

# Technical Evaluation Report™

**TER 2206-01**

TrussBRACE™ Roof Truss Support

**OMG®, Inc. DBA FastenMaster®**

**Product:**

**TrussBRACE™**

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COMPANY  
INFORMATION:

ADDITIONAL  
LISTEES:

OMG®, Inc. DBA FastenMaster®  
153 Bowles Rd  
Agawam, MA 01001-2908

P: 800-518-3569

[mguthrie@omginc.com](mailto:mguthrie@omginc.com)

[www.fastenmaster.com](http://www.fastenmaster.com)

DIVISION: 06 00 00 - WOOD, PLASTICS AND COMPOSITES

SECTION: 06 05 23 - Wood, Plastic, and Composite Fastenings

SECTION: 06 00 90 - Wood and Plastic Fastenings

SECTION: 06 11 00 - Wood Framing

## 1 Innovative Product Evaluated<sup>1,2</sup>

### 1.1 TrussBRACE™

## 2 Applicable Codes and Standards<sup>3,4</sup>

### 2.1 Codes

- 2.1.1 IBC—15, 18, 21: *International Building Code*®
- 2.1.2 IRC—15, 18, 21: *International Residential Code*®
- 2.1.3 IECC—15, 18, 21: *International Energy Conservation Code*®
- 2.1.4 CBC—16, 19: *California Building Code (Title 24, Part 2)*<sup>5</sup>
- 2.1.5 CRC—16, 19: *California Residential Code (Title 24, Part 2.5)*
- 2.1.6 LABC—17, 20: *Los Angeles Building Code*<sup>6</sup>
- 2.1.7 LARC—17, 20: *Los Angeles Residential Code*<sup>6</sup>
- 2.1.8 FBC-B—20, 23: *Florida Building Code – Building*<sup>7</sup>
- 2.1.9 FBC-R—20, 23: *Florida Building Code – Residential*<sup>7</sup>

<sup>1</sup> For more information, visit [drjcertification.org](http://drjcertification.org) or call us at 608-310-6748.

<sup>2</sup> **Federal Regulation Definition.** 24 CFR 3280.2 “Listed or certified” means included in a list published by a nationally recognized testing laboratory, inspection agency, or other organization concerned with product evaluation that maintains periodic inspection of production of listed equipment or materials, and whose listing states either that the equipment or material meets nationally recognized standards or has been tested and found suitable for use in a specified manner. **International Building Code (IBC) Definition of Listed.** Equipment, materials, products or services included in a list published by an organization acceptable to the [building official](#) and concerned with evaluation of products or services that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services and whose Listing states either that the equipment, material, product or service meets identified standards or has been tested and found suitable for a specified purpose. **IBC Definition of Labeled.** Equipment, materials or products to which has been affixed a [label](#), seal, symbol or other identifying mark of a nationally recognized testing laboratory, [approved agency](#) or other organization concerned with product evaluation that maintains periodic inspection of the production of the above-labeled items and whose labeling indicates either that the equipment, material or product meets identified standards or has been tested and found suitable for a specified purpose.

<sup>3</sup> This Listing is a code defined [research report](#), which is also known as a [duly authenticated report](#), provided by an [approved agency](#) (see [IBC Section 1703.1](#)) and/or an [approved source](#) (see [IBC Section 1703.4.2](#)). An approved agency is “approved” when it is ANAB accredited. DrJ Engineering, LLC (DrJ) is listed in the [ANAB directory](#). A professional engineer is “approved” as an [approved source](#) when that professional engineer is properly licensed to transact engineering commerce. Where sealed by a professional engineer, it is also a duly authenticated report certified by an [approved source](#). (i.e., [Registered Design Professional](#)). DrJ is an ANAB accredited [product certification body](#).

<sup>4</sup> Unless otherwise noted, all references in this Listing are from the 2021 version of the codes and the standards referenced therein. This material, product, design, service and/or method of construction also complies with the 2000-2021 versions of the referenced codes and the standards referenced therein.

<sup>5</sup> All references to the CBC and CRC are the same as the 2018 IBC and 2018 IRC unless otherwise noted in the California Supplement at the end of this TER.

<sup>6</sup> All references to the LABC and LARC are the same as the 2018 IBC and 2018 IRC unless otherwise noted in the Los Angeles Supplement at the end of this TER.

<sup>7</sup> All references to the FBC-B and FBC-R are the same as the 2021 IBC and 2021 IRC, respectively, unless otherwise noted in the supplement at the end of this document.

## 2.2 Standards and Referenced Documents

- 2.2.1 *AISI S100: North American Specification for the Design of Cold-Formed Steel Structural Members*
- 2.2.2 *ASTM D1761: Standard Test Method for Mechanical Fasteners in Wood and Wood-Based Materials*
- 2.2.3 *Building Component Safety Information (BCSI) Guide to Good Practice for Handling, Installing & Bracing of Metal Plate Connected Wood Trusses*
- 2.2.4 *ANSI/TPI 1 – National Design Standard for Metal Plate Connected Wood Trusses*

## 3 Performance Evaluation

- 3.1 Tests, test reports, research reports, duly authenticated reports and related engineering evaluations are defined as intellectual property and/or trade secrets and protected by Defend Trade Secrets Act 2016 (DTSA).<sup>8</sup>
- 3.2 Testing and/or inspections conducted for this TER were performed at an ISO/IEC 17025 accredited testing laboratory,<sup>9</sup> an ISO/IEC 17020 accredited inspection body,<sup>10</sup> which are internationally recognized accreditations through International Accreditation Forum (IAF), and/or a licensed Registered Design Professional (RDP).
- 3.3 TrussBRACE™ was tested and evaluated to determine its structural resistance properties, which are used to develop reference design values for allowable stress design (ASD). The following conditions were evaluated:
  - 3.3.1 Tension and compression strength in accordance with ASTM D1761
- 3.4 TrussBRACE™ is used to provide temporary lateral and diagonal bracing along top chord and webs of wood trusses during installation.
  - 3.4.1 The TrussBRACE™ temporary bracing may be left in place to form part of the permanent bracing that is required by IBC Section 2303.4, IRC Section R802.10.3 and ANSI/TPI Section 2.3.3.
- 3.5 Any building code and/or accepted engineering evaluations (i.e. research reports, duly authenticated reports, etc.) that are conducted for this Listing were performed by DrJ Engineering, LLC (DrJ), an ISO/IEC 17065 accredited certification body and a professional engineering company operated by RDPs / approved sources. DrJ is qualified<sup>11</sup> to practice product and code compliance services within its scope of accreditation and engineering expertise, respectively.
- 3.6 Engineering evaluations are conducted with DrJ's ANAB accredited ICS code scope, which are also its areas of professional engineering competence.
- 3.7 Any regulation specific issues not addressed in this section are outside the scope of this TER.

<sup>8</sup> <https://www.law.cornell.edu/uscode/text/18/part-II/chapter-90>. Given our professional duty to inform, please be aware that whoever, with intent to convert a trade secret (TS), that is related to a product or service used in or intended for use in interstate or foreign commerce, to the economic benefit of anyone other than the owner thereof, and intending or knowing that the offense will, injure any owner of that trade secret, knowingly without authorization copies, duplicates, sketches, draws, photographs, downloads, uploads, alters, destroys, photocopies, replicates, transmits, delivers, sends, mails, communicates, or conveys such information; shall be fined under this title or imprisoned not more than 10 years, or both. Any organization that commits any offense described in subsection (a) shall be fined not more than the greater of \$5,000,000 or 3 times the value of the stolen trade secret to the organization, including expenses for research and design and other costs of reproducing the trade secret that the organization has thereby avoided. The federal government and each state have a public records act. As the National Society of Professional Engineers states, "Engineers shall not disclose, without consent, confidential information concerning the business affairs or technical processes of any present or former client or employer, or public body on which they serve." Therefore, to protect intellectual property (IP) and TS, and to achieve compliance with public records and trade secret legislation, requires approval through the use of Listings, certified reports, technical evaluation reports, duly authenticated reports and/or research reports prepared by approved agencies and/or approved sources. For more information, please review this website: Intellectual Property and Trade Secrets.

<sup>9</sup> Internationally recognized accreditations are performed by members of the International Accreditation Forum (IAF). Accreditation Body and Regional Accreditation Group Members of IAF are admitted to the IAF MLA only after a stringent evaluation of their operations by a peer evaluation team, which is charged to ensure that the applicant complies fully with both international standards and IAF requirements. Once an accreditation body is a signatory of the IAF MLA, it is required to recognise certificates and validation and verification statements issued by conformity assessment bodies accredited by all other signatories of the IAF MLA, with the appropriate scope.

<sup>10</sup> Ibid.

<sup>11</sup> Qualification is performed by a legislatively defined Accreditation Body. ANSI National Accreditation Board (ANAB) is the largest independent accreditation body in North America and provides services in more than 75 countries. DrJ is an ANAB accredited product certification body.

## 4 Product Description and Materials

4.1 The innovative product evaluated in this TER is shown in Figure 1.



**Figure 1.** FastenMaster® TrussBRACE™ Installed on Truss Top Chords

4.2 TrussBRACE™ is a hinged Y-shaped bracket with the following properties:

4.2.1 *Steel Properties:*

4.2.1.1 20 Gauge Steel (0.0375")

4.2.1.2 Galvanized Coating

4.2.2 *Dimensions:*

4.2.2.1 1" x 1<sup>5</sup>/<sub>8</sub>" L-shaped channel with flat tabs where member is attached to the truss

4.2.2.2 Length: 25<sup>1</sup>/<sub>2</sub>"

4.2.2.3 Width of TrussBRACE™ with diagonal brace extended: 17<sup>3</sup>/<sub>4</sub>"

4.2.2.4 Hinge Location: 16<sup>1</sup>/<sub>4</sub>"

4.2.3 *Fasteners:*

4.2.3.1 Three (3) 10d nails (0.148" x 1<sup>1</sup>/<sub>2</sub>")

## 5 Applications

- 5.1 TrussBRACE™ can be incorporated into the temporary lateral and diagonal bracing to prevent rotation and provide lateral stability for buildings per ANSI/TPI 1 Section 2.3.1.6, BCSI-B1 and BCSI-B2, as pertinent.
- 5.2 TrussBRACE™ can be incorporated into the permanent lateral and diagonal bracing to prevent rotation and provide lateral stability for buildings per IBC Section 2303.4, IRC Section R802.10.3, ANSI/TPI 1 Section 2.3.3, BCSI-B1 and BCSI-B3, as pertinent.
- 5.3 Tension and compression values for the TrussBRACE™ are specified in Table 1.

**Table 1.** TrussBRACE™ Design Values<sup>1,2,3,4</sup>

Load Direction	Maximum Allowable Load <sup>5</sup>
Tension	140
Compression	420

SI: 1 in = 25.4 mm, 1 lb = 4.45 N

1. TrussBRACE™ can be incorporated into the permanent truss lateral and diagonal bracing to prevent rotation and provide lateral stability for buildings per ANSI/TPI 1 section 2.3.3, BCSI B1 and B3 as pertinent, and when installed as described in Section 6.
2. Design of TrussBRACE™ bracing plans shall comply with IBC Section 2303.4.1.2.
3. Minimum of three (3) 10d (1½" x 0.148") nails
4. Minimum specific gravity of truss is 0.42.
5. No further load increases are allowed.

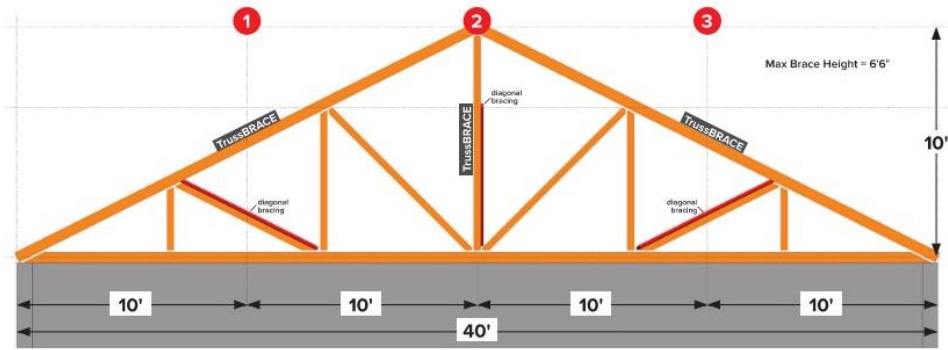
- 5.4 Where the application falls outside of the performance evaluation, conditions of use and/or installation requirements set forth herein, alternative techniques shall be permitted in accordance with accepted engineering practice and experience. This includes but is not limited to the following areas of engineering: mechanics or materials, structural, building science, and fire science.

## 6 Installation

- 6.1 Installation shall comply with the approved construction documents, the manufacturer installation instructions, this TER and the applicable building code.
- 6.2 In the event of a conflict between the manufacturer installation instructions and this TER, the more restrictive shall govern.
- 6.3 TrussBRACE™ shall be installed on the top chords and webs along the trusses at the spacing shown in Table 2 and Figure 2.

**Table 2.** TrussBRACE™ Spacing Based on Truss Span

Truss Span	Maximum On Center Spacing
Up to 30'	12'
30' to 45'	10'
45' to 60'	8'



The example in the visual guide uses 40' trusses with a maximum height of 10'. Therefore, the required TrussBRACE spacing is every 10' on center, with TrussBRACEs at locations 1 and 3 installed on the top chord and TrussBRACEs at location 2 installed on the webs, as illustrated above. The diagonal bracing shown is added in STEP 2. In locations 1 and 3, it is placed on the web members below the TrussBRACEs. In location 2, it is placed on either side of the web member. Diagonal bracing may be placed over top of the TrussBRACEs.

**Figure 2.** Example of TrussBRACE™ Location on 40' Truss

- 6.4 At any point in the installation process, when top chord can no longer be conveniently reached ( $5\frac{1}{2}$  to  $6\frac{1}{2}$  feet), apply TrussBRACE™ to the next web member that is within the spacing listed in Table 2, or otherwise requires lateral restraint per the Truss Design Drawing (TDD).
  - 6.4.1 See Figure 2 for an example.
  - 6.4.2 Keep placing TrussBRACE™ on the webs until the top chord becomes within reach ( $5\frac{1}{2}$  to  $6\frac{1}{2}$  feet) and finish applying the TrussBRACE™ along the top chord per Table 2.
- 6.5 TrussBRACE™ is applied to the truss with the lateral portion spanning between truss top chords or truss web members, with the diagonal leg swinging down below the lateral part of the brace to connect back to the top chord or web as shown in Figure 3.



**Figure 3.** TrussBRACE™ Connection to Truss Top Chord

## 6.6 Six Step Installation Procedure

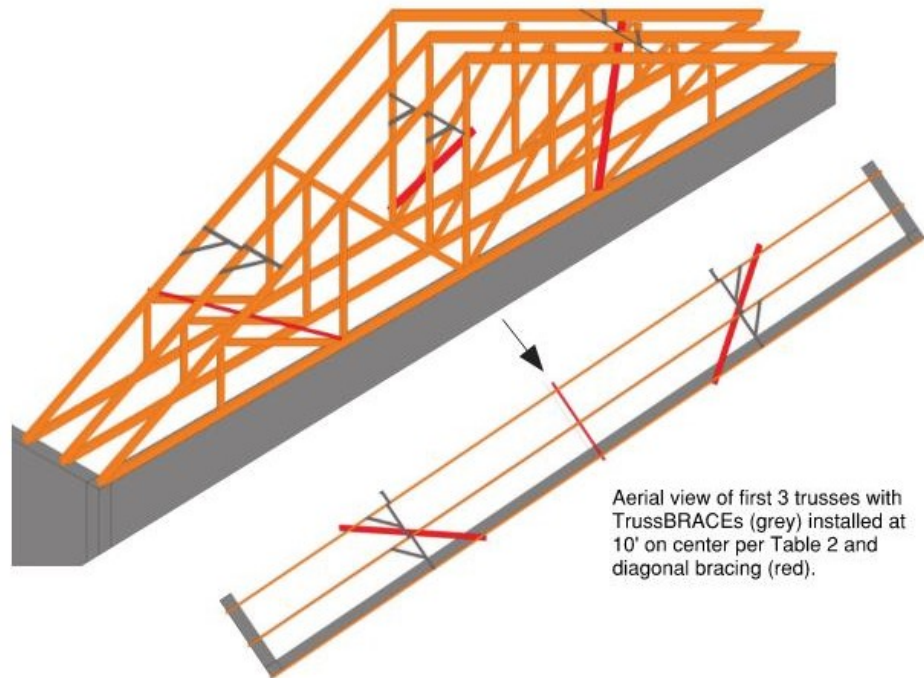
6.6.1 **Step 1:** Determine TrussBRACE™ spacing based on truss span shown in Table 2.

6.6.2 **Step 2:** Set the first three trusses with TrussBRACE™ to create a stable foundation for the structure (see Figure 4).

6.6.2.1 At minimum, use three (3) 10d common (1½" x 0.148") nails; one at each end of the lateral leg and the third on the diagonal leg.

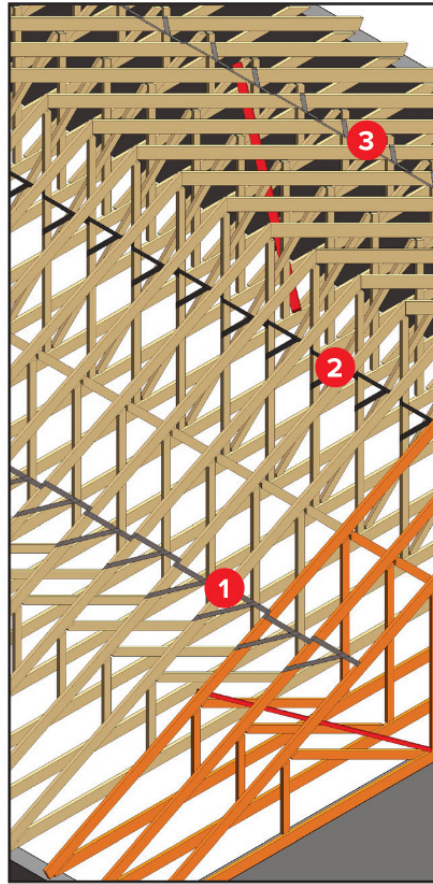
6.6.2.2 Drive nails completely so the TrussBRACE™ is tight on the truss

6.6.2.3 Apply diagonal bracing to webs per BCSI after trusses are set and TrussBRACE™ are installed.



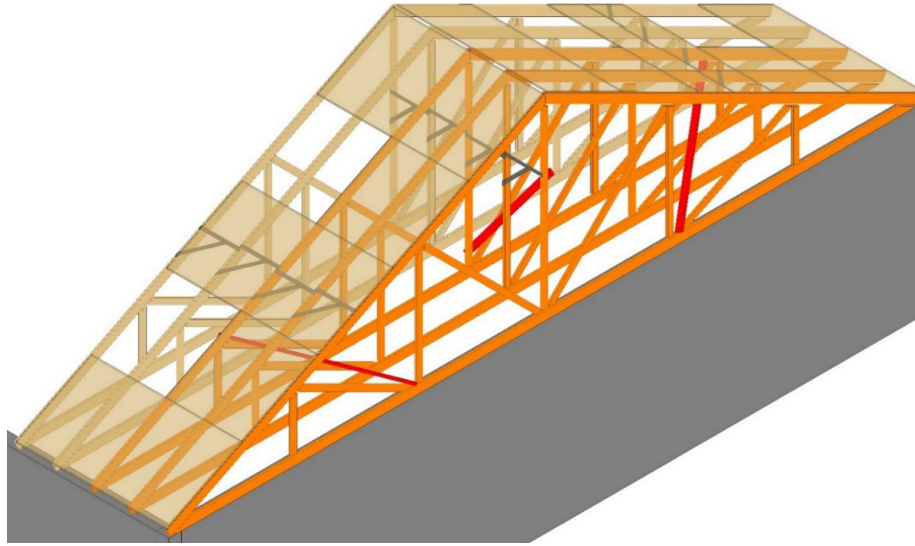
**Figure 4.** Installation Step 2 – Temporary Bracing of First Three Trusses

- 6.6.3 **Step 3:** Working from the bottom chords, set trusses 4 through 15 in line with the TrussBRACE™ placed on the first 3 trusses (see Figure 5).



**Figure 5.** Installation Steps 1-5

- 6.6.4 **Step 4:** Apply web member diagonal bracing per BCSI, Figure B2-34 after Truss 15 has been set. Web member diagonal bracing is shown in red in Figure 5 and Figure 6.
- 6.6.4.1 If fewer than 30 trusses are being used, apply diagonal bracing at midway point in truss installation. (i.e., if setting 20 trusses, apply diagonal bracing after truss 10 is set).
  - 6.6.4.2 Never exceed 20' between diagonal braces per BCSI, Figure B2-34.
- 6.6.5 **Step 5:** Apply steps 3 and 4 until the entire roof system is set.
- 6.6.6 **Step 6:** Apply structural sheathing to the top chord of all the trusses directly of the TrussBRACE™ as shown in Figure 6.



**Figure 6. Installation Step 6**

- 6.7 For additional information on temporary bracing, refer to [BCSI-B2](#).
- 6.8 For additional information on permanent bracing, refer to [BCSI-B3](#).

## 7 Substantiating Data

- 7.1 Testing has been performed under the supervision of a professional engineer and/or under the requirements of ISO/IEC 17025 as follows:
  - 7.1.1 Tension and compression strength in accordance with ASTM D1761
- 7.2 Information contained herein may include the result of testing and/or data analysis by sources that are [approved agencies](#) (i.e., ANAB accredited agencies), [approved sources](#) (i.e., RDPs), and/or [professional engineering regulations](#). Accuracy of external test data and resulting analysis is relied upon.
- 7.3 Where pertinent, testing and/or engineering analysis is based upon provisions that have been codified into law through state or local adoption of codes and standards. The developers of these codes and standards are responsible for the reliability of published content. DrJ's engineering practice may use a code-adopted provision as the control sample. A control sample versus a test sample establishes a product as [being equivalent](#) to the code-adopted provision in terms of quality, [strength](#), effectiveness, [fire resistance](#), durability, and safety.
- 7.4 The accuracy of the provisions provided herein may be reliant upon the published properties of raw materials, which are defined by the grade mark, grade stamp, mill certificate, [Listings](#), [certified reports](#), [duly authenticated reports](#) from [approved agencies](#), and [research reports](#) prepared by [approved agencies](#) and/or [approved sources](#) provided by the suppliers of products, materials, designs, assemblies and/or methods of construction. These are presumed to be minimum properties and relied upon to be accurate. The reliability of DrJ's engineering practice, as contained in this TER, may be dependent upon published design properties by others.
- 7.5 Testing and engineering analysis: The strength, rigidity and/or general performance of component parts and/or the integrated structure are determined by suitable tests that simulate the actual conditions of application that occur and/or by accepted engineering practice and experience.<sup>12</sup>
- 7.6 Where additional condition of use and/or code compliance information is required, please search for TrussBRACE™ on the [DrJ Certification](#) website.

<sup>12</sup> See Code of Federal Regulations (CFR) [Title 24 Subtitle B Chapter XX Part 3280](#) for definition.

## 8 Findings

- 8.1 As defined in Section 3, TrussBRACE™ has performance characteristics that were tested and/or meet pertinent standards and is suitable for use pursuant to its specified purpose.
- 8.2 When used and installed in accordance with this TER and the manufacturer installation instructions, TrussBRACE™ shall be approved for the following applications:
  - 8.2.1 Temporary lateral and diagonal bracing to prevent rotation and provide lateral stability for buildings per BCSI B1 and B2 as pertinent.
  - 8.2.2 Permanent lateral and diagonal bracing to prevent rotation and provide lateral stability for buildings per IBC Section 2303.4, IRC Section R802.10.3, ANSI/TPI 1 Section 2.3.3, and BCSI-B1 and BCSI-B3, as pertinent.
  - 8.2.3 Where TrussBRACE™ temporary bracing will be used a part of the permanent bracing system, TrussBRACE™ must be placed at the Permanent Individual Truss Member Restraint (PITMR) locations as shown on the truss design drawings in accordance with IBC Section 2303.4.1.2 and IRC Section R802.10.3.
- 8.3 Unless exempt by state statute, when the TrussBRACE™ is to be used as a structural and/or building envelope component in the design of a specific building, the design shall be performed by an RDP.
- 8.4 Any application specific issues not addressed herein can be engineered by an RDP. Assistance with engineering is available from OMG®, Inc. DBA FastenMaster®.
- 8.5 IBC Section 104.11 (IRC Section R104.11 and IFC Section 104.10<sup>13</sup> are similar) in pertinent part 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. 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.

- 8.6 **Approved:**<sup>14</sup> Building codes require that the building official shall accept duly authenticated reports<sup>15</sup> or research reports<sup>16</sup> from approved agencies and/or approved sources (i.e., licensed RDP) with respect to the quality and manner of use of new products, materials, designs, services, assemblies, or methods of construction.
  - 8.6.1 Acceptance of an approved agency, by a building official, is performed by verifying that the agency is accredited by a recognized accreditation body of the International Accreditation Forum (IAF).
  - 8.6.2 Acceptance of a licensed RDP, by a building official, is performed by verifying that the RDP and/or their business entity is listed by the licensing board of the relevant jurisdiction.
  - 8.6.3 Federal law, Title 18 US Code Section 242, requires that where the alternative product, material, service, design, assembly, and/or method of construction is not approved, the building official shall respond in writing, stating the reasons why the alternative was not approved, as denial without written reason deprives a protected right to free and fair competition in the marketplace.

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<sup>13</sup> 2018 IFC Section 104.9

<sup>14</sup> Approved is an adjective that modifies the noun after it. For example, Approved Agency means that the Agency is accepted officially as being suitable in a particular situation. This example conforms to IBC/IRC/IFC Section 201.4 where the building code authorizes sentences to have an ordinarily accepted meaning such as the context implies.

<sup>15</sup> <https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1707.1>

<sup>16</sup> <https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1703.4.2>

- 8.7 DrJ is an engineering company, employs RDPs and is an ISO/IEC 17065 ANAB-Accredited Product Certification Body – Accreditation #1131.
- 8.8 Through ANAB accreditation and the IAF Multilateral Agreements, this TER can be used to obtain product approval in any jurisdiction or country that has IAF MLA Members & Signatories to meet the Purpose of the MLA – “*certified once, accepted everywhere.*” IAF specifically says, “*Once an accreditation body is a signatory of the IAF MLA, it is required to recognise certificates and validation and verification statements issued by conformity assessment bodies accredited by all other signatories of the IAF MLA, with the appropriate scope.*”<sup>17</sup>

## 9 Conditions of Use

- 9.1 Material properties shall not fall outside the boundaries defined in Section 3.
- 9.2 As defined in Section 3, where material and/or engineering mechanics properties are created for load resisting design purposes, the resistance to the applied load shall not exceed the ability of the defined properties to resist those loads using the principles of accepted engineering practice.
- 9.3 As listed herein, TrussBRACE™ shall not be used:
- 9.3.1 On top of knots or other lumber defects.
  - 9.3.2 If bent, kinked or otherwise damaged.
- 9.4 Do not walk on TrussBRACE™ or use to support body weight.
- 9.5 Do not remove TrussBRACE™ for re-use.
- 9.6 TrussBRACE™ is limited to use with dry service conditions and untreated lumber.
- 9.7 Install TrussBRACE™ at right angles to the plane of the truss member.
- 9.8 Where TrussBRACE™ temporary bracing will be used a part of the permanent bracing, TrussBRACE™ must be placed at the permanent web buckling bracing locations as shown on the truss design drawings in accordance with IBC Section 2303.4.
- 9.9 TrussBRACE™ may only be installed on trusses spaced 24" on center and up to 60' in length.
- 9.10 Trusses that span over 60' require complex temporary installation of restraint/diagonal bracing. Consult a professional engineer.
- 9.11 When required by adopted legislation and enforced by the building official, also known as the authority having jurisdiction (AHJ) in which the project is to be constructed:
- 9.11.1 Any calculations incorporated into the construction documents shall conform to accepted engineering practice, and, when prepared by an approved source, shall be approved when signed and sealed.
  - 9.11.2 This TER and the installation instructions shall be submitted at the time of permit application.
  - 9.11.3 This innovative product has an internal quality control program and a third-party quality assurance program.
  - 9.11.4 At a minimum, this innovative product shall be installed per Section 6 of this TER.
  - 9.11.5 The review of this TER by the AHJ shall be in compliance with IBC Section 104 and IBC Section 105.4.
  - 9.11.6 This innovative product has an internal quality control program and a third party quality assurance program in accordance with IBC Section 104.4, IBC Section 110.4, IBC Section 1703, IRC Section R104.4 and IRC Section R109.2.
  - 9.11.7 The application of this innovative product in the context of this TER is dependent upon the accuracy of the construction documents, implementation of installation instructions, inspection as required by IBC Section 110.3, IRC Section R109.2 and any other regulatory requirements that may apply.

<sup>17</sup> <https://iaf.nu/en/about-iaf-mla/#:~:text=required%20to%20recognise>



- 9.12 The approval of this TER by the AHJ shall comply with IBC Section 1707.1, where legislation states in pertinent part, “*the building official shall accept duly authenticated reports from approved agencies in respect to the quality and manner of use of new materials or assemblies as provided for in Section 104.11”*, all of IBC Section 104, and IBC Section 105.4.
- 9.13 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 (i.e., owner or RDP).
- 9.14 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.

## 10 Identification

- 10.1 The innovative product listed in Section 1.1 is identified by a label on the board or packaging material bearing the manufacturer name, product name, TER number, and other information to confirm code compliance.
- 10.2 Additional technical information can be found at [www.fastenmaster.com](http://www.fastenmaster.com).

## 11 Review Schedule

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

## 12 Approved for Use Pursuant to US and International Legislation Defined in Appendix A

- 12.1 TrussBRACE™ is included in this TER published by an approved agency that is concerned with evaluation of products or services, maintains periodic inspection of the production of listed materials or periodic evaluation of services, and whose TER Listing states either that the material, product, or service meets identified standards or has been tested and found suitable for a specified purpose. This TER meets the legislative intent and definition of being acceptable to the AHJ.

## Appendix A

### 1 Legislation that Authorizes AHJ Approval

- 1.1 **Fair Competition:** State legislatures have adopted Federal regulations for the examination and approval of building code referenced and alternative products, materials, designs, services, assemblies and/or methods of construction that:
- 1.1.1 Advance Innovation,
  - 1.1.2 Promote competition so all businesses have the opportunity to compete on price and quality in an open market on a level playing field unhampered by anticompetitive constraints, and
  - 1.1.3 Benefit consumers through lower prices, better quality, and greater choice.
- 1.2 **Adopted Legislation:** The following local, state, and federal regulations affirmatively authorize TrussBRACE™ to be approved by AHJs, delegates of building departments, and/or delegates of an agency of the federal government:
- 1.2.1 Interstate commerce is governed by the Federal Department of Justice to encourage the use of innovative products, materials, designs, services, assemblies and/or methods of construction. The goal is to “protect economic freedom and opportunity by promoting free and fair competition in the marketplace.”
  - 1.2.2 Title 18 US Code Section 242 affirms and regulates the right of individuals and businesses to freely and fairly have new products, materials, designs, services, assemblies and/or methods of construction approved for use in commerce. Disapproval of alternatives shall be based upon non-conformance with respect to specific provisions of adopted legislation, and shall be provided in writing stating the reasons why the alternative was not approved, with reference to the specific legislation violated.
  - 1.2.3 The federal government and each state have a public records act. In addition, each state also has legislation that mimics the federal Defend Trade Secrets Act 2016 (DTSA),<sup>18</sup> where providing test reports, engineering analysis and/or other related IP/TS is subject to prison of not more than 10 years<sup>19</sup> and/or a \$5,000,000 fine or 3 times the value of<sup>20</sup> the Intellectual Property (IP) and Trade Secrets (TS).
    - 1.2.3.1 Compliance with public records and trade secret legislation requires approval through the use of listings, certified reports, Technical Evaluation Reports, duly authenticated reports and/or research reports prepared by approved agencies and/or approved sources.
  - 1.2.4 For new materials<sup>21</sup> that are not specifically provided for in any building code, the design strengths and permissible stresses shall be established by tests, where suitable load tests simulate the actual loads and conditions of application that occur.
  - 1.2.5 The design strengths and permissible stresses of any structural material shall conform to the specifications and methods of design using accepted engineering practice.<sup>22</sup>
  - 1.2.6 The commerce of approved sources (i.e., registered PEs) is regulated by professional engineering legislation. Professional engineering commerce shall always be approved by AHJs, except where there is evidence, provided in writing, that specific legislation has been violated by an individual registered PE.
  - 1.2.7 The AHJ shall accept duly authenticated reports from approved agencies in respect to the quality and manner of use of new materials or assemblies as provided for in IBC Section 104.11.<sup>23</sup>

<sup>18</sup> <http://www.drjengineering.org/AppendixC> and <https://www.drjcertification.org/cornell-2016-protection-trade-secrets>.

<sup>19</sup> <https://www.law.cornell.edu/uscode/text/18/1832#:~:text=imprisoned%20not%20more%20than%2010%20years>

<sup>20</sup> <https://www.law.cornell.edu/uscode/text/18/1832#:~:text=Any%20organization%20that,has%20thereby%20avoided>

<sup>21</sup> <https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1706.2>

<sup>22</sup> IBC 2021, Section 1706.1 Conformance to Standards

<sup>23</sup> IBC 2021, Section 1707 Alternative Test Procedure, 1707.1 General

- 1.3 **Approved<sup>24</sup> by Los Angeles:** The Los Angeles Municipal Code (LAMC) states in pertinent part that the provisions of LAMC are not intended to prevent the use of any material, device, or method of construction not specifically prescribed by LAMC. The Department shall use Part III, Recognized Standards in addition to Part II, Uniform Building Code Standards of Division 35, Article 1, Chapter IX of the LAMC in evaluation of products for approval where such standard exists for the product or the material and may use other approved standards, which apply. Whenever tests or certificates of any material or fabricated assembly are required by Chapter IX of the LAMC, such tests or certification shall be made by a testing agency approved by the Superintendent of Building to conduct such tests or provide such certifications. The testing agency shall publish the scope and limitation(s) of the listed material or fabricated assembly.<sup>25</sup> The Superintendent of Building roster of approved testing agencies is provided by the Los Angeles Department of Building and Safety (LADBS). The Center for Building Innovation (CBI) Certificate of Approval License is TA24945. Tests and certifications found in a CBI Listing are LAMC approved. In addition, the Superintendent of Building shall accept duly authenticated reports from approved agencies in respect to the quality and manner of use of new materials or assemblies as provided for in the California Building Code (CBC) Section 1707.1.<sup>26</sup>
- 1.4 **Approved by Chicago:** The Municipal Code of Chicago (MCC) states in pertinent part that an Approved Agency is a Nationally Recognized Testing Laboratory (NRTL) acting within its recognized scope and/or a certification body accredited by the American National Standards Institute (ANSI) acting within its accredited scope. Construction materials and test procedures shall conform to the applicable standards listed in the MCC. Sufficient technical data shall be submitted to the building official to substantiate the proposed use of any product, material, service, design, assembly and/or method of construction not specifically provided for in the MCC. This technical data shall consist of research reports from approved sources (i.e., MCC defined Approved Agencies).
- 1.5 **Approved by New York City:** The NYC Building Code 2022 (NYCBC) states in pertinent part that an approved agency shall be deemed<sup>27</sup> an approved testing agency via ISO/IEC 17025 accreditation, an approved inspection agency via ISO/IEC 17020 accreditation, and an approved product evaluation agency via ISO/IEC 17065 accreditation. Accrediting agencies, other than federal agencies, must be members of an internationally recognized cooperation of laboratory and inspection accreditation bodies subject to a mutual recognition agreement<sup>28</sup> (i.e., ANAB, International Accreditation Forum (IAF), etc.).
- 1.6 **Approved by Florida:** Statewide approval of products, methods, or systems of construction shall be approved, without further evaluation, by 1) A certification mark or listing of an approved certification agency, 2) A test report from an approved testing laboratory, 3) A product evaluation report based upon testing or comparative or rational analysis, or a combination thereof, from an approved product evaluation entity; 4) A product evaluation report based upon testing or comparative or rational analysis, or a combination thereof, developed and signed and sealed by a professional engineer or architect, licensed in Florida. For local product approval, products or systems of construction shall demonstrate compliance with the structural wind load requirements of the Florida Building Code (FBC) through one of the following methods; 1) A certification mark, listing, or label from a commission-approved certification agency indicating that the product complies with the code; 2) A test report from a commission-approved testing laboratory indicating that the product tested complies with the code; 3) A product-evaluation report based upon testing, comparative or rational analysis, or a combination thereof, from a commission-approved product evaluation entity which indicates that the product evaluated complies with the code; 4) A product-evaluation report or certification based upon testing or comparative or rational analysis, or a combination thereof, developed and signed and sealed by a Florida professional engineer or Florida registered architect, which indicates that the product complies with the code; 5) A statewide product approval issued by the Florida Building Commission. The Florida Department of Business and Professional Regulation (DBPR) website provides a listing of companies certified as a Product Evaluation Agency (i.e., EVLMiami 13692), a Product Certification Agency (i.e., CER10642), and as a Florida Registered Engineer (i.e., ANE13741).

<sup>24</sup> See Section 8 for the distilled building code definition of Approved

<sup>25</sup> Los Angeles Municipal Code, SEC. 98.0503. TESTING AGENCIES

<sup>26</sup> https://up.codes/viewer/california/ca-building-code-2022/chapter/17/special-inspections-and-tests#1707.1

<sup>27</sup> New York City, The Rules of the City of New York, § 101-07 Approved Agencies

<sup>28</sup> New York City, The Rules of the City of New York, § 101-07 Approved Agencies

- 1.7 **Approved by Miami-Dade County (i.e., Notice of Acceptance [NOA]):** A Florida statewide approval is an NOA. An NOA is a Florida local product approval. By Florida law, Miami-Dade County shall accept the statewide and local Florida Product Approval as provided for in Florida legislation [553.842](#) and [553.8425](#).
- 1.8 **Approved by New Jersey:** Pursuant to Building Code 2018 of New Jersey in [IBC Section 1707.1 General](#),<sup>29</sup> it states: “In the absence of approved rules or other approved standards, the building official shall accept duly authenticated reports from [approved agencies](#) in respect to the quality and manner of use of new materials or assemblies as provided for in the administrative provisions of the [Uniform Construction Code \(N.J.A.C. 5:23\)](#)”.<sup>30</sup> Furthermore N.J.A.C 5:23-3.7 states: Municipal approvals of alternative materials, equipment, or methods of construction. **(a) Approvals:** Alternative materials, equipment, or methods of construction shall be approved by the appropriate subcode official provided the proposed design is satisfactory and that the materials, equipment, or methods of construction are suitable for the intended use and are at least the equivalent in quality, strength, effectiveness, fire resistance, durability and safety of those conforming with the requirements of the regulations. 1. A field evaluation label and report or letter issued by a nationally recognized testing laboratory verifying that the specific material, equipment, or method of construction meets the identified standards or has been tested and found to be suitable for the intended use, shall be accepted by the appropriate subcode official as meeting the requirements of (a) above. 2. Reports of engineering findings issued by nationally recognized evaluation service programs, such as, but not limited to, the Building Officials and Code Administrators (BOCA), the International Conference of Building Officials (ICBO), the Southern Building Code Congress International (SBCCI), the International Code Council (ICC), and the National Evaluation Service, Inc., shall be accepted by the appropriate subcode official as meeting the requirements of (a) above. The [New Jersey Department of Community Affairs](#) has confirmed that technical evaluation reports, from any accredited entity listed by [ANAB](#), meets the requirements of item 2 given that the listed entities are no longer in existence and/or do not provide “reports of engineering findings”.
- 1.9 **Approved by the Code of Federal Regulations Manufactured Home Construction and Safety Standards:** Pursuant to Title 24, Subtitle B, Chapter XX, [Part 3282.14](#),<sup>31</sup> and [Part 3280](#),<sup>32</sup> the Department encourages innovation and the use of new technology in manufactured homes. The design and construction of a manufactured home shall conform with the provisions of Part 3282 and Part 3280 where key approval provisions in mandatory language follow: 1) “All construction methods shall be in conformance with accepted engineering practices”; 2) “The strength and rigidity of the component parts and/or the integrated structure shall be determined by engineering analysis or by suitable load tests to simulate the actual loads and conditions of application that occur.”; and 3) “The design stresses of all materials shall conform to accepted engineering practice.”
- 1.10 **Approval by US, Local, and State Jurisdictions in General:** In all other local and state jurisdictions, the adopted building code legislation states in pertinent part that:
- 1.10.1 For [new materials](#) that are not specifically provided for in this code, the [design strengths and permissible stresses](#) shall be established by tests.<sup>33</sup>
- 1.10.2 For [innovative alternative products, materials, designs, services and/or methods of construction](#), in the absence of approved rules or other approved standards...the building official shall accept duly authenticated reports (i.e., listing and/or research report) from [approved agencies](#) with respect to the quality and manner of use of [new materials or assemblies](#).<sup>34</sup> A building official [approved agency](#) is deemed to be approved via certification from an [accreditation body](#) that is listed by the [International Accreditation Forum](#)<sup>35</sup> or equivalent.

<sup>29</sup> [https://up.codes/viewer/new\\_jersey/ibc-2018/chapter/17/special-inspections-and-tests#1707.1](https://up.codes/viewer/new_jersey/ibc-2018/chapter/17/special-inspections-and-tests#1707.1)

<sup>30</sup> <https://www.nj.gov/dca/divisions/codes/codereg/ucc.html>

<sup>31</sup> <https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3282/subpart-A/section-3282.14>

<sup>32</sup> <https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280>

<sup>33</sup> [IBC 2021, Section 1706 Design Strengths of Materials, 1706.2 New Materials](#). Adopted law pursuant to IBC model code language 1706.2.

<sup>34</sup> [IBC 2021, Section 1707 Alternative Test Procedure, 1707.1 General](#). Adopted law pursuant to IBC model code language 1707.1.

<sup>35</sup> Please see the [ANAB directory](#) for building official approved agencies.

- 1.10.3 The design strengths and permissible stresses of any structural material...shall conform to the specifications and methods of design of accepted engineering practice performed by an approved source.<sup>36</sup> An approved source is defined as a PE subject to professional engineering laws, where a research and/or a technical evaluation report certified by a PE, shall be approved.
- 1.11 **Approval by International Jurisdictions:** The USMCA and GATT agreements provide for approval of innovative materials, products, designs, services, assemblies and/or methods of construction through the Technical Barriers to Trade agreements and the International Accreditation Forum (IAF) Multilateral Recognition Arrangement (MLA), where these agreements:
- 1.11.1 Permit participation of conformity assessment bodies located in the territories of other Members (defined as GATT Countries) under conditions no less favourable than those accorded to bodies located within their territory or the territory of any other country,
  - 1.11.2 State that conformity assessment procedures (i.e., ISO/IEC 17020, 17025, 17065, etc.) are prepared, adopted, and applied so as to grant access for suppliers of like products originating in the territories of other Members under conditions no less favourable than those accorded to suppliers of like products of national origin or originating in any other country, in a comparable situation.
  - 1.11.3 State that conformity assessment procedures are not prepared, adopted, or applied with a view to or with the effect of creating unnecessary obstacles to international trade. This means that conformity assessment procedures shall not be more strict or be applied more strictly than is necessary to give the importing Member adequate confidence that products conform to the applicable technical regulations or standards.
  - 1.11.4 **Approved:** The purpose of the IAF MLA is to ensure mutual recognition of accredited certification and validation/verification statements between signatories to the MLA, and subsequently acceptance of accredited certification and validation/verification statements in many markets based on one accreditation for the timely approval of innovative materials, products, designs, services, assemblies and/or methods of construction. Accreditations granted by IAF MLA signatories are recognised worldwide based on their equivalent accreditation programs, therefore reducing costs and adding value to businesses and consumers.

<sup>36</sup> IBC 2021, Section 1706 Design Strengths of Materials, Section 1706.1 Conformance to Standards Adopted law pursuant to IBC model code language 1706.1.



Issue Date: September 9, 2022  
Subject to Renewal: October 1, 2024

## CBC and CRC Supplement to TER 2206-01

REPORT HOLDER: OMG®, Inc. DBA FastenMaster®

### 1 Evaluation Subject

#### 1.1 TrussBRACE™

### 2 Purpose and Scope

#### 2.1 Purpose

- 2.1.1 The purpose of this Technical Evaluation Report (TER) supplement is to show TrussBRACE™, recognized in TER 2206-01, has also been evaluated for compliance with the codes listed below.

#### 2.2 Applicable Code Editions

- 2.2.1 *CBC—16, 19: California Building Code (Title 24, Part 2)*
- 2.2.2 *CRC—16, 19: California Residential Code (Title 24, Part 2.5)*
- 2.2.3 *CEC —16, 19: California Energy Code (Title 24, Part 6)*

### 3 Conclusions

- 3.1 TrussBRACE™, described in TER 2206-01, complies with the CBC and CRC and is subject to the conditions of use described in this supplement.
- 3.2 Where there are variations between the IBC and IRC and the CBC and CRC applicable to this TER, they are listed here:
  - 3.2.1 No variations.

### 4 Conditions of Use

- 4.1 TrussBRACE™, described in TER 2206-01, must comply with all of the following conditions:
  - 4.1.1 All applicable sections in TER 2206-01.
  - 4.1.2 The design, installation, and inspections are in accordance with additional requirements of CBC and CRC, as applicable.



Issue Date: September 9, 2022  
Subject to Renewal: October 1, 2024

## LABC and LARC Supplement to TER 2206-01

REPORT HOLDER: OMG®, Inc. DBA FastenMaster®

### 1 Evaluation Subject

- 1.1 TrussBRACE™

### 2 Purpose and Scope

- 2.1 Purpose
  - 2.1.1 The purpose of this Technical Evaluation Report (TER) supplement is to show TrussBRACE™, recognized in TER 2206-01, has also been evaluated for compliance with the codes listed below as adopted by the Los Angeles Department of Building and Safety (LADBS).
- 2.2 *Applicable Code Editions*
  - 2.2.1 *LABC—17, 20: Los Angeles Building Code*
  - 2.2.2 *LARC—17, 20: Los Angeles Residential Code*

### 3 Conclusions

- 3.1 TrussBRACE™, described in TER 2206-01, complies with the LABC and LARC and is subject to the conditions of use described in this supplement.
- 3.2 Where there are variations between the IBC and IRC and the LABC and LARC applicable to this TER, they are listed here:
  - 3.2.1 LABC Section 91.104.2.6 replaces IBC Section 104.11
  - 3.2.2 LARC Section 91.104.2.6 replaces IRC Section R104.11
  - 3.2.3 LABC Section 91.104.2.2 replaces IBC Section 104.4
  - 3.2.4 LABC Section 91.108 replaces IBC Section 110.4
  - 3.2.5 LARC Section 91.104.2.2 replaces IRC Section R104.4
  - 3.2.6 LARC Section 91.108 replaces IRC Section R109.2
  - 3.2.7 LABC Section 91.104 replaces IBC Section 104
  - 3.2.8 LABC Section 91.108.5 replaces IBC Section 110.3.

### 4 Conditions of Use

- 4.1 TrussBRACE™, described in TER 2206-01, must comply with all of the following conditions:
  - 4.1.1 All applicable sections in TER 2206-01.
  - 4.1.2 The design, installation, conditions of use, and identification of TrussBRACE™ are in accordance with the 2018 International Building Code (IBC) provisions noted in TER 2206-01.
  - 4.1.3 The design, installation, and inspections are in accordance with additional requirements of LABC Chapter 16 and Chapter 17, as applicable.



Issue Date: September 9, 2022  
Subject to Renewal: October 1, 2024

## FBC Supplement to TER 2206-01

REPORT HOLDER: OMG®, Inc. DBA FastenMaster®

### 1 Evaluation Subject

#### 1.1 TrussBRACE™

### 2 Purpose and Scope

#### 2.1 Purpose

- 2.1.1 The purpose of this Technical Evaluation Report (TER) supplement is to show TrussBRACE™, recognized in TER 2206-01, has also been evaluated for compliance with the codes listed below as adopted by the Florida Building Commission.

#### 2.2 Applicable Code Editions

- 2.2.1 FBC-B—20, 23: Florida Building Code – Building
- 2.2.2 FBC-R—20, 23: Florida Building Code – Residential

### 3 Conclusions

- 3.1 TrussBRACE™, described in TER 2206-01, complies with the FBC-B and FBC-R and is subject to the conditions of use described in this supplement.
- 3.2 Where there are variations between the IBC and IRC and the FBC-B and FBC-R applicable to this TER, they are listed here:
  - 3.2.1 FBC-B Section 104.4 and Section 110.4 are reserved.
  - 3.2.2 FBC-R Section R104 and Section R109 are reserved.

### 4 Conditions of Use

- 4.1 TrussBRACE™, described in TER 2206-01, must comply with all of the following conditions:
  - 4.1.1 All applicable sections in TER 2206-01.
  - 4.1.2 The design, installation, and inspections are in accordance with additional requirements of FBC-B Chapter 16 and Chapter 17, as applicable.