# DESIGN BULLETIN #87/2016

## Eliminating Screw-in Base as a breakaway lighting standard from the Highway Lighting Guide


### Summary
The purpose of the document is to eliminate screw-in base as a breakaway lighting base option from the Alberta Transportation Highway Lighting Guide.


### Background
Currently, the lighting components section in the Highway Lighting Guide specifies three types of acceptable standard types of pole bases: cast-in-place concrete base, precast concrete base and steel screw-in base. Cast-in-place concrete base has historically been a more stable base in withstanding pole leaning over time, and the precast concrete base is a common industry standard for roadway lighting pole bases. Screw-in bases have the following limitations:

- Since the screw-in base has not been tested for crash-worthiness in a breakaway connection with a light pole, when dynamic load and/or instant impact are applied, the ability of the screw-in base to mobilize sufficient lateral soil resistance to prevent base movement, and to ensure proper function of the breakaway base is in question.
- In many cases, there is no geotechnical data collected before installing lighting on existing roads. When screw piles are used as breakaway bases, the design and installation are usually based on assumptions of soil condition only. Due to installation procedure, there is usually no verification on in-situ soil condition in comparison with soil assumption used in design, which may create compatibility issue between the design and site observation.

### Key Changes
Screw-in bases are not allowed for use as breakaway lighting bases in Alberta highway projects. Section E6.2.2.3 Steel Screw-in Base from the Alberta Transportation Highway Lighting Guide, as well as Figure TCS-E-601.3 on screw pile steel base for up to 15 m double davit has been deleted.

When screw-in bases are proposed to be used as non-breakaway lighting bases outside of highway clear zone, the bases need to be specifically engineered and signed by a professional engineer registered to practice in Alberta. Site specific geotechnical investigation may be required.

Situations such as slopes steeper than 5:1 or poles exceeding 15 m in height shall have a cast-in-place concrete base specifically engineered and signed by a professional engineer registered to practice in Alberta.

This Bulletin is implemented immediately.

**Effective Date**
February 1st, 2016

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**References**
Alberta Transportation Highway Lighting Guide

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