



# Customer Requirements Pad-Mount Equipment Guard Posts Installation

January 2, 2002

**C-UG-1400**

## Scope

This standard establishes the requirements for the installation guard posts around padmounted electrical equipment by the customer.

## In This Standard

This standard contains the following topics

Topic	See Page
Scope	1
Application	1
Definitions	2
Responsibilities	2
Inspection Requirements	2
Guard Post Requirements	3
Installation of Guard Posts	5
Placement of Guard Posts	7
Single Phase Transformers	8
Three Phase Transformers	9
Padmounted Switchgear	10
Primary Metering Enclosures	11
Revision Note	11
Effective Date	11

## Application

Guard posts are installed to protect padmounted electrical equipment from damage caused by vehicles, trailers, or other motorized devices such as forklifts.



# Customer Requirements Pad-Mount Equipment Guard Posts Installation

C-UG-1400

## Definitions

**Terms** These are definitions of terms used in this standard

Term	Definition
Customer	Owner and/or developer responsible for the installation and maintenance of the guard posts.
Equipment	Padmounted devices and enclosures such as transformers, switchgear, metering enclosures, secondary pedestals or enclosures, etc.

## Responsibilities

The responsibilities of installing guard posts are listed below:

Issue	Requirement
Identifying the placement of guard posts	Tacoma Power Construction Office will determine the location of guard posts.
Installation of guard posts	The customer will install the guard posts per this standard under the direction of the Tacoma Power Construction Office.
Maintenance of the guard posts	The customer will maintain and replace the guard posts as required.

## Inspection Requirements

Installation of guard posts is determined by the Tacoma Power Construction Office. Final placement and installation must be inspected and approved by this office.

## Guard Post Requirements

Guard posts required for Residential/Multi-Family applications are different from Commercial/Switchgear applications. This is due to the size and value of the equipment to be protected and the typical vehicular traffic around it. Refer to [Figure #1](#).

### Residential / Multi-Family

The following are the approved guard posts for installations within residential and multi-family areas:

	Steel Pipe	Concrete
<b>Length</b>	7 feet	7 feet
<b>Diameter</b>	6 inches, minimum	8 inches, minimum
<b>Construction</b>	The pipe shall be schedule 40 steel and filled with concrete.	Reinforced with rebar cage.
<b>Lifting Eye</b>	For removable posts a 1" lifting eye is part of a steel cap.	A 1" lifting hole approximately 8" from the top of the post.
<b>Color</b>	Primed and painted Hi-Way Yellow.	Primed and painted Hi-Way Yellow.

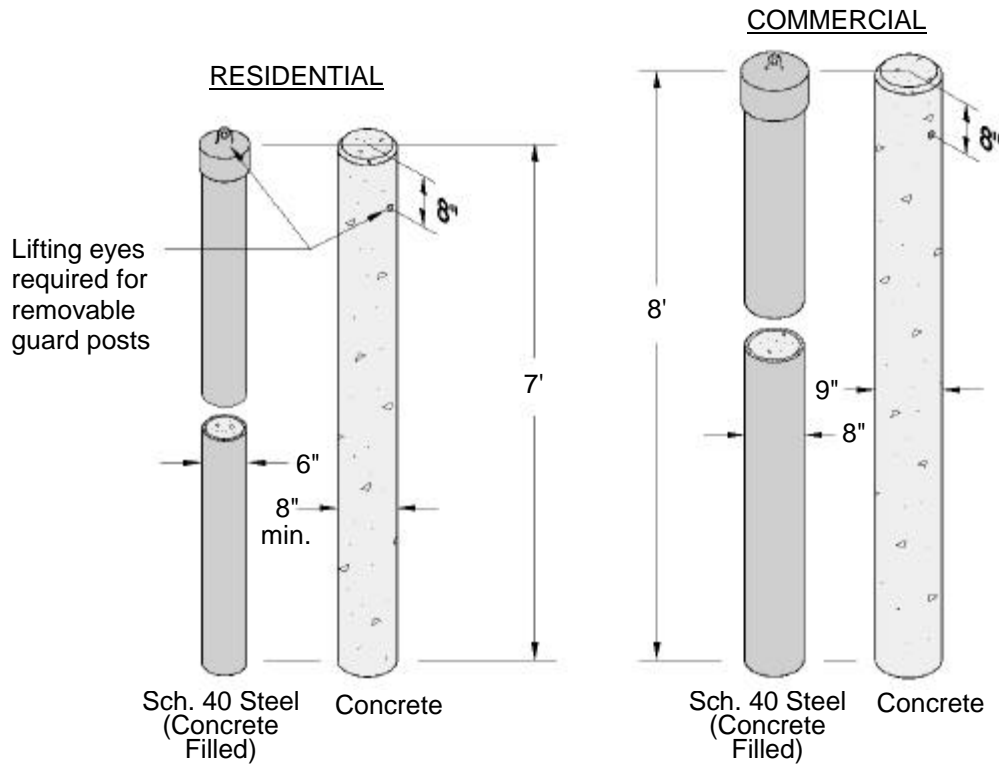
### Commercial / Switchgear

The following are the approved guard posts for installations within commercial areas and for padmounted switchgear:

	Steel Pipe	Concrete
<b>Length</b>	8 feet	8 feet
<b>Diameter</b>	8 inches, minimum	9 inches, minimum
<b>Construction</b>	The pipe shall be schedule 40 steel and filled with concrete.	Reinforced with rebar cage.
<b>Lifting Eye</b>	For removable posts a 1" lifting eye is part of a steel cap.	A 1" lifting hole approximately 8" from the top of the post.
<b>Color</b>	Primed and painted Hi-Way Yellow.	Primed and painted Hi-Way Yellow.

**Figure #1** Guard Posts

**GUARD POSTS**



## Installation of Guard Posts

The guard posts shall be installed as described below. Refer to [Figure #2](#) and [Figure #3](#).

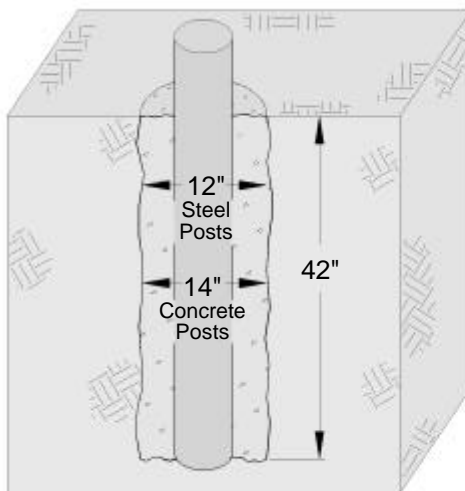
### Permanent Guard Posts

Guard posts that are permanently installed and will not be removed shall be installed as described and shown below.

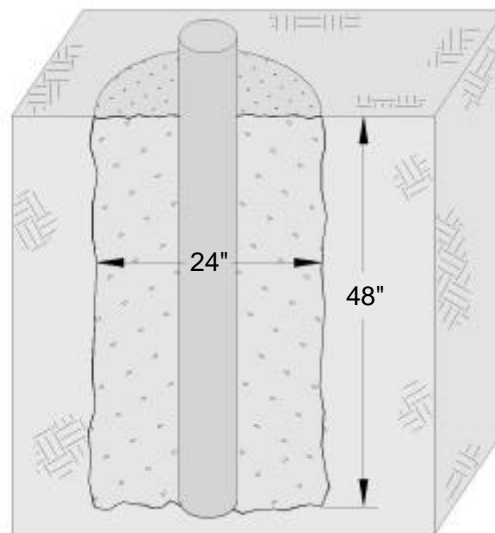
<b>Residential</b>	Guard posts for residential / multi-family applications shall be set as follows.		
	<b>Setting Depth</b>	<b>Diameter of Concrete Encasement</b>	
		Steel	Concrete
42"	12"	14"	
<b>Commercial</b>	Guard posts for commercial and switchgear applications shall be set as follows.		
	<b>Setting Depth</b>	<b>Diameter of Concrete Encasement</b>	
		24" encasement	
48"			

**Figure #2** Guard Post Installation

### PERMANENT GUARD POSTS



Residential Application:  
Steel vs. Concrete Post



Commercial Application:  
Steel or Concrete Post

**Removable  
Guard Posts**

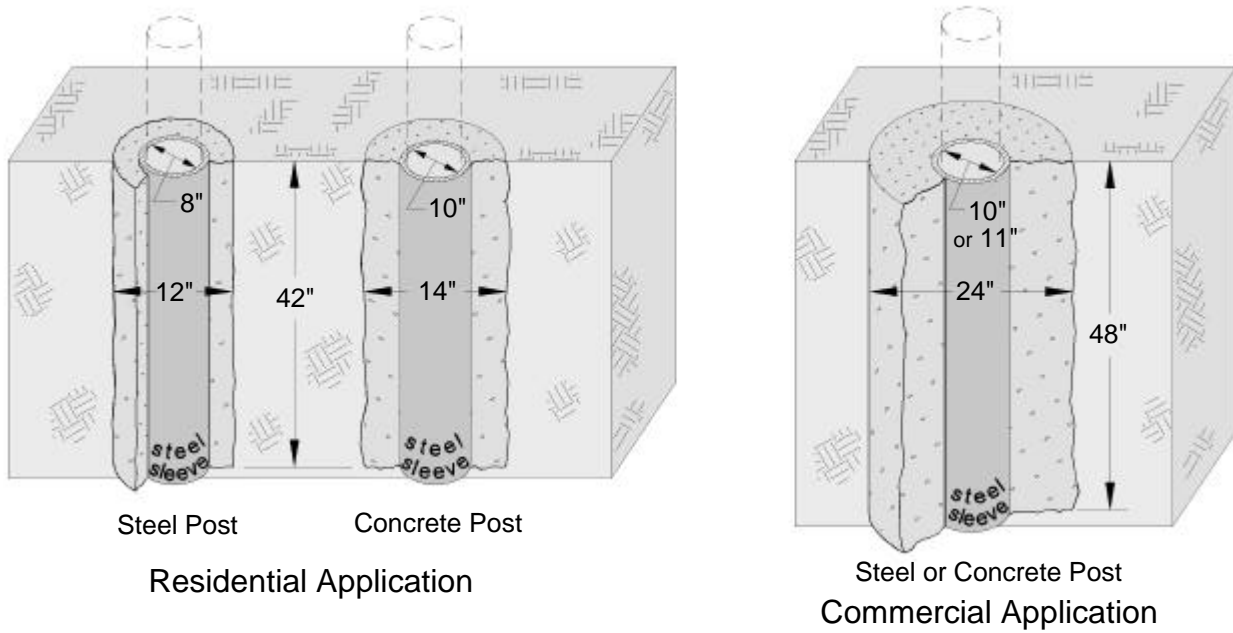
The requirements for setting depth and diameter of concrete encasement are the same for removable guard posts as for permanent guard posts.

Removable guard posts shall also include a minimum schedule 40 steel sleeve as described below. The sleeves shall allow for easy removal of posts and keep posts vertical in appearance.

<b>Residential</b>	Guard post sleeves for residential / multi-family applications shall be as follows:		
	<b>Length</b>	<b>Inside Diameter of Sleeve</b>	
		Steel Post	Concrete Post
42"	8"	10"	
<b>Commercial</b>	Guard post sleeves for commercial and switchgear applications shall be as follows:		
	<b>Length</b>	<b>Inside Diameter of Sleeve</b>	
		Steel Post	Concrete Post
48"	10"	11"	

**Figure #3** Guard Post Installation

**REMOVABLE GUARD POSTS**



## Placement of Guard Posts

The placement of guard posts around padmounted equipment shall be as described below.

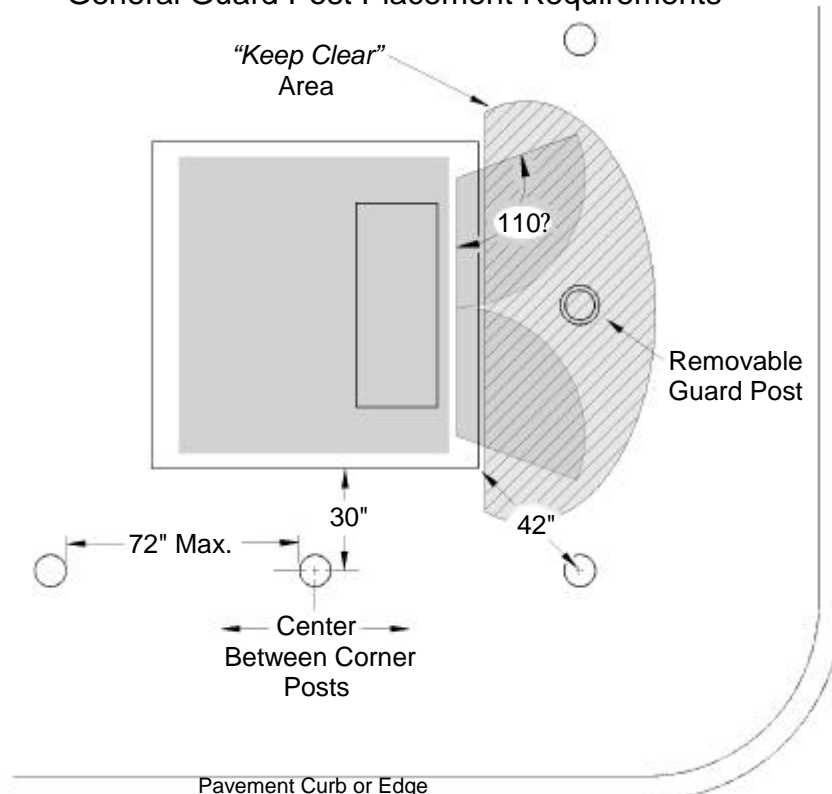
### General Requirements

The general requirements for the placement of guard posts are described as follows. These requirements are the foundation for the specific installations detailed in this standard. Refer to [Figure #4](#).

Actual requirements will be specified by the Tacoma Power Construction Office.

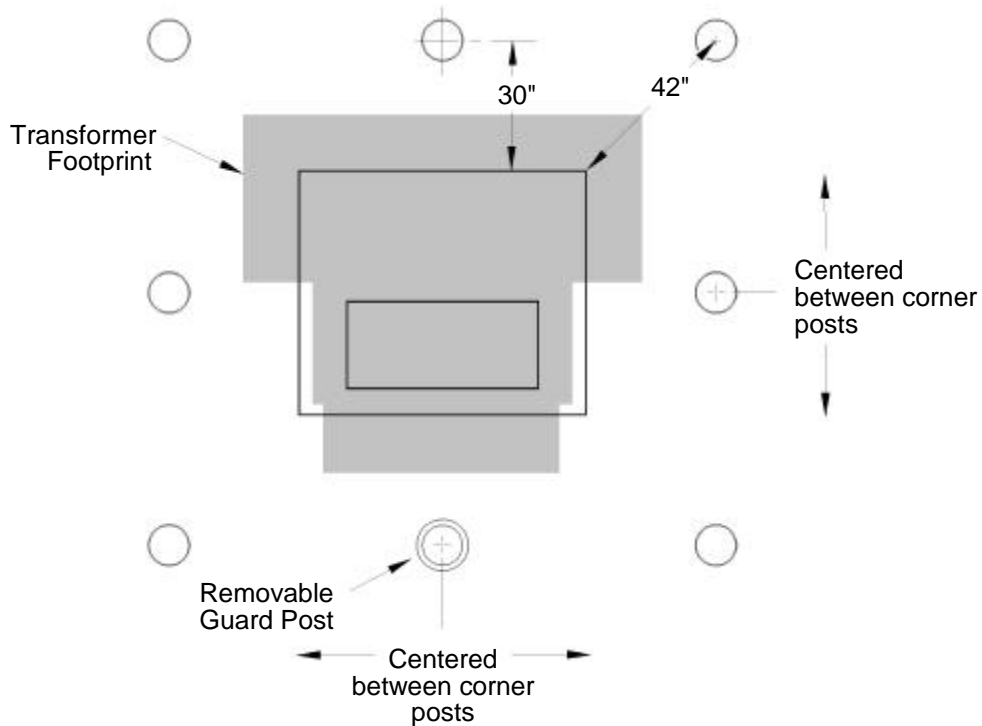
Issue	Requirement	
Sides of equipment requiring guard posts	Those sides of equipment adjacent to vehicular traffic or parking.	
Maximum spacing between guard posts	72"	
Location of guard posts from concrete pad	From edge of pad	From corner of pad
	30"	42"
Requirement for removable guard posts	On equipment access sides that allow doors to open 110°.	

**Figure #4** General Guard Post Placement Requirements



**Single Phase Transformers** The placement of guard posts for single phase transformers shall be as shown in [Figure #5](#).

**Figure #5** Single phase transformer guard post placement

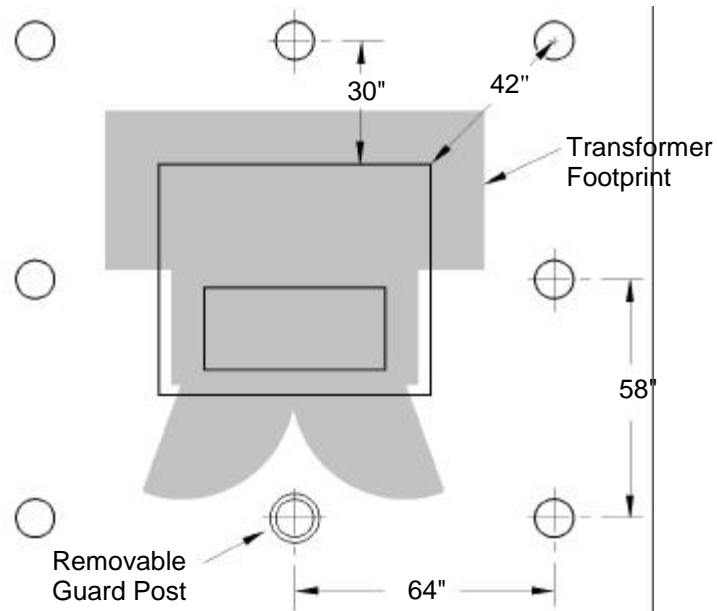


**Three Phase Transformers** The placement of guard posts for three phase transformers shall be as shown below:

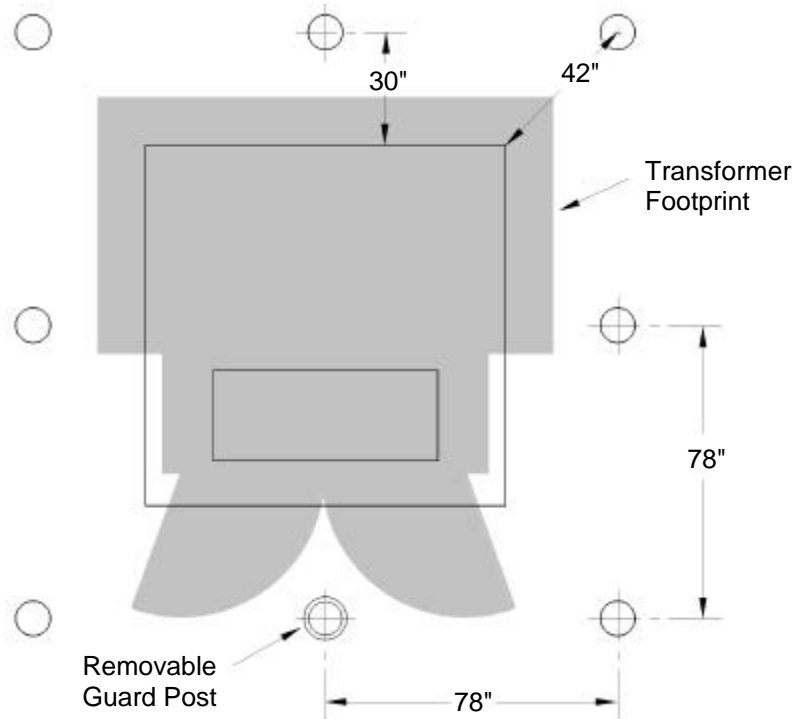
kVA of Transformer	Figure Number
45 through 300	<a href="#">Figure #6</a>
500 through 750	<a href="#">Figure #7</a>
1000 through 2500	<a href="#">Figure #8</a>



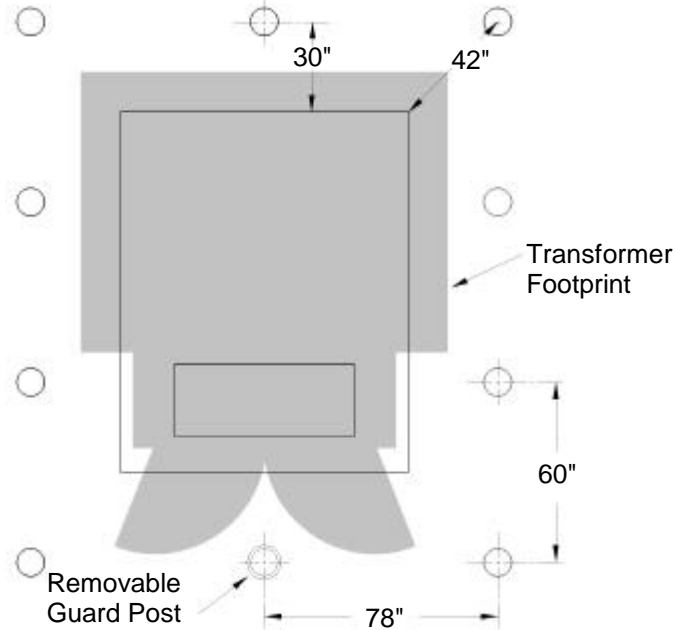
**Figure #6** 45 through 300 kVA three phase padmount transformers



**Figure #7** 500 through 750 kVA three phase padmount transformers

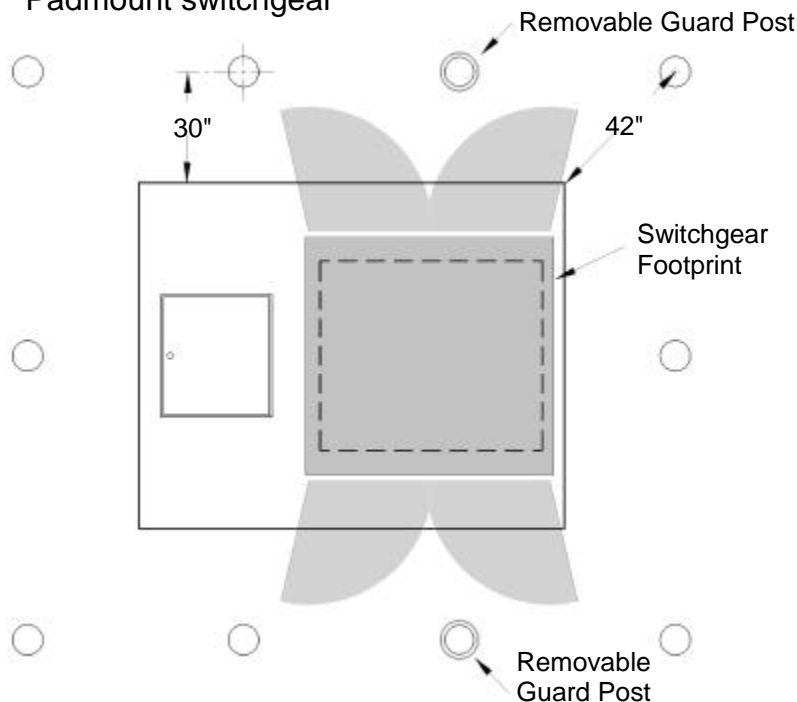


**Figure #8** 1000 through 2500 kVA three phase padmount transformers



**Padmounted Switchgear** The placement of guard posts for padmounted switchgear shall be as shown below. Refer to [Figure #9](#)

**Figure #9** Padmount switchgear

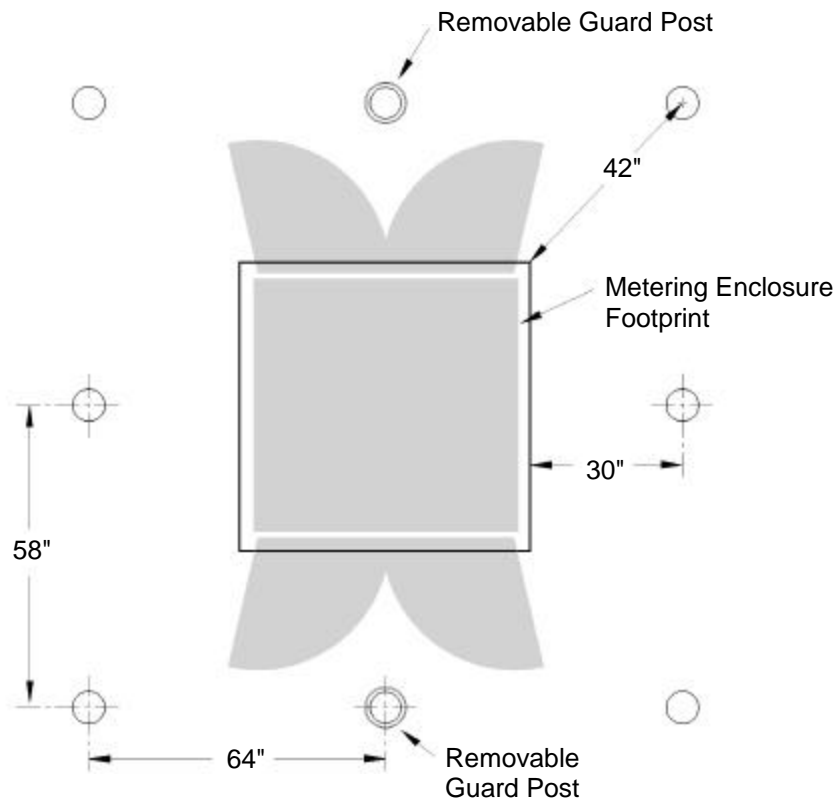


**Padmounted  
Metering  
Enclosures**

The placement of guard posts for padmounted metering enclosures shall be as shown below. Refer to [Figure #10](#).

**Figure #10**

Padmount metering enclosures



## Revision Note

The following changes were made to this standard:

- > Tacoma Power data conduit requirements added.
- > New standard number – from B-UG-413

## Effective Date

The effective date of this Standard is **January 2, 2002**.