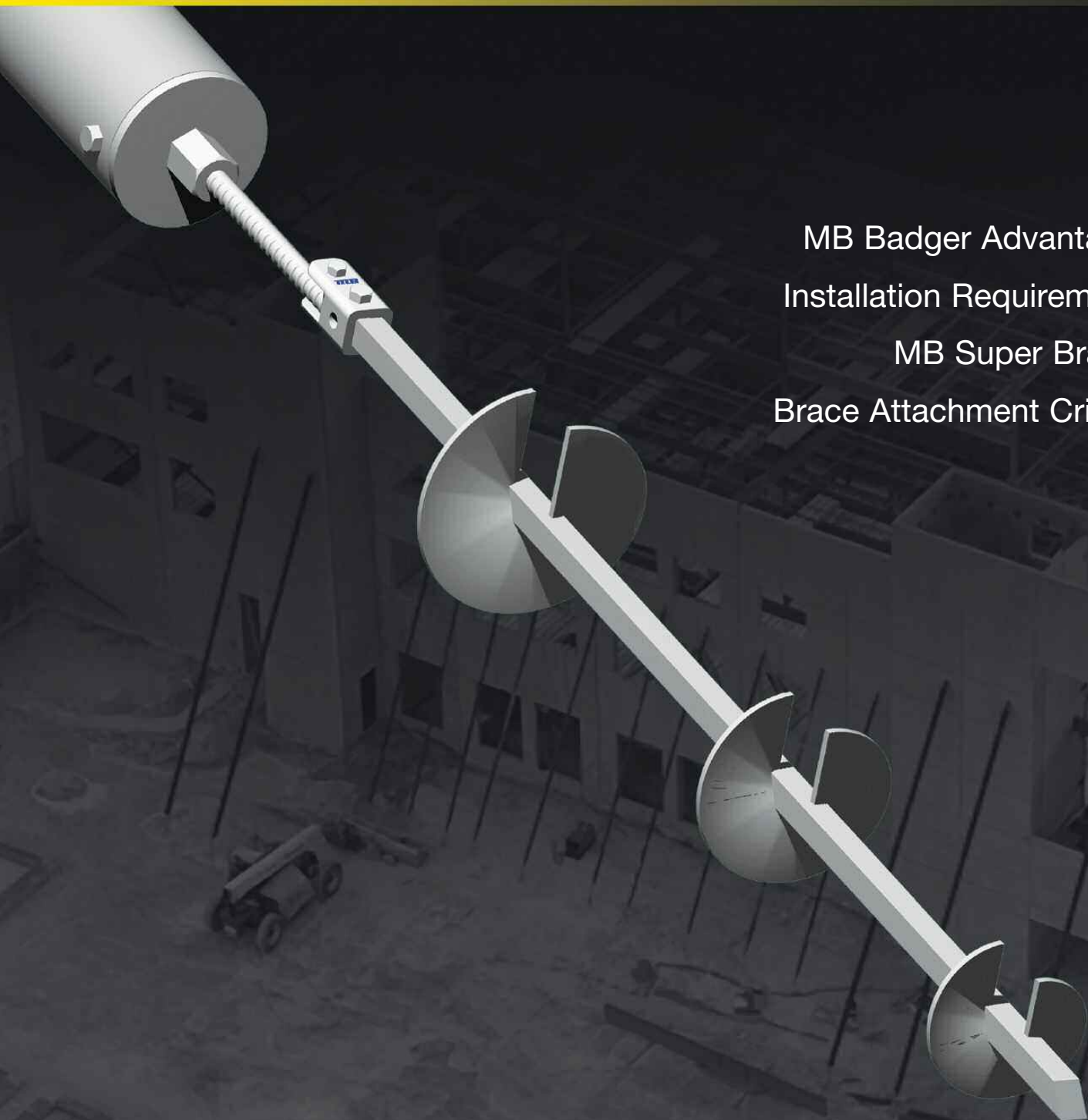


Brace Badger Helical Anchor System

2017



MB Badger Advantages
Installation Requirements
MB Super Braces
Brace Attachment Criteria

MB BRACE BADGER HELICAL ANCHOR SYSTEM

There are times in tilt-up construction when conventional bracing to floor slabs is not desired. Until now your option has been to construct expensive and time consuming concrete deadmen. The Meadow Burke Brace Badger™ is revolutionizing tilt-up construction by providing contractors with an economical and efficient alternative.

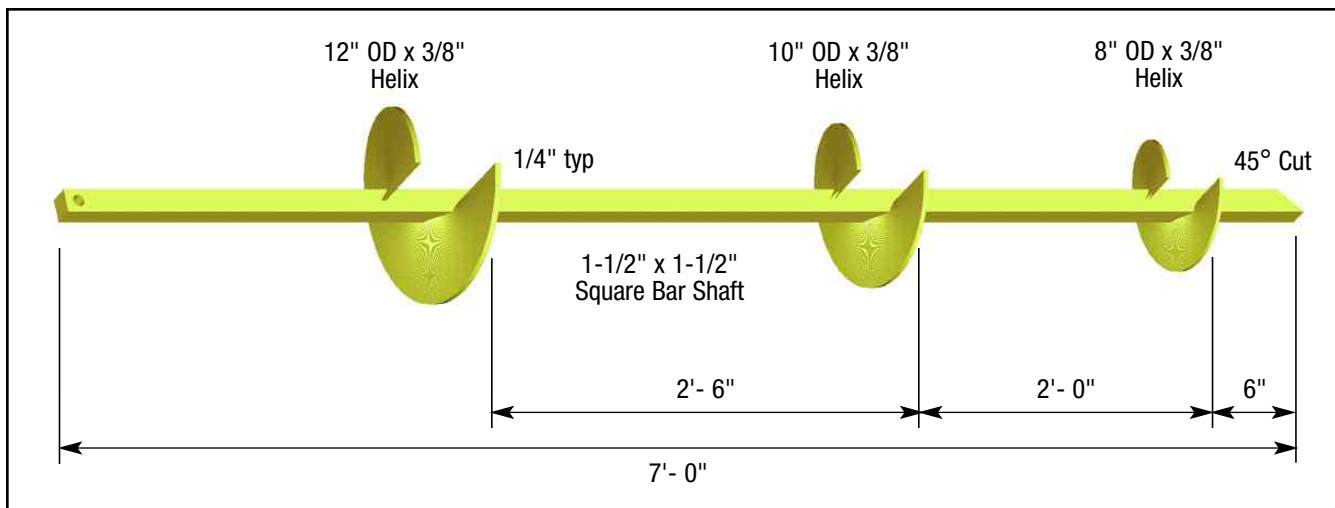


MB BADGER ADVANTAGES INCLUDE:

- eliminates concrete deadmen
- environmentally friendly
- offers quick installation and removal
- the strongest brace anchor available
- verifiable load capacity in all soil conditions
- works with **ALL** Meadow Burke braces
- reusable

PRODUCT SPECIFICATIONS:

The MB Brace Badger is pre-engineered for superior results in tilt-up applications. It consists of three helix plates welded to a 1 1/2" square bar shaft. Each helix plate is specially formed from 3/8" x 44 ksi new steel plate. Our shaft steel has a typical yield strength of 95 ksi, and a typical tensile strength of 130 ksi, making it the strongest helical anchor available in the industry!



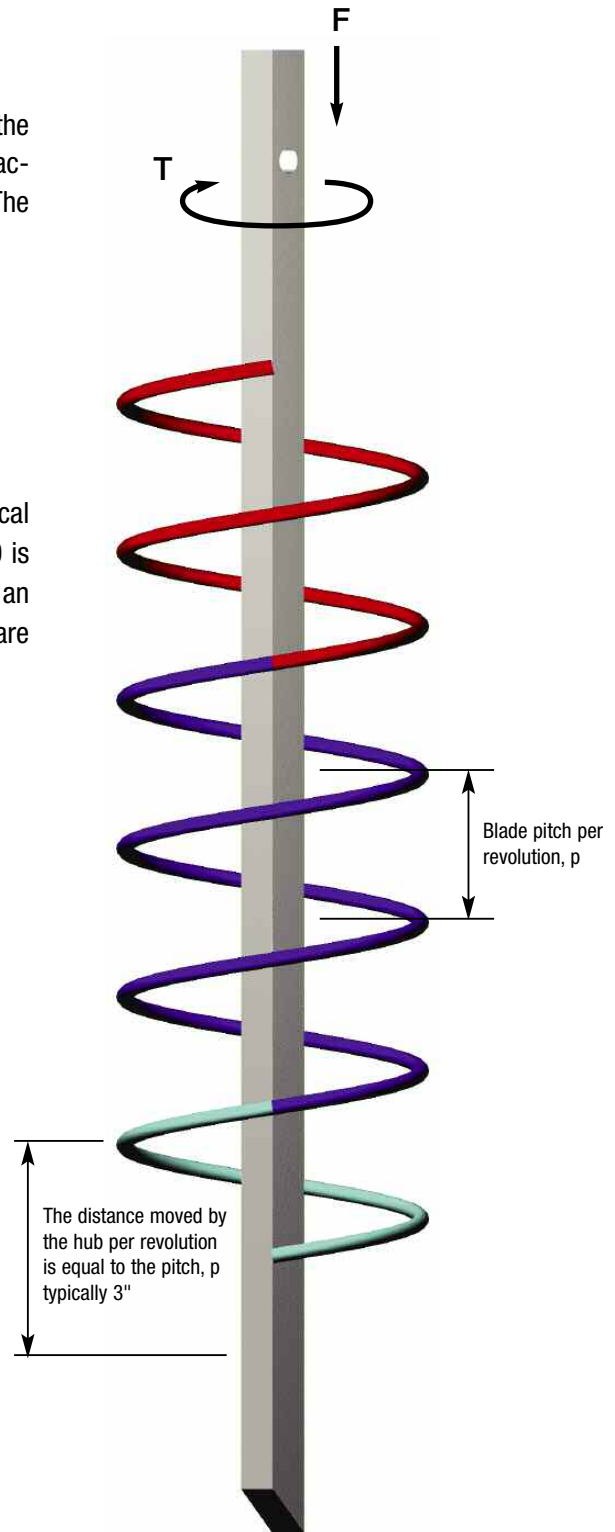
CAPACITY TO TORQUE RATIO

Helical anchor installation involves screwing the anchor into the ground and applying a constant downward force. The holding capacity of the anchor is proportionate to the final installation torque. The following equation can be used to determine holding capacity.

$$\text{Badger Capacity} = K \times T$$

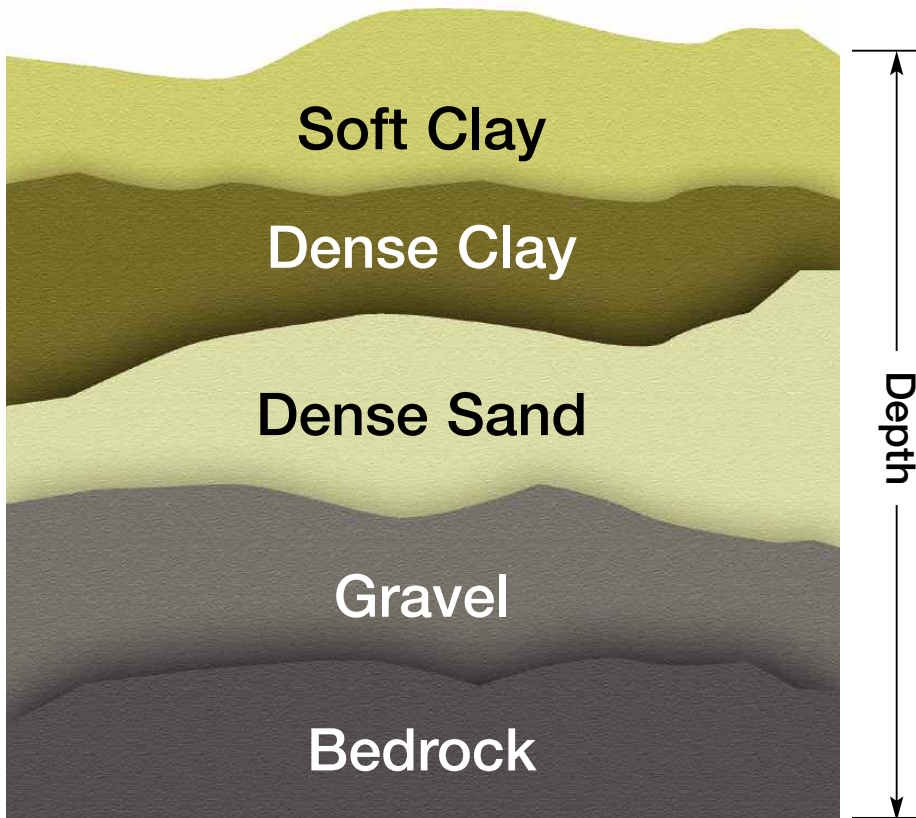
where K = Torque constant
 T = Final installation torque

The K value is reliant on the geometry of the helix pier. For helical anchors with square shaft dimensions less than 2", a value of 10 is suggested by Hoyt and Clemence (1989). MB uses a value of 7 for an added safety factor. This K value is applicable for all 1.50" square shaft anchors.



Typical MB Brace Badger Installation

SOIL MECHANICS



The capacity of the MB Brace Badger is the result of the strength of the surrounding soil because the loading force is transferred to the soil. There are typically two types of soils: cohesive and cohesionless. Cohesive soils are defined as soils whose internal angle of friction is approximately zero ($\phi = 0$) while cohesionless soils are those whose internal angle of friction is greater than zero ($\phi > 0$).

Soil naturally tends to develop in layers or strata, each with individual strength characteristics, and the figure above illustrates this stratification. As the Badger is drilled into the ground, it will pass through different layers. Because

each layer has different characteristics, different torque values will be observed as the anchor passes through each layer. During an ideal installation, the torque values will be constantly increasing, indicating the anchor is being inserted into more dense soil. If a drop in torque is recorded, it is most likely that a soft layer (such as soft clay) was found. The Badger must then be installed through the soft layer until a more dense soil (i.e. higher torque) is found.

MB Brace Badger
Helical Anchor System



INSTALLATION



A variety of rotary hydraulic equipment can be used to install the MB Brace Badger including but not limited to: skidsteers, excavators, and boom mounted utility trucks.

The installer should maintain a continuous downward pressure on the MB Brace Badger to avoid auguring during installation.

Throughout the installation of each MB Brace Badger the torque is continuously monitored and recorded. There is a direct relationship between installation torque and Badger capacity. Continuous monitoring and recording of torque throughout installation gives a profile of the soil conditions.

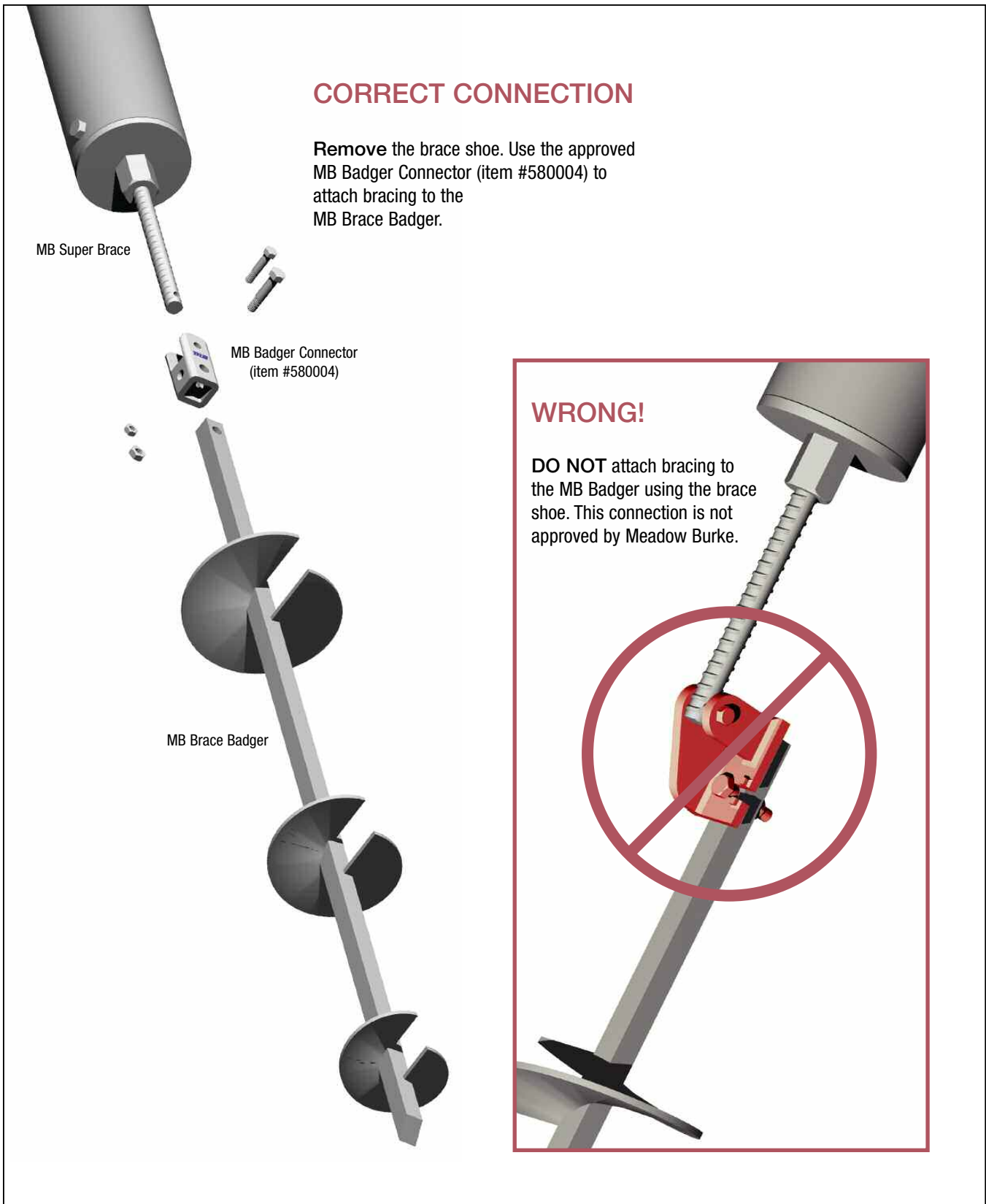
A 5' extension can be added to install the Badger deeper to reach the stronger soils and attain the required load capacity. After the Badger is installed, a Badger Connector is bolted to the top of the Badger. The Super Brace shoe is removed and the Doka rod of the Super Brace is bolted between the ears of the connector. To remove the Badger, simply reverse the hydraulic motor and back it out of the ground. It is ready for immediate inspection and reuse.

INSTALLATION REQUIREMENTS

- 1) Installation is performed by a MB Brace Badger Systems trained installer.
- 2) Using a hydraulic drive head, Brace Badgers (Item #580002) are installed to a torque of 2,200 ft-lbs. If the minimum required torque is not achieved with a single anchor, please contact Meadow Burke engineering for assistance. A 5' extensions (Item #580006) may be added until the torque minimum torque requirement is achieved. It is recommended that preliminary soil logs at the site be obtained to help predict project requirements. In softer soils with Standard Penetration Test (SPT) blow counts (N) less than 10, an extension may be required. Installation in rocky soils with blow counts (N) greater than 30 is not recommended. Also, frozen soils may require pre-auguring so that the anchor can reach below the frost line.
- 3) Maximum allowable installation torque is 7,000 ft-lbs.
- 4) Records of required installation torque for each Badger are required.
- 5) Badgers to be installed in-line with the axis of the brace (+/- 5°).
- 6) Welding, cutting, or any modification of the Badger or its components is prohibited.
- 7) MB Badger Connector (item #580004) must be used for brace connection. To connect to brace, remove brace shoe and reuse 5/8" bolt for connector. Connector to Badger requires one 3/4"Ø x 3 1/2" grade 5 bolt.

SAFETY NOTES

- 1) The contractor shall locate all the subsurface structures and utilities. Any subsurface structure or utility in the vicinity of the Badger locations shall be clearly marked. Horizontal Clearance of anchor from any subsurface structure or utility shall be no less than 5'-0" at the depth of the utility. Installation of Badgers underneath utilities or subsurface structures is strictly prohibited.
- 2) Do not use damaged or worn Brace Badgers. Failure to inspect and replace damaged anchors may result in anchor failure.
- 3) The contractor is to undergo preventive measures to mitigate soil erosion adjacent to installed anchors.
- 4) Any changes resulting from actual installation conditions of the Badger requires that the contractor contact Meadow Burke Engineering for further assistance to determine adequacy of anchor system.



INCORPORATES ALL BRACES

Meadow Burke Super Braces combines lightweight with high strength for easy handling and solid support of tilt-up panels. Because of its tested strength, fewer braces and inserts per panel are required. All of our Super Braces can be easily used with the MB Brace Badger.



MB SUPER 52 BRACE

Fixed Length 8.5" Diameter Brace

Brace Advantages:

- 10,700 lb. safe working load
- works in unison with the MB Brace Badger
- fixed-length brace with 18" fine adjustment
- weighs only 680 pounds
- use with panels up to 77 feet



MB SUPER 42 BRACE

Fixed Length 8.5" Diameter Brace

Brace Advantages:

- 10,700 lb. safe working load
- works in unison with the MB Brace Badger
- fixed-length brace with 18" fine adjustment
- weighs only 560 pounds
- use with panels up to 64 feet high

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MB SUPER 32 BRACE

Brace Advantages:

- 9,000 lb. safe working load
- works in unison with the MB Brace Badger
- fixed-length brace with 18" fine adjustment
- weighs only 275 pounds
- use with panels up to 49 feet
- extensions of 5' and 10' available



MB SUPER 22 BRACE

Brace Advantages:

- 7,333 lb. safe working load
- works in unison with the MB Brace Badger
- fixed-length brace with 18" fine adjustment
- weighs only 136 pounds
- use with panels up to 34 feet high
- extensions of 5' and 10' available



MB SUPER 17 BRACE

Brace Advantages:

- 8,667 lb. safe working load
- works in unison with the MB Brace Badger
- fixed-length brace with 18" fine adjustment
- weighs only 105 pounds
- use with panels up to 27 feet high

ATTACHMENT CRITERIA FOR BRACES

BRACE ATTACHMENT TO SLAB

Meadow Burke approves the use of the following list of products for attachment of the MB Super Brace shoe to the concrete slab or concrete deadman:

- Big-75 Floor Slab Insert
- Super Bolt
- MB Slam Anchor
- MB Brace Bolt

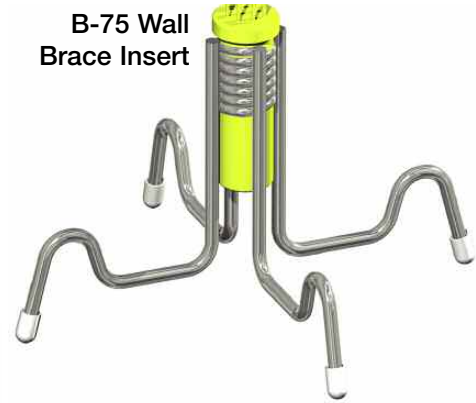
The MB Brace Badger Helical Anchor System is the only Meadow Burke certified alternative for installation when bracing to concrete floor slabs or concrete deadmen is not feasible or desirable.

BRACE ATTACHMENT TO PANELS

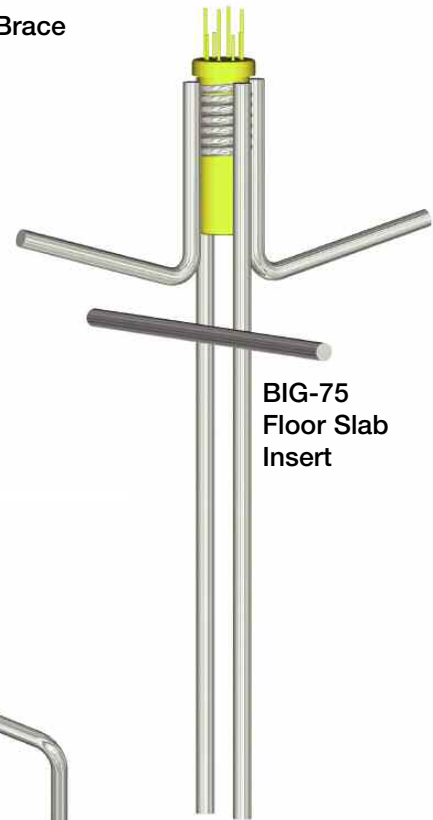
Meadow Burke approves the use of the following list of products for attachment of the MB Super Brace to wall panels:

- B-75 Wall Insert with MB Grade 5 Coil Bolt
- BII-75 Inverted Wall Brace Insert with MB Grade 5 Coil Bolt
- MB Brace Bolt

B-75 Wall
Brace Insert



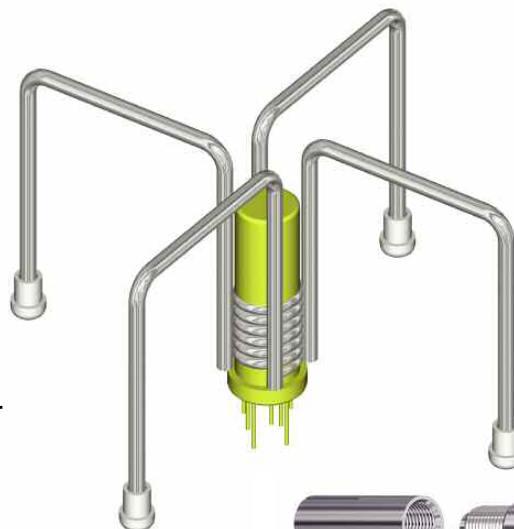
MB Brace
Bolt



BIG-75
Floor Slab
Insert



MB Super
Bolt



BII-75 Inverted Wall
Brace Insert

Slam Anchor



MB BRACE BADGER FIELD INSTALLATION LOG

| | | | |
|----------------------------|-------|----------------|----------------|
| Project Name: | | | |
| Location: | | | |
| Date: | | | |
| Installer Name: | | | |
| Hydraulic Drive Head Used: | | | |
| Pressure Gauge: | | | |
| Placement #: | | | |
| | Depth | Pressure (psi) | Torque (ft-lb) |
| Anchor 1 | | | |
| Anchor 2 | | | |
| Anchor 3 | | | |
| Anchor 4 | | | |
| Anchor 5 | | | |
| Anchor 6 | | | |
| Anchor 7 | | | |
| Anchor 8 | | | |
| Anchor 9 | | | |
| Anchor 10 | | | |
| Anchor 11 | | | |
| Anchor 12 | | | |

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