

FASTENER REQUIREMENTS

A. Fasteners: Includes bolts, chemical bolts, epoxy anchors, expansion bolts, nails, pins, powder actuated devices, screws, wedge bolts, and all other types of mechanical connections.

B. Fasteners Completely Specified: All aspects of the fastener are specified.

1. "Completely Specified": All aspects of the fastener type have been specified. This includes, without limitation: type, material, finish, size, diameter, length and spacing.

C. Fasteners Incompletely Specified: May occur in the Contract Documents. This provides the Contractor fastener type options and ability to control the means, methods and techniques of construction. When fasteners are incompletely specified, provide:

1. Fasteners appropriate for each unique condition, substrate, load, exposure and usage.
2. Size and Spacing: Use manufacturer's published recommendations and load tables.
3. Safety Factor: Five or greater.
4. Safety Factor, Working Load: ≤ 20 percent of ultimate load capacity.
5. Corrosion Resistance: Provide equal to or higher than items being fastened.
6. Fastener for Architect's Review: Required prior to use.
7. Compatibility: Ensure materials and fasteners are compatible
8. Head Type: As approved by Architect.
9. Undercut at Flush Alignments: Provide to maintain flush alignment at sheet metal applications.

D. Country of Manufacture: United States of America, except for those "Basis-of-Design" specified.

E. Bolts, Nuts, Washers: Matched, from same manufacturer.

F. Exposed to View Fasteners: Prohibited, except if preapproved by Architect.

G. Installation: Conform to manufacturer's recommendations

1. Driver Speed and Clutch: Adjust to comply with fastener manufacturer's recommendations.
2. Torque: Install each fastener with fastener manufacturer's recommended torque.
3. Impact Drivers: Prohibited.
4. Overdrive / Tightening: Prohibited
5. Exposed to View: If fastener is exposed to view, align head orientation alike
6. Damage to Head: Stripped, or otherwise, replace with undamaged fastener.
7. Damage to Threads: Stripped, or otherwise, replace with undamaged fastener.
8. Broken Fasteners: Prohibited. Do not break.
9. Framing: Locate prior to driving fasteners.
10. "Hunting" or "Searching" For Framing by Drilling Holes or Test Fasteners: Prohibited.

11. Driver Skipping Off Fastener, Damaging Surface: Prohibited.
12. Unnecessary Holes in Materials: Prohibited
13. Driving Fasteners: As shown, or if not shown, perpendicular to anchoring surface.
14. Fastener Head: Seat to bear uniformly
15. Fastener Finish: As shown, or if not shown, match surrounding surface color
16. Minimum Withdrawal Resistance: Achieve for each fastener.
17. Factory Provided Screw Hole: Provide fastener for each.
18. Fastener Quantity, Individual Items: As shown, or if not shown, at least two fasteners.
19. Metal Substrate: Drill and tap as appropriate.
20. Wood, Concrete: Provide pilot hole, as appropriate.
21. Fastener Inspection: Confirm every fastener is correctly installed.
 - a. Unacceptable Fasteners: Those which do not comply with "Fastener Installation"
 - b. Fasteners Which Miss Framing: Prohibited, and unacceptable.
 - c. Fasteners Which Spin Freely and Cannot Be Torqued: Prohibited, and unacceptable.

H. Fasteners Requiring Pilot or Predrilled Holes:

1. Drill Bit Diameter: Use fastener manufacturer's coordinated and recommended bit diameter.
2. Drill Hole Depth: As recommended by fastener manufacturer.
3. Drill Hole Cleaning: Immediately before fastener installation.
4. Structural Capacity: Do not compromise with drill hole. Follow manufacturer's requirements and recommendations.

I. Fasteners within Delegated Design Assemblies: Provide fasteners indicated on approved engineered submittals.

1. Working Load Capacity: Install each fastener to achieve manufacturer's published capacity.
2. Working Load Capacity: Is not ultimate load capacity.
3. Torque: Each fastener within the minimum / maximum range recommended by fastener manufacturer.

J. Submittals: Comply with Section 013300 - Submittal Procedures. Provide the following submittals for each type of fastener used:

1. Product Data (load capacity, safety factor, recommendations, limitations, instructions)
2. Samples: Provide with finish associated driver bits.
3. Label each sample with intended usage, including recommended substrates.

K. Remedial Work for Unacceptable Fasteners:

1. Remove each unacceptable fastener.
2. Plug holes in substrate. At Gypsum Sheathing, use sealant.
3. Repair finish to comply with manufacturer's repair recommendations.