

ClarkDietrich Holdown

Secure and hold down shearwalls to the structure foundation.

ClarkDietrich holdowns provide cost-effective shearwall attachment and are used to transfer tension loads between floors or from structural members to the foundation. Two-piece welded construction comes in three sizes for optimal performance. Installation is made easy with prepunched holes.

ALTERNATIVE PRODUCTS

EasyClip™ T-Series™ Tall Anchor Clip
Moment Clip

PRODUCT DIMENSIONS

CD8-S, CD8-B: 2-5/8" x 11"

CD10-S, CD10-B: 2-5/8" x 13-1/2"

CD15-S, CD15-B: 2-5/8" x 19"

MATERIAL SPECIFICATIONS

Gauge: 7 gauge (171.3mils) with 1/2" bearing plate

Steel Thickness: 0.1713 inches

Anchor Hole Size:

CD8-S, CD8-B, CD10-S, CD10-B: 7/8" x 1-1/8"

CD15-S, CD15-B: 1" x 1-1/8"

ASTM: A36, A1011

INSTALLATION

Install the holdowns using anchor bolts or alternate anchorage calculated to resist the tension load for your specific application. Use steel nylon locking nuts or thread adhesive to minimize the chance of nut spin. Anchor bolt washer is not required.

For the screwed holdowns, secure the CD holdown to the steel framing member by filling all the prepunched holes with #14 self-tapping screws to achieve listed capacities.

For the bolted holdowns, secure the CD holdown to the steel framing member with 3/4" and 1/2" diameter bolts in the prepunched holes per the design load table to achieve listed capacities. Field drill holes in the framing member as required to accommodate the required bolts.



Screwed Holddown

Bolted Holddown

Boundary members (back-to-back studs) shall be designed by a qualified professional. To tie back-to-back stud members together, the Designer must determine the fasteners required to bind members to act as one unit. CD holdowns can be welded per Designer's recommendation and specification. Welding procedures shall be qualified as specified in AWS D1.3.

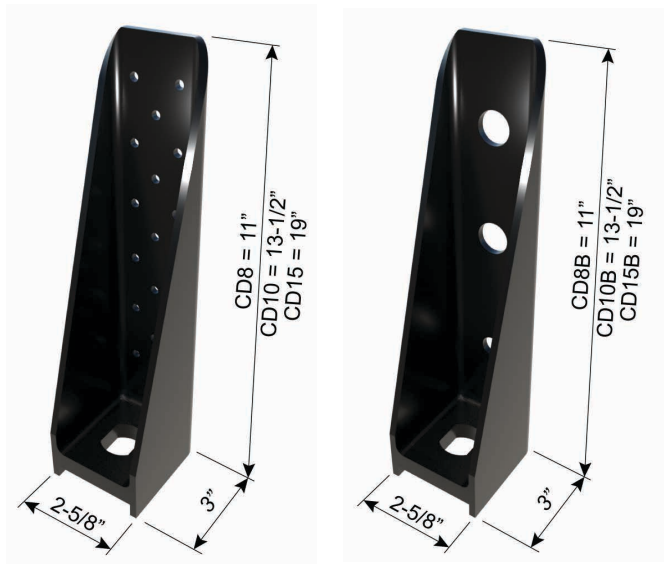
Welded connections used for cold-formed steel structural members in which the thickness of the thinnest connected part is 0.18 inch or less shall comply to AISI S100-2012 specification Section E2.

Reference section R603.9.4.2 of the International Residential Code (IRC) for holdown requirements in residential applications. Consult the engineer of record for commercial applications.

ClarkDietrich Holdowns

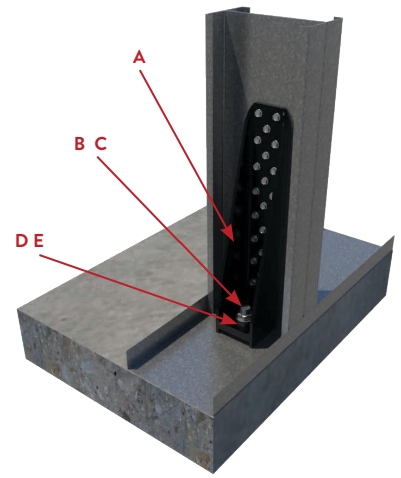
Product code	Thickness		Size (in)	Packaging
	Mils (Gauge)	Design thickness (in)		
CD8-S	171.3mil (7ga)	0.188	2-5/8 x 11	Dependent on Order Quantity
CD10-S	171.3mil (7ga)	0.188	2-5/8 x 13-1/2	
CD15-S	171.3mil (7ga)	0.188	2-5/8 x 19	

Product code	Thickness		Size (in)	Packaging
	Mils (Gauge)	Design thickness (in)		
CD8-B	171.3mil (7ga)	0.188	2-5/8 x 11	Dependent on Order Quantity
CD10-B	171.3mil (7ga)	0.188	2-5/8 x 13-1/2	
CD15-B	171.3mil (7ga)	0.188	2-5/8 x 19	

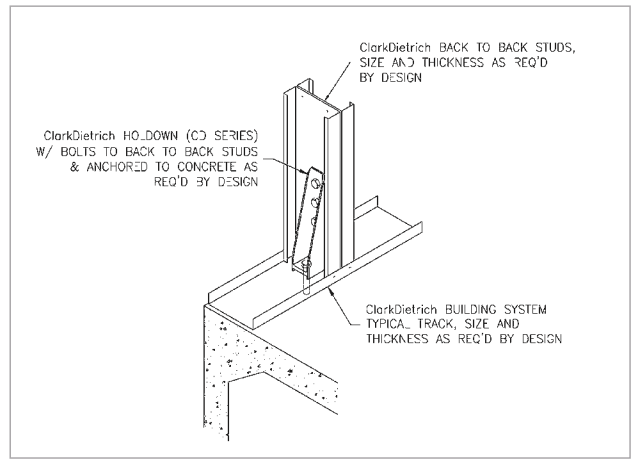
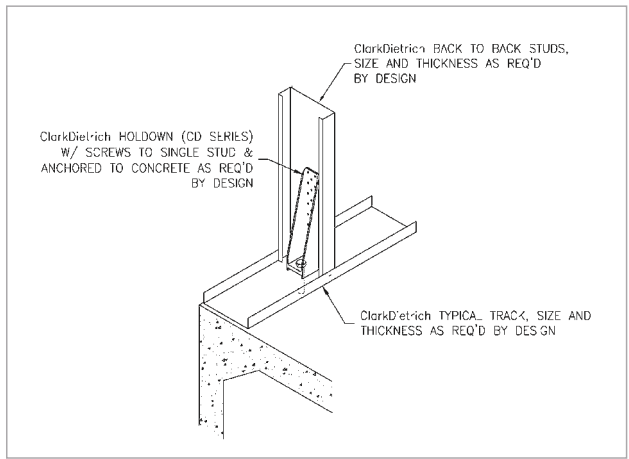


SOURCES OF DEFLECTION AT THE SHEARWALL HOLDOWN CONNECTIONS:

- A** Eccentricity in stud—when a holddown is installed on only one side of the stud, an eccentricity exists during loading that can cause additional movement in the shearwall system.
- B** Nut spin—unrestrained anchor bolt nuts can spin loose during cyclic loading; the use of steel nylon locking nuts or thread adhesive may prevent nut spin.
- C** Lack of nut tightening—additional movement can occur when nuts are not tightened sufficiently.
- D** Deflection of the holddown—deflection can occur in the holddown under load caused by stresses due to earthquake or high wind.
- E** Vertical deflection at the holddown seat caused by stud rotation—lateral displacement at the top of the wall rotates the stud around its base causing the holddown base plate to displace vertically.



TYPICAL CONSTRUCTION DETAILS



Visit our CAD Library at clarkdietrich.com to view or download construction details in .dwg, .dxf, and .pdf formats.

ClarkDietrich Holdown

ClarkDietrich CD8-S, CD10-S, CD15-S Holdowns SINGLE FRAMING MEMBER WITH SCREWS

Product code	Height	Fasteners		Stud member thickness	ASD		LRFD		Nominal tension load (lbs)
		Anchor diameter	Stud fasteners		Tension load (lbs)	Deflection at ASD load (in)	Tension load (lbs)	Deflection at LRFD load (in)	
CD8-S	11"	7/8"	(17) #14 Screws	1-33mil (1-20ga)	1905	0.081	2860	0.107	5720
				1-43mil (1-18ga)	2485	0.057	3730	0.079	7455
				1-54mil (1-16ga)	4505	0.064	6755	0.086	13510
				1-68mil (1-14ga)	5675	0.058	8510	0.079	17020
				1-97mil (1-12ga)	8095	0.051	12140	0.072	24280
CD10-S	13-1/2"	7/8"	(23) #14 Screws	1-33mil (1-20ga)	2325	0.049	3490	0.066	6975
				1-43mil (1-18ga)	3030	0.034	4550	0.052	9095
				1-54mil (1-16ga)	5495	0.038	8245	0.055	16485
				1-68mil (1-14ga)	6920	0.041	10385	0.059	20765
				1-97mil (1-12ga)	9875	0.044	14810	0.062	29620
CD15-S	19"	1"	(32) #14 Screws	1-33mil (1-20ga)	2675	0.025	4015	0.040	8025
				1-43mil (1-18ga)	3485	0.026	5230	0.037	10460
				1-54mil (1-16ga)	6320	0.016	9480	0.030	18955
				1-68mil (1-14ga)	7960	0.025	11940	0.036	23880
				1-97mil (1-12ga)	11355	0.036	17035	0.050	34065

Notes:

- The designer is responsible for design checks for the substrate the Holdown is attached to and the anchorage to the substrate. The capacities listed in the table may exceed those of the substrate and/or the anchorage to the substrate.
- Tabulated loads may exceed ASTM A36 or A307 anchor bolt tension capacities.
- Stud/framing member design by qualified professional. Tabulated loads are based on minimum 1-5/8" wide flanged stud/framing member.
- 1/4" self-drilling screws can be substituted for #14 self-drilling screws.
- Deflection at ASD and LRFD loads includes fastener slip, holdown elongation and anchor bolt elongation.
- Nominal tension load is based on the average ultimate (peak) load from tests. AISI Lateral Design standard requires holdown to have nominal strength to resist lesser of amplified seismic load or what the system can deliver.
- For ASD and LRFD loads, safety factor of 3.0 and resistance factor of 0.50 was applied.

ClarkDietrich CD8-B, CD10-B, CD15-B Holdowns SINGLE FRAMING MEMBER WITH BOLTS

Product code	Height	Fasteners		Stud member thickness	ASD		LRFD		Nominal tension load (lbs)
		Anchor diameter	Stud fasteners		Tension load (lbs)	Deflection at ASD load (in)	Tension load (lbs)	Deflection at LRFD load (in)	
CD8-B	11"	7/8"	(2) 3/4" Dia. Bolts + (1) 1/2" Dia. Bolt	1-33mil (1-20ga)	2015	0.079	2910	0.103	4475
				1-43mil (1-18ga)	2630	0.163	3795	0.211	5835
				1-54mil (1-16ga)	4765	0.141	6875	0.177	10575
				1-68mil (1-14ga)	6000	0.271	8660	0.315	13325
				1-97mil (1-12ga)	8560	0.275	12355	0.317	19005
CD10-B	13-1/2"	7/8"	(3) 3/4" Dia. Bolts + (1) 1/2" Dia. Bolt	1-33mil (1-20ga)	2460	0.142	3550	0.182	5460
				1-43mil (1-18ga)	3205	0.055	4630	0.103	7120
				1-54mil (1-16ga)	5815	0.126	8390	0.171	12905
				1-68mil (1-14ga)	7320	0.148	10565	0.192	16255
				1-97mil (1-12ga)	10445	0.190	15070	0.249	23185
CD15-B	19"	1"	(4) 3/4" Dia. Bolts + (1) 1/2" Dia. Bolt	1-33mil (1-20ga)	2705	0.127	3905	0.153	6005
				1-43mil (1-18ga)	3525	0.074	5090	0.105	7830
				1-54mil (1-16ga)	6395	0.121	9225	0.154	14195
				1-68mil (1-14ga)	8055	0.170	11620	0.198	17880
				1-97mil (1-12ga)	11490	0.196	16580	0.235	25505

Notes:

- The designer is responsible for design checks for the substrate the Holdown is attached to and the anchorage to the substrate. The capacities listed in the table may exceed those of the substrate and/or the anchorage to the substrate.
- Tabulated loads may exceed ASTM A36 or A307 anchor bolt tension capacities.
- Stud/framing member design by qualified professional. Tabulated loads are based on minimum 1-5/8" wide flanged stud/framing member.
- At a minimum, bolts to framing/stud connection shall comply with ASTM A307. Both 3/4-inch diameter and 1/2" diameter bolt shall be used (as listed in the design table) to achieve tabulated capacities.
- Deflection at ASD and LRFD loads includes fastener slip, holdown elongation and anchor bolt elongation.
- Nominal tension load is based on the average ultimate (peak) load from tests. AISI Lateral Design standard requires holdown to have nominal strength to resist lesser of amplified seismic load or what the system can deliver.
- For ASD and LRFD loads, safety factor of 2.22 and resistance factor of 0.65 was applied.

ClarkDietrich CD8-S, CD10-S, CD15-S Holdowns

BACK-TO-BACK FRAMING MEMBER WITH SCREWS

Product code	Height	Fasteners		Stud member thickness	ASD		LRFD		Nominal tension load (lbs)
		Anchor diameter	Stud fasteners		Tension load (lbs)	Deflection at ASD load (in)	Tension load (lbs)	Deflection at LRFD load (in)	
CD8-S	11"	7/8"	(17) #14 Screws	2-33mil (2-20ga)	6962	0.08	11139	0.119	20885
				2-43mil (2-18ga)	8164	0.07	13062	0.124	24492
				2-54mil (2-16ga)	11253	0.083	18005	0.126	33759
				2-68mil (2-14ga)	12240	0.095	19585	0.135	36721
				2-97mil (2-12ga)	12240	0.095	19585	0.135	36721
CD10-S	13-1/2"	7/8"	(23) #14 Screws	2-33mil (2-20ga)	7293	0.12	11669	0.16	21880
				2-43mil (2-18ga)	9314	0.068	14902	0.106	27941
				2-54mil (2-16ga)	12502	0.083	20004	0.125	37507
				2-68mil (2-14ga)	12899	0.083	20638	0.127	38697
				2-97mil (2-12ga)	12899	0.083	20638	0.127	38697
CD15-S	19"	1"	(32) #14 Screws	2-33mil (2-20ga)	7610	0.098	12177	0.125	22831
				2-43mil (2-18ga)	9235	0.067	14776	0.104	27705
				2-54mil (2-16ga)	13532	0.088	21650	0.128	40595
				2-68mil (2-14ga)	13695	0.063	21911	0.096	41084
				2-97mil (2-12ga)	13695	0.063	21911	0.096	41084

Notes:

- The designer is responsible for design checks for the substrate the Holdown is attached to and the anchorage to the substrate. The capacities listed in the table may exceed those of the substrate and/or the anchorage to the substrate.
- Tabulated loads may exceed ASTM A36 or A307 anchor bolt tension capacities.
- Stud/framing member design by qualified professional. Tabulated loads are based on minimum 1-5/8" wide flanged stud/framing member.
- 1/4" self-drilling screws can be substituted for #14 self-drilling screws.
- Deflection at ASD and LRFD loads includes fastener slip, holdown elongation and anchor bolt elongation.
- Nominal tension load is based on the average ultimate (peak) load from tests. AISI Lateral Design standard requires holdown to have nominal strength to resist lesser of amplified seismic load or what the system can deliver.
- For ASD and LRFD loads, safety factor of 3.0 and resistance factor of 0.50 was applied.

ClarkDietrich CD8-B, CD10-B, CD15-B Holdowns

BACK-TO-BACK FRAMING MEMBER WITH BOLTS

Product code	Height	Fasteners		Stud member thickness	ASD		LRFD		Nominal tension load (lbs)
		Anchor diameter	Stud fasteners		Tension load (lbs)	Deflection at ASD load (in)	Tension load (lbs)	Deflection at LRFD load (in)	
CD8-B	11"	7/8"	(2) 3/4" Dia. Bolts + (1) 1/2" Dia. Bolt	2-33mil (2-20ga)	4030	0.206	5820	0.243	8950
				2-43mil (2-18ga)	5255	0.149	7585	0.192	11670
				2-54mil (2-16ga)	9530	0.182	13750	0.240	21155
				2-68mil (2-14ga)	12005	0.268	17325	0.333	26650
				2-97mil (2-12ga)	13650	0.286	19700	0.368	30305
CD10-B	13-1/2"	7/8"	(3) 3/4" Dia. Bolts + (1) 1/2" Dia. Bolt	2-33mil (2-20ga)	4920	0.222	7100	0.274	10920
				2-43mil (2-18ga)	6410	0.264	9255	0.314	14235
				2-54mil (2-16ga)	11625	0.260	16775	0.313	25810
				2-68mil (2-14ga)	14645	0.201	21130	0.258	32510
				2-97mil (2-12ga)	15045	0.205	21715	0.263	33405
CD15-B	19"	1"	(4) 3/4" Dia. Bolts + (1) 1/2" Dia. Bolt	2-33mil (2-20ga)	5410	0.166	7810	0.193	12015
				2-43mil (2-18ga)	7055	0.202	10180	0.235	15660
				2-54mil (2-16ga)	12790	0.175	18455	0.228	28390
				2-68mil (2-14ga)	16110	0.208	23245	0.270	35760
				2-97mil (2-12ga)	17685	0.222	25520	0.290	39265

Notes:

- The designer is responsible for design checks for the substrate the Holdown is attached to and the anchorage to the substrate. The capacities listed in the table may exceed those of the substrate and/or the anchorage to the substrate.
- Tabulated loads may exceed ASTM A36 or A307 anchor bolt tension capacities.
- Stud/framing member design by qualified professional. Tabulated loads are based on minimum 1-5/8" wide flanged stud/framing member and the minimum stud thickness for fastener connection.
- At a minimum, bolts to framing/stud connection shall comply with ASTM A307. Both 3/4-inch diameter and 1/2" diameter bolt shall be used (as listed in the design table) to achieve tabulated capacities.
- Deflection at ASD and LRFD loads includes fastener slip, holdown elongation and anchor bolt elongation.
- Nominal tension load is based on the average ultimate (peak) load from tests. AISI Lateral Design standard requires holdown to have nominal strength to resist lesser of amplified seismic load or what the system can deliver.
- For ASD and LRFD loads, safety factor of 2.22 and resistance factor of 0.65 was applied.