



# ICC-ES Evaluation Report

## ESR-4797

Reissued February 2023

*This report is subject to renewal February 2025.*

**DIVISION: 05 00 00—METALS**  
**Section: 05 51 00—Metal Stairs**

**REPORT HOLDER:**

**IRON BALUSTER (DBA VIEWRAIL,  
 DBA STAIRSUPPLIES)**

**EVALUATION SUBJECT:**

**FLIGHT FLOATING STAIR SYSTEMS: STRAIGHT  
 FLOOR-TO-WALL AND STRAIGHT WALL-TO-WALL**

**1.0 EVALUATION SCOPE**

**Compliance with the following codes:**

2021 and 2018 *International Residential Code*® (IRC)

For evaluation for compliance with codes adopted by Los Angeles Department of Building and Safety (LADBS), see [ESR-4797 LARC Supplement](#).

**Property evaluated:**

Structural

**2.0 USES**

The Flight Floating Stair Systems are intended for use as stairways in interior locations.

**3.0 DESCRIPTION**

The Flight Floating Stair Systems are available in two configurations: Straight Floor-to-Wall; and Straight Wall-to-Wall.

The Straight Floor-to-Wall system is intended for installations in which the foot plate (bottom) is attached to a horizontal surface, and the upper header plate (top) is attached to a vertical surface (See Figure 1).

The Straight Wall-to-Wall system is intended for installations in which the lower header plate (bottom) is attached to a vertical surface, and the upper header plate (top) is attached to a vertical surface (See Figure 2).

The Flight Floating Stair Systems utilize continuous hollow structural steel stringers with field attached stair tread brackets. The “Bolt-On” steel stringers have a steel plate factory welded to each end to facilitate attachment of steel footplates and header plates. The “Bolt-Thru Insert” steel

stringers utilize a separate fabricated steel sleeve with factory welded steel foot plates and header plates, which are inserted into either end of the stringer to facilitate attachment to the building substrate. Refer to Figures 3 and 11 for additional detail.

**3.1 Stringers:** The stringers are HSS 8 x 6 x 3/16 inch (203.2 x 152.4 x 4.8 mm) complying with ASTM A500 grade B steel. The stringers are available in either a “Bolt-On” or “Bolt-Thru Insert” configuration. The stringers are pre-fabricated with tapped openings for the attachment of stair tread brackets. Stringers are available in lengths up to 22 feet (6.71 m).

**3.1.1 Bolt-On Stringer:** The bolt-on stringer is supplied with a weld plate on each end for the connection of the foot plate and header plate. The header plate weld plate measures 7.62 x 5.62 x 0.5 inches (194 x 143 x 12.7 mm), and the foot plate weld plate measures 7.62 x 7.62 x 0.38 inches (194 x 194 x 9.7 mm). Weld plates are fabricated from ASTM A36 grade steel and are factory welded to the ends of the stringers as outlined in the approved quality documentation. Weld plates are prefabricated with 1/2-13 UNC-2B tapped holes for field assembly of the foot plate and header plate. Refer to Figures 3 and 4 for additional detail.

**3.1.2 Bolt-Thru Insert Stringer:** The bolt-thru insert stringer is supplied with foot plate and header plates factory welded to 3/16” thick fabricated inserts that slide into the stringer tube and are secured with through bolts in the field. The foot plate insert tube measures 7.5 x 4.9 x 33 inches (191 x 125 x 838 mm) and the header plate insert tube measures 7.5 x 4.9 x 28 inches (191 x 125 x 711 mm). Insert tubes are fabricated from ASTM A36 grade steel and are slotted to allow fastening to the stringer tube with 1/2-13 bolts, washers and nuts. Refer to Figures 3 and 5 for additional detail.

**3.2 Stair Tread Brackets, Header Plates and Foot Plates:**

**3.2.1 Stair Tread Brackets:** The stair tread brackets are fabricated from 1/4 inch (6.4 mm) thick ASTM A36 steel. Stair tread brackets are fabricated in multiple configurations to accommodate varying stair slope designs from 27 degrees to 44.5 degrees in 1/2 degree increments. Refer to Figure 8 for additional detail.

**3.2.2 Header Plates:** Header plates are fabricated from 3/8 inch (9.5 mm) thick ASTM A36 steel. Header plates can be used at both the bottom or top of a stringer assembly and are referenced as lower header plates or upper header plates respectively. Refer to Figure 7 for additional detail.

**3.2.3 Foot Plates:** Foot plates are fabricated from 3/8 inch (9.5 mm) thick ASTM A36 steel. Refer to Figure 6 for additional detail.

### 3.3 Assembly Fasteners:

**3.3.1 Bolt-On Stringer:** Header and Footer plates are secured to the bolt-on stringer with 1/2-13 x 2" long hex drive flat head bolts, made from black oxide alloy steel meeting ASME B18.3 and ASTM F835 specifications.

**3.3.2 Stair Tread Brackets:** Stair tread brackets are bolted to the stringers with 1/2-13 x 1" long Grade 8 flanged hex head cap bolt meeting IFI 111 and SAE J429 specifications.

**3.3.3 Bolt-Thru Insert Stringer:** Each Bolt-Thru Insert stringer sleeve is connected to the stringer with six bolts, washers, and locknuts meeting the following specifications:

**Bolt** – 1/2-13 x 1" long Grade 8 flanged hex head cap bolt meeting IFI 111 and SAE J429 specifications.

**Washer** – The washer placed between the locknut and the insert sleeve is 1.375" OD, 0.562" ID, and 3/32" thick made from zinc plated mild steel and conforms to ASME B18.21.1.

**Locknut** – 1/2 – 13 Grade 8 steel nylon-insert locknut conforming to ASME B18.6.6 with class 2B thread fit.

**3.4 Anchorage Fasteners:** Appropriate fasteners shall be used for connection of the stringer mounting plates to various building substrates. Specific fasteners that have been evaluated for use with the system are shown below. Alternate anchorage fasteners may be used when an engineered design is performed in accordance with Section 4.1.2.

**3.4.1 Anchorage to Wood Substrates** - The Flight Stair Systems may be attached to wood substrates using 1/2"-6 x 5" Long Grade A Zinc-Plated Hex Head Lag Bolts meeting ASME B18.2.1 and NDS Table L2 specifications. The lag bolts are installed with 1.375" OD, 0.562" ID, and 3/32" thick washers made from zinc plated mild steel conforming to ASME B18.21.1. The wood substrates must meet the requirements outlined in Table 3.

**3.4.2 Anchorage to Concrete Substrates:** The Flight Stair Systems may be attached to concrete substrates using M12 x 125/50 HILTI HDA-P undercut anchors evaluated under ESR-1546. The HDA-P anchor installation and the concrete substrate must meet the requirements outlined in Table 3.

## 4.0 DESIGN AND INSTALLATION

### 4.1 Design:

**4.1.1 Stringers:** The bolt-on stringer and bolt-thru Insert stringer spans must not exceed those shown in Table 1 based on the installation angle and the loads to be considered for the specific project.

The tapped holes for the stair tread brackets must be spaced such that the nosing projection, stair tread depth, riser height and open riser space between the installed stair treads comply with Section R311.7.5 of the IRC.

**4.1.2 Stringer Anchorage:** The stringers can be mounted on various types of building substrates. Table 3

lists several anchorage configurations that have been evaluated. Other anchorage configurations may be used for anchors and building substrates not listed in this report, however a registered design professional must verify that the design of the anchorage to the fixed work supports the reactions imposed by the stair system outlined in Table 2.

**4.1.3 Stair Tread Bracket:** The stair tread bracket attached to the stringer is capable of supporting the associated loads imparted from stair treads designed in accordance with section 4.1.4. The contribution of the stair tread brackets to the deflection of the stair treads may be calculated using the following equation:

$$\Delta_T = .0028 \frac{\text{inches}}{\text{inch}} \times l$$

$\Delta_T$  – Deflection measured at end of stair tread (inches)

$l$  – Cantilever length of stair tread (inches) measured from center of stringer

**4.1.4 Tread Design:** The capacity of the project specific stair tread, and the attachment of the project specific stair tread to the stair tread bracket is outside of the scope of this report. The design of the project specific stair tread must be performed by a registered design professional, and the design must consider the following:

1. The tread width must not exceed 54 inches (1393 mm).
2. The dead weight of the treads shall not exceed 100 plf (pounds-per-linear-foot).
3. The allowable cantilever deflection of the stair tread with consideration of the deflection contribution of the stair tread bracket under live loads must not exceed  $2l/360$  (where  $l$  is defined as the cantilever length measured from the center of the stringer).
4. The maximum cantilever length of the tread measured from the center of the stringer must not exceed 27 inches (686 mm).
5. The design of the attachment of the stair tread to the bracket must consider the following loading conditions:
  - a. A 300 lb (135 kg) concentrated load placed in any location on the stair tread.
  - b. The project specific uniform live load placed across the entire tread surface.
  - c. The project specific uniform live load placed on a single side of the stair tread.
  - d. Associated loads from the selected handrail / guard system, when the handrail / guard system is attached to the tread.
6. The nosing profile, tread dimensions and walking surface of the treads must be in accordance with Chapter 3 of the IRC.
7. The minimum tread width must provide a minimum clear width in accordance with Section R311.7.1 of the IRC.

**4.1.5 Handrail / Guard:** Handrails and guards, such as one of the following must be provided in accordance with the applicable codes:

Viewrail Glass Guardrail Systems (ESR-4799)

Viewrail Cable / Rod Railing Systems (ESR-4798)

The handrail / guard system must be installed in accordance with opening requirements outlined in Section R312.1.3 of the IRC. The handrail / guard system and the attachment of the handrail / guard system to the stair treads must be designed to resist all applicable loads and is outside of the

scope of this report. The dead weight of any handrail / guard systems attached to the treads must not exceed 25 plf (pounds-per-linear-foot) along one or both sides of the staircase.

#### 4.2 Installation:

Installation of the Flight Floating Stair System must comply with the manufacturer's published instructions, this report, and the IRC, as applicable.

The manufacturer's published installation instructions must be available at the jobsite at all times during installation. In the event of a conflict between this report and the manufacturer's instructions, this report governs.

**4.2.1 Bolt-On Stringer Assembly:** The footplate is attached to the bottom weld plate, and the header plate is attached top weld plate using the supplied 1/2-13 x 2" long hex drive flat head bolts. The bolts are initially tightened with a torque wrench to 40 ft-lbf (54.2 N-m) and then tightened to a final torque of 65 ft-lbf (88.1 N-m); the tightening sequence must be as shown in Figure 9 for both the footplate and header plate. The top center fastener location for the header plate is pre-drilled into the top vertical surface of the building substrate. The stringer is then lifted into place, and the header plate is initially secured with a single fastener to hold the stringer in place during the attachment of stair tread brackets (See Figure 10).

**4.2.2 Bolt-Thru Insert Stringer Assembly:** The foot plate and header plate insert weldments are inserted into the stringer and bolted in place with six 1/2-13 x 1" long Grade 8 flanged hex head cap bolts with 1.375" OD x 0.562" ID x 3/32" thick washers and 1/2 - 13 Grade 8 nylon insert locknuts for each insert assembly. The bolts are tightened to a final torque of 70 ft-lbf (94.9 N-m). The stringer is then lifted into place, and the header plate is initially secured with a single fastener to hold the stringer in place during the attachment of stair tread brackets (See Figures 10 and 11).

**4.2.3 Stair Tread Brackets:** The stair tread brackets are attached to the stringer using the supplied 1/2-13 x 1" long Grade 8 flanged hex head cap bolts. The bolts are initially tightened with a torque wrench to 50 ft-lbf (67.8 N-m) and then tightened to a final torque of 70 ft-lbf (94.9 N-m); the tightening sequence must be as shown in Figure 12.

**4.2.4 Header Plate and Foot Plate:** The stringer is adjusted to ensure that the stair tread brackets are level. The remaining required holes for the header plate and footplate fasteners are pre-drilled into the building substrate. For all building substrates (wood, concrete, etc.), the fasteners for the top plate and footplate are installed and tightened per the selected design and the manufacturer's installation instructions.

**4.2.5 Treads:** The project specific designed stair treads are then attached to the stair tread brackets with the fasteners specified in the project specific design (See Figure 13).

#### 5.0 CONDITIONS OF USE

The Flight Floating Stair Systems 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 Corrosion resistance is outside the scope of the report.
- 5.2 The supporting structure is outside of the scope of this report and must be designed by a registered design professional and constructed to support the loads

imposed by the systems in accordance with the applicable code.

- 5.3 Additional drawings and design details for the Flight Floating Stair Systems, using the information noted in this report, must be included on construction plans submitted to the code official for approval where required by the local jurisdiction. The drawings and details must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

- 5.4 Installation is restricted to interior locations.

- 5.5 The fasteners listed in this report for the attachment of the steel components to the fixed work and for the assembly of the steel components: the bolt-on stringer, the bolt-thru Insert Stringer and the stair tread brackets are supplied by Iron Baluster (dba Viewrail, dba StairSupplies).

#### 6.0 EVIDENCE SUBMITTED

Data in accordance with Section R301.1.3 including load testing in accordance with Section 1709.3 of the IBC and engineered design in accordance with ANSI/AISC 360 Specification for Structural Steel Buildings, ACI 318 Building Code Requirements for Structural Concrete and ANSI/AWC NDS National Design Specification for Wood Construction.

#### 7.0 IDENTIFICATION

- 7.1 The Flight Floating Stair Systems components described in this report are identified by a label on the packaging bearing the manufacturer's name; product description and/or part number; and the ICC-ES evaluation report number (ESR-4797). The Flight Floating Stair Systems must additionally be labeled with the following language, "For Use in One- and Two-Family Dwellings Only."

- 7.2 The report holder's contact information is the following:

**IRON BALUSTER (DBA VIEWRAIL,  
DBA STAIRSUPPLIES)  
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(866) 261-8013  
[www.viewrail.com](http://www.viewrail.com)  
[www.stairsupplies.com](http://www.stairsupplies.com)**

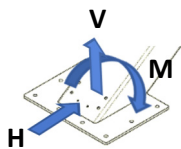
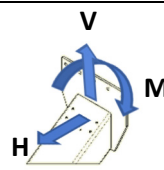
TABLE 1—STRINGER CAPACITY FOR FLOOR-TO-WALL AND WALL-TO-WALL STRAIGHT SYSTEMS

STRINGER TYPE	STRINGER SIZE	OCCUPANCY LIVE LOAD <sup>1,2</sup>	Angle <sup>3</sup> , $\theta$	Stringer Length <sup>4</sup>		Maximum Elevation Change <sup>5</sup>
				L <sub>Amin</sub>	L <sub>Amax</sub>	H <sub>max</sub>
Bolt-On	8X6X3/16"	40 psf	27°	0'-0"	16'-0"	7'-3"
	8X6X3/16"	40 psf	44.5°	0'-0"	16'-0"	11'-3"
Bolt-Thru	8X6X3/16"	40 psf	27°	16'-0"	20'-0"	9'-1"
	8X6X3/16"	40 psf	37.5°	16'-0"	21'-5"	12'-7"
	8X6X3/16"	40 psf	44.5°	16'-0"	21'-5"	12'-7"

For SI: 1 inch = 25.4 mm, 1 psf = 47.9 Pa, 1 lb = 0.45 kg.

1. Engineering design is required if the required occupancy live load exceeds the tabular values. Additionally, engineered design is required if the weight of any supported materials exceed the following: tread weight must not exceed 100 plf (pounds-per-linear-foot); the weight of guardrails/handrails attached to the treads must not exceed 25 plf (pounds-per-linear-foot) along one or both edges of the treads; the weight of additional permanently attached materials must not exceed 5 psf (pounds-per-square foot).
2. The design of the stringer accounts for an allowable live load deflection of L/360 including loads imposed from a guardrail/handrail placed on one or both sides of the staircase that is subjected to a 200 lbf concentrated load applied at a height of 38 inches above the tread nosing for IRC applications.
3. The installation angle,  $\theta$ , is the angle measured from the bottom of the stringer to the horizontal plane.
4. The stringer length, L<sub>max</sub>, is the length of the stringer measured along the top surface.
5. H<sub>max</sub> is the maximum height distance between floors or landings. H<sub>max</sub> must not exceed 12'-7".

TABLE 2—SYSTEM REACTION LOAD TABLE<sup>1,3</sup>

		FOOT PLATE <sup>2</sup>		HEADER PLATE	
					
$\theta$	L	V	H	M	
degrees	ft	lbf	lbf	ft-lbf	
27	5.5	1000	700	900	
30.5		1000	600	900	
34		1000	500	900	
37.5		1000	500	900	
41		900	400	900	
44.5		900	400	800	
27	11	2000	1300	1700	
30.5		1900	1100	1700	
34		1900	1000	1700	
37.5		1900	900	1700	
41		1800	800	1700	
44.5		1800	700	1600	
27	16.5	2900	1900	2600	
30.5		2900	1700	2500	
34		2800	1500	2500	
37.5		2800	1300	2500	
41		2700	1200	2500	
44.5		2700	1000	2400	
27	22	3900	2600	3400	
30.5		3800	2200	3400	
34		3800	2000	3300	
37.5		3700	1700	3300	
41		3600	1500	3300	
44.5		3500	1400	3200	

1. Interpolation of reaction forces between angles and stringer lengths is allowed.
2. Refer to Figure 6 for applicable foot plate use based on stringer angle  $\theta$ .
3. Tabulated values based on a simple span beam design. Tabulated values take into account all dead loads and live loads referenced in Table 1.

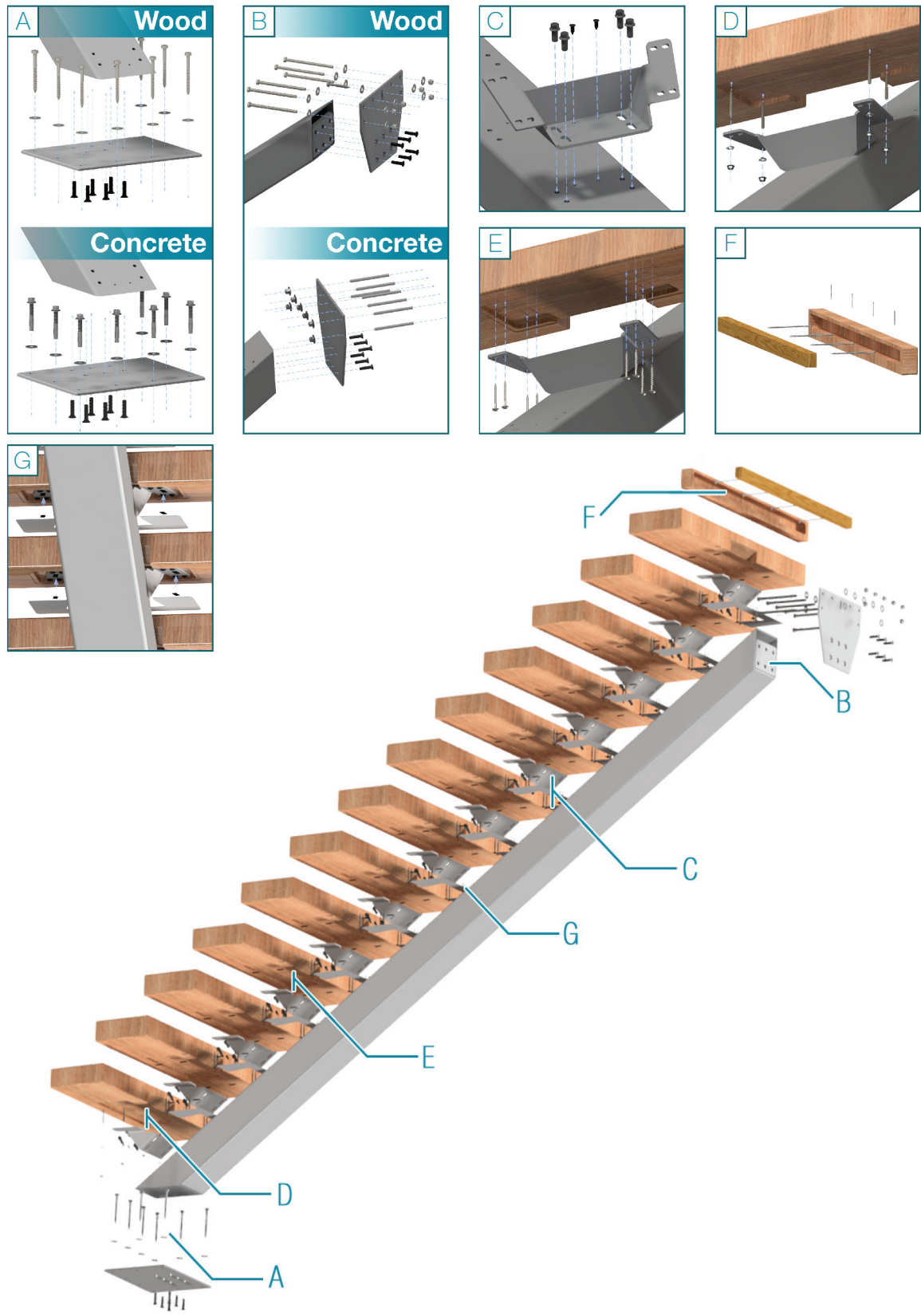
TABLE 3—STRINGER ANCHORAGE CAPACITIES <sup>1, 4, 7, 8</sup>

Fastener	STRINGER SIZE	OCCUPANCY LIVE LOAD	Substrate	Minimum Fastener Embedment <sup>2, 6</sup>	Angle, $\theta$	Maximum Stringer Length $L_{Amax}$	Maximum Elevation Change $H_{max}$
1/2" x 5" Lag Bolt	8X6X3/16"	40 psf	SPF <sup>3</sup> (Spruce-Pine-Fir)	3.50 in	27°	11'-6"	5'-3"
					44.5°	12'-6"	8'-9"
			SP <sup>3</sup> (Southern Pine)	3.50 in	27°	13'-6"	6'-2"
					44.5°	15'-0"	10'-6"
			SP <sup>3</sup> (Southern Pine)	3.50 in	44.5°	13'-5"	9'-6"
					27°	17'-6"	7'-11"
Hilti HDA-P M12x125/50	8X6X3/16"	40 psf	2500 psi Concrete <sup>5</sup>	5.24 in	27°	22'-0"	9'-12"
					44.5°	22'-0"	12'-7"

1. All fastener mounting holes populated.
2. Does not include length of tip for lag bolts.
3. Main Member Minimum Specific Gravity (SG) of 0.42 for SPF, and 0.55 for SP, Dry Conditions.
4. Substitution of other fastener/substrate permitted if designed by a registered design professional.
5. Concrete condition is cracked, unreinforced, 8 inch minimum slab thickness, Dry Conditions, Fully Cured.
6. For Hilti fasteners, minimum nominal embedment ( $H_{nom}$ ) of 5.24 inches / effective embedment ( $H_{ef}$ ) of 4.92 inches; minimum edge distance of 10 inches.
7. The anchorage designs are based on the reactions included in Table 2, and account for all dead loads and live loads referenced in Table 1.
8. The design of the supporting structure to support the loads imposed by the system is outside of the scope of this report.
- 9.



### FLIGHT: Straight - Floor to Wall Exploded Connection Diagrams



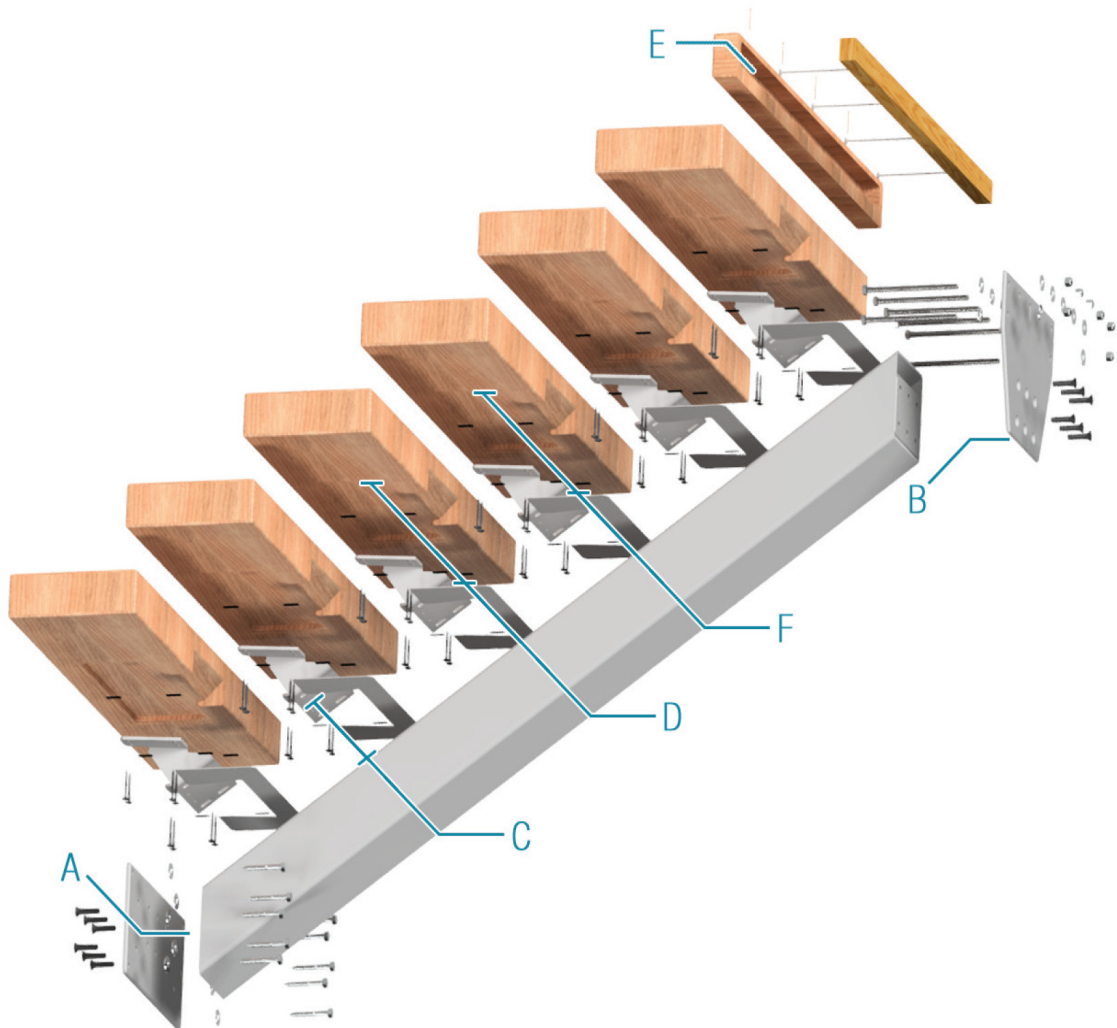
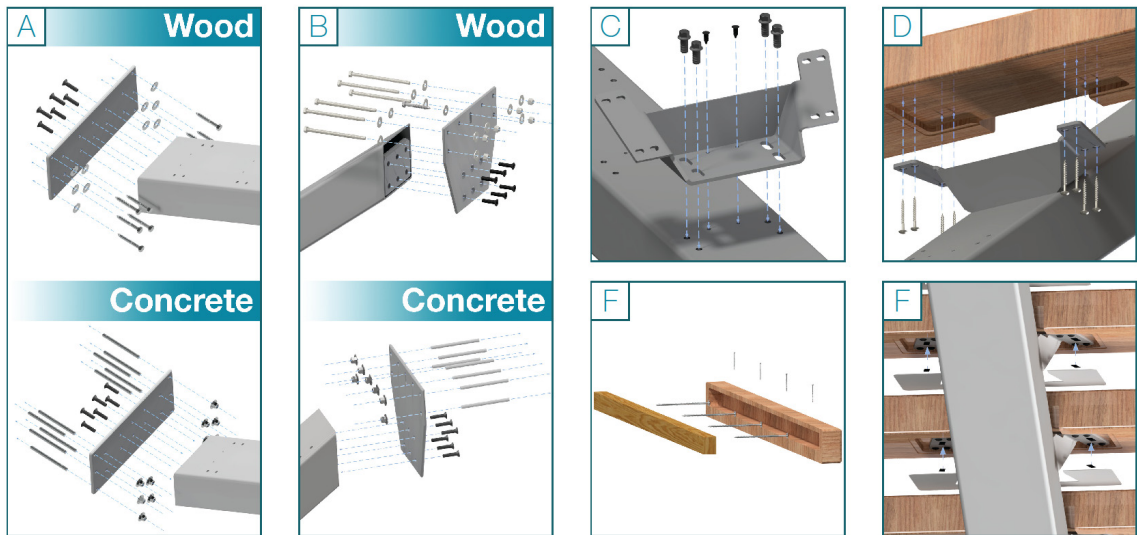
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Version Date: 10/20/20

**FIGURE 1: TYPICAL CONNECTION CHART – BOLT-ON FLOOR-TO-WALL SYSTEM**



FLIGHT: Straight - Wall to Wall  
Exploded Connection Diagrams



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Version Date 10/2020

FIGURE 2: TYPICAL CONNECTION CHART – BOLT-ON WALL-TO-WALL SYSTEM



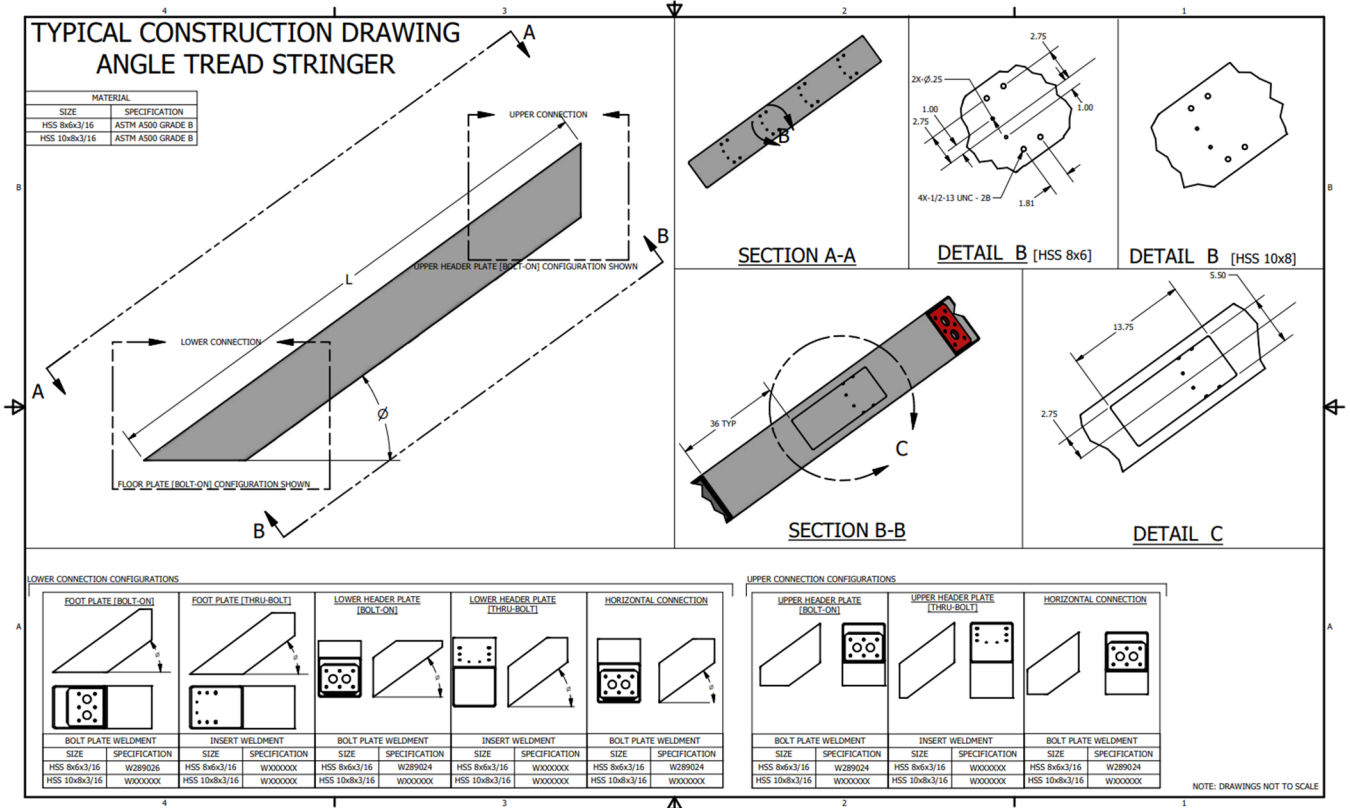


FIGURE 3: TYPICAL CONSTRUCTION DRAWING – ANGLE TREAD STRINGER

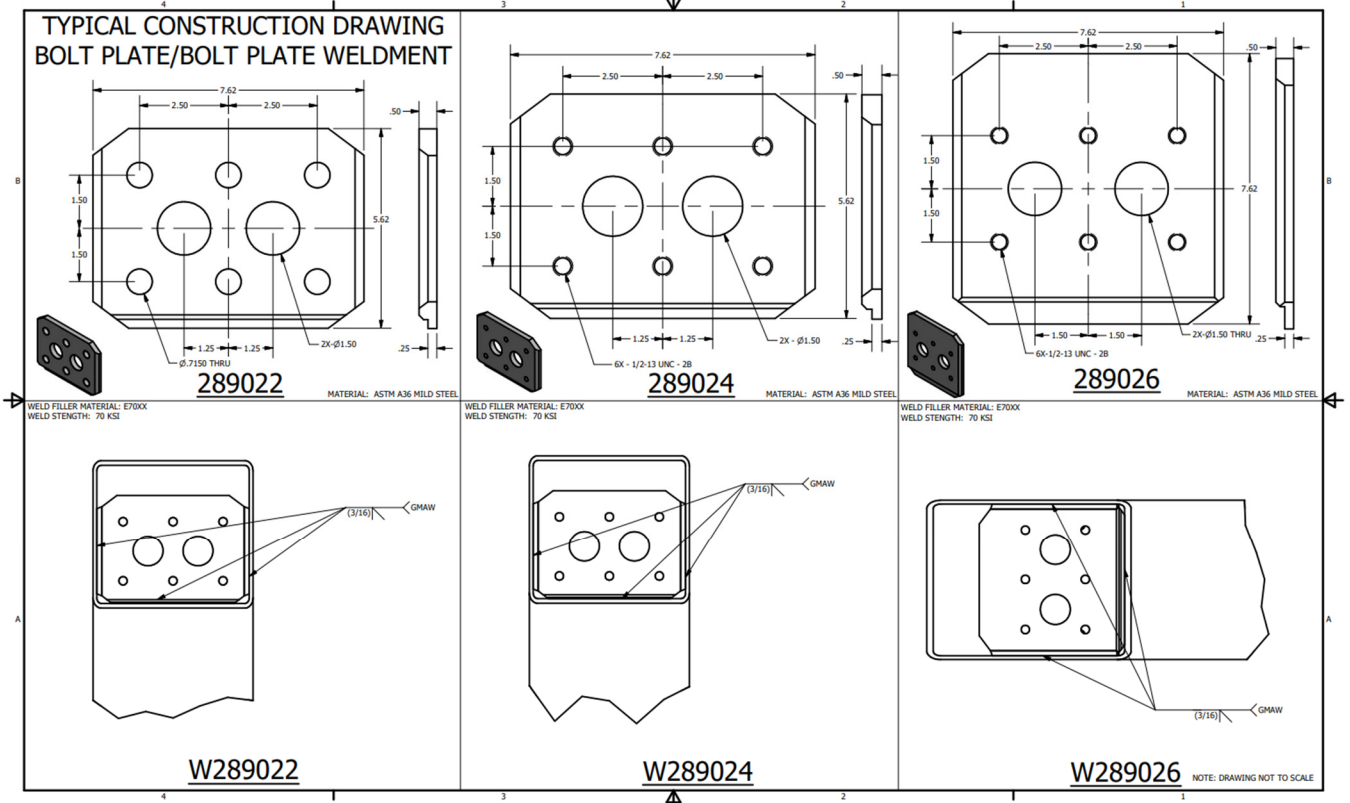


FIGURE 4: TYPICAL CONSTRUCTION DRAWING – BOLT PLATE/BOLT PLATE WELDMENT (HSS 8x6x3/16)

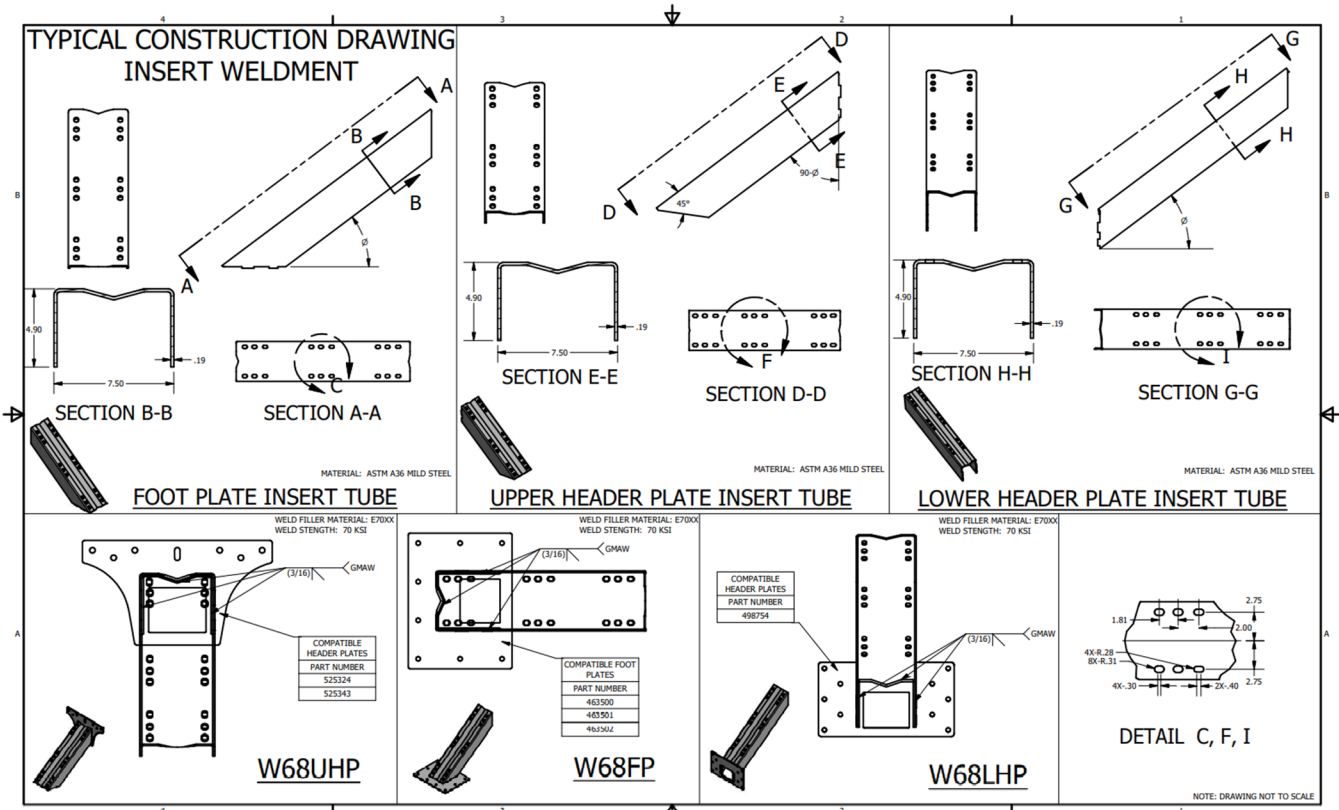


FIGURE 5: TYPICAL CONSTRUCTION DRAWING – INSERT WELDMENT DETAIL (HSS 8x6x3/16)

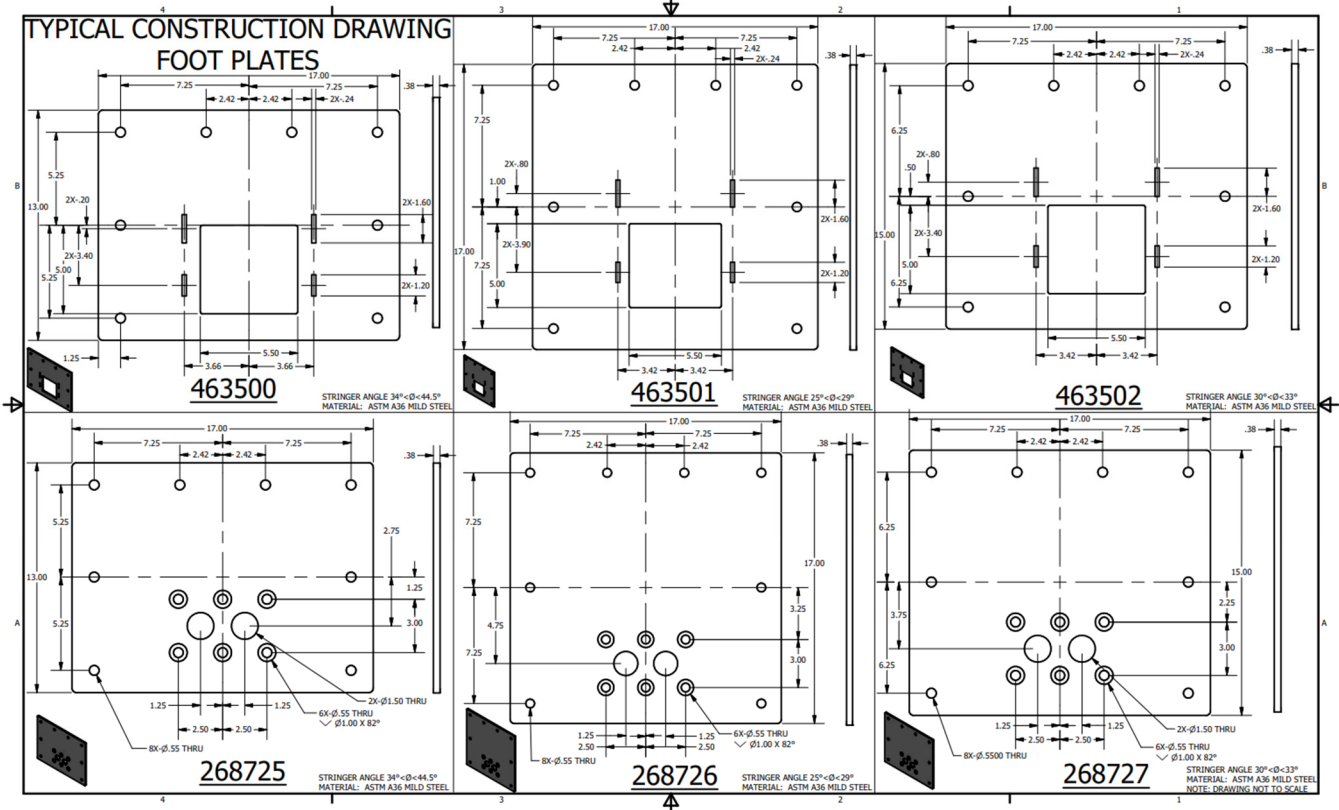


FIGURE 6: TYPICAL CONSTRUCTION DRAWING – FOOT PLATES (HSS 8x6x3/16)

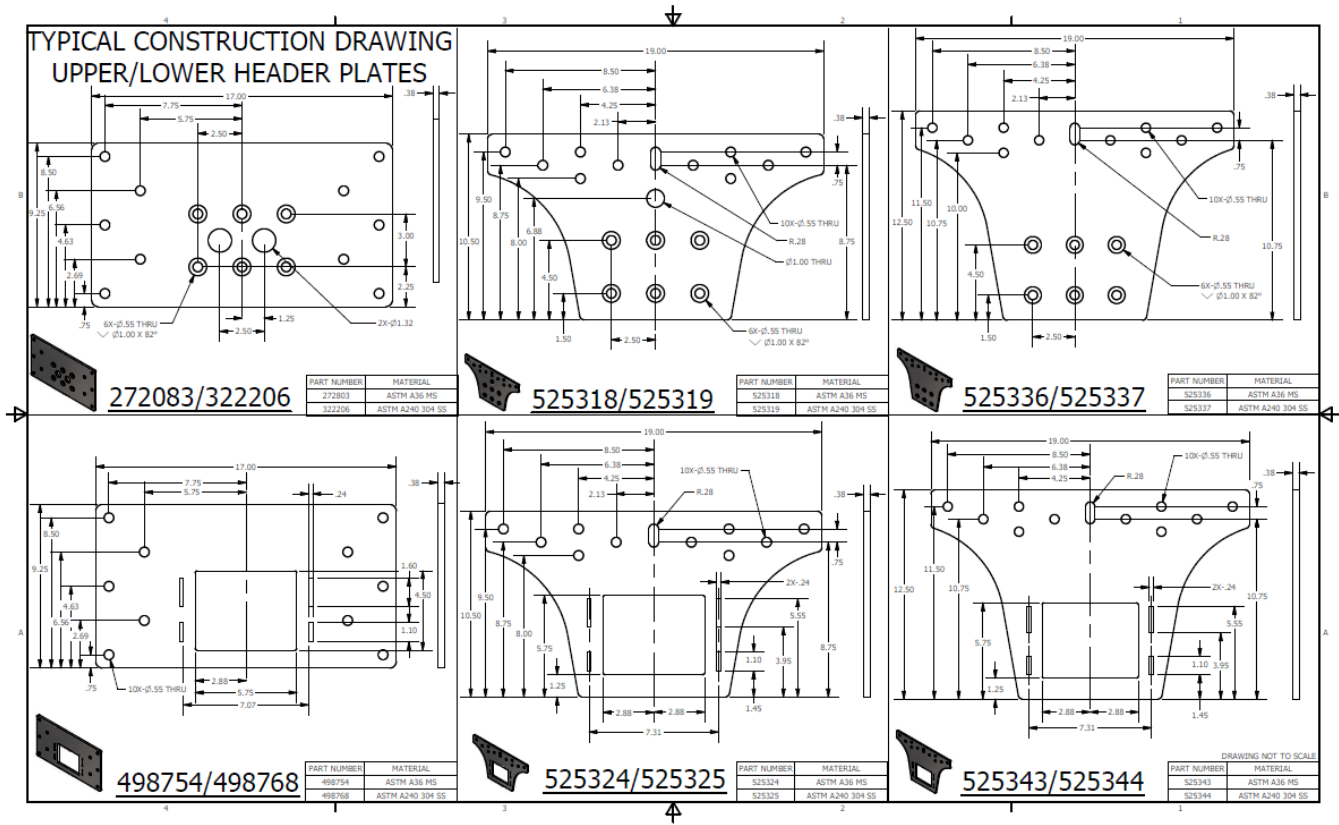


FIGURE 7: TYPICAL CONSTRUCTION DRAWING – UPPER AND LOWER HEADER PLATES (HSS 8x6x3/16)

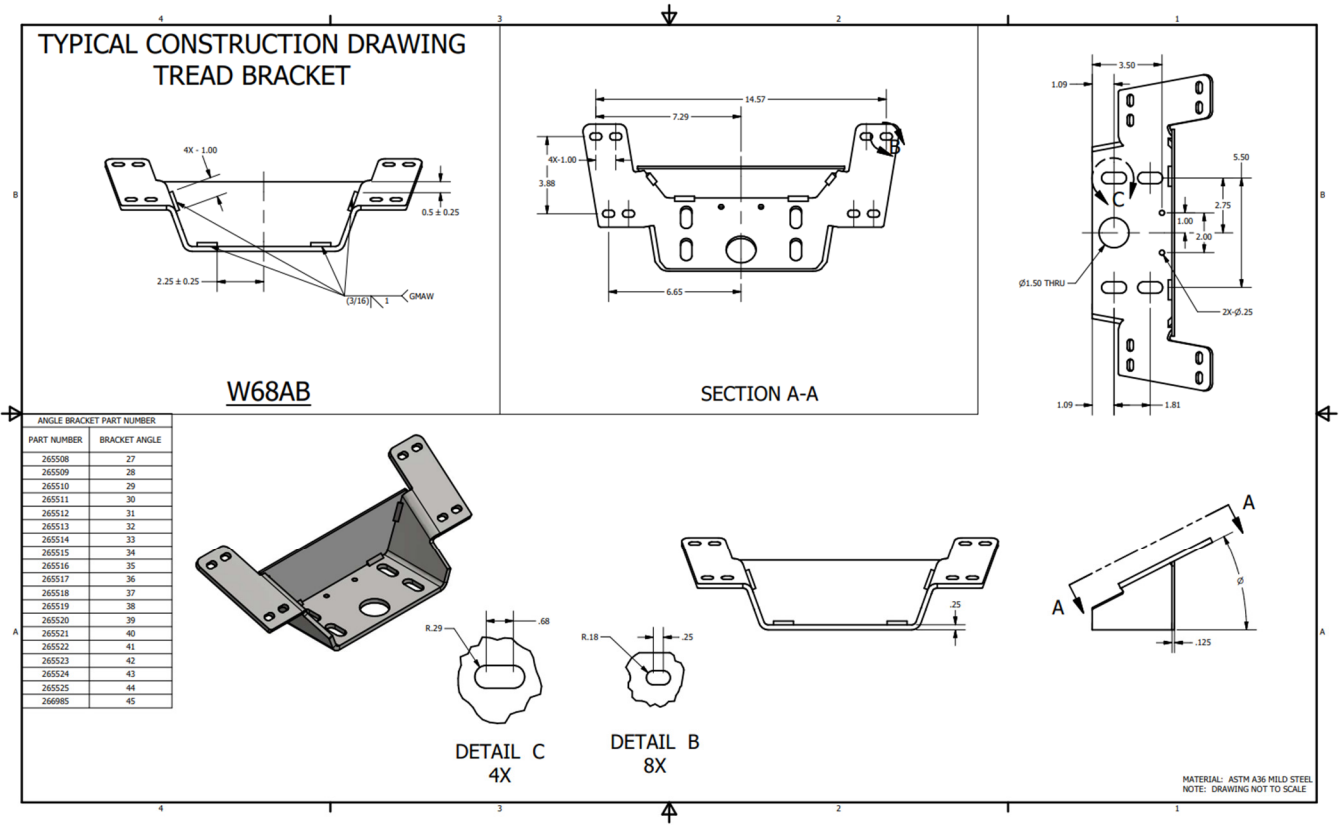
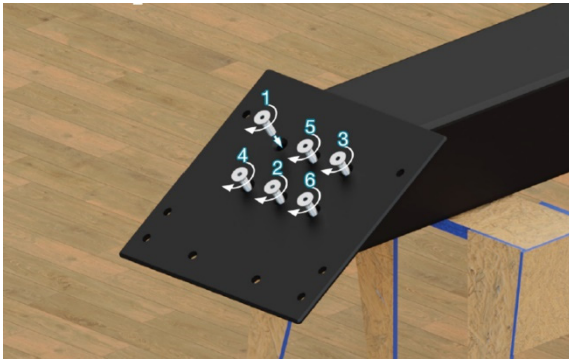
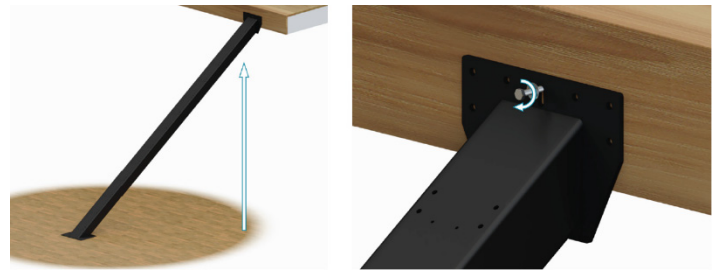


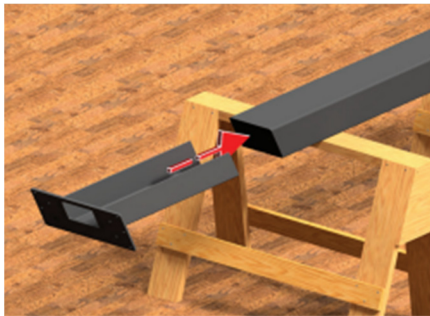
FIGURE 8: TYPICAL CONSTRUCTION DRAWINGS – TREAD BRACKET (HSS 8x6x3/16)



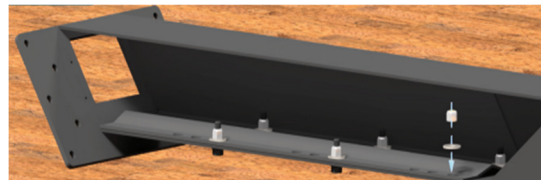
**FIGURE 9 —FOOT PLATE AND HEADER PLATE TORQUE SEQUENCE**



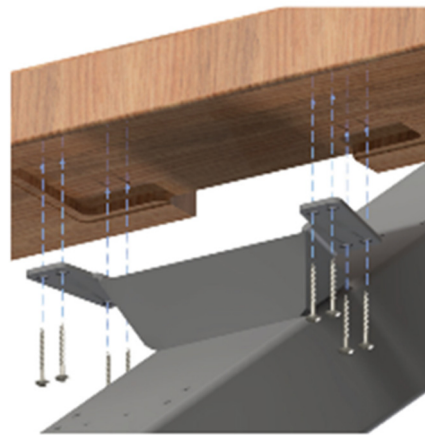
**FIGURE 10 — INITIAL PLACEMENT OF HEADER DURING INSTALLATION**



**FIGURE 11 – BOLT-THRU FOOT PLATE AND HEADER PLATE SLEEVE INSTALLATION**



**FIGURE 12 — STAIR TREAD BRACKET TORQUE SEQUENCE**



**FIGURE 13 — TYPICAL TREAD INSTALLATION**  
Note: This connection is outside of the scope of this report.

**DIVISION: 05 00 00—METALS**  
**Section: 05 51 00—Metal Stairs**

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**IRON BALUSTER (DBA VIEWRAIL, DBA STAIRSUPPLIES)**

**EVALUATION SUBJECT:**

**FLIGHT FLOATING STAIR SYSTEMS: STRAIGHT FLOOR-TO-WALL AND STRAIGHT WALL-TO-WALL**

**1.0 REPORT PURPOSE AND SCOPE****Purpose:**

The purpose of this evaluation report supplement is to indicate that the Flight Floating Stair Systems, described in ICC-ES evaluation report [ESR-4797](#), have also been evaluated for compliance with the code noted below as adopted by the Los Angeles Department of Building and Safety (LADBS).

**Applicable code edition:**

2020 *City of Los Angeles Residential Code* (LARC)

**2.0 CONCLUSIONS**

The Flight Floating Stair Systems, described in Sections 2.0 through 7.0 of the evaluation report [ESR-4797](#), comply with the LARC, and are subject to the conditions of use described in this supplement.

**3.0 CONDITIONS OF USE**

The Flight Floating Stair Systems described in this evaluation report supplement must comply with all of the following conditions:

- All applicable sections in the evaluation report [ESR-4797](#).
- The design, installation, conditions of use and identification of the Flight Floating Stair Systems are in accordance with the 2018 *International Residential Code*® (IRC) provisions noted in the evaluation report [ESR-4797](#) and the additional requirements of LARC Chapter 3.
- Under the LARC, an engineered design in accordance with LARC Section R301.1.3 must be submitted for attachment methods not covered in the evaluation report [ESR-4797](#).

This supplement expires concurrently with the evaluation report, reissued February 2023.

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**Section: 05 51 00—Metal Stairs**

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**FLIGHT FLOATING STAIR SYSTEMS: STRAIGHT FLOOR-TO-WALL AND STRAIGHT WALL-TO-WALL**

**1.0 REPORT PURPOSE AND SCOPE****Purpose:**

The purpose of this evaluation report supplement is to indicate that the Flight Floating Stair Systems, described in ICC-ES evaluation report ESR-4797, have also been evaluated for compliance with the code noted below.

**Applicable code edition:**

2019 *California Residential Code* (CRC)

**2.0 CONCLUSIONS****CRC:**

The Flight Floating Stair Systems, described in Sections 2.0 through 7.0 of the evaluation report ESR-4797, comply with CRC Chapter 3, provided the design and installation are in accordance with the 2018 *International Residential Code*® (IRC) provisions noted in the evaluation report and the additional requirements of CRC Chapter 3.

This supplement expires concurrently with the evaluation report, reissued February 2023.

**DIVISION: 05 00 00—METALS**  
**Section: 05 51 00—Metal Stairs**

**REPORT HOLDER:**

**IRON BALUSTER (DBA VIEWRAIL, DBA STAIRSUPPLIES)**

**EVALUATION SUBJECT:**

**FLIGHT FLOATING STAIR SYSTEMS: STRAIGHT FLOOR-TO-WALL AND STRAIGHT WALL-TO-WALL**

**1.0 REPORT PURPOSE AND SCOPE****Purpose:**

The purpose of this evaluation report supplement is to indicate that the Flight Floating Stair Systems, described in ICC-ES evaluation report [ESR-4797](#), have also been evaluated for compliance with the Chicago Construction Codes (Title 14 of the Chicago Municipal Code) as noted below.

**Applicable code edition:**

2019 *Chicago Building Code* (Title 14B)

**2.0 CONCLUSIONS**

The Flight Floating Stair Systems, described in Sections 2.0 through 7.0 of the evaluation report [ESR-4797](#), comply with Title 14B, and are subject to the conditions of use described in this supplement.

**3.0 CONDITIONS OF USE**

The Flight Floating Stair Systems described in this evaluation report supplement must comply with all of the following conditions:

- All applicable sections in the evaluation report [ESR-4797](#).
- The Flight Floating Stair Systems are limited to use in Group R-5 (interior) occupancies as outlined in CBC Title 14B Table 1607.1 Item 30.
- The design, installation and inspection must be in accordance with additional requirements of Chapters 16 and 17 of Title 14B, as applicable.

This supplement expires concurrently with the evaluation report, reissued February 2023.

**DIVISION: 05 00 00—METALS**  
**Section: 05 51 00—Metal Stairs**

**REPORT HOLDER:**

**IRON BALUSTER (DBA VIEWRAIL, DBA STAIRSUPPLIES)**

**EVALUATION SUBJECT:**

**FLIGHT FLOATING STAIR SYSTEMS: STRAIGHT FLOOR-TO-WALL AND STRAIGHT WALL-TO-WALL**

**1.0 REPORT PURPOSE AND SCOPE****Purpose:**

The purpose of this evaluation report supplement is to indicate that the Flight Floating Stair Systems, described in ICC-ES evaluation report ESR-4797, have also been evaluated for compliance with the code noted below.

**Applicable code edition:**

2020 *Florida Building Code—Residential*

**2.0 CONCLUSIONS**

The Flight Floating Stair Systems, described in Sections 2.0 through 7.0 of ICC-ES evaluation report ESR-4797, comply with the 2020 *Florida Building Code—Residential*. The design requirements must be in accordance with the *Florida Building Code—Residential*, as applicable. The installation requirements noted in ICC-ES evaluation report ESR-4797 for the 2018 *International Residential Code*® meet the requirements of the *Florida Building Code—Residential*, as applicable.

Use of the Flight Floating Stair Systems for compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Residential* has not been evaluated and is outside the scope of this supplemental report.

For products falling under Florida Rule 61G20-3, 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).

This supplement expires concurrently with the evaluation report, reissued February 2023.