



● Compliance with International Codes  
● Compliance to State/Regional Codes

# ICC-ES Evaluation Report

## ESR-3294

Reissued April 2023

This report is subject to renewal April 2024.

**DIVISION: 05 00 00—METALS**  
**Section: 05 05 23—Metal Fastenings**

**REPORT HOLDER:**

DEWALT

**EVALUATION SUBJECT:**

**DRILIT® SELF-DRILLING STRUCTURAL SCREWS AND ARCHITECTURAL ROOF CLIP FASTENERS (DEWALT)**

**ADDITIONAL LISTEE:**

**ELCO CONSTRUCTION PRODUCTS**

**1.0 EVALUATION SCOPE**

**Compliance with the following codes:**

- 2021, 2018, 2015 and 2012 *International Building Code*® (IBC)
- 2021, 2018, 2015 and 2012 *International Residential Code*® (IRC)

For evaluation for compliance with codes adopted by the Los Angeles Department of Building and Safety (LADBS), see [ESR-3294 LABC and LARC Supplement](#).

**Property evaluated:**

Structural

**2.0 USES**

Drilit® Self-drilling Structural Screws and Architectural Roof Clip Fasteners are used to connect cold-formed steel members together, to connect cold-formed steel to hot-rolled steel plates and to connect sheet steel to cold-formed steel. The screws are used to resist shear and tension loads in engineered connections and are used in connections prescribed by the code for steel-to-steel connections.

**3.0 DESCRIPTION**

**3.1 Fasteners:**

The Drilit® Self-drilling Structural Screws and Architectural Roof Clip Fasteners are self-drilling tapping screws formed from carbon steel wire conforming to ASTM F2282, Grade 1018-1022, and case-hardened to 50 to 56 HRC. The screws are coated with a proprietary corrosion-resistant coating identified as Stalgard®, which is silver in color, or a 0.0002-inch-thick (5 µm) zinc plating in accordance with

ASTM B633, SC1, Type III. Product names for the report holder and the additional listee are presented in the following table:

COMPANY NAME	PRODUCT NAME
DEWALT	Drilit®
Elco Construction Products	Drilit®

Table 1 provides screw descriptions including screw type, size, threads per inch (TPI), nominal diameter, head style, drive type/size, head diameter, point type, drilling capacity, minimum required protrusion length and coating. Select Drilit® Self-drilling Structural Screws are available with a bonded sealing washer, as indicated in Table 1, and as shown in Figure 11.

**3.2 Standard Drill Screws:**

**3.2.1 Type 1:** These #10 screws have coarse threads and a high hex washer head with an undercut. These screws comply with the thread design, material specifications and performance requirements of ASTM C1513.

**3.2.2 Types 2, 2A, 2B:** These #10 screws have coarse threads and a hex washer head or high hex washer head. These screws comply with ASTM C1513.

**3.2.3 Types 3, 4, 4A:** These #12 screws have coarse threads and a hex washer head. These screws comply with ASTM C1513.

**3.2.4 Types 5, 5A:** These 1/4-inch screws have coarse threads and a hex washer head which is smaller than that required by ASME B18.6.4. These screws comply with the thread design, material specifications and performance requirements of ASTM C1513.

**3.2.5 Types 6, 6A:** These 1/4-inch screws have coarse threads and a hex washer head. These screws comply with ASTM C1513.

**3.3 Extended Drilling Capacity Screws (Types 7, 7A, 8, 8A, 9, 9A):**

These #12 screws have fine threads and a hex washer head. These screws comply with ASTM C1513.

**3.4 Architectural Roof Clip Fasteners (Type 10):**

These #10 screws have coarse threads and a pancake-style head. These screws comply with ASTM C1513.

**3.5 Cold-formed Steel:**

Connected steel must comply with one of the specifications listed in Section A3.1 of AISI S100 (Section A2.1 of AISI

S100 for the 2015 and 2012 IBC) and must have the minimum base-metal thickness and tensile strength shown in the tables in this report.

## 4.0 DESIGN AND INSTALLATION

### 4.1 Design:

**4.1.1 General:** Selection of screw length must be based on the thickness of the fastened steel members plus the minimum required protrusion past the back of the supporting steel. For screws with a sealing washer, the maximum thickness of the connected material must be limited to the nominal screw length minus the required protrusion length and minus 0.075 inch (1.91 mm) to account for the sealing washer thickness. Point selection must be based on the drilling capacity of the screw. See Table 1 for minimum required protrusion lengths and drilling capacities.

When tested for corrosion resistance in accordance with ASTM B117, the screws met the minimum requirement listed in ASTM F1941, as required by ASTM C1513, with no white corrosion after three hours and no red rust after 12 hours.

**4.1.2 Prescriptive Design:** Drilit® Self-drilling Structural Screws Types 1 through 6 (except for Types 5 and 5A) may be used where ASTM C1513 screws of the same size and head style/dimension are prescribed in the IRC and in the AISI Standards referenced in IBC Section 2211.

**4.1.3 Engineered Steel-to-steel Connection Design:** The screws (Types 1 through 10) have been evaluated for use in engineered steel-to-steel connections. Design of cold-formed steel connections and connections of cold-formed steel to hot rolled steel must comply with Section J4 of AISI S100 (Section E4 of AISI S100 for the 2015 and 2012 IBC), using the nominal and allowable fastener tension and shear strengths for the screws as shown in Table 2. Alternatively, available connection shear strengths may be determined using Tables 3A and 3B, available pull-out connection strengths may be determined using Tables 4A and 4B, and available pull-over connection strengths may be determined using Tables 5A and 5B. The available connection shear strengths are for connections where the connected steel elements are in direct contact with one another. Design provisions for tapping screw connections subjected to combined shear and tension loading are outside the scope of this report.

Under the 2021 IBC, for screws used in framing connections, in order for the screws to be considered fully effective, the minimum spacing between the fasteners must be 3 times the nominal screw diameter and the minimum edge distance must be 1.5 times the nominal screw diameter. Under the 2018, 2015 and 2012 IBC, for screws used in framing connections, in order for the screws to be considered fully effective, the minimum spacing between the fasteners and the minimum edge distance must be 3 times the nominal diameter of the screws, except when the edge is parallel to the direction of the applied force, the minimum edge distance must be 1.5 times the nominal screw diameter. When the spacing between screws is less than 3 times the nominal screw diameter, but at least 2 times the screw diameter, the connection shear strength values in Tables 3A and 3B must be reduced by 20 percent [Refer to Section B1.5.1.3 of AISI S240 (Section D1.5 of AISI S200 for the 2015 and 2012 IBC)]. See Table 6 for applicable spacing and edge distance dimensions for each screw size.

For screws used in applications other than framing connections, the minimum spacing between the fasteners must be three times the nominal screw diameter and the

minimum edge and end distance must be 1.5 times the nominal screw diameter.

Connected members must be checked for rupture in accordance with Section J6 of AISI S100 (Section E6 of AISI S100 for the 2015 IBC, Section E5 of AISI S100 for the 2012 IBC).

### 4.2 Installation:

Installation of Drilit® Self-drilling Structural Screws and Architectural Roof Clip Fasteners must be in accordance with the manufacturer's published installation instructions and this report. The manufacturer's published installation instructions must be available at the jobsite at all times during installation.

The screws must be installed perpendicular to the work surface using a screw driving tool incorporating a depth-sensitive or torque-limiting nose piece. The installation speed for the Extended Drilling Capacity screws and for all 1/4-inch diameter screws should not exceed 1,800 rpm. The installation speed of all other screws should not exceed 2,500 rpm. The screw must penetrate through the supporting steel with a minimum of three threads protruding past the back side of the supporting steel.

## 5.0 CONDITIONS OF USE

The screws 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 fasteners must be installed in accordance with the manufacturer's published installation instructions and this report. If there is a conflict between the manufacturer's published installation instructions and this report, this report governs.
- 5.2** The allowable connection capacities (ASD) specified in Section 4.1 are not to be increased when the fasteners are used to resist wind or seismic forces.
- 5.3** Evaluation of screws subjected to cyclic or fatigue loading is outside the scope of this report. Applicable Seismic Design Categories shall be determined in accordance with the code for the entire assembly constructed with the screws.
- 5.4** The use of the screws in engineered steel deck diaphragms has not been evaluated and is outside the scope of this evaluation report.
- 5.5** Drawings and calculations verifying compliance with this report and the applicable code must be submitted to the code official for approval. The drawings and calculations are to be prepared by a registered design professional when required by the statutes of the jurisdiction in which the project is to be constructed.
- 5.6** The screws are manufactured under a quality control program with inspections by ICC-ES.

## 6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Tapping Screw Fasteners Used in Steel-to-steel Connections (AC118), dated January 2018 (editorially revised December 2020).

## 7.0 IDENTIFICATION

- 7.1** The heads of the screws are marked with "☐" as shown in Figures 1 through 11. Each box of the fasteners has a label bearing the report holder or listee's name, product name, part number, size, lot number, finish (zinc or Stalgard®) and the evaluation report number (ESR-3294).

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

**DEWALT**  
 701 EAST JOPPA ROAD  
 TOWSON, MARYLAND 21286  
 (800) 524-3244  
[www.DEWALT.com](http://www.DEWALT.com)  
[anchors@DEWALT.com](mailto:anchors@DEWALT.com)

7.3 The Additional Listee's contact information is the following:

**ELCO CONSTRUCTION PRODUCTS**  
 701 EAST JOPPA ROAD  
 TOWSON, MARYLAND 21286  
 (800) 524-3244  
[www.ELCOconstruction.com](http://www.ELCOconstruction.com)

**TABLE 1—DRILIT® SELF-DRILLING STRUCTURAL SCREWS AND ARCHITECTURAL ROOF CLIP FASTENERS**

SCREW TYPE	SIZE	TPI	NOMINAL DIAMETER (inch)	HEAD STYLE <sup>1</sup>	HEX DRIVE SIZE (inch) / PHILLIPS DRIVE SIZE (No.)	NOMINAL HEAD DIAMETER (inch)	POINT TYPE	DRILLING CAPACITY <sup>2</sup> (inch)		MINIMUM REQUIRED PROTRUSION (inch)	COATING
								Min.	Max.		
<b>Drilit® Standard Drill Screws</b>											
1	10	16	0.190	HHWH	5/16	0.399	#1	0.030	0.095	0.563	Stalgard
2	10	16	0.190	HWH/HHWH	5/16	0.399	#3	0.030	0.175	0.500	Stalgard or Zinc
2A <sup>(3)</sup>	10	16	0.190	HWH/HHWH	5/16	0.500					Stalgard or Zinc
2B	10	16	0.190	HHWH	5/16	0.399	#2	0.030	0.110	0.406	Stalgard
3	12	14	0.216	HWH	5/16	0.415	#1	0.030	0.095	0.563	Stalgard
4	12	14	0.216	HWH	5/16	0.415	#3	0.030	0.210	0.563	Stalgard or Zinc
4A <sup>(3)</sup>	12	14	0.216	HWH	5/16	0.563					Stalgard or Zinc
5	1/4	14	0.250	HWH	5/16	0.415	#1	0.030	0.095	0.563	Stalgard
5A <sup>(3)</sup>	1/4	14	0.250	HWH	5/16	0.563					Stalgard
6	1/4	14	0.250	HWH	3/8	0.500	#3	0.030	0.210	0.625	Stalgard or Zinc
6A <sup>(3)</sup>	1/4	14	0.250	HWH	3/8	0.630					Stalgard or Zinc
<b>Drilit® Extended Drilling Capacity Screws</b>											
7	12	24	0.216	HWH	5/16	0.415	#4	0.125	0.312	0.625	Stalgard
7A <sup>(3)</sup>	12	24	0.216	HWH	5/16	0.563					Stalgard
8	12	24	0.216	HWH	5/16	0.415	#4.5	0.125	0.375	0.750	Stalgard
8A <sup>(3)</sup>	12	24	0.216	HWH	5/16	0.563					Stalgard
9	12	24	0.216	HWH	5/16	0.415	#5	0.125	0.500	0.906	Stalgard
9A <sup>(3)</sup>	12	24	0.216	HWH	5/16	0.563					Stalgard
<b>Architectural Roof Clip Fasteners</b>											
10	10	16	0.190	Pancake	2	0.437	#3	0.048	0.175	0.500	Stalgard

For SI: 1 inch = 25.4 mm.

<sup>1</sup>Head styles: HWH = Hex Washer Head; HHWH = High Hex Washer Head

<sup>2</sup>The drilling capacity of a fastener refers to the minimum and maximum thickness of the steel that the fastener is designed to drill through.

<sup>3</sup>Screw has a bonded sealing washer, as shown in Figure 11. Nominal head diameter refers to the nominal diameter of the bonded sealing washer.

**TABLE 2— SELF-DRILLING SCREWS SHEAR AND TENSION FASTENER STRENGTH (lbf)**

DESIGNATION	NOMINAL STRENGTH		ALLOWABLE STRENGTH (ASD)		DESIGN STRENGTH (LRFD)	
	Shear: P <sub>s</sub>	Tension: P <sub>t</sub>	Shear: P <sub>s</sub> /Ω	Tension: P <sub>t</sub> /Ω	Shear: ΦP <sub>s</sub>	Tension: ΦP <sub>t</sub>
<b>Drilit® Standard Drill Screws</b>						
#10-16	1679	2670	560	890	840	1335
#12-14	1788	3211	596	1070	894	1606
1/4-14	2307	4803	769	1601	1154	2402
<b>Drilit® Extended Drilling Capacity Screws</b>						
#12-24	2283	3553	761	1184	1142	1777
<b>Architectural Roof Clip Fasteners</b>						
#10-16	1560	2326	520	775	780	1163

For SI: 1 inch = 25.4 mm, 1 lbf = 4.4 N.

**TABLE 3A—ALLOWABLE (ASD) SHEAR (BEARING) CAPACITY OF SCREW CONNECTIONS (lbf)<sup>1,2,3</sup>**

DESIGNATION	NOMINAL DIAMETER (in.)	THICKNESS OF STEEL IN CONTACT WITH SCREW HEAD (in.)	THICKNESS OF STEEL NOT IN CONTACT WITH SCREW HEAD (in.)												
			0.030	0.036	0.048	0.060	0.075	0.090	0.125	0.188	0.250	0.375			
<b>Drilit® Standard Drill Screws</b>															
#10-16	0.190	0.030	143	193	231	231	231	231	231	231	-	-	-		
		0.036	143	188	277	277	277	277	277	277	-	-	-		
		0.048	143	188	289	369	369	369	369	369	-	-	-		
		0.060	143	188	289	404	462	462	462	-	-	-	-		
		0.075	143	188	289	404	564	577	577	-	-	-	-		
		0.090	143	188	289	404	564	693	693	-	-	-	-		
#12-14	0.216	0.030	150	205	255	255	255	255	255	255	255	-	-		
		0.036	150	197	304	306	306	306	306	306	-	-	-		
		0.048	150	197	304	408	408	408	408	408	-	-	-		
		0.060	150	197	304	424	510	510	510	510	-	-	-		
		0.075	150	197	304	424	593	638	638	638	-	-	-		
		0.090	150	197	304	424	593	765	765	765	-	-	-		
1/4-14	0.250	0.030	160	222	292	292	292	292	292	292	292	-	-		
		0.036	160	211	325	350	350	350	350	350	-	-	-		
		0.048	160	211	325	454	467	467	467	467	-	-	-		
		0.060	160	211	325	454	583	583	583	583	-	-	-		
		0.075	160	211	325	454	634	729	729	729	-	-	-		
		0.090	160	211	325	454	634	833	875	875	-	-	-		
		0.125	160	211	325	454	634	833	833	-	-	-	-		
		<b>Drilit® Extended Drilling Capacity Screws</b>													
		#12-24	0.216	0.036	-	-	-	-	-	-	-	404	-	370	400
				0.060	-	-	-	-	-	-	-	829	-	630	677
				0.090	-	-	-	-	-	-	-	588	-	643	667
		<b>Architectural Roof Clip Fasteners</b>													
#10-16	0.190	0.030	-	-	232	286	350	335	-	-	-	-			
		0.036	-	-	343	423	484	472	-	-	-	-			

For **SI**: 1 inch = 25.4 mm, 1 lbf = 4.4 N, 1 ksi = 6.89 MPa.

<sup>1</sup>Values are based on steel members with a minimum yield strength of  $F_y = 33$  ksi and tensile strength of  $F_u = 45$  ksi. When both pieces of steel have  $F_u \geq 58$  ksi, the capacities in the table may be multiplied by 1.29 and when both pieces of steel have  $F_u \geq 65$  ksi, the capacities in the table may be multiplied by 1.44.

<sup>2</sup>For shear connections, the lower of the fastener shear strength and the shear (bearing) capacity must be used for design.

<sup>3</sup>Capacity for other member thickness may be determined by interpolating within the table.

TABLE 3B—DESIGN (LRFD) SHEAR (BEARING) CAPACITY OF SCREW CONNECTIONS (lbf)<sup>1,2,3</sup>

DESIGNATION	NOMINAL DIAMETER (in.)	THICKNESS OF STEEL IN CONTACT WITH SCREW HEAD (in.)	DESIGN THICKNESS OF STEEL NOT IN CONTACT WITH SCREW HEAD (in.)										
			0.030	0.036	0.048	0.060	0.075	0.090	0.125	0.188	0.250	0.375	
<b>Drilit® Standard Drill Screws</b>													
#10-16	0.190	0.030	214	290	346	346	346	346	346	346	-	-	-
		0.036	214	281	416	416	416	416	416	416	-	-	-
		0.048	214	281	433	554	554	554	554	554	-	-	-
		0.060	214	281	433	605	693	693	693	-	-	-	-
		0.075	214	281	433	605	846	866	866	-	-	-	-
		0.090	214	281	433	605	846	1039	1039	-	-	-	-
#12-14	0.216	0.030	225	307	383	383	383	383	383	383	383	-	-
		0.036	225	296	456	459	459	459	459	459	-	-	-
		0.048	225	296	455	612	612	612	612	612	-	-	-
		0.060	225	296	455	636	765	765	765	765	-	-	-
		0.075	225	296	455	636	889	957	957	957	-	-	-
		0.090	225	296	455	636	889	1148	1148	1148	-	-	-
1/4-14	0.250	0.030	241	316	437	437	437	437	437	437	437	-	-
		0.036	241	316	487	525	525	525	525	525	-	-	-
		0.048	241	316	487	680	700	700	700	700	-	-	-
		0.060	241	316	487	680	875	875	875	875	-	-	-
		0.075	241	316	487	680	951	1094	1094	1094	-	-	-
		0.090	241	316	487	680	951	1250	1312	1312	-	-	-
#12-24	0.216	0.036	-	-	-	-	-	-	647	-	591	640	
		0.060	-	-	-	-	-	-	1327	-	1008	1083	
		0.090	-	-	-	-	-	-	941	-	1029	1068	
<b>Drilit® Extended Drilling Capacity Screws</b>													
<b>Architectural Roof Clip Fasteners</b>													
#10-16	0.190	0.030	-	-	373	458	559	535	-	-	-	-	
		0.036	-	-	548	676	775	755	-	-	-	-	

For SI: 1 inch = 25.4 mm, 1 lbf = 4.4 N, 1 ksi = 6.89 MPa.

<sup>1</sup>Values are based on steel members with a minimum yield strength of F<sub>y</sub> = 33 ksi and tensile strength of F<sub>u</sub> = 45 ksi. When both pieces of steel have F<sub>u</sub> ≥ 58 ksi, the capacities in the table may be multiplied by 1.29 and when both pieces of steel have F<sub>u</sub> ≥ 65 ksi, the capacities in the table may be multiplied by 1.44.

<sup>2</sup>For shear connections, the lower of the fastener shear strength and the shear (bearing) capacity must be used for design.

<sup>3</sup>Capacity for other member thickness may be determined by interpolating within the table.

TABLE 4A—ALLOWABLE (ASD) TENSION PULL-OUT CAPACITY OF SCREW CONNECTIONS (lbf)<sup>1,2,3</sup>

DESIGNATION	NOMINAL DIAMETER (in.)	THICKNESS OF STEEL NOT IN CONTACT WITH SCREW HEAD (in.)									
		0.030	0.036	0.048	0.060	0.075	0.090	0.125	0.188	0.250	0.375
<b>Drilit® Standard Drill Screws</b>											
#10-16	0.190	73	87	116	145	182	218	303	454	-	-
#12-14	0.216	80	96	129	161	201	241	335	502	-	-
1/4-14	0.250	92	110	147	184	230	275	383	574	-	-
<b>Drilit® Extended Drilling Capacity Screws</b>											
#12-24	0.216	-	-	-	-	-	-	257	-	808	986
<b>Architectural Roof Clip Fasteners</b>											
#10-16	0.190	-	-	127	173	215	324	-	-	-	-

For SI: 1 inch = 25.4 mm, 1 lbf = 4.4 N, 1 ksi = 6.89 MPa.

<sup>1-3</sup>See notes following Table 4B.

**TABLE 4B—DESIGN (LRFD) TENSION PULL-OUT CAPACITY OF SCREW CONNECTIONS (lbf)<sup>1,2,3</sup>**

DESIGNATION	NOMINAL DIAMETER (in.)	THICKNESS OF STEEL NOT IN CONTACT WITH SCREW HEAD (in.)									
		0.030	0.036	0.048	0.060	0.075	0.090	0.125	0.188	0.250	0.375
<b>Drilit® Standard Drill Screws</b>											
#10-16	0.190	109	131	174	218	273	327	454	681	-	-
#12-14	0.216	120	145	193	241	301	361	502	753	-	-
1/4-14	0.250	138	165	220	275	344	413	574	861	-	-
<b>Drilit® Extended Drilling Capacity Screws</b>											
#12-24	0.216	-	-	-	-	-	-	412	-	1293	1578
<b>Architectural Roof Clip Fasteners</b>											
#10-16	0.190	-	-	204	277	343	519	-	-	-	-

For **SI**: 1 inch = 25.4 mm, 1 lbf = 4.4 N, 1 ksi = 6.89 MPa.

<sup>1</sup>Values are based on steel members with a minimum yield strength of  $F_y = 33$  ksi and tensile strength of  $F_u = 45$  ksi. When the steel not in contact with the screw head has  $F_u \geq 58$  ksi, the capacities in the table may be multiplied by 1.29 and when the steel not in contact with the screw head has  $F_u \geq 65$  ksi, the capacities in the table may be multiplied by 1.44.

<sup>2</sup>For tension connections, the lowest of the pull-out, pull-over, and fastener tension strength must be used for design.

<sup>3</sup>Capacity for other member thickness may be determined by interpolating within the table.

**TABLE 5A—ALLOWABLE (ASD) TENSION PULL-OVER CAPACITY OF SCREW CONNECTIONS (lbf)<sup>1,2,3</sup>**

DESIGNATION	NOMINAL HEAD DIAMETER (in.)	THICKNESS OF STEEL IN CONTACT WITH SCREW HEAD (in.)									
		0.030	0.036	0.048	0.060	0.075	0.090	0.125	0.188	0.250	
<b>Drilit® Standard Drill Screws</b>											
#10-16	0.399	259	311	415	518	648	778	1080	-	-	
#12-14	0.415	269	322	430	537	672	806	1119	1679	-	
1/4-14	0.415	269	322	430	537	672	806	1119	1679	-	
1/4-14	0.500	324	389	518	648	810	972	1350	2025	-	
<b>Drilit® Extended Drilling Capacity Screws</b>											
#12-24	0.415	269	322	430	537	672	806	1119	1684	2239	
<b>Architectural Roof Clip Fasteners</b>											
#10-16	0.437	288	346	461	576	721	865	-	-	-	

For **SI**: 1 inch = 25.4 mm, 1 lbf = 4.4 N, 1 ksi = 6.89 MPa.

<sup>1-3</sup>See notes following Table 5B.

**TABLE 5B—DESIGN (LRFD) TENSION PULL-OVER CAPACITY OF SCREW CONNECTIONS (lbf)<sup>1,2,3</sup>**

DESIGNATION	NOMINAL HEAD DIAMETER (in.)	THICKNESS OF STEEL IN CONTACT WITH SCREW HEAD (in.)									
		0.030	0.036	0.048	0.060	0.075	0.090	0.125	0.188	0.250	
<b>Drilit® Standard Drill Screws</b>											
#10-16	0.399	389	467	622	778	972	1166	1620	-	-	
#12-14	0.415	403	484	645	806	1007	1209	1679	2519	-	
1/4-14	0.415	403	484	645	806	1007	1209	1679	2519	-	
1/4-14	0.500	486	583	778	972	1215	1458	2025	3038	-	
<b>Drilit® Extended Drilling Capacity Screws</b>											
#12-24	0.415	403	484	645	806	1007	1209	1679	2525	3358	
<b>Architectural Roof Clip Fasteners</b>											
#10-16	0.437	432	519	692	865	1081	1297	-	-	-	

For **SI**: 1 inch = 25.4 mm, 1 lbf = 4.4 N, 1 ksi = 6.89 MPa.

<sup>1</sup>Values are based on steel members with a minimum yield strength of  $F_y = 33$  ksi and tensile strength of  $F_u = 45$  ksi. When the steel in contact with the screw head has  $F_u \geq 58$  ksi, the capacities in the table may be multiplied by 1.29 and when the steel in contact with the screw head has  $F_u \geq 65$  ksi, the capacities in the table may be multiplied by 1.44.

<sup>2</sup>For tension connections, the lowest of the pull-out, pull-over, and fastener tension strength must be used for design.

<sup>3</sup>Capacity for other member thickness may be determined by interpolating within the table.

TABLE 6—MINIMUM FASTENER SPACING AND EDGE DISTANCE

BASIC SCREW DIAMETER (inch)	FASTENED MATERIAL	MINIMUM SPACING <sup>1</sup> (3d)	MINIMUM EDGE DISTANCE (1.5d)	MINIMUM EDGE DISTANCE FOR FRAMING MEMBERS UNDER THE 2018, 2015 AND 2012 IBC (3d)
0.190 (#10)	Steel	9/16"	5/16"	9/16"
0.216 (#12)	Steel	1 1/16"	3/8"	1 1/16"
0.250 (1/4)	Steel	3/4"	3/8"	3/4"

For SI: 1 inch = 25.4 mm.

<sup>1</sup>For screws used in framing connections, when the spacing between screws is less than 3 times the nominal screw diameter, but at least 2 times the screw diameter, the connection shear strength values in Tables 3A and 3B must be reduced by 20 percent [Refer to Section B1.5.1.3 of AISI S240 (Section D1.5 of AISI S200)].

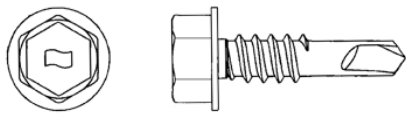


FIGURE 1—#10-16 HIGH HEX WASHER HEAD TYPE 1 SCREW

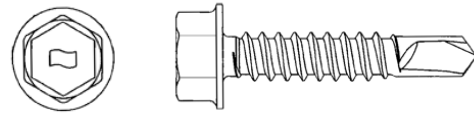


FIGURE 2—#10-16 HIGH HEX WASHER HEAD TYPE 2 SCREW

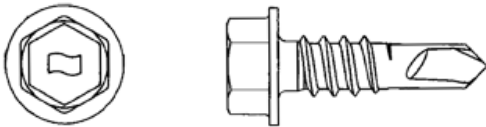


FIGURE 3—#12-14 HEX WASHER HEAD TYPE 3 SCREW

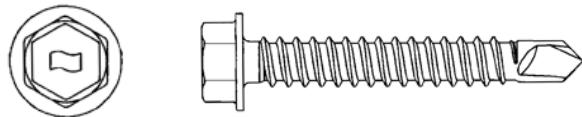


FIGURE 4—#12-14 HEX WASHER HEAD TYPE 4 SCREW

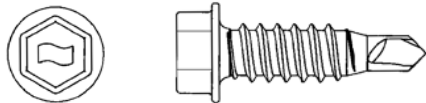


FIGURE 5—1/4-14 HEX WASHER HEAD TYPE 5 SCREW

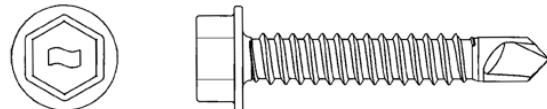


FIGURE 6—1/4-14 HEX WASHER HEAD TYPE 6 SCREW

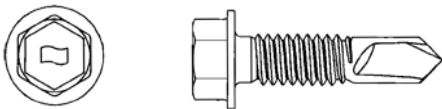


FIGURE 7—#12-24 HEX WASHER HEAD TYPE 7 SCREW

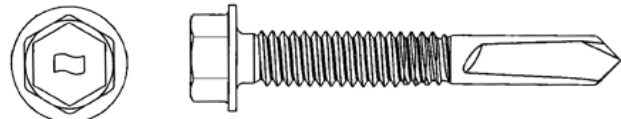


FIGURE 8—#12-24 HEX WASHER HEAD TYPE 8 SCREW

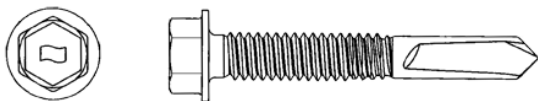


FIGURE 9—#12-24 HEX WASHER HEAD TYPE 9 SCREW

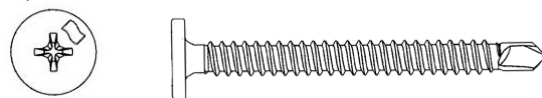


FIGURE 10—#10-16 PANCAKE HEAD TYPE 10 SCREW

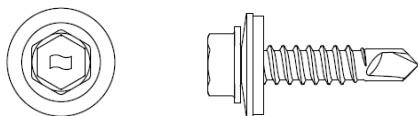


FIGURE 11—TYPICAL HEX WASHER HEAD SCREW WITH BONDED SEALING WASHER (TYPE A SCREW)

DIVISION: 05 00 00—METALS  
Section: 05 05 23—Metal Fastenings

**REPORT HOLDER:****DEWALT****EVALUATION SUBJECT:****DRILIT® SELF-DRILLING STRUCTURAL SCREWS AND ARCHITECTURAL ROOF CLIP FASTENERS (DEWALT)****1.0 REPORT PURPOSE AND SCOPE****Purpose:**

The purpose of this evaluation report supplement is to indicate that Drilit® Self-drilling Structural Screws and Architectural Roof Clip Fasteners (DEWALT), described in ICC-ES evaluation report [ESR-3294](#), have also been evaluated for compliance with the codes noted below as adopted by the Los Angeles Department of Building and Safety (LADBS).

**Applicable code editions:**

- 2020 *City of Los Angeles Building Code* (LABC)
- 2020 *City of Los Angeles Residential Code* (LARC)

**2.0 CONCLUSIONS**

The Drilit® Self-drilling Structural Screws and Architectural Roof Clip Fasteners (DEWALT), described in Sections 2.0 through 7.0 of the evaluation report [ESR-3294](#), comply with the LABC Chapter 22, and the LARC, and are subjected to the conditions of use described in this supplement.

**3.0 CONDITIONS OF USE**

The Drilit® Self-drilling Structural Screws and Architectural Roof Clip Fasteners (DEWALT), described in this evaluation report supplement, must comply with all of the following conditions:

- All applicable sections in the evaluation report [ESR-3294](#).
- The design, installation, conditions of use and identification are in accordance with the 2018 *International Building Code*® (IBC) provisions noted in the evaluation report [ESR-3294](#).
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 16 and 17, as applicable.

This supplement expires concurrently with the evaluation report [ESR-3294](#), reissued April 2023.



**DIVISION: 05 00 00—METALS**

**Section: 05 05 23—Metal Fastenings**

**REPORT HOLDER:**

**DEWALT**

**EVALUATION SUBJECT:**

**DRILIT® SELF-DRILLING STRUCTURAL SCREWS AND ARCHITECTURAL ROOF CLIP FASTENERS (DEWALT)**

## 1.0 REPORT PURPOSE AND SCOPE

### **Purpose:**

The purpose of this evaluation report supplement is to indicate that Drilit® Self-drilling Structural Screws and Architectural Roof Clip Fasteners (DEWALT), described in ICC-ES evaluation report ESR-3294, have also been evaluated for compliance with the codes noted below.

### **Applicable code editions:**

- 2020 *Florida Building Code—Building*
- 2020 *Florida Building Code—Residential*

## 2.0 CONCLUSIONS

The Drilit® Self-drilling Structural Screws and Architectural Roof Clip Fasteners (DEWALT), described in Sections 2.0 through 7.0 of ICC-ES evaluation report ESR-3294, comply with the *Florida Building Code—Building* and *Florida Building Code—Residential*, provided the design requirements are determined in accordance with the *Florida Building Code—Building* or the *Florida Building Code—Residential*, as applicable. The installation requirements noted in ICC-ES evaluation report ESR-3294 for the 2018 *International Building Code*® meet the requirements of the *Florida Building Code—Building* or the *Florida Building Code—Residential*, as applicable.

Use of the Drilit® Self-drilling Structural Screws and Architectural Roof Clip Fasteners (DEWALT) has also been found to be in compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building* and *Florida Building Code—Residential*.

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 April 2023.