

Hanger Bolt Application Guide

Tip: Set your PDF viewer to "Actual size" before printing to maintain scale.

Common Hanger Bolt Applications

Application	Typical Size	Key Requirements	Example Use
Furniture Legs	1/4" - 3/8" × 3"-4"	Perpendicular install, leveling adjustment	Table legs, chair legs, cabinet feet
Light Fixtures	1/4" - 3/8" × 2"-3"	Overhead rating, safety factor 4:1+	Pendant lights, chandeliers, track lights
Shelving Brackets	1/4" - 1/2" × 3"-5"	Load capacity, multiple fasteners	Wall shelves, garage storage, closet systems
Deck Hardware	3/8" - 5/8" × 4"-6"	Weather resistance, galvanized/stainless	Post caps, railing brackets, pergolas
Equipment Mounting	3/8" - 5/8" × 4"-8"	Vibration resistance, load capacity	Workbench vises, power tools, machinery
Cabinet Hardware	1/4" - 5/16" × 2"-3"	Adjustability, flush mounting	Adjustable feet, levelers, door hardware

Project Example 1: Mounting Table Legs

Objective: Install 4 table legs to 3/4" thick plywood tabletop

Selected Hardware: 3/8" × 3" hanger bolts (galvanized)

Installation Steps:

1. Mark leg positions 2" from corners of tabletop
2. Drill 5/16" pilot holes, 1.5" deep into plywood
3. Install hanger bolts using double-nut method
4. Thread hanger bolts until 1.5" projection remains
5. Slide metal leg mounting plates over machine threads
6. Secure with 3/8"-16 hex nuts and washers
7. Attach table legs to mounting plates
8. Level table and tighten all nuts

Result: Adjustable leg mounting system allowing easy leveling and leg replacement

Project Example 2: Hanging Pendant Light Fixture

Objective: Hang 15 lb pendant light from wood ceiling beam

Selected Hardware: 3/8" × 4" hanger bolt (zinc plated), rated nuts and washers

Safety Calculation:

- Fixture weight: 15 lbs
- Required safety factor: 4:1 minimum
- Required bolt capacity: 60 lbs minimum
- 3/8" hanger bolt in hardwood with 2" penetration: ~500-700 lbs capacity ✓

Installation Steps:

1. Locate ceiling joist with stud finder
2. Mark center point for fixture location
3. Drill 5/16" pilot hole, 2" deep into joist
4. Install hanger bolt using installation tool
5. Thread on fixture mounting hardware
6. Secure with locknut to prevent loosening from vibration
7. Wire and hang fixture per manufacturer instructions
8. Test security by gentle pulling before energizing

Note: Electrical work should be performed by licensed electrician. Always follow local codes.

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Material and Finish Selection by Application

Environment	Recommended Finish	Reason
Indoor furniture	Zinc plated	Cost-effective, adequate protection
Indoor fixtures (dry)	Zinc plated or plain	No moisture exposure
Bathrooms, kitchens	Galvanized or stainless	Moisture resistance
Outdoor decks, fences	Hot-dip galvanized	Weather protection, treated lumber compatible
Marine, coastal	316 Stainless steel	Saltwater corrosion resistance
Food service equipment	304/316 Stainless	Food-safe, sanitary, corrosion resistant
High-vibration equipment	Any finish + locking nuts	Prevent loosening from vibration

Application Best Practices

Load Distribution:

- Use multiple hanger bolts for heavy loads - don't rely on single fastener
- Space fasteners appropriately (minimum 3× diameter apart)
- Consider wood grain direction - penetrate perpendicular to grain when possible

Adjustment and Leveling:

- Leave extra machine thread projection for future adjustments
- Use jam nuts to lock position after leveling
- Wing nuts allow tool-free adjustment for frequently adjusted applications

Preventing Loosening:

- Apply thread locker for permanent installations
- Use nylon-insert lock nuts for vibration resistance
- Spring washers help maintain tension
- Check and retighten periodically in high-use applications

Wood Selection:

- Hardwoods (oak, maple) provide maximum holding power
- Softwoods (pine, fir) require larger diameter or deeper penetration
- Avoid particle board or MDF for critical applications
- Plywood offers good holding when penetrating multiple plies

Edge Distance and Spacing:

- Minimum edge distance: 3× bolt diameter from wood edge
- Minimum spacing between bolts: 3× bolt diameter
- End grain installations: increase penetration depth by 50%

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