

ICC-ES Evaluation Report

ESR-1166P

Reissued August 2017

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A Subsidiary of the International Code Council®

DIVISION: 05 00 00—METALS

Section: 05 40 00—Cold-Formed Metal Framing

Section: 05 41 00—Structural Metal Stud Framing

Section: 05 42 00—Cold-Formed Metal Joist Framing

DIVISION: 09 00 00—FINISHES

Section: 09 22 16.13—Non-Structural Metal Stud Framing

REPORT HOLDER:

CLARKDIETRICH® BUILDING SYSTEMS
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EVALUATION SUBJECT:

CLARKDIETRICH® C-SECTIONS AND TRACKS

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2015, 2012 and 2009 *International Building Code®* (IBC)
- 2015, 2012 and 2009 *International Residential Code®* (IRC)

Property evaluated:

Structural

2.0 USES

The C-sections and tracks are used for joists, rafters, nonload-bearing interior walls, curtain walls, and load-bearing walls.

3.0 DESCRIPTION

3.1 General:

The C-sections and tracks recognized in this report are factory-formed from coils of steel at the ClarkDietrich® Metal Framing facilities noted in Table 2.

The C-sections are manufactured with and without web punch-outs. When provided, the punch-outs have a width of 1½ inches (38 mm) and a length of 4 inches (102 mm) in members with a depth of 3½ inches

(89 mm) or greater. In C-sections with a depth of 2½ inches (64 mm), punch-outs have a width of ¾ inch (19 mm) and a length of 4 inches (102 mm). The punch-outs are spaced a minimum of 24 inches (610 mm) on center and have a minimum distance between the end of the member and the near edge of the punch-out of 10 inches (254 mm).

The C-sections and tracks are detailed in the ClarkDietrich® Building Systems catalog entitled "Cold-Formed Structural Framing Products Technical Design Guide," copyrighted June 2017, which is distributed with this report. The following tables from the catalog are part of this report:

Product Information

How to identify our productspage 3

Wall Stud & Floor Joist Section

Stud/Track Propertiespages 5, 7-16

Note: "GREEN Benefits and Recycled Content" (page 5) is outside the scope of this report.

Allowable Stud & Track Shear Values.....pages 17

Interior Light-Gauge Limiting Wall

Heights.....pages 18-25

Exterior Light-Gauge Limiting Wall

Heights.....pages 26-38

Note: Exterior walls must be designed for a transverse load of no less than 10 psf (478 Pa).

Combined Axial and Lateral Load Tables for Exterior Wall Studs.....pages 39-54

Note: Exterior walls must be designed for a transverse load of no less than 10 psf (478 Pa).

Allowable Unbraced Axial Loadspages 55-59

Floor Joist Span Tablespages 66-91

Note: Figures on page 67 are outside the scope of this report.

Allowable Web Crippling Loadspages 92-95

All other pages in the "Cold-Formed Structural Framing Products Technical Design Guide" catalog are outside the scope of this report.

The inside bend radius of all members is based on thickness and is as follows:

MILS	DESIGN THICKNESS (in)	INSIDE BEND RADIUS (in)
33	0.0346	0.076
43	0.0451	0.071
54	0.0566	0.085
68	0.0713	0.107
97	0.1017	0.152

3.2 Materials:

The ClarkDietrich® metal framing members recognized in this report are cold-formed from galvanized steel coils conforming to ASTM A1003-15 Structural Grade 50 Type H (ST50H), ASTM A1003-15 Structural Grade 33 Type H (ST33H), ASTM A653 SS Grade 50 Class I or ASTM A653 SS Grade 33. The steel conforming to ST50H and ST33H has a minimum metallic coating of G60 (ASTM A653), A60 (ASTM A653), AZ50 (ASTM A792), GF30 (ASTM A875), T1-25 (ASTM A463), T2-100 (ASTM A463), 30Z/30Z (ASTM A879), or ZM20 (ASTM A1046). Steel conforming to ASTM A653 SS Grade 50 Class 1 has a minimum metallic coating designation of G60 or A60. The steel conforming to ASTM A653 SS Grade 33 may have either a minimum metallic coating designation of G60 or A60 or a minimum metallic coating designation of G40.

4.0 DESIGN AND INSTALLATION

4.1 Design:

The section properties for the cold-formed steel framing members recognized in this report have been determined in accordance with the applicable edition of the North American Specification for Design of Cold-Formed Steel Structural Members (AISI). The allowable moments, as indicated in this report, are for use with Allowable Strength Design (ASD), and are for flexural members with the compression flange continuously braced. For other conditions of compression flange bracing, the allowable moment must be determined in accordance with the AISI. The design of flexural members must address combined bending and web crippling, and combined bending and shear, as applicable in accordance with AISI.

The C-sections listed in Table 1 of this report qualify for use with the prescriptive requirements of the IRC. Track (channel) sections with a flange width of 1.250 inches (31.75 mm) or greater qualify for use with the prescriptive requirements of the IRC. For use of all other sections under the IRC, the cold-formed steel framing members must be limited to engineered structures, in accordance with IRC Section R301.1.3.

4.2 Installation:

The framing members must be installed in accordance with the code, the approved plans and this report. If there is a

conflict between the plans submitted for approval and this report, this report governs. The approved plans must be available at the jobsite at all times during installation.

5.0 CONDITIONS OF USE

The ClarkDietrich® C-sections and tracks 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 cold-formed steel members are installed in accordance with the applicable code, the approved plans and this report.
- 5.2** Minimum uncoated steel thickness of the cold-formed steel members as delivered to the jobsite must be at least 95 percent of the design base-metal thickness. (See page 3 of the ClarkDietrich® Cold-Formed Structural Framing Products Technical Design Guide.)
- 5.3** Complete plans and calculations verifying compliance with this report must be submitted to the code official for each project at the time of permit application. The calculations and drawings must be prepared and sealed by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.
- 5.4** Framing members having a minimum metallic coating designation of G40 must be limited to use as nonload-bearing interior wall framing subject to a maximum transverse load of 10 psf (478 Pa).
- 5.5** Framing members with a height-to-thickness (h/t) ratio of more than 200 must be provided with web stiffeners in accordance with Sections B1.2 and C3.6.1 of AISI. Holes or punch-outs in the web for members with a h/t ratio of more than 200 are outside the scope of this report.
- 5.6** For all applications under the IRC, a G60 galvanization coating designation is required.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Cold-formed Steel Framing Members (AC46), dated June 2012 (editorially revised April 2015).

7.0 IDENTIFICATION

At a spacing not exceeding 96 inches (2438 mm) on center, each cold-formed steel member is stamped with the ClarkDietrich® name or initials; the section name; the evaluation report number (ICC-ES ESR-1166P); the minimum uncoated base-metal thickness in mils or decimal inches; the minimum specified yield strength; and the metallic coating designation CP60 (if G60, A60, AZ50, or GF30 or greater) or G40 (if interior nonload-bearing wall framing).

TABLE 1—C-SECTIONS (STUDS) FOR USE WITH THE IRC

IRC MEMBER DESIGNATION	EQUIVALENT DIETRICH MEMBER DESIGNATION				
	t = 33	t = 43	t = 54	t = 68	t = 97
800S162-t	800S162-33	800S162-43	800S162-54	800S162-68	800S162-97
	800S200-33	800S200-43	800S200-54	800S200-68	800S200-97
1000S162-t	---	1000S162-43	800S162-54	800S162-68	800S162-97
	---	1000S200-43	1000S200-54	1000S200-68	1000S200-97
1200S162-t	---	---	1200S162-54	1200S162-68	1200S162-97
	---	---	1200S200-54	1200S200-68	1200S200-97

TABLE 2—MANUFACTURING LOCATIONS

ClarkDietrich® Metal Framing – Hawaii 91-300 Hanua Street Kapolei, Hawaii 96707 (808) 682-5747	ClarkDietrich® Metal Framing – Riverside 6510 General Drive Riverside, California 92509 (951) 360-3500	ClarkDietrich® Metal Framing – Woodland 1685 Tide Court Woodland, California 95776 (530) 668-1987
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ICC-ES Evaluation Report

ESR-1166P CBC and CRC Supplement

Reissued August 2017

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EVALUATION SUBJECT:

CLARKDIETRICH® C-SECTIONS AND TRACKS

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that the ClarkDietrich® C-Sections and Tracks, recognized in ICC-ES master report ESR-1166P, have also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2016 *California Building Code* (CBC)
- 2016 *California Residential Code* (CRC)

2.0 CONCLUSIONS

2.1 CBC:

The ClarkDietrich® C-Sections and Tracks, described in Sections 2.0 through 7.0 of the master evaluation report ESR-1166P, comply with CBC Chapters 22 and 22A, provided the design and installation are in accordance with the 2015 *International Building Code*® provisions noted in the master report and the additional requirements of CBC Chapters 16, 16A, 17, 17A, 22, and 22A, as applicable.

2.2 CRC:

The ClarkDietrich® C-Sections and Tracks, described in Sections 2.0 through 7.0 of the master evaluation report ESR-1166P, comply with CRC Chapters 5, 6 and 8, provided the design and installation are in accordance with the 2015 *International Residential Code*® provisions noted in the master report.

This supplement expires concurrently with the master report, reissued August 2017.