

DEP SPECIFICATION

ONSHORE ANCILLARY STEEL STRUCTURES

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DESIGN AND ENGINEERING PRACTICE



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TABLE OF CONTENTS

1.	INTRODUCTION	4
1.1	SCOPE.....	4
1.2	DISTRIBUTION, INTENDED USE AND REGULATORY CONSIDERATIONS	4
1.3	DEFINITIONS	4
1.4	CROSS-REFERENCES	5
1.5	COMMENTS ON THIS DEP	5
1.6	DUAL UNITS.....	5
2.	MATERIALS	6
2.1	GENERAL	6
3.	CONSTRUCTION DETAILS.....	8
3.1	GENERAL	8
3.2	CLEARANCES AND WIDTHS.....	8
3.3	PLATFORMS AND WALKWAYS	9
3.4	STAIRS	10
3.5	LADDERS	10
3.6	HAND RAILS AND GUARD RAILS	12
3.7	FLOORING AND GRATING	12
3.8	EQUIPMENT HANDLING FACILITIES.....	14
4.	DEP STANDARD DRAWINGS	15
5.	REFERENCES	16

1. INTRODUCTION

1.1 SCOPE

This new DEP specifies requirements and gives recommendations for the design of onshore ancillary steel structures. This DEP is intended to be used with onshore ancillary steel structures standard drawings (Table 4.1) which also specify minimum requirements. Refer to DEP 30.00.60.20-Gen.

1.2 DISTRIBUTION, INTENDED USE AND REGULATORY CONSIDERATIONS

Unless otherwise authorised by Shell GSI, the distribution of this DEP is confined to Shell companies and, where necessary, to the Contractors and Manufacturers/Suppliers nominated by them. Any authorised access to DEPs does not for that reason constitute an authorization to any documents, data or information to which the DEPs may refer.

This DEP is intended for use in facilities related to onshore oil and gas production, gas handling, oil refining, chemical processing, gasification, distribution and supply/marketing. This DEP may also be applied in other similar facilities.

When DEPs are applied, a Management of Change (MOC) process should be implemented; this is of particular importance when existing facilities are to be modified.

If national and/or local regulations exist in which some of the requirements could be more stringent than in this DEP, the Contractor shall determine by careful scrutiny which of the requirements are the more stringent and which combination of requirements will be acceptable with regards to the safety, environmental, economic and legal aspects. In all cases the Contractor shall inform the Principal of any deviation from the requirements of this DEP which is considered to be necessary in order to comply with national and/or local regulations. The Principal may then negotiate with the Authorities concerned, the objective being to obtain agreement to follow this DEP as closely as possible.

1.3 DEFINITIONS

1.3.1 General Definitions

The **Contractor** is the party that carries out all or part of the design, engineering, procurement, construction, commissioning or management of a project or operation of a facility. The Principal may undertake all or part of the duties of the Contractor.

The **Manufacturer/Supplier** is the party that manufactures or supplies equipment, materials and services to perform the duties specified by the Contractor.

The **Principal** is the party that initiates the project and ultimately pays for it. The Principal may also include an agent or consultant authorised to act for, and on behalf of, the Principal.

The word **shall** indicate a requirement.

The word **should** indicate a recommendation.

1.3.2 Specific Definitions

Term	Definition
Guard Rail	Guard Rail is a rail that prevents people from falling off or being hit by something.
Hand Rail	Hand Rail is a narrow railing to be grasped with the hand for support.
Railings	Refer to both guard rail and hand rail.
Dutch Bouwbesluit	Dutch Building Code

1.3.3 Abbreviations

Term	Definition
ANSI	American National Standards Institute
ASTM	American Society of Testing and Materials
CSA	Canadian Standards Organisation
EN	European Standards
GB/T	Chinese Standards
ISO	International Standards Organization or International Organization for Standardization
NAAMM	National Association of Architectural Metal Manufacturers
NFPA	National Fire Protection Association

1.4 CROSS-REFERENCES

Where cross-references to other parts of this DEP are made, the reference section number is shown in brackets (). Other documents referenced by this DEP are listed in (5).

1.5 COMMENTS ON THIS DEP

Comments on this DEP may be sent to the Administrator at standards@shell.com, using the DEP Feedback Form. The DEP Feedback Form can be found on the main page of "DEPs on the Web", available through the Global Technical Standards web portal <http://www.shell.com/standards> and on the main page of the DEPs DVD-ROM.

1.6 DUAL UNITS

This DEP contains both the International System (SI) units, as well as the corresponding US Customary (USC) units, which are given following the SI units in brackets. When agreed by the Principal, the indicated USC values/units may be used.

2. MATERIALS**2.1 GENERAL**

Acceptable materials for ancillary steel structures are listed in Tables 2.1.1 through 2.1.3.

The use of alternative materials not listed in the tables below shall be submitted to the Principal for review and comment. Alternative materials shall be selected in accordance with local codes and regulations, taking weldability and the required finished weldment mechanical properties into consideration. The utilization of the GB (Guo Biao) 150 standard for selection of alternative materials may be considered.

Table 2.1.1 Materials Grades for Structural Shapes, Pipe and Tubing

Type	Material Grades Standards ⁽¹⁾
Checkered-floor plate	US - ASTM A786 / A786M Pattern 4 or Pattern 5 and ASTM A36 / A36M CA - CSA G40.21-M, Grade 300W
Welded-steel bar grating and grating stair treads	US - ASTM A569 / A569M, ASTM A1011 / A1011M, galvanized in accordance with ASTM A123 and NAAMM MBG 531. CA - CSA G40.21-M, Grade 300W
Banding and toe plate banding	US - ASTM A36 / A36M or ASTM A1011 / A1011M. CA - CSA G40.21-M, Grade 300W
For steel elements such as channels shapes, angles, plates, and bars.	General EU - EN 10025-2 US - ASTM A36 / A36M CA - CSA G40.21-M, Grade, 300W CH-GB/T 700 Other materials permitted as indicated below for specific material types: Angles: EU - EN 10056-1 CH - GB/T 706 Plate: CH - GB/T 3274, GB/T 19879
Steel pipe as structural members (hollow round shapes with relatively thicker wall thickness than round tubing).	EU - EN 10210-2 US & CA - ASTM A53 / A53M Type E (welded) or S (seamless), Grade B or ASTM A106 / A106M Grade B CH - GB/T 8162:2008
Structural tubing (hollow sections in round, square, and rectangular shapes).	EU - EN 10210-1 / EN 10210-2 / EN 10219-1 / EN 10219-2 US - ASTM A501 or ASTM A500 Grade B CA - CSA G40.21-M, Grade 350 Class C or H CH - GB/T 6725:2008
Wall-mounted handrail carbon steel, round structural tubing or pipe	US & CA - ASTM A500 Grade B or ASTM A53 Grade B, standard weight, 48 mm (2 in) Outside Diameter.

NOTES: 1. EU = Europe; US = United States of America; CA=Canada; CH=China.