

ICC-ES Evaluation Report

ESR-5168

| Issued | February 2025 | This report also contains: |
|---------|--------------------------|----------------------------|
| | | - CA Supplement |
| Subject | to renewal February 2026 | - FL Supplement |

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| DIVISION: 31 00 00— EARTHWORK Section: 31 63 00— Bored Piles | REPORT HOLDER: KRINNER FOUNDATION SYSTEMS | EVALUATION SUBJECT: KRINNER GROUND SCREW SYSTEMS | |
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1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2021 International Building Code® (IBC)
- 2021 International Residential Code[®] (IRC)

Properties evaluated:

- Structural
- Geotechnical

2.0 USES

Krinner Ground Screw Systems are foundation elements used to support new or existing structures. They are designed to transfer axial compression, axial tension, and lateral loads from the supported structures to the surrounding soil. The surrounding soil is displaced upon installation.

3.0 DESCRIPTION

3.1 General:

The Krinner Ground Screw Systems consist of a steel screw shaft, with one end formed into a cone, with a single continuous helical-shaped screw thread, extending along the entirety of the coned-tip up on to screw shaft. The screw shafts are screwed into the ground by application of torsion and simultaneously applied downward pressure until the desired depth is reached. M-profile screw piles have a flat hexagonal base with a support bracket. The ground screws come in two configurations for M-Series depending on the diameters, as listed in <u>Table 1</u>.

3.2 System Components:

3.2.1 Screw Shafts: The screw shafts are composed of a central tubular shaft with one end formed into a cone and a single factory welded steel screw thread. The screw shafts come in approximately 3 and 4.5-inch (76 and 114 mm) outside diameter and 63, 82.7 and 122-inch (1600, 2100 and 3100 mm) lengths. The screw shaft diameter tapers to a pointed tip at the bottom of the screw shaft. The top of the screw shafts on the welded flange configuration are used to connect the driver head for ground screw installation. See Figures 1 and 2 for typical ground screw configurations. The screw shafts are made from round tubular steel having a minimum wall thickness of 0.200-inch (5.08 mm). The steel screw threads have a minimum thickness of 0.200-inch (5.08 mm). The screw shafts are hot-dipped galvanized in accordance with ASTM A123.



3.2.2 Top Connection Devices:

3.2.2.1 General: The welded flanges come with predrilled holes, which are used to connect to the supported structural element. The welded flanges are hot-dipped galvanized in accordance with ASTM A123. See <u>Figures 1</u> to <u>2</u> for welded flange dimensions and configurations.

3.2.2.2 Bolts: The bolts used to connect the flanges to the supported structural element must be 1/2-inchdiameter Grade 8 UNC bolts with matching nuts. The bolts must be hot-dipped galvanized in accordance with ASTM A153.

3.3 Material Specifications:

3.3.1 Screw Shafts: The screw shafts comply with GB/T 6728 Q355B carbon steel specification having a minimum yield strength of 52 ksi (355 MPa) and a minimum ultimate tensile strength of 68 ksi (470 MPa). The screw shafts are hot-dipped galvanized in accordance with ASTM A123.

3.3.2 Screw Threads: The screw threads comply with GB/T 3274 Q235B carbon steel specification having a minimum yield strength of 34 ksi (235 MPa) and a minimum ultimate tensile strength of 53 ksi (366 MPa). The screw threads are hot-dipped galvanized in accordance with ASTM A123.

3.3.3 Welded Flanges: The welded flanges are made from carbon steel complying with GB/T 3274 Q355B carbon steel specification having a minimum yield strength of 52 ksi (355 MPa) and a minimum ultimate tensile strength of 68 ksi (470 MPa). The flanges are hot-dipped galvanized as assemblies in accordance with ASTM A123.

4.0 DESIGN AND INSTALLATION

4.1 Design:

4.1.1 General:

Engineering calculations (analysis and design) and drawings, prepared by a registered design professional, must be submitted to and approved by the code official for each project, and must be based on accepted engineering principles as described in IBC Section 1604.4. The engineering analysis must address ground screw system performance related to structural and geotechnical requirements. The calculations must address the ability (considering strength and stiffness) of the supported structure to transmit the applied loads to the ground screw systems and the ability of the ground screws and surrounding soils to support the loads applied by the supported structure. The design method for the steel components is Allowable Strength Design (ASD), described in 2021 IBC Section 202 and AISC 360 Section B3. The design method for soils is ASD as prescribed in 2021 IBC Sections 202 and 1802.1.

The structural analysis must consider all applicable internal forces (axial forces, shears, bending moments and torsional moments, if applicable) due to applied loads; eccentricity between applied loads and reactions acting on the screw-supported structure; the loading exerted on the supported structure by the top connection devices; and the design span(s) between ground screws. The loading exerted on the supported structure by the top connection device should be equal in magnitude and opposite in direction to the force in the ground screw. A small lateral force is developed at the supported structure if the ground screw is not perfectly plumb but within the permitted inclination from vertical of ±1 degree. The result of this analysis and the structural capacities must be used to select a ground screw system.

The ground screw embedment into the soil is based on the ground screw length and must be selected based on the project specific requirements.

For ground screw systems subject to combined lateral and axial (compression or tension) loads, the allowable strength of the shaft under combined loads must be determined using the interaction prescribed in Chapter H of AISC 360.

The geotechnical analysis must address the suitability of the ground screw system for the specific project. It must also address the center-to-center spacing of the ground screws, considering both effects on the supported structure and group effects on the screw-soil capacity. The analysis must include estimates of the axial tension, axial compression and lateral capacities of the ground screws, whatever is relevant for the project, and the expected total and differential screw movements due to single screw or screw group, as applicable.

Unless exempted by the building official in accordance with IBC Section 1803.2, a site-specific geotechnical report is required for proper application of ground screw systems. If required, geotechnical investigations shall be conducted in accordance with IBC Section 1803.2 and reported in accordance with IBC Section 1803.6. The geotechnical report must include, but not be limited to, the following information:

- 1. A plot showing the location of the soil investigation.
- 2. A complete record of the soil boring and penetration test logs and soil samples.
- 3. A record of the soil profile.
- 4. Information on groundwater table, frost depth and corrosion-related parameters, as described in Section 5.0 of this report.
- 5. Soil design parameters as shown in <u>Table 5</u> of this report.
- 6. Confirmation of the suitability of ground screw systems for the specific project.
- 7. Recommendations for design criteria, including but not limited to, mitigation of effects of differential settlement and varying soil strength; and effects of adjacent loads.
- 8. Recommended center-to-center spacing of ground screws, if different from spacing noted in Section 5.0 of this report; and reduction of allowable loads due to the group action, if necessary.
- 9. Field inspection and reporting procedures (to include procedures for verification of the installed bearing capacity, when required).
- 10.Load test requirements.
- 11. Any questionable soil characteristics and special design provisions, as necessary.
- 12. Expected total and differential settlement.
- 13. The axial compression, axial tension and lateral load soil capacities if values cannot be determined from this evaluation report.

There are four primary structural/geotechnical elements associated with the ground system: top connection device capacity, ground screw shaft capacity, ground screw thread capacity and ground screw soil capacity, which are described in Sections 4.1.2, 4.1.3, 4.1.4, and 4.1.5, respectively. The allowable capacity of overall ground screw system is described in Section 4.1.6.

4.1.2 Top Connection Devices: The allowable load capacities of the welded flanges are shown in <u>Table 2</u> of this report. The supported structural element and its connection to the top connection device of the ground screw system must be designed by a registered design professional and must not exceed the published values in <u>Table 2</u> of this report.

4.1.3 Ground Screw Shaft Capacity: The allowable load capacities of the screw shafts are shown in <u>Table</u> <u>3</u> of this report. The elastic shortening of the pile shaft will be 0.008 in/ft of shaft and the elastic lengthening will be 0.006 in/ft of shaft.

4.1.4 Ground Screw Thread Capacity: The allowable load capacities of the ground screw threads are shown in <u>Table 4</u> of this report.

4.1.5 Soil Capacity: The allowable load capacity of the ground screws installed in specified soils is shown in <u>Table 5</u> of this report. For soil conditions that substantially differ from those shown in the table, the soil capacity of the ground screws shall be determined by a registered design professional. Soil conditions shall be determined by a site-specific geotechnical report, as described in Section 4.1.1.

4.1.6 Ground Screw System: The overall allowable load capacity of the Krinner Ground Screw System depends upon the analysis of interaction of top connection devices (Section 4.1.2), ground screw shafts (Section 4.1.3), ground screw threads (Section 4.1.4) and ground screw soil capacity (Section 4.1.5), and must be based on the lowest value of those for top connection device capacity, ground screw shaft capacity, ground screw thread capacity and ground screw soil capacity. The applied load from the supported structure must not exceed the overall allowable load capacity of the Ground Screw System.

4.2 Installation:

4.2.1 General: The Ground Screw Systems must be installed in accordance with this section (Section 4.2), the site-specific approved construction documents (engineering plans and specifications), and the manufacturer's written installation instructions. In case of a conflict, the most stringent requirement governs.

4.2.2 Ground Screw Installation:

- 1. The ground screws must be located and installed in accordance with the site-specific approved construction documents.
- 2. The equipment used to install the ground screws must be in accordance with the manufacturer's published installation instructions.

- 3. During installation, the clockwise rotation of the ground screw must be accompanied by downward pressure (crowd) to advance the screw one thread pitch per rotation. The crowd force must not exceed 5 percent of the allowable axial compression load of the ground screw shaft or ground screw threads reported in <u>Tables 3</u> or <u>4</u>, as applicable, whichever is lower.
- 4. Ground screws must be installed vertically plumb into the ground with a ±1 degree of tolerance. The torque induced within the ground screws depends on the density of surrounding soils. The ground screw shaft maximum installation torque capacities are provided in <u>Table 3</u> and cannot be exceeded during ground screw installation.
- Torque must be measured with a calibrated in-line indicator or calibrated hydraulic torque motor via differential pressure. Calibration of torque motors and/or torque indicators must be performed using equipment whose calibration is traceable back to NIST (National Institute of Standards and Technology).
- 6. The final depth must be as indicated in <u>Table 5</u>. The length of the ground screw chosen must meet the minimum depth required for frost protection.
- 7. In order to avoid group effect for lateral loading, the center-to-center spacing of ground screws in the direction of lateral force must be at least eight times the ground screw outside diameter (76 or 114 mm).
- 8. In order to avoid group effect for axial loading, the center-to-center spacing of ground screws must be at least three times the ground screw outside diameter (76 or 114 mm).
- 9. The eccentricity between the applied vertical load by supported structures and the center of the ground screw shaft must not exceed 5 percent of the shaft maximum diameter.

4.2.3 Top Connection Devices: Once the ground screw has been installed, the supported structure must be connected to the top connection device in accordance with the approved plans as determined by a registered design professional. Six (6) bolts as described in Section 3.2.2.2 of this report must be used to connect the supported structure to the flange.

4.3 Special Inspections:

Special inspection in accordance with Section 1705.1.1 of the IBC must be performed during the installation of the Ground Screw Systems (screw shafts and top connection devices). Items to be recorded and confirmed by the special inspector include, but are not limited to, the following:

- 1. Verification of the product manufacturer.
- 2. Product configuration and identification (including catalog numbers) for ground screws and top connection devices.
- 3. Installation equipment used.
- 4. Written installation procedures.
- 5. Bolts as specified in the approved construction documents and this evaluation report.
- 6. Inclination and position of ground screws.
- 7. Verification that the maximum installation torque noted in <u>Table 3</u>, as applicable, is not exceeded. Verification that the ground screw soil embedment complies with <u>Table 5</u>, as applicable.
- 8. Verification that top flange bracket is installed in accordance with Section 4.2.3 of this report.
- 9. Compliance of the installation with the approved construction documents and this evaluation report, including conditions and limitations described in the footnotes to the tables in this report.

5.0 CONDITIONS OF USE:

The Krinner Ground Screw Systems described in this report comply with, or are suitable alternatives to what is specified in, those codes noted in Section 1.0 of this report, subject to the following conditions:

- **5.1** The Krinner Ground Screw Systems are manufactured, identified and installed in accordance with this report, the approved construction documents (engineering drawings and specifications), and the manufacturer's written installation instructions, which must be available at the jobsite at all times during installation. In case of a conflict, the most stringent requirement governs.
- 5.2 The Krinner Ground Screw Systems have been evaluated for support of structures assigned to Seismic Design Categories A and B and Site Classes A through D in accordance with IBC Section 1613. Krinner Ground Screw Systems that support structures assigned to Seismic Design Category C, D, E or F, or are located in Site Class E or F, are outside the scope of this report, and are subject to the approval of the code official based upon submission of a design in accordance with the code by a registered design professional.

- 5.3 Krinner Ground Screw Systems are limited to support structures constructed from steel or wood materials.
- 5.4 Use of the Krinner Ground Screw Systems in exposure conditions that are indicative of potential pile deterioration or corrosion situations as defined by the following: (1) soil resistivity less than 1,000 ohm-cm; (2) soil pH less than 5.5; (3) soils with high organic content; (4) soil sulfate concentrations greater than 1,000 ppm; (5) soils located in a landfill, or (6) soil containing mine waste is beyond the scope of the evaluation report.
- **5.5** Supported steel structures in contact with top connection devices must be zinc-coated steel in accordance with ASTM A123 or ASTM A153. Fasteners used to connect supported structure elements to top connection devices must be corrosion resistant.
- **5.6** The ground screws must be installed vertically into the ground, with a maximum allowable angle of inclination of ±1 degree.
- 5.7 Special inspection is provided in accordance with Section 4.3 of this report.
- **5.8** Engineering calculations and drawings, in accordance with recognized engineering principles as described in IBC Section 1604.4, and complying with Section 4.1 of this report, are prepared by a registered design professional and approved by the code official.
- **5.9** The adequacy of the supported structures that are connected to the brackets must be verified by a registered design professional in accordance with applicable code provisions and subjected to the approval of the code official.
- **5.10** A geotechnical investigation report for each project site must be provided to the code official for approval in accordance with Section 4.1.1 of this report.
- **5.11** The load combinations prescribed in 2021 IBC Section 1605.1 must be used to determine the applied loads. When using the alternative basic load combinations prescribed in 2021 IBC Section 1605.2, the allowable stress increases permitted by material chapters of the IBC or the referenced standards are prohibited.
- **5.12** In order to avoid the group effects on lateral load behavior, the minimum center-to-center spacing of ground screws in the direction of lateral force must be at least eight times the ground screw shaft outside diameter; and to avoid the group effects on axial load behavior, the center-to-center spacings of the ground screws must be at least three times the ground screw shaft outside diameter.
- **5.13** Settlement of ground screws is beyond the scope of this evaluation report and must be determined by a registered design professional.
- 5.14 The applied loads must not exceed the allowable capacities described in Section 4.1 of this report.
- **5.15** The Krinner Ground Screw Systems are manufactured under a quality control program with inspections by ICC-ES.

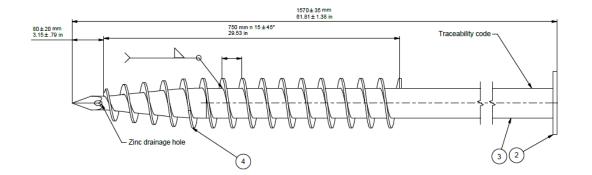
6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Screw Foundation Systems (SFSs) (AC443), dated October 2023.

7.0 IDENTIFICATION

- **7.1** The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-5168) along with the name, registered trademark, or registered logo of the report holder must be included in the product label.
- **7.2** In addition, the ground screw products described in this report must be identified with a tag or label with the following information: report holder name and address; product model number and batch number.
- **7.3** The report holder's contact information is the following:

KRINNER FOUNDATION SYSTEMS 6747 THEALL ROAD HOUSTON, TEXAS 77066 (877) 465-7466 www.krinner.io/en-na/



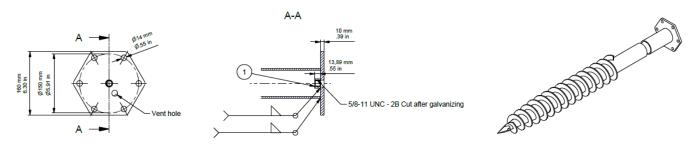


FIGURE 1a—3-INCH DIAMETER M-SERIES GROUND SCREW WITH 63-INCH LENGTH (units shown in metric)

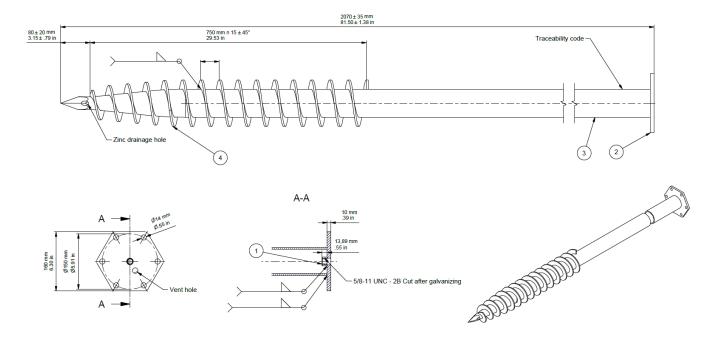
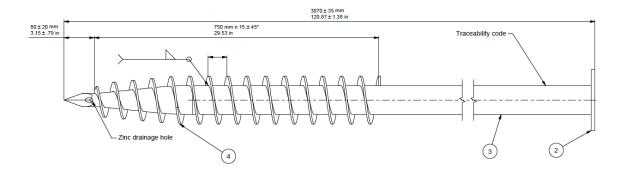


FIGURE 1b—3-INCH DIAMETER M-SERIES GROUND SCREW WITH 82.7-INCH LENGTH (units shown in metric)



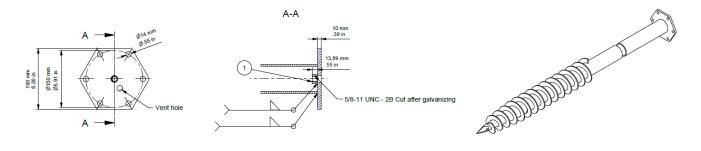
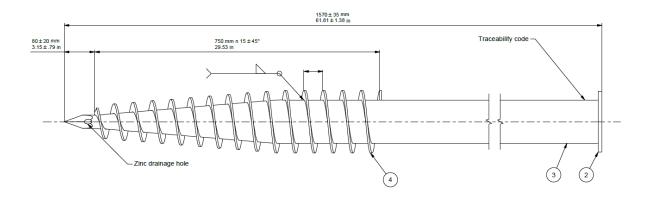


FIGURE 1c—3-INCH DIAMETER M-SERIES GROUND SCREW WITH 122-INCH LENGTH (units shown in metric)



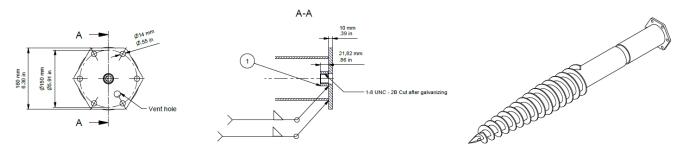
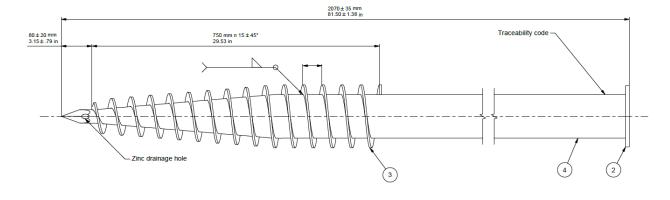


FIGURE 2a—4.5-INCH DIAMETER M-SERIES GROUND SCREW WITH 63-INCH LENGTH (units shown in metric)



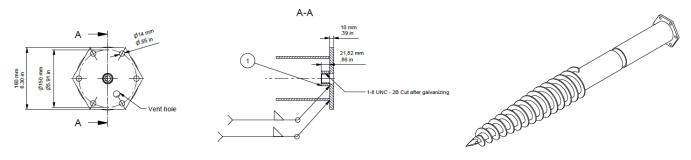


FIGURE 2b—4.5-INCH DIAMETER M-SERIES GROUND SCREW WITH 82.7-INCH LENGTH (units shown in metric)

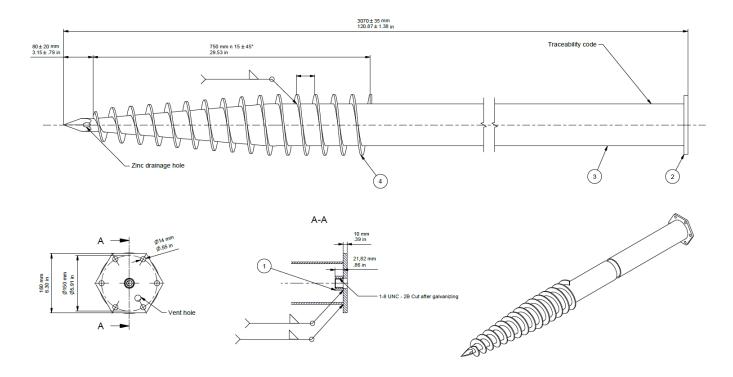


FIGURE 2c-4.5-INCH DIAMETER M-SERIES GROUND SCREW WITH 122-INCH LENGTH (units shown in metric)

TABLE 1- KRINNER GROUND SCREW SYSTEMS M-SERIES

| Product ID | Outer Diameter, mm (in) | Inner Diameter, mm (in) | Overall Length, mm (in) | Thread Length, mm (in) | | |
|------------|----------------------------|-------------------------|-------------------------|------------------------|--|--|
| | | | 1,600 (63) | | | |
| KSF M76 | 76 (3) | 69 (2.7) | 2,100 (82.7) | 750 (29.5) | | |
| | | | 3,100 (122) | | | |
| | | | 1,600 (63) | | | |
| KSF M114 | 114 (4.5) | 107 (4.2) | 2,100 (82.7) | 750 (29.5) | | |
| | | | 3,100 (122) | | | |

For **SI**: 1 inch= 25.4 mm.

TABLE 2—M-SERIES GROUND SCREW MODEL TOP CONNECTION ALLOWABLE CAPACITY^{1,2,3,4}

| Product ID | Diameter (inches) | Allowable Load Capacity (kips) | | | |
|------------|-------------------|---------------------------------|------|---------|--|
| | | Axial Tension Axial Compression | | Lateral | |
| KSF M76 | 3 | 26.07 | 28.7 | 3.3 | |
| KSF M114 | 4.5 | 26.09 44.78 | | 4.8 | |

For **SI**: 1 inch= 25.4 mm; 1 kip=1000 lbf= 4.45 kN.

¹ Tabulated allowable load capacities include corrosion losses of 0.013-inch over a 50-year service life.

²Tabulated allowable load values are based on internal strength properties of welded flanges and bolt connection to the support structural element. Bolts must be installed per manufacturer's instructions per Section 4.2.3. Connection capacity of flange to support structural element must be determined by a registered design professional.

³Tabulated allowable axial compression capacity is based on welded flange bearing on top of ground screw shaft based on the assumption that the supported structure will transfer the load to the top of the ground screw shaft through direct bearing. Other applicable limit states must be determined by a registered design professional.

| Product ID | Ground Screw Diameter (inches) | rew Screw neter Length | Allowable Load Shaft Capacities ¹ | | | | | |
|------------|---|---------------------------|--|---|------------------|--------------|-----------------|-------|
| | | | Axial Tension (kips) | Axial Compression ² (kips) | Lateral | | Maximum | |
| | | | | | Bending (kip-ft) | Shear (kips) | Torque (ft-lbf) | |
| KSF M76 | 3 | 63 | 26.07 | 28.7 | 1.13 | 7.82 | 5,299 | |
| | | 82.7 | 26.07 | 28.7 | 1.13 | 7.82 | 5,299 | |
| | | 122 | 26.07 | 28.7 | 1.13 | 7.82 | 5,299 | |
| KSF M114 | | | 63 | 26.09 | 44.78 | 1.13 | 7.82 | 6,739 |
| | 4.5 | 82.7 | 26.09 | 44.78 | 1.13 | 7.82 | 6,739 | |
| | | 122 | 26.09 | 44.78 | 1.13 | 7.82 | 6,739 | |

TABLE 3-M-SERIES GROUND SCREW MODEL SHAFT ALLOWABLE CAPACITY

For SI: 1 inch= 25.4 mm; 1 kip=1000 lbf= 4.45 kN; 1 ft-lb= 1.36 N-m.

¹Tabulated allowable load capacities include corrosion losses of 0.013-inch over a 50-year service life.

²Allowable axial compression capacity of the shaft is based on the ground screw installed in a fully braced condition.

TABLE 4-M-SERIES GROUND SCREWS SCREW THREADS ALLOWABLE CAPACITY1

| Product ID | Ground Screw Diameter (inches) | Maximum Allowable Torsion (ft-lb) | Axial Tension/Compression Thread Capacity (kips) | | |
|------------|-----------------------------------|-----------------------------------|---|--|--|
| KSF M76 | 3 | 5,299 | 165.5 | | |
| KSF M114 | 4.5 | 6,739 | 121.3 | | |

For SI: 1 inch= 25.4 mm; 1 kip=1000 lbf= 4.45 kN; 1 ft-lb= 1.36 N-m.

¹Tabulated allowable load capacities include corrosion losses of 0.013-inch over a 50-year service life.

TABLE 5-M-SERIES GROUND SCREWS ALLOWABLE SOIL CAPACITY⁴

| Ground Screw Diameter (inches) | Ground Ground Screw Soil Screw Embedment | | Axial Tension (lbf) | | Axial Compression (lbf) | | Lateral (lbf) ³ | | |
|---|--|--------------------|----------------------------|----------------------------|-------------------------------|----------------------------|----------------------------|----------------------------|--|
| | Length (inches) | Depth (inches)⁵ | Soil Classification | | | | | | |
| | | | Silty Sand ¹ | Sandy Clay ² | Silty Sand¹ | Sandy Clay ² | Silty Sand ¹ | Sandy Clay ² | |
| 3 | 63 | 48 | 2,348 | 7,616 | 5,785 | 6,334 | 2,095 | 3,325 | |
| | 82.7 | 67.7 | 2,348 | 7,616 | 5,785 | 6,334 | 2,095 | 3,325 | |
| | 122 | 107 | 2,348 | 7,616 | 5,785 | 6,334 | 2,095 | 3,325 | |
| 4.5 | 63 | 48 | 2,781 | 10,323 | 4,888 | 12,628 | 2,388 | 4,898 | |
| | 82.7 | 67.7 | 2,781 | 10,323 | 4,888 | 12,628 | 2,388 | 4,898 | |
| | 122 | 107 | 2,781 | 10,323 | 4,888 | 12,628 | 2,388 | 4,898 | |

For **SI:** 1 inch= 25.4 mm; 1 lbf= 4.45 N.

¹Silty sand classified soil has a blow count of 13.

²Sandy clay classified soil has a blow count of 34 and a plasticity index of 20 to 31.

³Lateral load applied 12 inches above ground surface.

⁴Maximum installation torque must not exceed the maximum torque values in <u>Table 3</u> of this report.

⁵The ground screw embedment for laterally loaded ground screws is 60 inches for the 63-inch screw, 79.7 inches for the 82.7-inch screw, and 119 inches for the 122-inch screw.



ICC-ES Evaluation Report

ESR-5168 CA Supplement

Issued February 2025

This report is subject to renewal February 2026.

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DIVISION: 31 00 00—EARTHWORK Section: 31 63 00—Bored Piles

REPORT HOLDER:

KRINNER FOUNDATION SYSTEMS

EVALUATION SUBJECT:

KRINNER GROUND SCREW SYSTEMS

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that the Krinner Ground Screw Systems, described in ICC-ES report ESR-5168, have 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 Krinner Ground Screw Systems, described in Sections 2.0 through 7.0 of the evaluation report ESR-5168, comply with CBC Chapter 18, provided the design and installation are in accordance with the 2021 *International Building Code*[®] (IBC) provisions noted in the evaluation report and the additional inspection requirements of CBC Chapters 16, 17 and 18, 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 Krinner Ground Screw Systems, described in Sections 2.0 through 7.0 of the evaluation report ESR-5168, comply 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, issued February 2025.





ICC-ES Evaluation Report

ESR-5168 FL Supplement

Issued February 2025 This report is subject to renewal February 2026.

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DIVISION: 31 00 00—EARTHWORK Section: 31 63 00—Bored Piles

REPORT HOLDER:

KRINNER FOUNDATION SYSTEMS

EVALUATION SUBJECT:

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1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that Krinner Ground Screw Systems, described in ICC-ES evaluation report ESR-5168, have also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2023 Florida Building Code—Building
- 2023 Florida Building Code—Residential

2.0 CONCLUSIONS

The Krinner Ground Screw Systems, described in Sections 2.0 through 7.0 of ICC-ES evaluation report ESR-5168, comply with the *Florida Building Code—Building* and the *Florida Building Code—Residential*. The design requirements must be 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-5168 for the 2021 *International Building Code*[®] meet the requirements of the *Florida Building Code—Building* or the *Florida Building Code—Residential*, as applicable.

Use of the Krinner Ground Screw Systems for compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building Code—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, issued February 2025.

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