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ICC-ES Evaluation Report

ESR-5035

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DIVISION: 31 00 00—EARTHWORK
Section: 31 60 00—Special Foundations and Load-Bearing Elements

REPORT HOLDER:

EZ-CRETE, LLC

EVALUATION SUBJECT:

EZ-TUBE PIER FOOTING SYSTEM AND EZ PAD/ENDUROCRETE WHEEL SETTING PAD

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2021 *International Building Code*® (IBC)
- 2021 *International Residential Code*® (IRC)

Properties evaluated:

- Structural

2.0 USES

EZ-Tube Pier Footing system is a stackable pre-cast concrete pier footing for support of wood deck post columns. The EZ-Tube are used as individual, pier footings supporting gravity and uplift loads only.

EZ-Pad/Endurocrete Wheel setting pad is a pre-cast concrete pad for use as a setting pad, base or under a support jack for foundation repair.

3.0 DESCRIPTION

3.1 General: EZ-Tube Pier Footing System consists of the following components described in Sections 3.2 to 3.4, and as illustrated in Figure 1. The EZ-Pad/Endurocrete Wheel setting pad is described in Section 3.5, and as illustrated in Figure 2:

3.2 EZ-Tube Stack: The stackable tubes are pre-cast from 3,500 psi (24.1 MPa) concrete. The tubes are 11-inches in diameter (27.94 cm) x 12-inches (30.48 cm) x overall height. The approximate weight of each tube is 60 pounds (27.2 kg).

3.3 EZ-Tube Base: The base of the stackable system is pre-cast from 3,500 psi (24.1 MPa) concrete. The base is 22-inches in diameter (55.88 cm) x 7-$^1/_2$-inches (19.05 cm) tall. The approximate weight of each base is 100 pounds (45.4 kg).

3.4 Threaded Rod: The threaded rod is $^1/_2$-13 using $^1/_2$-13 nut with a 3-inch x 3 inch-x $^1/_4$-inch (76.2 cm x 76.2 cm x 6.35 cm) thick washer. All parts are galvanized carbon steel.

3.5 EZ-Pad/Endurocrete Wheel: The EZ-Pad/Endurocrete Wheel is pre-cast from 5,000 psi (34.5 MPa) concrete. The pad is 14-inches in diameter x 6-inches tall. The approximate weight of each tube is 60 pounds (27.2 kg).

4.0 DESIGN AND INSTALLATION

4.1 Design: The EZ-Tube is to be designed as a pier footing to support gravity and uplift loads in accordance with the allowable capacities in Tables 1, 2, 3 and 4, applied from the wood deck post columns above, determined in accordance with the applicable sections of the IBC. Calculations must demonstrate a complete load path from structure to the wood deck post to the EZ-Tube pier footing system embedded in soil.

The EZ-Pad/Endurocrete Wheel is to be used as a setting pad, base or under a support jack for foundation repair for gravity loads in accordance with the allowable capacities in Table 5.

The connection of the wood deck post to the EZ-Tube Pier Footing is beyond the scope of this report.

4.2 Installation: The EZ-Tube pier footing system and EZ-Pad/Endurocrete Wheel setting pad must be installed in accordance with the applicable code, this report, the manufacturer's published installation instructions and the approved construction documents prepared by a registered design professional. A copy of the manufacturer's published installation instructions and the approved drawings must be available at all times on the jobsite during installation.

5.0 CONDITIONS OF USE

The EZ-Tube Pier Footing System and EZ-Pad/Endurocrete Wheel setting pad described in this report complies with, or is 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 Installation must comply with this report, the applicable code and the manufacturer's published installation instructions. If there is a conflict between the manufacturer's installation instructions and this report, this report governs.

5.2 A registered design professional must prepare calculations for the EZ-Tube Pier Footing System and EZ-Pad/Endurocrete Wheel setting pad in accordance with the requirements of ASCE 7 as indicated in the IBC. Engineering calculations must demonstrate a complete load path for the load acting on the EZ-Tube Pier Footing System and EZ-Pad/Endurocrete Wheel setting pad must be submitted to the code official.

5.3 The EZ-Tube base must be installed below local frost levels.

5.4 The soil under the EZ-Tube Base and EZ-Pad/Endurocrete Wheel shall be compacted.

5.5 The EZ-Tube Pier Footing shall be installed level and plumb.

5.6 Back filling must be compacted soil every 6-inches (152 mm).

6.0 EVIDENCE SUBMITTED

6.1 Design requirements in accordance with the IBC and ACI 318.

6.2 Quality documentation in accordance with ICC-ES Acceptance Criteria for Quality Documentation (AC10), dated January 2019.

7.0 IDENTIFICATION

7.1 Product labeling must include the name and address of the report holder (EZ-Crete, LLC), product identification and evaluation report number (ESR-5035)

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

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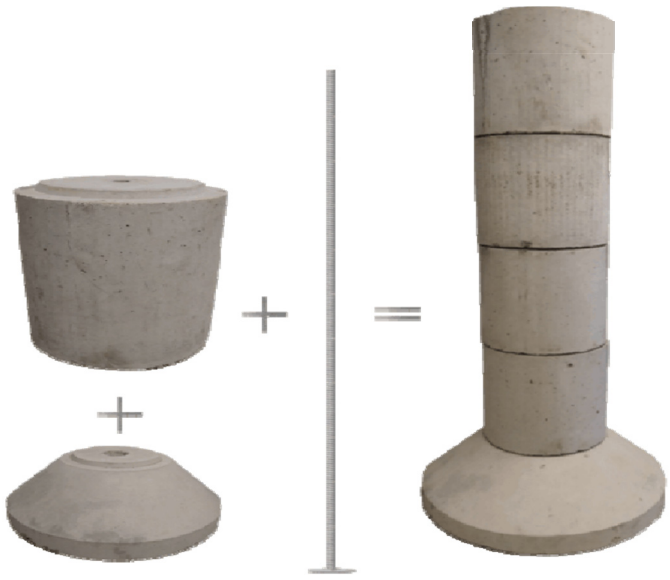

FIGURE 1—EZ-TUBE PIER FOOTING SYSTEM

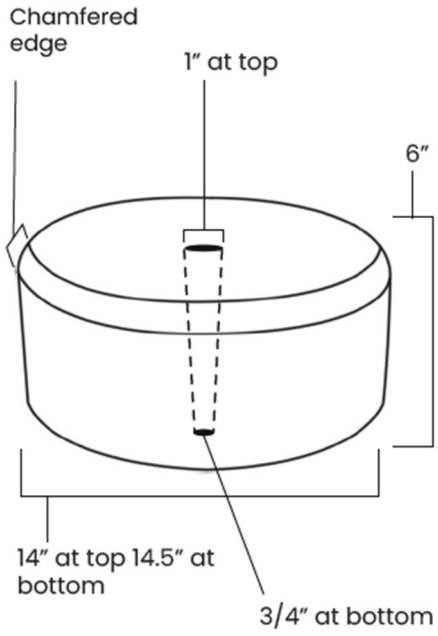

FIGURE 2—EZ-PAD/ENDUROCRETE WHEEL SETTING PAD

TABLE 1—EZ-TUBE - BASE PLUS TUBES ALLOWABLE CAPACITIES

Soil Bearing Capacity (psf)	4 Tubes Stacked - 53-1/2 Inches Tall Total		3 Tubes Stacked – 42 Inches Tall Total	
	Base Bearing Capacity (lbs.)	Tension Capacity (lbs.)	Base Bearing Capacity (lbs.)	Tension or uplift Capacity (lbs.)
1000	1,808	340	2,204	280
1500	3,128	340	3,524	280
2000	4,448	340	4,844	280
2500	5,768	340	6,164	280
3000	7,087	340	7,483	280
3500	8,407	340	8,803	280
4000	9,727	340	10,123	280
12000	30,846	340	31,242	280

For SI: 1 lbf = 1.356 N-m; 1 kip (1000 lbf) = 4.48 kN; 1 psi =6.89 kPa

TABLE 2—EZ-TUBE - BASE PLUS TUBES ALLOWABLE CAPACITIES

Soil Bearing Capacity (psf)	2 Tubes Stacked - 30-1/2 Inches Tall Total		1 Tube - 19 Inches Tall Total	
	Base Bearing Capacity (lbs.)	Tension or uplift Capacity (lbs.)	Base Bearing Capacity (lbs.)	Tension or uplift Capacity (lbs.)
1000	2,322	220	2,322	160
1500	3,641	220	3,641	160
2000	4,961	220	4,961	160
2500	6,281	220	6,281	160
3000	7,601	220	7,601	160
3500	8,921	220	8,921	160
4000	10,241	220	10,241	160
12000	31,359	220	31,359	160

For SI: 1 lbf = 1.356 N-m; 1 kip (1000 lbf) = 4.48 kN; 1 psi =6.89 kPa

TABLE 3—EZ-TUBE - WITHOUT BASE TUBES ALLOWABLE CAPACITIES

Soil Bearing Capacity (psf)	4 Tubes Stacked - 46 Inches Tall Total		3 Tubes Stacked - 34-1/2 Inches Tall Total	
	Base Bearing Capacity (lbs.)	Tension Capacity (lbs.)	Base Bearing Capacity (lbs.)	Tension or uplift Capacity (lbs.)
1000	518	240	571	180
1500	848	240	901	180
2000	1,178	240	1,231	180
2500	1,508	240	1,561	180
3000	1,838	240	1,891	180
3500	2,168	240	2,221	180
4000	2,498	240	2,551	180
12000	7,777	240	7,831	180

For SI: 1 lbf = 1.356 N-m; 1 kip (1000 lbf) = 4.48 kN; 1 psi =6.89 kPa

TABLE 4—EZ-TUBE - WITHOUT BASE TUBES ALLOWABLE CAPACITIES

Soil Bearing Capacity (psf)	2 Tubes Stacked - 23 Inches Tall Total		1 Tube- 11-$^1/_2$ Inches Tall Total	
	Base Bearing Capacity (lbs.)	Tension or uplift Capacity (lbs.)	Base Bearing Capacity (lbs.)	Tension or uplift Capacity (lbs.)
1000	601	120	630	60
1500	931	120	960	60
2000	1,261	120	1,290	60
2500	1,591	120	1,620	60
3000	1,921	120	1,950	60
3500	2,251	120	2,280	60
4000	2,581	120	2,610	60
12000	7,861	120	7,890	60

For SI: 1 lbf = 1.356 N-m; 1 kip (1000 lbf) = 4.48 kN; 1 psi =6.89 kPa

TABLE 5—EZ-PAD/ENDUROCRETE WHEEL SETTING PAD ALLOWABLE CAPACITIES

Soil Bearing Capacity (psf)	Base Bearing Capacity (lbs.)	Tension or uplift Capacity (lbs.)
1000	1,019	60
1500	1,553	60
2000	2,088	60
2500	2,622	60
3000	3,157	60
3500	3,691	60
4000	4,226	60
12000	12,778	60

For SI: 1 lbf = 1.356 N-m; 1 kip (1000 lbf) = 4.48 kN; 1 psi =6.89 kPa