

GENERAL SPECIFICATION

CIVIL WORKS

GS EP CIV 407

Onshore Permanent Accommodation Base and associated facilities

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1. Scope

This document gives the minimum general standards and requirements for design and construction of **Onshore Permanent Accommodation Bases and associated facilities** dedicated for operations.

Temporary accommodation of Contractor's and Company's personnel for Plant works is out of the scope of this General Specification. Project will design this in accordance with **GS EP CIV 403**.

Requirements for building design shall be in accordance with **GS EP CIV 401**.

It does not cover the specific requirements for offices and buildings related to and located inside the production facilities.

2. Reference documents

The reference documents listed below form an integral part of this General Specification.

External Documents

Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and addendums, is the latest revision published at the effective date of this document.

Reference	Title
ISO 3864-1	Graphical symbols - Safety colours and safety signs - Part 1 : design principles for safety signs and safety markings
EN 16282 (All Parts)	Equipment for commercial kitchens - Components for ventilation in commercial kitchens – All Parts
NFPA 82	Standard on Incinerators and Waste and Linen Handling Systems and Equipment
NFPA 96	Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations

Total General Specifications

Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and addendums, is the latest revision published.

Reference	Title
GS EP CIV 103	Fences
GS EP CIV 201	Design and construction of roads and stabilized areas
GS EP CIV 202	Drainage and underground networks
GS EP CIV 401	Minimum requirements for buildings design and construction
GS EP CIV 403	Temporary construction camps and associated facilities (onshore)

Reference	Title
GS EP ELE 002	Electrical Design Criteria for Onshore Permanent Accommodation Base and Building
GS EP ELE 451	THIRD PARTY Inspection - Independent Verification of Electrical Facilities
GS EP ENV 421	Landfill design and operation for E&P sites
GS EP HVA 100	HVAC Basis of design
GS EP INS 307	POB, E-Mustering and E-Tracking
GS EP INS 309	Access Control Systems
GS EP MED 060	Onsite medical structures
GS EP MED 061	Medical support for E&P sites
GS EP MED 062	Hygiene on onshore bases and offshore living quarters
GS EP SAF 021	Layout
GS EP SAF 221	Safety rules for buildings
GS EP SAF 253	Impacted, restricted areas and fire zones
GS EP SAF 321	Fire pump stations and fire water mains
GS EP SAF 351	Escape, evacuation and rescue from fixed installations
GS EP STR 500	Onshore Structure - General
GS EP STR 510	Onshore Structure - Design
GS EP STR 710	Onshore Blast Resistant Buildings
GS EP TEL 111	Design and installation of a Telephony System
GS EP TEL 140	Public Address and General Alarm (PAGA)
GS EP TEL 150	Design, supply and installation of satellite telecommunication systems
GS EP TEL 160	Closed-Circuit Television (CCTV)
GS EP TEL 161	Audio, video and Internet entertainment system
GS EP TEL 170	Communications Network
GS EP TEL 191	Telecom Fibre Optic System Design
GS EP TEL 410	Installation rules
GS EP TEL 413	Telecom mast telecom requirements
GS EP TEL 414	Telecommunication Cables
GS EP TEL 700	Telecommunications Engineering services

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3. Applicability

It shall be used to develop Particular Project Specifications (PPS) to fulfil the Operating Philosophy.

4. Terms and definitions

For the purpose of this document, the following terms and definitions apply.

Company (CPY)	Company refers to the company that has awarded to Contractor the construction of the work on Company's site and/or Contractor's site.
Contractor (CTR)	Contractor refers to the company that was awarded by Company the construction of the work on Company's site and/or Contractor's site. It includes all sub-contractors and vendors who perform any work on Company's site or Contractor's site. Subcontractor refers to any company or person to whom Contractor has subcontracted performance of any part of the work.
Engineer (ENG)	Individual or company that performs the services corresponding to the studies and/or for ordering the works that are the subject of this specification. The engineering company may be responsible for carrying out the civil works execution studies or expertise. Engineer may be Contractor or Company.
Inspection Body / Third Party	Approved body awarded by the Company, responsible for inspecting the design and the execution of works to prevent technical problems.
Green building	Green building structures are energy efficient, conserve resources, create healthier indoor environments and offer durable and spaces that use environmentally suitable materials. Green building incorporates integrated design concepts, solar orientation, appropriate footprint sizing, glazing awareness, material durability, economic life-cycle analysis, material reuse and salvage, natural material content, locally available materials and economic sustainability.
Accessibility	Accessibility refers to general functional organization of the building. It includes specific requirements for the various types of visitors (publics) welcomed by the subsidiary.
Life cycle assessment (LCA)	Compilation and evaluation of the inputs, outputs and the potential environmental impacts of a product system throughout its life cycle. It enables to identify the main sources of environmental impact.
Building Management System (BMS)	Monitoring system of main technical installations in the building. BMS could address facilities (power, water, HVAC, etc.) and safety system (Fire detection & alarm, active fire protection, etc.).
General Specification (GS)	Document with all requirements that the company may apply on project all over the world in any case.

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Project Particular Specification (PPS)

Document fit for purpose of the project, based on GS, listed all requirements the company would like to apply on this project, taken into account the local context (topographic, ground condition, weather, operation, safety, security, etc.).

PAB

Permanent Accommodation Base

RSES

Responsible for Safety and Environment on Site

PPS

Project Particular Specifications

Throughout this specification, the words "will", "may", "should", "shall" when used have meaning as follows:

- "Will" is used normally in conjunction with an action by Company
- "May" indicates an acceptable course of action
- "Should" indicates a preferred course of action
- "Shall" indicates a mandatory requirement.

5. Basic data and Design Criteria

All site-related constraints shall be taken into account in the on-shore base studies. **GS EP CIV 401** provides all input data and studies which have to be performed before any onshore base is designed. Company shall clearly indicate the battery limits and interfaces, if any, with other sites like Plant Construction area or Plant Site offices.

The overall Project planning should take into consideration the Permanent Accommodation Base planning constraints such as, but not limited to:

- Construction schedule with required phasing of main elements of PAB
- Utilities supplied from Plant / Site utilities
- Critical path per area (buildings, utilities, etc.)
- Philosophy to cover peak demand of POB on site.

5.1 Design Life duration

Life duration of buildings, utilities and equipment (assuming normal maintenance is carried out) will be in the Operating Philosophy but is normally 25 to 30 years, unless otherwise specified.

5.2 Efficiency in layout design

Base camps shall be considered as a little city where efficiency of communication and functionality will drive the overall layout, as regards urban planning constraints.

The dispositions linked to the accessibility will enable a functional use of buildings or facilities, and will be studied according to the people, material, equipment and goods flow management and the safety and security rules requirements.

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Engineer shall perform a first phase to explain the conception and the main characteristics of the layout and design proposal, which will include in particular the spatial organization of the camp, the construction system of the buildings and the provided elements of comfort.

Inclement weather due to the prevailing climatic conditions and the topographical constraints on the site will necessitate specific architectural solutions and technical designs. Confinement of the site may constitute yet another constraint, and shall be taken into account in the consideration of pre-fabricated modular construction on site. Additionally the design development of the project also responds to the need to bring a level of comfort and hygiene in accordance with the western standards while adapting them to the local context.

This analysis will allow Company to understand the project on the regional scale and thus how are organized the spaces in the base camp. The plans and the schematic organization of the spaces have to be conceived in consideration of the constructional constraints, future maintenance, security, functionality of the project, CAPEX and OPEX.

More details are given in the dedicated chapter "Plot plan layout, roads and outdoor facilities".

6. Population

6.1 Personal On Board (P.O.B.)

The Permanent Accommodation Base areas and the safety equipment shall be designed for the maximum POB number for each category of personnel to be defined at Project Particular Specifications (PPS) according to the breakdown in Appendix 2.

Engineer shall perform this breakdown based on available data at project level.

6.2 Accommodation Base capacity

Depending on Project and local context, normal and peak occupancy are needed to design layout, accommodations and utilities.

Normal occupancy is defined in the Operating Philosophy and details include:

- Company personnel
- Local contractors (accommodated outside the permanent camp or inside)
- Others contractors personnel.

Peak occupancy is defined in the Operating Philosophy and details include (situation depending on size of plant):

- Major intervention level & frequency
- Future extensions (trains etc.).

It should be clearly defined in Operating Philosophy whether all, part or none of the construction camp is to be retained for permanent accommodation.

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6.3 Breakdown of population by categories of personnel

Breakdown of population, (including Caterer's personnel), for normal occupancy and for peak occupancy, will define various categories of personnel as follows:

- VIP's
- Management
- Staff
- Visitors.

The above theoretical repartition of categories of personnel will be defined according to each particular Project/country.

6.4 Cultural requirements

Countries of origin, languages, genders, cultural and religious groups shall be taken into consideration for design and concept of facilities:

- Housing and amenity center and religious facilities
- Catering and food
- Accommodations and associated facilities for female staff.

6.5 Rotation system and work constraints

Rhythms and rotation system for the various types of population shall be anticipated for sizing of some facilities like entrance main Gatehouse, means of transport, etc.

Refer also to paragraph 15 for accommodation of night-shift workers in the layout where disturbances to sleep and rest is minimal during the day.

7. Organization of the Base

Permanent Accommodation Base will have to be defined in the Operating Philosophy to fulfil the day to day functionalities:

- Accommodations
- Administration
- Security
- Fire fighting
- Health and hygiene
- Logistic and transport
- Catering
- Entertainment and leisure
- Utilities

- Routine operations and maintenance
- Etc.

Company is responsible to define the base functionalities and performance requirements in the PPS and Contractor is responsible to provide layout and design which meets these requirements.

7.1 Operation and maintenance of PAB

PAB design will address facilities for administration, management and operation, including provision of all water, diesel fuel for power generation, materials, and supplies consumables, utilities and services.

Engineer shall collect, treat, and process data in order to design all utilities such as electric power, water, diesel, petrol to provide functional layouts of camp and then buildings and facilities.

Company assigns an experienced Contractor for operation and maintenance and ensures its performance by implementing a control process.

Engineer shall anticipate adequate supply of spares and replacement items provided and stored at the time of the construction of the Base, for operation and maintenance during the operation period.

8. Catering

Engineer has to design fit for purpose catering facilities to fulfil the following tasks:

- To ensure all messing, housing in appropriate conditions.
- Three meals per day will be provided for day and night shifts. Breakfast and evening meals will be available in the mess rooms/restaurants before starting and after completing work.
- To ensure catering is paying attention to all cultures and to all recognized festivals and religious holidays.
- In some cases, to minimize transportation of personnel from Site to the Camp, meals of mid-day break may be taken by the labour force either in the Base facilities or on Site served within mess rooms established for this purpose.

9. Laundry

Laundry will provide facilities for washing, drying, ironing and storage of house hold-linen (bed linen, towels, pillowcases, etc.) and personal clothes including working coveralls.

Laundry will be designed to segregate the circuits of dirty and clean linen.

Typical tasks:

- Collect and dropping of dirty linen
- Linen tagging marking
- Washing
- Drying
- Ironing (roll ironing for bed sheets, steam press and electric flat irons)

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- Storage
- Return of washed and pressed linen to residents
- Access to laundry building or rooms shall be easy (provide ramp in case of different level)
- Laundry shall be equipped with telecommunication means.

Average ratio of 5 kg of linen per person per week should be considered and adjusted.

The interim storage of clothes is considered as storage of combustible products and shall therefore be minimized.

Equipment of laundry shall be electric.

The laundry is to be considered as a special hazard area and the same type of protection as used for kitchen shall protect it.

10. Security

Security of the PAB shall comply with Project Security Philosophy which may impact the requirements defined in other chapters of this document.

11. Safety

Safety to life shall comply with **GS EP SAF 021** et **GS EP SAF 253**, completed or amended by:

- Local Regulations
- Particular Project Safety concept.

11.1 Fundamental requirements for Safety of buildings

Buildings shall be designed and built as per **GS EP CIV 401** requirements.

11.2 Fire-fighting equipment

Fire-fighting equipment shall be addressed by a dedicated study, typically a safety concept dedicated to the PAB, in order to size and locate facilities and equipment, separated or common to production facilities.

Typically, fire fighting equipment would be:

- Permanent fire water storage (capacity to be defined)
- Fire-fighting:
- Fire hydrants and distribution networks (outdoors)
- Hose reels and distribution network (indoor)
- Fire station
- Fire-fighting trucks (Location, Qty. and characteristics to be defined)
- Fire alarms/sirens, Fire and smoke detection,
- Fire extinguishers (wheeled and portable), sand boxes, shovels, etc.

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- General public alarm, sirens
- Escape routes, means to egress
- Mustering places.

12. Health - Hygiene and medical support

12.1 General requirements

Detail of Health, Hygiene and Medical support is defined by Health, Hygiene and Medical Specifications and in accordance with requirements of Company's medical service and **GS EP MED 060**, **GS EP MED 061** and **GS EP MED 062**.

Medical facilities shall be provided to cover the normal POB of the Base.

If any, peak POB and entitlement of local communities (to be defined in Operating Philosophy) may be used to design additional medical facilities.

The level of equipment shall be defined in Operating Philosophy in accordance with following criteria:

- Level of sanitary and security risks
- Reliability of hospital of nearest town
- Possibility of fast medical evacuations
- Telecommunication means
- Reliability of medical team
- Medical and sanitation surroundings.

Indoor conditions shall be maintained in compliance with **GS EP HVA 100**.

12.2 Clinic and medical equipment

The Permanent Base Clinic shall be operational at the date decided by RSES.

12.2.1 Location of Clinic

Clinic should be located in a dedicated building, easily accessible from main entrance and guardhouse in order to get fast access of ambulances (but not directly close to main entrance traffic).

Clinic will be located in a quiet area, separated from housing accommodations and from noisy activities.

Clinic shall be practically accessible by stretcher from any place in the site, and shall have an easy route by stretcher to the evacuation means (normally by helicopter or ambulance).

12.2.2 Clinic layout

The layout shall be in accordance with medical service requirements defined in Operating Philosophy.

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Design of building, width of corridors and doors shall be compatible with easy access of a stretcher handled by two persons.

12.2.3 Clinic equipment

Building shall be fully furnished with all necessary emergency medical tools and equipment, appliances and furniture to be fully operational in accordance with **GS EP MED 060**.

In case of difficult logistic context, the level of equipment should be more adequate (for example small operating unit, reanimate equipment, dentist, etc.).

Specific requirement for Mortuary facilities shall be defined in Operating Philosophy.

13. Transports and traffic

13.1 Transport means

All transports for personnel and materials will be provided between the Base and Plant/Site. The means of transport and organization will permit safe and rapid movement of large numbers of personnel in a short period of time in order that productive time on Site is not diminished due to time lost in transit.

Vehicles like buses, trucks, saloon cars, 4X4 wheels vehicles, etc. and camps layout will require facilities (parking, garage facilities for vehicles, security check points, refuelling station, etc.) and shall be defined accordingly.

This may include as well adequate maintenance and servicing facilities to avoid accidents and breakdowns.

Truck loading/unloading stations for flammable and combustible liquids, or any chemicals should be located in a dedicated area on/adjacent the PAB to avoid traffic of trucks inside the Base.

13.2 Road Traffic plan

A Road Traffic Plan applicable to any road movement shall be provided by Engineer. This traffic plan shall include:

- Highlighting the roads to be used by type vehicles, traffics, risks, security concept, etc.
- Pedestrian ways
- Adequate road signs and markings needed for safe driving along with speed limits
- Monitoring road conditions for any maintenance or repair work.

13.3 Roads design

Roads shall be designed and equipped as necessary (speed humps, roundabouts, traffic lights, adequate road signs, etc.).

Roads shall be in accordance with **GS EP CIV 201**.

13.4 Marking

Road signs, instructions, maps, self contained unit light, working ribbons, stake, surface cable marking for all buried cables, etc. will be addressed by the Project and performed by Construction contractor.

Adequate Safety panels both inside the Site and in its vicinity on the public roads shall be installed following local regulations. Safety signs and colours shall be as per [ISO 3864-1](#) and those of local road traffic regulations.

Texts shall be in both English (UK) and local language.

14. List of buildings

14.1 General

The following description and surfaces should be considered as guidelines for minimum standard requirement. They should be adapted to any conventional or prefabricated construction system, and any change shall be approved by Company.

Breakdown of population shall be done in accordance with expected histogram given in Operating Philosophy.

Any building hosting working personnel shall be equipped with telecommunications cabling and fixed telephone.

14.2 Housing accommodations

14.2.1 General

All bedrooms shall be equipped with telephone, internet connection (wired and wireless) and television.

All bathrooms shall have clean hot and cold water.

14.2.1.1 Day sleeping area

It is essential that personnel not working in day-shift can rest and sleep during the day in bedrooms that remain quiet during day activities and in particular, are not exposed to traffic noise and vibrations.

The arrangement of a particular day-sleeping area in the accommodations shall be provided if relevant.

14.2.1.2 Smoking policy

The Company policy is to forbid people to smoke in any building or public areas.

Derogation may be requested by project, typically in arctic area where dedicated room should be designed in each main building. Otherwise, smoking area should be organised outside buildings in dedicated areas. Segregation of "smoking" and "non smoking" buildings/areas/rooms shall be clearly defined.