

ICC-ES Evaluation Report

ESR-5056

Reissued November 2023


This report also contains:

- CBC/CRC Supplement

Subject to renewal November 2024

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<p>DIVISION: 05 00 00 — METALS</p> <p>Section: 05 50 00 — Metal Fabrications</p> <p>DIVISION: 06 00 00 — WOOD, PLASTICS, AND COMPOSITES</p> <p>Section: 06 09 00 — Wood, Plastic, and Composite Fastenings</p>	<p>REPORT HOLDER: HDG</p>	<p>EVALUATION SUBJECT: HDG DECK BRACKET SYSTEM:</p> <ul style="list-style-type: none"> - H1-GQ QUEEN BRICK DECK LEDGER SUPPORT BRACKET - H1-GQS QUEEN SPLICE BRACKET - H2-GCL/GCR DECK CORNER LEDGER SUPPORT BRACKET WITH GUSSET PLATE (LEFT AND RIGHT) 	
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1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2021, 2018 and 2015 [International Building Code® \(IBC\)](#)
- 2021, 2018 and 2015 [International Residential Code \(IRC\)](#)

Properties evaluated:

- Structural

2.0 USES

The HDG Deck Bracket System components are used as wood framing connectors in accordance with Section 2304.10.4 of the 2021 IBC (Section 2304.10.3 of the 2018 and 2015 IBC). The products may also be used in structures regulated under the IRC when an engineered design is submitted in accordance with Section R301.1.3 of the IRC.

3.0 DESCRIPTION

3.1 General: The brackets are manufactured from either 12 gauge (0.098 inch; 2.5 mm) ASTM A240 316 stainless steel or 12 gauge (0.098 inch; 2.5 mm) carbon steel with the minimum material properties specified in the approved quality documentation. The carbon steel brackets have either a Grade 65 galvanized coating thickness in accordance with ASTM A123 or a Type G185 galvanized coating in accordance with ASTM A653; the coating thicknesses comply with Section R507.2.3 of the 2021 and 2018 IRC. When installed on 2x10 or 2x12 nominal sawn lumber, the fastener (bolt) locations on each of the brackets accommodate a minimum end distance of 2.5 inches (6.4 mm) and minimum edge distance of 2.5 inches (6.4 mm).

3.2 H1-GQ Queen Brick Deck Ledger Support Bracket: The H1-GQ Queen Brick Deck Ledger Support Brackets are used to attach deck ledger boards directly to rim boards in the adjacent building through a masonry veneer. See [Figure 1](#).

3.3 H1-GQS Queen Brick Deck Ledger Support Splice Bracket: The H1-GQS Queen Brick Deck Ledger Support Splice Brackets are used to attach adjoining deck ledger boards at splice joint locations directly to rim boards in the adjacent building through a masonry veneer. See [Figure 1](#).

3.4 H2-GCL/GCR Deck Corner Ledger Support Bracket with Gusset Plate (Left and Right): The H2-GCL/GCR Deck Corner Ledger Support Bracket with Gusset Plate is used to support the outside rim joist and facilitate attachment to the deck ledger board. The GCL and GCR brackets are identical except that the GCL bracket is configured for the left hand corner, and the GCR bracket is configured for the right hand corner. See [Figure 2](#).

3.5 Fastener Components: The coating thicknesses and materials of the fastening components comply with Section R507.2.3 of the 2021 and 2018 IRC.

3.5.1 For use with Galvanized Brackets: ASTM A153 Class C hot dipped galvanized ASTM A307 Grade A $\frac{5}{8}$ -11 hex head bolts, ASTM F2329 hot dipped galvanized ASTM F844 $\frac{5}{8}$ inch (15.9 mm) USS low carbon washers and ASTM A563 Grade A hot dipped galvanized heavy hex nuts are used to attach the galvanized brackets to the rim boards and ledgers.

3.5.2 For use with Stainless Steel Brackets: ASTM F593 316 stainless steel $\frac{5}{8}$ -11 hex head bolts, ASTM F594 316 stainless steel heavy hex nuts and ASME B18.21.1 USS $\frac{5}{8}$ inch (15.9 mm) 316 stainless steel washers are used to attach the stainless brackets to the rim boards and ledgers.

4.0 DESIGN AND INSTALLATION

4.1 Design: [Table 1](#) and [2](#) are based on Allowable Stress Design (ASD). The design of the interaction of the fasteners and the project-specific wood-framing must be performed by a registered design professional and is outside of the scope of this report.

4.2 Installation:

4.2.1 H1-GQ AND H1-GQS BRACKETS: The location of the H1-GQ and H1-GQS Brick Deck Ledger Support Brackets are laid out on the exterior wall for attachment to the rim board of the supporting structure, which is located on the interior side of the exterior wall sheathing. The individual brackets are attached to the sheathing using temporary screws or nails to facilitate drilling holes for the installation of the bolts. The brackets are used as a guide for drilling through the supporting structure (sheathing and rim board) with a $\frac{21}{32}$ inch (16.66 mm) or 11/16 inch (17.4 mm) diameter drill bit. See [Figure 3](#).

The $\frac{5}{8}$ -11 hot dipped galvanized bolts are installed through the H1-GQ or H1-GQS bracket and ledger board from the inside of the building with a washer between the head of the bolt and the inside face of the rim board. A hex nut and washer are used to attach the ledger board to the face of the bracket. The nuts are hand tightened and then fully tightened with a wrench one additional turn. The bolt holes in the sheathing are then sealed with caulk. See [Figures 4](#) through [8](#).

After the brackets and ledger board have been installed, flashing is placed over the top of the brackets and ledger board in accordance with Section 1404.4 of the IBC and Section R703.4 of the IRC. See [Figure 7](#).

4.2.2 H2-GCL AND H2-GCR CORNER BRACKETS: At corner locations, an H2-GCL or H2-GCR corner bracket may be used in combination with the H1-GQ or H1-GQS brackets by placing the corner bracket on the outside face of the ledger board before tightening the hex nuts. The corner brackets are attached to the rim boards using two $\frac{5}{8}$ -11 hot dipped galvanized bolts, two washers and a hex nut. The washers are placed between the bolt head and the inside face of the rim board and between the hex nut and the bracket; the nuts are hand tightened and then additionally tightened with a wrench one additional full turn. (See [figures 9](#) and [10](#)).

The corner brackets (H2-GCL and H2-GCR) may also be used without a queen bracket to attach the deck ledger board to the rim boards. The brackets are used as a guide for drilling through the ledger and rim boards with a $\frac{21}{32}$ inch (16.66 mm) or 11/16 inch (17.4 mm) diameter drill bit. Four $\frac{5}{8}$ -11 hot dipped galvanized bolts (two for the ledger board and two for the rim board) are installed through the ledger board and rim board with a washer between the head of the bolt and the face of board. Hex nuts and washers are used to attach the ledger board and rim board to the face of the bracket. The nuts are hand tightened and then additionally tightened with a wrench one additional full turn (See [Figure 11](#)).

5.0 CONDITIONS OF USE:

The HDG Deck Bracket System components described in this report comply with, or are a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1** The HDG Deck Bracket System components must be manufactured, identified, and installed in accordance with this report and the report holder's published installation instructions. A copy of the installation instructions must be available at the jobsite at all times during construction. In the event of a conflict between this report and the report holder's instructions, this report governs.

- 5.2 The deck and supporting structure must be designed and constructed to support the applicable loads in accordance with Chapter 16 of the IBC and Chapter 3 of the IRC as applicable. The design of the deck and supporting structure must be performed by a registered design professional where required by the codes and is outside of the scope of this report.
- 5.3 Fasteners used in contact with preservative-treated or fire-retardant-treated lumber must, as a minimum, comply with 2021 IBC Section 2304.10.6 (2018 IBC Section 2304.10.5) and IRC Section R317.3, as applicable.
- 5.4 A code-compliant water resistive barrier or a water-resistive barrier that is the subject of a current ICC-ES Evaluation Report must be placed between exterior sheathing and the components listed in this report.
- 5.5 Self-adhering flashing products must be the subject of a current ICC-ES Evaluation Report or must be shown to comply with Section 1404.4 of the IBC and Section R703.4 of the IRC.
- 5.6 The HDG Deck Bracket System components, including fasteners, are supplied by HDG.
- 5.7 The HDG Deck Bracket System components are produced under a quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

Data in accordance with the [ICC-ES Acceptance Criteria for Joist Hangers and Similar Devices \(AC13\)](#), dated October 2018 (editorially revised December 2020).

7.0 IDENTIFICATION

- 7.1 Product labeling shall include the name of the report holder or listee, and the ICC-ES mark of conformity. The listing or evaluation report number (ICC-ES ESR-5056) may be used in lieu of the mark of conformity.
- 7.2 The report holder's contact information is the following:

HDG
1230 SAMPLES INDUSTRIAL DRIVE,
SUITE 200
CUMMING, GEORGIA 30041
(770) 777-7007
www.hdgep.com

TABLE 1—ALLOWABLE (ASD) BRACKET CAPACITIES

Vertical Loads		
Bracket	Uplift Capacity	Downward Capacity
H1-GQ ¹	1360 lbs	1420 lbs
H1-GQS ¹	2110 lbs	2050 lbs
H2-GCL/GCR ²	940 lbs	900 lbs

For SI: 1 lb = 4.45 N

¹For loads on the deck ledger board. See [Figure 8](#).

²For loads on the deck rim board. See [Figure 9](#).

TABLE 2—HDG’s RECOMMENDED H1-GQ BRACKET SPACING AND JOIST SPAN TABLE (ASD)

Combined Loads (D+L) ¹	Joist Span (feet) ²	H1-GQ Queen Bracket Spacing (feet) ³
50 psf	0-10	5
50 psf	10-14	4
50 psf	14-18	3
60 psf	0-9	5
60 psf	9-11	4
60 psf	11-15	3
70 psf	0-8	5
70 psf	8-10	4
70 psf	10-13	3

For SI: 1 foot = 30.5 cm; 1 psf = 47.88 Pa

- ¹ Other loads (such as snow, rain or wind) must also be considered in the design, as applicable.
- ² The design capacity of the joists is outside of the scope of this report.
- ³ Project specific spacing may be calculated by design engineer using the project specific loads and the allowable bracket capacities in [Table 1](#).



FIGURE 1—H1-GQ Bracket (Left) and H1-GQS Bracket (Right)

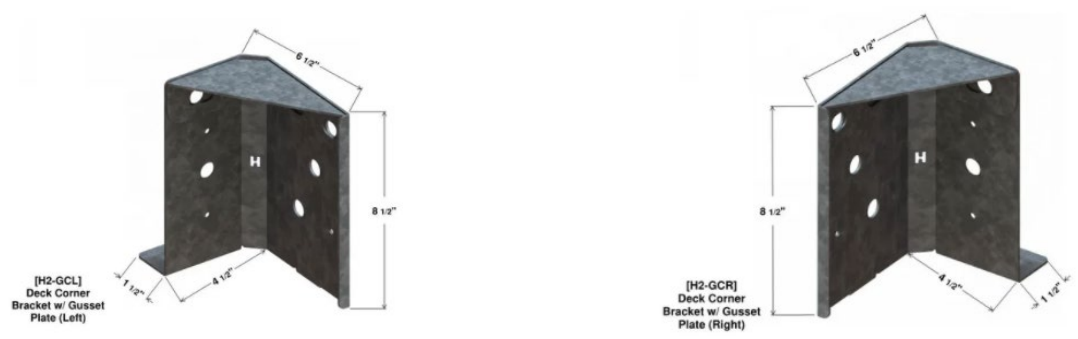


FIGURE 2—H2-GCL BRACKET (LEFT) AND H2-GCR BRACKET (RIGHT)

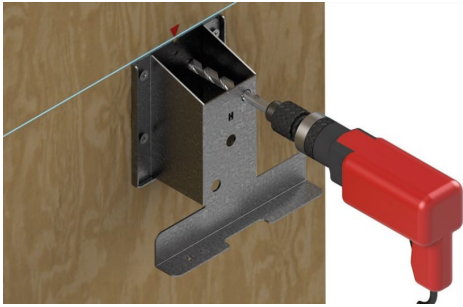


FIGURE 3—DRILL BOLT HOLES USING BRACKET AS GUIDE
 *WATER-RESISTIVE BARRIER NOT SHOWN FOR CLARITY



FIGURE 4—LEDGER BOARD ATTACHMENT
 *WATER-RESISTIVE BARRIER NOT SHOWN FOR CLARITY

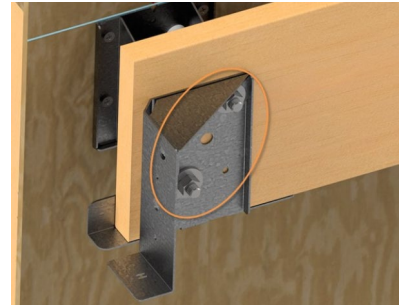


FIGURE 5—CORNER BRACKET ATTACHMENT
 *WATER-RESISTIVE BARRIER NOT SHOWN FOR CLARITY

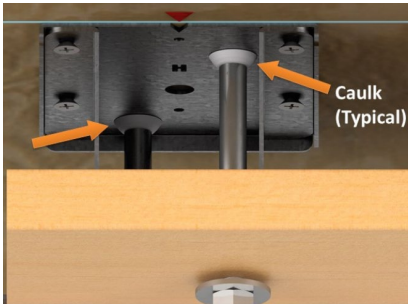


FIGURE 6—CAULK BOLT HOLES
 *WATER-RESISTIVE BARRIER NOT SHOWN FOR CLARITY

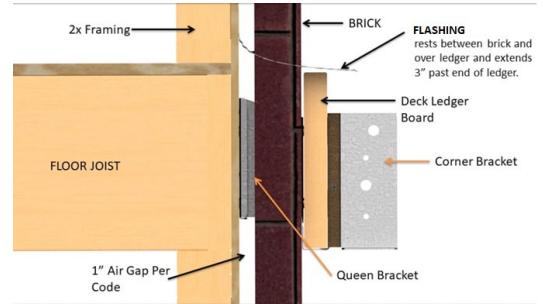


FIGURE 7—OVERALL INSTALLATION AND FLASHING DETAIL
 *WATER-RESISTIVE BARRIER NOT SHOWN FOR CLARITY

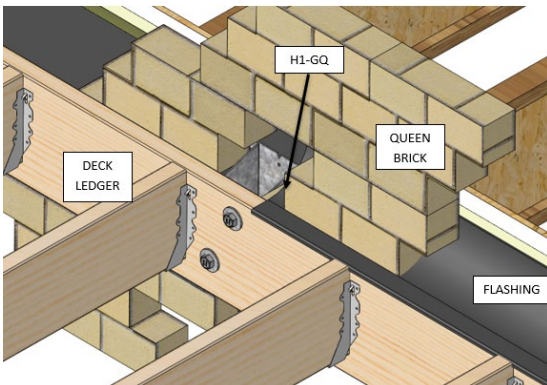


FIGURE 8—TYPICAL STANDALONE QUEEN BRACKET (H1-GQ) INSTALLATION

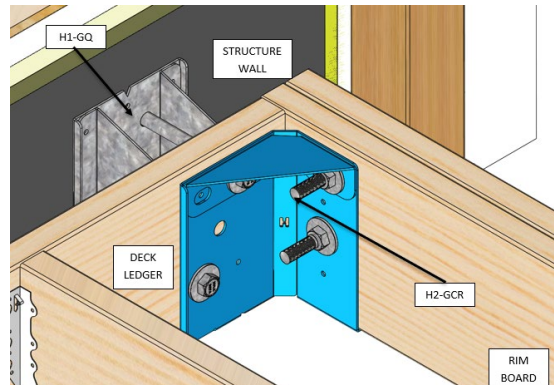


FIGURE 9—TYPICAL QUEEN BRACKET (H1-GQ) AND CORNER BRACKET (H2-GCR OR H2-GCL) INSTALLATION

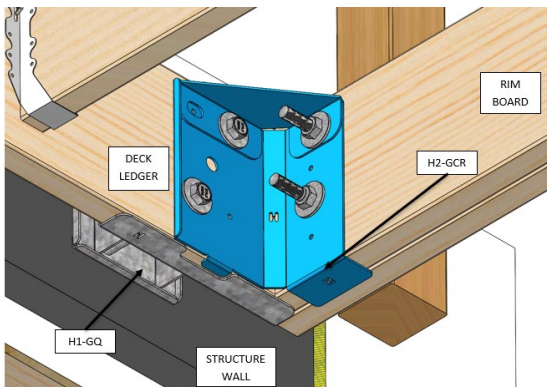


FIGURE 10—TYPICAL QUEEN BRACKET (H1-GQ) AND CORNER BRACKET (H2-GCR OR H2-GCL) INSTALLATION

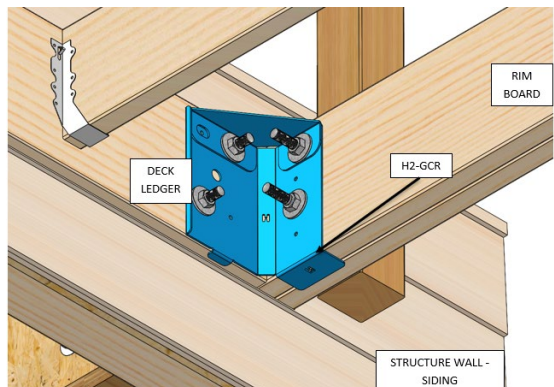


FIGURE 11—TYPICAL SIDING CORNER BRACKET (H2-GCR OR H2-GCL) INSTALLATION

DIVISION: 05 00 00—METALS

Section: 05 50 00—Metal Fabrications

REPORT HOLDER:

HDG

EVALUATION SUBJECT:

HDG DECK BRACKET SYSTEM

- H1-GQ QUEEN BRICK DECK LEDGER SUPPORT BRACKET

- H1-GQS QUEEN SPLICE BRACKET

- H2-GCL/GCR DECK CORNER LEDGER SUPPORT BRACKET WITH GUSSET PLATE (LEFT AND RIGHT)

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that HDG Deck Bracket System, described in ICC-ES evaluation report ESR-5056, has also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2022 California Building Code (CBC)

For evaluation of applicable Chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD) AKA: California Department of Health Care Access and Information (HCAI) and the Division of State Architect (DSA), see Sections 2.1.1 and 2.1.2 below.

- 2022 California Residential Code (CRC)

2.0 CONCLUSIONS

2.1 CBC:

The HDG Deck Bracket System, described in Sections 2.0 through 7.0 of the evaluation report ESR-5056, complies with CBC Chapter 23, provided the design and installation are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report and the additional requirements of CBC Chapter 16, as applicable.

2.1.1 OSHPD:

The applicable OSHPD Sections and Chapters of the CBC are beyond the scope of this supplement.

2.1.2 DSA:

The applicable DSA Sections and Chapters of the CBC are beyond the scope of this supplement.

2.2 CRC:

The HDG Deck Bracket System, described in Sections 2.0 through 7.0 of the evaluation report ESR-5056, complies with CRC Chapter 3, provided the design and installation are in accordance with the 2021 *International Residential Code*® (IRC) provisions noted in the evaluation report.

This supplement expires concurrently with the evaluation report, November 2023.