



PROCESS  
INDUSTRY  
PRACTICES

COMPLETE REVISION  
May 2023

**Structural**

**PIP STE05121**  
**Application of ASCE Anchorage Design for**  
**Petrochemical and Other Industrial Facilities**

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## PURPOSE AND USE OF PROCESS INDUSTRY PRACTICES

This Practice has been prepared by harmonizing technical requirements from existing standards of major industrial operators, contractors, and standards development organizations. While this Practice is expected to incorporate the majority of requirements of most users, individual applications may involve appended requirements which take precedence over this Practice.

Determinations concerning fitness for purpose or application of this Practice to specific project or engineering situations should not be made solely on information contained in this Practice. All Practices are intended to be consistent with applicable laws and regulations. Should this Practice conflict with applicable laws or regulations, such laws or regulations must be followed. Consult an appropriate professional before applying or acting on any material contained in or suggested by this Practice.

References to trade names should not be viewed as an expression of preference. Other brands having the same specifications are equally correct and may be substituted for those named.

This Practice is subject to revision at any time. For more information refer to PIP ADG001, *Specification for Developing Practices*.

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# PIP STE05121

## Application of ASCE Anchorage Design for Petrochemical and Other Industrial Facilities

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## 1. Scope

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This Practice provides guidelines for design engineers involved in design, fabrication, installation, and repair of anchorage for foundations and structures. This Practice supplements the *ASCE Anchorage Design for Petrochemical and Other Industrial Facilities*, hereafter referred to as the *ASCE Anchorage Design Report*. The information on fabrication, installation, and repair of anchorages provided in this Practice is to be used by design engineers to develop specifications, drawings, scopes of work, etc. for fabricators, constructors, and maintenance personnel involved in fabrication, installation, and repair activities.

This Practice describes the design of anchorage based on the requirements in *ACI 318-19 (IN-LB) / ACI 318-19 (SI)* including material selection, cast-in-place anchor design, post-installed anchor design, anchor installation and repair.

*Comment:* The information provided in the *ASCE Anchorage Design Report* is recommended for the design, fabrication, installation and repair of anchorage for foundations and structures. The *ASCE Anchorage Design Report* is in accordance with *ACI 318-19 (IN-LB) / ACI 318-19 (SI)* Tables that were previously in the earlier versions of this Practice have now been incorporated in the newest version of the *ASCE Anchorage Design Report*.

*Comment:* It should be noted that starting in 2019, ACI is no longer using an “M” designation for the metric version of ACI 318. The 2019 version of the ACI 318 codes are now designated as *ACI 318-19 (IN-LB)* and *ACI 318-19 (SI)*. The *ASCE Anchorage Design Report* designates these codes as *ACI 318-19* and *ACI 318M-19* which should be understood to be properly designated as *ACI 318-19 (IN-LB)* and *ACI 318-19 (SI)* respectively.

*Comment:* Previous versions of this Practice which reference previous versions of *ACI 318 / ACI 318M* are available for Member Companies from the PIP office.

*Comment:* This Practice shows how to use the PIP developed excel spreadsheets listed in Section 5.2. and 5.3 and the MathCAD template shown in Section 5.4 of this Practice. Also, it is planned to use this Practice as a vehicle to provide interim updates to the *ASCE Anchorage Design Report* when *ACI 318-19 (IN-LB) / ACI 318-19 (SI)* or other references are updated as the *ASCE Anchorage Design Report* is only updated approximately every ten years.

## 2. References

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Applicable parts of the following Practices, industry codes and standards, and government regulations shall be considered an integral part of this Practice. The edition in effect on the date of contract award shall be used, except as otherwise noted. Short titles are used herein where appropriate.

The *ASCE Anchorage Design Report* includes an extensive set of references at the end of each chapter. These shall also be considered part of this Practice. References to the