# Listing and Technical Evaluation Report™

**A Duly Authenticated Report from an Approved Agency**

**Report No: 1507-03**

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## BamCore® Prime Wall™ System

**Trade Secret Report Holder:**

## Global Bamboo Technologies, Inc.

Phone: 707-737-0288 Website: www.bamcore.com

### CSI Designations:

**DIVISION: 06 00 00 - WOOD, PLASTICS AND COMPOSITES**

Section: 06 12 00 - Structural Panels Section: 06 16 00 - Sheathing Section: 06 17 00 - Shop-Fabricated Structural Wood

## 1 Innovative Products Evaluated[1]

1.1 BamCore Prime Wall System Panels:

1.1.1 BamCore Prime Panel Bamboo Hybrid 1 (BH1)

1.1.2 BamCore Prime Panel Bamboo Hybrid 2 (BH2)

1.1.3 BamCore Prime Panel Eucalyptus Super Combi (ESC)

## 2 Product Description and Materials

2.1 An example of the innovative products evaluated in this report is shown in **Figure 1**.

**Figure 1**. House Under Construction Using BamCore Prime Wall System

2.2 BamCore Prime Wall System has three wall systems available: DuoShear™, MonoShear™, and Prime.24.

2.2.1 The DuoShear wall system is comprised of two Bamboo Hybrid Prime Wall Panel runs (available as *"Base Load"/"BH1"* or *"High Load"/"BH2"*), or two Eucalyptus Super Combi (ESC) Prime Wall Panel runs forming the interior and exterior faces of the wall assembly.

2.2.2 The MonoShear wall system and the Prime.24 wall system are comprised of a single Bamboo Hybrid Prime Wall Panel run (available as *"Base Load"/"BH1"* or *"High Load"/"BH2"*) or a Eucalyptus Super Combi (ESC) Prime Wall Panel run forming the exterior faces of the wall assembly.

2.2.3 The panels are fastened to wood plates at the top and bottom of the wall assembly and from one panel to the next contiguous panel as specified by approved construction documents.

2.2.3.1 Contiguous panels are fastened to each other into a panel run using lap joints. Blocking between inner and outer panels in DuoShear assemblies and to the single outer panels in MonoShear assemblies are added, per specific job requirements.

2.2.4 Unless otherwise stated, *"BamCore Prime Wall Panels"* or *"BamCore Prime Wall System"*, as outlined in this report, encompasses Bamboo Hybrid Prime Wall *"Base Load"*, Bamboo Hybrid Prime Wall *"High Load"*, and Eucalyptus Super Combi (ESC) Prime Wall Panels.

2.3 Specifically, the BamCore Prime Wall System consists of the following:

2.3.1 *BamCore Prime Wall System Panel Composition:*

2.3.1.1 *Bamboo Hybrid Prime Wall Panels (BH1 and BH2):*

2.3.1.1.1 These panels consist of multiple veneer layers covered with nominal 1/4" (6.4 mm) Bamboo veneers on both faces.

2.3.1.2 *Eucalyptus Super Combi Prime Wall (ESC) Panels:*

2.3.1.2.1 These panels consist of multiple veneer layers covered with nominal 1/4" (6.4 mm) Eucalyptus veneers on both faces.

2.3.1.3 BamCore Prime Wall System panels have a nominal thickness of 1 1/4" (32 mm) (see **Figure 2**).

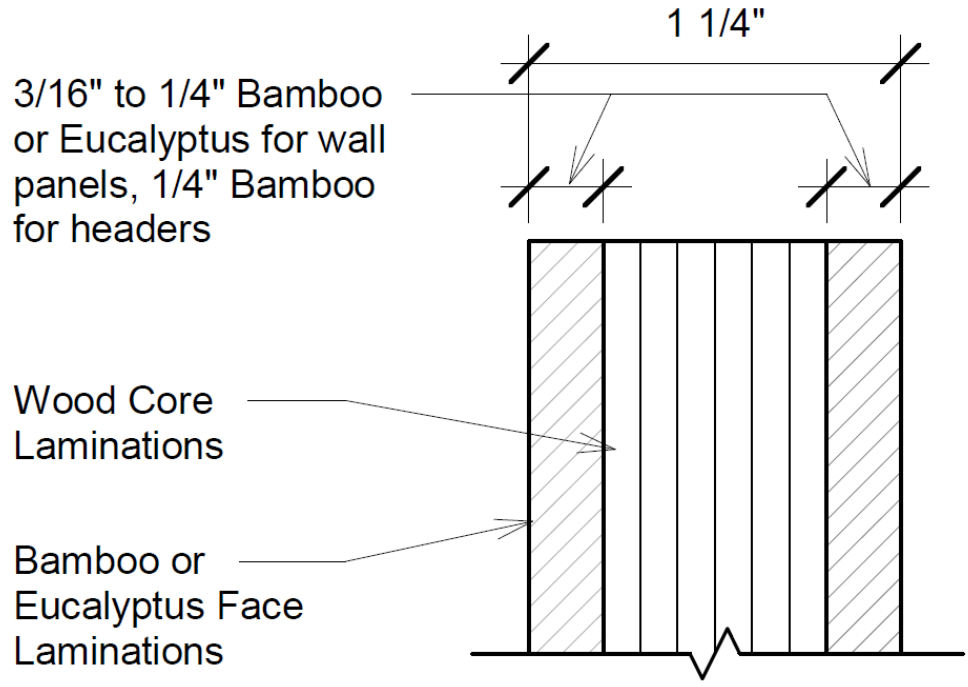


**Figure 2**. BamCore Prime Wall System Panel Construction

2.3.1.4 BamCore Prime Wall System may be designed with plate widths that allow outer wall dimensions from 4 3/4" (121 mm) to 13 3/4" (349 mm).

2.3.1.5 Individual BamCore Prime Wall System panels are manufactured with routed edges to form half-lap joints at adjoining panel edges. The half-lap joint is 1" (25 mm) wide. Each panel has half their depth in the connection.

2.3.2 *Wood Top and Bottom Plates:*

2.3.2.1 The wood top and bottom plates shall be minimum of one 2 x 4 No. 2 dimensional lumber with a minimum oven-dry specific gravity of 0.50. Moisture content at the time of installation shall be nineteen percent (19%) or less. Preservative-treated lumber installed with a moisture content greater than nineteen percent (19%) is permitted.

2.3.2.2 As an alternative to a single nominal 2 x 6 dimensional lumber, bottom plates can be comprised of two 2 x 3 No. 2 dimensional lumber with a minimum oven-dry specific gravity of 0.50. Moisture content at the time of installation shall be nineteen percent (19%) or less. Preservative treated lumber installed with a moisture content greater than nineteen percent 19% is permitted.

2.3.2.3 Both the interior and exterior panels are connected to the wood plates with 0.131" dia. x 3 1/4" long (3.3 mm x 85 mm) smooth shank nails spaced per **Table 1**, **Table 2**, **Table 17**, or **Table 18**.

2.3.2.4 Install nails in the centerline of the 2x plates to maintain a minimum 3/4" (19 mm) edge distance along the top and bottom of the panels, as shown in **Figure 3**.

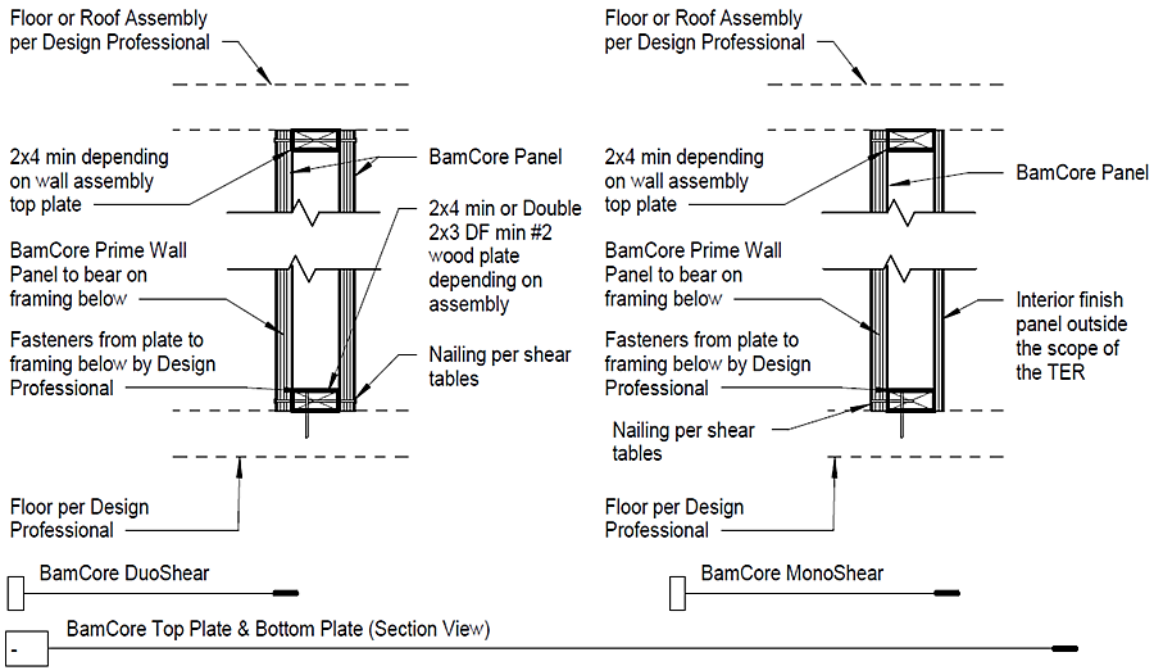


**Figure 3**. BamCore Top/Bottom Plate Section View

2.3.3 *Fastening:*

2.3.3.1 Contiguous panels within a shear wall shall be connected together at vertical joints with a half-lap joint, as demonstrated in **Figure 4**.

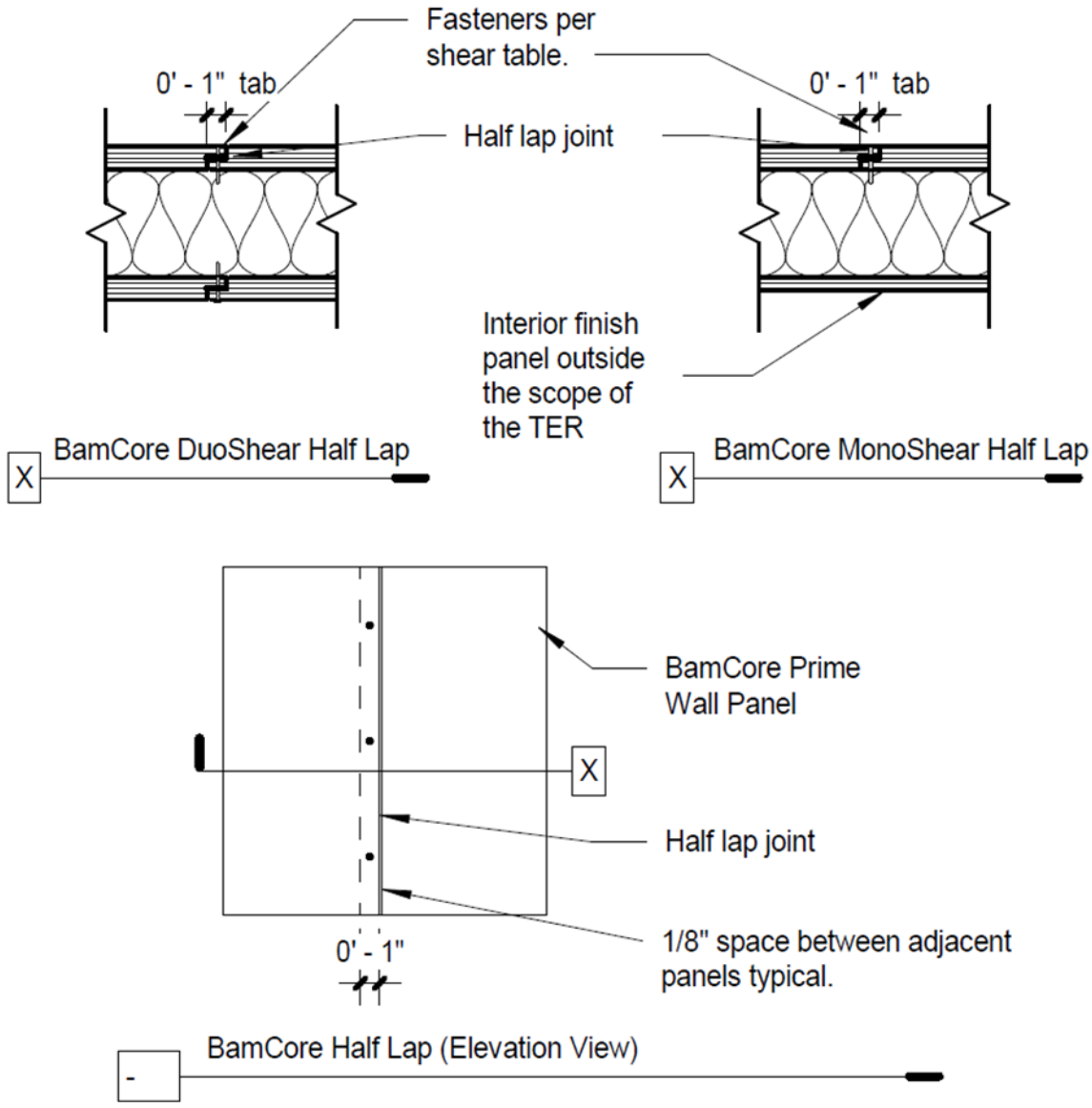


**Figure 4**. BamCore Panel-to-Panel Half-Lap

2.3.3.2 The half-lap joint is 1" (25 mm) wide, and each panel has half their depth in the connection.

2.3.3.2.1 Fasteners at lap joints require a $^{3}/_{16}$" minimum edge distance.

2.3.3.2.2 For shear walls with solid sawn wood plates, the half-lap joint shall be connected with 0.113" dia. x 2" long (2.9 mm x 50 mm) ring shank nails. Nails shall be spaced per **Table 1**, **Table 2**, **Table 17**, or **Table 18**.

2.3.4 *Hold-Downs:*

2.3.4.1 For shear wall applications with solid sawn wood plates, hold-downs are composed of a partial height wood block nailed to each panel. A metal plate sits on top of the blocks and is attached to the foundation/framing below using a threaded rod. See **Figure 9** for attachment requirements.

2.3.4.2 Alternative hold-down options are presented in **Table 19**.

2.3.5 *Blocking:*

2.3.5.1 Vertical panel blocking shall be installed in the cavity between the two runs of panels and fastened to the BamCore Prime Wall System panels using minimum 0.131" dia. x 3¼" long (3.3 mm x 85 mm) nails with spacing in accordance with **Table 1** through **Table 8**, and **Table 17** through **Table 26** (see **Figure 5**).

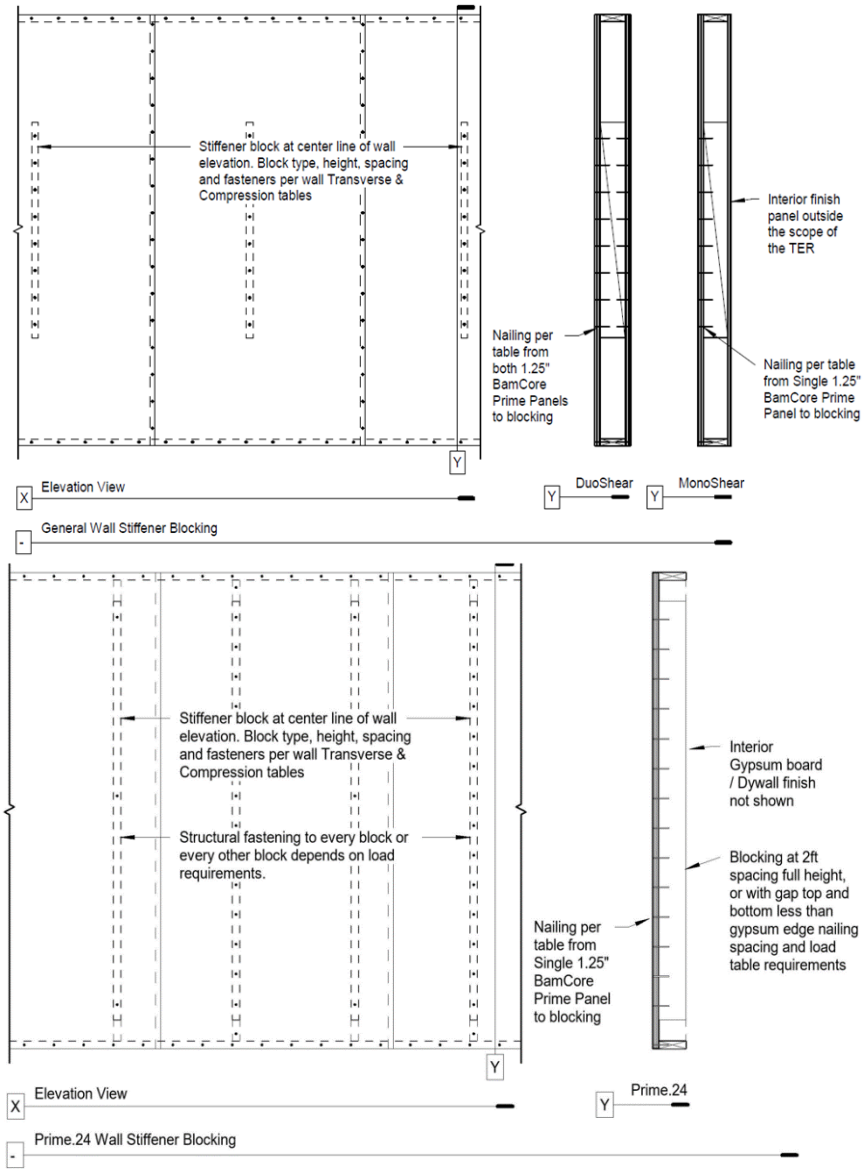


**Figure 5**. General Wall Detail

2.3.5.2 Blocking height and spacing depend on specific job requirements as specified in the approved construction documents.

2.3.5.3 Blocking around window and door openings are to be fastened using minimum 0.131" dia. x 3¼" long (3.3 mm x 85 mm) nails to match vertical panel blocking nail spacing (6" o.c. [152 mm] maximum spacing) (see **Figure 6**).

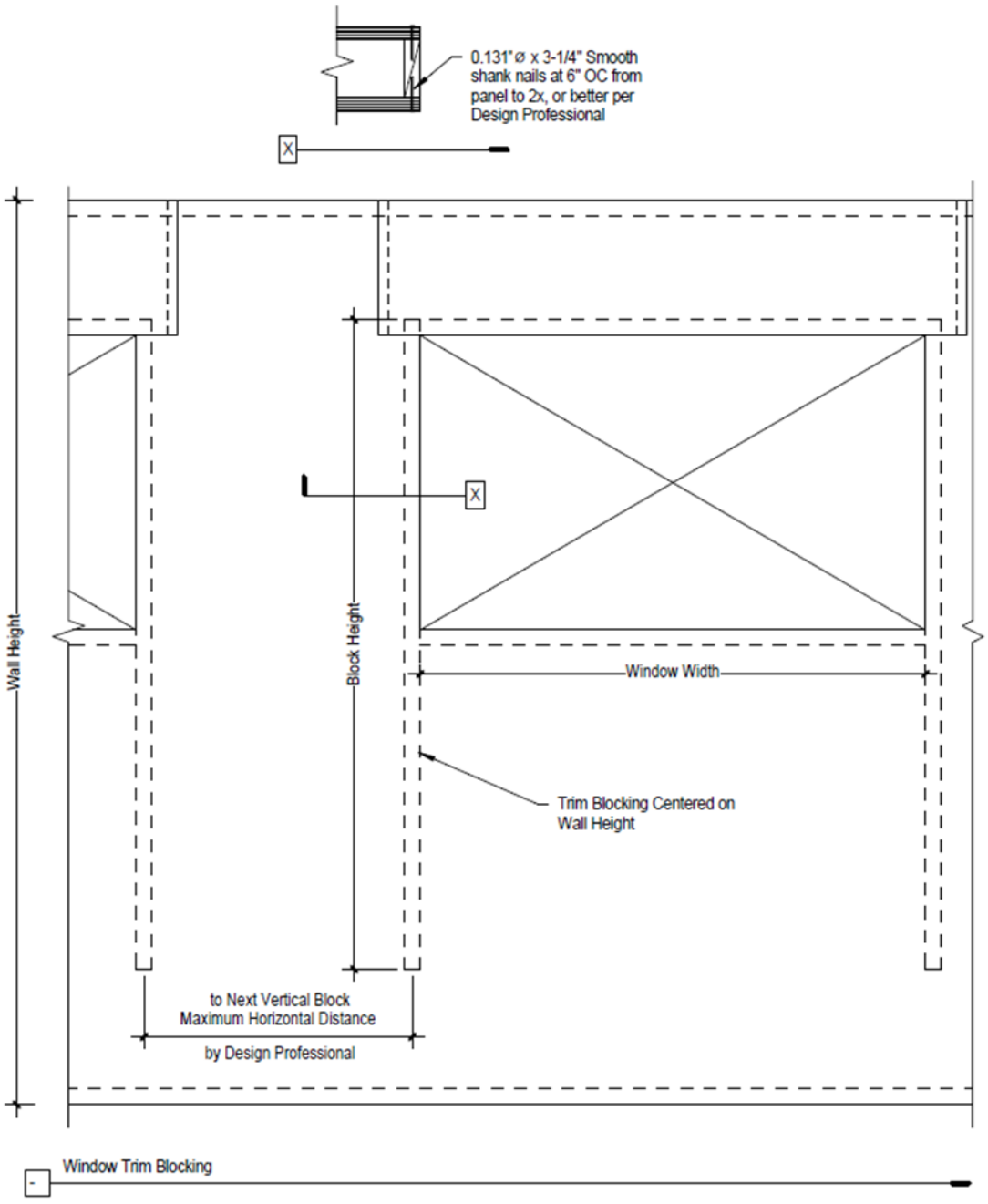


**Figure 6**. Window Trim Blocking

2.4 BamCore Prime Wall System panels are prefabricated to a job-specific engineered plan and delivered to the jobsite with materials, as specified in BamCore-to-client contracts.

2.4.1 Where applicable, the figures presented in this report shall be considered as examples.

2.5 As needed, review material properties for design in **Section 6** and the regulatory evaluation in **Section 8**.

## 3 Definitions[2]

3.1 New Materials[3] are defined as building materials, equipment, appliances, systems, or methods of construction, not provided for by prescriptive and/or legislatively adopted regulations, known as alternative materials.[4] The design strength and permissible stresses shall be established by tests[5] and/or engineering analysis.[6]

3.2 Duly authenticated reports[7] and research reports[8] are test reports and related engineering evaluations that are written by an approved agency[9] and/or an approved source.[10]

3.2.1 These reports utilize intellectual property and/or trade secrets to create public domain material properties for commercial end-use.

3.2.1.1 This report protects confidential Intellectual Property and trade secretes under the regulation, 18.US.Code.90, also known as Defend Trade Secrets Act of 2016 (DTSA).[11]

3.3 An approved agency is *"approved"* when it is ANAB ISO/IEC 17065 accredited. DrJ Engineering, LLC (DrJ) is accredited and listed in the ANAB directory.

3.4 An approved source is *"approved"* when a professional engineer (i.e., Registered Design Professional, hereinafter RDP) is properly licensed to transact engineering commerce. The regulatory authority governing approved sources is the state legislature via its professional engineering regulations.[12]

3.5 Testing and/or inspections conducted for this duly authenticated report were performed by an ISO/IEC 17025 accredited testing laboratory, an ISO/IEC 17020 accredited inspection body, and/or a licensed RDP.

3.5.1 The Center for Building Innovation (CBI) is ANAB[13] ISO/IEC 17025 and ISO/IEC 17020 accredited.

3.6 The regulatory authority shall enforce[14] the specific provisions of each legislatively adopted regulation. If there is a non-conformance, the specific regulatory section and language of the non-conformance shall be provided in writing[15] stating the nonconformance and the path to its cure.

3.7 The regulatory authority shall accept duly authenticated reports from an approved agency and/or an approved source with respect to the quality and manner of use of new materials or assemblies as provided for in regulations regarding the use of alternative materials, designs, or methods of construction.[16]

3.8 ANAB is an International Accreditation Forum (IAF) Multilateral Recognition Arrangement (MLA) signatory. Therefore, recognition of certificates and validation statements issued by conformity assessment bodies accredited by all other signatories of the IAF MLA with the appropriate scope shall be approved.[17] Thus, all ANAB ISO/IEC 17065 duly authenticated reports are approval equivalent,[18] and can be used in any country that is an MLA signatory found at this link: https://iaf.nu/en/recognised-abs/

3.9 Approval equity is a fundamental commercial and legal principle.[19]

## 4 Applicable Local, State, and Federal Approvals; Standards; Regulations[20]

4.1 *Local, State, and Federal*

4.1.1 Approved in all local jurisdictions pursuant to ISO/IEC 17065 duly authenticated report use, which includes, but is not limited to, the following featured local jurisdictions: Austin, Baltimore, Broward County, Chicago, Clark County, Dade County, Dallas, Detroit, Denver, DuPage County, Fort Worth, Houston, Kansas City, King County, Knoxville, Las Vegas, Los Angeles City, Los Angeles County, Miami, Nashville, New York City, Omaha, Philadelphia, Phoenix, Portland, San Antonio, San Diego, San Jose, San Francisco, Seattle, Sioux Falls, South Holland, St. Louis County, Texas Department of Insurance, and Wichita.[21]

4.1.2 Approved in all state jurisdictions pursuant to ISO/IEC 17065 duly authenticated report use, which includes, but is not limited to, the following featured states: California, Florida, New Jersey, Oregon, New York, Texas, Washington, and Wisconsin.[22]

4.1.3 Approved by the Code of Federal Regulations Manufactured Home Construction: Pursuant to Title 24, Subtitle B, Chapter XX, Part 3282.14[23] and Part 3280[24] pursuant to the use of ISO/IEC 17065 duly authenticated reports.

4.1.4 Approved means complying with the requirements of local, state, or federal legislation.

4.2 *Regulations*

4.2.1 *IBC – 18, 21, 24: International Building Code®*

4.2.2 *IRC – 18, 21, 24: International Residential Code®*

4.2.3 *IECC – 18, 21, 24: International Energy Conservation Code®*

4.2.4 *CBC – 19, 22: California Building Code[25]*

4.2.5 *CRC – 19, 22: California Residential Code[25]*

4.2.6 *CEC – 19, 22: California Energy Code*

4.2.7 *LABC – 20, 23: Los Angeles Building Code[26]*

4.2.8 *LARC – 20, 23: Los Angeles Residential Code[26]*

4.2.9 *FBC-B – 20, 23: Florida Building Code[27] – Building (FL 41778)*

4.2.10 *FBC-R – 20, 23: Florida Building Code[27] – Residential (FL 41778)*

4.2.11 *NYSBC-B – 15, 20: New York State Building Code[28] - Building*

4.2.12 *NYSBC-R – 15, 20: New York State Building Code[28] – Residential*

4.3 *Standards*

4.3.1 *ANSI/AWC NDS: National Design Specification (NDS) for Wood Construction*

4.3.2 *ANSI/AWC SDPWS: Special Design Provisions for Wind and Seismic*

4.3.3 *ASCE/SEI 7: Minimum Design Loads and Associated Criteria for Buildings and Other Structures*

4.3.4 *ASTM C518: Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus*

4.3.5 *ASTM C1363: Standard Test Method for Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus*

4.3.6 *ASTM D143: Standard Test Methods for Small Clear Specimens of Timber*

4.3.7 *ASTM D198: Standard Test Methods of Static Tests of Lumber in Structural Sizes*

4.3.8 *ASTM D1761: Standard Test Methods for Mechanical Fasteners in Wood and Wood-Based Materials*

4.3.9 *ASTM D5456: Standard Specification for Evaluation of Structural Composite Lumber Products*

4.3.10 *ASTM D5457: Standard Specification for Computing Reference Resistance of Wood-Based Materials and Structural Connections for Load and Resistance Factor Design*

4.3.11 *ASTM D5764: Standard Test Method for Evaluating Dowel-Bearing Strength of Wood and Wood-Based Products*

4.3.12 *ASTM D7147: Standard Specification for Testing and Establishing Allowable Loads of Joist Hangers*

4.3.13 *ASTM D7989: Standard Practice for Demonstrating Equivalent In-Plane Lateral Seismic Performance to Wood-Frame Shear Walls Sheathed with Wood Structural Panels*

4.3.14 *ASTM E72: Standard Test Methods of Conducting Strength Tests of Panels for Building Construction*

4.3.15 *ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials*

4.3.16 *ASTM E90: Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements*

4.3.17 *ASTM E96: Standard Test Methods for Water Vapor Transmission of Materials*

4.3.18 *ASTM E119: Standard Test Methods for Fire Tests of Building Construction and Materials*

4.3.19 *ASTM E2126: Standard Test Methods for Cyclic (Reversed) Load Test for Shear Resistance of Vertical Elements of the Lateral Force Resisting Systems for Buildings*

4.3.20 *ASTM E2768: Standard Test Method for Extended Duration Surface Burning Characteristics of Building Materials (30 min Tunnel Test)*

4.4 Structural performance for shear wall assemblies used as lateral force resisting systems in Seismic Design Categories A through F have been tested and evaluated in accordance with the following standards:

4.4.1 *ASCE/SEI 7: Minimum Design Loads and Associated Criteria for Buildings and Other Structures*

4.4.2 *ASTM D7989: Standard Practice for Demonstrating Equivalent In-Plane Lateral Seismic Performance to Wood-Frame Shear Walls Sheathed with Wood Structural Panels*

4.4.2.1 ASTM D7989 is accepted engineering practice used to establish Seismic Design Coefficients (SDC).

4.4.2.2 Tested data generated by ISO/IEC 17025 approved agencies and/or professional engineers, which use ASTM D7989 as their basis, are defined as intellectual property and/or trade secrets.

4.4.2.3 All professional engineering evaluations are defined as an independent design review (i.e., listings, certified reports, duly authenticated reports from approved agencies, and/or research reports, are prepared independently by approved agencies and/or approved sources, when signed and sealed by licensed professional engineer pursuant to registration law.

4.4.3 *ASTM E564: Standard Practice for Static Load Test for Shear Resistance of Framed Walls for Buildings*

4.4.4 *ASTM E2126: Standard Test Methods for Cyclic (Reversed) Load Test for Shear Resistance of Vertical Elements of the Lateral Force Resisting Systems for Buildings*

## 5 Listed[29]

5.1 Equipment, materials, products, or services included in a List published by a nationally recognized testing laboratory (i.e., CBI), an approved agency (i.e., CBI and DrJ), and/or and approved source (i.e., DrJ), or other organization(s) concerned with product evaluation (i.e., DrJ), that maintains periodic inspection (i.e., CBI) 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.

# 6 Tabulated Properties Generated from Nationally Recognized Standards

## 6.1 *BamCore Prime.24 Wall System*

6.1.1 Where *"Prime Wall System"* is mentioned in the tables in **Section 6.1** without any other details pertaining to the wall assembly, the wall assembly is as described in **Section 2.2** for BamCore Prime.24 Wall System only.

6.1.2 *Shear Wall Design:*

6.1.2.1 *General Provisions:*

6.1.2.1.1 Except as otherwise described in this report, BamCore Prime Wall System shall be installed in accordance with the applicable building codes listed in **Section 4** using the provisions set forth herein.

6.1.2.1.1.1 BamCore Prime Wall System is intended to be used as an alternative to the design and installation of Wood Structural Panels (WSP) on light-frame wood construction.

6.1.2.1.2 Anchorage for in-plane shear shall be provided to transfer the induced shear force into and out of each shear wall.

6.1.2.1.2.1 Foundation anchorage shall comply with IBC Section 2308.7.1,[30] IRC Section R403.1.6, and IRC Section R602.11.

6.1.2.1.2.2 For wind design, anchor bolt spacing shall not exceed 6' o.c.

6.1.2.1.2.3 For seismic design, anchor bolt spacing shall not exceed 4' o.c.

6.1.2.1.3 The maximum aspect ratio for BamCore Prime Wall System shall be 4:1.

6.1.2.1.4 The minimum full height panel width shall be 24".

6.1.2.1.5 All panel top and bottom edges shall be blocked with a minimum 2" nominal lumber.

6.1.2.2 *Simplified IRC Bracing Provisions:*

6.1.2.2.1 BamCore Prime Wall System is permitted to be used as an alternative to the wall assemblies prescribed in IRC Section R602.12, provided the conditions listed in IRC Section R602.12 be met.

6.1.2.2.1.1 BamCore Prime Wall System can be used as an equivalent, 1:1, alternative to WSP in IRC Section R602.12, provided the wall panels are fastened to framing members with 0.131" dia. x 3$^1/_4$" long (3.3 mm x 85 mm) smooth shank nails.

6.1.2.2.1.1.1 Fastener spacing shall be in accordance with IRC Table R602.3(3), as specified in IRC Section R602.12.2.

6.1.2.2.1.1.2 Fastener spacing shall be 6" o.c. at panel edges and 12" o.c. in the field.

6.1.2.2.1.2 The half-lap joint shall be fastened with 0.113" x 2" ring shank nails as stated in **Section 2.3.3.2.2** of this report, and spaced no larger than 6" o.c.

6.1.2.2.2 The minimum number of BamCore Prime Wall System bracing units shall be in accordance with IRC Table R602.12.4.

6.1.2.2.2.1 One bracing unit shall be full-height and 48" wide.

6.1.2.2.2.2 Distribution of bracing units shall comply with IRC Section R602.12.5.

6.1.2.3 *Prescriptive IRC Bracing Applications:*

6.1.2.3.1 BamCore Prime Wall System is permitted to be used in the following applications:

6.1.2.3.1.1 BamCore Prime Wall System is permitted for use to brace walls of buildings as an equivalent alternative to the IRC Method WSP (Wood Structural Panel) when installed in accordance with IRC Section R602.10 and this report.

6.1.2.3.1.2 BamCore Prime Wall System is permitted for use to brace walls of buildings as an equivalent alternative to the IRC Method CS-WSP (Continuously Sheathed Wood Structural Panel) when installed in accordance with IRC Section R602.10.4 and this report.

6.1.2.3.1.3 BamCore Prime Wall System is permitted for use to brace walls of buildings as an alternative to the IRC Method PFH (Portal Frame with Hold-Downs) braced wall panel provisions of IRC Section R602.10.6.2.

6.1.2.3.1.3.1 BamCore Prime Wall System panels shall not have a vertical seam (lap joint) within the pier of the portal frame.

6.1.2.3.2 BamCore Prime Wall System panels shall be fastened to framing members with 0.131" dia. x $3^1/_4$" long (3.3 mm x 85 mm) smooth shank nails.

6.1.2.3.3 All other IRC prescriptive bracing minimums, spacing requirements, and rules must be met.

6.1.2.3.4 Where a building or portion thereof, does not comply with one or more of the bracing requirements within the prescriptive section of the IRC, those portions shall be designed and constructed in accordance with IRC Section R301.1.

6.1.2.3.5 *Wind Bracing:*

6.1.2.3.5.1 For wind design, required braced wall panel lengths for BamCore Prime Wall System shall be as shown in IRC Table R602.10.3(1) shall be used in conjunction with IRC Table R602.10.3(2), which provides the required adjustments.

6.1.2.3.5.2 All adjustment factors from IRC Table R602.10.3(2) shall be applied.

6.1.2.3.5.3 Minimum length of a braced wall panel in the BamCore Prime Wall System shall comply with IRC Table R602.10.5 for Method WSP, Method CS-WSP, Method PFH, or Method CS PF.

6.1.2.3.6 *Seismic Bracing:*

6.1.2.3.6.1 For seismic design, the required braced wall panel lengths for BamCore Prime Wall System shall be as shown in IRC Table R602.10.3(3), and shall be used in conjunction with IRC Table R602.10.3(4), which provides the required adjustments.

6.1.2.3.7 All other IRC prescriptive bracing minimums, spacing requirements and rules must still be met.

6.1.2.4 BamCore Prime Wall System panels may be designed as shear walls to resist lateral loads using the ASD allowable unit shear capacities for wind and seismic given in **Table 1** and **Table 2**, respectively.

6.1.2.5 The maximum aspect ratio for full-height BamCore Prime Wall System panels, when used in shear walls, shall be 4:1. For shear walls with aspect ratios (h/bs) greater than 2.5:1, the nominal shear capacity shall be multiplied by the Aspect Ratio Factor (WSP) = 1.25 – 0.125h/bs, in accordance with SDPWS Section 4.3.4.2.

6.1.2.6 The minimum aspect ratio shall be 4:1 or the minimum shear wall segment width shall be 24", whichever is greater.

6.1.2.7 *Wind:*

6.1.2.7.1 BamCore Prime Wall System panel shear walls that require wind design in accordance with IBC Section 1609 shall use the wind allowable unit shear capacities set forth in **Table 1**.

**Table 1**. Wind Allowable Unit Shear Capacity[1,2,3]

| Panel Type | Wall Assembly Type | Allowable Unit Shear Capacity (plf) | Top and Bottom Plate Configuration[6] | Blocking Configuration | Half-Lap Fastener Spacing | Hold-Down Configuration |
|---|---|---|---|---|---|---|
| ESC | BamCore Prime Wall MonoShear/ Prime.24 | 460 | 6" o.c fastener spacing<br>Top Plate: Single 2 x 4<br>Bottom Plate: Single 2 x 4 | 6" o.c fastener spacing<br>50% height 2 x 4 blocking, spaced 48" o.c. | 6" o.c. | Strap to Panel Face or Panel to Post with Bucket Hold-Down |
| | | 900 | 2" o.c fastener spacing<br>Top Plate: Double 2 x 4<br>Bottom Plate: Single 2 x 4 | 2" o.c fastener spacing<br>Full height 2 x 4 blocking, spaced 48" o.c. | 2" o.c. | Strap to Panel Face or Panel to Post with Bucket Hold-Down |
| | BamCore Prime Wall DuoShear (Nailed Both Sides) (Requires Upgrade from 1 to 2 Panel Runs) | 1,080 | 3" o.c fastener spacing<br>Top Plate: Single 2 x 6<br>Bottom Plate: Single 2 x 6 | 6" o.c fastener spacing<br>25% height 2 x 4 blocking, spaced 48" o.c. | 3" o.c. | 3x Lumber or Post with Bucket Hold-Down |
| | | 1,535 | 2" o.c fastener spacing<br>Top Plate: Double 2 x 6<br>Bottom Plate: Single 2 x 6 | 6" o.c fastener spacing<br>50% height 2 x 6 blocking, spaced 48" o.c. | 2" o.c. | 3x Lumber or Post with Bucket Hold-Down |
| | | 2,115 | 1½" o.c fastener spacing<br>Top Plate: Double 2 x 6<br>Bottom Plate: Single 3 x 6 | None | 1½" o.c. | 3x Lumber or Post with Bucket Hold-Down |

SI: 1 in = 25.4 mm, 1 lbf/ft = 0.0146 kN/m

1. BamCore Prime Wall System attached in accordance with **Section 2** and **Section 9**.
2. Fasteners for BamCore Prime Wall System panels to top/bottom plate and to blocking connections shall be 3¼" x 0.131" smooth shank nails.
3. Fasteners for the 1" wide, half-lap connection between two BamCore Prime Wall System panels shall be 2" x 0.113" ring shank nails.
4. For the 3x lumber hold-down method, see **Figure 9** and **Table 19** for fastening requirements and allowable tensile load.
5. For the post with bucket hold-down method, the connection shall be sized to resist overturning in accordance with SDPWS Section 4.3.6. The BamCore 3x Lumber type hold-down may be used in lieu of the Bucket Style hold-down.
6. Where 2 x 3 bottom plates were used, the 2 x 3 plates were fastened to the exterior/interior sheathing panels leaving a gap in between.

6.1.2.8 *Seismic:*

6.1.2.8.1 Seismic design for BamCore Prime Wall System panels shall not be required in buildings exempt from seismic design in accordance with IBC Section 1613.

6.1.2.8.2 BamCore Prime Wall System panel shear walls that require seismic design in accordance with IBC Section 1613 shall use the seismic allowable unit shear capacities set forth in **Table 2**.

6.1.2.8.2.1 The response modification coefficient, R, system overstrength factor, $\Omega_0$, and deflection amplification factor, $C_d$, as shown in **Table 2**, shall be used to determine the base shear, element design forces and design story drift in accordance with ASCE 7 Chapter 12 and Section 14.5.

**Table 2**. Seismic Allowable Unit Shear Capacity and Seismic Design Coefficients[1,2,3,4]

| Panel Type | Wall Assembly Type | Allowable Unit Shear Capacity (plf) | Apparent Shear Stiffness,[5] $G_a$ (kips/in) | Top and Bottom Plate Configuration | Blocking Configuration | Half-Lap Fastener Spacing | Hold-Down Configuration |
|---|---|---|---|---|---|---|---|
| ESC | BamCore Prime Wall MonoShear/ Prime.24 | 345 | 6.3 | 6" o.c fastener spacing<br>Top Plate: Single 2 x 4<br>Bottom Plate: Single 2 x 4 | 6" o.c fastener spacing<br>50% height 2 x 4 blocking, spaced 48" o.c. | 6" o.c. | Strap to Panel Face or Panel to Post with Bucket Hold-Down |
| | | 645 | 10.0 | 2" o.c fastener spacing<br>Top Plate: Double 2 x 4<br>Bottom Plate: Single 2 x 4 | 2" o.c fastener spacing<br>Full height 2 x 4 blocking, spaced 48" o.c. | 2" o.c. | Strap to Panel Face or Panel to Post with Bucket Hold-Down |
| | BamCore Prime Wall DuoShear (Nailed Both Sides) (Requires Upgrade from 1 to 2 Panel Runs) | 975 | 22.5 | 3" o.c fastener spacing<br>Top Plate: Single 2 x 6<br>Bottom Plate: Single 2 x 6 | 6" o.c fastener spacing<br>25% height 2 x 4 blocking, spaced 48" o.c. | 3" o.c. | 3x Lumber or Post with Bucket Hold-Down |
| | | 1,095 | 15.5 | 2" o.c fastener spacing<br>Top Plate: Double 2 x 6<br>Bottom Plate: Single 2 x 6 | 6" o.c fastener spacing<br>50% height 2 x 6 blocking, spaced 48" o.c. | 2" o.c. | 3x Lumber or Post with Bucket Hold-Down |
| | | 1,510 | 16.8 | 1 1/2" o.c fastener spacing<br>Top Plate: Double 2 x 6<br>Bottom Plate: Single 3 x 6 | None | 1 1/2" o.c. | 3x Lumber or Post with Bucket Hold-Down |

SI: 1 in = 25.4 mm, 1 lbf/ft = 0.0146 kN/m

1. BamCore Prime Wall System attached in accordance with **Section 2** and **Section 9**.
2. Fasteners for BamCore Prime Wall System panels to top/bottom plate and to blocking connections shall be 3 1/4" x 0.131" smooth shank nails.
3. Fasteners for the 1" wide, half-lap connection between two BamCore Prime Wall System panels shall be 2" x 0.113" ring shank nails.
4. Seismic Design Coefficients:
   a. Response Modification Coefficient: R = 6.5
      i. For use throughout ASCE 7
      ii. ***Note:*** R reduces forces to a strength level, not an allowable stress level.
   b. Overstrength Factor: $\Omega_0 = 3$
      i. The tabulated value of the overstrength factor is permitted to be reduced by subtracting one-half (0.5) for structures with flexible diaphragms.
   c. Deflection amplification factor: $C_d = 4$
      i. For use with ASCE 7 Section 12.8.6, Section 12.8.7, and Section 12.9.2
   d. Structural System Limitations & Building Height Limit: B = NL, C = NL, D = 65, E = 65, F = 65
      i. NL = Not Limited. Heights are measured from the base of the structure as defined in ASCE 7 Section 11.2.
5. Panel shear wall deflection shall be calculated as follows. The total vertical elongation of the wall is accounted for in the apparent shear stiffness:

   $$\delta_{sw} = \frac{vh}{1000G_a}$$

   where:

   $\delta_{sw}$ = shear wall deflection determined by elastic analysis [in]
   v = induced unit shear, lbs/ft
   h = shear wall height, ft
   $G_a$ = apparent shear wall stiffness, kips/in
6. For the 3x lumber hold-down method, see **Figure 9** and **Table 19** for fastening requirements and allowable tensile load.
7. For the post with bucket hold-down method, the connection shall be sized to resist overturning in accordance with SDPWS Section 4.3.6. The BamCore 3x Lumber type hold-down may be used in lieu of the Bucket Style hold-down.
8. Where 2 x 3 bottom plates were used, the 2 x 3 plates were fastened to the exterior/interior sheathing panels leaving a gap in between the two bottom plates.

6.1.3 *Axial Compressive Strength:*

6.1.3.1 BamCore Prime Wall System has the compressive strength shown in **Table 3**.

6.1.3.1.1 Values are for a maximum unrestrained wall height of 10'.

**Table 3**. Allowable Compressive Strength[1,2,3,4]

| Panel Type[5] | Wall Assembly Type | Framing and Blocking Size | Fastener Spacing | Allowable Compressive Strength, plf (kN/m) |
|---|---|---|---|---|
| ESC | BamCore Prime Wall MonoShear / Prime.24 | Full-height 2 x 4 blocking at mid height of wall, spaced horizontally 48" o.c. | 6" o.c. | 3,940 (57.5) |
| | | 90% 2 x 4 blocking at mid height of wall, spaced horizontally 48" o.c. | 3" o.c. | 5,155 (75.2) |
| | | Full-height 2 x 4 blocking at mid height of wall, spaced horizontally 24" o.c. | 6" o.c. | 5,325 (77.7) |

SI: 1 in = 25.4 mm, 1 lbf/ft = 0.0146 kN/m

1. Tested in accordance with ASTM E72, Section 9.
2. BamCore Prime Wall System attached in accordance with **Section 2** and **Section 9**.
3. Fasteners for BamCore Prime Wall System panels to top/bottom plate and to blocking connections shall be 3¼" x 0.131" smooth shank nails.
4. Where walls span more than 10', they shall have transverse restraints at the horizontal panel seams.
5. BamCore BH2 and ESC panels can be used in place of BamCore BH1 panels. BamCore BH2 panels can be used in place of BamCore ESC panels.

6.1.4 *BamCore Prime Wall System Headers – In-Plane Bending Strength:*

6.1.4.1 *One-Edge Header:*

6.1.4.1.1 BamCore Prime Wall System panels may be designed as wall headers to carry gravity loads using the reference design values given in **Table 4**. See **Figure 7** for details of header construction.

**Table 4**. On-Edge Header Reference Design Values (Allowable Stress Design)[1,2,3]

| BamCore Product | Bending (Beam),[4,5,6] $F_b$ psi (MPa) | Compression Parallel-to-Grain, $F_{c\parallel}$ psi (MPa) | Compression Perpendicular-to-Grain,[7] $F_{c\perp}$ psi (MPa) | Horizontal Shear (Beam), $F_v$ psi (MPa) | Modulus of Rigidity (Beam), G psi (MPa) | Modulus of Elasticity (True), E psi (MPa) | Modulus of Elasticity for Beam Stability, $E_{min}$ psi (MPa) |
|---|---|---|---|---|---|---|---|
| Prime Wall ESC Panel | 1,450 (10.0) | 2,280 (15.7) | 615 (4.2) | 325 (2.2) | 93,000 (641) | 1,250,000 (8,618) | 640,000 (4,413) |
| Prime Wall BH2 Panel | 2,920 (20.1) | 2,030 (14.0) | 1,015 (7.0) | 465 (3.2) | 124,000 (855) | 1,840,000 (12,686) | 880,000 (6,067) |

SI: 1 psi = 0.00689 MPa

1. The reference design values in this table are applicable for the product used in dry, well-ventilated interior applications, in which the equivalent moisture content of sawn lumber is less than nineteen percent (19%).
2. The reference design values in this table are for normal load duration. Loads of other duration shall be adjusted in accordance with the applicable code. Duration of load adjustments shall not be applied to $F_{c\perp}$ and E.
3. Reference design values (except for compression parallel-to-grain) are for the BamCore Prime Wall System with vertical load applied along the panel edge with the strength axis (i.e., long direction of the panel) oriented parallel to the span.
4. The calculated deflection of flexural members must account for combined bending and shear deflection. For uniformly loaded simple span beams, the deflection is calculated as follows:

   $$\Delta = \frac{5WL^4}{32Ebh^3} + \frac{63WL^2}{20Ebh}$$

   where:

   $\Delta$ = deflection in inches (mm)
   W = uniform load in lb/in (N/mm)
   L = span in inches (mm)
   E = modulus of elasticity in psi (MPa)
   b = width of beam in inches (mm)
   h = depth of beam in inches (mm)
5. The bending values in these tables are based on a reference depth of 12" (305 mm). For other depths, the bending value shall be adjusted by a size factor adjustment of $(12/d)^{0.11}$ where d is measured in inches with a minimum depth of 8" (205 mm). Bending values are valid for members 1.25" in thickness and a unit volume not to exceed 2,880 in2 based on the member length times the member depth.
6. When structural members qualify as repetitive members in accordance with the applicable regulation, a four percent (4%) increase is permitted per NDS Section 8.3.7.
7. The minimum bearing length shall be checked based on Compression Perpendicular-to-Grain. Where needed, additional bearing blocking may be added.

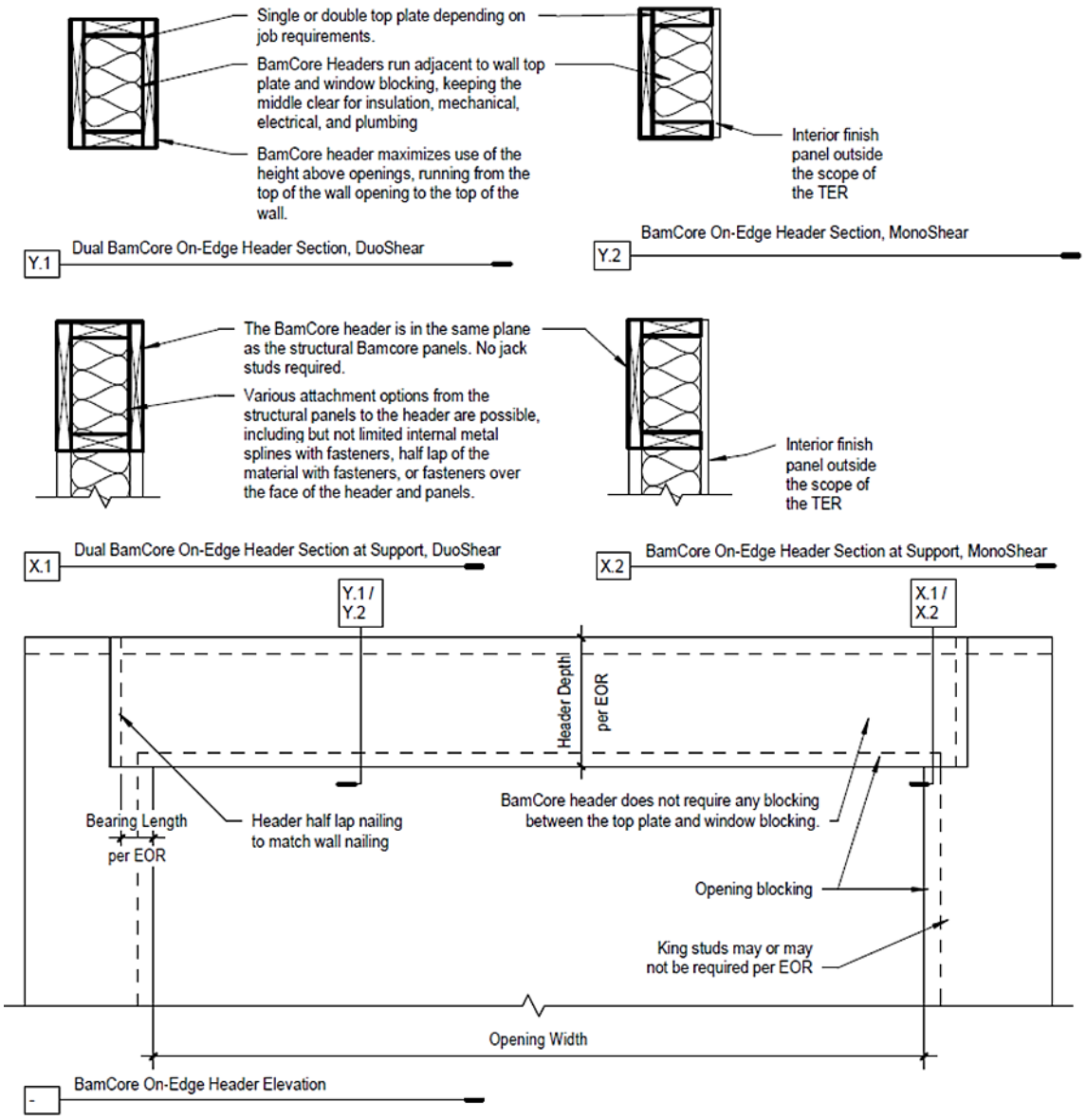


**Figure 7**. On-Edge Single and Double Header

6.1.4.1.2 Design of BamCore Prime Wall System headers is governed by the applicable code and the provisions for Structural Composite Lumber (SCL) in the NDS.

6.1.4.1.3 A single bored hole up to 3" in diameter is allowed in the geometric center of the header without any reduction to **Table 4** values.

6.1.4.1.3.1 Where a single bored hole is present, the minimum header depth shall be 8".

6.1.4.1.4 Unless otherwise noted, adjustment of the reference design values for duration of load shall be in accordance with the applicable code.

6.1.5 *Transverse Strength:*

6.1.5.1 BamCore Prime Wall System was tested and evaluated to assess the strength and deflection of the panels when subjected to transverse wind loading.

6.1.5.1.1 See **Table 5** for allowable loads and wind speeds for H/360.

6.1.5.1.2 See **Table 6** for allowable loads and wind speeds for H/240.

6.1.5.1.3 See **Table 7** for allowable loads and wind speeds for H/180.

6.1.5.1.4 See **Table 8** for allowable loads and wind speeds for H/120.

**Table 5**. Transverse Wind Load Performance – H/360[1,2,3,4,5,6,9,10]

| Panel Type | Wall Assembly Type | Top/Bottom Plate Size | Blocking Size and Spacing | Plate and Blocking Fastener Spacing | Wall Height (ft) | Transverse Load, psf (kN/m²) | | Wind Speed at Deflection Limit (mph) | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Maximum Allowable | Allowable at Deflection Limit | Maximum $V_{ult}$,[7] (mph) | Allowable $V_{asd}$,[8] (mph) |
| ESC | BamCore Prime Wall MonoShear/ Prime.24 | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | Full-height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8[11] | 109.4 (5.2) | 30.7 (1.5) | 160 | 125 |
| | | | | | 9[11] | 86.4 (4.1) | 21.5 (1.0) | 135 | 106 |
| | | | | | 10[11] | 70.0 (3.4) | 15.7 (0.8) | 115 | 90 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | Full-height Spaced 24" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 119.3 (5.7) | 53.3 (2.6) | 215 | 165 |
| | | | | | 9 | 94.2 (4.5) | 37.5 (1.8) | 180 | 140 |
| | | | | | 10 | 76.3 (3.7) | 27.3 (1.3) | 155 | 120 |
| | | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 90% height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 3" o.c. | 8 | 117.7 (5.6) | 63.2 (3.0) | 230 | 180 |
| | | | | | 9 | 93.0 (4.5) | 44.4 (2.1) | 195 | 150 |
| | | | | | 10 | 75.3 (3.6) | 32.3 (1.5) | 165 | 130 |

SI: 1 in = 25.4 mm, 1 psf = 0.0479 kN/m², 1 mph = 1.61 km/h

1. Tested in accordance with ASTM E72 Section 12.
2. BamCore Prime Wall System attached in accordance with **Section 2** and **Section 9**.
3. Fasteners for BamCore Prime Wall System panels to top/bottom plate and to blocking connections shall be 3¼" x 0.131" smooth shank nails.
4. Fasteners for the 1" wide, half-lap connection between two BamCore Prime Wall System panels shall be 2" x 0.113" ring shank nails.
5. Deflection limits are from IBC Table 1604.3 for exterior walls and from IRC Table R301.7. H is the height of the wall panel.
6. Deflection for exterior walls with interior gypsum board finish shall be limited to an allowable deflection of H/180 per IRC Table R301.7, footnote (d).
7. Wind speeds based on the following:
   a. A building height of 30-feet, $GC_p$= -1.4 for Zone 5 and an Effective Wind Area of 10ft², Topographic Factor: $K_{zt}$=1.0, Ground Elevation Factor: $K_e$=1.0, Internal Pressure Coefficient, $GC_{pi}$=+/-0.18 for an enclosed building, $K_d$ = 0.85 for Component and Cladding, and Exposure Category B.
8. Allowable stress design wind speed shall be determined in accordance with IBC Section 1609.3.1: $V_{asd} = V_{ult}\sqrt{0.6}$
9. Deflection is calculated based on 0.7 times components and cladding (ASD) loads per IRC Table R301.7.
10. BamCore BH2 and ESC panels can be used in place of BamCore BH1 panels. BamCore BH2 panels can be used in place of BamCore ESC panels.
11. Values are based on BH1 tests.

**Table 6**. Transverse Wind Load Performance – H/240[1,2,3,4,5,6,9,10]

| Panel Type | Wall Assembly Type | Top/Bottom Plate Size | Blocking Size and Spacing | Plate and Blocking Fastener Spacing | Wall Height (ft) | Transverse Load, psf (kN/m²) | | Wind Speed at Deflection Limit (mph) | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Maximum Allowable | Allowable at Deflection Limit | Maximum $V_{ult}$,[7] (mph) | Allowable $V_{asd}$,[8] (mph) |
| ESC | BamCore Prime Wall MonoShear/ Prime.24 | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | Full-height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8[11] | 109.4 (5.2) | 40.8 (2.0) | 185 | 145 |
| | | | | | 9[11] | 86.4 (4.1) | 28.6 (1.4) | 155 | 120 |
| | | | | | 10[11] | 70.0 (3.4) | 20.9 (1.0) | 135 | 105 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | Full-height Spaced 24" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 119.3 (5.7) | 69.9 (3.3) | 245 | 190 |
| | | | | | 9 | 94.2 (4.5) | 49.1 (2.4) | 205 | 160 |
| | | | | | 10 | 76.3 (3.7) | 35.8 (1.7) | 175 | 135 |
| | | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 90% height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 3" o.c. | 8 | 117.7 (5.6) | 83.5 (4.0) | 265 | 205 |
| | | | | | 9 | 93.0 (4.5) | 58.7 (2.8) | 225 | 175 |
| | | | | | 10 | 75.3 (3.6) | 42.8 (2.0) | 190 | 145 |

SI: 1 in = 25.4 mm, 1 psf = 0.0479 kN/m², 1 mph = 1.61 km/h

1. Tested in accordance with ASTM E72 Section 12.
2. BamCore Prime Wall System attached in accordance with **Section 2** and **Section 9**.
3. Fasteners for BamCore Prime Wall System panels to top/bottom plate and to blocking connections shall be 3¼" x 0.131" smooth shank nails.
4. Fasteners for the 1" wide, half-lap connection between two BamCore Prime Wall System panels shall be 2" x 0.113" ring shank nails.
5. Deflection limits are from IBC Table 1604.3 for exterior walls, and from IRC Table R301.7. H is the height of the wall panel.
6. Deflection for exterior walls with interior gypsum board finish shall be limited to an allowable deflection of H/180 per IRC Table R301.7, footnote (d).
7. Wind speeds based on the following:
   a. A building height of 30-feet, $GC_p$= -1.4 for Zone 5 and an Effective Wind Area of 10ft², Topographic Factor: $K_{zt}$=1.0, Ground Elevation Factor: $K_e$=1.0, Internal Pressure Coefficient, $GC_{pi}$=+/-0.18 for an enclosed building, $K_d$ = 0.85 for Component and Cladding, and Exposure Category B.
8. Allowable stress design wind speed shall be determined in accordance with IBC Section 1609.3.1: $V_{asd} = V_{ult}\sqrt{0.6}$
9. Deflection is calculated based on 0.7 times components and cladding (ASD) loads per IRC Table R301.7.
10. BamCore BH2 and ESC panels can be used in place of BamCore BH1 panels. BamCore BH2 panels can be used in place of BamCore ESC panels.
11. Values are based on BH1 tests.

**Table 7**. Transverse Wind Load Performance – H/180[1,2,3,4,5,6,9,10]

| Panel Type | Wall Assembly Type | Top/Bottom Plate Size | Blocking Size and Spacing | Plate and Blocking Fastener Spacing | Wall Height (ft) | Transverse Load, psf (kN/m²) | | Wind Speed at Deflection Limit (mph) | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Maximum Allowable | Allowable at Deflection Limit | Maximum $V_{ult}$,[7] (mph) | Allowable $V_{asd}$,[8] (mph) |
| ESC | BamCore Prime Wall MonoShear/ Prime.24 | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | Full-height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8[11] | 109.4 (5.2) | 50.3 (2.4) | 205 | 160 |
| | | | | | 9[11] | 86.4 (4.1) | 35.3 (1.7) | 175 | 135 |
| | | | | | 10[11] | 70.0 (3.4) | 25.8 (1.2) | 150 | 115 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | Full-height Spaced 24" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 119.3 (5.7) | 85.7 (4.1) | 270 | 210 |
| | | | | | 9 | 94.2 (4.5) | 60.2 (2.9) | 225 | 175 |
| | | | | | 10 | 76.3 (3.7) | 43.9 (2.1) | 195 | 150 |
| | | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 90% height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 3" o.c. | 8 | 117.7 (5.6) | 101.3 (4.9) | 295 | 230 |
| | | | | | 9 | 93.0 (4.5) | 71.1 (3.4) | 245 | 190 |
| | | | | | 10 | 75.3 (3.6) | 51.9 (2.5) | 210 | 165 |

SI: 1 in = 25.4 mm, 1 psf = 0.0479 kN/m², 1 mph = 1.61 km/h

1. Tested in accordance with ASTM E72 Section 12.
2. BamCore Prime Wall System attached in accordance with **Section 2** and **Section 9**.
3. Fasteners for BamCore Prime Wall System panels to top/bottom plate and to blocking connections shall be 3¼" x 0.131" smooth shank nails.
4. Fasteners for the 1" wide, half-lap connection between two BamCore Prime Wall System panels shall be 2" x 0.113" ring shank nails.
5. Deflection limits are from IBC Table 1604.3 for exterior walls, and from IRC Table R301.7. H is the height of the wall panel.
6. Deflection for exterior walls with interior gypsum board finish shall be limited to an allowable deflection of H/180 per IRC Table R301.7, footnote (d).
7. Wind speeds based on the following:
   a. A building height of 30-feet, $GC_p$= -1.4 for Zone 5 and an Effective Wind Area of 10ft², Topographic Factor: $K_{zt}$=1.0, Ground Elevation Factor: $K_e$=1.0, Internal Pressure Coefficient, $GC_{pi}$=+/-0.18 for an enclosed building, $K_d$ = 0.85 for Component and Cladding, and Exposure Category B.
8. Allowable stress design wind speed shall be determined in accordance with IBC Section 1609.3.1: $V_{asd} = V_{ult}\sqrt{0.6}$
9. Deflection is calculated based on 0.7 times components and cladding (ASD) loads per IRC Table R301.7.
10. BamCore BH2 and ESC panels can be used in place of BamCore BH1 panels. BamCore BH2 panels can be used in place of BamCore ESC panels.
11. Values are based on BH1 tests.

**Table 8**. Transverse Wind Load Performance – H/120[1,2,3,4,5,6,9,10]

| Panel Type | Wall Assembly Type | Top/Bottom Plate Size | Blocking Size and Spacing | Plate and Blocking Fastener Spacing | Wall Height (ft) | Transverse Load, psf (kN/m²) | | Wind Speed at Deflection Limit (mph) | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Maximum Allowable | Allowable at Deflection Limit | Maximum $V_{ult}$,[7] (mph) | Allowable $V_{asd}$,[8] (mph) |
| ESC | BamCore Prime Wall MonoShear/ Prime.24 | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | Full-height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8[11] | 109.4 (5.2) | 68.8 (3.3) | 240 | 185 |
| | | | | | 9[11] | 86.4 (4.1) | 48.3 (2.3) | 205 | 160 |
| | | | | | 10[11] | 70.0 (3.4) | 35.2 (1.7) | 175 | 135 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | Full-height Spaced 24" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 119.3 (5.7) | 115.3 (5.5) | 315 | 245 |
| | | | | | 9 | 94.2 (4.5) | 80.9 (3.9) | 265 | 205 |
| | | | | | 10 | 76.3 (3.7) | 59.0 (2.8) | 225 | 175 |
| | | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 90% height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 3" o.c. | 8 | 117.7 (5.6) | 117.7 (5.6) | 315 | 245 |
| | | | | | 9 | 93.0 (4.5) | 91.6 (4.4) | 280 | 215 |
| | | | | | 10 | 75.3 (3.6) | 55.8 (3.2) | 240 | 185 |

SI: 1 in = 25.4 mm, 1 psf = 0.0479 kN/m², 1 mph = 1.61 km/h

1. Tested in accordance with ASTM E72 Section 12.
2. BamCore Prime Wall System attached in accordance with **Section 2** and **Section 9**.
3. Fasteners for BamCore Prime Wall System panels to top/bottom plate and to blocking connections shall be 3¼" x 0.131" smooth shank nails.
4. Fasteners for the 1" wide, half-lap connection between two BamCore Prime Wall System panels shall be 2" x 0.113" ring shank nails.
5. Deflection limits are from IBC Table 1604.3 for exterior walls, and from IRC Table R301.7. H is the height of the wall panel.
6. Deflection for exterior walls with interior gypsum board finish shall be limited to an allowable deflection of H/180 per IRC Table R301.7, footnote (d).
7. Wind speeds based on the following:
   a. A building height of 30-feet, $GC_p$= -1.4 for Zone 5 and an Effective Wind Area of 10ft², Topographic Factor: $K_{zt}$=1.0, Ground Elevation Factor: $K_e$=1.0, Internal Pressure Coefficient, $GC_{pi}$=+/-0.18 for an enclosed building, $K_d$ = 0.85 for Component and Cladding, and Exposure Category B.
8. Allowable stress design wind speed shall be determined in accordance with IBC Section 1609.3.1: $V_{asd} = V_{ult}\sqrt{0.6}$
9. Deflection is calculated based on 0.7 times components and cladding (ASD) loads per IRC Table R301.7.
10. BamCore BH2 and ESC panels can be used in place of BamCore BH1 panels. BamCore BH2 panels can be used in place of BamCore ESC panels.
11. Values are based on BH1 tests.

6.1.6 *Truss to Top Plate Connection:*

6.1.6.1 The connection between BamCore Prime Wall System and truss/rafter/ceiling joist was evaluated for uplift and gravity resistance, and the allowable loads are provided in **Table 9**. See **Figure 8** and **Figure 12** for details of connection.

**Table 9**. BamCore Prime Wall System and Truss/Rafter/Joist Connection[1,2,3,8]

| Product | Connection Details | | | Allowable Load, lbf (kN) | |
|---|---|---|---|---|---|
| | BamCore Panel to Top Plate[5] | BamCore Panel to Top Plate[6] | Top Plate to Truss/Rafter/Joist[7] | Uplift | Gravity |
| BamCore Prime Wall MonoShear/Prime.24 | 3" x 0.131" Nails Spaced 5$^1/_2$" o.c. | (1) 6" x 0.155" Truss Screw[4] | (3) 3" x 0.148" Nails | 830 (3.7) | 2,320 (10.3) |

SI: 1 in = 25.4 mm, 1 lbf = 4.448 N

1. The reference design values in this table are applicable for the product used in dry, well-ventilated interior applications in which the equivalent moisture content of sawn lumber is less than nineteen percent (19%).
2. The reference design values in this table are for normal load duration. Loads of other duration shall be adjusted in accordance with the applicable code.
3. When structural members qualify as repetitive members in accordance with the applicable code, a four percent (4%) increase is permitted per NDS Section 8.3.7.
4. Simpson Strong-Tie (SDWC 15600-KT).
5. Installed at 90° through the face of the BamCore panel into the edge (narrow face) of top plate.
6. Installed at 22.5° into the face of the BamCore panel and the edge (narrow face) of the truss/rafter/joist.
7. Toenailed at 35° through the wide face of the truss/rafter/joist into the wide face of the top plate.
8. BamCore BH2 and ESC panels can be used in place of BamCore BH1 panels. BamCore BH2 panels can be used in place of BamCore ESC panels.

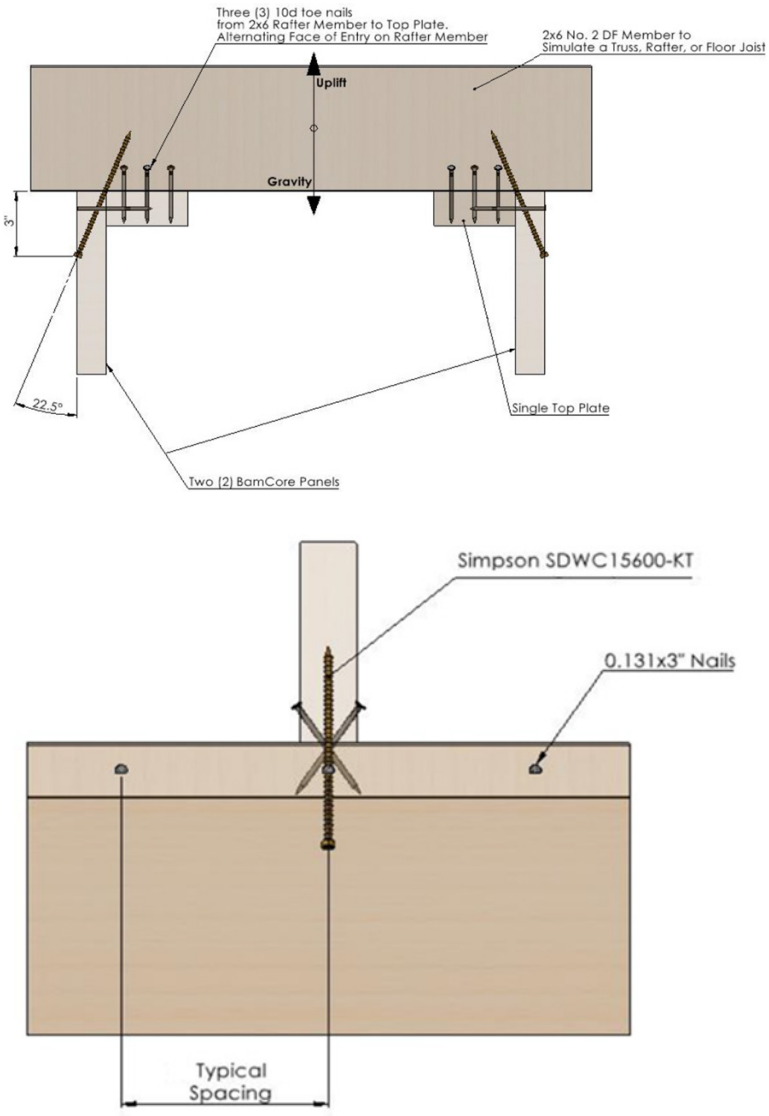


**Figure 8**. Top Plate of BamCore Prime Wall System and Truss/Rafter/Joist

6.1.7 *Lateral Resistance:*

6.1.7.1 BamCore Prime Wall System panels were evaluated to assess lateral resistance parallel to grain direction. Lateral design values for the connection are shown in shown in **Table 10**.

6.1.7.1.1 Steel side member shall comply with ASTM A653, SS Grade 33 minimum.

**Table 10**. Reference Lateral Resistance Values

| Product | Fastener | Side Member Thickness | Reference Lateral Resistance Load, lbf (kN) |
|---|---|---|---|
| BamCore Prime Wall BH1 Panel[1] | 1 1/2" x 0.148" Joist Hanger Nail | 12-gauge steel | 355 (1.58) |
| | | 20-gauge steel | 340 (1.51) |
| | 1 1/2" x 0.131" Joist Hanger Nail | 12-gauge steel | 225 (1.00) |
| | | 20-gauge steel | 220 (0.98) |
| BamCore Prime Wall ESC Panel | 1 1/2" x 0.148" Joist Hanger Nail | 12-gauge steel | 315 (1.40) |
| | | 20-gauge steel | 270 (1.20) |
| | 1 1/2" x 0.131" Joist Hanger Nail | 12-gauge steel | 190 (0.85) |
| | | 20-gauge steel | 175 (0.78) |

SI: 1 in = 25.4 mm, 1 lbf = 4.448 N

1. BH1 values can be used for BH2 panels.

6.1.8 *Dowel-Bearing Strength:*

6.1.8.1 BamCore Prime Wall System panels were evaluated to assess dowel-bearing strength parallel to grain direction. The equivalent specific gravity of the listed BamCore Prime Wall System panels are shown in **Table 11**.

**Table 11**. Dowel Bearing Strength[1,2]

| Product | Fastener | Dowel Bearing Strength, (psi) | Equivalent SG[2] |
|---|---|---|---|
| BamCore ESC Prime Wall Panel | 3 1/4" x 0.148" Nail | 5,005 | 0.52 |
| BamCore Prime Wall BH1 Panel[3] | | 5,750 | 0.56 |

SI: 1 in = 25.4 mm, 1 psi = 0.006895 MPa

1. Tested in accordance with ASTM D1761.
2. Determined from ANSI/AWC NDS Table 12.3.3.
3. BH1 values can be used for BH2 panels.

6.1.9 *Surface Burning Characteristics:*

6.1.9.1 BamCore Prime Wall System panels were evaluated to assess performance with regard to flame spread and smoke developed indices as shown in **Table 12**.

**Table 12**. Surface Burning Characteristics[1,2]

| Product[1] | Flame Spread Index | Smoke Developed Index | Classification |
|---|---|---|---|
| BamCore ESC Prime Wall Panel | ≤ 200 | ≤ 450 | Class C |

1. Tested in accordance with ASTM E84.
2. Flame spread, and smoke developed numbers are shown for comparison purposes only and are not intended to represent the performance of BamCore Prime Wall System panels and related components under actual fire conditions.

6.1.10 *Fire-Resistance Rated Wall Assemblies:*

6.1.10.1 BamCore Prime Wall System has the fire-resistance ratings shown in **Table 13**.

**Table 13**. Fire-Resistance Rating[1]

| Product[1] | Layers of Type X Gypsum on Each Side of Assembly | Construction Requirements | Fire-Resistance Rating (min) |
|---|---|---|---|
| BamCore Prime Wall System Assembly Using BH1 Panels | 1 | **Section 6.1.10.2** | 60 |
| | 2 | **Section 6.1.10.3** | 120 |

1. Tested in accordance with ASTM E119.

6.1.10.2 *One-Hour Rated Assembly:*

6.1.10.2.1 BamCore Prime Wall System (BH1) assemblies were tested per ASTM E119 and have a one-hour fire resistance rating when constructed as follows:

6.1.10.2.1.1 BamCore Prime Wall System (BH1) is assembled using a 2x lumber top and bottom plate and are fastened with 0.131" x 3.25" nails at 6" o.c (152 mm) or less. Minimum cavity depth of 5 1/2" (140 mm) is required.

6.1.10.2.1.2 Panel joints are constructed using 1" half-lap and are fastened with 0.113" x 2" ring shank nails at 6" o.c. (152 mm) or less.

6.1.10.2.1.3 A panel stiffener, minimum 1 1/4" x 5 1/2" x 5' (29 mm x 140 mm x 1,524 mm), is installed vertically at mid-height within 5' (1,524 mm) of the end of the wall and every 10' o.c. (3,048 mm) along the length of the wall. The stiffener is attached with minimum #8 x 3" (76 mm) screws.

6.1.10.2.1.4 A bead of fire sealant (3M™ Fire Barrier Sealant, three hour or equivalent) is applied to all joints and voids in the panel surfaces.

6.1.10.2.1.5 Cellulose insulation is installed in the cavity at approximately 3 lb/ft$^3$.

6.1.10.2.1.6 One layer of 5/8" (15.9 mm) Type X gypsum is installed on each face of the wall assembly with 1 5/8" (41 mm) drywall screws fastened 12" o.c. (305 mm). All joints are taped and covered with two layers of joint compound. Exposed screw heads are also covered with two coats of joint compound. Gypsum joints on one side of the wall are staggered from the joints on the opposite side by 24" (610 mm).

6.1.10.3 *Two-Hour Rate Assembly:*

6.1.10.3.1 BamCore Prime Wall System (BH1) assemblies were tested per ASTM E119 and have a two-hour fire resistance rating when constructed as follows:

6.1.10.3.1.1 BamCore Prime Wall System (BH1) is assembled using a 2x lumber top and bottom plate and is fastened with 0.131" x 3.25" nails at 6" o.c (152 mm) or less. Minimum cavity depth of $5^1/_2$" (140 mm) is required.

6.1.10.3.1.2 Panel joints are constructed using 1" half-lap and are fastened with 0.113" x 2" ring shank nails at 6" o.c. (152 mm) or less.

6.1.10.3.1.3 A panel stiffener, minimum $1^1/_4$" x $5^1/_2$" x 5' (29 mm x 140 mm x 1,524 mm), is installed vertically at mid-height within 5' (1,524 mm) of the end of the wall and every 10' o.c. (3,048 mm) along the length of the wall. The stiffener is attached with minimum #8 x 3" (76 mm) screws.

6.1.10.3.1.4 A bead of fire sealant (3M Fire Barrier Sealant, three hour or equivalent) is applied to all joints and voids in the panel surfaces.

6.1.10.3.1.5 Cellulose insulation is installed in the cavity at approximately 3 lb/ft$^3$.

6.1.10.3.1.6 Two layers of $^5/_8$" (15.9 mm) Type X gypsum are installed on each face of the wall assembly. The base layer is attached with $1^5/_8$" (41 mm) drywall screws fastened a maximum of 12" o.c. (305 mm). The face layer is attached with $2^1/_2$" (64 mm) screws at a maximum of 8" o.c. (203 mm).

6.1.10.3.1.7 All joints in the face layer are taped and covered with two layers of joint compound. Exposed screw heads are also covered with two coats of joint compound. Gypsum joints on one side of the wall are staggered from the joints on the opposite side by 24" (610 mm).

6.1.11 *Vapor Transmission:*

6.1.11.1 BamCore Prime Wall System panel has the water vapor transmission values and corresponding vapor retarder class shown in **Table 14**.

**Table 14**. Vapor Transmission

| Product | Interior Surface Finish | Permeance Desiccant Method[1] (perms) | Permeance Water Method[2] (perms) | Vapor Retarder Class[3] |
|---|---|---|---|---|
| BamCore Prime Wall System Assembly | MDO | 0.21 | 2.15 | Class II |
| | Bare Panel | 0.44 | 2.90 | Class II |

1. Tested in accordance with ASTM E96 Procedure A
2. Tested in accordance with ASTM E96 Procedure B
3. Vapor retarder class is defined using the desiccant method with Procedure A of ASTM E96 per its definition in IBC Section 202 and IRC Section R202.

6.1.11.2 Use as a vapor retarder is the responsibility of the building designer and shall be designed in accordance with IBC Section 1404.3 and IRC Section R702.7.

6.1.12 *Thermal Resistance (R-Value):*

6.1.12.1 BamCore Prime Wall System has the thermal resistance shown in **Table 15** and **Table 16**.

**Table 15**. BamCore Prime Wall System R-Values and U-Factors – Tested

| Product | R-Value [(°F·ft²·h)/Btu] | U-Factor [Btu/(°F·ft²·h)] | |
|---|---|---|---|
| | | 0° F to 70° F | 50° F to 100° F |
| BamCore Prime Wall System BH1 Panel[1,2] (Single 1 1/4" Thick Panel) | 1.6 | 0.625 | |

1. Thermal values are determined using the ASTM C518 test method at 75°F mean temperature and 50° F temperature differential.
2. Value may be used for the ESC panels.

**Table 16**. BamCore Prime.24 Wall System Thermal Resistance – Calculated[1] Fiberglass Insulation (MonoShear)

| Product Assembly Details | Framing Factor (%) | Calculated Thermal Resistance, R-Value (U-Factor)[2,3] | | | |
|---|---|---|---|---|---|
| | | Cavity Width (in) | | | |
| | | 3 1/2 | 5 1/2 | 7 1/4 | 9 1/4 |
| BamCore 90% height blocking spaced 24" o.c. | 10.48 | 16.4 (0.061) | 22.9 (0.044) | 28.5 (0.035) | 34.9 (0.029) |
| BamCore Prime Wall Prime.24 Full height blocking spaced 24" o.c. | 10.97 | 16.3 (0.061) | 22.7 (0.044) | 28.3 (0.035) | 34.6 (0.029) |

1. Thermal values calculated in accordance with the California Energy Code (CEC).
2. Units for R-value are (°F·ft²·hr)/Btu. Units for U-factor are Btu/(°F·ft²·hr).
3. Calculated values are based on the following assumptions:
   a. Air Film: outside air film, R-value of 0.17
   b. Siding: 3/8" 2-coat stucco, R-value of 0.08
   c. Sheathing Insulation: none
   d. Building Paper: felt, R-value of 0.06
   e. Structural Panel: 1 1/4" BamCore Panel, R-value of 1.36 per inch
   f. Framing: nominal 2x lumber (DF), R-value of 0.99 per inch. Cavity width corresponds to the framing member size (i.e. 2 x 4 lumber will be used for 3 1/2" cavity widths, etc.)
   g. Cavity insulation: Fiberglass, R-value of 4.20 per inch
   h. Structural Panel: 3/4" BamCore Panel, R-value of 1.36 per inch
   i. Interior Finish: 1/2" gypsum board, R-value of 0.90
   j. Air Film: Inside air film, R-value of 0.68

6.2 *BamCore Prime Wall System*

6.2.1 Unless otherwise specifically stated in the following tables, where *"Prime Wall System"* is cited without any other details pertaining to the wall assembly, the wall assembly is as described in **Section 2.2**.

6.2.2 *Shear Wall Design:*

6.2.2.1 *General Provisions:*

6.2.2.1.1 Except as otherwise described in this report, BamCore Prime Wall System shall be installed in accordance with the applicable building codes listed in **Section 4** using the provisions set forth herein.

6.2.2.1.1.1 BamCore Prime Wall System is intended to be used as an alternative to the design and installation of Wood Structural Panels (WSP) on light-frame wood construction.

6.2.2.1.2 Anchorage for in-plane shear shall be provided to transfer the induced shear force into and out of each shear wall.

6.2.2.1.2.1 Foundation anchorage shall comply with IBC Section 2308.7.1,[31] IRC Section R403.1.6, and IRC Section R602.11.

6.2.2.1.2.2 For wind design, anchor bolt spacing shall not exceed 6' o.c.

6.2.2.1.2.3 For seismic design, anchor bolt spacing shall not exceed 4' o.c.

6.2.2.1.3 The maximum aspect ratio for BamCore Prime Wall System shall be 4:1.

6.2.2.1.4 The minimum full height panel width shall be 24".

6.2.2.1.5 All panel top and bottom edges shall be blocked with a minimum 2" nominal lumber.

6.2.2.2 *Simplified IRC Bracing Provisions:*

6.2.2.2.1 BamCore Prime Wall System is permitted to be used as an alternative to the wall assemblies prescribed in IRC Section R602.12, provided that all conditions listed in IRC Section R602.12 be met.

6.2.2.2.1.1 BamCore Prime Wall System can be used as an equivalent, 1:1, alternative to WSP in IRC Section R602.12, provided that the wall panels are fastened to framing members with 0.131" dia. x $3^{1}/_{4}$" long (3.3 mm x 85 mm) smooth shank nails.

6.2.2.2.2 The minimum number of BamCore Prime Wall System bracing units shall be in accordance with IRC Table R602.12.4.

6.2.2.2.2.1 One bracing unit shall be full-height and 48" wide.

6.2.2.2.2.2 Distribution of bracing units shall comply with IRC Section R602.12.5.

6.2.2.3 *Prescriptive IRC Bracing Applications:*

6.2.2.3.1 BamCore Prime Wall System is permitted for use in the following applications:

6.2.2.3.1.1 BamCore Prime Wall System is permitted for use to brace walls of buildings as an equivalent alternative to the IRC Method WSP (Wood Structural Panel) when installed in accordance with IRC Section R602.10 and this report.

6.2.2.3.1.2 BamCore Prime Wall System is permitted for use to brace walls of buildings as an equivalent alternative to the IRC Method CS-WSP (Continuously Sheathed Wood Structural Panel) when installed in accordance with IRC Section R602.10.4 and this report.

6.2.2.3.1.3 BamCore Prime Wall System is permitted for use to brace walls of buildings as an alternative to the IRC Method PFH (Portal Frame with Hold-Downs) braced wall panel provisions of IRC Section R602.10.6.2.

6.2.2.3.1.3.1 BamCore Prime Wall System panels shall not have a vertical seam (lap joint) within the pier of the portal frame.

6.2.2.3.1.4 BamCore Prime Wall System is permitted for use to brace walls of buildings as an alternative to the IRC Method CS-PF (Continuously Sheathed Portal Frame) braced wall panel provisions of IRC Section R602.10.6.4.

6.2.2.3.1.4.1 BamCore Prime Wall System panels shall not have a vertical seam (half-lap joint) within the pier of the portal frame.

6.2.2.3.2 BamCore Prime Wall System panels shall be fastened to framing members with 0.131" dia. x 3¼" long (3.3 mm x 85 mm) smooth shank nails.

6.2.2.3.3 All other IRC prescriptive bracing minimums, spacing requirements, and rules must be met.

6.2.2.3.4 Where a building or portion thereof, does not comply with one or more of the bracing requirements within the prescriptive section of the IRC, those portions shall be designed and constructed in accordance with IRC Section R301.1.

6.2.2.3.5 *Wind Bracing:*

6.2.2.3.5.1 For wind design, required braced wall panel lengths for BamCore Prime Wall System, shall be as shown in IRC Table R602.10.3(1), and shall be used in conjunction with IRC Table R602.10.3(2), which provides the required adjustments.

6.2.2.3.5.2 All adjustment factors from IRC Table R602.10.3(2) shall be applied.

6.2.2.3.5.3 Minimum length of a braced wall panel in the BamCore Prime Wall System shall comply with IRC Table R602.10.5 for Method WSP, Method CS-WSP, Method PFH, or Method CS-PF.

6.2.2.3.6 *Seismic Bracing:*

6.2.2.3.6.1 For seismic design, the required braced wall panel lengths for BamCore Prime Wall System shall be as shown in IRC Table R602.10.3(3), and shall be used in conjunction with IRC Table R602.10.3(4), which provides the required adjustments.

6.2.2.3.7 All other IRC prescriptive bracing minimums, spacing requirements, and rules must be met.

6.2.2.4 BamCore Prime Wall System panels may be designed as shear walls to resist lateral loads using the ASD allowable unit shear capacities for wind and seismic given in **Table 17** and **Table 18**, respectively.

6.2.2.5 The maximum aspect ratio for full-height BamCore Prime Wall System panels, when used in shear walls, shall be 4:1. For shear walls with aspect ratios (h/bs) greater than 2.5:1, the nominal shear capacity shall be multiplied by the Aspect Ratio Factor (WSP) = 1.25 – 0.125h/bs in accordance with SDPWS Section 4.3.4.2.

6.2.2.6 The minimum aspect ratio shall be 4:1 or the minimum shear wall segment width shall be 24", whichever is greater.

6.2.2.7 *Wind:*

6.2.2.7.1 BamCore Prime Wall System panel shear walls that require wind design in accordance with IBC Section 1609 shall use the wind allowable unit shear capacities set forth in **Table 17**.

**Table 17**. Wind Allowable Unit Shear Capacity[1,2,3]

| Panel Type | Wall Assembly Type | Allowable Unit Shear Capacity (plf) | Top and Bottom Plate Configuration[6] | Blocking Configuration | Half-Lap Fastener Spacing | Hold Down Configuration[4,5] |
|---|---|---|---|---|---|---|
| ESC | BamCore Prime Wall MonoShear | 460 | 6" o.c fastener spacing Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | 6" o.c fastener spacing 50% height 2 x 4 blocking, spaced 48" o.c. | 6" o.c. | Strap to Panel Face or Panel to Post with Bucket Hold-Down |
| | BamCore Prime Wall DuoShear (Nailed Both Sides) | 535 | 6" o.c fastener spacing Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | 6" o.c fastener spacing 50% height 2 x 4 blocking, spaced 48" o.c. | 6" o.c. | 3x Lumber or Post with Bucket Hold-Down |
| | BamCore Prime Wall MonoShear | 900 | 2" o.c fastener spacing Top Plate: Double 2 x 4 Bottom Plate: Single 2 x 4 | 2" o.c fastener spacing Full height 2 x 4 blocking, spaced 48" o.c. | 2" o.c. | Strap to Panel Face or Panel to Post with Bucket Hold-Down |
| | BamCore Prime Wall DuoShear (Nailed Both Sides) | 625 | 4" o.c fastener spacing Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 6" o.c fastener spacing 50% height 2 x 6 blocking, spaced 48" o.c. | 4" o.c. | Strap to Panel Face or Panel to Post with Bucket Hold-Down |
| BH1 and BH2 | BamCore Prime Wall MonoShear (Nailed One Side) | 1,190 | 3" o.c fastener spacing Top Plate: Single 2 x 6 Bottom Plate: Double 2 x 3 | 6" o.c fastener spacing 50% height 2 x 6 blocking, spaced 48" o.c. | 3" o.c. | 3x Lumber or Post with Bucket Hold-Down |
| | BamCore Prime Wall DuoShear (Nailed Both Sides) | 1,535 | 2" o.c fastener spacing Top Plate: Double 2 x 6 Bottom Plate: Single 2 x 6 | 6" o.c fastener spacing 50% height 2 x 6 blocking, spaced 48" o.c. | 2" o.c. | 3x Lumber or Post with Bucket Hold-Down |

SI: 1 in = 25.4 mm, 1 lbf/ft = 0.0146 kN/m

1. BamCore Prime Wall System attached in accordance with **Section 2** and **Section 9**.
2. Fasteners for BamCore Prime Wall System panels to top/bottom plate and to blocking connections shall be 3¼" x 0.131" smooth shank nails.
3. Fasteners for the 1" wide, half-lap connection between two BamCore Prime Wall System panels shall be 2" x 0.113" ring shank nails.
4. For the 3x lumber hold-down method, see **Figure 9** and **Table 19** for fastening requirements and allowable tensile load.
5. For the post with bucket hold-down method, the connection shall be sized to resist overturning in accordance with SDPWS Section 4.3.6. The BamCore 3x Lumber type hold-down may be used in lieu of the Bucket Style hold-down.
6. Where 2 x 3 bottom plates were used, the 2 x 3 plates were fastened to the exterior/interior sheathing panels leaving a gap in between.

6.2.2.8 *Seismic:*

6.2.2.8.1 Seismic design for BamCore Prime Wall System panels shall not be required in buildings exempt from seismic design in accordance with IBC Section 1613.

6.2.2.8.2 BamCore Prime Wall System panel shear walls that require seismic design in accordance with IBC Section 1613 shall use the seismic allowable unit shear capacities set forth in **Table 18**.

6.2.2.8.2.1 The response modification coefficient, R, system overstrength factor, $\Omega_0$, and deflection amplification factor, $C_d$, as indicated in **Table 18**, shall be used to determine the base shear, element design forces and design story drift in accordance with ASCE 7 Chapter 12 and Section 14.5.

6.2.2.8.2.2 An example of a BamCore Prime Wall System hold-down is shown in **Figure 9**.

**Table 18**. Seismic Allowable Unit Shear Capacity and Seismic Design Coefficients[1,2,3,4]

| Panel Type | Wall Assembly Type | Allowable Unit Shear Capacity (plf) | Apparent Shear Stiffness,[5] $G_a$ (kips/in) | Top and Bottom Plate Configuration[8] | Blocking Configuration | Half Lap Fastener Spacing | Hold-Down Configuration[6,7] |
|---|---|---|---|---|---|---|---|
| ESC | BamCore Prime Wall MonoShear | 345 | 6.3 | 6" o.c fastener spacing<br>Top Plate: Single 2 x 4<br>Bottom Plate: Single 2 x 4 | 6" o.c fastener spacing<br>50% height 2 x 4 blocking, spaced 48" o.c. | 6" o.c. | Strap to Panel Face or Panel to Post with Bucket Hold-Down |
| | | 645 | 10.0 | 2" o.c fastener spacing<br>Top Plate: Double 2 x 4<br>Bottom Plate: Single 2 x 4 | 2" o.c fastener spacing<br>Full height 2 x 4 blocking, spaced 48" o.c. | 2" o.c. | Strap to Panel Face or Panel to Post with Bucket Hold-Down |
| | BamCore Prime Wall DuoShear (nailed both sides) | 510 | 11.1 | 6" o.c fastener spacing<br>Top Plate: Single 2 x 4<br>Bottom Plate: Single 2 x 4 | 6" o.c fastener spacing<br>50% height 2 x 4 blocking, spaced 48" o.c. | 6" o.c. | 3x Lumber or Post with Bucket Hold-Down |
| | | 975 | 22.5 | 3" o.c fastener spacing<br>Top Plate: Single 2 x 6<br>Bottom Plate: Single 2 x 6 | 6" o.c fastener spacing<br>25% height 2 x 4 blocking, spaced 48" o.c. | 3" o.c. | 3x Lumber or Post with Bucket Hold-Down |
| | | 1,095 | 15.5 | 2" o.c fastener spacing<br>Top Plate: Double 2 x 6<br>Bottom Plate: Single 2 x 6 | 6" o.c fastener spacing<br>50% height 2 x 6 blocking, spaced 48" o.c. | 2" o.c. | 3x Lumber or Post with Bucket Hold-Down |
| | | 1,510 | 16.8 | 1 1/2" o.c fastener spacing<br>Top Plate: Double 2 x 6<br>Bottom Plate: Single 3 x 6 | None | 1 1/2" o.c. | 3x Lumber or Post with Bucket Hold-Down |
| BH1 and BH2 | BamCore Prime Wall MonoShear (nailed one side) | 500 | 8.4 | 4" o.c fastener spacing<br>Top Plate: Single 2 x 6<br>Bottom Plate: Single 2 x 6 | 6" o.c fastener spacing<br>50% height 2 x 6 blocking, spaced 48" o.c. | 4" o.c. | Strap to Panel Face or Panel to Post with Bucket Hold-Down |
| | BamCore Prime Wall DuoShear (nailed both sides) | 965 | 17.5 | 3" o.c fastener spacing<br>Top Plate: Single 2 x 6<br>Bottom Plate: Double 2 x 3 | 6" o.c fastener spacing<br>50% height 2 x 6 blocking, spaced 48" o.c. | 3" o.c. | 3x Lumber or Post with Bucket Hold-Down |
| | | 1,095 | 15.5 | 2" o.c fastener spacing<br>Top Plate: Double 2 x 6<br>Bottom Plate: Single 2 x 6 | 6" o.c fastener spacing<br>50% height 2 x 6 blocking, spaced 48" o.c. | 2" o.c. | 3x Lumber or Post with Bucket Hold-Down |

**Table 18**. Seismic Allowable Unit Shear Capacity and Seismic Design Coefficients[1,2,3,4]

| Panel Type | Wall Assembly Type | Allowable Unit Shear Capacity (plf) | Apparent Shear Stiffness,[5] $G_a$ (kips/in) | Top and Bottom Plate Configuration[8] | Blocking Configuration | Half Lap Fastener Spacing | Hold-Down Configuration[6,7] |
|---|---|---|---|---|---|---|---|

SI: 1 in = 25.4 mm, 1 lbf/ft = 0.0146 kN/m

1. BamCore Prime Wall System attached in accordance with **Section 2** and **Section 9**.
2. Fasteners for BamCore Prime Wall System panels to top/bottom plate and to blocking connections shall be 3¼" x 0.131" smooth shank nails.
3. Fasteners for the 1" wide, half-lap connection between two BamCore Prime Wall System panels shall be 2" x 0.113" ring shank nails.
4. Seismic Design Coefficients:
   a. Response Modification Coefficient: R = 6.5
      i. For use throughout ASCE 7
      ii. ***Note:*** R reduces forces to a strength level, not an allowable stress level.
   b. Overstrength Factor: $\Omega_0 = 3$
      i. The tabulated value of the overstrength factor is permitted to be reduced by subtracting one-half (0.5) for structures with flexible diaphragms.
   c. Deflection amplification factor: $C_d = 4$
      i. For use with ASCE 7 Section 12.8.6, Section 12.8.7, and Section 12.9.2
   d. Structural System Limitations and Building Height Limit: B = NL, C = NL, D = 65, E = 65, F = 65
      i. NL = Not Limited. Heights are measured from the base of the structure as defined in ASCE 7 Section 11.2.
5. Panel shear wall deflection shall be calculated as follows: The total vertical elongation of the wall is accounted for in the apparent shear stiffness

   $$\delta_{sw} = \frac{vh}{1000G_a}$$

   where:
   $\delta_{sw}$ = shear wall deflection determined by elastic analysis [in]
   v = induced unit shear, lbs/ft
   h = shear wall height, ft
   $G_a$ = apparent shear wall stiffness, kips/in
6. For the 3x lumber hold-down method, see **Figure 9** and **Table 19** for fastening requirements and allowable tensile load.
7. For the post with bucket hold-down method, the connection shall be sized to resist overturning in accordance with SDPWS Section 4.3.6. The BamCore 3x Lumber type hold-down may be used in lieu of the Bucket Style hold-down.
8. Where 2 x 3 bottom plates were used, the 2 x 3 plates were fastened to the exterior/interior sheathing panels leaving a gap in between the two bottom plates.

### 6.2.3 *Hold-Down Tensile Capacity:*

6.2.3.1 The hold-downs used in BamCore Prime Wall System have the allowable wind and seismic tensile capacities shown in **Table 19**. See **Figure 9** for additional information on the hold down assembly.

**Table 19**. BamCore Hold Down Tensile Capacity[1,2]

| Product | Number of Fasteners per Side of Hold Down | 3x Block Height (in) | Plate Washer Size | Allowable Tensile Load, lbf (kN) | |
|---|---|---|---|---|---|
| | | | | Wind | Seismic |
| BamCore Prime Wall System | 14 | 16 | 3¼" x 3¼" x ½" | 5,350 (23.8) | 5,100 (22.7) |
| | 44 | 46 | 5" x 5" x ⅝" | 15,350 (68.3) | 9,150 (40.7) |
| | 30 | 32 | 5" x 5" x ⅝" | 11,900 (53.0) | 9,650 (42.9) |
| | 60 | 91[3] | 5¾" x 5¾" x ¾" | 21,150 (94.1) | 12,450 (55.4) |

SI: 1 in = 25.4 mm, 1 lbf = 4.448 N

1. Tested in accordance with ASTM E2126.
2. BamCore hold down installed as shown in **Figure 9**.
3. No stiffener block above hold-down blocks.

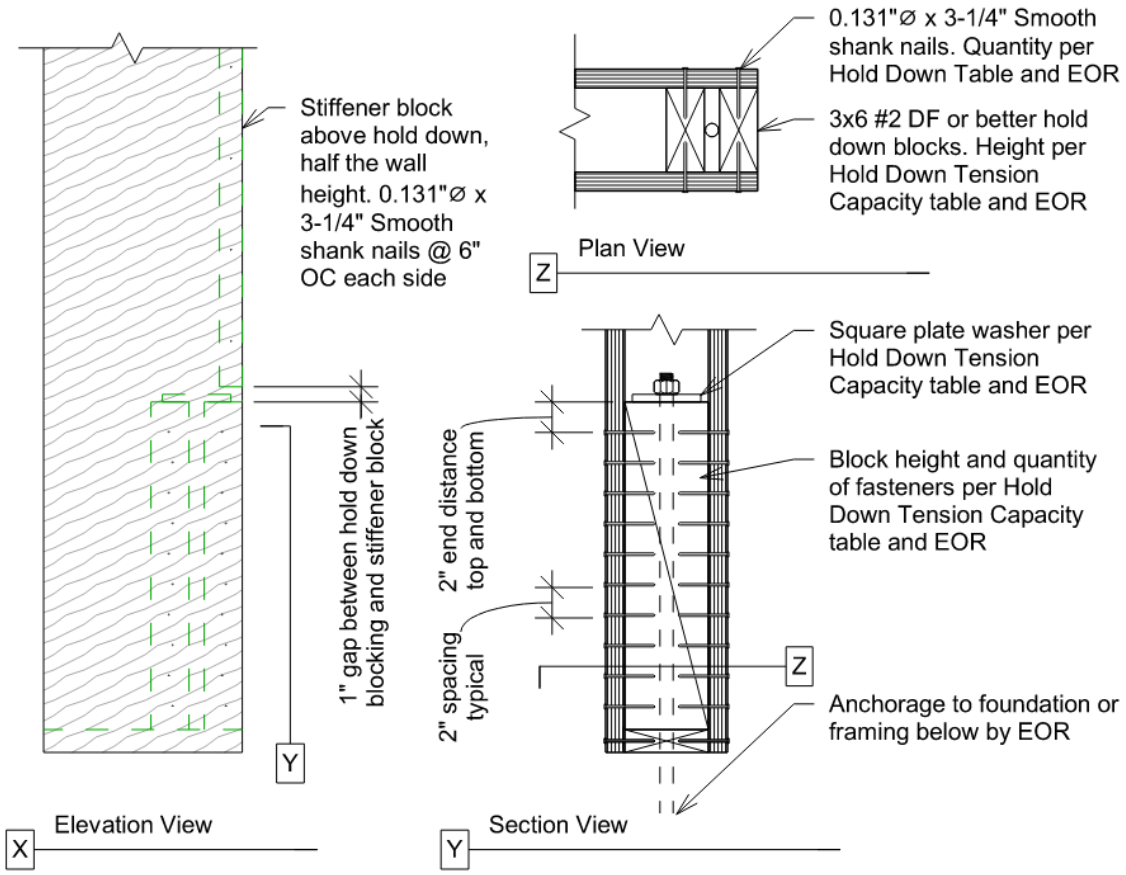


**Figure 9**. BamCore Hold Down for DuoShear Assemblies

6.2.4 *Axial Compressive Strength:*

6.2.4.1 BamCore Prime Wall System has the compressive strength shown in **Table 20**.

6.2.4.1.1 Values are for a maximum unrestrained wall height of 10 ft.

**Table 20**. Allowable Compressive Strength[1,2,3,4]

| Panel Type[5] | Wall Assembly Type | Framing and Blocking Size | Fastener Spacing | Allowable Compressive Strength, plf (kN/m) |
|---|---|---|---|---|
| BH1 | BamCore Prime Wall MonoShear | 50% 2 x 4 blocking at mid height of wall, spaced horizontally 48" o.c. | 6" o.c. | 1,045 (15.2) |
| | | Full-height 2 x 4 blocking at mid height of wall, spaced horizontally 48" o.c. | 6" o.c. | 3,940 (57.5) |
| | | Full-height 2 x 4 blocking at mid height of wall, spaced horizontally 24" o.c. | 6" o.c. | 5,325 (77.7) |
| ESC | | 50% 2 x 4 blocking at mid height of wall, spaced horizontally 24" o.c. | 6" o.c. | 2,880 (42.0) |
| | | 75% 2 x 4 blocking at mid height of wall, spaced horizontally 24" o.c. | 6" o.c. | 4,025 (58.7) |
| | | 75% 2 x 6 blocking at mid height of wall, spaced horizontally 48" o.c. | 3" o.c. | 4,580 (66.8) |
| | | 90% 2 x 4 blocking at mid height of wall, spaced horizontally 48" o.c. | 3" o.c. | 5,155 (75.2) |
| | | 75% 2 x 4 blocking at mid height of wall, spaced 48" o.c. | 3" o.c. | 4,275 (62.4) |
| BH2 | | 50% 2 x 6 blocking at mid height of wall, spaced horizontally 48" o.c. | 6" o.c. | 3,210 (46.9) |
| | | 50% 2 x 4 blocking at mid height of wall, spaced horizontally 48" o.c. | 6" o.c. | 3,210 (46.9) |
| | | Full-height 2 x 4 blocking at mid height of wall, spaced horizontally 48" o.c. | 6" o.c. | 4,955 (72.3) |
| | | Full-height 2 x 4 blocking at mid height of wall, spaced horizontally 24" o.c. | 6" o.c. | 5,470 (79.8) |
| | | Full-height 2 x 6 blocking at mid height of wall, spaced horizontally 24" o.c. | 6" o.c. | 9,080 (132.5) |
| BH1 | BamCore Prime Wall DuoShear | 25% 2 x 4 blocking at mid height of wall, spaced horizontally 48" o.c. | 6" o.c. | 4,795 (70.0) |
| | | 50% 2 x 6 blocking at mid height of wall, spaced horizontally 96" o.c. | 6" o.c. | 5,805 (84.7) |
| | | 25% 2 x 6 blocking at mid height of wall, spaced horizontally 48" o.c. | 6" o.c. | 5,885 (85.9) |
| | | 70% 2 x 6 blocking at mid height of wall, spaced horizontally 48" o.c | 4" o.c. | 8,095 (118.1) |
| BH2 | | 25% 2 x 6 blocking at mid height of wall, spaced horizontally 48" o.c. | 6" o.c. | 6,625 (96.7) |
| | | 70% 2 x 6 blocking at mid height of wall, spaced horizontally 48" o.c. | 4" o.c. | 11,210 (163.6) |

SI: 1 in = 25.4 mm, 1 lbf/ft = 0.0146 kN/m

1. Tested in accordance with ASTM E72 Section 9.
2. BamCore Prime Wall System attached in accordance with **Section 2** and **Section 9**.
3. Fasteners for BamCore Prime Wall System panels to top/bottom plate and to blocking connections shall be 3¼" x 0.131" smooth shank nails.
4. Where walls span more than 10', they shall have transverse restraints at the horizontal panel seams.
5. BamCore BH2 and ESC panels can be used in place of BamCore BH1 panels. BamCore BH2 panels can be used in place of BamCore ESC panels.

6.2.5 *BamCore Prime Wall System Headers – In-Plane Bending Strength:*

6.2.5.1 *On-Edge Header:*

6.2.5.1.1 BamCore Prime Wall System panels may be designed as wall headers to carry gravity loads using the reference design values given in **Table 21**. See **Figure 10** for details of header construction.

**Table 21**. On-Edge Header Reference Design Values (Allowable Stress Design)[1,2,3]

| BamCore Prime Wall Product | Bending (Beam),[4,5,6] $F_b$ psi (MPa) | Compression Parallel-to-Grain, $F_{c\|\|}$ psi (MPa) | Compression Perpendicular-to-Grain,[7] $F_{c\perp}$ psi (MPa) | Horizontal Shear (Beam), $F_v$ psi (MPa) | Modulus of Rigidity (Beam), G psi (MPa) | Modulus of Elasticity (True), E psi (MPa) | Modulus of Elasticity for Beam Stability, $E_{min}$ psi (MPa) |
|---|---|---|---|---|---|---|---|
| BH1 Panel | 2,660 (18.3) | 1,580 (10.9) | 1,175 (8.1) | 465 (3.2) | 107,000 (738) | 1,340,000 (9,239) | 632,000 (4,357) |
| BH2 Panel | 2,920 (20.1) | 2,030 (14.0) | 1,015 (7.0) | 465 (3.2) | 124,000 (855) | 1,840,000 (12,686) | 880,000 (6,067) |
| ESC Panel | 1,450 (10.0) | 2,280 (15.7) | 615 (4.2) | 325(2.2) | 93,000 (641) | 1,250,000 (8,618) | 640,000 (4,413) |

SI: 1 psi = 0.00689 MPa

1. The reference design values in this table are applicable for the product used in dry, well-ventilated interior applications, in which the equivalent moisture content of sawn lumber is less than nineteen percent (19%).
2. The reference design values in this table are for normal load duration. Loads of other duration shall be adjusted in accordance with the applicable code. Duration of load adjustments shall not be applied to $F_{c\perp}$ and E.
3. Reference design values (except for compression parallel-to-grain) are for the BamCore Prime Wall System with vertical load applied along the panel edge with the strength axis (i.e., long direction of the panel) oriented parallel to the span.
4. The calculated deflection of flexural members must account for combined bending and shear deflection. For uniformly loaded simple span beams, the deflection is calculated as follows:

$$\Delta = \frac{5WL^4}{32Ebh^3} + \frac{63WL^2}{20Ebh}$$

where:

$\Delta$ = deflection in inches (mm)
W = uniform load in lb/in (N/mm)
L = span in inches (mm)
E = modulus of elasticity in psi (MPa)
b = width of beam in inches (mm)
h = depth of beam in inches (mm)

5. The bending values in these tables are based on a reference depth of 12" (305 mm). For other depths, the bending value shall be adjusted by a size factor adjustment of $(12/d)^{0.11}$ where d is measured in inches with a minimum depth of 8" (205 mm). Bending values are valid for members 1.25" in thickness and a unit volume not to exceed 2,880 $in^2$ based on the member length times the member depth.
6. When structural members qualify as repetitive members in accordance with the applicable regulation, a four percent (4%) increase is permitted per NDS Section 8.3.7.
7. The minimum bearing length shall be checked based on Compression Perpendicular-to-Grain. Where needed, additional bearing blocking may be added.

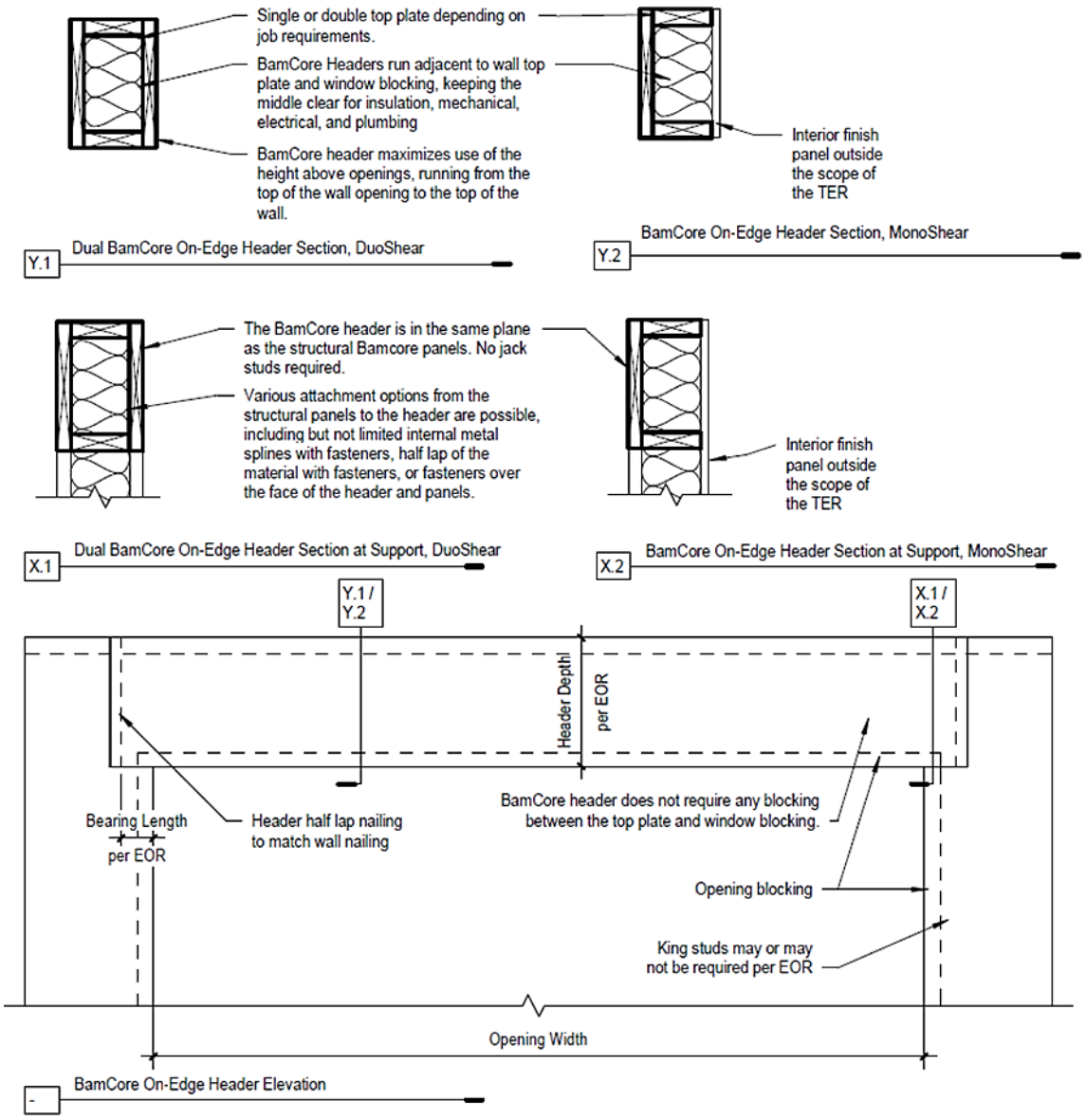


**Figure 10**. On-Edge Single and Double Header

6.2.5.1.2 Design of BamCore Prime Wall System headers is governed by the applicable code and the provisions for Structural Composite Lumber (SCL) in the NDS.

6.2.5.1.3 A single bored hole, up to 3" in diameter, is allowed in the geometric center of the header without any reduction to **Table 21** values.

6.2.5.1.3.1 Where a single bored hole is present, the minimum header depth shall be 8".

6.2.5.1.4 Unless otherwise noted, adjustment of the reference design values for duration of load shall be in accordance with the applicable code.

6.2.5.2 *Box Beam Headers:*

6.2.5.2.1 BamCore Prime Wall System panels may be designed as wall headers to carry gravity loads using the reference design values given in **Table 22**. See **Figure 11** for details of header construction.

6.2.5.2.2 The design of BamCore Prime Wall System headers is governed by the applicable code and the provisions for SCL in NDS.

6.2.5.2.3 Holes up to 3" in diameter are allowed in header without any reduction to **Table 22** values when holes are centered in the depth of the header and offset 5" from midspan.

6.2.5.2.4 Unless otherwise noted, adjustment of the reference design values for duration of load shall be in accordance with the applicable code.

**Table 22**. BamCore Prime Wall System Box Beam Header Reference Design Values (Allowable Stress Design)[1,2,3]

| BamCore Prime Wall Product | Maximum Opening of Header, ft (m) | Min. Depth of Header, in (mm) | Max. Allowable Load, lbf (kN) | Load at Deflection, lbf (kN) | | |
|---|---|---|---|---|---|---|
| | | | | L/240 | L/360 | L/480 |
| BH1 DuoShear | 4 (1.2) | 12 (305) | 7,715 (34.3) | 6,505 (28.9) | 4,335 (19.3) | 3,250 (14.5) |
| ESC DuoShear | 4 (1.2) | 12 (305) | 5,170 (23.0) | 5,080 (22.6) | 3,385 (15.1) | 2,540 (11.3) |

SI: 1 ft = 0.305 m, 1 in = 25.4 mm, 1 lbf = 4.448 N

1. The reference design values in this table are applicable for the product used in dry, well-ventilated interior applications, in which the equivalent moisture content of sawn lumber is less than nineteen percent (19%).
2. The reference design values in this table are for normal load duration. Loads of other duration shall be adjusted in accordance with the applicable code.
3. When structural members qualify as repetitive members in accordance with the applicable code, a four percent (4%) increase is permitted per NDS Section 8.3.7.

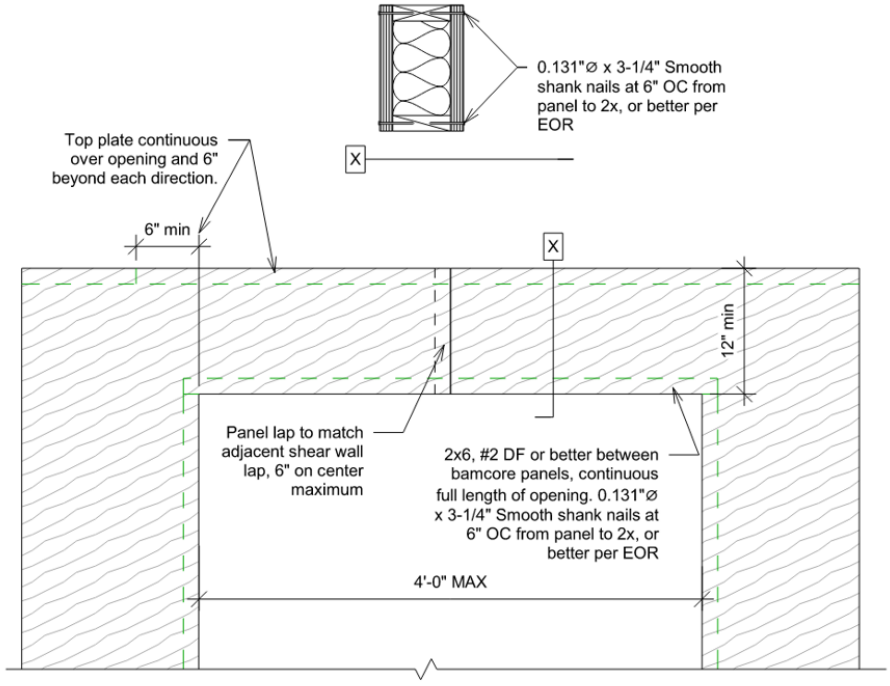


**Figure 11**. BamCore Opening with Vertically Orientated Panel Box Beam Header

6.2.6 *Transverse Strength:*

6.2.6.1 BamCore Prime Wall System was tested and evaluated to assess the strength and deflection of the panels when subjected to transverse wind loading.

6.2.6.1.1 See **Table 23** for allowable loads and wind speeds for H/360.

6.2.6.1.2 See **Table 24** for allowable loads and wind speeds for H/240.

6.2.6.1.3 See **Table 25** for allowable loads and wind speeds for H/180.

6.2.6.1.4 See **Table 26** for allowable loads and wind speeds for H/120.

**Table 23**. Transverse Wind Load Performance – H/360[1,2,3,4,5,6,9,10]

| Panel Type | Wall Assembly Type | Top/Bottom Plate Size | Blocking Size and Spacing | Plate and Blocking Fastener Spacing | Wall Height (ft) | Transverse Load, psf (kN/m²) | | Wind Speed at Deflection Limit (mph) | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Maximum Allowable | Allowable at Deflection Limit | Maximum $V_{ult}$,[7] (mph) | Allowable $V_{asd}$,[8] (mph) |
| BH1 | BamCore Prime Wall MonoShear | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | 50% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 104.9 (5.0) | 20.4 (1.0) | 130 | 100 |
| | | | | | 9 | 82.9 (4.0) | 14.3 (0.7) | 110 | 85 |
| | | | | | 10 | 67.2 (3.2) | 10.4 (0.5) | 95 | 75 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | Full-Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 109.4 (5.2) | 30.7 (1.5) | 160 | 125 |
| | | | | | 9 | 86.4 (4.1) | 21.5 (1.0) | 135 | 105 |
| | | | | | 10 | 70.0 (3.4) | 15.7 (0.8) | 115 | 90 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | Full-Height Spaced 24" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 119.3 (5.7) | 53.3 (2.6) | 215 | 165 |
| | | | | | 9 | 94.2 (4.5) | 37.5 (1.8) | 180 | 140 |
| | | | | | 10 | 76.3 (3.7) | 27.3 (1.3) | 155 | 120 |
| ESC | BamCore Prime Wall MonoShear | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 75% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 3" o.c. | 8 | 110.2 (5.3) | 42.9 (2.1) | 190 | 145 |
| | | | | | 9 | 87.0 (4.2) | 30.1 (1.4) | 160 | 125 |
| | | | | | 10 | 70.5 (3.4) | 22.0 (1.1) | 135 | 105 |
| | | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 90% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 3" o.c. | 8 | 117.7 (5.6) | 63.2 (3.0) | 230 | 180 |
| | | | | | 9 | 93.0 (4.5) | 44.4 (2.1) | 195 | 150 |
| | | | | | 10 | 75.3 (3.6) | 32.3 (1.5) | 165 | 130 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | 50% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 125.7 (6) | 26.5 (1.3) | 150 | 115 |
| | | | | | 9 | 99.3 (4.8) | 18.6 (0.9) | 125 | 95 |
| | | | | | 10 | 80.4 (3.9) | 13.6 (0.7) | 110 | 85 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | 75% height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 3" o.c. | 8 | 127.4 (6.1) | 31.8 (1.5) | 165 | 130 |
| | | | | | 9 | 100.7 (4.8) | 22.3 (1.1) | 140 | 110 |
| | | | | | 10 | 127.4 (6.1) | 31.8 (1.5) | 165 | 130 |

**Table 23**. Transverse Wind Load Performance – H/360[1,2,3,4,5,6,9,10]

| Panel Type | Wall Assembly Type | Top/Bottom Plate Size | Blocking Size and Spacing | Plate and Blocking Fastener Spacing | Wall Height (ft) | Transverse Load, psf (kN/m²) | | Wind Speed at Deflection Limit (mph) | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Maximum Allowable | Allowable at Deflection Limit | Maximum $V_{ult}$,[7] (mph) | Allowable $V_{asd}$,[8] (mph) |
| ESC Cont. | BamCore Prime Wall MonoShear Continued | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | 50% Height Spaced 24" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 149.1 (7.1) | 31.0 (1.5) | 165 | 130 |
| | | | | | 9 | 117.8 (5.6) | 21.8 (1.0) | 135 | 105 |
| | | | | | 10 | 95.4 (4.6) | 15.9 (0.8) | 115 | 90 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | 75% Height Spaced 24" o.c. | Plate: 6" o.c. Blocking: 4" o.c. | 8 | 151.2 (7.2) | 43.5 (2.1) | 195 | 150 |
| | | | | | 9 | 119.5 (5.7) | 30.6 (1.5) | 160 | 125 |
| | | | | | 10 | 96.8 (4.6) | 22.3 (1.1) | 140 | 110 |
| BH2 | BamCore Prime Wall MonoShear | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | Full-Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 122.0 (5.8) | 43.3 (2.1) | 190 | 145 |
| | | | | | 9 | 96.4 (4.6) | 30.4 (1.5) | 160 | 125 |
| | | | | | 10 | 78.1 (3.7) | 22.2 (1.1) | 140 | 110 |
| | | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | Full-Height Spaced 24" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 163.2 (7.8) | 112.2 (5.4) | 310 | 240 |
| | | | | | 9 | 129.0 (6.2) | 78.8 (3.8) | 260 | 200 |
| | | | | | 10 | 104.5 (5) | 57.4 (2.8) | 220 | 170 |
| | | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 50% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 169.3 (8.1) | 27.4 (1.3) | 155 | 120 |
| | | | | | 9 | 133.8 (6.4) | 19.2 (0.9) | 130 | 100 |
| | | | | | 10 | 108.4 (5.2) | 14.0 (0.7) | 110 | 85 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | 50% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 176.1 (8.4) | 26.5 (1.3) | 150 | 115 |
| | | | | | 9 | 139.1 (6.7) | 18.6 (0.9) | 125 | 95 |
| | | | | | 10 | 112.7 (5.4) | 13.6 (0.6) | 110 | 85 |
| BH1 | BamCore Prime Wall DuoShear | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 25% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 262.8 (12.6) | 44 (2.1) | 195 | 150 |
| | | | | | 9 | 207.7 (9.9) | 30.9 (1.5) | 160 | 125 |
| | | | | | 10 | 168.2 (8.1) | 22.5 (1.1) | 140 | 110 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | 25% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 282.4 (13.5) | 44.3 (2.1) | 195 | 150 |
| | | | | | 9 | 223.1 (10.7) | 31.1 (1.5) | 165 | 130 |
| | | | | | 10 | 180.7 (8.7) | 22.7 (1.1) | 140 | 110 |
| | | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 50% Height Spaced 96" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 289 (13.8) | 35.2 (1.7) | 170 | 130 |
| | | | | | 9 | 228.3 (10.9) | 24.7 (1.2) | 140 | 110 |
| | | | | | 10 | 184.9 (8.9) | 18.0 (0.9) | 120 | 95 |

**Table 23**. Transverse Wind Load Performance – H/360[1,2,3,4,5,6,9,10]

| Panel Type | Wall Assembly Type | Top/Bottom Plate Size | Blocking Size and Spacing | Plate and Blocking Fastener Spacing | Wall Height (ft) | Transverse Load, psf (kN/m²) | | Wind Speed at Deflection Limit (mph) | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Maximum Allowable | Allowable at Deflection Limit | Maximum $V_{ult}$,[7] (mph) | Allowable $V_{asd}$,[8] (mph) |
| BH1 Cont. | BamCore Prime Wall DuoShear Continued | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 70% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 438.0 (21.0) | 54.7 (2.6) | 210 | 165 |
| | | | | | 9 | 346.1 (16.6) | 38.4 (1.8) | 180 | 140 |
| | | | | | 10 | 280.3 (13.4) | 28.0 (1.3) | 150 | 115 |
| BH2 | BamCore Prime Wall DuoShear | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 25% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 396.2 (19) | 60.9 (2.9) | 230 | 180 |
| | | | | | 9 | 313.1 (15.0) | 42.8 (2.0) | 190 | 145 |
| | | | | | 10 | 253.6 (12.1) | 31.2 (1.5) | 165 | 130 |
| | | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 70% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 4" o.c. | 8 | 486.4 (23.3) | 96.0 (4.6) | 285 | 220 |
| | | | | | 9 | 384.3 (18.4) | 67.4 (3.2) | 240 | 185 |
| | | | | | 10 | 311.3 (14.9) | 49.2 (2.4) | 205 | 160 |

SI: 1 in = 25.4 mm, 1 psf = 0.0479 kN/m², 1 mph = 1.61 km/h

1. Tested in accordance with ASTM E72 Section 12.
2. BamCore Prime Wall System attached in accordance with **Section 2** and **Section 9**.
3. Fasteners for BamCore Prime Wall System panels to top/bottom plate and to blocking connections shall be 3¼" x 0.131" smooth shank nails.
4. Fasteners for the 1" wide, half-lap connection between two BamCore Prime Wall System panels shall be 2" x 0.113" ring shank nails.
5. Deflection limits are from IBC Table 1604.3 for exterior walls, and from IRC Table R301.7. H is the height of the wall panel.
6. Deflection for exterior walls with interior gypsum board finish shall be limited to an allowable deflection of H/180 per IRC Table R301.7, footnote (d).
7. Wind speeds based on the following:
   a. A building height of 30-feet, $GC_p$= -1.4 for Zone 5 and an Effective Wind Area of 10ft², Topographic Factor: $K_{zt}$=1.0, Ground Elevation Factor: $K_e$=1.0, Internal Pressure Coefficient, $GC_{pi}$=+/-0.18 for an enclosed building, $K_d$ = 0.85 for Component and Cladding, and Exposure Category B.
8. Allowable stress design wind speed shall be determined in accordance with IBC Section 1609.3.1: $V_{asd} = V_{ult}\sqrt{0.6}$
9. Deflection is calculated based on 0.7 times components and cladding (ASD) loads per IRC Table R301.7.
10. BamCore BH2 and ESC panels can be used in place of BamCore BH1 panels. BamCore BH2 panels can be used in place of BamCore ESC panels.

**Table 24**. Transverse Wind Load Performance – H/240[1,2,3,4,5,6,9,10]

| Panel Type | Wall Assembly Type | Top/Bottom Plate Size | Blocking Size and Spacing | Plate and Blocking Fastener Spacing | Wall Height (ft) | Transverse Load, psf (kN/m²) | | Wind Speed at Deflection Limit (mph) | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Maximum Allowable | Allowable at Deflection Limit | Maximum $V_{ult}$,[7] (mph) | Allowable $V_{asd}$,[8] (mph) |
| BH1 | BamCore Prime Wall MonoShear | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | 50% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 104.9 (5.0) | 25.8 (1.2) | 150 | 115 |
| | | | | | 9 | 82.9 (4.0) | 18.1 (0.9) | 125 | 95 |
| | | | | | 10 | 67.2 (3.2) | 13.2 (0.6) | 105 | 80 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | Full-Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 109.4 (5.2) | 40.8 (2.0) | 185 | 145 |
| | | | | | 9 | 86.4 (4.1) | 28.6 (1.4) | 155 | 120 |
| | | | | | 10 | 70.0 (3.4) | 40.8 (2.0) | 185 | 145 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | Full-Height Spaced 24" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 119.3 (5.7) | 69.9 (3.3) | 245 | 190 |
| | | | | | 9 | 94.2 (4.5) | 49.1 (2.4) | 205 | 160 |
| | | | | | 10 | 76.3 (3.7) | 35.8 (1.7) | 175 | 135 |
| ESC | BamCore Prime Wall MonoShear | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 75% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 3" o.c. | 8 | 110.2 (5.3) | 56.6 (2.7) | 220 | 170 |
| | | | | | 9 | 87.0 (4.2) | 39.8 (1.9) | 185 | 145 |
| | | | | | 10 | 70.5 (3.4) | 29.0 (1.4) | 155 | 120 |
| | | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 90% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 3" o.c. | 8 | 117.7 (5.6) | 83.5 (4.0) | 265 | 205 |
| | | | | | 9 | 93.0 (4.5) | 58.7 (2.8) | 225 | 175 |
| | | | | | 10 | 75.3 (3.6) | 42.8 (2.0) | 190 | 145 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | 50% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 125.7 (6) | 34.6 (1.7) | 170 | 130 |
| | | | | | 9 | 99.3 (4.8) | 24.3 (1.2) | 145 | 110 |
| | | | | | 10 | 80.4 (3.9) | 17.7 (0.8) | 125 | 95 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | 75% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 3" o.c. | 8 | 127.4 (6.1) | 42.2 (2.0) | 190 | 145 |
| | | | | | 9 | 100.7 (4.8) | 29.6 (1.4) | 160 | 125 |
| | | | | | 10 | 81.6 (3.9) | 21.6 (1.0) | 135 | 105 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | 50% Height Spaced 24" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 149.1 (7.1) | 40.9 (2.0) | 185 | 145 |
| | | | | | 9 | 117.8 (5.6) | 28.7 (1.4) | 155 | 120 |
| | | | | | 10 | 95.4 (4.6) | 20.9 (1.0) | 135 | 105 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | 75% Height Spaced 24" o.c. | Plate: 6" o.c. Blocking: 4" o.c. | 8 | 151.2 (7.2) | 57.9 (2.8) | 220 | 170 |
| | | | | | 9 | 119.5 (5.7) | 40.7 (1.9) | 185 | 145 |
| | | | | | 10 | 96.8 (4.6) | 29.6 (1.4) | 160 | 125 |

**Table 24**. Transverse Wind Load Performance – H/240[1,2,3,4,5,6,9,10]

| Panel Type | Wall Assembly Type | Top/Bottom Plate Size | Blocking Size and Spacing | Plate and Blocking Fastener Spacing | Wall Height (ft) | Transverse Load, psf (kN/m²) | | Wind Speed at Deflection Limit (mph) | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Maximum Allowable | Allowable at Deflection Limit | Maximum $V_{ult}$,[7] (mph) | Allowable $V_{asd}$,[8] (mph) |
| BH2 | BamCore Prime Wall MonoShear | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | Full-Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 122.0 (5.8) | 57.6 (2.8) | 220 | 170 |
| | | | | | 9 | 96.4 (4.6) | 40.5 (1.9) | 185 | 145 |
| | | | | | 10 | 78.1 (3.7) | 29.5 (1.4) | 160 | 125 |
| | | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | Full-Height Spaced 24" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 163.2 (7.8) | 149.9 (7.2) | 360 | 280 |
| | | | | | 9 | 129.0 (6.2) | 105.3 (5.0) | 300 | 230 |
| | | | | | 10 | 104.5 (5) | 76.7 (3.7) | 255 | 200 |
| | | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 50% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 169.3 (8.1) | 36.3 (1.7) | 175 | 135 |
| | | | | | 9 | 133.8 (6.4) | 25.5 (1.2) | 150 | 115 |
| | | | | | 10 | 108.4 (5.2) | 18.6 (0.9) | 125 | 95 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | 50% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 176.1 (8.4) | 34.5 (1.7) | 170 | 130 |
| | | | | | 9 | 139.1 (6.7) | 24.2 (1.2) | 145 | 110 |
| | | | | | 10 | 112.7 (5.4) | 17.7 (0.8) | 125 | 95 |
| BH1 | BamCore Prime Wall DuoShear | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 25% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 262.8 (12.6) | 57.1 (2.7) | 220 | 170 |
| | | | | | 9 | 207.7 (9.9) | 40.1 (1.9) | 185 | 145 |
| | | | | | 10 | 168.2 (8.1) | 29.2 (1.4) | 160 | 125 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | 25% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 282.4 (13.5) | 57.0 (2.7) | 220 | 170 |
| | | | | | 9 | 223.1 (10.7) | 40.0 (1.9) | 185 | 145 |
| | | | | | 10 | 180.7 (8.7) | 29.2 (1.4) | 160 | 125 |
| | | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 50% Height Spaced 96" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 289 (13.8) | 54.7 (2.6) | 210 | 165 |
| | | | | | 9 | 228.3 (10.9) | 38.4 (1.8) | 180 | 140 |
| | | | | | 10 | 184.9 (8.9) | 28.0 (1.3) | 150 | 115 |
| | | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 70% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 438.0 (21.0) | 80.1 (3.8) | 260 | 200 |
| | | | | | 9 | 346.1 (16.6) | 56.2 (2.7) | 210 | 165 |
| | | | | | 10 | 280.3 (13.4) | 41.0 (2.0) | 180 | 140 |

**Table 24**. Transverse Wind Load Performance – H/240[1,2,3,4,5,6,9,10]

| Panel Type | Wall Assembly Type | Top/Bottom Plate Size | Blocking Size and Spacing | Plate and Blocking Fastener Spacing | Wall Height (ft) | Transverse Load, psf (kN/m²) | | Wind Speed at Deflection Limit (mph) | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Maximum Allowable | Allowable at Deflection Limit | Maximum $V_{ult}$,[7] (mph) | Allowable $V_{asd}$,[8] (mph) |
| BH2 | BamCore Prime Wall DuoShear | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 25% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 396.2 (19) | 82.3 (3.9) | 265 | 205 |
| | | | | | 9 | 313.1 (15.0) | 57.8 (2.8) | 220 | 170 |
| | | | | | 10 | 253.6 (12.1) | 42.2 (2.0) | 190 | 145 |
| | | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 70% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 4" o.c. | 8 | 486.4 (23.3) | 129.7 (6.2) | 335 | 260 |
| | | | | | 9 | 384.3 (18.4) | 91.1 (4.4) | 280 | 215 |
| | | | | | 10 | 311.3 (14.9) | 66.4 (3.2) | 240 | 185 |

SI: 1 in = 25.4 mm, 1 psf = 0.0479 kN/m², 1 mph = 1.61 km/h

1. Tested in accordance with ASTM E72 Section 12.
2. BamCore Prime Wall System attached in accordance with **Section 2** and **Section 9**.
3. Fasteners for BamCore Prime Wall System panels to top/bottom plate and to blocking connections shall be 3¼" x 0.131" smooth shank nails.
4. Fasteners for the 1" wide, half-lap connection between two BamCore Prime Wall System panels shall be 2" x 0.113" ring shank nails.
5. Deflection limits are from IBC Table 1604.3 for exterior walls, and from IRC Table R301.7. H is the height of the wall panel.
6. Deflection for exterior walls with interior gypsum board finish shall be limited to an allowable deflection of H/180 per IRC Table R301.7, footnote (d).
7. Wind speeds based on the following:
   a. A building height of 30-feet, $GC_p$= -1.4 for Zone 5 and an Effective Wind Area of 10ft², Topographic Factor: $K_{zt}$=1.0, Ground Elevation Factor: $K_e$=1.0, Internal Pressure Coefficient, $GC_{pi}$=+/-0.18 for an enclosed building, $K_d$ = 0.85 for Component and Cladding, and Exposure Category B.
8. Allowable stress design wind speed shall be determined in accordance with IBC Section 1609.3.1: $V_{asd} = V_{ult}\sqrt{0.6}$
9. Deflection is calculated based on 0.7 times components and cladding (ASD) loads per IRC Table R301.7.
10. BamCore BH2 and ESC panels can be used in place of BamCore BH1 panels. BamCore BH2 panels can be used in place of BamCore ESC panels.

**Table 25**. Transverse Wind Load Performance – H/180[1,2,3,4,5,6,9,10]

| Panel Type | Wall Assembly Type | Top/Bottom Plate Size | Blocking Size and Spacing | Plate and Blocking Fastener Spacing | Wall Height (ft) | Transverse Load, psf (kN/m²) | | Wind Speed at Deflection Limit (mph) | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Maximum Allowable | Allowable at Deflection Limit | Maximum $V_{ult}$,[7] (mph) | Allowable $V_{asd}$,[8] (mph) |
| BH1 | BamCore Prime Wall MonoShear | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | 50% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 104.9 (5.0) | 31.4 (1.5) | 165 | 130 |
| | | | | | 9 | 82.9 (4.0) | 22.0 (1.1) | 135 | 105 |
| | | | | | 10 | 67.2 (3.2) | 16.1 (0.8) | 115 | 90 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | Full-Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 109.4 (5.2) | 50.3 (2.4) | 205 | 160 |
| | | | | | 9 | 86.4 (4.1) | 35.3 (1.7) | 175 | 135 |
| | | | | | 10 | 70.0 (3.4) | 25.8 (1.2) | 150 | 115 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | Full-Height Spaced 24" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 119.3 (5.7) | 85.7 (4.1) | 270 | 210 |
| | | | | | 9 | 94.2 (4.5) | 60.2 (2.9) | 225 | 175 |
| | | | | | 10 | 76.3 (3.7) | 43.9 (2.1) | 195 | 150 |
| ESC | BamCore Prime Wall MonoShear | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 75% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 3" o.c. | 8 | 110.2 (5.3) | 69.2 (3.3) | 245 | 190 |
| | | | | | 9 | 87.0 (4.2) | 48.6 (2.3) | 205 | 160 |
| | | | | | 10 | 70.5 (3.4) | 35.4 (1.7) | 175 | 135 |
| | | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 90% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 3" o.c. | 8 | 117.7 (5.6) | 101.3 (4.9) | 295 | 230 |
| | | | | | 9 | 93.0 (4.5) | 71.1 (3.4) | 245 | 190 |
| | | | | | 10 | 75.3 (3.6) | 51.9 (2.5) | 210 | 165 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | 50% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 125.7 (6) | 42.4 (2.0) | 190 | 145 |
| | | | | | 9 | 99.3 (4.8) | 29.8 (1.4) | 160 | 125 |
| | | | | | 10 | 80.4 (3.9) | 21.7 (1.0) | 135 | 105 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | 75% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 3" o.c. | 8 | 127.4 (6.1) | 52.2 (2.5) | 210 | 165 |
| | | | | | 9 | 100.7 (4.8) | 36.7 (1.8) | 175 | 135 |
| | | | | | 10 | 81.6 (3.9) | 26.7 (1.3) | 150 | 115 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | 50% Height Spaced 24" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 149.1 (7.1) | 50.2 (2.4) | 205 | 160 |
| | | | | | 9 | 117.8 (5.6) | 35.3 (1.7) | 175 | 135 |
| | | | | | 10 | 95.4 (4.6) | 25.7 (1.2) | 150 | 115 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | 75% Height Spaced 24" o.c. | Plate: 6" o.c. Blocking: 4" o.c. | 8 | 151.2 (7.2) | 71.8 (3.4) | 250 | 195 |
| | | | | | 9 | 119.5 (5.7) | 50.4 (2.4) | 210 | 165 |
| | | | | | 10 | 96.8 (4.6) | 36.8 (1.8) | 175 | 135 |

**Table 25**. Transverse Wind Load Performance – H/180[1,2,3,4,5,6,9,10]

| Panel Type | Wall Assembly Type | Top/Bottom Plate Size | Blocking Size and Spacing | Plate and Blocking Fastener Spacing | Wall Height (ft) | Transverse Load, psf (kN/m²) | | Wind Speed at Deflection Limit (mph) | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Maximum Allowable | Allowable at Deflection Limit | Maximum $V_{ult}$,[7] (mph) | Allowable $V_{asd}$,[8] (mph) |
| BH2 | BamCore Prime Wall MonoShear | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | Full-Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 122.0 (5.8) | 71.6 (3.4) | 245 | 190 |
| | | | | | 9 | 96.4 (4.6) | 50.3 (2.4) | 205 | 160 |
| | | | | | 10 | 78.1 (3.7) | 36.6 (1.8) | 175 | 135 |
| | | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | Full-Height Spaced 24" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 163.2 (7.8) | 163.2 (7.8) | 375 | 290 |
| | | | | | 9 | 129.0 (6.2) | 129.0 (6.2) | 330 | 255 |
| | | | | | 10 | 104.5 (5) | 95.1 (4.6) | 285 | 220 |
| | | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 50% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 169.3 (8.1) | 45.2 (2.2) | 195 | 150 |
| | | | | | 9 | 133.8 (6.4) | 31.7 (1.5) | 165 | 130 |
| | | | | | 10 | 108.4 (5.2) | 23.1 (1.1) | 140 | 110 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | 50% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 176.1 (8.4) | 42.8 (2.0) | 190 | 145 |
| | | | | | 9 | 139.1 (6.7) | 30.1 (1.4) | 160 | 125 |
| | | | | | 10 | 112.7 (5.4) | 21.9 (1.0) | 135 | 105 |
| BH1 | BamCore Prime Wall DuoShear | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 25% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 262.8 (12.6) | 69.8 (3.3) | 245 | 190 |
| | | | | | 9 | 207.7 (9.9) | 49.0 (2.3) | 205 | 160 |
| | | | | | 10 | 168.2 (8.1) | 35.7 (1.7) | 175 | 135 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | 25% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 282.4 (13.5) | 68.8 (3.3) | 240 | 185 |
| | | | | | 9 | 223.1 (10.7) | 48.3 (2.3) | 205 | 160 |
| | | | | | 10 | 180.7 (8.7) | 35.2 (1.7) | 175 | 135 |
| | | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 50% Height Spaced 96" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 289 (13.8) | 72.3 (3.5) | 240 | 185 |
| | | | | | 9 | 228.3 (10.9) | 50.8 (2.4) | 200 | 155 |
| | | | | | 10 | 184.9 (8.9) | 37.0 (1.8) | 170 | 130 |
| | | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 70% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 438.0 (21.0) | 105.5 (5.1) | 300 | 230 |
| | | | | | 9 | 346.1 (16.6) | 74.1 (3.5) | 250 | 195 |
| | | | | | 10 | 280.3 (13.4) | 54.0 (2.6) | 210 | 165 |

**Table 25**. Transverse Wind Load Performance – H/180[1,2,3,4,5,6,9,10]

| Panel Type | Wall Assembly Type | Top/Bottom Plate Size | Blocking Size and Spacing | Plate and Blocking Fastener Spacing | Wall Height (ft) | Transverse Load, psf (kN/m²) | | Wind Speed at Deflection Limit (mph) | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Maximum Allowable | Allowable at Deflection Limit | Maximum $V_{ult}$,[7] (mph) | Allowable $V_{asd}$,[8] (mph) |
| BH2 | BamCore Prime Wall DuoShear | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 25% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 396.2 (19) | 103.8 (5.0) | 300 | 230 |
| | | | | | 9 | 313.1 (15.0) | 72.9 (3.5) | 250 | 195 |
| | | | | | 10 | 253.6 (12.1) | 53.1 (2.5) | 215 | 165 |
| | | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 70% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 4" o.c. | 8 | 486.4 (23.3) | 162.5 (7.8) | 375 | 290 |
| | | | | | 9 | 384.3 (18.4) | 114.2 (5.5) | 310 | 240 |
| | | | | | 10 | 311.3 (14.9) | 83.2 (4.0) | 265 | 205 |

SI: 1 in = 25.4 mm, 1 psf = 0.0479 kN/m², 1 mph = 1.61 km/h

1. Tested in accordance with ASTM E72 Section 12.
2. BamCore Prime Wall System attached in accordance with **Section 2** and **Section 9**.
3. Fasteners for BamCore Prime Wall System panels to top/bottom plate and to blocking connections shall be 3¼" x 0.131" smooth shank nails.
4. Fasteners for the 1" wide, half-lap connection between two BamCore Prime Wall System panels shall be 2" x 0.113" ring shank nails.
5. Deflection limits are from IBC Table 1604.3 for exterior walls, and from IRC Table R301.7. H is the height of the wall panel.
6. Deflection for exterior walls with interior gypsum board finish shall be limited to an allowable deflection of H/180 per IRC Table R301.7, footnote (d).
7. Wind speeds based on the following:
   a. A building height of 30-feet, $GC_p$= -1.4 for Zone 5 and an Effective Wind Area of 10ft², Topographic Factor: $K_{zt}$=1.0, Ground Elevation Factor: $K_e$=1.0, Internal Pressure Coefficient, $GC_{pi}$=+/-0.18 for an enclosed building, $K_d$ = 0.85 for Component and Cladding, and Exposure Category B.
8. Allowable stress design wind speed shall be determined in accordance with IBC Section 1609.3.1: $V_{asd} = V_{ult}\sqrt{0.6}$
9. Deflection is calculated based on 0.7 times components and cladding (ASD) loads per IRC Table R301.7.
10. BamCore BH2 and ESC panels can be used in place of BamCore BH1 panels. BamCore BH2 panels can be used in place of BamCore ESC panels.

**Table 26**. Transverse Wind Load Performance – H/120[1,2,3,4,5,6,9,10]

| Panel Type | Wall Assembly Type | Top/Bottom Plate Size | Blocking Size and Spacing | Plate and Blocking Fastener Spacing | Wall Height (ft) | Transverse Load, psf (kN/m²) | | Wind Speed at Deflection Limit (mph) | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Maximum Allowable | Allowable at Deflection Limit | Maximum $V_{ult}$,[7] (mph) | Allowable $V_{asd}$,[8] (mph) |
| BH1 | BamCore Prime Wall MonoShear | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | 50% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 104.9 (5.0) | 42.1 (2.0) | 190 | 145 |
| | | | | | 9 | 82.9 (4.0) | 29.6 (1.4) | 160 | 125 |
| | | | | | 10 | 67.2 (3.2) | 21.6 (1.0) | 135 | 105 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | Full-Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 109.4 (5.2) | 68.8 (3.3) | 240 | 185 |
| | | | | | 9 | 86.4 (4.1) | 48.3 (2.3) | 205 | 160 |
| | | | | | 10 | 70.0 (3.4) | 35.2 (1.7) | 175 | 135 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | Full-Height Spaced 24" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 119.3 (5.7) | 115.3 (5.5) | 315 | 245 |
| | | | | | 9 | 94.2 (4.5) | 80.9 (3.9) | 265 | 205 |
| | | | | | 10 | 76.3 (3.7) | 59.0 (2.8) | 225 | 175 |
| ESC | BamCore Prime Wall MonoShear | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 75% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 3" o.c. | 8 | 110.2 (5.3) | 92.4 (4.4) | 280 | 215 |
| | | | | | 9 | 87.0 (4.2) | 64.9 (3.1) | 235 | 180 |
| | | | | | 10 | 70.5 (3.4) | 47.3 (2.3) | 200 | 155 |
| | | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 90% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 3" o.c. | 8 | 117.7 (5.6) | 117.7 (5.6) | 315 | 245 |
| | | | | | 9 | 93.0 (4.5) | 91.6 (4.4) | 280 | 215 |
| | | | | | 10 | 75.3 (3.6) | 66.8 (3.2) | 240 | 185 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | 50% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 125.7 (6) | 57.1 (2.7) | 220 | 170 |
| | | | | | 9 | 99.3 (4.8) | 40.1 (1.9) | 185 | 145 |
| | | | | | 10 | 80.4 (3.9) | 29.3 (1.4) | 160 | 125 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | 75% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 3" o.c. | 8 | 127.4 (6.1) | 70.9 (3.4) | 245 | 190 |
| | | | | | 9 | 100.7 (4.8) | 49.8 (2.4) | 205 | 160 |
| | | | | | 10 | 81.6 (3.9) | 36.3 (1.7) | 175 | 135 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | 50% Height Spaced 24" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 149.1 (7.1) | 67.1 (3.2) | 240 | 185 |
| | | | | | 9 | 117.8 (5.6) | 47.2 (2.3) | 200 | 155 |
| | | | | | 10 | 95.4 (4.6) | 34.4 (1.6) | 170 | 130 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | 75% Height Spaced 24" o.c. | Plate: 6" o.c. Blocking: 4" o.c. | 8 | 151.2 (7.2) | 97.3 (4.7) | 290 | 225 |
| | | | | | 9 | 119.5 (5.7) | 68.3 (3.3) | 240 | 185 |
| | | | | | 10 | 96.8 (4.6) | 49.8 (2.4) | 205 | 160 |

**Table 26**. Transverse Wind Load Performance – H/120[1,2,3,4,5,6,9,10]

| Panel Type | Wall Assembly Type | Top/Bottom Plate Size | Blocking Size and Spacing | Plate and Blocking Fastener Spacing | Wall Height (ft) | Transverse Load, psf (kN/m²) | | Wind Speed at Deflection Limit (mph) | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Maximum Allowable | Allowable at Deflection Limit | Maximum $V_{ult}$,[7] (mph) | Allowable $V_{asd}$,[8] (mph) |
| BH2 | BamCore Prime Wall MonoShear | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | Full-Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 122.0 (5.8) | 98.4 (4.7) | 290 | 225 |
| | | | | | 9 | 96.4 (4.6) | 69.1 (3.3) | 245 | 190 |
| | | | | | 10 | 78.1 (3.7) | 50.4 (2.4) | 205 | 160 |
| | | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | Full-Height Spaced 24" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 163.2 (7.8) | 163.2 (7.8) | 375 | 290 |
| | | | | | 9 | 129.0 (6.2) | 129.0 (6.2) | 330 | 255 |
| | | | | | 10 | 104.5 (5) | 104.5 (5.0) | 300 | 230 |
| | | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 50% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 169.3 (8.1) | 61.9 (3.0) | 230 | 180 |
| | | | | | 9 | 133.8 (6.4) | 43.5 (2.1) | 195 | 150 |
| | | | | | 10 | 108.4 (5.2) | 31.7 (1.5) | 165 | 130 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | 50% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 176.1 (8.4) | 59.2 (2.8) | 225 | 175 |
| | | | | | 9 | 139.1 (6.7) | 41.6 (2.0) | 190 | 145 |
| | | | | | 10 | 112.7 (5.4) | 30.3 (1.5) | 160 | 125 |
| BH1 | BamCore Prime Wall DuoShear | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 25% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 262.8 (12.6) | 92.4 (4.4) | 280 | 215 |
| | | | | | 9 | 207.7 (9.9) | 64.9 (3.1) | 235 | 180 |
| | | | | | 10 | 168.2 (8.1) | 47.3 (2.3) | 200 | 155 |
| | | Top Plate: Single 2 x 4 Bottom Plate: Single 2 x 4 | 25% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 282.4 (13.5) | 92.9 (4.4) | 280 | 215 |
| | | | | | 9 | 223.1 (10.7) | 65.2 (3.1) | 235 | 180 |
| | | | | | 10 | 180.7 (8.7) | 47.6 (2.3) | 200 | 155 |
| | | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 50% Height Spaced 96" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 289 (13.8) | 107.4 (5.1) | 300 | 230 |
| | | | | | 9 | 228.3 (10.9) | 74.1 (3.5) | 250 | 195 |
| | | | | | 10 | 184.9 (8.9) | 54.0 (2.6) | 210 | 165 |
| | | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 70% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 438.0 (21.0) | 154.3 (7.4) | 360 | 280 |
| | | | | | 9 | 346.1 (16.6) | 108.4 (5.2) | 300 | 230 |
| | | | | | 10 | 280.3 (13.4) | 79.0 (3.8) | 250 | 195 |

**Table 26**. Transverse Wind Load Performance – H/120[1,2,3,4,5,6,9,10]

| Panel Type | Wall Assembly Type | Top/Bottom Plate Size | Blocking Size and Spacing | Plate and Blocking Fastener Spacing | Wall Height (ft) | Transverse Load, psf (kN/m²) | | Wind Speed at Deflection Limit (mph) | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Maximum Allowable | Allowable at Deflection Limit | Maximum $V_{ult}$,[7] (mph) | Allowable $V_{asd}$,[8] (mph) |
| BH2 | BamCore Prime Wall DuoShear | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 25% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 6" o.c. | 8 | 396.2 (19) | 146.0 (7.0) | 355 | 275 |
| | | | | | 9 | 313.1 (15.0) | 102.5 (4.9) | 295 | 230 |
| | | | | | 10 | 253.6 (12.1) | 74.7 (3.6) | 255 | 200 |
| | | Top Plate: Single 2 x 6 Bottom Plate: Single 2 x 6 | 70% Height Spaced 48" o.c. | Plate: 6" o.c. Blocking: 4" o.c. | 8 | 486.4 (23.3) | 223.9 (10.7) | 435 | 335 |
| | | | | | 9 | 384.3 (18.4) | 157.3 (7.5) | 365 | 285 |
| | | | | | 10 | 311.3 (14.9) | 114.6 (5.5) | 315 | 245 |

SI: 1 in = 25.4 mm, 1 psf = 0.0479 kN/m², 1 mph = 1.61 km/h

1. Tested in accordance with ASTM E72 Section 12.
2. BamCore Prime Wall System attached in accordance with **Section 2** and **Section 9**.
3. Fasteners for BamCore Prime Wall System panels to top/bottom plate and to blocking connections shall be 3¼" x 0.131" smooth shank nails.
4. Fasteners for the 1" wide, half-lap connection between two BamCore Prime Wall System panels shall be 2" x 0.113" ring shank nails.
5. Deflection limits are from IBC Table 1604.3 for exterior walls, and from IRC Table R301.7. H is the height of the wall panel.
6. Deflection for exterior walls with interior gypsum board finish shall be limited to an allowable deflection of H/180 per IRC Table R301.7, footnote (d).
7. Wind speeds based on the following:
   a. A building height of 30-feet, $GC_p$= -1.4 for Zone 5 and an Effective Wind Area of 10ft², Topographic Factor: $K_{zt}$=1.0, Ground Elevation Factor: $K_e$=1.0, Internal Pressure Coefficient, $GC_{pi}$=+/-0.18 for an enclosed building, $K_d$ = 0.85 for Component and Cladding, and Exposure Category B.
8. Allowable stress design wind speed shall be determined in accordance with IBC Section 1609.3.1: $V_{asd} = V_{ult}\sqrt{0.6}$
9. Deflection is calculated based on 0.7 times components and cladding (ASD) loads per IRC Table R301.7.
10. BamCore BH2 and ESC panels can be used in place of BamCore BH1 panels. BamCore BH2 panels can be used in place of BamCore ESC panels.

6.2.7 *Truss to Top Plate Connection:*

6.2.7.1 The connection between BamCore Prime Wall System and truss/rafter/ceiling joist was evaluated for uplift and gravity resistance, and the allowable loads are provided in **Table 27**. See **Figure 12** for details of connection.

**Table 27**. BamCore Prime Wall System and Truss/Rafter/Joist Connection[1,2,3,8]

| BamCore Prime Wall Product | Connection Details | | | Allowable Load, lbf (kN) | |
|---|---|---|---|---|---|
| | BamCore Panel to Top Plate[5] | BamCore Panel to Top Plate[6] | Top Plate to Truss/Rafter/Joist[7] | Uplift | Gravity |
| BH1 MonoShear | 3" x 0.131" Nails spaced 5½" o.c. | (1) 6" x 0.155" Truss Screw[4] | (3) 3" x 0.148" Nails | 955 (4.2) | 2,300 (10.2) |
| ESC MonoShear | | | | 830 (3.7) | 2,320 (10.3) |

SI: 1 in = 25.4 mm, 1 lbf = 4.448 N

1. The reference design values in this table are applicable for the product used in dry, well-ventilated interior applications in which the equivalent moisture content of sawn lumber is less than nineteen percent (19%).
2. The reference design values in this table are for normal load duration. Loads of other duration shall be adjusted in accordance with the applicable code.
3. When structural members qualify as repetitive members in accordance with the applicable code, a four percent (4%) increase is permitted per NDS Section 8.3.7.
4. Simpson Strong-Tie (SDWC 15600-KT).
5. Installed at 90° through the face of the BamCore panel into the edge (narrow face) of top plate.
6. Installed at 22.5° into the face of the BamCore panel and the edge (narrow face) of the truss/rafter/joist.
7. Toenailed at 35° through the wide face of the truss/rafter/joist into the wide face of the top plate.
8. BamCore BH2 and ESC panels can be used in place of BamCore BH1 panels. BamCore BH2 panels can be used in place of BamCore ESC panels.

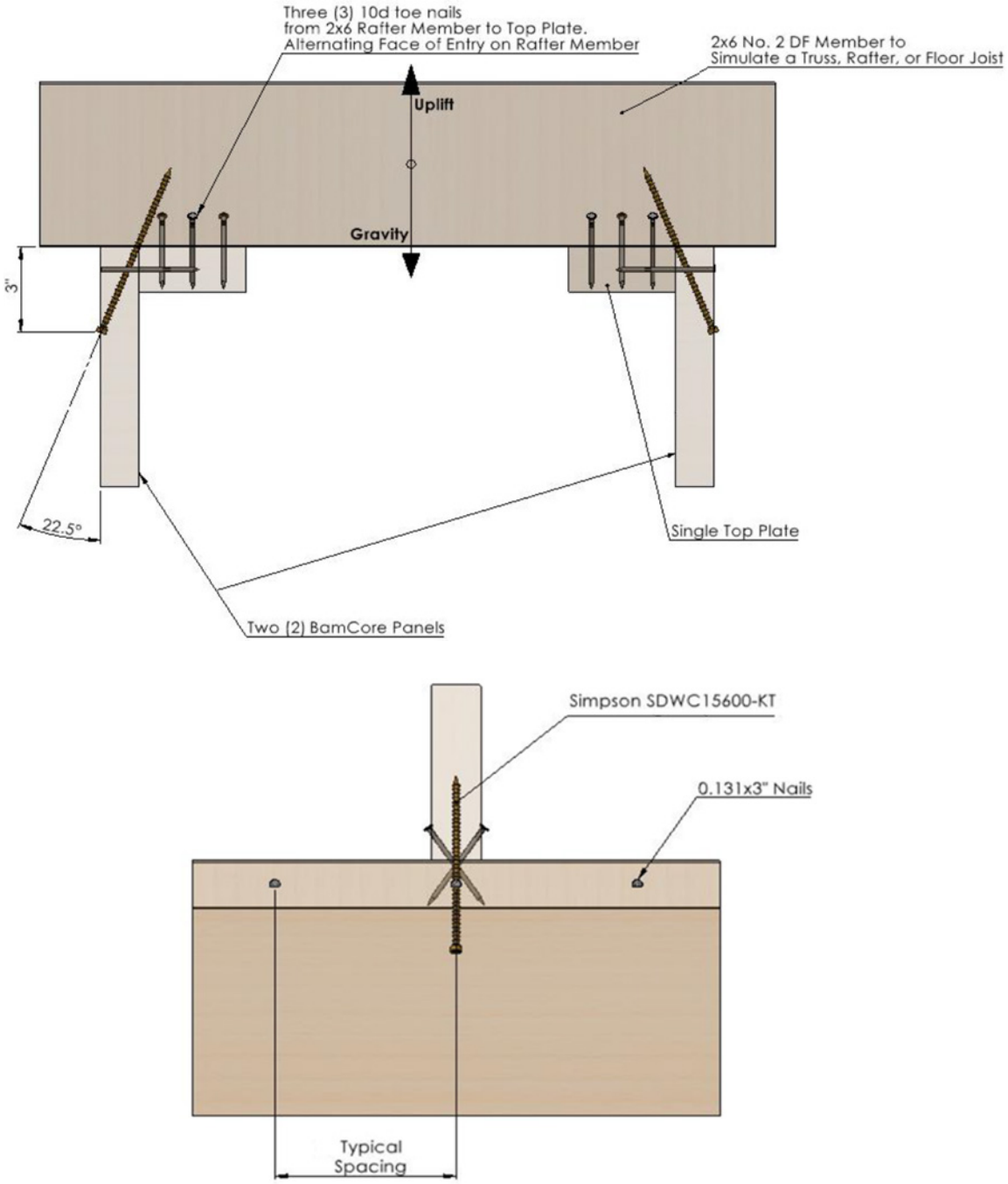


**Figure 12**. Top Plate of BamCore Prime Wall System and Truss/Rafter/Joist

6.2.8 *Lateral Resistance:*

6.2.8.1 BamCore Prime Wall System panels were evaluated to assess lateral resistance parallel to grain direction. Lateral design values for the connection are shown in shown in **Table 28**.

6.2.8.1.1 Steel side member shall comply with ASTM A653, SS Grade 33 minimum.

**Table 28**. Reference Lateral Resistance Values[1]

| Product | Fastener | Side Member Thickness | Reference Lateral Resistance Load, lbf (kN) |
|---|---|---|---|
| BamCore Prime Wall BH1 Panel | 1 1/2" x 0.148" Joist Hanger Nail | 12-gauge steel | 355 (1.58) |
| | | 20-gauge steel | 340 (1.51) |
| | 1 1/2" x 0.131" Joist Hanger Nail | 12-gauge steel | 225 (1.00) |
| | | 20-gauge steel | 220 (0.98) |
| BamCore Prime Wall ESC Panel | 1 1/2" x 0.148" Joist Hanger Nail | 12-gauge steel | 315 (1.40) |
| | | 20-gauge steel | 270 (1.20) |
| | 1 1/2" x 0.131" Joist Hanger Nail | 12-gauge steel | 190 (0.85) |
| | | 20-gauge steel | 175 (0.78) |
| SI: 1 in = 25.4 mm, 1 lbf = 4.448 N | | | |

6.2.9 *Dowel-Bearing Strength:*

6.2.9.1 BamCore Prime Wall System panels were evaluated to assess dowel-bearing strength parallel to grain direction. The equivalent specific gravity of the listed BamCore Prime Wall System panels are shown in **Table 29**.

**Table 29**. Dowel Bearing Strength[1]

| BamCore Prime Wall Product | Fastener | Dowel Bearing Strength, (psi) | Equivalent SG[2] |
|---|---|---|---|
| BH1 Panel | 3 1/4" x 0.148" Nail | 5,750 | 0.56 |
| ESC Panel | | 5,005 | 0.52 |

SI: 1 in = 25.4 mm, 1 psi = 0.006895 MPa

1. Tested in accordance with ASTM D1761.
2. Determined from ANSI/AWC NDS Table 12.3.3.

6.2.10 *Surface Burning Characteristics*

6.2.10.1 BamCore Prime Wall System panels were evaluated to assess performance with regard to flame spread and smoke developed indices as shown in **Table 30**.

**Table 30**. Surface Burning Characteristics[1,2]

| BamCore Prime Wall Product[1] | Flame Spread Index | Smoke Developed Index | Classification |
|---|---|---|---|
| BH1 Panel Treated with MFB-31 | ≤ 25 | ≤ 450 | Class A |
| BH1 Panel | ≤ 75 | ≤ 450 | Class B |
| ESC Panel | ≤ 200 | ≤ 450 | Class C |

1. Tested in accordance with ASTM E84.
2. Flame spread, and smoke developed numbers are shown for comparison purposes only and are not intended to represent the performance of BamCore Prime Wall System panels and related components under actual fire conditions.

6.2.11 *Fire-Resistance Rated Wall Assemblies:*

6.2.11.1 BamCore Prime Wall System has the fire-resistance ratings shown in **Table 31**.

**Table 31**. Fire-Resistance Rating[1]

| Product[1] | Layers of Type X Gypsum on Each Side of Assembly | Construction Requirements | Fire-Resistance Rating (min) |
|---|---|---|---|
| BamCore Prime Wall System Assembly Using BH1 Panels | 1 | **Section 6.2.11.2** | 60 |
| | 2 | **Section 6.2.11.3** | 120 |

1. Tested in accordance with ASTM E119

6.2.11.2 *One-Hour Rated Assembly:*

6.2.11.2.1 BamCore Prime Wall System (BH1) assemblies were tested per ASTM E119 and have a one-hour fire resistance rating when constructed as follows:

6.2.11.2.1.1 BamCore Prime Wall System (BH1) is assembled using a 2x lumber top and bottom plate and are fastened with 0.131" x 3.25" nails at 6" o.c (152 mm) or less. Minimum cavity depth of $5^1/_2$" (140 mm) is required.

6.2.11.2.1.2 Panel joints are constructed using 1" half-lap and are fastened with 0.113" x 2" ring shank nails at 6" o.c. (152 mm) or less.

6.2.11.2.1.3 A panel stiffener, minimum $1^1/_4$" x $5^1/_2$" x 5' (29 mm x 140 mm x 1,524 mm), is installed vertically at mid-height within 5' (1,524 mm) of the end of the wall and every 10' o.c. (3,048 mm) along the length of the wall. The stiffener is attached with minimum #8 x 3" (76 mm) screws.

6.2.11.2.1.4 A bead of fire sealant (3M Fire Barrier Sealant, three hour or equivalent) is applied to all joints and voids in the panel surfaces.

6.2.11.2.1.5 Cellulose insulation is installed in the cavity at approximately 3 lb/ft$^3$.

6.2.11.2.1.6 One layer of $^5/_8$" (15.9 mm) Type X gypsum is installed on each face of the wall assembly with $1^5/_8$" (41 mm) drywall screws fastened 12" o.c. (305 mm). All joints are taped and covered with two layers of joint compound. Exposed screw heads are also covered with two coats of joint compound. Gypsum joints on one side of the wall are staggered from the joints on the opposite side by 24" (610 mm).

6.2.11.3 *Two-Hour Rated Assembly:*

6.2.11.3.1 BamCore Prime Wall System (BH1) assemblies were tested per ASTM E119 and have a two-hour fire resistance rating when constructed as follows:

6.2.11.3.1.1 BamCore Prime Wall System (BH1) is assembled using a 2x lumber top and bottom plate and is fastened with 0.131" x 3.25" nails at 6" o.c (152 mm) or less. Minimum cavity depth of $5^1/_2$" (140 mm) is required.

6.2.11.3.1.2 Panel joints are constructed using 1" half-lap and are fastened with 0.113" x 2" ring shank nails at 6" o.c. (152 mm) or less.

6.2.11.3.1.3 A panel stiffener, minimum $1^1/_4$" x $5^1/_2$" x 5' (29 mm x 140 mm x 1,524 mm), is installed vertically at mid-height within 5' (1,524 mm) of the end of the wall and every 10' o.c. (3,048 mm) along the length of the wall. The stiffener is attached with minimum #8 x 3" (76 mm) screws.

6.2.11.3.1.4 A bead of fire sealant (3M Fire Barrier Sealant, three hour or equivalent) is applied to all joints and voids in the panel surfaces.

6.2.11.3.1.5 Cellulose insulation is installed in the cavity at approximately 3 lb/ft$^3$.

6.2.11.3.1.6 Two layers of $^5/_8$" (15.9 mm) Type X gypsum are installed on each face of the wall assembly. The base layer is attached with $1^5/_8$" (41 mm) drywall screws fastened a maximum of 12" o.c. (305 mm). The face layer is attached with $2^1/_2$" (64 mm) screws at a maximum of 8" o.c. (203 mm).

6.2.11.3.1.7 All joints in the face layer are taped and covered with two layers of joint compound. Exposed screw heads are also covered with two coats of joint compound. Gypsum joints on one side of the wall are staggered from the joints on the opposite side by 24" (610 mm).

6.2.12 *Vapor Transmission:*

6.2.12.1 BamCore Prime Wall System (BH1) panel has the water vapor transmission values and corresponding vapor retarder class shown in **Table 32**.

**Table 32**. Vapor Transmission

| Product | Interior Surface Finish | Permeance Desiccant Method[1] (perms) | Permeance Water Method[2] (perms) | Vapor Retarder Class[3] |
|---|---|---|---|---|
| BamCore Prime Wall System Assembly using (BH1) Panels | MDO | 0.21 | 2.15 | Class II |
| | Bare Panel | 0.44 | 2.90 | Class II |

1. Tested in accordance with ASTM E96 Procedure A
2. Tested in accordance with ASTM E96 Procedure B
3. Vapor retarder class is defined using the desiccant method with Procedure A of ASTM E96 per its definition in IBC Section 202 and IRC Section R202.

6.2.12.2 Use as a vapor retarder is the responsibility of the building designer and shall be designed in accordance with IBC Section 1404.3 and IRC Section R702.7.

6.2.13 *Sound Transmission:*

6.2.13.1 BamCore Prime Wall System has the sound transmission ratings shown in **Table 33**.

**Table 33**. Sound Transmission Ratings[1,2]

| Product | Blocking and Insulation | Exterior GWB[2] | Interior GWB[2] | Sound Transmission Class (STC) |
|---|---|---|---|---|
| BamCore Prime Wall System | 2 x 6 top/bottom plates with two (2) 70% height blocks and blown-in insulation | Single layer of 5/8" Type X GWB | Single layer of 5/8" Type X GWB | 45 |
| | | | Single layer of 5/8" CertainTeed SilentFX® | 47 |
| | | Two layers of 5/8" Type X GWB | Two layers of 5/8" Type X GWB | 48 |
| | | | Single layer of 5/8" CertainTeed SilentFX® or QuietRock® EZ GWB and Single layer of 5/8" Type X GWB | 50 |
| | 2 x 6 top plate with split bottom plate and two (2) 70% height blocks and blown-in insulation | Single layer of 5/8" Type X GWB | Single layer of 5/8" Type X GWB | 46 |
| | 2 x 6 top/bottom plates with one (1) 50% height block off-center and blown-in insulation | Single layer of 5/8" Type X GWB | Single layer of 5/8" Type X GWB | 50 |
| | | | Single layer of 5/8" CertainTeed SilentFX® or QuietRock® EZ GWB | 52 |
| | | Two layers of 5/8" Type X GWB | Two layers of 5/8" Type X GWB | 53 |

1. Tested in accordance with ASTM E90.
2. GWB screws are fastened directly into the BamCore Prime Wall System panel. The first GWB layer has 8":12" (edge:field) fastener spacing. Where applicable, the second GWB layer has 8":8" (edge:field) fastener spacing.

6.2.14 *Thermal Resistance (R-Value):*

6.2.14.1 BamCore Prime Wall System has the thermal resistance shown in **Table 34** through **Table 38**.

**Table 34**. BamCore Prime Wall System R-Values and U-Factors – Tested

| Product | R-Value [(°F·ft²·h)/Btu] | U-Factor [Btu/(°F·ft²·h)] | |
|---|---|---|---|
| | | 0° F to 70° F | 50° F to 100° F |
| BamCore Prime Wall System BH1 Panel[1] (Single 1 1/4" Thick Panel) | 1.6 | 0.625 | |

1. Thermal values are determined using the ASTM C518 test method at 75° F mean temperature and 50° F temperature differential.

**Table 35**. BamCore Prime Wall System Thermal Resistance – Calculated[1] Fiberglass Insulation (DuoShear)

| Product Assembly Details | Framing Factor (%) | Calculated Thermal Resistance, R-Value (U-Factor)[2,3] | | | |
|---|---|---|---|---|---|
| | | Cavity Width (in) | | | |
| | | 3 1/2 | 5 1/2 | 7 1/4 | 9 1/4 |
| BamCore 50% Height Blocking Spaced 96" o.c. | 6.67 | 18.0 (0.056) | 25.1 (0.040) | 31.3 (0.032) | 38.4 (0.026) |
| BamCore 50% Height Blocking Spaced 48" o.c. | 7.00 | 17.9 (0.056) | 25.0 (0.040) | 31.2 (0.032) | 38.1 (0.026) |
| BamCore 50% Height Blocking Spaced 24" o.c. | 7.90 | 17.7 (0.056) | 24.7 (0.041) | 30.7 (0.033) | 37.5 (0.027) |
| BamCore 75% Height Blocking Spaced 48" o.c. | 7.74 | 17.8 (0.056) | 24.7 (0.040) | 30.8 (0.032) | 37.6 (0.027) |
| BamCore 75% Height Blocking Spaced 24" o.c. | 9.18 | 17.5 (0.057) | 24.2 (0.041) | 30.0 (0.033) | 36.7 (0.027) |
| BamCore 90% Height Blocking Spaced 48" o.c. | 8.39 | 17.6 (0.057) | 24.5 (0.041) | 30.4 (0.033) | 37.2 (0.027) |
| BamCore 90% Height Blocking Spaced 24" o.c. | 10.48 | 17.2 (0.058) | 23.8 (0.042) | 29.4 (0.034) | 35.8 (0.028) |
| BamCore Full Height Blocking Spaced 48" o.c. | 8.63 | 17.6 (0.057) | 24.4 (0.041) | 30.3 (0.033) | 37.0 (0.027) |
| BamCore Full Height Blocking Spaced 24" o.c. | 10.97 | 17.1 (0.059) | 23.6 (0.042) | 29.2 (0.034) | 35.5 (0.028) |

1. Thermal values calculated in accordance with the California Energy Code (CEC).
2. Units for R-value are (°F·ft²·hr)/Btu. Units for U-factor are Btu/(°F·ft²·hr).
3. Calculated values are based on the following assumptions:
   a. Air Film: outside air film, R-value of 0.17
   b. Siding: 3/8" 2-coat stucco, R-value of 0.08
   c. Sheathing Insulation: none
   d. Building Paper: felt, R-value of 0.06
   e. Structural Panel: 1 1/4" BamCore Panel, R-value of 1.36 per inch
   f. Framing: nominal 2x lumber (DF), R-value of 0.99 per inch. Cavity width corresponds to the framing member size (i.e. 2 x 4 lumber will be used for 3 1/2" cavity widths, etc.)
   g. Cavity insulation: Fiberglass, R-value of 4.20 per inch
   h. Structural Panel: 1 1/4" BamCore Panel, R-value of 1.36 per inch
   i. Interior Finish: 1/2" gypsum board, R-value of 0.90
   j. Air Film: Inside air film, R-value of 0.68

**Table 36**. BamCore Prime Wall System Thermal Resistance – Calculated[1] Cellulose Insulation (DuoShear)

| Product Assembly Details | Framing Factor (%) | Calculated Thermal Resistance, R-Value (U-Factor)[2,3] | | | |
|---|---|---|---|---|---|
| | | Cavity Width (in) | | | |
| | | 3 1/2 | 5 1/2 | 7 1/4 | 9 1/4 |
| BamCore 50% Height Blocking Spaced 96" o.c. | 6.67 | 16.0 (0.062) | 22.2 (0.045) | 27.5 (0.036) | 33.6 (0.030) |
| BamCore 50% Height Blocking Spaced 48" o.c. | 7.00 | 16.0 (0.063) | 22.1 (0.045) | 27.4 (0.037) | 33.4 (0.030) |
| BamCore 50% Height Blocking Spaced 24" o.c. | 7.90 | 15.8 (0.063) | 21.9 (0.046) | 27.1 (0.037) | 33 (0.030) |
| BamCore 75% Height Blocking Spaced 48" o.c. | 7.74 | 15.9 (0.063) | 21.9 (0.046) | 27.1 (0.037) | 33.1 (0.030) |
| BamCore 75% Height Blocking Spaced 24" o.c. | 9.18 | 15.7 (0.064) | 21.5 (0.046) | 26.6 (0.038) | 32.4 (0.031) |
| BamCore 90% Height Blocking Spaced 48" o.c. | 8.39 | 15.8 (0.063) | 21.7 (0.046) | 26.9 (0.037) | 32.7 (0.031) |
| BamCore 90% Height Blocking Spaced 24" o.c. | 10.48 | 15.5 (0.065) | 21.2 (0.047) | 26.2 (0.038) | 31.8(0.031) |
| BamCore Full Height Blocking Spaced 48" o.c. | 8.63 | 15.7 (0.064) | 21.7 (0.046) | 26.8 (0.037) | 32.6 (0.031) |
| BamCore Full Height Blocking Spaced 24" o.c. | 10.97 | 15.4 (0.065) | 21.1 (0.047) | 26.0 (0.038) | 31.6 (0.032) |

1. Thermal values calculated in accordance with the California Energy Code (CEC).
2. Units for R-value are (°F·ft²·hr)/Btu. Units for U-factor are Btu/(°F·ft²·hr).
3. Calculated values are based on the following assumptions:
   a. Air Film: outside air film, R-value of 0.17
   b. Siding: 3/8" 2-coat stucco, R-value of 0.08
   c. Sheathing Insulation: none
   d. Building Paper: felt, R-value of 0.06
   e. Structural Panel: 1 1/4" BamCore Panel, R-value of 1.36 per inch
   f. Framing: nominal 2x lumber (DF), R-value of 0.99 per inch. Cavity width corresponds to the framing member size (i.e. 2 x 4 lumber will be used for 3 1/2" cavity widths, etc.)
   g. Cavity insulation: Cellulose, R-value of 3.50 per inch
   h. Structural Panel: 1 1/4" BamCore Panel, R-value of 1.36 per inch
   i. Interior Finish: 1/2" gypsum board, R-value of 0.90
   j. Air Film: Inside air film, R-value of 0.68

**Table 37**. BamCore Prime Wall System Thermal Resistance – Calculated[1] Fiberglass Insulation (MonoShear)

| Product Assembly Details | Framing Factor (%) | Calculated Thermal Resistance, R-Value (U-Factor)[2,3] | | | |
|---|---|---|---|---|---|
| | | Cavity Width (in) | | | |
| | | 3 1/2 | 5 1/2 | 7 1/4 | 9 1/4 |
| BamCore 50% Height Blocking Spaced 48" o.c. | 7.00 | 17.1 (0.058) | 24.2 (0.041) | 30.3 (0.033) | 37.2 (0.027) |
| BamCore 50% Height Blocking Spaced 24" o.c. | 7.90 | 16.9 (0.059) | 23.8 (0.042) | 29.8 (0.034) | 36.6 (0.027) |
| BamCore 75% Height Blocking Spaced 48" o.c. | 7.74 | 17.0 (0.059) | 23.9 (0.042) | 29.9 (0.033) | 36.7 (0.027) |
| BamCore 75% Height Blocking Spaced 24" o.c. | 9.18 | 16.6 (0.060) | 23.4 (0.043) | 29.2 (0.034) | 35.7 (0.028) |
| BamCore 90% Height Blocking Spaced 48" o.c. | 8.39 | 16.8 (0.059) | 23.7 (0.042) | 29.6 (0.034) | 36.3 (0.028) |
| BamCore 90% Height Blocking Spaced 24" o.c. | 10.48 | 16.4 (0.061) | 22.9 (0.044) | 28.5 (0.035) | 34.9 (0.029) |
| BamCore Full Height Blocking Spaced 48" o.c. | 8.63 | 16.8 (0.060) | 23.6 (0.042) | 29.4 (0.034) | 36.1 (0.028) |
| BamCore Full Height Blocking Spaced 24" o.c. | 10.97 | 16.3 (0.061) | 22.7 (0.044) | 28.3 (0.035) | 34.6 (0.029) |

1. Thermal values calculated in accordance with the California Energy Code (CEC).
2. Units for R-value are (°F·ft²·hr)/Btu. Units for U-factor are Btu/(°F·ft²·hr).
3. Calculated values are based on the following assumptions:
   a. Air Film: outside air film, R-value of 0.17
   b. Siding: 3/8" 2-coat stucco, R-value of 0.08
   c. Sheathing Insulation: none
   d. Building Paper: felt, R-value of 0.06
   e. Structural Panel: 1 1/4" BamCore Panel, R-value of 1.36 per inch
   f. Framing: nominal 2x lumber (DF), R-value of 0.99 per inch. Cavity width corresponds to the framing member size (i.e. 2 x 4 lumber will be used for 3 1/2" cavity widths, etc.)
   g. Cavity insulation: Fiberglass, R-value of 4.20 per inch
   h. Structural Panel: 3/4" BamCore Panel, R-value of 1.36 per inch
   i. Interior Finish: 1/2" gypsum board, R-value of 0.90
   j. Air Film: Inside air film, R-value of 0.68

**Table 38**. BamCore Prime Wall System Thermal Resistance – Calculated[1] Cellulose Insulation (MonoShear)

| Product Assembly Details | Framing Factor (%) | Calculated Thermal Resistance, R-Value (U-Factor)[2,3] | | | |
|---|---|---|---|---|---|
| | | Cavity Width (in) | | | |
| | | 3 1/2 | 5 1/2 | 7 1/4 | 9 1/4 |
| BamCore 50% Height Blocking Spaced 48" o.c. | 7.00 | 17.9 (0.056) | 25.0 (0.040) | 31.2 (0.032) | 38.1 (0.026) |
| BamCore 50% Height Blocking Spaced 24" o.c. | 7.90 | 17.7 (0.056) | 24.7 (0.041) | 30.7 (0.033) | 37.5 (0.027) |
| BamCore 75% Height Blocking Spaced 48" o.c. | 7.74 | 17.8 (0.056) | 24.7 (0.040) | 30.8 (0.032) | 37.6 (0.027) |
| BamCore 75% Height Blocking Spaced 24" o.c. | 9.18 | 17.5 (0.057) | 24.2 (0.041) | 30.0 (0.033) | 36.7 (0.027) |
| BamCore 90% Height Blocking Spaced 48" o.c. | 8.39 | 17.6 (0.057) | 24.5 (0.041) | 30.4 (0.033) | 37.2 (0.027) |
| BamCore 90% Height Blocking Spaced 24" o.c. | 10.48 | 17.2 (0.058) | 23.8 (0.042) | 29.4 (0.034) | 35.8 (0.028) |
| BamCore Full Height Blocking Spaced 48" o.c. | 8.63 | 17.6 (0.057) | 24.4 (0.041) | 30.3 (0.033) | 37.0 (0.027) |
| BamCore Full Height Blocking Spaced 24" o.c. | 10.97 | 17.1 (0.059) | 23.6 (0.042) | 29.2 (0.034) | 35.5 (0.028) |

1. Thermal values calculated in accordance with the California Energy Code (CEC).
2. Units for R-value are (°F·ft²·hr)/Btu. Units for U-factor are Btu/(°F·ft²·hr).
3. Calculated values are based on the following assumptions:
   a. Air Film: outside air film, R-value of 0.17
   b. Siding: 3/8" 2-coat stucco, R-value of 0.08
   c. Sheathing Insulation: none
   d. Building Paper: felt, R-value of 0.06
   e. Structural Panel: 1 1/4" BamCore Panel, R-value of 1.36 per inch
   f. Framing: nominal 2x lumber (DF), R-value of 0.99 per inch. Cavity width corresponds to the framing member size (i.e. 2 x 4 lumber will be used for 3 1/2" cavity widths, etc.)
   g. Cavity insulation: Fiberglass, R-value of 3.50 per inch
   h. Structural Panel: 3/4" BamCore Panel, R-value of 1.36 per inch
   i. Interior Finish: 1/2" gypsum board, R-value of 0.90
   j. Air Film: Inside air film, R-value of 0.68

6.3 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.

## 7 Certified Performance[32]

7.1 All construction methods shall conform to accepted engineering practices to ensure durable, livable, and safe construction and shall demonstrate acceptable workmanship reflecting journeyman quality of work of the various trades.[33]

7.2 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.[34]

## 8 Regulatory Evaluation and Accepted Engineering Practice

8.1 BamCore Prime Wall System complies with the following legislatively adopted regulations and/or accepted engineering practice for the following reasons:

8.1.1 Lateral force resisting systems for use in both wind and seismic applications follow the performance-based provisions of IBC Section 2306.1, IBC Section 2306.3, and/or SDPWS Section 4.3 for light-frame wood wall assemblies.

8.1.1.1 **Table 1** and **Table 17** provide wind allowable shear capacity in accordance with IBC Section 1609.

8.1.1.2 **Table 2** and **Table 18** provide allowable shear capacity and SDC that conform to the requirements in ASCE 7 Section 12.2.1, 12.2.1.1, and Table 12.2-1 for design of wall assemblies in buildings that require seismic design per IBC Section 1613.

8.1.2 Axial compressive strength evaluated in accordance with ASTM E72 and ASTM D198.

8.1.3 In-plane bending strength for use as headers evaluated in accordance with ASTM E72 and ASTM D198.

8.1.4 Performance under transverse (out-of-plane) load conditions in accordance with IBC Section 1609.1.1 and IRC Section R301.2.1.

8.1.5 Flame spread index and smoke developed index properties as required by IBC Section 2303.2, IRC Section R302.9, and IRC Section R302.15, when applicable.

8.1.6 Performance in fire-resistance-rated wall assemblies in accordance with IBC Section 703.2.

8.1.7 Water vapor transmission performance in accordance with IBC Section 1404.3 and IRC Section R702.7.

8.1.8 Sound transmission rating performance in accordance with IBC Section 1206 and IRC Appendix BG.

8.1.9 Thermal performance in accordance with IECC Section C402.1.

8.2 Any building code, regulation and/or accepted engineering evaluations (i.e., research reports, duly authenticated reports, etc.) that are conducted for this Listing were performed by DrJ, which is an ISO/IEC 17065 accredited certification body and a professional engineering company operated by RDP or approved sources. DrJ is qualified[35] to practice product and regulatory compliance services within its scope of accreditation and engineering expertise,[36] respectively.

8.3 Engineering evaluations are conducted with DrJ's ANAB accredited ICS code scope of expertise, which is also its areas of professional engineering competence.

8.4 Any regulation specific issues not addressed in this section are outside the scope of this report.

## 9 Installation

9.1 Installation shall comply with the approved construction documents, the manufacturer installation instructions, this report, and the applicable building code.

9.2 In the event of a conflict between the manufacturer installation instructions and this report, contact the manufacturer for counsel on the proper installation method.

9.3 BamCore Prime Wall System panels must be stored and handled to protect panels from damage during shipment and on the job site.

9.3.1 If panels must be stored outside, stack them on a level platform supported by at least three 4 x 4s to keep them off the ground. Place one 4 x 4 in the center and the other two 12" (305 mm) to 16" (406 mm) from the ends. ***Never leave the platform in direct contact with the ground.***

9.3.2 Cover the stack loosely with plastic sheets or tarps. Anchor the covering at the top of the stack, but keep it open and away from the sides and bottom to ensure good ventilation. Tight coverings prevent air circulation and when exposed to sunlight, may promote mold or mildew.

9.3.3 Please refer to the APA Technical Note E705, *"Proper Storage and Handling of I-Joists and LVL"* and APA Builder Tips U450, *"Storage and Handling of APA Trademarked Panels"* for additional recommendations.

9.4 BamCore Prime Wall System shall be designed for dry use and shall be adequately protected from moisture and pests.

9.5 BamCore Prime Wall System shall be installed in accordance with the approved construction documents, the installation instructions provided with the shipment of panels, and this report. In the event of a conflict between the manufacturer installation instructions, approved construction documents by an RDP and this report, the more restrictive shall govern.

9.5.1 Generic details provided by BamCore shall be evaluated and revised by an RDP for applicability to a specific building.

9.5.2 Support for BamCore Prime Wall System (e.g., foundation walls, footings) shall be designed by an RDP.

9.6 Support for BamCore Prime Wall System must be flat, level, free of debris, and match the dimensions provided by an RDP.

9.7 The BamCore Prime Wall System is installed and aligned in accordance with the plans designed and submitted to the building official per **Section 9**.

9.8 All panels are stamped with sequencing identification to correspond to the approved construction documents for easy placement in the proper location.

9.9 *Installation Procedure*

9.9.1 Lay out the bottom plate/track as shown on the approved construction documents. Attach to the structure above and below per approved construction documents.

9.9.2 Install panels for the exterior side of the wall starting at a corner.

9.9.3 Place adjoining panels per the numbered sequencing on the approved construction documents by placing each panel on/next to the plate.

9.9.4 Fasten per **Section 2.3.3** and approved construction documents. Continue until all exterior panels are set.

9.9.5 Repeat the steps above for the panels on the interior side of the exterior walls. Refer to approved construction documents to determine placement of additional blocking for deflection criteria to be met.

9.9.6 Add panel blocking around each window and door to connect the panels on the interior and exterior sides of the exterior walls together.

9.9.7 The top plate can either be set on blocking or clamped in place while fastening it to the panel. Fasten per **Section 2.3.3** and approved construction documents.

9.9.8 Interior load bearing walls are installed in the same manner.

9.9.9 For more details on the installation of BamCore Prime Wall System assemblies and subsequent installation of other trades within the assemblies, see www.bamcore.com.

## 10 Substantiating Data

10.1 Testing has been performed under the supervision of a professional engineer and/or under the requirements of ISO/IEC 17025 as follows:

10.1.1 Shear wall performance in accordance with ASTM E2126

10.1.2 Axial compression and transverse load performance in accordance with ASTM E72 Sections 9 and 11

10.1.3 Edgewise flexural performance for use as headers in accordance with ASTM D198

10.1.4 Uplift and gravity performance of the connection between BamCore Prime Wall System and truss/rafter/joist in accordance with ASTM D7147

10.1.5 Lateral resistance performance with steel side member in accordance with ASTM D1761

10.1.6 Dowel bearing strength in accordance with ASTM D5764

10.1.7 Flame spread and smoke density in accordance with ASTM E84 and ASTM E2768

10.1.8 Fire-resistant assembly rating in accordance with ASTM E119

10.1.9 Water vapor transmission in accordance with ASTM E96

10.1.10 Sound transmission in accordance with ASTM E90

10.1.11 Thermal properties in accordance with ASTM C518 and calculated in accordance accepted engineering practices

10.2 Information contained herein may include the result of testing and/or data analysis by sources that are approved agencies, approved sources, and/or an RDP. Accuracy of external test data and resulting analysis is relied upon.

10.3 Where applicable, testing and/or engineering analysis are based upon provisions that have been codified into law through state or local adoption of regulations and standards. The developers of these regulations and standards are responsible for the reliability of published content. DrJ's engineering practice may use a regulation-adopted provision as the control. A regulation-endorsed control versus a simulation of the conditions of application to occur establishes a new material as being equivalent to the regulatory provision in terms of quality, strength, effectiveness, fire resistance, durability, and safety.

10.4 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, or duly authenticated reports from approved agencies and/or approved sources provided by the supplier. These are presumed to be minimum properties and relied upon to be accurate. The reliability of DrJ's engineering practice, as contained in this duly authenticated report, may be dependent upon published design properties by others.

10.5 *Testing and Engineering Analysis*

10.5.1 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.[37]

10.6 Where additional condition of use and/or regulatory compliance information is required, please search for BamCore Prime Wall System on the DrJ Certification website.

## 11 Findings

11.1 As outlined in **Section 6**, BamCore Prime Wall System has performance characteristics that were tested and/or meet applicable regulations. In addition, they are suitable for use pursuant to its specified purpose.

11.2 When used and installed in accordance with this duly authenticated report and the manufacturer installation instructions, BamCore Prime Wall System shall be approved for the following applications:

11.2.1 Use as a wall system in accordance with the IBC for Type V Construction and the IRC.

11.3 Unless exempt by state statute, when BamCore Prime Wall System 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.

11.4 Any application specific issues not addressed herein can be engineered by an RDP. Assistance with engineering is available from Global Bamboo Technologies, Inc.

11.5 IBC Section 104.2.3[38] (IRC Section R104.2.2[39] and IFC Section 104.2.3[40] are similar) in pertinent part state:

> **104.2.3 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 is not specifically prohibited by this code and has been approved.

11.6 **Approved:**[41] Building regulations require that the building official shall accept duly authenticated reports.[42]

11.6.1 An approved agency is *"approved"* when it is ANAB ISO/IEC 17065 accredited.

11.6.2 An approved source is *"approved"* when an RDP is properly licensed to transact engineering commerce.

11.6.3 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. Denial without written reason deprives a protected right to free and fair competition in the marketplace.

11.7 DrJ is a licensed engineering company, employs licensed RDPs and is an ANAB Accredited Product Certification Body – Accreditation #1131.

11.8 Through the IAF Multilateral Arrangement (MLA), this duly authenticated report can be used to obtain product approval in any jurisdiction or country because all ANAB ISO/IEC 17065 duly authenticated reports are equivalent.[43]

## 12 Conditions of Use

12.1 Material properties shall not fall outside the boundaries defined in **Section 6**.

12.2 As defined in **Section 6**, 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.

12.3 As listed herein, BamCore Prime Wall System shall not be used:

12.3.1 If cut or notched, except where specifically permitted by the manufacturer recommendations or where the effects of such alterations are specifically considered in the design of the member by an RDP.

12.4 BamCore Prime Wall System must be designed, manufactured, labelled, and installed in accordance with this report and the applicable building code.

12.5 All connections shall be in accordance with this report, approved construction documents (by an RDP), and the applicable building code, based on individual job requirements.

12.6 Design calculations and details shall be furnished to the code official verifying that the material is used in compliance with this report. The calculations must be prepared by an RDP where required by the statutes of the jurisdiction in which the project is to be constructed.

12.7 The design values shall not exceed those set forth in this report as modified by all applicable table notes.

12.8 The service conditions for BamCore Prime Wall System with fire-retardant treatments are outside the scope of this report.

12.9 No increases for duration of load are permitted.

12.10 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:

12.10.1 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.

12.10.2 This report and the installation instructions shall be submitted at the time of permit application.

12.10.3 These innovative products have an internal quality control program and a third-party quality assurance program.

12.10.4 At a minimum, these innovative products shall be installed per **Section 9**.

12.10.5 The review of this report by the AHJ shall comply with IBC Section 104.2.3.2 and IBC Section 105.3.1.

12.10.6 These innovative products have an internal quality control program and a third party quality assurance program in accordance with IBC Section 104.7.2, IBC Section 110.4, IBC Section 1703, IRC Section R104.7.2, and IRC Section R109.2.

12.10.7 The application of these innovative products in the context of this report 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.

12.11 The approval of this report by the AHJ shall comply with IBC Section 1707.1, where legislation states in part, *"the building official shall make, or cause to be made, the necessary tests and investigations; or 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 104.2.3"*, all of IBC Section 104, and IBC Section 105.3.

12.12 Design loads shall be determined in accordance with the regulations adopted by the jurisdiction in which the project is to be constructed and/or by the building designer (i.e., owner or RDP).

12.13 The actual design, suitability, and use of this report for any particular building, is the responsibility of the owner or the authorized agent of the owner.

## 13 Identification

13.1 BamCore Prime Wall System [BamCore Prime Panel Bamboo Hybrid 1 (BH1), BamCore Prime Panel Bamboo Hybrid 2 (BH2), and BamCore Prime Panel Eucalyptus Super Combi (ESC)], as listed in **Section 1.1**, are identified by a label on the board or packaging material bearing the manufacturer name, product name, this report number, and other information to confirm code compliance.

13.2 Additional technical information can be found at www.bamcore.com.

## 14 Review Schedule

14.1 This report is subject to periodic review and revision. For the latest version, visit www.drjcertification.org.

14.2 For information on the status of this report, please contact DrJ Certification.

Issue Date: July 8, 2020

Subject to Renewal: January 1, 2027

# CBC and CRC Supplement to Report Number 1507-03

**REPORT HOLDER:** Global Bamboo Technologies, Inc.

## 1 Evaluation Subject

1.1 BamCore Prime Wall System

## 2 Purpose and Scope

2.1 Purpose

2.1.1 The purpose of this Report Supplement is to show BamCore Prime Wall System, recognized in Report Number 1507-03 has also been evaluated for compliance with the codes listed below.

2.2 *Applicable Code Editions*

2.2.1 *CBC—19, 22: California Building Code (Title 24, Part 2)*

2.2.2 *CRC—19, 22: California Residential Code (Title 24, Part 2.5)*

2.2.3 *CEC —19, 22: California Energy Code (Title 24, Part 6)*

## 3 Conclusions

3.1 BamCore Prime Wall System, described in Report Number 1507-03, 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 report, they are listed here:

3.2.1 CBC Section 104.6 replaces IBC Section 104.4.

3.2.2 CBC Section 104.11 replaces IBC Section 104.2.3 and Section 104.2.3.2.

3.2.3 CBC Section 1404.3 replaces IBC Section 1404.3.

3.2.4 CBC Table 1604.3 replaces IBC Table 1604.3.

3.2.5 CBC Section 1609.1.1 replaces IBC Section 1609.1.1.

3.2.6 CBC Section 1609.3.1 replaces IBC Section 1609.3.1.

3.2.7 CBC Section 1707.1 replaces IBC Section 1707.1.

3.2.8 CBC Section 2303.2 replaces IBC Section 2303.2.

3.2.9 CBC Section 2306.3 replaces IBC Section 2306.3.

3.2.10 CBC Section 2308.3.1 replaces IBC Section 2308.7.1.

3.2.11 CRC Section R104.6 replaces IRC Section R104.4.

3.2.12 CRC Section R104.11 replaces IRC Section R104.2.2.

3.2.13 CRC Section R301.1 replaces IRC Section R301.1.

3.2.14 CRC Section R403.1.6 replaces IRC Section R403.1.6.

3.2.15 CRC Section R702.7 replaces IRC Section R702.7.

## 4 Conditions of Use

4.1 BamCore Prime Wall System, described in Report Number 1507-03, must comply with all of the following conditions:

4.1.1 All applicable sections in Report Number 1507-03.

4.1.2 The design, installation, and inspections are in accordance with additional requirements of CBC and CRC, as applicable.

Issue Date: December 23, 2021
Subject to Renewal: January 1, 2027

# LABC and LARC Supplement to Report Number 1507-03

**REPORT HOLDER:** Global Bamboo Technologies, Inc.

## 1 Evaluation Subject

1.1 BamCore Prime Wall System

## 2 Purpose and Scope

2.1 Purpose

2.1.1 The purpose of this Report Supplement is to show BamCore Prime Wall System, recognized in Report Number 1507-03 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—20, 23: Los Angeles Building Code*

2.2.2 *LARC—20, 23: Los Angeles Residential Code*

## 3 Conclusions

3.1 BamCore Prime Wall System, described in Report Number 1507-03, 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 report, they are listed here:

3.2.1 LABC Section 104.2 replaces IBC Section 104.

3.2.2 LABC Section 104.2.3 replaces IBC Section 104.4.

3.2.3 LABC Section 104.2.6 replaces IBC Section 104.2.3 and Section 104.2.3.2.

3.2.4 LABC Section 106.3.1 replaces IBC Section 105.3.

3.2.5 LABC Section 108.1 replaces IBC Section 110.4.

3.2.6 LABC Section 108.5 replaces IBC Section 110.3.

3.2.7 LABC Section 1206 replaces IBC Section 1206.

3.2.8 LABC Section 1404.3 replaces IBC Section 1404.3.

3.2.9 LABC Table 1604.3 replaces IBC Table 1604.3.

3.2.10 LABC Section 1609.1.1 replaces IBC Section 1609.1.1.

3.2.11 LABC Section 1609.3.1 replaces IBC Section 1609.3.1.

3.2.12 LABC Section 1707.1 replaces IBC Section 1707.1.

3.2.13 LABC Section 2303.2 replaces IBC Section 2303.2.

3.2.14 LABC Section 2306.3 replaces IBC Section 2306.3.

3.2.15 LABC Section 2308.3.1 replaces IBC Section 2308.7.1.

3.2.16 LARC Section 104.2.6 replaces IRC Section R104.2.2.

3.2.17 LARC Section 108.1 replaces IRC Section R109.2.

3.2.18 LARC Section R301.1 replaces IRC Section R301.1.

3.2.19 LARC Section R403.1.6 replaces IRC Section R403.1.6.

3.2.20 LARC Table R602.3(3) replaces IRC Table R602.3(3).

3.2.21 LARC Section R602.10 replaces IRC Section R602.10.

3.2.22 LARC Section R702.7 replaces IRC Section R702.7.

## 4 Conditions of Use

4.1 BamCore Prime Wall System, described in Report Number 1507-03, must comply with all of the following conditions:

4.1.1 All applicable sections in Report Number 1507-03.

4.1.2 The design, installation, and inspections are in accordance with additional requirements of LABC Chapter 16 and Chapter 17, as applicable.

Issue Date: October 26, 2022
Subject to Renewal: January 1, 2027

# FBC Supplement to Report Number 1507-03

**REPORT HOLDER:** Global Bamboo Technologies, Inc.

## 1 Evaluation Subject

1.1 BamCore Prime Wall System

## 2 Purpose and Scope

2.1 Purpose

2.1.1 The purpose of this Report Supplement is to show BamCore Prime Wall System, recognized in Report Number 1507-03, 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 (FL 41778)*

2.2.2 *FBC-R—20, 23: Florida Building Code – Residential (FL 41778)*

## 3 Conclusions

3.1 BamCore Prime Wall System, described in Report Number 1507-03, 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 report, they are listed here:

3.2.1 FBC-B Section 104 is reserved.

3.2.2 FBC-B Section 110.4 is reserved and replaces IBC Section 110.4.

3.2.3 FBC-B Section 104.6 is reserved and replaces IBC Section 104.4.

3.2.4 FBC-B Section 104.11 replaces IBC Section 104.2.3 and Section 104.2.3.2.

3.2.5 FBC-B Section 105.3 replaces IBC Section 105.3.

3.2.6 FBC-B Section 105.3.1 replaces IBC Section 105.3.1.

3.2.7 FBC-B Section 110.3 replaces IBC Section 110.3.

3.2.8 FBC-B Section 202 Vapor Retarder Class replaces IBC Section 202 Vapor Retarder Class.

3.2.9 FBC-B Section 703.2 replaces IBC Section 703.2.

3.2.10 FBC-B Section 1207 replaces IBC Section 1206.

3.2.11 FBC-B Section 1405.3 replaces IBC Section 1404.3.

3.2.12 FBC-B Table 1604.3 replaces IBC Table 1604.3.

3.2.13 FBC-B Section 1609.1.1 replaces IBC Section 1609.1.1.

3.2.14 FBC-B Section 1609.3.1 replaces IBC Section 1609.3.1.

3.2.15 FBC-B Section 1613 is reserved and replaces IBC Section 1613.

3.2.16 FBC-B Section 1707.1 replaces IBC Section 1707.1.

3.2.17 FBC-B Section 2303.2 replaces IBC Section 2303.2.

3.2.18 FBC-B Section 2306.1 replaces IBC Section 2306.1.

3.2.19 FBC-B Section 2306.3 replaces IBC Section 2306.3.

3.2.20 FBC-B Section 2308 is reserved and replaces IBC Section 2308.7.1

3.2.21 FBC-R Section R104 and Section R109 are reserved.

3.2.22 FBC-R Section 202 Vapor Retarder Class replaces IRC Section 202 Vapor Retarder Class.

3.2.23 FBC-R Section R301.1 replaces IRC Section R301.1.

3.2.24 FBC-R Section R301.2.1 replaces IRC Section R301.2.1.

3.2.25 FBC-R Section R302.9 replaces IRC Section R302.9.

3.2.26 FBC-R Table R301.7 replaces IRC Table R301.7.

3.2.27 FBC-R Section R403.1.6 replaces IRC Section R403.1.6.

3.2.28 FBC-R Section R602.11 is reserved and replaces IRC Section R602.11.

3.2.29 FBC-R Table R602.3(3) is reserved and replaces IRC Table R602.3(3).

3.2.30 FBC-R Section R602.10 is reserved and replaces IRC Section R602.10.

3.2.31 FBC-R Table R602.10.3(1) is reserved and replaces IRC Table R602.10.3(1).

3.2.32 FBC-R Table R602.10.3(2) is reserved and replaces IRC Table R602.10.3(2).

3.2.33 FBC-R Table R602.10.3(3) is reserved and replaces IRC Table R602.10.3(3).

3.2.34 FBC-R Table R602.10.3(4) is reserved and replaces IRC Table R602.10.3(4).

3.2.35 FBC-R Section R602.10.4 is reserved and replaces IRC Section R602.10.4.

3.2.36 FBC-R Section R602.10.5 is reserved and replaces IRC Section R602.10.5.

3.2.37 FBC-R Section R602.10.6.2 is reserved and replaces IRC Section R602.10.6.2.

3.2.38 FBC-R Section R602.10.6.4 is reserved and replaces IRC Section R602.10.6.4.

3.2.39 FBC-R Section R602.12 is reserved and replaces IRC Section R602.12.

3.2.40 FBC-R Section R602.12.2 is reserved and replaces IRC Section R602.12.2.

3.2.41 FBC-R Section R602.12.5 is reserved and replaces IRC Section R602.12.5.

3.2.42 FBC-R Section R702.7 replaces IRC Section R702.7.

## 4 Conditions of Use

4.1 BamCore Prime Wall System, described in Report Number 1507-03, must comply with all of the following conditions:

4.1.1 All applicable sections in Report Number 1507-03.

4.1.2 The design, installation, and inspections are in accordance with additional requirements of FBC-B Chapter 16 and Chapter 17, as applicable.

# Notes

1 For more information, visit drjcertification.org or call us at 608-310-6748.

2 Capitalized terms and responsibilities are defined pursuant to the applicable building code, applicable reference standards, the latest edition of TPI 1, the NDS, AISI S202, US professional engineering law, Canadian building code, Canada professional engineering law, Qualtim External Appendix A: Definitions/Commentary, Qualtim External Appendix B: Project/Deliverables, Qualtim External Appendix C: Intellectual Property and Trade Secrets, definitions created within Design Drawings and/or definitions within Reference Sheets. Beyond this, terms not defined shall have ordinarily accepted meanings as the context implies. Words used in the present tense include the future; words stated in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural, the singular.

3 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1702

4 Alternative Materials, Design and Methods of Construction and Equipment: The provisions of any regulation code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by a regulation. Please review https://www.justice.gov/atr/mission and https://up.codes/viewer/mississippi/ibc-2024/chapter/1/scope-and-administration#104.2.3

5 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1706.2:~:text=the%20design%20strengths%20and%20permissible%20stresses%20shall%20be%20established%20by%20tests

6 The design strengths and permissible stresses of any structural material shall conform to the specifications and methods of design of accepted engineering practice. https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1706.1:~:text=Conformance%20to%20Standards-,The%20design%20strengths%20and%20permissible%20stresses,-of%20any%20structural

7 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1707.1:~:text=the%20building%20official%20shall%20make%2C%20or%20cause%20to%20be%20made%2C%20the%20necessary%20tests%20and%20investigations%3B%20or%20the%20building%20official%20shall%20accept%20duly%20authenticated%20reports%20from%20approved%20agencies%20in%20respect%20to%20the%20quality%20and%20manner%20of%20use%20of%20new%20materials%20or%20assemblies%20as%20provided%20for%20in%20Section%20104.2.3.

8 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1703.4.2

9 https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#approved_agency

10 https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#approved_source

11 https://www.law.cornell.edu/uscode/text/18/1832 (b) 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. To follow DTSA and comply state public records and trade secret legislation requires approval through ANAB ISO/IEC 17065 accredited certification bodies or approved sources. For more information, please review this website: Intellectual Property and Trade Secrets.

12 https://www.nspe.org/resources/issues-and-advocacy/professional-policies-and-position-statements/regulation-professional AND https://apassociation.org/list-of-engineering-boards-in-each-state-archive/

13 https://www.cbitest.com/accreditation/

14 https://up.codes/viewer/mississippi/ibc-2024/chapter/1/scope-and-administration#104.1:~:text=directed%20to%20enforce%20the%20provisions%20of%20this%20code

15 https://up.codes/viewer/mississippi/ibc-2024/chapter/1/scope-and-administration#104.2.3 AND https://up.codes/viewer/mississippi/ibc-2024/chapter/1/scope-and-administration#105.3.1

16 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1707.1

17 https://iaf.nu/en/about-iaf-mla/#:~:text=Once%20an%20accreditation%20body%20is%20a%20signatory%20of%20the%20IAF%20MLA%2C%20it%20is%20required%20to%20recognise%20certificates%20and%20validation%20and%20verification%20statements%20issued%20by%20conformity%20assessment%20bodies%20accredited%20by%20all%20other%20signatories%20of%20the%20IAF%20MLA%2C%20with%20the%20appropriate%20scope

18 True for all ANAB accredited product evaluation agencies and all International Trade Agreements.

19 https://www.justice.gov/crt/deprivation-rights-under-color-law AND https://www.justice.gov/atr/mission

20 Unless otherwise noted, the links referenced herein use un-amended versions of the 2024 International Code Council (ICC) 2024 International Code Council (ICC) model codes as foundation references. Mississippi versions of the IBC 2024 and the IRC 2024 are un-amended. This material, product, design, service and/or method of construction also complies with the 2000-2012 versions of the referenced codes and the standards referenced therein. As pertinent to this technical and code compliance evaluation, CBI and/or DrJ staff have reviewed any state or local regulatory amendments to assure this report is in compliance.

21 See Adoptions by Publisher for the latest adoption of a non-amended or amended model code by the local jurisdiction. https://up.codes/codes/general

22 See Adoptions by Publisher for the latest adoption of a non-amended or amended model code by state. https://up.codes/codes/general

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

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

25 All references to the CBC and CRC are the same as the 2021 IBC and 2021 IRC unless otherwise noted in the CBC and CRC Supplement at the end of this report.

26 All references to the LABC and LARC are the same as the 2021 IBC and 2021 IRC unless otherwise noted in the LABC and LARC Supplement at the end of this report.

27 All references to the FBC-B and FBC-R are the same as the 2024 IBC and 2024 IRC unless otherwise noted in the Florida Supplement at the end of this report.

28 All references to the NYSBC-B and NYSBC-R are the same as the 2021 IBC and 2021 IRC.

29 https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#p-3280.2(Listed%20or%20certified); https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#listed AND https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#labeled

30 2021 IBC Section 2308.3.1

31 2021 IBC Section 2308.3.1

32 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1703.4

[33] https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#:~:text=All%20construction%20methods%20shall%20be%20in%20conformance%20with%20accepted%20engineering%20practices%20to%20insure%20durable%2C%20livable%2C%20and%20safe%20housing%20and%20shall%20demonstrate%20acceptable%20workmanship%20reflecting%20journeyman%20quality%20of%20work%20of%20the%20various%20trades

[34] https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#:~:text=The%20strength%20and%20rigidity%20of%20the%20component%20parts%20and/or%20the%20integrated%20structure%20shall%20be%20determined%20by%20engineering%20analysis%20or%20by%20suitable%20load%20tests%20to%20simulate%20the%20actual%20loads%20and%20conditions%20of%20application%20that%20occur

[35] 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.

[36] https://anabpd.ansi.org/Accreditation/product-certification/AllDirectoryDetails?prgID=1&orgID=2125&statusID=4#:~:text=Bill%20Payment%20Date-,Accredited%20Scopes,-13%20ENVIRONMENT.%20HEALTH

[37] See Code of Federal Regulations (CFR) Title 24 Subtitle B Chapter XX Part 3280 for definition: https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280

[38] 2021 IBC Section 104.11

[39] 2021 IRC Section R104.11

[40] 2018: https://up.codes/viewer/wyoming/ifc-2018/chapter/1/scope-and-administration#104.9 AND 2021: https://up.codes/viewer/wyoming/ibc-2021/chapter/1/scope-and-administration#104.11

[41] 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 (https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#201.4) where the building code authorizes sentences to have an ordinarily accepted meaning such as the context implies.

[42] https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1707.1

[43] Multilateral approval is true for all ANAB accredited product evaluation agencies and all International Trade Agreements.