

ICC-ES Evaluation Report

ESR-2848

Reissued December 1, 2011

This report is subject to renewal in one year.

www.icc-es.org | (800) 423-6587 | (562) 699-0543

A Subsidiary of the International Code Council®

**DIVISION: 06 00 00—WOOD, PLASTICS AND
COMPOSITES**
**Section: 06 05 23—Wood, Plastic, and Composite
Fastenings**
REPORT HOLDER:
EARTHBOUND CORPORATION

17361 TYE STREET S.E.

MONROE, WASHINGTON 98272

(360) 863-0722

(800) 944-5669

www.holdown.com
EVALUATION SUBJECT:
**SLACKJACK® AND MINIJACK™ SHRINKAGE
COMPENSATING DEVICES**
1.0 EVALUATION SCOPE
Compliance with the following codes:

- 2012, 2009 and 2006 *International Building Code*® (IBC)
- 2012, 2009 and 2006 *International Residential Code*® (IRC)

Property evaluated:

Structural

2.0 USES

SlackJack® and MiniJack™ shrinkage compensating devices are used in conjunction with hold-down and tension tie connectors or a continuous tie-down system for wood frame construction. The devices are installed as components of the restraint system, with the threaded anchor bolts or rods passing through the axis of the devices, to remove slack in the restraint system that occurs due to wood shrinkage or building settlement, or both.

3.0 DESCRIPTION
3.1 General:

The SlackJack® and MiniJack™ are factory-assembled, preloaded, compression-controlled shrinkage and settlement compensating devices that can be used with hold-down connectors or tension tie connectors with threaded rods or threaded anchor bolts. The devices are cylindrical, and automatically expand axially along a rod or bolt, to eliminate any gaps between a bearing surface or plate and the nut on the threaded rod or bolt when shrinkage or settlement occurs within the structure. A portion of the SlackJack® or MiniJack™ is color-coded to identify the specific model number. Model numbers beginning with an “A” or “T” have aluminum bodies, and

are designed for use with W3 through W10 swivel washers capable of fitting over threaded rods or bolts having diameters ranging from $\frac{3}{8}$ inch to $1\frac{1}{4}$ inches (9.5 mm to 32 mm). Model numbers beginning with an “S” or “X” have steel bodies, and are designed for use with W10 or W12 swivel washers capable of fitting over threaded rods or bolts having diameters of $1\frac{1}{4}$ inches and $1\frac{1}{2}$ inches (32 mm and 38 mm), respectively. Model numbers beginning with an “M” (MiniJack™) have aluminum bodies, are designed for use without swivel washers, and will fit over threaded rods or bolts having diameters of $\frac{3}{8}$ inch and $\frac{1}{2}$ inch (9.5 mm and 12.7 mm). See Figure 1 for diagrams of each model type. See Table 1 for recognized models, and their corresponding color codes and dimensions. The SlackJack® “A”, “T”, “S” and “X” series are supplied with swivel washers, which are used to center the device on the threaded rod or bolt. Swivel washers are color-coded, as noted in Table 1, to indicate the corresponding appropriate threaded rod or bolt diameter. The SlackJack® A620 model and MiniJack™ “M” series are supplied with color-coded compression springs, as noted in Table 1, to indicate the specific model and rated compensation capacity.

3.2 Materials:

For the SlackJack® and MiniJack™ model numbers beginning with an “A”, “T” or “M”, the inner and outer cylinder bodies of the shrinkage compensating devices are manufactured from ASTM B 221-06 6061-T6511 alloy extruded aluminum tubing. Model numbers beginning with an “S” or “X” have inner and outer cylinder bodies manufactured from ASTM A 513-08a, Type 5 DOM steel tubing, as specified in the manufacturer’s quality documentation. Locking rings are manufactured from ASTM A 313-08 stainless steel spring wire. The compression spring and pull clip are manufactured from galvanized hard-drawn spring wire. The color-coded capture ring consists of injection-molded plastic. The color-coded swivel washer is manufactured from ASTM A 108-07, grade 12L14 steel. A hex nut conforming to ASTM A 563-07 is included in the packaging of each device.

4.0 DESIGN AND INSTALLATION
4.1 Design:

The allowable compression loads, corresponding deflections at allowable loads, rated shrinkage and settlement compensation capacities, and average travel and seating increments, Δ_R , for the SlackJack® and MiniJack™ shrinkage compensating devices designed under allowable stress design are as shown in Table 1. The devices are used where the expected shrinkage or settlement does not exceed their rated compensation capacities. Calculations, demonstrating that the applied

loads do not exceed the tabulated allowable loads, and that the expected slack due to wood shrinkage and building settlement does not exceed the rated compensation capacity for the SlackJack® and MiniJack™ shrinkage compensating devices, must be submitted to the code official for approval. Supports must be designed in accordance with the applicable code to transfer loads into the restraint system. The calculations must be prepared by a registered design professional when required by the statutes of the jurisdiction in which the project is to be constructed.

4.2 Installation:

The SlackJack® and MiniJack™ shrinkage compensating devices must be installed in accordance with this report and the manufacturer’s published installation instructions. The devices must be installed over the hold-down or a bearing surface or plate, with the threaded rod or bolt running through its axis. The threaded rod with which the SlackJack® or MiniJack™ is used must be installed plumb, such that the offset angle between the top of the floor and the bottom of the top plates or bridge block above does not exceed 1.33 degrees from vertical. For the SlackJack® “A”, “T”, “S” and “X” series, the appropriate color-coded swivel washer corresponding to the threaded rod or bolt diameter, as indicated in Table 1, must be installed over each SlackJack® device, with the flat side facing up. The steel hex nut must be screwed onto the threaded rod or bolt, and hand-tightened over the top of the swivel washer. Once the hex nut is hand-tightened onto the swivel washer, the device must be activated by removal of the factory-installed pull clip.

5.0 CONDITIONS OF USE

The SlackJack® and MiniJack™ shrinkage compensating devices described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 The SlackJack® and MiniJack™ shrinkage compensating devices must be installed in accordance with this report, the manufacturer’s installation instructions and the plans approved by the code official. In the event of a conflict between this report and the manufacturer’s published installation instructions, the most restrictive governs.
- 5.2 The design values given in this report are for the SlackJack® or MiniJack™ shrinkage compensating devices alone. No further increase in allowable

capacity is permitted. Design must be performed in accordance with Section 4.1 of this report.

- 5.3 Calculations in accordance with Section 4.1 of this report must be submitted to the code official for approval.
- 5.4 The SlackJack® and MiniJack™ devices are limited to installations in dry, interior locations.
- 5.5 The SlackJack® and MiniJack™ shrinkage compensating devices must not be used to support dead loads other than their own weight.
- 5.6 Use of the SlackJack® and MiniJack™ shrinkage compensating devices in direct contact with fire-retardant-treated wood or preservative-treated wood is outside of the scope of this report.
- 5.7 When the SlackJack® and MiniJack™ shrinkage compensating devices are used as fasteners independent of a continuous tie-down system, the applied loads must not exceed the allowable loads noted in this report.
- 5.8 When using the basic allowable stress design load combinations in accordance with IBC Section 1605.3.1, or the alternative allowable stress design load combinations in accordance with IBC Section 1605.3.2, allowable loads are not permitted to be increased for wind or earthquake loading. No increase in allowable loads or reduction of applied loads for wind or earthquake is allowed when design uses the IRC.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Shrinkage Compensating Devices (AC316), dated June 2011.

7.0 IDENTIFICATION

Each SlackJack® and MiniJack™ shrinkage compensating device bears a label, either on the body of the device or on the packaging, with the evaluation report holder name (Earthbound) and Web address, the product name (SlackJack® or MiniJack™), and the evaluation report number (ESR-2848). The devices are color-coded, as indicated in Table 1, to identify the specific model and series number. SlackJack® shrinkage compensating devices are packaged together in a common box or container, which includes corresponding swivel washers and nuts labeled in separate plastic packaging. The MiniJack™ “M” series devices are packaged in lots of five, and do not require a swivel washer.

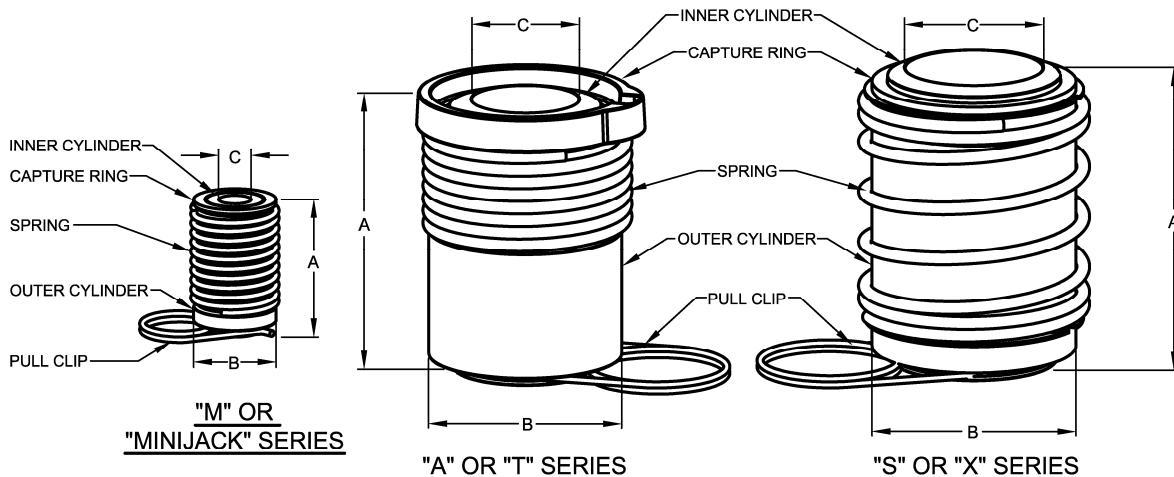


FIGURE 1—SLACKJACK® AND MINI JACK™ SHRINKAGE COMPENSATING DEVICES

TABLE 1—SLACKJACK® AND MINI JACK™ SHRINKAGE COMPENSATING DEVICE SPECIFICATIONS

MODEL AND SERIES NUMBER	CAPTURE RING COLOR CODE	SPRING COLOR CODE	NOMINAL DIMENSIONS ³ (inches)			RATED COMPENSATION CAPACITY (inches)	ALLOWABLE COMPRESSION LOAD ^{1,2} (lbs)	DEFLECTION AT ALLOWABLE LOAD (inch)	DEVICE AVG TRAVEL & SEATING INCREMENT Δ_R ^{4,5} (inch)
			Height Before Activation (A)	Outer Diameter of Body (B)	Inner Diameter of Body (C)				
M100 ⁸	N/A	Red	2.540	1.349	0.532	1.0	5,000	0.028	0.032
M150 ⁸	N/A	Green	3.040	1.349	0.532	1.50	5,000	0.030	0.032
M200 ⁸	N/A	Orange	3.540	1.349	0.532	2.00	4,900	0.033	0.031
A210	Blue	N/A	3.330	2.365	1.420	1.0	7,360	0.013	0.045
A21-50	White	N/A	3.830	2.365	1.420	1.50	8,000	0.018	0.047
A220	Yellow	N/A	4.330	2.365	1.420	2.0	7,730	0.018	0.050
T410	Orange	N/A	3.700	2.365	1.375	1.0	9,000	0.020	0.024
T420	Black	N/A	4.700	2.365	1.375	2.0	9,000	0.018	0.028
A410	Red	N/A	3.800	2.365	1.250	1.0	14,000	0.022	0.051
A420	Green	N/A	4.800	2.365	1.250	2.0	14,000	0.030	0.047
A430	Brown	N/A	5.800	2.365	1.250	3.0	14,750	0.033	0.046
T610	Gray	N/A	4.325	2.365	1.250	1.0	15,000	0.019	0.035
T620	Purple	N/A	5.325	2.365	1.250	2.0	15,000	0.019	0.030
A610	Tan	N/A	4.800	2.365	1.250	1.0	20,340	0.028	0.045
A620	White	Blue	5.800	2.365	1.250	2.0	20,100	0.038	0.048
S410 ⁵	Blue	N/A	3.270	2.500	1.625	1.0	22,000	0.020	0.028
S420 ⁵	Yellow	N/A	4.270	2.500	1.625	2.0	22,000	0.026	0.028
X410 ⁵	Gold	N/A	3.700	2.500	1.625	1.0	34,220	0.035	0.047

MODEL AND SERIES NUMBER NOTATION FOR THE "A", "T", "S" AND "X" SERIES⁸

1 st Digit: Model Type:	2 nd Digit: Series Type:	3 rd Digit: Rated Compensation Capacity:	4 th Digit: (and 5 th Digit, where applicable) Swivel Washer Color Code ^{6,7} :
"A" = Aluminum Body "T" = Aluminum Body "S" = Steel Body "X" = Steel Body	2 = 2 locking rings 4 = 4 locking rings 6 = 6 locking rings	1 = 1.0 inch 1-5 = 1.50 inches 2 = 2.0 inches 3 = 3.0 inches	0 = Base Model 3 = 3/8" Rod Orange 4 = 1/2" Rod Purple 5 = 5/8" Rod Black 6 = 3/4" Rod Gray 7 = 7/8" Rod Blue 8 = 1" Rod Yellow 9 = 1 1/8" Rod White 10 = 1 1/4" Rod Green 12 = 1 1/2" Rod Red

For SI: 1 inch = 25.4 mm, 1 pound = 4.45 N.

¹Tabulated allowable loads are for the SlackJack® and MiniJack™ shrinkage compensating devices only. The attached components (including anchors, tension rods, bearing plates, wood framing members, etc.) must be designed to resist design loads in accordance with the applicable code.

²No further increases to the tabulated allowable loads are permitted.

³See Figure 1 (following page) for dimensioned drawings of the SlackJack® and MiniJack™ shrinkage compensating devices.

⁴The average travel and seating increment, Δ_R , is defined as the average of the movement required to cause incremental motion from a seated position and the opposite movement required to reseat the device after incremental motion.

⁵The device average travel and seating increment, Δ_R , and deflection at allowable load, Δ_A , are additive, and describe the total movement of the device at allowable load, Δ_T . For design loads, P_D , less than the allowable load, P_A , the total movement of the device, Δ_T , is calculated as follows: $\Delta_T = \Delta_R + \Delta_A(P_D/P_A)$.

⁶A swivel washer, having the appropriate inner diameter corresponding to the threaded rod or bolt diameter as indicated under the Swivel Washer Color Code section of the table above, must be used in accordance with Section 4.2. Exception: "M" series devices do not require swivel washers.

⁷Model numbers beginning with an "A" or "T" are designed for use with W3 through W10 swivel washers capable of fitting over threaded rods or bolts having diameters ranging from 3/8 inch to 1 1/4 inches (9.5 mm to 32 mm). Model numbers beginning with an "S" or "X" are designed for use with W10 or W12 swivel washers capable of fitting over threaded rods or bolts having diameters of 1 1/4 inches and 1 1/2 inches (32 mm and 38 mm), respectively.

⁸The model and series number notation given above does not apply to the "M" series (MiniJack™). The M100, M150 and M200 have three locking rings, and rated compensation capacities of 1.0 inch, 1.5 inches and 2.0 inches, respectively. They are intended for use with either 3/8 inch or 1/2-inch rod diameters.

ICC-ES Evaluation Report**ESR-2848 FBC Supplement**

Issued December 1, 2011

This report is subject to renewal on December 1, 2012.

www.icc-es.org | (800) 423-6587 | (562) 699-0543 A Subsidiary of the International Code Council®

DIVISION: 06 00 00— WOOD, PLASTICS AND COMPOSITES
Section: 06 05 23— Wood, Plastic, and Composite Fastenings**REPORT HOLDER:****EARTHBOUND CORPORATION**
17361 TYE STREET S.E.
MONROE, WASHINGTON 98272
(360) 863-0722
(800) 944-5669
www.holdown.com**EVALUATION SUBJECT:****SLACKJACK® AND MINIJACK™ SHRINKAGE COMPENSATING DEVICES****1.0 EVALUATION SCOPE****Compliance with the following codes:**

- 2010 and 2007 *Florida Building Code—Building*
- 2010 and 2007 *Florida Building Code—Residential*

Property evaluated:

Structural

2.0 PURPOSE OF THIS SUPPLEMENT

This supplement is issued to indicate that the SlackJack® shrinkage compensating device described in Sections 2.0 through 7.0 of the master report ESR-2848 complies with the 2010 and 2007 *Florida Building Code—Building* and the 2010 and 2007 *Florida Building Code—Residential*, provided the design and installation is in accordance with the *International Building Code*® (IBC) provisions noted in the master report.

The SlackJack® shrinkage compensating device described in the master evaluation report has also been found to comply with the High-Velocity Hurricane Zone provisions of the 2010 and 2007 *Florida Building Code—Building* and the 2010 and 2007 *Florida Building Code—Residential*.

For products falling under Florida Rule 9N-3, verification that the report holder's quality assurance program is audited by a quality assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official when the report holder does not possess an approval by the Commission).

This supplement expires concurrently with the master report reissued December 1, 2011.

ICC-ES Evaluation Report**ESR-2848 CBC Supplement**

Issued December 1, 2011

This report is subject to renewal on December 1, 2012.

www.icc-es.org | (800) 423-6587 | (562) 699-0543 A Subsidiary of the International Code Council®

DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES
Section: 06 05 23—Wood, Plastic, and Composite Fastenings

REPORT HOLDER:

EARTHBOUND CORPORATION
17361 TYE STREET S.E.
MONROE, WASHINGTON 98272
(360) 863-0722
(800) 944-5669
www.holdown.com

EVALUATION SUBJECT:**SLACKJACK® AND MINI JACK™ SHRINKAGE COMPENSATING DEVICES****1.0 EVALUATION SCOPE****Compliance with the following code:**2010 *California Building Code* (CBC)**Property evaluated:**

Structural

2.0 PURPOSE OF THIS SUPPLEMENT

This supplement is issued to indicate that the SlackJack® and MiniJack™ Shrinkage Compensation Devices, described in master report ESR-2848, comply with the CBC, when design and installation are in accordance with the CBC and with the *International Building Code*® provisions described in the master evaluation report. Section 5.8 of the master report, however, must be revised under the CBC to read as follows: When using the basic allowable stress design load combinations in accordance with CBC Section 1605.3.1 or 1605A.3.1, or the alternative allowable stress design load combinations in accordance with CBC Section 1605.3.2 or 1605A.3.2, allowable loads are not permitted to be increased for wind or earthquake loading.

This supplement expires concurrently with the master report reissued on December 1, 2011.