



Exploration & Production

GENERAL SPECIFICATION

CIVIL WORKS

GS EP CIV 301

Design of reinforced and prestressed concrete

04	10/08	General review
03	10/07	Update and Addition of References
02	10/05	Addition of "EP" root to GS identification
01	09/03	Change of Group name and logo
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Rev.	Date	Notes

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1. Scope

This specification defines the minimum requirements applicable to the design of reinforced and prestressed concrete structures.

Nonetheless certain equipment and/or works may present particular requirements. In such a case the COMPANY reserves the right to modify General Specifications or supplement them with Particular Specifications.

2. Reference documents

The reference documents listed below form an integral part of this General Specification. Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published at the EFFECTIVE DATE of the CONTRACT.

Where there are national regulations, their particular requirements, and those of the standards or codes to which they refer, must be applied, supplementing or amending the provisions of this document.

If there are no mandatory national regulations, international regulations, standards and codes shall be applied.

If there are no applicable international standards and codes, the national standards and codes shall be chosen from those listed below according to the projects in hand and shall be defined in the job specification.

In the absence of a specific exemption, duly justified by the CONTRACTOR and agreed by the COMPANY, codes and standards of different origins may not be used in whole or in part.

If certain points in these regulations need to be clarified, the CONTRACTOR shall describe and justify the changes and/or additions to be made so that they can be adapted to the nature and environment of the structure. Such proposals shall be considered acceptable only when they have been examined and approved by the COMPANY.

A definitive list of regulations, standards and codes proposed by the CONTRACTOR shall be taken from the reference documents defined in this specification and the project's job specification.

Only the main standards are mentioned; the CONTRACTOR shall be responsible for compliance with any secondary standards. The list provided in this document should not be regarded as exhaustive.

Unless otherwise indicated in specific contractual conditions, for all documents cited for reference and their addenda, the latest issue applies.

Standards

International standards and codes

Reference	Title
ISO 128	Technical drawings. General principles of presentation
ISO 3766	Construction drawings. Simplified representation of concrete reinforcement
ISO 4066	Construction drawings. Bar scheduling

Reference	Title
ISO 4157-1	Construction drawings. Designation systems. Part 1 : buildings and parts of buildings
ISO 4157-2	Construction drawings. Designation systems. Part 2 : room names and numbers
ISO 4157-3	Construction drawings. Designation systems. Part 3 : room identifiers
ISO 4172	Technical drawings. Construction drawings. Drawings for the assembly of prefabricated structures
ISO 6284	Construction drawings. Indication of limit deviations
ISO 7437	Technical drawings. Construction drawings. General rules for execution of production drawings for prefabricated structural components
ISO 7518-	Technical drawings. Construction drawings. Simplified representation of demolition and rebuilding
ISO 7519	Technical drawings. Construction drawings. General principles of presentation for general arrangement and assembly drawings
ISO 8560	Technical drawings. Construction drawings. Representation of modular sizes, lines and grids
ISO 9431	Construction drawings. Spaces for drawing and for text, and title blocks on drawing sheets
ISO 11091	Construction drawings - Landscape drawing practice
ISO 13567-1	Technical product documentation - Organization and naming of layers for CAD - Part 1 : overview and principles
ISO 13567-2 -	Technical product documentation - Organization and naming of layers for CAD - Part 2 : concepts, format and codes used in construction documentation
IBC	International Building Code

European standards and codes

Reference	Title
EN 206-1	Concrete - Part 1 : specification, performance, production and conformity
EN 1990	Eurocode - Basis for Design
EN 1991-1-1	Eurocode 1 - Actions on structures - Part 1-1 : general actions - Densities, self weight, imposed loads for buildings
EN 1991-1-2	Eurocode 1 : actions on structures - Part 1-2 : general actions - Actions on structures exposed to fire
EN 1991-1-3	Eurocode 1 - Actions on structures - Part 1-3 : general actions - Snow loads
EN 1991-1-4	Eurocode 1 : actions on structures - Part 1-4 : general actions - Wind actions
EN 1991-1-5	Eurocode 1 : actions on structures - Part 1-5 : general actions - Thermal actions
EN 1991-1-6	Eurocode 1 : actions on structures - Part 1-6 : general actions - Actions during execution
EN 1991-1-7	Eurocode 1 : Actions on structures - Part 1-7 : general actions - Accidental actions
EN 1991-2	Eurocode 1 - Actions on structures - Part 2 : traffic loads on bridges
EN 1991-3	Eurocode 1 - Actions on structures - Part 3 : actions induced by cranes and machinery
EN 1991-4	Eurocode 1 - Actions on structures - Part 4 : silos and tanks
EN 1992-1-1	Eurocode 2 : Design of concrete structures - Part 1-1: General rules and rules for buildings
EN 1992-1-2	Eurocode 2 - Design of concrete structures - Part 2 : concrete bridges - Design and detailing rules
EN 1992-2	Eurocode 2 - Design of concrete structures - Part 2 : concrete bridges - Design and detailing rules
EN 1992-3	Eurocode 2 - Design of concrete structures - Part 3 : liquid retaining and containment structures
XP ENV 1992-1-5	Eurocode 2 : design of concrete structures - Part 1-3 : general rules - Structures with unbonded and external prestressing tendons
XP ENV 1992-1-6	Eurocode 2 : design of concrete structures - Part 1-6 : general rules - Plain concrete structures
XP ENV 1992-2	Design of concrete structures - Part 2 : concrete bridges
EN 1994-1-1	Eurocode 4 - Design of composite steel and concrete structures - Part 1-1 : general rules and rules for buildings

Reference	Title
EN 1994-1-2	Design of composite steel and concrete structures - Part 1-2: General - Structural fire design
EN 1994-1-2	Eurocode 4 : design of composite steel and concrete structures and national application document - Part 1-2 : general rules - Structural fire design
EN 1994-2	Eurocode 4 - Design of composite steel and concrete structures - Part 2 : general rules for bridges
EN 1997-1	Eurocode 7 : geotechnical design - Part 1 : general rules
EN 1997-2	Eurocode 7 : geotechnical design - Part 2 : ground investigation and testing
EN 1998-1	Eurocode 8 - Design of structures for earthquake resistance - Part 1 : general rules, seismic actions and rules for buildings
EN 1998-2	Eurocode 8 - Design of structures for earthquake resistance - Part 2 : bridges
EN 1998-3	Eurocode 8 - design of structures for earthquake resistance - Part 3 : assessment and retrofitting of buildings
EN 1998-4	Eurocode 8 : design of structures for earthquake resistance - Part 4 : silos, tanks and pipelines
EN 1998-5	Eurocode 8 - Design of structures for earthquake resistance - Part 5 : foundations, retaining structures and geotechnical aspects
EN 1998-6	Eurocode 8 - Design of structures for earthquake resistance - Part 6 : towers, masts and chimneys

French standards and codes

Reference	Title
XP A 35-014	Reinforcing steels - Plain, indented or ribbed stainless steel bars and coils
NF A 35-015	Concrete reinforcing steels. Weldable round bars
NF A 35-016	Concrete reinforcing steels. Weldable ribbed bars and coils of grade FeE500. Fabric made of these reinforcements
NF A 35-017	Concrete reinforcing steels. Non weldable ribbed bars and wire rods
NF A 35-19-1	Concrete reinforcing steels. Reinforcing steels made of weldable indented wires. Part 1 : bars and coils
NF A 35-19-2	Concrete reinforcing steels. Reinforcing steels made of weldable indented wires. Part 2 : welded fabric
NF A 35-020-1	Steel products. End coupling or anchoring devices for high adherence steel for concrete reinforcement. Part 1 : requirements for mechanical performances
NF A 35-020-2	Steel products - End coupling and anchoring steel devices for high adherence steel for concrete reinforcement - Part 2 : test methods
NF A 35-021	Steels for concrete. Weldable wires used for the fabrication of reinforcing steels
NF A 35-024	Steels for concrete. Fabric composed of wires with a diameter lower than 5 mm
XP A 35-025	Steel products - Hot-dip galvanised bars and coils for reinforced concrete - Wire intended for manufacture of hot-dip galvanised concrete reinforcing steels
NF A 35-027	Steel products for reinforced concrete - Reinforcements
NF A 35-30	Steel products. Bars with improved bond for concrete poles, supports for over head lines
XP A 35-031	Concrete reinforcing steels. Weldable ribbed bars of diameter over 40 mm
NF A 35-035	Steel products - Hot-dip zinc or zinc-aluminium coated prestressing smooth wires and 7-wire strands
XP A 35-037-1	Steel products - Protected and sheathed high strength steel strands - Part 1 : general requirements
XP A 35-037-2	Steel products - Protected and sheathed high strength steel strands - Part 2 : requirements for sliding protected and sheathed strands (type P)
XP A 35-037-3	Steel products - Protected and sheathed high strength steel strands - Part 3 : requirements for adherent protected sheathed strands (type SC)