



Exploration & Production

GENERAL SPECIFICATION

TELECOMMUNICATIONS

GS EP TEL 410

Installation rules

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Contents

1. Scope	3
2. Reference documents.....	3
3. Buildings.....	6
3.1 Telecommunications equipment layout	6
3.2 Architectural and structural requirements	6
3.3 Ventilation, heating and air conditioning	8
3.4 Cable entry	9
3.5 Lighting	9
3.6 Prefabricated temporary housing.....	10
4. Telecommunication masts and towers	11
4.1 Structural requirements	11
5. Cable	11
5.1 Specification for cables.....	11
5.2 Power cables	11
5.3 Telephone cables standards and guides	11
5.4 Optic fibres design and installation	12
5.5 Spare capacity	12
5.6 Cables numbering.....	12
5.7 Cable installation	12
5.8 Distribution.....	15
6. Bonding and grounding.....	15
6.1 General.....	15
6.2 Equipment earthing.....	16
6.3 Earthing of cables	16
6.4 Radio interference suppression.....	16
Appendix 1 Glossary.....	17
Appendix 2 Cable Segregation	18

1. Scope

This general specification identifies the general rules to be complied with for the installation of telecommunications systems.

Note: Concerning wiring of the transmission networks for voice, this General Specification shall have to apply only where the General Specification **GS EP TEL 180** cannot be applied.

The verbal forms used to indicate levels of requirement are specified in [ISO/IEC Directives, Part 2](#) and [Characteristics of good requirements](#), INCOSE symposium 1996.

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.

This specification refers to the regulations, codes and standards as detailed hereafter.

The latest revision of these documents, in force at the time of contract signature, shall apply, even if this specification refers to an earlier issue.

The order of precedence of reference documents shall be the following:

- Laws, codes and rules of the country where the project takes place
- COMPANY specifications
- Rules and regulations set down by bodies recognized by the United Nations Organization (U.N.O.)
- Briefs, reports, recommendations and publications issued by international and European consultative committees such as: ITU, IEC, CENELEC.

Standards

Reference	Title
IEC 304	Standard colours for insulation of low frequency cables
IEC 60079-1-1	Electrical Apparatus for explosive gas atmosphere
IEC 60096	Cables for radio frequencies
IEC 60092-374	Electrical installations in ships. Shipboard telecommunication cables and radio-frequency cables. Telephone cables for non-essential communication services
IEC 60092-375	Shipboard telecommunications cables and radio frequency cables - General instrumentation, control and communication cables
IEC 60153	Hollow metallic waveguides
IEC 60169	Connectors for radio frequencies
IEC 60215	Safety rules for radio transmitters
IEC 60331	Fire resisting characteristics of electric cables
IEC 60332	Tests on electric cables under fire conditions (Parts 1 and 3)

Reference	Title
IEC 60364	Electrical installations of buildings
IEC 60533	Electromagnetic compatibility of electrical and electronic installation in ships
IEC 60529	Degrees of protection provided by enclosures (IP code)
ITU-T K.11	Surge protectors and recommendation for telecom equipment
ITU-T K.18	Calculation of voltage induced into telecommunication lines from radio station broadcasts and methods of reducing interference
ITU-T L.1	Construction, installation and protection of telecommunication cables in public networks
NF M87-202	Petroleum industry - Instrumentation cables - Specifications
NF C93-521	Fils et câbles isolés au polychlorure de vinyle pour câblage intérieur de matériel électronique
French PTT Specifications L 121, L 121 bis	Spécification de câbles téléphonie publique
French PTT Specifications L 126, L 127 and L 128	Spécification de câbles téléphonie publique
UTE NF C15-100	Electrical installations at low voltage
UTE NF C17-100	Lightning protection - Lightning conductor installation
Directives ISO/CEI, Part 2	(2001) Rules for the structure and drafting of International Standards

Professional Documents

Reference	Title
ITU-T handbook - Outside plant	Jointing of Plastic-Sheathed Cables
ITU-T manual	Directives concerning the protection of telecommunications lines against harmful effects from electrical power and electrified lines - Volume VI: Danger and disturbance

Regulations

Reference	Title
Directive 94/9/EC	Directive of the European parliament and the council on the approximation of the laws of the member states concerning equipment and protective systems intended for use in potentially explosive atmospheres
ICAO	The Convention of the International Civil Aviation Organization (ICAO) Annex 14

Codes

Reference	Title
EC3	Euro Code 3

Other documents

Reference	Title
Characteristics of good requirements	Requirements Working Group of the International Council on Systems Engineering (INCOSE symposium 1996)

Total General Specifications

Reference	Title
GS EP CIV 202	Drainage and underground networks
GS EP CIV 300	Reinforced and prestressed concrete
GS EP CIV 301	Design of reinforced and prestressed concrete
GS EP CIV 406	Thermal and acoustic insulation
GS EP COR 350	External protection of offshore and coastal structures and equipment by painting
GS EP ELE 001	Electrical design criteria
GS EP ELE 031	Design of earthing and bonding systems
GS EP ELE 151	DC uninterruptible power supply
GS EP ELE 152	AC uninterruptible power systems (UPS)
GS EP ELE 161	High voltage electrical cable
GS EP ELE 765	Subsea cables
GS EP INS 107	Design and installation of instrumentation links
GS EP SAF 216	Area classification
GS EP STR 201	Materials for offshore steel structures

Reference	Title
GS EP TEL 180	Engineering and installation of telecommunication network pre-cabling
GS EP TEL 190	Engineering and installation of offshore optical fibres based telecommunication
GS EP TEL 191	Telecom Fibre Optic Systems Design
GS EP TEL 413	Design and installation of Telecom mast - Telecom requirements
GS EP TEL 414	Telecommunication Cables
GS EP TEL 710	Telecom equipment numbering

3. Buildings

3.1 Telecommunications equipment layout

Telecommunications equipment shall be installed in specific rooms, separate from other facilities.

Construction material shall follow the requirement of thermal and acoustic insulation stipulation made in [GS EP CIV 406](#).

Basic electrical design shall follow the [GS EP ELE 001](#). Specific equipments dedicated for telecommunication equipment are detailed bellow.

If the building has several floors, telecommunications equipment shall be installed on upper floors.

The vital parts of telecommunications equipment (transmitter-receiver, terminals, radio base, etc.) shall not be installed in such hazardous areas as defined in General Specification [GS EP SAF 216](#). On a case by case basis, telecommunication equipments shall be ATEX certified according to [Directive 94/9/EC](#) and comply with [IEC 60079-1-1](#).

Whatever be its location on the site, telecommunications equipment shall be installed in waterproof buildings.

Also, the telecommunication equipments shall be installed in an enclosure that provides a protection against the intrusion of solid object, dust, accidental contact and water according to the IP Code defined in [IEC 60529](#). The level of protection will depend on the equipment and the place where it is installed.

All cable penetrations shall be sealed against the ingress of dust, moisture and will be fire retardant.

3.2 Architectural and structural requirements

3.2.1 Sizing

Sizing of telecommunications equipment rooms shall be based, not only on the equipment to be installed, but shall also provide additional space for possible future extensions.