

Process Industry Practices
Structural

**PIP STF05530
Grating Details**

Table of Contents

1. Introduction 2
 1.1 Purpose 2
 1.2 Scope 2

2. References 2
 2.1 Process Industry Practices 2
 2.2 Industry Codes and Standards 2
 2.3 Government Regulations 2

3. Definitions 2

4. General 3
 4.1 Responsibility 3
 4.2 Safety 3
 4.3 Fabrication and Erection 3

5. Materials 4

Figures

1. Grating Opening at Interior Column 5
 2. Grating Opening at Base Plate 5
 3. Grating Opening at Corner Column 6
 4. Shop-Fabricated Openings 6
 5. Field-Located and Field-Fabricated
 Openings 7
 6. Banding Detail at Field-Cut Opening 7
 7. Toe Plate Banding at Opening
 for Pipe Support 8
 8. Toe Plate Banding at Openings for
 Equipment 8
 9. Typical Grating Panel Layout 9
 10. Typical Grating Panel Anchor
 Arrangement 9
 11. Typical Clearances at Perimeters of
 Floors 10
 12. Typical Clearances at Railing 10

1. Introduction

1.1 Purpose

The purpose of this Practice is to provide structural steel fabricators and structural steel erectors with standard grating details for the fabrication and installation of grating in process industry facilities.

1.2 Scope

- 1.2.1 This Practice describes the requirements for fabrication and installation of typical grating platforms and is intended to be issued to fabricators supplying grating and to erectors installing grating.
- 1.2.2 Any conflicts or inconsistencies between these details and other Contract Documents shall be brought to the attention of Buyer for resolution.

2. References

When adopted in this Practice, the latest edition of the following applicable codes, standards, specifications, and references in effect on the date of contract award shall be used, except as otherwise noted. Short titles will be used herein when appropriate.

2.1 Process Industry Practices (PIP)

- PIP STF05520 - *Pipe Railing for Walking and Working Surfaces Details*
- PIP STF05521 - *Angle Railing for Walking and Working Surfaces Details*
- PIP STS05120 - *Fabrication of Structural and Miscellaneous Steel Specification*
- PIP STS05130 - *Erection of Structural and Miscellaneous Steel Specification*

2.2 Industry Codes and Standards

- American Society of Testing and Materials (ASTM)
 - ASTM A36/A36M - *Carbon Structural Steel*
 - ASTM A569/569M - *Standard Specification for Steel, Carbon (0.15 Maximum Percent), Hot-Rolled Sheet and Strip, Commercial Quality*

2.3 Government Regulations

Federal Standards and Instructions of the Occupational Safety and Health Administration (OSHA), including any additional requirements by state or local agencies that have jurisdiction where the grating platform is to be erected, shall apply.

3. Definitions

Buyer: The party who awards the contract to the Fabricator. The Buyer may be the Owner or the Owner's authorized agent.

Contract Documents: Any and all documents, including design drawings, that the Buyer has transmitted or otherwise communicated, either by incorporation or by reference, and made part of the legal contract agreement or purchase order agreement between the Buyer and the Fabricator or Erector

Fabricator: The party responsible for furnishing fabricated structural and miscellaneous steel

Erector: The party responsible for the erection of the structural and miscellaneous steel. Unless otherwise noted, the term "Erector" shall apply also to the Erector's subcontractor(s) and/or vendor(s).

4. General

4.1 Responsibility

Fabricator shall furnish all equipment, materials, labor, and supervision and shall perform all operations necessary for the fabrication of grating platforms, as indicated by the Contract Documents.

4.2 Safety

Fabricators and erectors shall comply with all safety requirements specified in the Contract Documents.

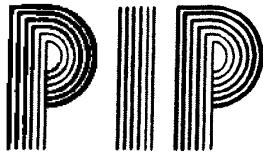
4.3 Fabrication and Erection

- 4.3.1 All grating shall be fabricated in accordance with *PIP STS05120* and with this Practice. All grating shall be installed in accordance with *PIP STS05130* and with this Practice.
- 4.3.2 Fabricator shall be solely responsible for quality control of all materials and workmanship.
- 4.3.3 The location and limits of grating and the direction of the span of grating bearing bars shall be as shown on the design drawings.
- 4.3.4 At joints in the grating floor system, cross sections of bearing bars for grating panels shall be aligned with cross sections of abutting panels to maintain spacing symmetry. Grating joints shall occur only at supports.
- 4.3.5 Clearance allowances shall be included for fitting grating panels together, for penetrations, for toe plates, etc., and shall be in accordance with the following details or design drawings.
- 4.3.6 Grating shall have 1-inch (25-mm) minimum bearing on supporting steel.
- 4.3.7 Where grating areas are shown as removable on the drawings, the weight of fabricated grating sections for such areas shall not exceed 350 pounds (160 kgf).
- 4.3.8 Edges of removable grating panels shall be banded. Edges of other grating panels need not be banded unless indicated otherwise on the design drawings.

- 4.3.9 Openings and cutouts in grating panels for piping, conduit, structural members, and equipment shall be banded as indicated on the following details or design drawings.
- 4.3.10 All damaged hot-dip galvanizing and field-cut grating shall be repaired or touched up using an organic zinc-rich coating as specified in *PIP STS05120*.

5. Materials

- 5.1 Unless otherwise specified, the materials for grating shall comply with *PIP STS05120*.
- 5.2 Steel grating shall be rectangular welded type, with plain 3/16-inch x 1-1/4-inch (5-mm x 32-mm) bearing bars on 1-3/16-inch (30-mm) spacing with cross bars on 4-inch (100-mm) spacing unless otherwise specified.
- 5.3 Banding or toe plate banding shall be steel conforming to *ASTM A36/A36M* or *ASTM A569/A569M*.
- 5.4 The method for fastening grating shall be as specified on the design drawings. A minimum of two fasteners per panel shall be used at each support, with a minimum of four per panel.



GRATING DETAILS

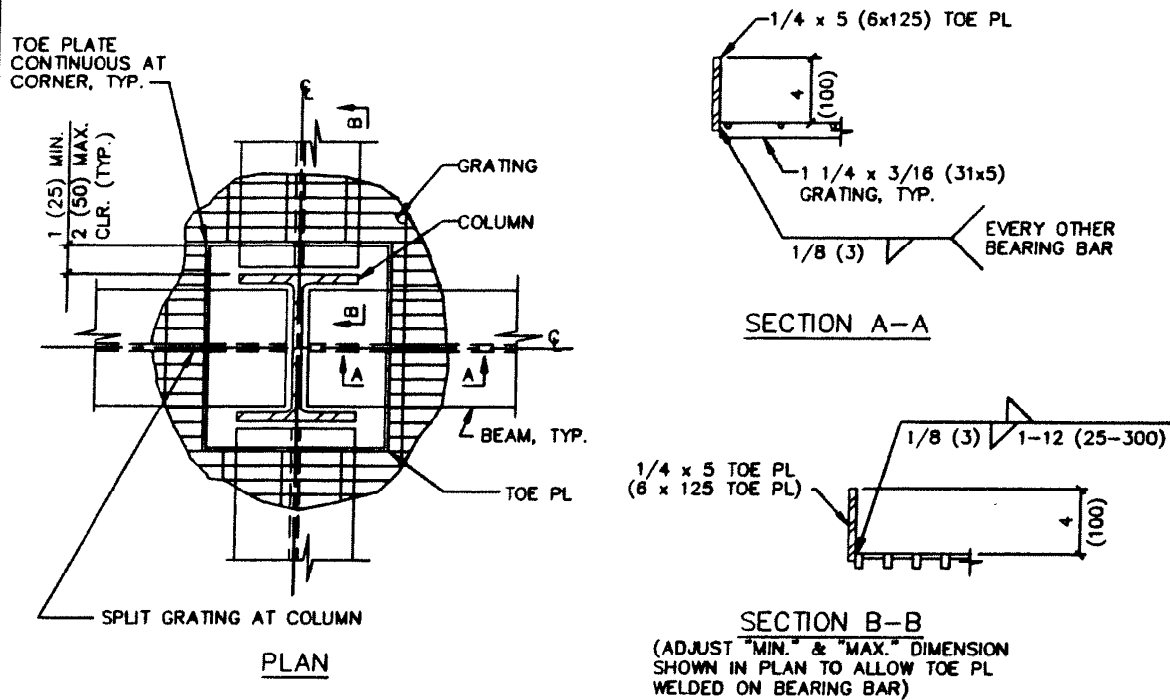


FIG. 1: GRATING OPENING AT INTERIOR COLUMN
(CHECK TO AVOID THE INTERFERENCE WITH GUSSET PLATE FOR VERTICAL BRACING)

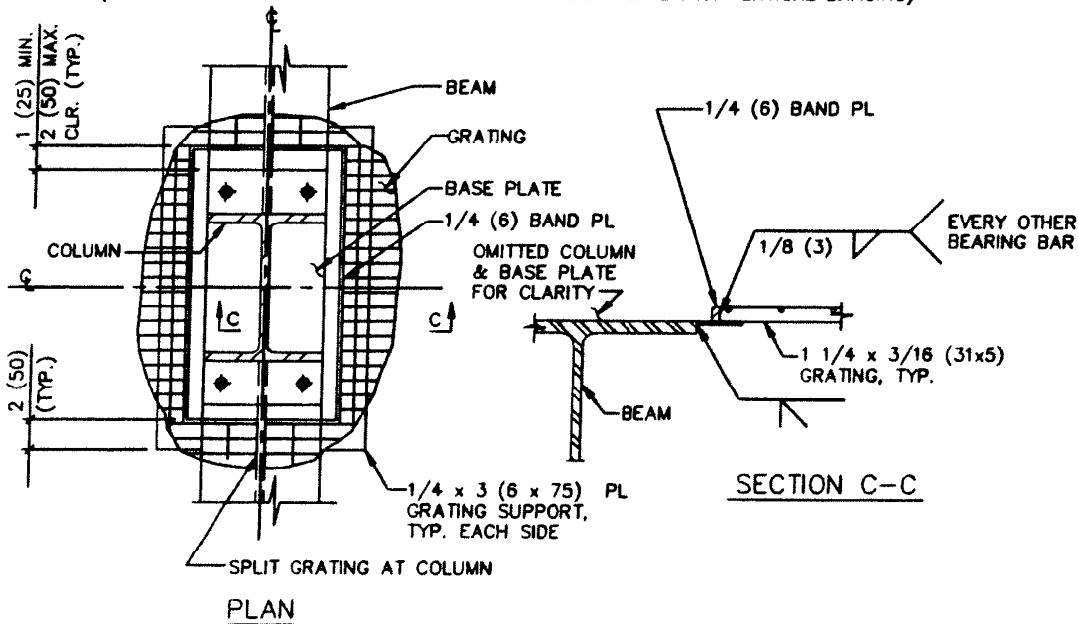
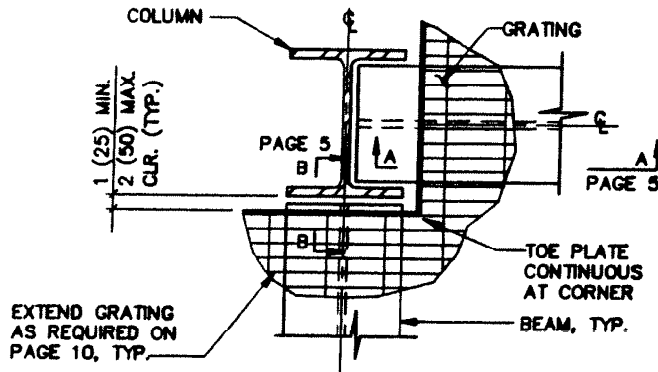


FIG. 2: GRATING OPENING AT BASE PLATE
(CHECK TO AVOID THE INTERFERENCE WITH GUSSET PLATE FOR VERTICAL BRACING)

DIMENSIONS ARE GIVEN IN FEET AND/OR INCHES. METRIC DIMENSIONS IN PARENTHESES ARE IN MILLIMETERS, UNLESS NOTED OTHERWISE.

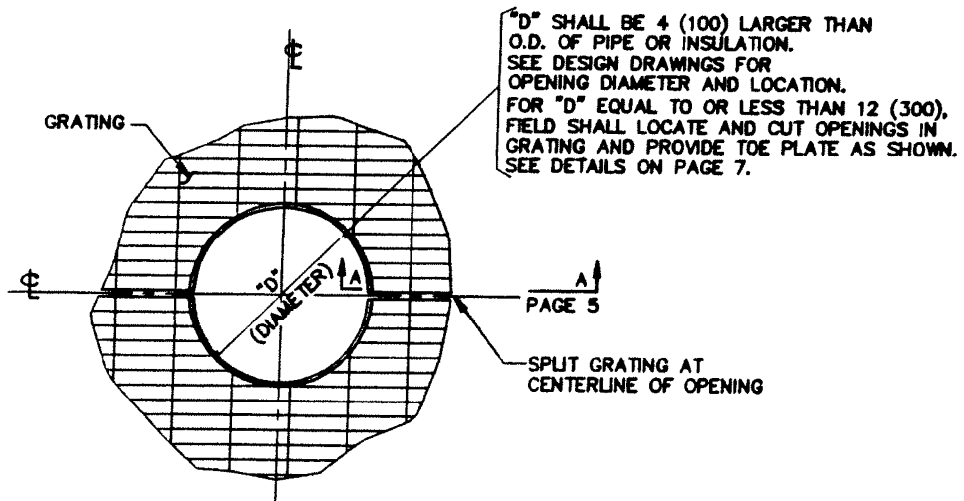
GRATING DETAILS



PLAN

FIG. 3: GRATING OPENING AT CORNER COLUMN

(CHECK TO AVOID THE INTERFERENCE WITH GUSSET PLATE FOR VERTICAL BRACING)



PLAN

FIG. 4: SHOP FABRICATED OPENINGS

FOR "D" GREATER THAN 12 (300)

DIMENSIONS ARE GIVEN IN FEET AND/OR INCHES. METRIC DIMENSIONS
IN PARENTHESES ARE IN MILLIMETERS, UNLESS NOTED OTHERWISE.

GRATING DETAILS

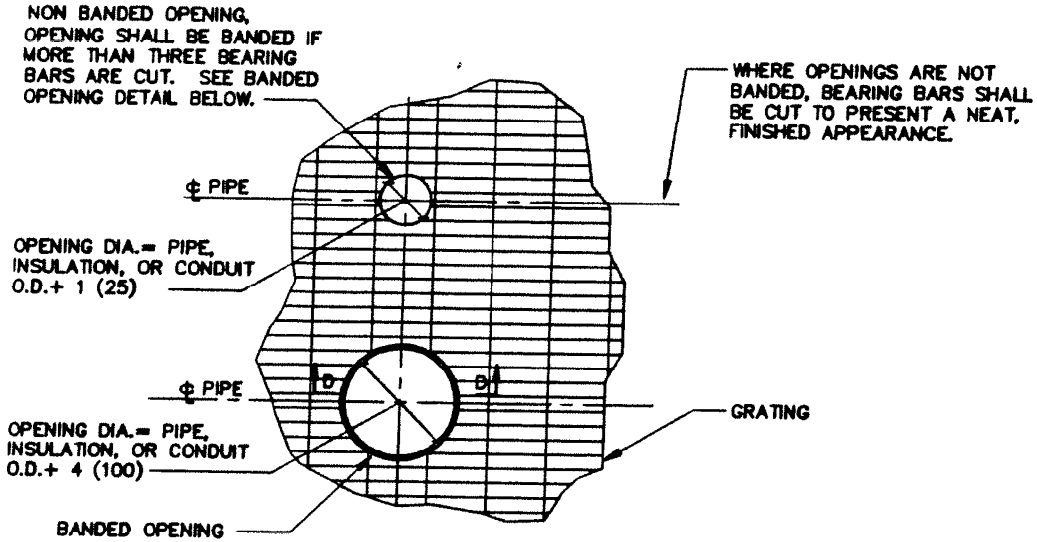


FIG. 5: FIELD LOCATED AND FIELD FABRICATED OPENINGS
(FOR FIELD LOCATED OPENINGS > 12 (300) DIA. OR RECTANGULAR OPENINGS, CONTACT DESIGN ENGINEER)

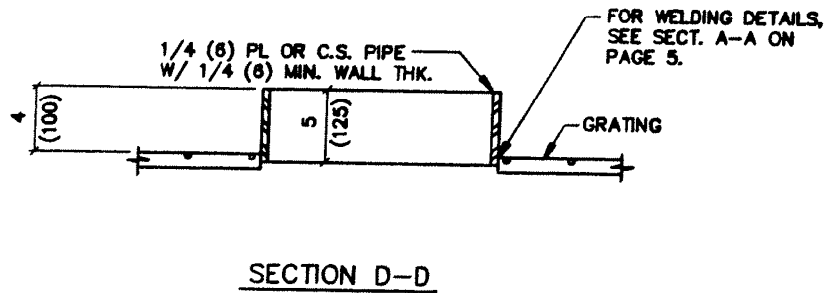


FIG. 6: BANDING DETAIL AT FIELD CUT OPENING

DIMENSIONS ARE GIVEN IN FEET AND/OR INCHES. METRIC DIMENSIONS
IN PARENTHESES ARE IN MILLIMETERS, UNLESS NOTED OTHERWISE.

GRATING DETAILS

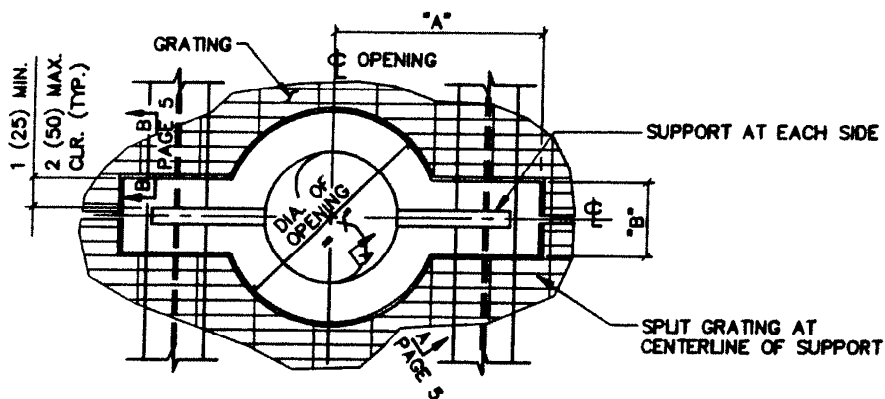


FIG. 7: TOE PLATE BANDING AT OPENINGS FOR PIPE SUPPORT

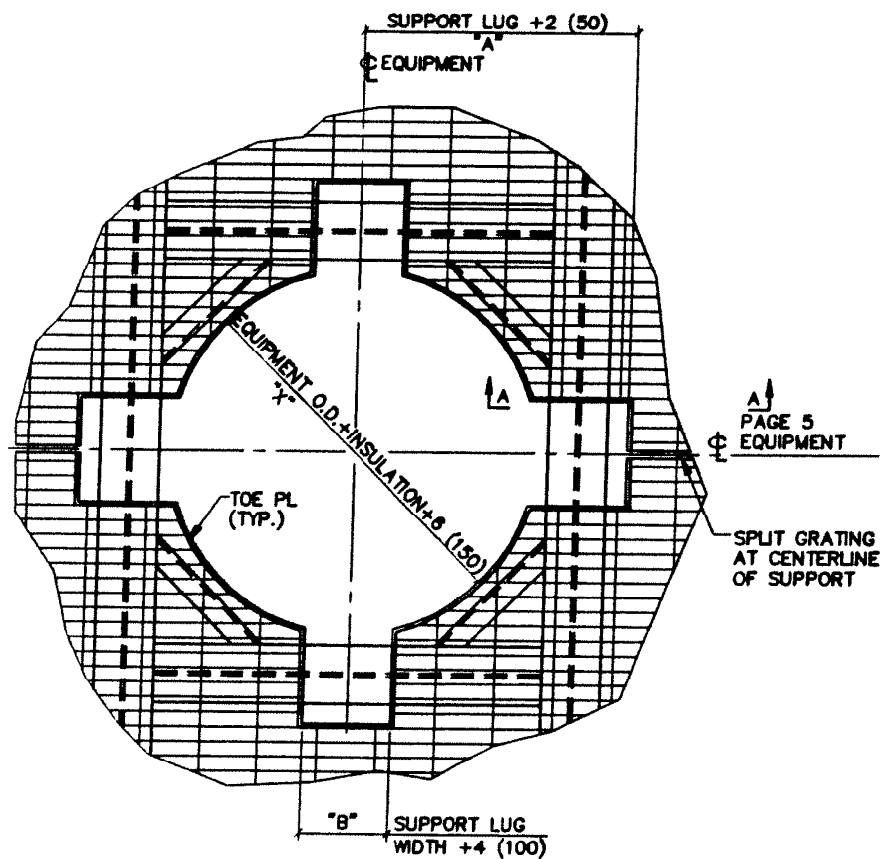
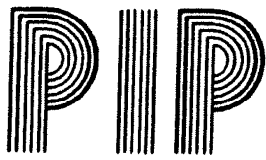


FIG. 8: TOE PLATE BANDING AT OPENINGS FOR EQUIPMENT

NOTE:
1. FOR DIMENSIONS A, B, AND X, REFER TO DESIGN DRAWINGS.

DIMENSIONS ARE GIVEN IN FEET AND/OR INCHES. METRIC DIMENSIONS IN PARENTHESES ARE IN MILLIMETERS, UNLESS NOTED OTHERWISE.



GRATING DETAILS

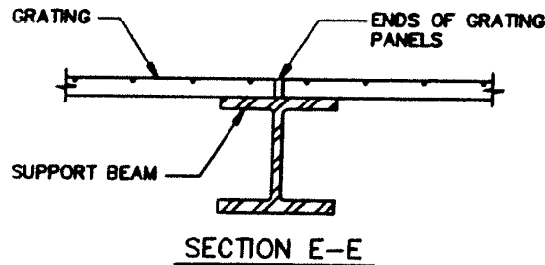
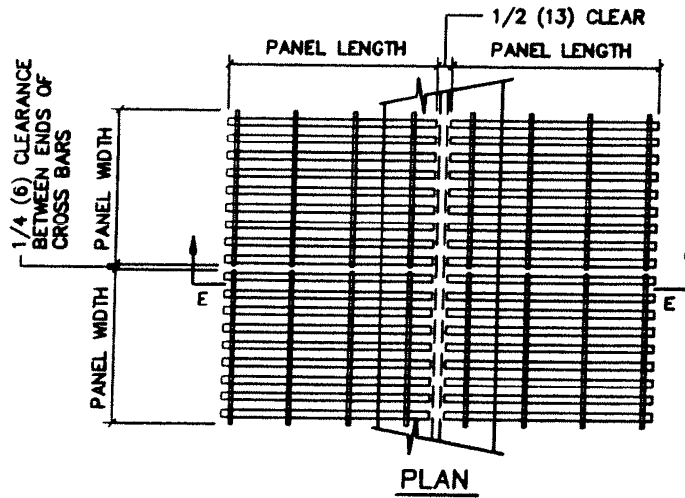


FIG. 9: TYPICAL GRATING PANEL LAYOUT

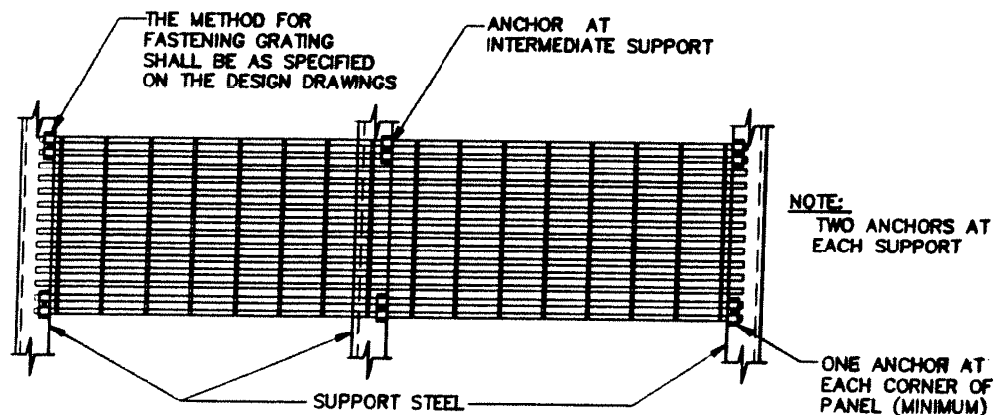


FIG. 10: TYPICAL GRATING PANEL ANCHOR ARRANGEMENT

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GRATING DETAILS

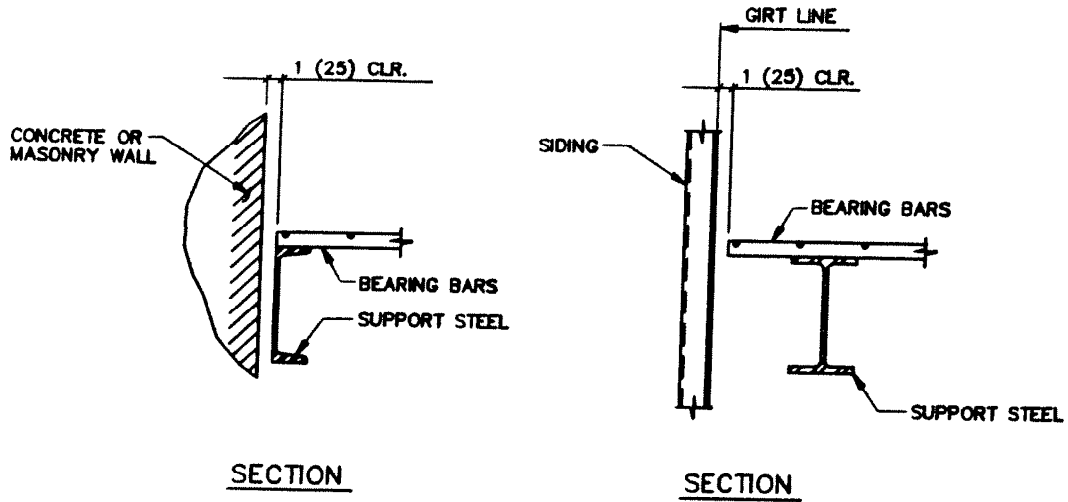


FIG. 11: TYPICAL CLEARANCES AT PERIMETER OF FLOORS

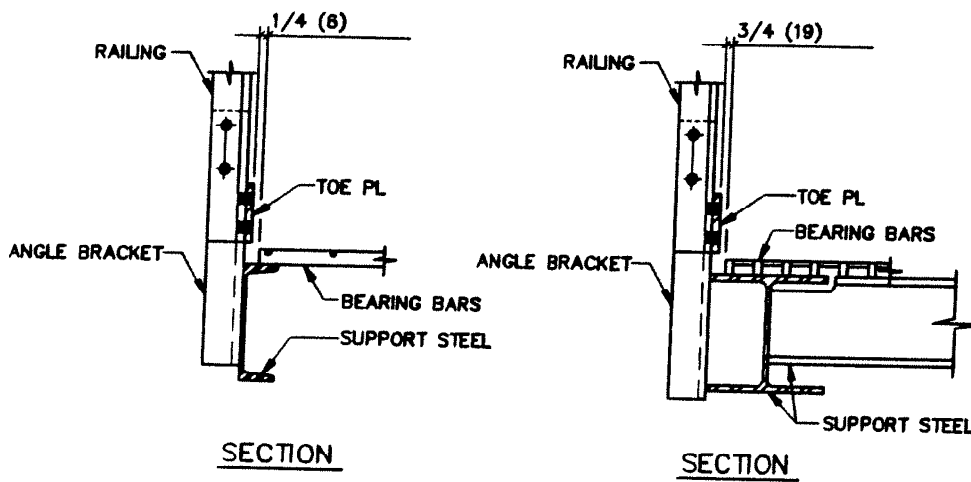


FIG. 12: TYPICAL CLEARANCES AT RAILING
(FOR RAILING DETAILS, SEE PIP STF05520 OR STF05521)

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IN PARENTHESES ARE IN MILLIMETERS, UNLESS NOTED OTHERWISE.