

ICC-ES Evaluation Report

ESR-1166P

Reissued August 1, 2011

This report is subject to renewal in two years.

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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 Joists Framing
DIVISION: 09 00 00—FINISHES
Section: 09 22 16.13—Non-Structural Metal Stud Framing
REPORT HOLDER:
CLARKDIETRICH™ BUILDING SYSTEMS
 9100 CENTRE POINTE DRIVE, SUITE 210
 WEST CHESTER, OHIO 45069
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EVALUATION SUBJECT:
**CLARKDIETRICH™ HEAVY DUTY STUD (HDS®),
C-SECTIONS, AND TRACKS**
1.0 EVALUATION SCOPE
Compliance with the following codes:

- 2006 *International Building Code*® (IBC)
- 2006 *International Residential Code*® (IRC)

Property evaluated:

Structural

2.0 USES

The HDS®, 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 HDS®, 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 HDS® and 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 HDS®, C-sections, and tracks are detailed in the Dietrich Industries catalogue entitled “Cold-Formed Structural Framing Products Technical Guide,” copyrighted 2009, which is distributed with this report. The following tables from the catalogue are part of this report:

Notes page 6

Wall Stud & Floor Joist Section

Propertiespages 10–17

Track (Runner) Section Propertiespages 18–25

Web Crippling and Shear Valuespages 26–31

Exterior Light-Gauge Limiting Wall

Heights.....pages 32–41

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 42–51

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

Unbraced Axial Load Tables.....pages 52–55

Heavy Duty Studs (HDS®) Section

Propertiespages 60–61

HDS® Limiting Wall Heightspages 62–63

Note: HDS® limiting wall heights for 5 psf (239 Pa) transverse loads are applicable to interior walls only. Limiting heights for 15 psf (717 Pa) and greater are applicable to exterior walls only.

HDS® Combined Axial & Lateral Load

Tablespages 64–67

Note: Axial load tables for 5 psf (239 Pa) lateral loads are limited to interior wall applications. Axial load tables for 15 psf (717 Pa) lateral loads and greater are limited to exterior wall applications.

Floor Joist Span Tablespages 68–87

All other pages in the “Cold-Formed Structural Framing Products Technical Guide” catalogue 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	0.052
43	0.0451	0.068
54	0.0566	0.085
68	0.0713	0.107
97	0.1017	0.125

3.2 Materials:

The ClarkDietrich™ metal framing members recognized in this report are cold-formed from galvanized steel coils conforming to ASTM A 1003 Structural Grade 50 Type H (ST50H), ASTM A 1003 Structural Grade 33 Type H (ST33H), ASTM A 653 SS Grade 50 Class I or ASTM A 653 SS Grade 33. The steel conforming to ST50H and ST33H has a minimum metallic coating of G60 (ASTM A 653), A60 (ASTM A 653), AZ50 (ASTM A 792), or GF30 (ASTM A 875). Steel conforming to ASTM A 653 SS Grade 50 Class 1 has a minimum metallic coating designation of G60 or A60. The steel conforming to ASTM A 653 SS Grade 33 may have either a minimum metallic coating designation of G60 or A60 or a minimum metallic coating designation of G40. Framing members with a minimum metallic coating designation of G40 are limited to use in interior nonload-bearing walls subject to a maximum 5 psf (239 Pa) transverse load.

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 2001 North American Specification for Design of Cold-Formed Steel Structural Members, including the 2004 Supplement (AISI-NAS). The allowable moments, M_a , 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-NAS. The design of flexural members must address combined bending and web crippling, and combined bending and shear, as applicable in accordance with AISI-NAS.

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™ HDS®, 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 6 of the Dietrich Cold-Formed Structural Framing Products Technical 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 5 psf (239 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-NAS. No holes or punch-outs are permitted in the web.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Cold-formed Steel Framing Members (AC46), dated February 2011.

7.0 IDENTIFICATION

At a spacing not exceeding 48 inches (1219 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 (if G60, A60, AZ50, or GF30 or greater).

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	8" CSJ-33	8" CSJ-43	8" CSJ-54	8" CSJ-68	8" CSJ-97
	8" CSW-33	8" CSW-43	8" CSW-54	8" CSW-68	8" CSW-97
1000S162-t	---	10" CSJ-43	10" CSJ-54	10" CSJ-68	10" CSJ-97
	---	10" CSW-43	10" CSW-54	10" CSW-68	10" CSW-97
1200S162-t	---	---	12" CSJ-54	12" CSJ-68	12" CSJ-97
	---	---	12" CSW-54	12" CSW-68	12" CSW-97

TABLE 2—MANUFACTURING LOCATIONS

ClarkDietrich™ Metal Framing – Baltimore 4601 North Point Blvd Baltimore, Maryland 21219 (410) 477-4000	ClarkDietrich™ Metal Framing – Hawaii 91-300 Hanua Street Kapolei, Hawaii 96707 (808) 682-5747	ClarkDietrich™ Metal Framing – Rochelle 501 Stewart Road Rochelle, Illinois 61068 (800) 659-0745
ClarkDietrich™ Metal Framing – Baytown 4200 Cedar Blvd. Baytown, Texas 77520 (281) 383-1617	ClarkDietrich™ Metal Framing – Lenexa 15546 West 108 th Street Lenexa, Kansas 66219 (913) 599-2026	ClarkDietrich™ Metal Framing – Warren West 1300 Phoenix Road Warren, Ohio 44483 (330) 372-4014
ClarkDietrich™ Metal Framing – Bristol 780 James P. Casey Road Bristol, Connecticut 06010 (866) 921-0023	ClarkDietrich™ Metal Framing – McDonough 330 Greenwood Place McDonough, Georgia 30253 (678) 304-5500	ClarkDietrich™ Metal Framing – Warren East 1985 North River Road Warren, Ohio 44483 (330) 372-5564
ClarkDietrich™ Metal Framing – Dade City 38020 Pulp Drive Dade City, Florida 33523 (352) 518-4400	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
ClarkDietrich™ Metal Framing – Dallas 10340 Denton Drive Dallas, Texas 75220 (214) 350-1716		

ICC-ES Evaluation Report**ESR-1166P Supplement**

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Structural

2.0 PURPOSE OF THIS SUPPLEMENT

This supplement is issued to indicate that the ClarkDietrich™ Heavy Duty Stud (HDS®), C-Sections, and Tracks described in the master report ESR-1166P comply with CBC Chapters 16, 16A, 17, 17A, 22, and 22A, when design and installation are in accordance with the IBC (*International Building Code*®) provisions described in the master evaluation report and with Chapters 16, 16A, 17, 17A, 22, and 22A of the CBC.

The products recognized in this supplement have not been evaluated for compliance with the laws, rules, and regulations prescribed in Section 108.3.2 of the CBC.

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