Simpson Strong-Tie
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RESEARCH REPORT: RR 25828
(CSI# 06 05 23)

BASED UPON IAPMO EVALUATION
SERVICE REPORT NO. 0143

REEVALUATION DUE

Date: November 1, 2018
Issued Date: April 1, 2017
Code: 2017 LABC

GENERAL APPROVAL – Reevaluation / Clerical Modification - Simpson Strong-Tie – Bolt Style Hold Down Connectors – HD2A, HD5, HD7, HD9, HD12, HD19, HD3B, HD5B, HD7B, and HD9B.

DETAILS

The above assemblies and/or products are approved when in compliance with the description, use, identification and findings of IAPMO ES Report Number 0143, issued June 2009, revised April 4, 2017, of the IAPMO Evaluation Services. The report, in its entirety, is attached and made part of this general approval subject to the following conditions:

The parts of Evaluation Report No. 0143 marked with an asterisk have been deleted or revised by the Los Angeles City Building Department from this approval.

The approval is subject to the following conditions:

1. Hold-down Devices Used as Anchorage of Structural Walls: The values shown in Tables A and B of this report may be used in repair, retrofit and new construction of concrete tilt-up and masonry wall anchorage (in tension) for the connection with horizontal wood diaphragm.

2. Hold-down Devices Used in Light-Frame Shear Walls Sheathed with Wood Structural Panels: For hold-down devices used in shear walls, a 25% reduction of the allowable

loads specified in Table 1 of the IAPMO ES evaluation report shall be taken in accordance with 2305.5 of the 2017 City of Los Angeles Building Code.

3. HDB, HD and HDA hold-down anchors are approved to anchor vertical wood members to foundations or to other vertical wood members.

4. The tabulated allowable loads shall not be increased for duration of loading.

5. Calculations demonstrating that the applied loads are less than the allowable loads described in this report shall be submitted to the plan check Engineer at the time of permit application. The calculations shall be prepared by a Civil or Structural Engineer registered in the State of California

6. Fasteners and connected wood members must be in compliance, respectively, with Sections 3.2.2 and 3.2.3 of Report Number 0143

7. Bolt capacity shall be verified where the wood species is other than Douglas Fir Larch (specific gravity of 0.50).

8. Use of fasteners with fire-retardant-treated or preservative- lumber must be in accordance with Section 3.2.3.3 of Evaluation Report Number 0143.

9. Special inspection for seismic resistance shall be conducted in accordance with the Section 1705.12.2 of the 2017 Los Angeles City Building Code.

10. Special inspection for anchor bolts in concrete or masonry shall be conducted in accordance with Sections 1705.3 and 1705.4 of the 2017 Los Angeles City Building Code.

DISCUSSION

The clerical modification is to update the report to the 2017 Los Angeles City Building Code.

The report is in compliance with the 2017 Los Angeles City Building Code.

The approval is based on tests in accordance with ICC ES Acceptance Criteria for Hold-downs (Tie-downs) Attached to Wood Members (AC 155) approved May 2015.

This general approval will remain effective provided the Evaluation Report is maintained valid and unrevised with the issuing organization. Any revision to the report must be submitted to this Department for review with appropriate fee to continue the approval of the revised report.

Addressee to whom this Research Report is issued is responsible for providing copies of it, complete with any attachments indicated, to architects, engineers and builders using items

approved herein in design or construction which must be approved by Department of Building and Safety Engineers and Inspectors.
This general approval of an equivalent alternate to the Code is only valid where an engineer and/or inspector of this Department has determined that all conditions of this Approval have been met in the project in which it is to be used.

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2305.5, 2304.10.3

Attachment: IAPMO ES Report Number 0143 (10 Pages)

Table A: Allowable Loads of HD Series Hold-downs Used as Wall Anchorage Connections in Horizontal Diaphragm-to-Wall Assemblies in the City of Los Angeles per 2011 LABC Chapters 16, 91 & 96

Hold-down Model No.	Fasteners			Minimum Wood Member Thickness (in.) [6]	Allowable Tension Loads for Designs per Chapter 16		Allowable Tension Loads for Designs per Chapter 91 & 96	
	Anchor Bolt Dia (in.)	Wood MBR Bolts			Load (lbs)	Governing Load Case	Load (lbs)	Governing Load Case
		QTY	Dia (in.)					
HD2A	5/8	2	5/8	1.5	1,655	b	1,040	b
				2.5	1,870	b	1,045	b
				3	1,640	b	920	b
				3.5	1,895	b	1,265	b
HD5	3/4	2	3/4	1.5	1,905	b	1,385	b
				2.5	3,145	b	1,575	b
				3	2,260	b	1,330	b
				3.5	3,980	b	2,475	b
				4.5	3,720	b	2,125	b
HD7	1-1/8	3	7/8	3	4,660	a	2,705	b
				3.5	4,660	a	3,915	a
				4.5	4,660	a	3,915	a
				6x4	4,660	a	3,915	a
HD9	1-1/8	3	1	3	5,815	b	3,070	b
				3.5	8,220	b	3,865	b
				4.5	8,390	a	4,835	b
				5.5	8,390	a	7,050	a
HD12	1-1/8	4	1	3.5	7,225	b	3,555	b
				4.5	9,180	b	5,545	b
				5.5	8,610	b	4,130	b
				7.25	6,550	b	3,175	b
				5.5 [7]	10,680	a	5,135	b
HD19 [5]	1-1/8	5	1	7.25	8,595	b	4,315	b
				5.5 [7]	7,405	b	3,785	b
	1-1/4	5	1	7.25	11,135	b	4,865	b
				5.5 [7]	16,270	a	9,925	b

1. For hold-down dimensions, refer to Table 1 of IAPMO ES ER 0143
2. The wood member must be sized for the load carrying capacity.
3. Loads shall not be increased for short-term duration.
4. Anchor bolt type, length, and embedment to specified by designer
5. HD19 requires a standard cut washer, conforming to Section 4.1.1 of IAPMO ES report, to be installed between the anchor bolt nut and the seat of the hold-down when a 1 1/8" diameter anchor bolt is used.
6. Wood structural member(s) shall have a minimum width of 3 1/2 and be a minimum Grade No. 2 with specific gravity of 0.50 to satisfy NDS Appendix E for tension loading, unless otherwise noted
7. Wood structural member(s) shall have a minimum width of 5 1/2 and be a minimum Grade No. 2 with specific gravity of 0.50 to satisfy NDS Appendix E for tension loading, unless otherwise noted
8. Wood structural member(s) shall have a minimum width of 5 1/2 and be a minimum Grade No. 1 with specific gravity of 0.50 to satisfy NDS Appendix E for tension loading, unless otherwise noted

Legend of Governing Criteria
a = avg ultimate load value on steel jig / (3 x 1.4) *[for Chapter 16]* or avg ultimate load value on steel jig / (5) *[for Chapters 91 & 96]*
b = avg deflection on wood assembly at 3/8" / 3 *[for Chapter 16]* or avg deflection on wood assembly at 3/8" / 5 *[for Chapters 91 & 96]*
c = the fastener value in accordance with 2011 LABC

Table B: Allowable Loads of HDB Series Hold-downs Used as Wall Anchorage Connections in Horizontal Diaphragm-to-Wall Assemblies in the City of Los Angeles per 2011 LABC Chapters 16, 91 & 96

Hold-down Model No.	Fasteners			Minimum Wood Member Thickness (in.) [5]	Allowable Tension Loads for Designs per Chapter 16		Allowable Tension Loads for Designs per Chapter 91 & 96	
	Anchor Bolt Dia (in.)	Wood MBR Bolts			Load (lbs)	Governing Load Case	Load (lbs)	Governing Load Case
		QTY	Dia (in.)					
HD3B	5/8	2	5/8	1.5	1,420	b	750	b
				2.5	1,955	b	1,250	b
				3	2,815	a	1,960	c
HD5B	5/8	2	3/4	2.5	3,660	b	2,135	b
				3	3,660	b	2,135	b
				3.5	3,980	b	2,245	b
HD7B	7/8	3	3/4	3	5,620	a	2,955	b
				3.5	5,620	a	2,955	b
HD9B	7/8	3	7/8	3.5	6,045	b	3,680	b
				4.5	5,505	b	2,225	b
				7.25	5,505	b	2,225	b

1. For hold-down dimensions, refer to Table 2 of IAPMO ES ER 0143
2. The wood member must be sized for the load carrying capacity.
3. Loads shall not be increased for short-term duration.
4. Anchor bolt type, length, and embedment to be specified by designer
5. Wood structural member(s) shall have a minimum width of $3\frac{1}{2}$" and be a minimum of No. 2 with specific gravity of 0.50.

Legend of Governing Criteria

a = lowest ultimate load value on steel jig / (3 x 1.4) *[for Chapter 16]* or lowest ultimate load value on steel jig / (5) *[for Chapters 91 & 96]*
b = avg deflection on wood assembly at 3/8" / 3 *[for Chapter 16]* or avg deflection on wood assembly at 3/8" / 5 *[for Chapters 91 & 96]*
c = the fastener value in accordance with 2011 LABC