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1 Subject of specification

This specification used in conjunction with other technical specifications of LOTOS Group S.A., establishes minimal requirements regarding designing and execution of industrial buildings, such as:

- Central Control Room/ Local Control Room
- Electrical power station
- Administrative building
- Fire water pump station
- Compressor station
- Laboratory.

2 Scope of validity

This specification's requirements are to be kept and respected in the bidding and contractual documents of the new designed and modernized investments for LOTOS S.A. Group.
This specification is a basic document for more detailed specifications and bids.

2.1 Deviations

Any deviation from this specification and the relevant specifications, standards and related documents including proposals, which the bidder claims to be economically and / or technically superior solutions, must be submitted in writing for review and approval by Grupa LOTOS SA. Non-approved exceptions are not acceptable by Grupa LOTOS S.A.

The supplier must report in writing any ambiguity in this or any other specifications of Grupa LOTOS SA or non-compliance with the referred documents / standards and obtain a written explanation from Grupa LOTOS SA.

2.2 Exclusions

Scope of this specification does not include internal systems and technical equipment, necessary for functioning of described objects.

Elements of system and technological equipment are included in design and supply scope of another branches.

3 Hierarchy of documents

In case of conflicts existing between this specification and other documents, the following order of precedence shall govern:

- The current Polish legislation
- Terms of purchase order / contract and other requirements agreed in writing with GLSA
- Data Sheets approved by GLSA

- This Specification
- Other specifications
- Drawings and other documents
- Standards

4 General requirements

4.1 Technical documentation

Scope of prepared technical documentation of building includes:

- *Building permit documentation*
  - Multidiscipline building documentation prepared in accordance with the Building Law[1)], following the detailed scope defined in Regulation of the Minister[2)];
  - Information regarding safety and health protection taking in consideration the nature of designed building considered in the Safety and Health protection Plan prepared in accordance with Regulation of the Minister[4)];
- *Detailed Engineering documentation*

  execution project (projects), constituting independent study, containing drawings along with descriptive explanations, which is complementing and detailing building project (in scope and level necessary for bill of quantities, investment cost estimate of contractor's offer and execution of the construction works), elaborated – in line with building works nature – for at least four basic disciplines: architecture, structures, plumbing (and eventually gas fittings), and electric systems, while number of studies shall be adequate to specific discipline scope necessary for whole investment completion.

  - Requirements concerning the form of engineering documentation shall be adopted correspondingly as for building permit documentation.

- *Occupancy permit documentation*
  - as–built documentation, i.e. the building permit documentation with all changes introduced during the construction marked, as well as geodetic as –built survey site map.

Technical documentation shall be elaborated according to standards and regulations in force (see point 5 in this specification), as well as current state of the building knowledge, while taking into consideration additional technical requirements and standards that are valid within LOTOS Group S.A. site.

All changes to technical documentation, introduced during the construction, shall be taken into account in as-built documentation.

4.2 Other issues

- All proposed solutions and means used, shall first of all fulfil basic requirements, specified in art. 5 of the Law [1)].
- According to art. 5 of the Law of 16 April 2004, on building products, (Journal of Laws N° 92, pos. 881), for building works execution one shall use building products marked with CE mark, marked with building mark B, as well as declared in the list of products specified by European Commission.
- Building construction may be executed after obtaining required building permit, based on technical documentation and method statement of construction, fulfilling safety requirements defined in the „Safety and Health Protection Plan".
- **Changes qualified in Building Law as essential deviation from building permit documentation are allowed to be executed during the construction after obtaining the new building permit for replacement design.**

If binding regulations and standards impose more restrictive requirements than this specification, which increase safety, utilitarian qualitites and structure durability, priority shall be given to such requirements.

5 Buildings

5.1 Control Room

Depending on local needs and conditions, control room can constitute separate building or set of premises located, for example, in administrative building.

5.1.1 Functionality

According to design functional assumptions the Central Control Building shall include following:

- Control room
- Shift supervisor room and deputy shift supervisor room
- Technical Instrumentation Room – TIR
- DCS Room
- Cable room underneath the TIR
- UPS room for UPS power supply and distribution separated within the TIR

as well as other utility rooms:

- Staff meeting room
- Archive
- Social rooms (toilets, locker room, pantry room,)

In general the TIR room fulfills Control room functionality, without permanent service.

5.1.2 Overall Location

Control room shall be located outside explosion hazard zones. Control room location on battery limit is recommended.

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First of all safety aspects shall be taken into account, as well as safe access to plant and possibility of easy execution of assembly works, for example cable routing.

In case of plants with explosion hazard zones, it would be a necessity to locate control room in separate building or part of other building, located outside such areas.

Central Control Room building, located in zone minimal blast range, shall have blast resistant structure and blast proof entrances with proper airlocks or walls.

5.1.3 General requirements

- *Utility rooms*

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They shall be located in immediate vicinity of central control room and have a good and safe access (from outdoor communication pathway) and possibility of unhampered maintenance. Access to utility rooms via central control room is prohibited.

- *Air-locks*

Airlocks or awnings are to be provided due to protection reasons against noise, air pollutions, climate influences and explosion. Likewise staircases are accepted to serve as airlocks.

Due to protection against explosion, airlocks must be provided to all entrances in control room and utility rooms, if explosive zone (range) reaches directly these entrances.

Lock room in such event can not be furnished with any floor drain, and electric system shall be applied in Ex version. The remote controlling of door closing state is recommended.

Emergency exits from building, as well as service entrances (for technical service staff, assembly, etc.) do not require air-locks.

Main entrance to control room shall let in to hall or corridor, from which process and utility rooms are accessible.

Main entrance in local control room may lead directly through air-lock to TIR.

- *Cable entries*

Cables to TIR– shall be provided from cable room located underneath. Cables to Control Room and Engineering Room: shall be routed in covered cable duct at ground level and under the raised floor at higher floor elevations.

Type of cable entry to local control room building depends on quantity of instruments and control loops (cables) introduced into TIR

Cable entry from outdoor cable ducts to cable room shall be sealed with foam, made resistant to hydrocarbons and of applicable fire resistance class. Cable entry from cable room to TIR shall be individually sealed and made of applicable fire resistance class, but not less than 0.5 hour.

5.1.4 Overall dimension of rooms

Clear height of rooms shall not be less than:

- in control room 3,0 m
- in utility and social rooms 2,5 m
- in cable room 2,2 m

Width of maintenance and service passages in TIR results from selection and arrangement of system cabinets, however it shall not be less than 1,0 m. Such width is required in order to enable opening of opposite cabinets doors without blocking of the escape route. When the escaping passage is longer than 6m, access doors from both sides of the room shall be provided.

5.1.5 Building equipment of control room and utility rooms

- *General*

Entrance door to control room building located within explosion hazard area or in its vicinity, can be protected, for example, by erecting protective wall in front of them.

Plumbing installations of water and sewerage systems, steam and process pipes cannot be routed through control room.

- *Windows*

Control room, engineering room and TIR- without windows. In other rooms can be installed tilt-turn windows (only if **toxic** or dangerous substances can not penetrate into control room), with proper minimized dimensions, and double glazed as minimum.

- *Door*

At least one external door shall be foreseen in TIR room for equipment assembly purposes, inside dimensions as minimum with clear passage dimensions of 1.25m x 2.50m, without threshold. The other doors (except door in hygiene – sanitary room) shall fire resistant, self-closing and smoke sealant.

- *Floors, raised floors*

In control rooms (except utility rooms) must be applied anti - electrostatic materials – with electric resistance $Ru \leq 1 \bullet 10^6\ \Omega$.

In control room situated at first level, the need of raised floor is required for providing cables to cabinets and electrical devices. The optimal height over the floor slab of the raised floor shall be adjusted to the radiation of electrical cable bent.

The floor which is raised higher than 0.2m over the floor slab or other structural base shall have **fire – resistant** supporting structure and at least **fire-retardant (non-**inflammable)floor modular plates fromside of under-floor space, in fire class no less than REI 30 but also no less than that defined for floor slab.

In rooms with raised floor, only fire-retardant floor– coverings shall be applied.

Cement screed surface of the floor in cable room, or under raised floor, shall be finished with dust-binding coating.

Homogenous (uniform) floor linings and ceramic, non-slippery floor tiles shall be used in utility rooms.

- *Suspended ceilings*

One shall use only modular system ceilings made of non-combustible or non-inflammable materials, which are not dripping nor dropping off in effect of fire (what shall be confirmed by adequate certificates).

- *Internal finishes*

Internal walls painted on bright colour with dispersion (emulsion) type paints.

In hygiene – sanitary room, wall lining to height of at least 2 m, made of smooth ceramic tiles.

Use of easily inflammable materials for internal finishes, of which thermal decomposition products are highly toxic, or intensively smoking, is prohibited.

- *Internal systems*

Control room and engineering room shall be air-conditioned through circulation that is separated from that of TIR and UPS rooms. Top air blow is preferred.

Temperature in TIR and UPS rooms shall not exceed 25ºC ± 2°C, while in control room shall be maintained according to Health and Safety at Work regulations.

It is required to maintain controlled, constant positive pressure in control room and TIR premises, as well as in local control room located in blast hazard area.

In case of location of control room building in vicinity of process plants, where dangerous gases are present, control of gases concentration in air is required.

All technical systems and equipment required in control room building shall be designed and executed according to valid technical – construction regulations and Polish Standards, as well as requirements contained in related documents.

5.2 Power station

5.2.1 Functionality

Depending on needs, specified in brief foredesign, the station building may include:

- (MV) middle voltage switchgear-room
- (LV) low voltage switchgear-room
- Transformers' chambers
- Cable room
- Battery room.

5.2.2 Overall Location

Objects that may create any hazard for proper operation of electric equipment shall not be present in surroundings of power station building.

Distance of power station building from other objects shall be determined according to Fire prevention, as well as Health and Safety at Work regulations in force.

Convenient access road to power station building shall be ensured, enabling transport of equipment being installed.

5.2.3 Overall dimensions of rooms, communication

Area of switchgear rooms shall ensure proper arrangement of equipment, freedom of persons' movement and easy transport of instruments.

Height of station rooms (except cable room) shall be not less than 3 m. Width of corridors for supervision and service staff, as well as all passages in switchgear rooms shall conform to safety and protection requirements given in PN-IEC-364-4-481:1994.

Supervision and service staff corridors of length exceeding 6 m, shall be accessible from both ends.

The maximum length of escaping routes from arbitrary place in switchgear room to emergency exit or outside the building shall not exceed 20m.

Rooms of switching station which length is ≥ 10 m shall be furnished with at least two exits, leading outside the building, or to other room with exit to outside area, separated with **fire-wall.**

5.2.4 Building equipment

- *General*

Rooms of power station shall constitute a separate fire zone . brak treści: W przypadku gdy podłoga między kablownią i rozdzielnią wykonanana jest z blachy, zaleca się aby rozdzielnia wraz z kablownią pod podłogą rozdzielni stanowiły jedną strefę pożarową.

Walls, ceilings, floors of rooms destined for electric indoor equipment shall be made of non-

mable and non-combustible materials.

Alien electric cables or pipelines must not be routed through rooms of power station.

Cable entries into rooms and switching equipment shall be made in a way, which makes penetration of dampness into them impossible.

- *Windows*

High installed windows in rooms of power station shall enable opening them in easy and safe way by a person standing on the floor; they shall preclude access of unauthorized persons, as well as be protected against rodents' across too.

- *Door*

Entrance door to locked rooms of electric operation shall be possible to open towards outside without need for key usage.

Door between rooms of electric operation shall enable opening them on both sides, by simply pressing on door handle without using of key.

Steel door usage is recommended (external – thermally insulated, excluding door to chambers of transformers).

- *Floors*

In switchgear room over the cable room with height no less than 2.2m - cement screed on concrete floor slab. In switchgear room over the cable room with height less than 2.2m - steel plates on steel supporting structure. In service corridors along electrical distribution devices the rubber dielectric covering shall be laid.

In cable room and transformer chambers cement screed floor with anti–dust bound surface is to be applied. The damp-proof layer is to be installed in ground floor.

Choice and designing of damp-proof layer shall be adjusted to the local hydrological conditions.

In battery room, floor made of acid-resistant, non-slippery tiles.

- *Internal systems*

Rooms of power station must have adequate ventilation and electric heating provided (admissible temperature range: +5ºC up to +40ºC).

All technical systems and equipment required in power station building shall be designed and executed according to valid technical and construction regulations and Polish Standards, as well as requirements contained in related documents.

5.3 Administrative building

5.3.1 Overall Location

Administrative building, including unit of office and social rooms for administrative and service personnel, as well as necessary service and auxiliary rooms, is usually located next to main entrance gate on works area, far-distant from explosion hazard zones and process plants.

5.3.2 General requirements

- *Entrances, communication*

Location of entrance door to building, as well as shape and dimensions of entrance rooms, shall enable convenient conditions for traffic.

Outside entrances to building and permanent workplace rooms shall be protected by use of air-locks, air curtain or other solutions, which do not cause traffic difficulties.

The entrance to the building with minimum two overground floor levels shall be protected by the canopy or arcade niche.

External and internal stairs, serving for overcoming of height exceeding 0.5m, shall be furnished with railing or other safeguards from side of open space.

Structure of stairs serving general communication in building, cannot be susceptible to vibrations caused by users.

In a building having two or more overground floor levels, a roof exit shall be provided from at least one staircase, enabling access to roof and technical equipment installed on it.

- *Escape routes*

It is necessary to provide possibility of evacuation from each permanent workplace room (> 4 hours a day) by general communication routes outside building

Casing of horizontal escape routes shall have fire resistance class required for internal walls, but not worse less than EI 15.

Height of escape route shall be at least 2.2 m.

In a building which overground height exceeds 12 m, a staircase shall be designed, encased and closed with door; it shall be furnished with devices preventing fumigation or serving for smoke exhaust system.

5.3.3 Construction equipment

- *Windows*

In room designed for permanent workplace, daylight shall be provided, according to needs. The proportion of window surface, clear area in window frame to floor surface, shall be no less than 1:8 in permanent workplace room.

Window woodwork shall meet technical and utilitarian requirements: thermal and acoustic resistance, tightness, durability and resistance to deformations.

- *Door*

Entrance door to building and utilitarian rooms of general access, shall have at least 0.9 m width and 2 m height of clear door frame internal dimensions. Where double external door is used, width of main door leaf cannot be less than 0.9m.

Door leaves made of transparent panes shall be visibly marked and made of material ensuring users' safety in case of breaking.

Door of required fire resistance class or smoke-tightness, shall be furnished with devices ensuring self-closing of door opening in case of fire.

- *Suspended ceilings*

Linings of ceilings and suspended ceilings shall be made of non-combustible and non-inflammable materials, or materials that are not dripping, nor dropping off under the influence of fire.

In case of routing internal installations in empty space over the suspended ceiling, suspended ceilings shall enable possibility of ease dismantling in order to provide access to such installations – modular ceilings are preferred.

Only complete system solutions shall be used; ceiling of classified fire resistance shall be executed according to requirements contained in fire classifications issued by Department of Fire Research Department in Building Research Institute.

- *Finishing materials*

Use of easy inflammable materials for finishing of interiors, and such that are toxic and intensively smoking during the fire, is prohibited.

Use of easy inflammable materials and building products on general communication routes, serving for escaping routes purposes, is prohibited.

Floors in rooms and on general communication routes shall be stable, even, non-slippery and abrasion resistant, easy to maintain in cleanness.

In rooms, where work-places are furnished with computers, only anti-electrostatic floor linings shall be used, which meet requirements defined in Polish Standards regarding protection against static electricity.

Floors raised more than 0.2m over the floor slab level or other structural base shall be of fire-resistant supporting structure, at least non-inflammable floor plates on side of under-floor space and minimum fire resistance class of REI 30.

Making of openings in raised floor on escape routes, serving for ventilation or heating purposes, is prohibited.

- *Internal systems*

Building shall be furnished with all elements, equipment and systems necessary for its proper functioning, providing workers with safe and hygienic work conditions, and in particular: day and electric lighting, adequate temperature, air exchange and protection against humidity, protection against overheating and sun light, vibrations and other factors that are harmful to health.

All technical systems and equipment required in administrative building shall be designed and executed according to valid technical and construction regulations and Polish Standards, as well as requirements contained in related documents.

5.4 Fire water pump station

5.4.1 Overall Location

Pump station building shall be located in immediate vicinity of overground or underground fire water tanks, in distance not less than 50 m from fire curtain wall or axis of petroleum and petroleum products tank embankment (according to requirements contained in specification N° 1180, p. 3.7).

Pump station can be embedded or outbuilt to object of another intended use, on condition of protecting this object with elements of fire walls, having fire resistance of at least REI 120.

Fire road of hardened pavement shall be led to pump station building, enabling access of fire-brigade vehicles to it during each season.

5.4.2 General requirements

- *Rooms*

Power supply to pumps is provided from two different electrical feeders, basic one and stand-by one. It is permitted to use Power Generation Unit, in pump station for supply. In the Pump Station fuel tank shall be sufficient and installed for 4 hours working time with full power load.

Depending on technological assumptions, one shall also consider necessity of placing pumps and foaming agent tanks in pump station building,

Room of pumps shall have separate exit, leading directly outside the building.

Pump station walls shall be made of materials having at least 120 min. fire resistance (according to specification N° 1180, p. 3.7.).

Floor in pump stations shall be anti-slippery, furnished with drainage to floor drain.

- *Internal systems*

Room of fire water pump station shall be provided with: adequate ventilation, taking into accout operation of equipment (heat gain from engines, possibly air consumption for diesel engine) and heating (allowable minimum temperature in rooms equals to +5ºC), as well as day and electric lighting. Hose connection shall also be installed in pump station.

Pump station shall be furnished with alarm system and direct telephone communication with LOTOS-FIRE BRIGADE (LOTOS STRAŻ) alarming point.

All technical systems and equipment required in pump station building shall be designed and executed according to valid technical and construction regulations and Polish Standards, as well as requirements contained in related documents.

5.5 Compressor station

Depending on type of compressors used in compressor system (centrifugal or reciprocating) and technological conditions, compressor station may constitute:

- *a building* of steel framework structure, closed (partially or in whole) with curtain walls and roof,
- *an edifice* incorporating foundations and platforms for compressors and other equipment, as well as service platforms and supporting structures of process equipment, wholly exposed or covered only with roof.

This specification covers basic requirements regarding only compressor station as building, without stationary service staff.

5.5.1 Location

Compressor station shall be located in common zone with co-operating process equipment, in vicinity of main pipeline routes and access roads.

5.5.2 General requirements

- *Operation of equipment*

All technological equipment and instruments shall be provided with safe and convenient access for service staff from each side.

Operational zone, free from building development, have to be provided in order to ensure crane operation in course of maintenance or repair of heaviest equipment elements, as well as possibility for transporting lifted element outside the building, for example, by dismantling wall or roof panels.

- *Safety*

The building shall be provided with easy access, adequate ventilation and sufficient number of door and stairs, in case of necessity for emergency evacuation of employees present inside it.

- *Economic efficiency*

Useable area of the building shall not be greater than required by location, type and number of designed process equipment, as well as service condition, unless future building expanding is predicted.

5.5.3 Overall dimensions of building

Width of building must include both sufficient space for positioning required number of compressors, and adequate spacing between them and equipment installed along walls.

Furthermore, adequate space for technical service shall be provided, and also free from land development space for crane operation, used during assembly and maintenance / repairs of equipment.

5.5.4 Construction equipment

- *Materials*

Platforms (foundations) for compressors and other heavy equipment shall be designed as concrete structures.

Service and communication platforms, as well as other elements of light construction may be designed as steel structures. On platforms, stairs, etc., steel, anti-slippery platform grating shall be used.

Protective walls, depending on needs, can be erected on whole height of building or as curtain walls – of open type, min. 2.4 m above floor or service platform level.

Wall and roof covering/casing materials:

- corrugated coated trapezoidal sheet in case of no thermal insulated casing,
- insulated cladding with mineral wool core in case of thermal insulated casing,
- corrugated coated trapezoidal sheet and case panels filled with mineral wool in case of thermal insulated casing.

Door shall be made of steel.

- *Internal systems*

All technical systems and equipment required in compressor station building shall be designed and executed according to valid technical and construction regulations and Polish Standards, as well as requirements contained in related documents.

5.6 Department Laboratory

It is allowed to locate department laboratories in buildings of different function, on condition that they will be separated from adjacent rooms with fire walls.

If, in a view of type of executed works, explosion hazard is possible, then roof, ceilings and walls of work rooms in laboratory building shall be executed according to safety requirements regarding works of such type.

Rooms endangered with explosion in multi-storey buildings shall be located on highest floor.

5.6.1 Requirements that work rooms shall conform with

- *General*

It is prohibited to locate permanent workplace rooms below level of surrounding terrain.

Height of permanent workplace rooms cannot be less than:

- 3,3 m of clear height, if works that may result in releasing of substances harmful to health are executed in the room,
- 3 m of clear height, if agents harmful to health are not present in the room (weighing room, for example); this height can be reduced to 2.5m if no more than 4 workers are employed in this room, and at least 15 m^3 of free room volume falls to each of them.

At least 13 m^3 of free room volume shall fall to each of worker simultaneously employed in permanent workplace room, and at least 2 m^2 of free floor area that is not occupied by technical devices, equipment, etc.

Safe and convenient access route shall be provided for each work-place, while height of such route on its whole length shall not be less than 2 m of clear height.

Passages between instruments located on laboratory tables, or between instruments on tables and walls, designed for operating of these instruments, shall be of 0.75 m width as minimum. Passage between two opposite work-places shall be of 1.5 m width at least.

- *Walls, ceilings, floors*

Walls and ceilings of work rooms, where substances harmful to health, or posing explosion hazard are released, shall have protective coating preventing from adsorption and dust accumulation, as well as shall be adapted to easy cleaning and washing – smooth, without cracks and other damages, easily

washable and protected against chemical agents up to height that can be reached by chemical substance influence. Joints of walls and floor shall be rounded.

Floor level shall be raised at least 0.3 m over level of adjacent terrain level.

Floors in laboratory rooms shall be even, non-slippery, adapted for frequent washing, made of non-combustible material that does not generate dust, and has poor thermal conductivity.

In laboratory rooms must be applied floor material that guarantee full protection against static electricity – conductive ones, of leakage resistance $R_u \leq 1 \cdot 10^6\ \Omega$.

Floors in rooms, where explosive mixtures of combustible vapours, dust and gases with air can be present, shall be made of materials that are neither sparkling nor generating static discharges.

Slope of floors towards floor drains shall ensure free run-off of waste water.

- *Door*

Entrance door to building and work rooms shall be of at least 0.9m width in clear internal dimension.

Internal door shall open towards general exits, and general exit door to outside; a corridor shall have at least two exits from building.

Access routes to door shall be permanently free, and thresholds between rooms – made even with floor.

Work rooms where workers stay, cannot be locked in a manner that makes exit impossible.

In explosion hazard rooms, length of escaping routes in rooms, measured from most distant place where person can be present to emergency exit, cannot exceed 40 m.

- *Lighting*

Day lighting, corresponding to type of executed works and required accuracy, shall be provided in rooms of permanent working place.

Proportion of windows area, measured in clear dimensions of window frames, to floor area shall amount to 1:8 at least in permanent workingplace rooms, while in temporary working place rooms, where natural lighting is required in regard of function, at least 1:12.

Windows, flood-lights and skylights in work rooms shall be furnished with adequate device that eliminates excessive sunlight shining on work-place.

Windows and skylights designed for ventilation of rooms shall be furnished with devices enabling tilting them in easy and safe way by a person standing on the floor level, as well as setting-up of opened parts in desired position.

Apart from day lighting, work rooms shall be provided with electric lighting of parameters in accordance with Polish Standards requirements.

5.6.2 Requirements that hygienic – sanitary and social rooms shall conform to

- *General*

Hygienic-sanitary rooms of laboratory shall be located in the building where work is conducted, or in building connected with it by encased passage, which in case of passing from heated work rooms shall also be heated.

Height of the rooms shall be ~~2.5 m.~~ according to valid regulations

Walls of the rooms shall be covered with smooth, non-absorbable and resistant to humidity materials, up to minimum height of 2 m.

Floors shall be even, non-absorbable and non-slippery.

In laboratory, where more than 10 workers are employed on single working shift, locker rooms, wash rooms, shower rooms and toilets shall be arranged separately for women and men.

- *Locker room*

Locker rooms (if necessary), shall be arranged in separate, dry rooms, lighted with daylight if possible.

Seats for at least half of workers employed on the most numerous working shift, shall be provided in locker room.

The transitive locker shall be arranged for employee working in contact with poisonous, infectious and radioactive substances, prickling, allergic and other stinking substances with unpleasant smell, and also at dusty works, in moist and heat climate or causing the clothe dirtying.

Locker room for working and protective clothing shall have direct connections with washroom, showers and locker room for personal clothing of workers.

Mimimum four (4) -air exchanges per hour shall be ensured in the locker room

- *Washroom*

Washroom shall be furnished with enamelled wash-basins, or made of corrosion-resistant material, according to Polish Standard.

At least one individual wash-basin shall fall to each 10 workers of most numerous working shift, but at dirty work in contact with noxious and infectious agents at least one individual wash-basin shall fall to each 5 workers, but no less than one wash-basin for less number of employee.

Wash-basins shall be installed in toilet rooms, or in their air-locks.

Locker room unit shall include shower rooms, providing free from possibility of collision traffic of workers, which are already washed and re-dressed in personal clothing.

For employee working with poisonous, infectious and radioactive substances, prickling, allergic and other stinking substances with unpleasant smell, and also at dusty works, in moist and heat climate or work causing the clothe dirtying shall be installed no less than one shower cabin for each 5 workers of most numerous working shift, but no less than one shower-cabin for less number of employee.

Minimum two (2) air exchanges per hour shall be ensured in washroom, and minimum five (5) air exchanges per hour in shower rooms.

At washrooms, toilet cabins shall be located in accordance with the regulations.

- *Toilets*

Entrances to toilets shall lead directly from rooms, corridors or general communication routes.

Door leading to separating air-lock, as well as door connecting it with further part of toilet shall close automatically.

Air exchange in amount of at least 50 m^3 per hour and per single water-closet bowl, and 25 m^3 per hour and per urinal shall be ensured.

- *Dining room*

If more than twenty workers working in contact with harmful substances are employed, then they shall be provided with dining room of area not less than 8 m^2 for meal consumption, which is inaccessible for other workers.

The requirement above is obligatory as well for employers employing 20 or less employee if they are exposed on impact of chemical and radioactive agents, biological infectious materials or extremely dirty work.

Such dining room shall be separated from working places by gowning room where place for leaving of protective suits shall be foreseen, furnished with sink with warm potable water.

Twice air exchange per hour shall be ensured in dining room.

- *Internal systems*

Building in which chemical laboratory is located, shall be equipped with electric system (in explosion hazard rooms, according to regulations valid for explosion-proof systems), ventilation, water supply and sewage system, gas system and other, which are required for laboratory buildings.

All technical systems and equipment shall be designed and executed according to valid technical and construction regulations and Polish Standards, as well as requirements contained in related documents.

6 Related documents

Any "Technical Specification" issued by GRUPA LOTOS S.A. listed in Contract Files.

7 Regulations and standards

[1)] The Law of 7 July 1994 – Building Law (Journal of Laws No 207, of 2003, pos. 2016 with later amendments)

[2)] Minister of Infrastructure order of 25 April 2012 on detailed scope and form of building design (Journal of Laws 275 April 2012, pos. 462), and

a) Minister of Internal Affairs and Administration order of 16 June 2003, on arranging of building project in respect of fire protection (Journal of Laws No 121, pos. 1137),
b) Minister of Health order of 29 November 2002, on experts for sanitary and hygiene issues (Journal of Law No 210, pos. 1792)
c) Minister of Labour and Social Policy order of 29 May 1996, on authorities of health and safety at work experts, principles of opinions giving for projects of building objects, where work rooms are foreseen [.....] (Journal of Laws No 62, pos. 290).

[3)] Minister of Infrastructure order of 2 September 2004, on detailed scope and form of design documentation, technical specification of building works completion and acceptance, as well as of functional and utilitarian program (Journal of Laws No 202, pos. 2072, with later amendments)

[4)] Minister of Infrastructure order of 23 June 2003, on information regarding safety and health protection, as well as safety and health protection plan (Journal of Laws No 120, pos. 1126).

[5)] Minister of Infrastructure order of 12 April 2002, on technical conditions that buildings and their location shall comply with (Journal of Laws No 75, pos. 690, with later amendments)

[6)] Minister of Economy order of 21 November, 2005, on technical conditions that bases and stations of liquid fuels, long-reach pipelines for petroleum and petroleum products transportation, and their location shall adhere to (Journal of Laws No 243, pos. 2063).

[7)] Minister of Internal Affairs and Administration order of 16 June 2003, on fire protection of buildings, other building objects and terrains (Journal of Laws No 121, pos. 1138).

[8)] Minister of Labour and Social Policy of 26 September 1997, on general Health and Safety at Work regulations (Journal of Laws No 169 on 2003, pos. 1650).

▪ PN – EN ISO 6946	Construction elements and components of building. Thermal resistance and heat-transfer coefficient. Methods of calculations.
▪ PN –/B-02151.02	Building acoustics. Noise protection in buildings. Allowable values of sound level in rooms.
▪ PN – B-02151-03	Building acoustics. Noise protection in buildings. Acoustic insulating power of room fabric in buildings as well as acoustic insulating power of building elements. Requirements.

- PN – EN 12354-1 — Building acoustics (*with part 2 and 3*). Determination of acoustic parameters of buildings on the grounds of elements' properties.
- PN - B- 02877-2 — Gravitational systems for smoke and heat evacuation. Smoke flaps. Requirements and methods of testing.
- PN – B- 02877-4 — Gravitational systems for smoke and heat evacuation. Designing principles.

8 Record of changes

No.	Date	Description	Introduced by
1		This specification entirely replaces the former LOTOS Group S.A. standard No. PR 07 520 with the same title.	M. Puzio
2	30-11-2013 (rev. 1)	Review, update, standardize and changes to the Standard within scope of order No. OK/990/2012	Editorial board coordinated by T.Wróbel
-	31-08-2015	Page layout corrections, no contents changes.	T. Wróbel