

EVALUATION SUBJECT: **OWT Bolts Item #: 56649 to 56652**

TER-1218

REPORT HOLDER:

OZCO BUILDING PRODUCTS
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SCOPE OF EVALUATION (compliance with the following codes):

This Product Evaluation Report is being issued in accordance with the requirements of the 2012 International Building Code Florida for generic use within the state seal shown per section 104.11. The product noted on this report has been tested and/or evaluated as summarized herein. Re-evaluation of this product shall be required following pertinent International Building Code and local state code modifications or revisions.

SUBSTANTIATING DATA:

• Product Evaluation Documents Test Reports

Reference lateral design and withdrawal design values for structural performance has been tested using the methods described by ASTM D 1761 Standard Test Methods for Mechanical Fasteners in Wood as per test report # 29758 and 31224 by Metallurgical Engineering Services, Inc. (Report date: 08/25/14).

• Structural Engineering Calculations

Structural engineering calculations have been prepared which evaluate the product based on comparative and/or rational analysis to qualify the following design criteria:

- Maximum allowable tension connection capacity
- Maximum allowable shear connection capacity
- Anchor capacity

No 33% increase in allowable stress has been used in the design of this product.

INSTALLATION:

The product listed above shall be installed in strict compliance with the Product Evaluation Document (i.e. engineering drawing), along with all components noted therein.

The product components shall be of the material specified in the Product Evaluation Document (i.e. engineering drawing). All bolts must be installed in accordance with the applicable provisions in the 2012 NDS and anchor manufacturer's published installation instructions.

LIMITATIONS & CONDITIONS OF USE:

Use of this product shall be in strict accordance with the Product Evaluation Documents as noted herein.

All supporting host structures shall be designed to resist all superimposed loads and shall be of a material listed in this report. Host structure conditions which are not accounted for in this product's respective anchor schedule shall be designed for on a site-specific basis by a registered professional engineer.

Adjustment factors noted herein and the applicable codes must be considered, where applicable.

All components which are permanently installed shall be protected against corrosion, contamination, and other such damage at all times.

When the capacity of a connection is controlled by fastener metal strength, rather than wood strength, the allowable strength of the connection is not permitted to be multiplied by the adjustment factors specified in the NDS.

Fasteners, including nuts and washers, for use in exterior conditions and in contact with preservative-treated wood or for fire-retardant-treated wood shall be of hot-dipped zinc-coated galvanized steel, stainless steel, silicon bronze or copper. Wood screws shall be permitted to be of mechanically deposited zinc-coated steel with coating weights in accordance with ASTM B 695, Class 55 minimum.

Fastener in wood with a moisture content exceeding 19%, either at time of fabrication or in service, is outside the scope of this report.

This evaluation report does not address fastener corrosion when the fastener is installed in chemically treated wood.

OWT TIMBER SCREWS FOR WOOD-TO-WOOD CONNECTIONS

The OWT bolts architectural line provides the strength with the additional aesthetical finishing, eliminating any further paint step.

MATERIAL:

The fasteners described in this report met the requirements of UNS G10350 and ASTM A29, grade 1035. All fasteners are coated with proprietary finish. Minimum bending yield strength, tensile strength, yield strength capacities of the fasteners are listed in Table 1

INSTALLATION:

Use all specified fasteners. Assembly kit includes fasteners for uniform finishing. See General Notes.

The use of OTW bolts with engineered wood products and different wood species other than listed herein with specific gravity, G, less than 0.35 are not covered under this report and shall be evaluated by designer.

Reference design values for direct withdrawal connections are specified in Table 2 of this report. Reference design values for lateral resistance in wood-to-wood connections loaded parallel to the grain are specified in Table 3 (connections loaded perpendicular to the grain is outside the scope of this report). Reference design values for fastener head pull-through resistance for connections having a minimum side member thickness of 6.5 inches are specified in Table 2.

The allowable load for a single bolt connection in which the bolt is subject to tension is the least of:

- Allowable bolt tension strength given in Table 1;
- Reference head pull-through design value given in Table 2 adjusted by all applicable adjustment factors by NDS sec. 11.3;

The allowable lateral load for a single bolt connection loaded in double shear parallel to the grain is the least of:

- Allowable bolt shear strength given in Table 1;
- Reference lateral design value given in Table 3 adjusted by all applicable adjustment factors by NDS sec. 11.3;

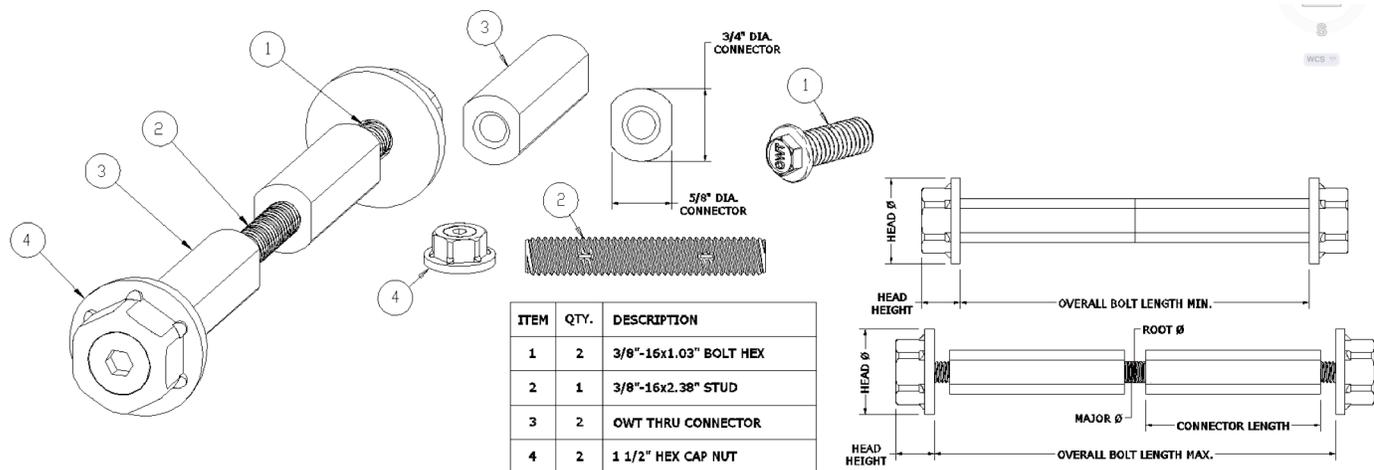
Connections containing multiple bolts must be designed in accordance with sections 10.1.2, 10.2.2 and 11.6 of the NDS.

Where the bolts are subjected to combined lateral and withdrawal loads, connections shall be designed in accordance with NDS section 11.4.

OPTIONS:

For specific scenarios contact OZCO for custom solutions.

HEX HEAD Timber Screw:



ITEM	QTY.	DESCRIPTION
1	2	3/8"-16x1.03" BOLT HEX
2	1	3/8"-16x2.38" STUD
3	2	OWT THRU CONNECTOR
4	2	1 1/2" HEX CAP NUT

TABLE 1 - FASTENER SPECIFICATIONS

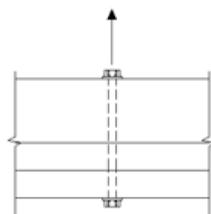
FASTENER DESIGNATION	FASTENER DIMENSIONS							ALLOWABLE STEEL STRENGTH			
	NOMINAL DIAMETER (IN)	SHANK DIAMETER (IN)	ROOT DIAMETER (IN)	HEAD DIAMETER (IN)	OVERALL LENGTH (IN)		CONNECTOR LENGTH (IN)	THREADS PER INCH	BENDING YIELD STRENGTH (PSI)	TENSILE STRENGTH (PSI)	YIELD STRENGTH (PSI)
					MIN.	MAX.					
56649-BOLT 4-6	3/8	0.393	0.333	1.501	4.00	4.50	2.00	16	8,800	39,100	33,600
56650-BOLT 6-8					6.00	6.50	3.00				
56651-BOLT 8-10					8.00	8.50	4.00				
56652-BOLT 10-12					10.00	10.50	5.00				

NOTES:

- 1- Tabulated diameters, head height and lengths have tolerances as specified in the manufacture's quality documentation.
- 2- Bending yield strength determined in accordance with ASTM F 1575.
- 3- Minimum thread engagement to connector shall be 15/16 inches.

TABLE 2 - FASTENER REFERENCE PULL-OVER VALUES WOOD-TO-WOOD CONNECTIONS SPECIFIC GRAVITY, G=0.35 OR GREATER

FASTENER DESIGNATION	ALLOWABLE TENSION PERPENDICULAR TO GRAIN
HEX HEAD	PULL-OVER (LB)
56649-BOLT 4-6	713
56650-BOLT 6-8	
56651-BOLT 8-10	
56652-BOLT 10-12	

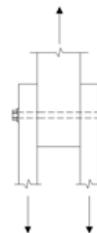


NOTES:

- 1- The tabulated reference pull-over design values shown are based on Allowable Stress Design (ASD) and must be multiplied by all applicable adjustment factors in accordance with 2012 NDS Section 10.3.
- 2- Use of OWT bolts in wood with moisture content exceeding 19%, either at time of fabrication or in service, where sustained temperatures are greater than 100°F (37.8°C) and for tension parallel to grain, is outside the scope of this report.
- 3- Pull-over capacity based on 4"x4" and (2) 2"x4" wood members with tension perpendicular to grain.
- 4- Bolt pull through testing as per ASTM D 1037.

TABLE 3 - FASTENER REFERENCE LATERAL DESIGN VALUES - DOUBLE SHEAR CONNECTIONS SPECIFIC GRAVITY, G=0.35 OR GREATER

HEX HEAD	SIDE MEMBER THICKNESS (IN)	MAIN MEMBER THICKNESS (IN)	MIN. END DISTANCE (IN)	MIN. EDGE DISTANCE (IN)	ALLOWABLE SHEAR CAPACITY PARALLEL TO GRAIN (LB)
56649-BOLT 4-6	1.50	3.50	2.50	1.60	1,232
56650-BOLT 6-8					
56651-BOLT 8-10					
56652-BOLT 10-12					



NOTES:

- 1- The tabulated reference lateral design values shown are based on Allowable Stress Design (ASD) and must be multiplied by all applicable adjustment factors in accordance with 2012 NDS Section 10.3.
- 2- Use of OWT bolts in wood with moisture content exceeding 19%, either at time of fabrication or in service, where sustained temperatures are greater than 100°F (37.8°C) and for shear perpendicular to grain, is outside the scope of this report.