Fasteners & Joinery Basics

Overview

Fasteners hold carpentry projects together. This guide explains nails, screws, and adhesives.

Core Basics Covered

Nails vs Screws

Nails flex; screws resist pulling out.

Why Drywall Screws Are Different

Drywall screws are brittle and not structural.

Basic Joinery Concept

Joinery describes how wood pieces connect.

Simple Practical Example

A frame built with drywall screws loosens over time. Structural fasteners prevent failure.

Nails vs. Screws: What's Stronger and Why?

Many homeowners assume screws are always stronger than nails, but that isn't always true. Strength depends on **how the fastener handles force**.

Why Nails Hold Under Movement

Nails are made from **softer steel** and are designed to **bend slightly under load**.

- This bending allows nails to absorb movement
- Walls, decks, and framing naturally expand and contract
- A bent nail can still hold, even under shifting loads

Because of this, nails are commonly used in **structural framing** where movement is expected.

Why Some Screws Snap

Most common screws (especially drywall screws) are made from **hard, brittle steel**.

- Brittle steel resists bending
- When movement occurs, the screw can **snap instead of flex**
- Once snapped, the joint loses strength immediately

This is why drywall screws should **never** be used for framing or structural connections.

Structural Nails and Structural Screws

Not all fasteners are the same. Some are specifically designed for **load-bearing and structural use**.

Structural Nails

Structural nails are typically:

- Thicker and longer
- Made to flex instead of snap
- Used in wall framing, floors, decks, and sheathing

They are driven with a hammer or framing Nailer and are ideal where strength and flexibility are needed.

Structural Screws

Structural screws are different from standard screws.

- Made from stronger, engineered steel
- Designed to handle both shear and pull-out forces
- Often replace lag bolts in many applications

Structural screws are commonly used for:

- Ledger boards
- Heavy framing connections
- Retrofit and repair work where nails can’t be used

Always check packaging to confirm a screw is **rated for structural use**.

Screw Head Types: Why Phillips Is Being Replaced

Older screws commonly use **Phillips head** designs, which are more likely to strip.

Why Phillips Screws Strip

- Phillips heads were designed to cam out under pressure
- High torque causes the driver to slip
- Stripping makes screws difficult to drive or remove

Why Torx (Star) Screws Are Better

Many modern screws now use **Torx (star) heads**.

- Provide better bit engagement
- Allow higher torque without slipping
- Reduce cam-out and stripped heads
- Faster and easier to drive accurately

For most carpentry projects, **Torx or star-drive screws** are the better choice.

Simple Practical Example

A homeowner builds a small outdoor frame using drywall screws. After a season of weather changes, several screws snap and the frame loosens. Rebuilding the same frame using framing nails or structural screws allows the joints to flex slightly without failure.

Strength isn’t just about how hard a fastener is — it’s about how well it handles movement.