

Use of TimberLOK® Fasteners
to Provide Top Plate Roll Resistance to Trusses
& Rafters Attached to the Tops of Walls

TER No. 1308-05

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DIVISION: 06 00 00 – WOOD, PLASTICS AND COMPOSITES
Section: 06 00 90 – Wood and Plastic Fastenings

1. Product(s) Evaluated:

- 1.1. FastenMaster® TimberLOK® Heavy Duty Wood Screw
- 1.2. For the most recent version of this Technical Evaluation Report (TER), visit drjengineering.org. For more detailed state professional engineering and code compliance legal requirements and references, visit drjengineering.org/statelaw. DrJ is fully compliant with all state professional engineering and code compliance laws.
- 1.3. This TER can be used to obtain product approval in any country that is an IAF MLA Signatory (all countries found [here](#)) and covered by an [IAF MLA Evaluation](#) per the [Purpose of the MLA](#) (as an example, see [letter to ANSI](#) from the Standards Council of Canada). Manufacturers can go to jurisdictions in the U.S., Canada and other [IAF MLA Signatory Countries](#) and have their products readily approved by authorities having jurisdiction using [DrJ's ANSI accreditation](#).
- 1.4. Building code regulations require that evaluation reports are provided by an approved agency meeting specific requirements, such as those found in [IBC Section 1703](#). Any agency accredited in accordance with ANSI ISO/IEC 17065 meets this requirement within ANSI's scope of accreditation. For a list of accredited agencies, visit ANSI's [website](#). For more information, see drjcertification.org.

DrJ is a Professional Engineering Approved Source

 [Learn more about DrJ's Accreditation](#)

- DrJ is an ISO/IEC 17065 accredited product certification body through ANSI Accreditation Services.
- DrJ provides certified evaluations that are signed and sealed by a P.E.
- DrJ's work is backed up by professional liability insurance.
- DrJ is fully compliant with IBC Section 1703.

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- 1.5. Requiring an evaluation report from a specific private company (i.e. ICC-ES, IAPMO, CCMC, DrJ, etc.) can be viewed as discriminatory and is a violation of international, federal, state, provincial and local anti-trust and free trade regulations.
- 1.6. DrJ's code compliance work:
 - 1.6.1. Conforms to code language adopted into law by individual states and any relevant consensus based standard such as an ANSI or ASTM standard.
 - 1.6.2. Complies with accepted engineering practice, all professional engineering laws and by providing an engineer's seal DrJ takes professional responsibility for its specified scope of work.

2. Applicable Codes and Standards:¹

- 2.1. *2012, 2015 and 2018 International Building Code (IBC)*
- 2.2. *2012, 2015 and 2018 International Residential Code (IRC)*
- 2.3. *ANSI/AWC – National Design Specification® for Wood Construction*
- 2.4. *ASTM A153 – Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware*
- 2.5. *ASTM A510 – Standard Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel, and Alloy Steel*
- 2.6. *ICC 600 – Standard for Residential Construction in High-Wind Regions*
- 2.7. *SDPWS – Special Design Provisions for Wind & Seismic*

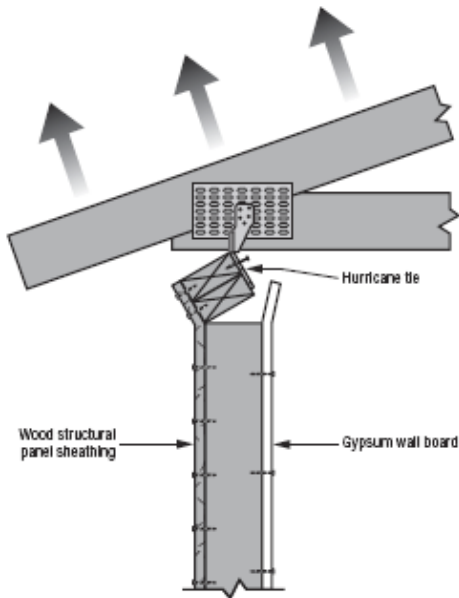
3. Performance Evaluation:

- 3.1. TimberLOK® fasteners used in truss to top plate connections were evaluated to specifically assess the effect of “Top Plate Roll” (TPR).
 - 3.1.1. TPR is defined as the turning or “rolling” of the top plate of a wall assembly in relation to the truss assembly above and/or off the wall assembly below.
 - 3.1.2. TPR is caused by eccentric load path connections (i.e., the connections of the truss to top plate and the top plate to stud are not directly lined up vertically).
 - 3.1.3. This condition is shown in [Figure 1](#).

¹ Unless otherwise noted, all references in this code compliant technical evaluation report (TER) are from the 2018 version of the codes and the standards referenced therein, including, but not limited to, *ASCE 7*, *SDPWS* and *WFCM*. This product also complies with the 2000-2015 versions of the *IBC* and *IRC* and the standards referenced therein. As required by law, where this TER is not approved, the building official shall respond in writing, stating the reasons this TER was not approved. For variations in state and local codes, if any see [Section 8](#).

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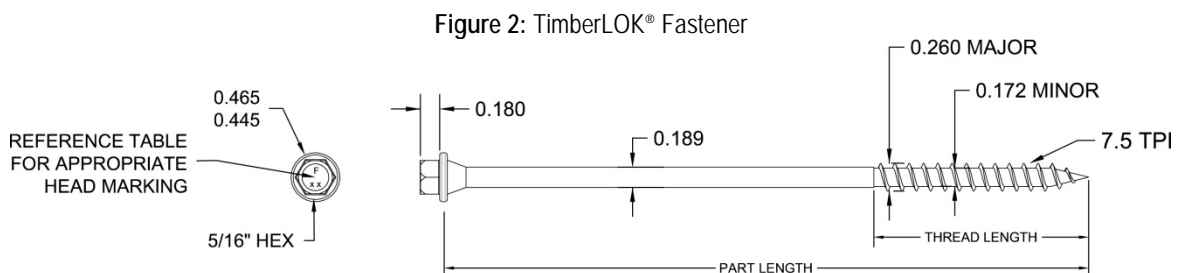
Figure 1: Illustration of Top Plate Roll²



- 3.2. The TPR condition is assessed with respect to existing building code requirements.
- 3.3. For general TimberLOK[®] truss to top plate connection design information, see [TER No. 1105-02: Use of FastenMaster[®] TimberLOK[®] Fasteners to Provide Uplift & Lateral Resistance to Trusses & Rafters Attached to the Tops of Walls](#).
- 3.4. Connections other than those addressed in [Section 3](#) are outside the scope of this TER.
- 3.5. Any code compliance issues not specifically addressed in this section are outside the scope of this TER.

4. Product Description and Materials:

- 4.1. TimberLOK[®] fasteners ([Figure 2](#)) are manufactured with carbon steel wire conforming to *ASTM A510* with a minimum ultimate tensile strength of 60 ksi.



- 4.2. TimberLOK[®] fasteners are manufactured using a standard cold-formed process followed by a heat-treating process.
- 4.3. Fasteners are approved for use in interior and exterior conditions and in pressure-treated wood.

² Illustration from Simpson Strong-Tie Technical Bulletin - T-HTIECONPATH10, dated 9/10.

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- 4.3.1. The proprietary coating has been tested and found to exceed the protection provided by code-approved hot-dipped galvanized coatings meeting *ASTM A153* ([IBC Section 2304.10.5³](#) and [IRC Section R317.3](#)), which allows for its use in alkaline copper quaternary (ACQ) pressure-treated wood.
- 4.4. Fasteners are approved for use in fire retardant treated (FRT) lumber, provided the conditions set forth by the FRT lumber manufacturer are met, including appropriate strength reductions.
- 4.5. In-plant quality control procedures, under which the TimberLOK® fasteners are manufactured, are audited through an inspection process performed by an approved agency.
- 4.6. The TimberLOK® fasteners evaluated in this report are described in [Table 1](#).

Table 1: Fastener Designation for the TimberLOK® Fasteners Evaluated in this Report				
Product Name	Fastener Designation ⁴	Head Marking	Overall Length	Thread Length
TimberLOK® 4"	TLOK04	F4.0	4"	2"
TimberLOK® 6"	TLOK06	F6.0	6"	2"

5. Applications:

5.1. General Code Requirements

- 5.1.1. Neither the *IBC* nor the *IRC* contain requirements that specifically address the potential for TPR due to an eccentric load path.
- 5.1.2. There are no code-defined deflection requirements for deformations caused by uplift.
- 5.1.3. The design for uplift is an allowable stress design load consideration. Uplift loads must be resisted by the fastening system used.
- 5.1.4. Where the application exceeds the limitations set forth herein, design shall be permitted in accordance with accepted engineering procedures, experience and technical judgment.

5.2. IRC Requirements

- 5.2.1. [Table 2](#) defines the connection per [IRC Table R602.3\(1\)](#).

Table 2: Excerpt from <i>IRC</i> Table R602.3(1) ⁵ Fastener Schedule for Structural Members			
Item	Description of Building Elements	Number and Types of Fastener	Spacing of Fasteners
6	Rafter or roof truss to plate, toe nail	3-16d box nails (3 1/2" x 0.135"); or 3-10d common nails (3" x 0.148"); or 4-10d box (3" x 0.128"); or 4-3" x 0.131" nails	2 toe nails on one side and 1 toe nail on opposite side of each rafter or truss ¹
1. Where a rafter is fastened to an adjacent parallel ceiling joist in accordance with this schedule, provide two toe nails on one side of the rafter and toe nails from the ceiling joist to top plate in accordance with this schedule. The toe nail on the opposite side of the rafter shall not be required.			

- 5.2.2. [IRC Section R802.11](#) discusses the roof to wall uplift resistance in terms of resistance to load with no deflection criteria.

Where the uplift force does not exceed 200 pounds, rafters and trusses spaced not more than 24 inches (610 mm) on center shall be permitted to be attached to their supporting wall assemblies in accordance with Table R602.3(1).

- 5.2.3. [IRC Section R802.11.1.1⁵](#) addresses truss to top plate connections for trusses.

R802.11.1.1 Truss uplift resistance. Trusses shall be attached to supporting wall assemblies by connections capable of resisting uplift forces as specified on the truss design drawings. Uplift forces shall be permitted to be determined as specified by Table R802.11, if applicable, or as determined by accepted engineering practice.

³ [2012 IBC Section 2304.9.5](#).

⁴ Fastener designations are found on the product packaging. Individual fasteners may be marked according to [Table 1](#).

⁵ [2012 IRC Section R802.11.1.2](#).

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5.2.4. [IRC Section R802.11.1.2](#)⁶ then addresses the connection for rafters.

R802.11.1.2 Rafter uplift resistance. Individual rafters shall be attached to supporting wall assemblies by connections capable of resisting uplift forces as determined by Table R802.11 or as determined by accepted engineering practice. Connections for beams used in a roof system shall be designed in accordance with accepted engineering practice.

5.3. IBC Requirements

5.3.1. [IBC Section 1604.8.1](#) contains the following requirements:⁷

1604.8.1 General. Anchorage of the roof to walls and columns, and of walls and columns to foundations, shall be provided to resist the uplift and sliding forces that result from the application of the prescribed loads

5.3.2. There are a number of other requirements addressing specific conditions, all of which only address the resistance to applied load. There is no mention of deformation requirements.

5.4. There are two standards referenced by the IRC and IBC that contain provisions that could prescriptively address the potential for TPR.

5.4.1. ICC 600 Section 304.1 states:

... Connectors resisting uplift of the roof framing shall be fastened to the top plate on the same side of the wall as the top plate to wall uplift connection.

5.4.2. SDPWS Section 4.4.1.5 states that, when using wood structural panels for top plate to stud uplift resistance:

Roof or upper level uplift connectors shall be on the same side of the wall as the sheathing unless other methods are used to prevent twisting of the top plate due to eccentric loading.

5.5. FastenMaster® commissioned testing conducted at the Structural Building Components Research Institute (SBCRI) to assess the occurrence of TPR.

5.5.1. Test assembly construction ([Figure 3](#))

Figure 3: Wall Construction Test Setup



⁶ [2012 IRC Section R802.11.1.3](#)

⁷ Also see [2015 IBC Section 1604.9](#).

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- 5.5.1.1. Double 2x4 top plates and trusses constructed from Spruce-Pine-Fir (SPF) #2.
- 5.5.1.2. ½" gypsum wallboard installed to interior side of wall using #6 x 1¼" drywall screws. Fasteners along the top edge of the drywall were installed into the lower top plate at 7" o.c.
- 5.5.1.3. Wood structural panel (WSP) sheathing was installed on the exterior wall in accordance with the code.
- 5.5.2. Three fasteners were tested and their performance compared as follows:
 - 5.5.2.1. TimberLOK® TLOK06 fasteners installed at a 22.5° angle from vertical, beginning ½" from the inside edge of the lower top plate and driven up through both plates and into the truss.
 - 5.5.2.2. Simpson SDWC15600-KT fasteners installed at a 22.5° angle from vertical, beginning ½" from the inside edge of the lower top plate and driven up through both plates and into the truss.
 - 5.5.2.3. Simpson H2.5A connectors applied to the exterior side of the wall, over the oriented strand board (OSB), per the manufacturer's installation instructions.
 - 5.5.2.4. Simpson H2.5A connectors applied to the interior side of the wall, under the gypsum wallboard, per the manufacturer's installation instructions.
- 5.5.3. The published allowable design loads for the TimberLOK® fasteners is as shown in [Table 3](#).

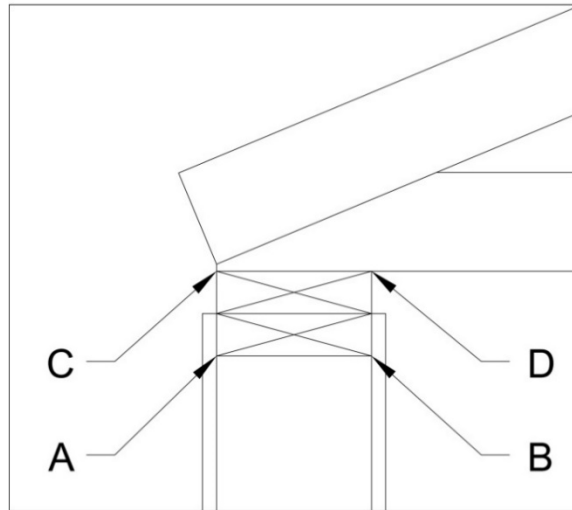
Table 3: Allowable Loads for Uplift & Lateral Resistance for Selected Load Durations & Wood-Specific Gravities Using TimberLOK® Fasteners											
Fastener Designation	Minimum Penetration into Truss/Rafter/Wood Structural Support (in.)	Species Group (Specific Gravity)	Uplift (lbf)			Lateral (lbf)					
						F1 – Parallel to Wall			F2 – Perpendicular to Wall		
			1.0	1.33	1.60	1.0	1.33	1.60	1.0	1.33	1.60
TimberLOK® TLOK04 or TLOK06	2"	So. Pine (0.55)	390	520	620	255	340	410	280	375	450
		Douglas Fir-Larch (0.50)	340	450	540	240	320	385	265	350	425
		Spruce-Pine-Fir/ Hem-Fir (0.42)	260	350	420	210	280	340	230	305	370

1. Wood truss and rafter members shall be a minimum of 2" nominal thickness. Design of truss and rafter members by others.
 2. Equivalent specific gravity of structural composite lumber (SCL) shall be equal to or greater than the specific gravities provided in this table. Refer to product information from SCL manufacturer.
 3. Uplift and F2 lateral load values have been adjusted using Hankinson's equation per *NDS*®.
 4. For applications involving members with different specific gravities, use the allowable load corresponding to the lowest specific gravity.
 5. Allowable uplift and lateral loads for applications in which the controlling load duration is two months (i.e., 115%) or seven days (i.e., 125%) may be obtained by multiplying the corresponding tabular value in the column marked "1.0" by 1.33 or 1.60, respectively.

- 5.5.4. Where it is anticipated that loads will be applied to a single fastener simultaneously in more than one direction, additional evaluation is required to account for the combined effect of these loads using accepted engineering practice.
 - 5.5.4.1. Consult a professional engineer as needed for complex design conditions.
- 5.5.5. The following conditions were monitored throughout the tests:
 - 5.5.5.1. Constant measurement and recording of load vs. displacement.
 - 5.5.5.2. Separation measured between the stud and top plate at both the interior (A) and exterior (B) faces of the wall ([Figure 4](#)).

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Figure 4: Locations of Deformation Measurements



5.5.5.3. Separation measured between the truss and top plate at the interior (C) and exterior (D) faces of the wall ([Figure 4](#)).

5.5.5.4. Ultimate load at failure.

5.5.6. Test results

5.5.6.1. Ultimate loads for each fastener type correlated to their respective published design loads.

5.5.6.2. The TimberLOK® fasteners experienced no significant TPR at allowable design loads.

5.5.6.3. Only the H2.5A connectors experienced significant TPR at their respective design loads ([Table 4](#)), when defined per this section, due to the higher eccentricity of the connection.

Table 4: Deformations Recorded at an Allowable Load of 450 lbs						
			Deflection/Separation at 450 lbs. (in.)			
Fastener	Install Location	Design Load (lbs.)	Plate to Stud		Truss to Plate	
			Exterior (A)	Interior (B)	Exterior (C)	Interior (D)
H2.5A	Exterior	480	0.007	0.002	0.098	0.111
H2.5A	Interior	480	0.005	0.014	0.043	0.035
TimberLOK®	Interior	420	0.011	0.008	0.004	0.013
Serviceability Limit			0.125	0.031	0.125	0.031

5.5.6.4. Significant TPR is defined as follows:

5.5.6.4.1. 1/8" (0.125") deformation at exterior joints (A and C) – the gap at which exterior materials assumed to cause potential serviceability issues.

5.5.6.4.2. 1/32" (0.031") at interior joints (B and D) – the gap at which drywall or drywall joints assumed to start cracking.

6. Installation:

6.1. Installation shall comply with the manufacturer’s installation instructions and this TER. In the event of a conflict between the manufacturer’s installation instructions and this TER, the more restrictive shall govern.

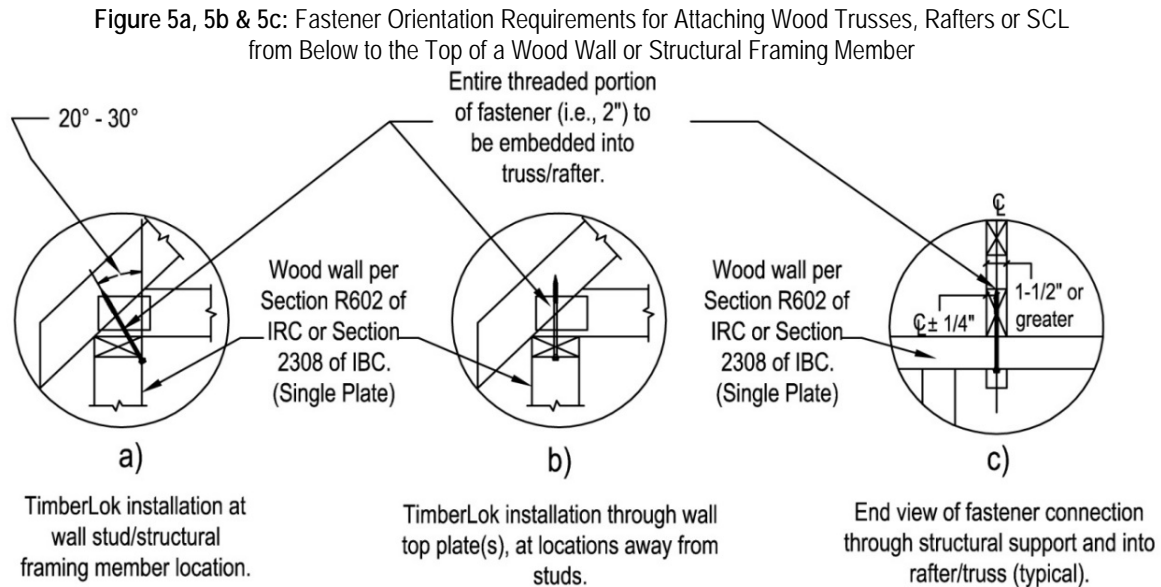
6.2. Double Top Plate Installation

6.2.1. Upward from below truss or rafter:

6.2.1.1. Select a TimberLOK® fastener with a length sufficient to fully embed the 2" threaded portion of the fastener into the truss or rafter, see [Table 1](#).

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- 6.2.1.2.** Install one (1) TimberLOK® fastener upward through the wall top plate(s) or wood structural framing member and into the center of the truss, rafter or structural composite lumber (SCL), as shown in [Figure 5a, 5b and 5c](#).



- 6.2.1.2.1.** If the truss, rafter or SCL is located directly over a wall stud, insert the fastener at the joint between the inside top edge of the stud and the inside bottom edge of the bottom top plate at an upward angle from vertical of 20°-30°, as shown in [Figure 5a](#).
- 6.2.1.2.2.** If the truss, rafter or SCL is located between the wall studs (double top plate application only), insert the fastener near the middle of the bottom face of the bottom top plate(s) straight upward into the truss, rafter or SCL, as shown in [Figure 5b](#).
- 6.2.1.2.3.** If the truss, rafter or SCL is located on top of a wood beam or header, insert the fastener approximately 3" below the top edge of the beam or header at an upward angle from vertical of 20°-30°, as shown in [Figure 5a](#).

6.2.1.3. Locate the fastener in line with the truss, rafter or SCL above so that it penetrates within $\pm 1/4"$ of the centerline of the narrow edge of the truss, rafter or SCL, as shown in [Figure 5c](#).

6.2.1.4. Use a $1/2"$ low RPM/high torque drill to drive the fastener head flush with the surface of the wall framing.

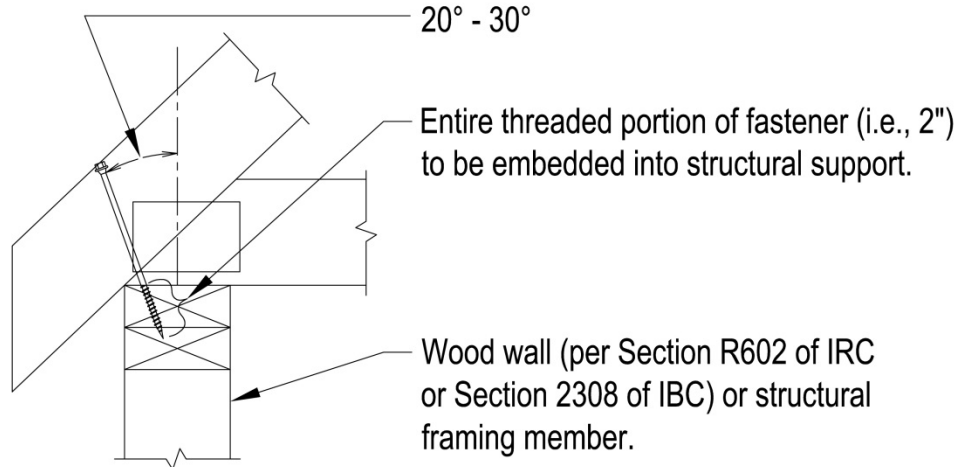
6.2.2. Downward from top of the truss, rafter or SCL:

6.2.2.1. Select a TimberLOK® fastener with a length sufficient to fully embed the 2" threaded portion of the fastener into the wall top plates or wood structural framing member, see [Table 1](#).

6.2.2.2. Install one (1) TimberLOK® fastener at a downward angle from vertical of 20°-30° through the center of the truss, rafter or SCL and into the wall top plate(s), or wood structural framing member, as shown in [Figure 6](#).

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Figure 6: Fastener Orientation Requirements for Attaching Wood Trusses, Rafters or SCL from Above to the Top of a Wood Wall or Structural Framing Member

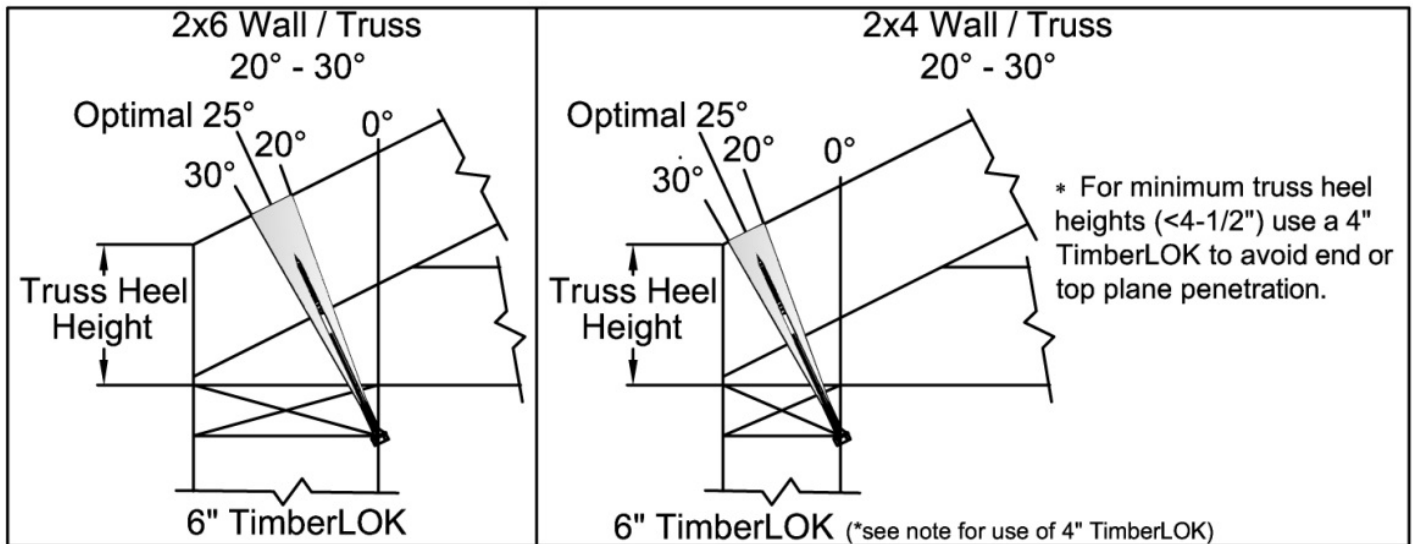


- 6.2.2.3.** Locate the fastener so that it penetrates within $\pm 1/4$ " of the centerline of the narrow edge of the truss, rafter or SCL and at or near the center of the wall top plate(s) or wood structural framing member.
- 6.2.2.4.** Use a $1/2$ " low RPM/high torque drill to drive the fastener head flush with the surface of the wood structural framing member.

6.3. Single Top Plate Installation

- 6.3.1.** Select a TimberLOK® fastener with a length sufficient to fully embed the 2" threaded portion of the fastener into the wall top plates or wood structural framing member, see [Table 1](#).
- 6.3.2.** Where the truss, rafter or SCL is located directly over a wall stud, insert the fastener at the joint between the inside top edge of the stud and the inside bottom edge of the top plate at an upward angle from vertical of 20°-30°, as shown in [Figure 7](#).

Figure 7: Installation of TimberLOK® Fasteners into a Single Top Plate



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- 6.3.3. Ensure that the angle is sufficient to prevent the fastener from protruding out of the truss, rafter or SCL.
- 6.3.4. Locate the fastener so that it penetrates within +/- ¼" of the centerline of the narrow edge of the truss, rafter or SCL and at or near the center of the wall top plate(s) or wood structural framing member.
- 6.3.5. Use a ½" low RPM/high torque drill to drive the fastener head flush with the surface of the wall framing or wood structural framing member.
- 6.3.6. Where the centerline of the truss, rafter or SCL is not located directly over the stud, install the fastener vertically up through the top plate and into the truss, rafter or SCL as shown in [Figure 5b](#).

7. Test and Engineering Substantiating Data:

- 7.1. FastenMaster® TimberLOK® test reports and supporting data for determining:
 - 7.1.1. Comparative testing of fasteners for the assessment of TPR by SBCRI.
 - 7.1.2. Uplift capacity of TimberLOK® fasteners as evaluated for head pull-through and withdrawal of fasteners.
 - 7.1.3. TimberLOK® heavy duty wood screw performance when used as a truss hold-down.
 - 7.1.4. Comparative equivalency for use as an alternative material in accordance with [IRC Section R104.11](#) and [IBC Section 104.11](#).
- 7.2. The product(s) evaluated by this TER fall within the scope of one or more of the model, state or local building codes for building construction. The testing and/or substantiating data used in this TER is limited to buildings, structures, building elements, construction materials and civil engineering related specifically to buildings.
- 7.3. The provisions of model, state or local building codes for building construction do not intend to prevent the installation of any material or to prohibit any design or method of construction. Alternatives shall use consensus standards, performance-based design methods or other engineering mechanics based means of compliance. This TER assesses compliance with defined standards, accepted engineering analysis, performance-based design methods, etc. in the context of the pertinent building code requirements.
- 7.4. Some information contained herein is the result of testing and/or data analysis by other sources, which DrJ relies on to be accurate, as it undertakes its engineering analysis.
- 7.5. DrJ has reviewed and found the data provided by other professional sources are credible. The information in this TER conforms to DrJ's procedure for acceptance of data from approved sources.
- 7.6. DrJ's responsibility for data provided by approved sources conforms to [IBC Section 1703](#) and any relevant professional engineering law.
- 7.7. Where appropriate, DrJ's analysis is based on design values that have been codified into law through codes and standards (e.g., *IRC, WFCM, IBC, SDPWS, NDS®, ACI®, AISI, PS-20, PS-2*, etc.). This includes review of code provisions and any related test data that aids in comparative analysis or provides support for equivalency to an intended end-use application. Where the accuracy of design values provided herein is reliant upon the published properties of commodity materials (e.g. lumber, steel, concrete, etc), DrJ relies upon grade/properties provided by the raw material supplier to be accurate and conforming to the mechanical properties defined in the relevant material standard.

8. Findings:

- 8.1. TPR is not a significant concern for TimberLOK® fasteners at allowable design load levels.
- 8.2. The H2.5A connectors had some significant TPR as defined in [Section 5.5.5](#), but in no case was TPR in excess of 1/8" at the allowable design load.
- 8.3. Comparing the fastener test results in [Table 4](#), TPR is not expected to be a significant concern for TimberLOK® fasteners in 2x6 walls, since the loading is less eccentric than the H2.5A connectors and only slightly more eccentric than the tested 2x4 connection.
- 8.4. When used and installed in accordance with this TER and the manufacturer's installation instructions, TimberLOK® fasteners can be used as an acceptable alternative to toe-nail connections, metal hurricane and seismic clips/straps or nails to resist the uplift and lateral loads as provided for in [Table 3](#).

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- 8.5. When used and installed in accordance with this TER and the manufacturer's installation instructions, TimberLOK® fasteners can be used as an acceptable alternative to provide resistance to uplift loads due to wind negative pressure applied from the truss above lifting up on the top plate of the wall, per [Table 3](#).
- 8.6. [IBC Section 104.11](#) ([IRC Section R104.11](#) and [IFC Section 104.9](#) are similar) states:
- 104.11 Alternative materials, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been *approved*. An alternative material, design or method of construction shall be *approved* where the *building official* finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, not less than the equivalent of that prescribed in this code. ... Where the alternative material, design or method of construction is not *approved*, the *building official* shall respond in writing, stating the reasons the alternative was not *approved*.
- 8.7. This product has been evaluated in the context of the codes listed in [Section 2](#), and is compliant with all known state and local building codes. Where there are known variations in state or local codes that are applicable to this evaluation, they are listed here:
- 8.7.1. No known variations
- 8.8. This TER uses professional engineering law, the building code, ANSI/ASTM consensus standards and generally accepted engineering practice as its criteria for all testing and engineering analysis. Dr.J's professional engineering work falls under the jurisdiction of each state Board of Professional Engineers, when signed and sealed.
9. **Conditions of Use:**
- 9.1. Where required by the authority having jurisdiction (AHJ) in which the project is to be constructed, this TER and the installation instructions shall be submitted at the time of permit application.
- 9.2. Any generally accepted engineering calculations needed to show compliance with this TER shall be submitted to the code official for review and approval.
- 9.3. Design loads shall be determined in accordance with the building code adopted by the jurisdiction in which the project is to be constructed and/or by the Building Designer (e.g., Owner, Registered Design Professional, etc.).
- 9.4. The TimberLOK® fasteners covered in this TER ([Table 1](#)) shall be installed in accordance with this report and the manufacturer's installation instructions. In the event of a conflict between this TER and the manufacturer's installation instructions, the more restrictive shall govern.
- 9.4.1. For conditions not covered in this TER, connections shall be designed in accordance with accepted engineering practice.
- 9.4.2. Manufacturer's installation instructions shall be followed as provided in [Section 6](#) and at fastenmaster.com.
- 9.5. Manufacturer's installation instructions shall be shipped to the jobsite with the materials or otherwise be available on the jobsite for inspection.
- 9.6. Structural framing members (e.g., wood, masonry, concrete, steel, etc.) connected with TimberLOK® fasteners shall be designed in accordance with the requirements of their specific design standards/specifications as referenced in the building code adopted by the jurisdiction in which the project is to be constructed.
- 9.7. Loads applied shall not exceed those recommended by the manufacturer or as defined in this TER.
- 9.8. FastenMaster® products are produced by OMG®, Inc. at its facility located in Agawam, Massachusetts.
- 9.9. TimberLOK® fasteners are produced under a quality control program subject to periodic inspections in accordance with [IBC Section 1703.5.2](#).

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9.10. Design

9.10.1. Building Designer Responsibility

- 9.10.1.1. Unless the AHJ allows otherwise, the Construction Documents shall be prepared by a Building Designer for the Building and shall be in accordance with [/RC Section R106](#) and [/BC Section 107](#).
- 9.10.1.2. The Construction Documents shall be accurate and reliable and shall provide the location, direction and magnitude of all applied loads and shall be in accordance with [/RC Section R301](#) and [/BC Section 1603](#).

9.10.2. Construction Documents

- 9.10.2.1. Construction Documents shall be submitted to the Building Official for approval and shall contain the plans, specifications and details needed for the Building Official to approve such documents.

9.11. Responsibilities

- 9.11.1. The information contained herein is a product, material, detail, design and/or application TER evaluated in accordance with the referenced building codes, testing and/or analysis through the use of accepted engineering practice, experience and technical judgment.
- 9.11.2. DrJ TERs provide an assessment of only those attributes specifically addressed in the Products Evaluated or Code Compliance Process Evaluated sections.
- 9.11.3. The engineering evaluation was performed on the dates provided in this TER, within DrJ's professional scope of work.
- 9.11.4. This product is manufactured under a third-party quality control program in accordance with [/RC Section R104.4](#) and [R109.2](#) and [/BC Section 104.4](#) and [110.4](#).
- 9.11.5. The actual design, suitability and use of this TER, for any particular building, is the responsibility of the Owner or the Owner's authorized agent, and the TER shall be reviewed for code compliance by the Building Official.
- 9.11.6. The use of this TER is dependent on the manufacturer's in-plant QC, the ISO/IEC 17020 third-party quality assurance program and procedures, proper installation per the manufacturer's instructions, the Building Official's inspection and any other code requirements that may apply to demonstrate and verify compliance with the applicable building code.

10. Identification:

- 10.1. The TimberLOK® described in this TER is identified by a label on the board or packaging material bearing the manufacturer's name, product name, TER number, and other information to confirm code compliance.
- 10.2. Additional technical information can be found at fastenmaster.com.

11. Review Schedule:

- 11.1. This TER is subject to periodic review and revision. For the most recent version of this TER, visit drjengineering.org.
- 11.2. For information on the current status of this TER, contact [DrJ Engineering](#).



- [Mission and Professional Responsibilities](#)
- [Product Evaluation Policies](#)
- [Product Approval – Building Code, Administrative Law and P.E. Law](#)