

IMPORTANT INFORMATION & GENERAL NOTES

INSTRUCTIONS FOR THE DESIGNER

- Factored resistances for hangers are determined by a static load test resulting in not more than a $\frac{1}{8}$ " (3mm) deflection of the joist relative to the header.
- Factored resistances for more than one direction for a single connection cannot be added together. A factored load which can be divided into components in the directions given must be evaluated as follows: Factored Uplift/Factored Uplift Resistance + Factored Parallel to Plate/Factored Parallel to Plate Resistance + Factored Perpendicular to Plate/Factored Perpendicular to Plate Resistance < 1.0. **The three terms in the unity equation are due to the three possible directions that exist to generate force on a hurricane tie. The number of terms that must be considered for simultaneous loading is at the sole discretion of the Designer and is dependant on the method of calculating wind forces and the utilization of the connector within the structural system.**
- Factored resistances are based on CSA O86-01 unless otherwise specified.
- Load Duration Factor, K_D as specified by CSA O86-01 is as follows:
 - Standard term ($K_D=1.00$)** – applies to all roof and floor factored resistances and is designated as "Normal" in tables.
 - Short term ($K_D=1.15$)** – applies to all wind and seismic factored resistances. Other factored resistance values, based on load durations or special conditions, may govern in certain geographic areas and may be used where applicable, up to the maximum tabulated factored resistance. Load duration increases are only applied if the factor of safety can be maintained.
- Wood shear is not considered in the factored resistances given; reduce factored resistances when wood shear is limiting.
- Simpson Strong-Tie strongly recommends the following addition to construction drawings and specifications: "Simpson Strong-Tie connectors are specifically required to meet the structural calculations of plan. Before substituting another brand, confirm factored resistances based on reliable published testing data or calculations. The Engineer/Designer of Record should evaluate and give written approval for substitution prior to installation".
- Verify that the dimensions of the supporting member are sufficient to receive the specified fasteners, and develop the top flange bearing length.
- Some catalogue illustrations show connections that could cause tension stresses perpendicular to grain or bending of the wood during loading if not sufficiently reinforced. In this case, mechanical reinforcement should be considered.
- Simpson Strong-Tie recommends that hanger height be at least 60% of joist height for stability.
- The term "Designer" used throughout this catalogue is intended to mean a licensed/certified building design professional, a licensed professional engineer, or a licensed architect.
- For holdowns, anchor bolt nuts should be finger-tight plus $\frac{1}{8}$ to $\frac{1}{2}$ turn with a hand wrench, with consideration given to possible future wood shrinkage. Care should be taken to not over-torque the nut. Impact wrenches should not be used as they may preload the holdown.**
- Holdowns and Tension Ties (except MTT and LTT) may be installed raised above the sill at any height with the approval of the Designer. Increased deflection and/or load reductions when installed raised above the sill shall be considered (contact Simpson Strong-Tie for more information).**
- Throughout the catalogue there are installation drawings showing the load transfer from one element in the structure to another. Additional connections may be required to safely transfer the loads through the structure. It is the Designer's responsibility to specify and detail all necessary connections to ensure that a continuous load path is provided as required by the building code.

GENERAL INSTRUCTIONS FOR THE INSTALLER

These general instructions for the installer are provided to ensure proper selection and installation of Simpson Strong-Tie Company Inc. products and must be followed carefully. These general instructions are in addition to the specific installation instructions and notes provided for each particular product, all of which should be consulted prior to and during installation of Simpson Strong-Tie Company Inc. products.

- All specified fasteners must be installed according to the instructions in this catalogue. Incorrect fastener quantity, size, placement, type, material, or coating may cause the connection to fail. Prior to using a particular fastener, please consult the Fastener Guide in this catalogue.
 - 16d fasteners are common nails (0.162" dia. x 3 $\frac{1}{2}$ " long) and cannot be replaced with 16d sinkers (0.148" dia. x 3 $\frac{1}{4}$ " long) for full load value unless otherwise specified.
 - Screws may not be used to replace nails in connectors unless approved and recommended by the Designer/Engineer of Record. Unless stated otherwise, Simpson Strong-Tie cannot and does not make any representations regarding the suitability of use or load-carrying capacities of connectors with screws replacing nails.**
 - When using stainless steel connectors, use stainless steel fasteners. When using ZMAX[®]/HDG galvanized connectors, use fasteners that meet the zinc coating specifications of ASTM A153.
- Fill all fastener holes as specified in the installation instructions for that product. Refer to Simpson's Fastener Guide for the requirements of the various shaped fastener holes.
- Do not overdrive nails. Overdriven nails reduce shear capacity.
- Use the materials specified in the installation instructions. Substitution of or failure to use specified materials may cause the connection to fail.
- Do not add fastener holes or otherwise modify Simpson Strong-Tie Company Inc. products. The performance of modified products may be substantially weakened. Simpson will not warrant or guarantee the performance of such modified products.
- Install products in the position specified in the catalogue.
- Do not alter installation procedures from those set forth in this catalogue.
- The proper use of certain products requires that the product be bent. For those products, installers must not bend the product more than one time (*one full cycle*).
- Bolt holes shall be at least a minimum of $\frac{1}{32}$ " (1 mm) and no more than a maximum of $\frac{1}{16}$ " (2 mm) larger than the bolt diameter (per 10.4.1.2 CSA O86-01).
- Install all specified fasteners before loading the connection.
- Some hardened fasteners may have premature failure if exposed to moisture. These fasteners are recommended to be used in dry interior applications.
- Use proper safety equipment.
- Welding galvanized steel may produce harmful fumes; follow proper welding procedures and safety precautions. Welding should be in accordance with CSA W59. Unless otherwise noted Simpson Strong-Tie connectors cannot be welded.
- Pneumatic or powder-actuated fasteners may deflect and injure the operator or others. Pneumatic nail tools may be used to install connectors, provided the correct quantity and type of nails (*length and diameter*) are properly installed in the nail holes. Tools with nail hole-locating mechanisms should be used. Follow the manufacturer's instructions and use the appropriate safety equipment. Overdriving nails may reduce allowable loads. Contact Simpson. Powder-actuated fasteners should not be used to install connectors.
- Joist shall bear completely on the connector seat, and the gap between the joist end and the header shall not exceed $\frac{1}{8}$ " (3 mm) per ASTM D1761 test standards.
- For holdowns, anchor bolt nuts should be finger-tight plus $\frac{1}{8}$ to $\frac{1}{2}$ turn with a hand wrench, with consideration given to possible future wood shrinkage. Care should be taken to not over-torque the nut. Impact wrenches should not be used as they may preload the holdown.
- Holdowns and Tension Ties (except MTT and LTT) may be raised off the sill as dictated by field conditions to accommodate an anchor mislocated no more than 1 $\frac{1}{2}$ ". The holdown shall be raised off the sill at least 3" for every $\frac{1}{4}$ " that the anchor is offset from the model's centerline (as defined on pages 36 to 41 to maximum of 18"). Anchor bolt slope shall be no greater than 1:12 (or 5 degrees). Contact the Designer if the holdown anchor is offset more than 1 $\frac{1}{2}$ ". Raised holdown height is measured from the top of concrete to the top of the holdown bearing plate.**
- Strong-Drive[®] Screws are permitted to be installed through metal truss plates as approved by the Truss Designer (*pre-drilling required through the plate using a maximum of a $\frac{5}{32}$ " bit*).
- For cold-formed steel applications, all screws shall be installed in accordance with the screw manufacturer's recommendations. All screws shall penetrate and protrude through the joined materials a minimum of 3 full exposed threads per AISI Standard for Cold Formed Steel Framing – General Provisions, section D1.3, if applicable.
- Nuts shall be installed such that the end of the threaded rod or bolt is at least flush with the top of the nut.**
- When installing hurricane ties on the inside of the wall special considerations must be taken to prevent condensation on the inside of the completed structure in cold climates.**