

**RoyOMartin TuffStrand<sup>®</sup> and Windbrace<sup>®</sup>**  
**7/16 Performance Category OSB**  
**Martco, L.L.C.**

**PR-N129**

Revised November 6, 2018

Product: TuffStrand<sup>®</sup> and Windbrace<sup>®</sup> 7/16 Performance Category OSB  
RoyOMartin, P.O. Box 1110, Alexandria, LA 71309  
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1. Basis of the product report:
  - 2018 and 2015 International Building Code (IBC): Sections 104.11 Alternative materials, 2303.1.5 Wood structural panels, and 2305 General Design Requirements for Lateral-Force-Resisting Systems
  - 2012 IBC: Sections 104.11 Alternative materials, 2303.1.4 Wood structural panels, and 2305 General Design Requirements for Lateral-Force-Resisting Systems
  - DOC PS 2-10 Performance Standard for Wood-Based Structural-Use Panels
  - 2015 ANSI/AWC Special Design Provisions for Wind and Seismic (SDPWS)
  - APA Report T2009P-71 and other qualification data
2. Product description:

RoyOMartin TuffStrand<sup>®</sup> and Windbrace<sup>®</sup> 7/16 Performance Category OSB is an enhanced APA Rated Sheathing meeting a Span Rating of 24/16 in accordance with PS 2, and is made with strands of southern pine in accordance with the in-plant manufacturing standard approved by APA. The scope of this report covers 7/16 Performance Category RoyOMartin TuffStrand and Windbrace OSB manufactured in typical 4-ft wide by 8-, 9-, and 10-ft long. Other panel lengths, such as 97-1/2, 109-1/2, and 121-1/2 inches, shall be permitted. Example trademarks are shown in Figure 1.
3. Design properties:

Nominal unit shear capacities for blocked shear walls using RoyOMartin TuffStrand and Windbrace 7/16 Performance Category OSB sheathing are listed in Table 1. The unit shear capacities for blocked shear walls using RoyOMartin TuffStrand and Windbrace 7/16 Performance Category OSB sheathing applied over 1/2-inch or 5/8-inch gypsum wallboard or gypsum sheathing board are listed in Table 2. The tabulated values in Table 1 and 2 are the higher of 3/8 Performance Category APA Rated Sheathing Structural I and 7/16 Performance Category APA Rated Sheathing. For unblocked shearwalls, the blocked shear wall capacities listed in Table 1 shall be multiplied by the adjustment factors listed in Table 3.
4. Product installation:

RoyOMartin TuffStrand and Windbrace 7/16 Performance Category OSB shall be installed in accordance with recommendations provided by the manufacturer and APA Design & Construction Guide: *Engineered Wood Construction Guide*, Form E30 ([www.apawood.org/resource-library](http://www.apawood.org/resource-library)). The maximum span shall be in accordance with the Span Rating shown in the trademark.
5. Fire-resistant construction:

Wood structural panels that are not fire-treated have been shown to meet a Class III (or C) category for flame spread. Where otherwise specified, fire-resistant construction shall be in accordance with the recommendations for 7/16 Performance Category wood structural panels in APA Product Guide: *Fire-Rated Systems*, Form W305 ([www.apawood.org/resource-library](http://www.apawood.org/resource-library)).

6. Limitations:
  - a) RoyOMartin TuffStrand and Windbrace 7/16 Performance Category OSB sheathing recognized in this report is limited to dry service conditions where the average equilibrium moisture content of sawn lumber is less than 16 percent.
  - b) RoyOMartin TuffStrand and Windbrace 7/16 Performance Category OSB sheathing shall be permitted for use as wall sheathing when designed in accordance with SDPWS and the capacities listed in Tables 1 and 2 for blocked shear walls and OSB panels applied over 1/2 or 5/8 gypsum wallboard or gypsum sheathing board. For unblocked shear walls, the design capacities listed in Table 1 shall be multiplied by the adjustment factor listed in Table 3.
  - c) RoyOMartin TuffStrand and Windbrace 7/16 Performance Category OSB sheathing shall be permitted for design with the capacities for 7/16 Performance Category Rated Sheathing and 3/8 Performance Category Rated Sheathing Structural I, whichever is higher.
  - d) RoyOMartin TuffStrand and Windbrace 7/16 Performance Category OSB is produced at RoyOMartin facility at Oakdale, LA under a quality assurance program audited by APA.
  - e) This report is subject to re-examination in one year.
  
7. Identification:

RoyOMartin TuffStrand and Windbrace 7/16 Performance Category OSB described in this report is identified by a label bearing the manufacturer's name (RoyOMartin/Martco) and/or trademark, the APA assigned plant number (511), the product thickness, the Span Rating, the Exposure Rating, the APA logo, the report number PR-N129, and a means of identifying the date of manufacture.

Table 1. Nominal Unit Shear Capacities for RoyOMartin TuffStrand and Windbrace 7/16 Performance Category OSB Sheathing Used for Wood-Framed Shear Walls (a, b, c, d, e, f, g, h)

Minimum Performance Category or Nominal Panel Thickness (in.)	Minimum Fastener Penetration in Framing Member or Blocking (in.)	Fastener Type & Size  Nail (common or galvanized box)	A SEISMIC								B WIND			
			Panel Edge Fastener Spacing (in.)								Panel Edge Fastener Spacing (in.)			
			6		4		3		2 <sup>(i)</sup>		6	4	3	2 <sup>(i)</sup>
			v <sub>s</sub> (plf)	G <sub>a</sub> (kips/in.)	v <sub>s</sub> (plf)	G <sub>a</sub> (kips/in.)	v <sub>s</sub> (plf)	G <sub>a</sub> (kips/in.)	v <sub>s</sub> (plf)	G <sub>a</sub> (kips/in.)	v <sub>w</sub> (plf)	v <sub>w</sub> (plf)	v <sub>w</sub> (plf)	v <sub>w</sub> (plf)
7/16 <sup>(i)</sup>	1-3/8	8d (2-1/2" x 0.131")	480	15	720	24	920	30	1220	43	670	1010	1290	1710
15/32			560	14	860	18	1100	24	1460	37	785	1205	1540	2045

For **SI**: 1 inch = 25.4 mm, 1 plf = 14.6 N/m, 1 kip/in. = 0.175 kN/mm

- (a) Nominal unit shear values shall be adjusted in accordance with ANSI/AWC Special Design Provisions for Wind and Seismic (SPDWS). The ASD allowable unit shear capacity shall be determined by dividing the tabulated nominal unit shear capacity by the ASD reduction factor of 2.0.
- (b) For species and grades of framing other than Douglas-Fir-Larch or Southern Pine, reduced nominal unit shear capacities shall be determined by multiplying the tabulated nominal unit shear capacity by the Specific Gravity Adjustment Factor = [1 - (0.5 - SG)], where SG = Specific Gravity of the framing lumber from the ANSI/AWC National Design Specification (NDS). The Specific Gravity Adjustment Factor shall not be greater than 1.
- (c) Apparent shear stiffness values G<sub>a</sub>, are based on nail slip in framing with moisture content less than or equal to 19% at time of fabrication and panel stiffness values for shear walls constructed with OSB. Where moisture content of the framing is greater than 19% at time of fabrication, G<sub>a</sub> values shall be multiplied by 0.5.
- (d) Where panels applied on both faces of a wall and nail spacing is less than 6 inches o.c. on either side, panel joints shall be offset to fall on different framing members, or framing shall be 3-inch nominal or thicker at adjoining panel edges and nails on each side shall be staggered.
- (e) Panel edges backed with 2-inch nominal or wider framing. Install panels either horizontally or vertically. Space fasteners maximum 6 inches o.c. along intermediate framing members for panels installed on studs spaced 24 inches o.c. For other stud spacings, space nails 12 inches o.c. on intermediate supports.
- (f) Galvanized nails shall be hot dipped or tumbled.
- (g) In Seismic Design Category D, E or F, where nominal unit shear capacity, v<sub>s</sub>, exceeds 700 plf, all framing members receiving edge nailing from abutting panels shall not be less than a single 3-inch nominal member, or two 2-inch nominal members fastened together to transfer the design shear value between framing members. Wood structural panel joint and sill plate nailing shall be staggered in all cases. See IBC or SPDWS for sill plate size and anchorage requirements.
- (h) For shear loads of normal or permanent load duration as defined by the ANSI/AWC NDS, the values in the table above shall be multiplied by 0.63 or 0.56, respectively.
- (i) Framing at adjoining panel edges shall be 3-inch nominal or wider, and nails shall be staggered where nails are spaced 2 inches on center.
- (j) Shears are permitted to be increased to values show in 15/32-inch sheathing with the same nailing provided (a) studs are spaced a maximum of 16 inches on center, or (b) panels are applied with long dimensions across supports.

Table 2. Nominal Unit Shear Capacities for RoyOMartin TuffStrand and Windbrace 7/16 Performance Category OSB Sheathing Used for Wood-Framed Shear Walls (a, b, c, d, e, f, g, h).  
 Panels applied over 1/2-inch or 5/8-inch gypsum wallboard or gypsum sheathing board.

Minimum Performance Category or Nominal Panel Thickness (in.)	Minimum Fastener Penetration in Framing Member or Blocking (in.)	Fastener Type & Size  Nail (common or galvanized box)	A SEISMIC								B WIND			
			Panel Edge Fastener Spacing (in.)								Panel Edge Fastener Spacing (in.)			
			6		4		3 <sup>(i)</sup>		2 <sup>(i)</sup>		6	4	3 <sup>(i)</sup>	2 <sup>(i)</sup>
			v <sub>s</sub> (plf)	G <sub>a</sub> (kips/in.)	v <sub>s</sub> (plf)	G <sub>a</sub> (kips/in.)	v <sub>s</sub> (plf)	G <sub>a</sub> (kips/in.)	v <sub>s</sub> (plf)	G <sub>a</sub> (kips/in.)	v <sub>w</sub> (plf)	v <sub>w</sub> (plf)	v <sub>w</sub> (plf)	v <sub>w</sub> (plf)
7/16	1-3/8	10d (3" x 0.148")	560	14	860	18	1100	24	1460	37	785	1205	1540	2045

For SI: 1 inch = 25.4 mm, 1 plf = 14.6 N/m, 1 kip/in. = 0.175 kN/mm

- (a) Nominal unit shear values shall be adjusted in accordance with ANSI/AWC Special Design Provisions for Wind and Seismic (SPDWS). The ASD allowable unit shear capacity shall be determined by dividing the tabulated nominal unit shear capacity by the ASD reduction factor of 2.0.
- (b) For species and grades of framing other than Douglas-Fir-Larch or Southern Pine, reduced nominal unit shear capacities shall be determined by multiplying the tabulated nominal unit shear capacity by the Specific Gravity Adjustment Factor = [1 - (0.5 - SG)], where SG = Specific Gravity of the framing lumber from the ANSI/AWC NDS. The Specific Gravity Adjustment Factor shall not be greater than 1.
- (c) Apparent shear stiffness values G<sub>a</sub> are based on nail slip in framing with moisture content less than or equal to 19% at time of fabrication and panel stiffness values for shear walls constructed with OSB. Where moisture content of the framing is greater than 19% at time of fabrication, G<sub>a</sub> values shall be multiplied by 0.5.
- (d) Where panels applied on both faces of a wall and nail spacing is less than 6 inches o.c. on either side, panel joints shall be offset to fall on different framing members, or framing shall be 3-inch nominal or thicker at adjoining panel edges and nails on each side shall be staggered.
- (e) Panel edges backed with 2-inch nominal or wider framing. Install panels either horizontally or vertically. Space fasteners maximum 6 inches o.c. along intermediate framing members for panels installed on studs spaced 24 inches o.c. For other stud spacings, space nails 12 inches o.c. on intermediate supports.
- (f) Galvanized nails shall be hot dipped or tumbled.
- (g) In Seismic Design Category D, E or F, where nominal unit shear capacity, v<sub>s</sub>, exceeds 700 plf, all framing members receiving edge nailing from abutting panels shall not be less than a single 3-inch nominal member, or two 2-inch nominal members fastened together to transfer the design shear value between framing members. Wood structural panel joint and sill plate nailing shall be staggered in all cases. See IBC or SPDWS for sill plate size and anchorage requirements.
- (h) For shear loads of normal or permanent load duration as defined by the ANSI/AWC NDS, the values in the table above shall be multiplied by 0.63 or 0.56, respectively.
- (i) Nails having penetration into framing members and blocking of more than 1-1/2 inches, framing at adjoining panel edges shall be 3-inch nominal or wider, and nails shall be staggered where nails are spaced 3 inches on center.
- (j) Framing at adjoining panel edges shall be 3-inch nominal or wider, and nails shall be staggered where nails are spaced 2 inches on center.

Table 3. Unblocked Shear Wall Adjustment Factors,  $C_{ub}$

Nail Spacing (in.)		Stud Spacing (in.)			
Supported Edges	Intermediate Framing	12	16	20	24
6	6	1.0	0.8	0.6	0.5
6	12	0.8	0.6	0.5	0.4

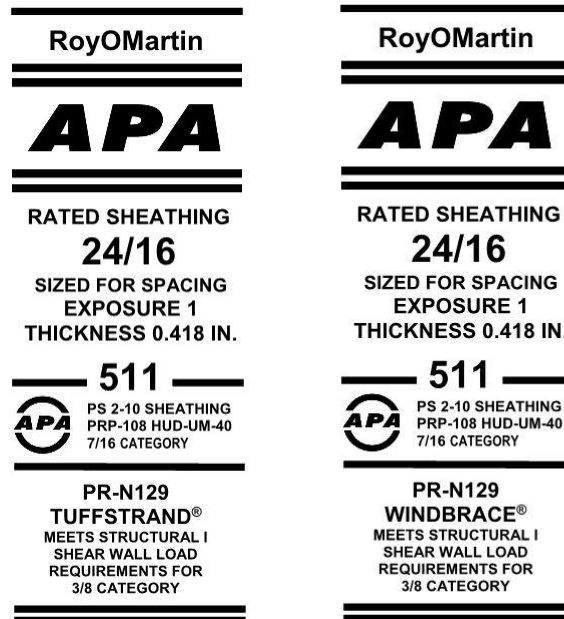


Figure 1. Typical trademarks

*APA – The Engineered Wood Association* is an approved national standards developer accredited by American National Standards Institute (ANSI). APA publishes ANSI standards and Voluntary Product Standards for wood structural panels and engineered wood products. APA is an accredited certification body under ISO/IEC 17065 by Standards Council of Canada (SCC), an accredited inspection agency under ISO/IEC 17020 by International Code Council (ICC) International Accreditation Service (IAS), and an accredited testing organization under ISO/IEC 17025 by IAS. APA is also an approved Product Certification Agency, Testing Laboratory, Quality Assurance Entity, and Validation Entity by the State of Florida, and an approved testing laboratory by City of Los Angeles.

**APA – THE ENGINEERED WOOD ASSOCIATION  
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