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ICC-ES Report

ESR-3064P

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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:

STEEL STUD MANUFACTURERS ASSOCIATION (SSMA)

**35 EAST WACKER DRIVE, SUITE 850
CHICAGO, ILLINOIS 60601-2106**

EVALUATION SUBJECT:

SSMA COLD-FORMED STEEL FRAMING



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EVALUATION SUBJECT:

SSMA COLD-FORMED STEEL FRAMING

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www.customstud.com

SCAFCO CORPORATION

2800 EAST MAIN AVENUE

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(509) 343-9000

www.scafco.com

STEEL CONSTRUCTION SYSTEMS

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ORLANDO, FLORIDA 32837

(407) 438-1664

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UNITED METAL PRODUCTS, INC.

234 NORTH SHERMAN AVENUE

CORONA, CALIFORNIA 92882

(951) 739-9535

www.unitedmetalproducts.info

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 Steel Stud Manufacturers Association (SSMA) cold-formed steel framing members are used for framing of nonload-bearing interior walls, curtain walls, and load-bearing walls, floors and roofs.

3.0 DESCRIPTION

3.1 General:

The SSMA cold-formed steel framing members described in this report are factory-formed from coils of steel at the facilities listed in Table 2. The cold-formed framing members include C-shapes (S-sections), tracks (T-sections), U-channels (U-sections) and hat furring channels (F-sections). The S-sections are manufactured with and without web punch-outs. All other framing members (T-sections, U-Sections, and F-sections) are manufactured without punch-outs. When provided, the punch-outs have a width of 1½ inches (38 mm) and a length of 4 inches (102 mm) in S-sections with a depth of 3½ inches (89 mm) or greater. In S-sections with a depth between 1⅝ inches (41 mm) and 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 SSMA S-sections, T-sections, U-sections, and F-sections are detailed in SSMA's catalogue titled "Product Technical Guide," copyrighted 2015, effective August 14,

2015, which is distributed with this report. The following tables, figures, and pages from the catalogue are part of this report:

Material Specification Page 4

General Product Information Page 5

Note: In Note #9, replace “must be approved by a design professional” with “are outside the scope of this report.”

Definitions of Structural Property Symbols Page 6

Section Properties (S-Sections) Pages 7–14

Note: Holes in the web of members with a web height-to-thickness ratio in excess of 200 are outside the scope of this report.

Members with a web height-to-thickness ratio in excess of 260 or a flange width-to-thickness ratio in excess of 60 are outside the scope of this report.

Section Properties (T-Sections) Pages 15–18

Members with a web height-to-thickness ratio in excess of 260 or a flange width-to-thickness ratio in excess of 60 are outside the scope of this report.

Interior Nonload-Bearing Wall Heights – Composite

Tables - Composite Pages 19–20

Additional notes applicable to pages 19 and 20:

- Gypsum wallboard must be a minimum of $\frac{5}{8}$ inch (15.9 mm) thick and Type X, complying with ASTM C1396 and manufactured by American Gypsum, CertainTeed, Georgia Pacific, Lafarge, National Gypsum, Temple-Inland, or USG.
- Fasteners for attaching the gypsum wallboard to the studs and tracks must be No. 6, Type S, fine thread drywall bugle head screws conforming to ASTM C1002.
- Installation of the gypsum wallboard must be in accordance with GA-216 or ASTM C840.
- Each gypsum wallboard panel must be attached to the top and bottom track with a minimum of 3 fasteners spaced a maximum of 16 inches (406 mm) on center.

Interior Wall Limiting Heights – Non-Composite – Fully Braced Span Tables Pages 21–22

Interior Wall Limiting Heights – Braced at 48" o.c. Span Tables Pages 23–24

Curtain Wall Limiting Heights – Single Span Pages 25–27

Curtain Wall Limiting Heights-Double Span Pages 28–30

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

Combined Axial and Lateral Loads Pages 31–41

Floor Joist Spans Pages 42–55

Header Loads Pages 56–57

Web Crippling Load Tables Pages 58–60

Note: Values for which the bearing length to web height ratio (N/h) exceeds 1 or bearing length to thickness ratio (N/t) exceeds 210 are outside the scope of this report.

Ceiling/Soffit Spans (S-Sections) Pages 61–67

Section Properties & Ceiling Spans (F-Sections) Page 68

Section Properties & Ceiling Spans (U-Sections) Page 69

All other items and pages in the “Product Technical Guide” are outside the scope of this report.

3.2 Material:

The SSMA metal framing members are cold-formed from steel coils conforming to ASTM A1003 Structural Grade 50 Type H (ST50H); ASTM A1003 Structural Grade 33 Type H (ST33H); ASTM A653 SS Grade 33; ASTM A653 SS Grade 50 Class 1; or ASTM A1003 Nonstructural Grade 33 (NS33).

The steel conforming to ASTM A653 must have a minimum metallic coating designation of G60 or A60 in accordance with ASTM A653 for applications other than interior nonload-bearing walls. The steel conforming to ASTM A653 may have a minimum metallic coating designation of G40 or A40 in accordance with ASTM A653 for interior nonload-bearing wall applications.

The steel conforming to ASTM A1003 ST50H or ST33H must have a minimum metallic coating designation of G60, A60, AZ50, GF30, T1-25, or T2-100 in accordance with ASTM A1003.

The steel conforming to ASTM A1003 NS33 must have a minimum metallic coating designation of G40, A40, AZ50, GF30, T1-25, or T2-100 in accordance with ASTM A1003.

4.0 DESIGN AND INSTALLATION

4.1 Design:

4.1.1 IBC Method: 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 S100). The moments listed in this report are allowable moments and are used with Allowable Strength Design (ASD) for flexural members with the compression flange fully braced. For other conditions of compression flange bracing, the allowable moment must be determined in accordance with the applicable edition of AISI S100. The design of flexural members must address combined bending and web crippling, and combined bending and shear, as applicable in accordance with the applicable edition of AISI S100.

4.1.2 IRC Method: The S-sections listed in Table 1 of this report qualify for use with prescriptive requirements of the IRC. T-sections with 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.

When the framing members are used to construct buildings that do not conform to the applicable requirements of IRC Sections R505.1, R603.1 or R804.1.1, and for framing members not identified in Table 1 of this report, the structural analysis and design must be in accordance with the IBC, as described in Section 4.1.1 of this report.

4.2 Installation:

The framing members must be installed in accordance with the applicable 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 SSMA metal framing members 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 must be installed in accordance with the applicable code, the approved plans and this report.
- 5.2 Minimum uncoated base-metal thickness of the cold-formed steel members as delivered to the jobsite must be at least 95 percent of the design base-metal thickness.
- 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 cold-formed from NS33 steel are limited to use in interior nonload-bearing walls subject to a maximum 10 psf (478 Pa) transverse load. Framing members without the steel classification designated must be considered NS33 steel (see Section 7.0).
- 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 C3.2.2 of AISI S100 and holes or punch-outs in the web are outside the scope of this report.
- 5.6 The interior nonload-bearing wall assemblies are limited to interior installation where the superimposed axial load is zero pounds.

- 5.7 Design of the attachment of the interior nonload-bearing wall assemblies to the surrounding structure is outside the scope of this report.

6.0 EVIDENCE SUBMITTED

- 6.1 Data in accordance with the ICC-ES Acceptance Criteria for Cold-formed Steel Framing Members (AC46), dated June 2012 (editorially revised April 2015).
- 6.2 Data in accordance with the ICC-ES Acceptance Criteria for Cold-formed Steel Framing Members—Interior Nonload-bearing Wall Assemblies (AC86), dated May 2012 (editorially revised August 2015).

7.0 IDENTIFICATION

At a spacing not exceeding 96 inches (2440 mm) on center, each cold-formed steel member is stamped, stenciled or embossed with the company name or initials (see the listees at the beginning of this report); the acronym "ICC-ES"; the evaluation report number (ESR-3064P); and the minimum uncoated base-metal thickness in mils or decimal inches. For structural applications, the minimum yield strength and the protective coating designation (CP 60 or CP 90 as defined by AISI S200-12 or ASTM C955) are included. For nonstructural applications, the minimum specified yield strength if over 33 ksi (230 MPa); the metallic coating type and weight if other than ASTM A653 G40; and the designation "NS" are included.

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

IRC MEMBER DESIGNATION	EQUIVALENT SSMA MEMBER DESIGNATION				
	t = 33	t = 43	t = 54	t = 68	t = 97
350S162-t	350S162-33	350S162-43	350S162-54	350S162-68	---
	350S200-33	350S200-43	350S200-54	350S200-68	---
550S162-t	550S162-33	550S162-43	550S162-54	550S162-68	550S162-97
	550S200-33	550S200-43	550S200-54	550S200-68	550S200-97
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	1000S162-54	1000S162-68	1000S162-97
	---	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

Consolidated Fabricators, Corp. – Fontana Fontana, CA 92335	SCAFCO Corporation – Stockton Stockton, CA 95206
Consolidated Fabricators, Corp. – Galt Galt, CA 95632	Steel Construction Systems – Orlando Orlando, FL 32837
Custom Stud, Inc. Lakeville, MN 55044	United Metal Products, Inc. – Corona Corona, CA 92882
Custom Stud, Inc. Montgomery, AL 36108	United Metal Products, Inc. – Phoenix Phoenix, AZ 85043
SCAFCO Corporation – Spokane Spokane, WA 99202	

ICC-ES Evaluation Report

ESR-3064P CBC and CRC Supplement

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EVALUATION SUBJECT:

SSMA COLD-FORMED STEEL FRAMING

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that SSMA Cold-Formed Steel Framing, recognized in ICC-ES master report ESR-3064P, has also been evaluated for compliance with Chapters 16, 16A, 17, 17A, 22, and 22A of the codes noted below.

Applicable code editions:

- 2010 *California Building Code* (CBC)
- 2010 *California Residential Code* (CRC)

2.0 CONCLUSIONS

2.1 CBC:

The SSMA Cold-Formed Steel Framing, described in Sections 2.0 through 7.0 of the master evaluation report ESR-3064P, complies with CBC Chapters 16, 16A, 17, 17A, 22, and 22A, provided the design and installation are in accordance with the *International Building Code*® (IBC) 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 SSMA Cold-Formed Steel Framing, described in Sections 2.0 through 7.0 of the master evaluation report ESR-3064P, complies with CRC Chapters 5, 6 and 8, provided the design and installation are in accordance with the *International Residential Code*® (IRC) provisions noted in the master report.

This supplement expires concurrently with the master report, reissued February 2017 and revised March 2017.

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SSMA COLD-FORMED STEEL FRAMING

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that SSMA Cold-Formed Steel Framing, recognized in ICC-ES master report ESR-3064P, has also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2014 *Florida Building Code—Building*
- 2014 *Florida Building Code—Residential*

2.0 CONCLUSIONS

The SSMA Cold-Formed Steel Framing, described in Sections 2.0 through 7.0 of the master evaluation report ESR-3064P, complies with the 2014 *Florida Building Code—Building* and the 2014 *Florida Building Code—Residential*, provided the design and installation are in accordance with the *International Building Code*® (IBC) provisions noted in the master report.

Use of the SSMA Cold-formed Steel Framing has also been found to be in compliance with the High-Velocity Hurricane Zone provisions of the 2014 *Florida Building Code—Building* and the 2014 *Florida Building Code—Residential*.

Exception 1: On pages 7 through 18, of the SSMA Product Technical Guide (Attached to ESR-3064P), members noted with Footnote 2 include cold work of forming in the allowable moment and have not been evaluated for compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building* and the *Florida Building Code—Residential*.

Exception 2: Members with a base metal thickness of less than 0.0296 inch (0.752 mm) and a coating less than G90 have not been evaluated for compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building* and the *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).

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