people would experience symptoms.
- · Operates on batteries or can be plugged in.
- · Some models provide a running digital readout of CO levels.
- Hard-wired or plug-in models typically use some type of solid-state sensor, which purges
  itself and resamples the air periodically. That cycle increases the power demand.
- Battery-powered detectors typically use a passive sensor. They will operate even in case of a power failure.



#### Alpha-Track Radon Detector

- Detects radon, a colorless, odorless, radioactive gas formed wherever there is uranium, an element present throughout the crust of the earth. It poses little risk if it makes its way to open air, but if it seeps into a house, it can collect in hazardous concentrations.
- This detector consists of a small sheet of plastic. Alpha particles that strike the plastic cause microscopic pockmarks.
- After an exposure period, users mail the detector to a lab. The lab's count of the pockmarks gives a direct measure of the mean radon concentration.



### Carbon Dioxide Extinguisher

- · Extinguishes Class B and C fires.
- · Class B fires involve flammable liquids, gases and greases.
- Class C fires involve electrical equipment or wiring where the electric non-conductivity of the extinguishing agent is important.
- Has a limited range and is affected by draft and wind.



## **Dry-Chemical Extinguisher**

- · Some types extinguish only Class B and C fires.
- Includes sodium and potassium bicarbonate base agents.
- Some types are marked general-purpose or multi-purpose. These types can be used on Class A, B and C fires.



### Foam Extinguisher

- · Extinguishes Class A and B fires.
- Class A fires are the most common type. They involve ordinary combustibles such as wood, paper, cloth, rubber and many plastics.
- Not effective on flammable liquids or gases escaping under pressure.



#### Fire Safe

- · Protects valuables and documents exposed to fire.
- According to UL, a fire safe should maintain an inside temperature below 350° for an hour or more.
- The safe should also be resistant to rupture and explosion at these temperatures.
- Some safes can be mounted in walls, floors and other areas.

#### Taking it to the Floor:

#### **Frequently Asked Questions**

#### Q: Where should I install smoke detectors?

A: The safest recommendation is to put one in every room, but most people are not willing to do this. The simplest rule is to mount one between the bedrooms and the rest of the house, but closer to the bedrooms. If there is more than one sleeping area, each should have its own alarm. In multi-level homes, install one on each level and, if possible, have them interconnected so any one unit will sound the alarm throughout the house. The basement ceiling, near the steps, is a good location for extra protection.

#### Q: Do I need to worry about carbon monoxide in my home?

A: If you have a gas or oil furnace, dryer, refrigerator, water heater, space heater, fireplace, wood stove or gas range, then you need to be concerned. These can all be sources of carbon monoxide gas. They should be placed in the hallway near the sleeping area, and there should be one on every level of the home.

### Q: Why did my smoke detector beep when there was no smoke?

A: This is a warning signal that the batteries are low. If your alarm is more than 10 years old, you should consider replacing it, just to make sure that you have one that is in good working order.

### Q: What products do you sell that will help childproof my home?

A: Child resistant locks on cabinets, electrical outlet covers, additional smoke alarms and gun locks are some of the products you should consider.

### Q: Where should I keep a fire extinguisher in my home?

A: Don't mount it too close to where a fire is likely to occur. For example, don't keep it next to the stove. A good place is at the top of the stairs or near a workshop. In most cases, it's a good idea to have a fire extinguisher for every 600 sq. ft. of living space. A dry-chemical extinguisher marked general-purpose or multi-purpose is best for home use.

### **Upselling Skills**



- A silent button on smoke alarms near the kitchen is a useful feature. This allows the
  detector to be temporarily silenced if there is an alarm resulting from cooking smoke.
   Some also have an intelligent feature that detects nuisance alarms.
- Some units will interconnect to others units, so when one detects an alarm, all alarms sound.



- Combination CO and smoke detectors are available. They usually sound a different alarm for each hazard so consumers know how to respond.
- Some units have a voice warning, telling you of the type of danger and location in the house.
- Some fire alarms combine the ionization and photoelectric sensors.
- Some detectors have additional safety features such as lights that help illuminate the escape route.
- Some detectors have extra-loud sirens or strobe lights for those who are hearing impaired.

## Add-On Items

- · Screwdriver for installing alarms.
- Customers will need extra batteries for alarms
- Suggest a fire safety ladder. They come in varying lengths, but most are sold for second-story rooms.

# STUDY GUIDE: HARDWARE & FASTENERS

## Chapter 4: Binding & Containment

## Module 1: Rope

### Product Knowledge:

#### **Braided Cord**

- May be made with or without a center filling (core) that gives it strength.
- Diamond braid cord, also known as maypole braid, does not have a core and is frequently used for drapery cord or Venetian blind cord or as low-cost clothesline. It splices easily.
- Solid braid cord is firm, round and tightly woven so it will not unravel when cut or torn. Works well over pulleys and has good abrasion resistance.
- Double braid is when both the rope and the core are braided. It is the strongest and most expensive type of rope.



#### Sisal Rope

- A twisted rope that can be used where it is likely to be discarded after each use and where strength is not important.
- Do not use where personal safety or valuable property is involved.
- · Good resistance to sunlight and stretches little.
- · Polypropylene has largely displaced sisal in low-cost usage.



### Manila Rope

- The most frequently used natural fiber in twisted rope today.
- Must be handled with care to prevent rot and mildew.
- · Good resistance to surface heat.
- · Stretches little and holds knots firmly.



#### Polypropylene Rope

- A twisted rope that is less expensive than other rope fibers, making it a good allpurpose rope.
- Floats and is easy to produce in colors, making it good for water use.
- Low melting point, so it is not a good choice for using on pulleys where friction may melt the outer jacket.
- Resists rot and mildew.
- Not as strong as polyester or nylon, but three times stronger than manila.



#### Nylon Rope

- A twisted rope that is the most versatile of all because of its strength.
- · Good shock and abrasion resistance.
- Lasts five times longer than natural fibers.
- Resists chemicals and will not rot or mold.
- When stretched, has a tendency to return to its original shape.
- Do not use on winches or bits or attached to hooks or chain.



### Polyester Rope

- A twisted rope with strength similar to nylon.
- Stretches less than nylon and has a poor shock load capacity.
- · Good resistance to abrasion and sunlight.
- The top choice for general-purpose boating applications.



#### Twine

- Made by twisting yarns together to make a single, continuous strand.
- Low cost rope.
- · Not recommended for reuse.
- Use for wrapping a roast, tying packages or establishing a line in the garden.
- The more plies, the stronger the twine. A 16-ply #8 thread cotton twine is twice as strong as an 8-ply #8 thread twine.

### Taking it to the Floor:

## **Frequently Asked Questions**

#### Q: What is the best way to store rope?

A: Rope should be dry before you store it. Manila ropes mildew and decay if stored wet. A cool, dry room with free air circulation provides the best storage. Also protect rope from chemicals such as acids, alkalis, oils, paints and other agents that are not chemically neutral.

### Q: How strong of a rope should I buy?

A: Ropes are rated by tensile, or breaking strength. This is the size of the load that will break a new rope that has never been knotted, tied or run over a reel or pulley, all of which weaken a rope. Many manufacturers recommend a range of working loads that may be 10% to 30% of the rope's breaking strength. Buy a rope that is strong enough to handle the load you want to give it. Remember that all rope loses its strength over time, so only a small fraction of the breaking strength of the rope should be considered for safe use.

### Q: What is the best way to cut rope?

A: When cutting rope, realize that twisted ropes require a little extra effort to prevent them from unraveling. The three strands will need to be secured in some way or they will unwind. Taping the location of the cut with the electrical tape works well, just make sure the tape extends about twice the diameter on either side of the cut.

## Q: Is there a special way to cut synthetic rope?

A: Cut synthetic ropes with a hot knife that is simply a modified tip for soldering guns. The tip cuts the rope and fuses the strands together, making taping unnecessary. The tip is usually available from the rope manufacturer.

### Module 2: Chain

### Product Knowledge:



The first few types of chain we'll discuss are welded chains, which means the individual link is welded to form a continuous loop.

#### **Proof Coil Chain**

- The most common all-purpose chain commonly used as a log chain, tow chain, guardrail chain and switch chain.
- Not intended for use as a sling or overhead lifting chain.



## Straight Link Welded Chain

- Has high strength and is popular for general use.
- Available in many gauges and link sizes.
- One type is the coil chain, which has long lengths.
- Another type is machine chain, which has shorter links than the coil chain.



#### Twist Link Welded Chain

- Has links twisted at uniform angles. The slight twist in the links tends to make the chain more flexible and prevents the entire chain from twisting and knotting during use.
- One type is the coil chain, which has long lengths.
- Another type is machine chain, which has shorter links than the coil chain.



### Passing Link Welded Chain

- Used extensively on farm machinery, for a swing chain and for animal tie-out.
- Made with links sufficiently wide to permit the links to pass each other easily, keeping kinking and tangling to a minimum.

Rather than being welded, the links in these chains are created by twisting or bending.



#### Weldless Flat Chain

- · Commonly called sash chain.
- Especially suited for use over pulleys or where chain must lie flat.
- Weldless chain is generally recommended for light work only.
- Made by stamping or shaping a flat strip from metal. Strips are then formed into links and attached to each other.
- One type is the Plumbers Chain, which you use to attach plumbing fixtures and for general utility purposes.



### **Double Loop Wire Chain**

- One of the most popular chains because of its versatility.
- Commonly used for dog runners, swing sets, playground uses and padlocks.
- Made of light-gauge wire with the links formed by knotting or tying the wire to the desired link size.



#### Clevis Hook

- Used as a temporary chain connector.
- · Attaches directly to a welded chain.
- Eliminates the need for an additional attachment or fitting.
- The slip hook type looks like a large fishhook.
- The grab hook type has a narrower opening.



### Repair Link

- Used to temporarily link chain and couple light attachments.
- · Do not use for securing loads.
- One type is the quick link, where the link screws shut.
- · Another type is the spring link, where the link snaps shut.



#### Cold Shut

- A cold shut is similar to a repair link, but is a more permanent solution for joining two chains.
- It is designed to be hammered shut.
- Use one size larger than the proof coil chain with which it is to be used.
- · Do not use for securing loads.



#### Load Binder

- Provides more control in binding and releasing two chains.
- Has two hooks, each of which attaches to a chain. The user uses the central lever to tighten the chains and secure the load.
- Can be either a ratchet type or a lever type, which determines how the chain is tightened.



### Pulley

- · Consists of metal wheels with grooved edges.
- · Aids in lifting loads.
- · Can be used with chain or rope.

## Taking it to the Floor:

#### Frequently Asked Questions

Q: I am building a swing. What type of chain do you recommend?

A: Passing link allows the links to pass each other easily, which helps prevent kinking and tangling.

### Q: How strong a chain should I buy?

A: Chains are all rated to their working loads. Welded chains have links that are welded to form a continuous loop and are the strongest. Weldless chains are formed by bending, twisting or knotting the metal to form individual loops. It's recommended for light work only.

### Add-on Items

- If the customer is buying chain for security, suggest padlocks.
- If the customer is buying a coil of chain, make sure he or she has the proper tool to cut the chain, usually bolt cutters for larger chain.
- If the customer is buying a cold shut, make sure he or she has the proper hammer for closing the link.
- Suggest gloves for protecting hands while working with chain.

#### Module 3: Screening

## Product Knowledge:



#### **Aluminum Screening**

- Resilient, rustproof, fire resistant and melt-proof.
- · Comes in three standard finishes: bright aluminum, charcoal and black.
- The black finish offers the best outward visibility and is recommended for decks, patios, porches or other applications.
- Standard mesh is 18x16 (the number or strands per sq. in.). It is small enough to screen
  out most insects.
- Standard widths are 24" and 48".



### Fiberglass Screening

- Rustproof, corrosion proof and flame retardant.
- Popular colors are silver gray and charcoal, and a popular mesh size is 18x16.
- A fine-woven 20x20 mesh is used primarily in coastal areas where very tiny flying insects are a problem.
- Large areas such as a pool enclosure may use an 18x14 mesh.
- Standard widths are 24" and 48".



### **Bronze Screening**

- · Offers a nostalgic look for accenting old homes.
- Made of 90% copper and 10% zinc.
- Screen weathers to a dark finish.



#### Solar Screen

- Used in place of regular insect screening and blocks out most of the sun's heat while serving as an insect barrier.
- Available in aluminum material or as fiberglass ribbed-weave mesh.
- Helps save energy; aluminum screens can reduce incoming heat by as much as 87% and fiberglass solar screen can reduce incoming heat by 70%.
- Available in the same widths and colors as regular screen.



#### Hardware Cloth

- Has numerous uses, including attic ventilation, foundation vents, security screens and protective panels for screen doors.
- · Available in galvanized steel or aluminum.
- Typical meshes are 2x2, 3x3, 4x4 and 8x8. Common widths are from 24", 36" and 48".
- Also available in plastic, where typical mesh are smaller. Plastic has no sharp edges, will not rust, rot or corrode and is available in dark green and crystal colors.



## Screening Tool

- · Used when installing door or window screening.
- Has a cylindrical handle and bladed wheels on each end.
- One end is tapered at the edge to help push the screening and spline into the proper slot of the frame.



## Screen Spline

- Inserted into grooves in screen frame after screen is tucked in to hold screen in place.
- Tightens screen onto frame by pulling screen tight.
- · Available in a variety of lengths and thicknesses to fit different size screen channels.



#### Window Frame

 Lengths of aluminum frame can be cut to size to build a screen frame to custom fit a window.



#### Frame Corner

• Frame corners insert into the ends of the frame to build a custom frame.



#### **Bottom Latch**

- · Latches frame to the window casing.
- · Another type is a plunger latch.

#### **Frequently Asked Questions**

Q: Should I use fiberglass or aluminum screening?

A: Aluminum screening is more durable. It's also fireproof. However, fiberglass doesn't dent. Fiberglass is also easier to work with, but it may need to be restretched after it has been installed.

Q: I have a hole in my screen. Can I repair it or do I need to replace it?

A: You can patch small holes—1/4" and 3/8"—with a small amount of household cement. This glue patch will be next to invisible. Larger holes up to about 3" in diameter in aluminum screen can usually be easily patched. A patch should go at least 1/2" to 1" larger all around the hole. These are either kits or just pieces of screen. Unravel a number of strands and then weave the strands through the screening and bend them tight. Plastic patches need a touch of household cement on the ends of the strands after they have been woven through.

Q: What is window film and can it help lower my utility bill?

A: Window film is plastic installed on the window to reduce heat from the sun, prevent heat loss from the home and reduce the harmful effects of the sun on items in the home, such as fading. The shading coefficient of a window film is the best measure of its performance. Although the most popular choices fall in the .35 to .40 range, reasonable energy savings and improved comfort require a shading coefficient of at least .45.

#### Add-on Items

- A utility knife will behandy for cutting screen material and spline.
- Suggest a hacksaw for cutting aluminum screen frames.
- A measuring tape will be useful for measuring the correct length of screen needed for the repair.

## Module 4: Fencing

### **Product Knowledge:**



#### Lawn and Garden Fencing

- Offers homeowners inexpensive protection for shrubs, trees and flowerbeds. Also keeps small predatory animals out of the garden.
- · Typical fence stands 36" to 48" high.
- · Some types are galvanized.
- The lower mesh on some types can be buried several inches below ground to prevent animals from digging under the fence.
- Some types have a vinyl coating that withstands harsh weather and does not need painting or other maintenance.



### Wire Fencing

- · Wires are welded together.
- · Can be taken down, rerolled and reused.
- Stronger than woven fencing.
- Used for fencing off children's play areas, for protecting shrubs and young trees and for storing leaves for mulch.
- Available as galvanized or vinyl-coated in heavy 14-gauge 2"x1" or 12-1/2-gauge 4"x2" mesh.
- Typically sold in rolls, 36" or 48" high.



#### **Utility Fencing**

- Can be used for a variety of containment purposes.
- Warning barrier is a reusable, plastic fence that is usually orange.
- Silt fence is used to protect construction sites and slopes from soil loss and erosion. It
  usually consists of a fabric and wooden posts
- Snow fence is usually a strong plastic fence with oval shaped mesh to keep snow from interfering with driveways and roadways.
- Poultry netting, also called chicken wire, is usually used to fence chickens, but it is an
  economical fence that can be used for a variety of purposes.



#### **Chain Link Fencing**

- Durable, trouble-free fencing that offers safety and security.
- Another type is plastic chain link fence, available in a variety of colors, including white, orange and green.
- Installation is difficult, so recommend a how-to booklet available from manufacturers.
- · Install using a fence stretcher.

## Taking it to the Floor:

#### **Frequently Asked Questions**

Q: How deep of a hole should I dig for fence posts?

A: Put line posts at least 24" into the ground. Gate and corner posts will carry more stress, so they should be at least 30" into the ground. Always call your local utility company before you dig so you don't accidentally hit a utility line.

Q: How far apart should I place fence posts?

A: Place fence posts no further than 10' apart. You may want to place posts for wooden fences closer together.

Q: What's the best way to drive a stake into the ground?

A: You can use a posthole digger for larger posts. For smaller, T-posts, use a T-post driver specially made for that job.

Q: My chain link fence is loose. Do you have a suggestion for tightening it?

A: Try a fence stretcher. This tool tightens the fence so it is more secure. Most stretchers operate on the ratchet principle and a single person can operate them. Some of the better units have a capacity of up to 5,000 lbs.

#### Add-on Items

- Depending on the type of fence, customers will need a T-post for installing the fence.
- Suggest a T-post driver to make it easier to install a T-post.
- T-post clips are used to attach the fence to the T-posts.
- If the customer is installing a chain link fence, suggest a post hole digger and concrete mix for setting posts for the fence.
- Also suggest a level and measuring tape for correctly positioning fence posts.
- A customer installing a chain link fence may also need a fence stretcher.
- Suggest gloves for any fencing project.

# STUDY GUIDE: HARDWARE & FASTENERS

## Chapter 5: General Hardware

### Module 1: Casters & Floor Protection

### **Product Knowledge:**



#### Furniture Glide

- Allows furniture to move easily along the floor. Also protects floor from scuffing.
- The three-prong type is hammered into the legs of light furniture. It is easy to install and easy to remove.
- The cushion type is for heavier use and is mounted by hammering into the furniture leg.
- · A cushion glide for caster holes is the best type for heavy furniture. Here, the socket replaces normal stem-type casters.
- Some glides have a tilting stem with a 40° range of movement. These glides are made for furniture with angled legs so that the base of the glide sits flat on the floor.



## **Rubber Tips**

- Used to protect floor from the chair and table legs.
- · Sized according to the outside diameter of the leg.

Casters are another way to provide mobility for heavy furniture. There are two basic types.



#### Stem Caster

- Use a socket adapter inserted into a hold in the furniture. The stem of the caster then slides into the socket.
- The top end of the socket snaps into a small ridge in the stem.

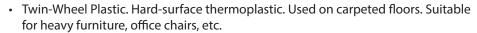


### Plate Caster

- Some plate casters have a wheel that swivels independently of the plate, while others have a fixed plate.
- Designed to be attached to the furniture with screws or bolts.



- · Comes in a variety of diameters and materials with a multitude of uses.
- Consider load requirements, type of flooring and amount of floor protection needed when choosing a caster.



- Soft-Rubber. Soft rubber tread bonded to a hard composition core. Recommended for hard surface floors and vinyl coverings.
- · Hard Rubber. Can be used on any floor surface. Industrial duty hard rubber wheels should be impervious to oils, gasoline and greases, making them ideal for use in most shop or factory environments.
- Cast Iron. These will last a long time and can withstand harsh temperatures. However, they do not provide much floor protection and are recommended for objects that will not be moved frequently.





#### **Frequently Asked Questions**

Q: I'm looking for a new caster for a piece of furniture. What kind should I buy?

A: If you're replacing a caster, use the largest size caster that is consistent with the style of the furniture. Larger casters are stronger and provide movement that is more efficient. Also, if you are putting a caster on furniture such as a chair or sofa, consider the occupied weight rather than the weight of the furniture piece alone when choosing the caster capacity. Also realize that most furniture is originally equipped with less than top-quality casters, so this is your opportunity to upgrade the quality.

## Q: What type of caster do I need for my project?

A: The type of caster you need will depend on how heavy of a piece of furniture or equipment you need to move around. You should also consider the type of flooring it will be rolling over. Some types of wheels will protect a finished surface, while other types are best for rough use, such as a concrete garage floor.

Q: What type of caster should I use to replace a wheel that goes under a bed frame?

A: There is a roller made especially for bed frames. It is wider that the standard caster to make it easier to move and to provide better protection to the floor. If you choose an adjustable caster, you can raise the height of the bed a few inches and make more use of storage space underneath.

## Module 2: Shelving & Storage

## Product Knowledge:

Many times, the storage items you sell are a part of complete systems that make it easy for your customers to design and install storage solutions. Usually, your customer will use these systems to organize a garage or closet. Each manufacturer will have a proprietary set of hooks, shelves and standards that should be used together. You'll want to review manufacturer information for the specific system your store sells, but here are some of the basic products customers will use to help organize their homes.



- Pre-slotted metal strips attached to the wall, preferably into wall studs.
- Can be attached with toggle bolts or similar fasteners approximately 16" apart.
- If the standards are further than 16" apart, the shelves may not support heavy loads.
- A newer variation includes a mounting rail that is fastened across the studs. The standard then clips directly into the rail or may require an adapter. Usually requires a fastener at the bottom for stability.

#### **Shelf Bracket**

- These are used to support shelves.
- Some types mount directly onto the wall. Other types fit into the slots on shelf standards.
- A flexible storage system can be built with standards and brackets that are easily removed and repositioned by pushing up and lifting out.
- · Can be mounted in cabinets, closets or bookcases.

#### Shelf

- · Use with shelf standards and brackets.
- One type is made from epoxy coated steel. Another type is a shelf board, made either of solid wood or particle board. Both types can be cut to a custom length.
- The shelf must be compatible with the type of shelf bracket you are using.









#### **Shelving Unit**

- Stand-alone shelving units are made with either heavy-duty plastic or metal. They are easy to assemble and many manufacturers offer units that do not require tools to assemble.
- Many units have adjustable shelf heights and adjustable legs for leveling on uneven floors.



### Storage Hook

- These heavy duty hooks hold a variety of items, including bicycles, ladders and tools.
   They are usually used in the garage or workshop.
- Some types screw directly into a framing member, such as a stud or rafter.
- Better quality hooks have a vinyl coating that doesn't mar the object being stored.
- Other types are made to use with a specific storage system.

### Taking it to the Floor:

#### **Frequently Asked Questions**

Q: Do I need to secure shelf brackets into wall studs?

A: Be sure to follow the manufacturer's instructions, but it probably depends on the total weight that you'll be placing on the shelves. For best results, I recommend securing the brackets to studs. Use a stud finder to find the studs, and use one with a built-in AC current detector, so you can trace hot wiring behind walls to make sure you avoid hitting any electrical wiring.

#### Q: Is it easy to install a closet rod?

A: Yes, you need to know the width of the closet, but most rods are expandable. However, it's best if the bracket hits the stud. That way you can be sure it will hold plenty of weight.

Q: Are the shelf support brackets used on RTA furniture all the same size?

A: No, the most common size is 5mm, but there are many variations. If you can't find the right size, it may be easier to just drill the holes out a little larger to a size bracket that you can find.

Q: What type of storage tote should I buy to store my clothes to store in my apartment?

A: Buy one that is clear or somewhat clear so you can see the content of what's inside. This will help you easily locate that special sweater this fall.

#### Add-on Items

Depending on how extensive the storage department in your store is, there are many storage accessories, such as totes, bins and organizers you can use as add-on sales when selling storage items. Here are some of the products you can suggest that will help in the installation of a storage system.

- Your customers will need a cordless drill and drill bits for any shelf where you need to pre-drill holes for the screws.
- A stud finder will be useful for locating the studs where the shelf standards will attach.
- Suggest a level and measuring tape for laying out the location of each shelf and hanger.
- Hollow wall anchors will be a good choice for areas where there is no stud for attaching shelves and hangers.
- Be sure to recommend the appropriate fasteners for the project.
- Many customers will want a closet rod and socket in their closet.
- You can also suggest coat and hat hooks for any storage area.

## Module 3: Picture Hanging

### **Product Knowledge:**



#### Mirror Hanger

- · This is used for hanging mirrors.
- It mounts to the wall with a screw so most of the hanger is hidden.
- Other types of mirror hanging clips are more decorative and designed to be more exposed.



## Adhesive Hangers and Hooks

- These are plastic or metal hooks that have an adhesive coating on the back.
- Some types are easy to remove without damaging the wall.
- Manufacturer will specify the weight each hook can handle.



### **D-ring Hanger**

- This type of hanger attaches directly to the frame of the object to be hanged.
- The D-ring then hooks over a hook or nail in the wall.
- Or, it can be used in conjunction with hanging wire.



### Picture Wire

- String this wire across the back of a picture so it can hang on the wall.
- Wire connects to a D-ring or eye hook.
- · Some wire is coated for extra durability.



## Hardwall Hanger

- This hanger attaches to brick or concrete walls to hold light- to medium-weight objects like mirrors and pictures.
- Uses a case-hardened pin for driving into hard wall surfaces.



#### **Nail Hangers**

- Nail this type of hanger directly into the wall.
- Use on drywall and plaster surfaces.

#### **Frequently Asked Questions**

Q: Is a toggle bolt a good choice for anchoring something to my wall?

A: Yes, a toggle bolt is a hollow wall anchor. It is designed to disperse the weight of the item being hung over a larger area. Use of a toggle bolt instead of a plastic anchor is largely dependent on the weight of the object being hung.

#### Q: What do I use to hang a plant?

A: For small to medium size hangings, there are kits that include a toggle and a decorative hook. These often have screws so that you do not have to use the toggle if you install it directly into a joist. For larger things, you may have to buy a large hook and toggle separately.

Q: What type of anchor should I use to hang a picture without a stud support?

A: The different types of hollow wall anchors are rated to hold different weights. In general, expanding plastic sleeve anchors can usually only hold up to 20 lbs. Molly bolts are usually rated to hold up to 50 lbs., while toggle bolts can hold up to 100 lbs. Keep in mind, however, that even toggle bolts can't support as much weight as a fastener driven into a wall stud or solid wood blocking in the wall.

Q: What fixture can I use that will enable me to hang a picture straight?

A: For lightweight pictures, a saw-toothed hanger on picture frames will permit you to adjust the picture on the nail.

#### Add-on Sales

- Recommend one of the various types of hollow wall anchors, depending on the weight of the object the customer is hanging.
- A 9" torpedo level is ideal for checking the alignment of the picture.
- If the customer is hanging a heavier object and needs to fasten it to a stud, recommend a stud finder.
- For hangers that require a pre-drilled hole, ask if the customer has a drill and bits.
- Be sure to recommend the appropriate fasteners for the hanger the customer is using.
- A customer may need a hammer or screwdriver for installing the hanger.
- Offer a pair of pliers with wire cutters for cutting picture wire.