

**OKLAHOMA
DESIGN
TECHNOLOGIES**

ANCHORING SYSTEM PRESENTATION

INTRODUCTION

Presentation Objective:

Introduce the Saf-T-Anchor and explain the differences in the design and use of materials between other types of anchors and the Saf-T-Anchor.

Explain the benefits of using the Saf-T-Anchor.

METHOD

MATERIAL

LONGEVITY

SAFETY

BENEFITS

SAF-T-ANCHOR TYPES

INTRODUCING THE SAF-T-ANCHOR





WHAT MAKES THIS SUCH AN EFFECTIVE ANCHOR?

METHOD * MATERIAL * LONGEVITY * SAFETY * BENEFITS

METHOD

Installation:

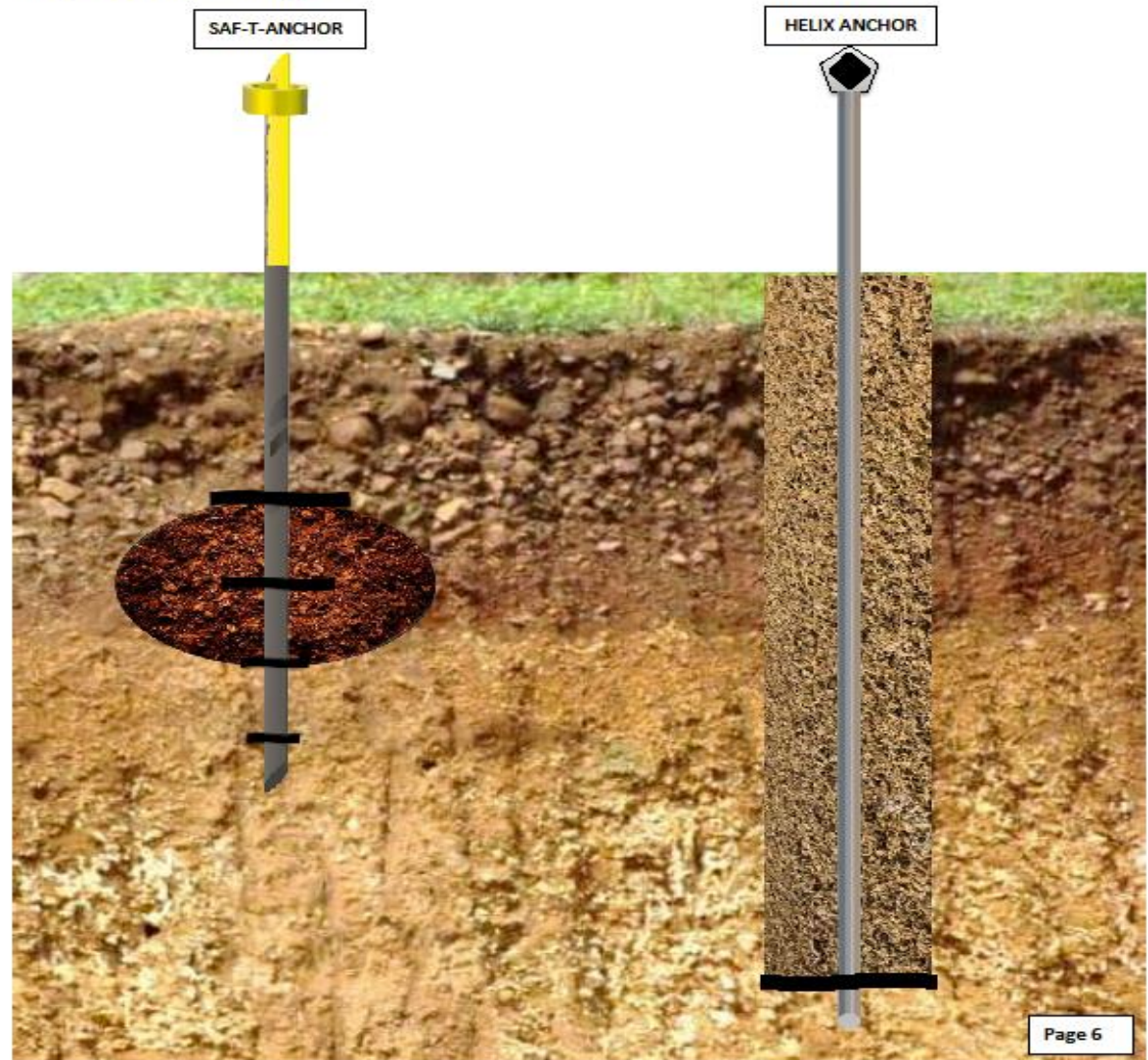
- ✓ The Saf-T-Anchors with the $\frac{3}{4}$ " rods are installed with a battery operated impact wrench or the T-Handle.
- ✓ The Saf-T-Anchors with the 1" rods are installed with a truck using our lightweight aluminum Kelly Bar Adaptor.
- ✓ All Saf-T-Anchors are installed **counter-clockwise**. The impact wrench has 4 times more torque "taking off" than "putting on".
- ✓ Yellow paint is used to enhance visibility, indicates the depth to set the anchor and is for liability purposes. The yellow paint is also a torque indicator, when the paint starts to wrinkle the anchor has reached its set point.

METHOD: SAF-T-ANCHOR VS HELIX ANCHOR

Below is an example of the difference between the SAF-T-ANCHOR and a helix anchor.

The graduated flite sizes on the SAF-T-ANCHOR slice thru the soil leaving it undisturbed. The compactors force the soil down while the anchor is screwed into the ground creating a ball of compressed soil that is squeezing out, forcing the surrounding soil to become compacted. This is what gives the SAF-T-ANCHOR instant holding strength.

The larger single flite on the helix anchor is pushed down creating a tube of loose dirt sitting on top of the flite. Due to the lack of compressed dirt to hold the anchor securely in the ground, the helix anchor will continue to creep and be lifted out of the ground when tension is applied.



METHOD: **THE SAF-T-ANCHOR COMPACTS THE SOIL**

As the anchor is being pulled into the dirt by the smaller bottom flites, the top flite is pushing the dirt back down towards the soil. This creates instant compaction.



WHAT MAKES THIS SUCH AN EFFECTIVE ANCHOR?

METHOD * MATERIAL * LONGEVITY * SAFETY * BENEFITS

MATERIAL

Weathering Steel (Corten):

- ✓ All Saf-T-Anchor rods and flites are made with Corten steel which contains nickel and provides enhanced resistance to corrosion.
- ✓ The Corten rod has a published ultimate tensile strength of 72,000 lbs. Other $\frac{3}{4}$ " steel rods have a published ultimate tensile strength of 23,000 lbs.

WHAT MAKES THIS SUCH AN EFFECTIVE ANCHOR?

METHOD * MATERIAL * LONGEVITY * SAFETY * BENEFITS

MATERIAL

Weathering Steel (Corten):

Weathering steel has a **protective layer of rust** that creates an attractive reddish-brown appearance that's especially popular for creating an industrial look.

Strength levels for weathering steel can reach **100 ksi yield**, but the most common levels are around 50 ksi yield and 70 ksi tensile.

Weathering steels have small additions **copper, nickel** and chromium that help improve the corrosion resistance of the steel to atmospheric sources.

Wikipedia

WHAT MAKES THIS SUCH AN EFFECTIVE ANCHOR?

METHOD * MATERIAL * LONGEVITY * SAFETY * BENEFITS

LONGEVITY

- ✓ The Saf-T-Anchor Corten rods and flites will rust 10 mils thick causing an isolation barrier to protect the anchor which prevents circulating currents from migrating on to the rod causing deterioration.
- ✓ It is estimated that 80% of all earth anchors supporting the electrical system have failed due to circulating currents and anchor creep.
- ✓ The picture of a helix anchor below shows the effects of circulating current on metal. The process of galvanization cannot protect the metal from circulating current. The anchor is attacked at mid length and becomes “penciled” which causes the anchor to fail.



ANCHORING FOR COMMUNICATION COMPANIES

LONGEVITY

NOTE:

Normally, the down guy wire will begin to twist or un-ravel clockwise due to the tension of the pull.

As the down guy wire twists clockwise the Saf-T-Anchor will be tighten or screwed in to the soil due to the fact that the Saf-T-Anchor is installed counter clockwise.

Other anchors are installed clockwise and the twist of the down guy wire will unscrew the anchor.

The STAD4432N-3/4" Saf-T-Anchor is used for the Communication Industry. When replacing bad anchors, this anchor can be installed in the same location at lesser depth with more holding power.

The anchor shown in these pictures had deteriorated and was pulled out of the ground by hand! The Saf-T-Anchor was installed using an impact and a T-Handle in just a few minutes. Communication Companies will now be able to replace all the bad anchors or install new anchors in a fraction of the time compared to installing helical anchors by hand or anchor setting machine.

The STAD4432N-3/4" anchor can be ordered without a thimble eye nut or with a single thimble eye nut (STAD4432N-3/4-STEN).



This helix anchor was pulled out by hand



ODT Communication Anchor

Electric utility's helix anchors



STAD4432N-3/4-STEN



STAD4432N-3/4-STEN



WHAT MAKES THIS SUCH AN EFFECTIVE ANCHOR?

METHOD * MATERIAL * LONGEVITY * SAFETY * BENEFITS

SAFETY

- ✓ The installation method increases safety for the employee.
- ✓ The most commonly used Saf-T-Anchor in the electrical industry is the 5' Saf-T-Anchor (STAD55432N-3/4). This anchor is 5' in length with flites of 5", 4", 3" & 2" with a 2" nut welded on top to accept a 2" socket for installation.
- ✓ The 4' and 5' length Saf-T-Anchors are easy to install with a battery operated impact wrench or the T-Handle as shown in the picture above.

WHAT MAKES THIS SUCH AN EFFECTIVE ANCHOR?

METHOD * MATERIAL * LONGEVITY * SAFETY * BENEFITS

BENEFITS

- ✓ Less time to install
- ✓ More holding power at less depth
- ✓ Longevity
- ✓ Less torque stress for the derrick truck boom
- ✓ Permanent or temporary anchoring
- ✓ Guy wire tensioning by screwing anchor into the ground
- ✓ More economical per installation, one person installation, less personal injuries
- ✓ Anchor designed to penetrate the frost line, asphalt and small rock deposits

COST ANALYSIS

When comparing costs of different types of anchors, the entire cost to install the anchor should be considered.

The ergonomic impact on the employee should also be considered when installing the bust anchor compared to the Saf-T-Anchor.

Using the work order example below can provide the buyer with an estimated total overall cost for installation.

The costs shown in the example are imaginary

| WORK ORDER EXAMPLES | | | | WORK ORDER EXAMPLES | | | |
|---|----------|------------------|-------------------|---|----------|------------------|-----------------|
| ANCHOR INSTALLATION - OTHER TYPE ANCHORS | | | | ANCHOR INSTALLATION - ODT SAF-T-ANCHORS | | | |
| ITEM DESCRIPTION | COST | HOURS TO INSTALL | TOTAL COST | ITEM DESCRIPTION | COST | HOURS TO INSTALL | TOTAL COST |
| MATERIALS | | | | MATERIALS | | | |
| Anchor - 8" Bust | \$100.00 | | \$100.00 | STAD55432-N-3/4 | \$100.00 | | \$100.00 |
| EQUIPMENT (cost per hour w/overheads) | | | | EQUIPMENT (cost per hour w/overheads) | | | |
| Digger Derek Truck | \$150.00 | 3 | \$450.00 | Impact Drill | \$10.00 | 1 | \$10.00 |
| Truck | \$65.00 | 3 | \$195.00 | Truck | \$65.00 | 1 | \$65.00 |
| Shovels | \$2.00 | 3 | \$6.00 | | | | |
| Tamp | \$2.00 | 3 | \$6.00 | | | | |
| LABOR (cost per hour with benefits) | | | | LABOR (cost per hour with benefits) | | | |
| Crew Leader | \$50.00 | 3 | \$150.00 | Crew Leader | \$50.00 | | |
| Lineman #1 | \$45.00 | 3 | \$135.00 | Lineman #1 | \$45.00 | | |
| Lineman #2 | \$40.00 | 3 | \$120.00 | Lineman #2 | \$40.00 | 1 | \$40.00 |
| Lineman #3 | \$35.00 | 3 | \$105.00 | Lineman #3 | \$35.00 | 1 | \$35.00 |
| TOTAL COST | | | \$1,267.00 | TOTAL COST | | | \$250.00 |

If the Saf-T-Anchor is installed by a Service Technician, the total cost is reduced by one employee.

SAF-T-ANCHOR TYPES

TRUCK ANCHOR:

1" rod - Installed with Kelly Bar Adaptor & truck.

HAND INSTALLED ANCHOR:

5' 3/4" rod - Installed with battery operated impact drill, everyday permanent anchoring.
 4' 3/4" rod - Installed with battery operated impact drill, commonly used by the communication industry.



Lightweight Aluminum
Kelly Bar Adaptor



SAF-T-ANCHOR TYPES

2' Temporary Anchor



4' Temporary Anchor



Rock Anchor



Cobblestone Anchor



Swamp Anchor



SAF-T-ANCHOR TYPES VER-T-POL ANCHORS



VER-T-POL ANCHORS

<http://www.oklahomadesigntech.com/saftanchor.html>

PATENT PENDING

| STAD24222-VN-3/4" | STAD442N-H-3/4" |
|---|--|
|  | <p>The STAD24222-VN-3/4" is used to secure the base of the Ver-T-Pol when the ground is not level or when it is used on a solid surfaces, like concrete or asphalt. Can be used as a temporary anchor.</p> |
|  <p>STAD24222-VN-3/4</p> |  <p>STAD442N-H-3/4</p> |
|  <p>STAD442N-H-3/4</p> |  <p>The STAD442N-H-3/4" is used to anchor the Ver-T-Pol. The two hooks easily connect to the chains. This is a re-usable anchor and can be used as a temporary or tie back anchor.</p>  <p>STAD442N-H-3/4</p> |



SAF-T-ANCHOR TYPES
SAF-T-ANCHOR
ROD EXTENSION

SAF-T-ANCHOR ROD EXTENSION

The Saf-T-Anchor can be installed to a greater depth by using the Saf-T-Anchor Rod Extension when soil conditions are not ideal to provide the required holding strength.

The Saf-T-Anchor Rod Extension consists of a 4' rod with a welded 2" nut at the top and at the bottom. The bottom of the rod is threaded to accept the coupler which connects the rod and the anchor together. Once the rod and anchor are connected, the extension cover is slid down over the bottom 2" nut of the extension and the top 2" nut of the Saf-T-Anchor to encapsulate the connection. This makes the connection stronger and protects the coupler.

The Saf-T-Anchor Rod Extensions are available in two sizes to fit both the 3/4" Saf-T-Anchor rods and the 1" Saf-T-Anchor rods.

PATENT PENDING



Part Numbers:

- Anchor Rod Ext – 3/4"
- Anchor Rod Ext – 1"



PROBLEM/SOLUTION

Unable or difficult to install anchors in areas not accessible to a line truck

Install the Saf-T-Anchor with a battery operated impact wrench or T-Handle

Galvanized anchors deteriorate due to circulating current leading to failure

The Saf-T-Anchors are made with Weathering Steel (Corten), lasting years longer, is 3 times stronger and reduces circulating current

Anchors do not hold and begin coming out of the ground immediately

The permanent Saf-T-Anchors have a compactor which compresses the soil between the flites creating instant holding power providing more holding power at less depth

Increased cost to install anchors using trucks, multiple personnel, hours spent digging and tamping holes, stress and damages to the truck boom & turret

Less cost to install increasing savings and safety for personnel

SUMMARY: Easy to Install * More Holding Power * Longevity * Savings

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QUESTIONS OR DISCUSSIONS?