



APPROVED

by Order of the Chief Executive Officer
of Ilim Group JSC

STANDARD OF ILIM GROUP JSC

**“VISUAL AIDS MANAGEMENT AND PROCEDURE FOR USE
OF SAFETY SIGNS”**

Saint Petersburg
2019

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1. Document purpose

Standard “Visual aids management and procedure for use of safety signs in the Ilim Group JSC facilities” (hereinafter the Standard) establishes uniform requirements to visualization in Ilim Group JSC facilities (hereinafter the Company) and procedure for use of safety signs.

This Standard is aimed at improvement of safety level at the Company facilities and of its production processes through organization and management of visualization works in the inner and outer premises, and through marking hazard areas in the Company facilities.

2. Scope of application

This Standard establishes the requirements:

- to the system of urgent sharing of information with the Ilim Group JSC employees, contractor organizations of the Company facilities concerning identified hazards and risk management measures in the field of health, fire safety, occupational safety, and environment protection;

- to marking of buildings, structures and rooms;

- to navigation signs in the outer and inner premises;

- to marking of equipment, storage areas, waste accumulation areas;

- to painting of production equipment and its individual elements;

- to visualization projects design.

Requirements of the Standard are mandatory for adherence by all structural subdivisions of the Company, contractors and other organizations during design, construction, operation, reconstruction and major repairs in the Company facilities.

3. Regulatory references

The Standard uses regulatory references to the following regulatory documents:

Order of the Russian Ministry of Labor No. 310N dd. 23 June 2016 “Health and Safety Rules during Arrangement, Assembly, Maintenance and Repair of the Process Equipment”.

GOST 12.0.002-2014 “Occupational safety standards system. Terms and definitions”;

GOST R 54934-2012 “Occupational safety and health systems”;

GOST 12.0.003-2015 “Occupational safety standards system. Hazards and harmful factors of production. Classification”;

GOST 31937-2011 “Buildings and structures. Rules for inspection and technical condition monitoring”;

GOST R 50597-93 “Motorways and streets. Requirements to operational condition acceptable according to the traffic safety assurance conditions”;

GOST R 51256-2011 “Technical aids for traffic management. Road marking. Classification. Technical requirements”;

GOST R 52289-2004 “Technical aids for traffic management. Rules for application of road signs, road marking, traffic lights, road guard rails and guiding devices”;

GOST R 52290-2004 "Technical aids for traffic management. Road signs. General technical requirements";

GOST 8442-65 "Railroad track and signal signs";

Federal rules and regulations in the field of industrial safety "Rules of Industrial Safety of Hazardous Industrial Facilities Which Use Equipment Operating Under Excessive Pressure", approved by the order of Rostekhnadzor No. 116 dd. 25 March 2014;

Federal Standards and Rules in the field of industrial safety "Safety rules for hazardous industrial facilities which use the hoisting machinery", approved by the order of Rostekhnadzor No. 533 dd. 12.11.2013;

GOST 14202-69 "Industrial pipelines. Identification painting, warning signs and marking plates";

SP 3.13130.2009. Codes of conduct. Fire protection systems. Public address and evacuation management system during fire. Fire safety requirements (approved by the Order of the Russian EMERCOM No. 173 dd. 25.03.2009);

Order of the Russian EMERCOM No. 323 dd. 20 June 2003 "On approval of fire safety norms. Design of systems for personnel fire alerting in buildings and structures".

123-FZ "Technical Regulation on fire safety requirements";

Decree of the Government of the Russian Federation No. 390 dd. 25 April 2012 "On counter-fire regime";

GOST R 12.4.026-2015 "Signal colors, safety signs and signal marking. Purposes and rules of application. General technical requirements and characteristics. Test methods";

GOST R 12.2.143-2009 "Occupational safety standards system. Photoluminescent evacuation systems. Requirements and control methods";

GOST 12.2.003-91 "Production equipment";

GOST 19822-88 "Industrial containers. Specifications";

GOST 12.1.004-91 "Fire safety. General requirements";

GOST 28130-89 "Fire fighting equipment. Fire extinguishers, fire fighting and fire alarm installations. Graphic legend";

Fire safety regulations NPB 160-97 "Color signals. Fire safety signs. Types, sizes, general technical requirements";

GOST 12.4.009-83 "Occupational safety standards system. Fire fighting equipment for protection of facilities. Main types, placement and maintenance".

4. Terms, definitions and abbreviations

The Standard uses the following terms with corresponding definitions:

Brand book: a code of conduct for presentation and identification of Ilim Group brand and its attributes. It determines the rules for visual identification of the brand, use of corporate (company) style, regulates stylistic and color choices.

Outer premises: Territory adjacent to the buildings and structures of structural subdivisions of the Enterprise, which is operated by the Enterprise. The outer premises also include facades of buildings and structures of the structural subdivisions of the Company.

Inner premises: Internal space of buildings and structures of structural subdivisions of the Company, rooms of workshops, compartments, laboratories, workplaces and other production and auxiliary rooms.

Entrance Group: Design of the main entrance (transport entrance) to the territory of the production facility, entrance of a building or an individual room.

Road sign: A feature in a form of panel of a certain form with designations or inscriptions informing the road traffic participants about road conditions and traffic patterns, location of residential settlements and other objects.

[GOST R 52289-2004, clause 3.2]

Road marking: Lines, arrows and other designations on the road surface, road structures and elements of road equipment that serve as a means of visual navigation for the road traffic participants, or inform about limitations and traffic patterns.

[GOST R 52289-2004, clause 3.8]

Safety sign: A color design of a specified geometrical shape using signal and contrasting colors, graphic symbols and (or) written instructions, intended for warning people about immediate or potential hazard, restriction, instruction or permission of certain actions, and also for informing them concerning location of objects and aids that help eliminate or mitigate the effect of hazardous and (or) harmful factors.

[GOST 12.4.026-2015, clause 3.3]

Electrical safety sign and poster: Sign and poster intended for use in electrical installations, on equipment and safety enclosures of live parts, structures and stationary stairs, switchboards, vents and gates of air ducts, transformers and other equipment in order to warn about possible hazards, prevent emergency and people's injury.

Fire safety sign: Safety sign intended for regulation of people's behavior in order to prevent occurrence of fire, and to identify locations of fire fighting aids, alerting aids, instructions, permissions or restrictions of certain actions upon occurrence of combustion (fire).

[GOST 12.4.026-2015, clause 3.4]

Information board: Location of information about the facility, layout of buildings and structures, equipped traffic and pedestrian routes, safety signs regulating the entire facility territory, and other necessary information about the facility identification and risk management measures.

Contrasting color: Color aimed to reinforce visual perception and make safety signs, signal marking, graphic symbols and written instructions stand against background.

[GOST 12.4.026-2015, clause 3.2]

Luminescence: Glow (emission of light) of a material in an unbalanced (excited) condition due to the energy obtained through an external exposure (optical, electrical, mechanical etc.) or due to an energy of internal origin (chemical and biochemical reactions and transformations).

[GOST 12.4.026-2015, clause 3.8]

Nonluminous material: A material without luminescent properties, capable of reflecting (scattering) natural or artificial light impinging or penetrating on it, without changing the frequencies of the light's constituent quanta, but with possible changes in its spectrum.

[GOST 12.4.026-2015, clause 3.11]

Company facility: Building, structure, technological installations, equipment, technical device, production area of structural subdivisions and other immovable property of Ilim Group JSC.

Safety enclosures: A feature intended for limitation (prevention) of access of unauthorized persons to the territory and areas with hazardous and harmful production factors.

Signal enclosures: A feature intended for warning about boundaries of territories and areas with hazardous and harmful production factors.

Hazard: An object, situation or action capable of harming a person in form of an injury or deterioration of health, or both

[GOST R 54934-2012, clause 3.6]

Hazard area: A part of space that is continuously or periodically exposed to factors threatening life and health of people.

Occupational safety: Set of measures and actions, means and methods of maintaining the safe condition of production facilities provided for by the Company in order to ensure safe operation, as well as prevent, detect, localize and eliminate threats to life, health, environment, property and the readiness of the management and staff to emergency response.

Industrial Safety: State of protection of the vital interests of an individual, society and the Company from the emergencies at the production facilities and the consequences of the said emergencies.

Fire safety: State of protection of an individual, property, society, and the Company against fires and their consequences.

Occupational safety incident: Negative event in terms of fire, industrial, or environmental safety, which could lead to damage to the Company's facilities, shutdown of manufacturing processes, threat to life and health of personnel, damage to the environment, threat of an emergency occurrence, and other negative economic and social consequences for the Company.

Evacuation plan: Plan (layout) showing the evacuation routes, evacuation and emergency exits, establishing rules for people's behavior, procedure and sequence of actions in the conditions of an emergency situation.

[GOST R 12.2.143-2009, clause 3.11]

Group protective equipment: Technical and other structures, devices, systems used to prevent or mitigate exposure to harmful and hazardous production factors, or possible protection from contamination.

Reflective material: A material comprising optical elements (spherical or plane-faced) that reflect (reverse) the impinging light in directions close to the light impinging direction.

[GOST 12.4.026-2015, clause 3.12]

Luminous material: Material that has luminescent properties.

[GOST 12.4.026-2015, clause 3.10]

Signal marking: Color design using signal and contrasting colors, applied to surfaces, structures, walls, banisters, equipment, machines, mechanisms (or their elements), bands, chains, poles, stands, protective barriers, boards etc. in order to designate hazard, provide instruction and information.

[GOST 12.4.026-2015, clause 3.7]

Signal color: Color intended to attract people's attention to the immediate or potential hazard, working units of equipment, machines, mechanisms and (or) structural elements that can be a source of hazardous and (or) harmful factors, fire equipment, fire fighting and other safety aids, safety signs and signal marking.

[GOST 12.4.026-2015, clause 3.1]

Industrial container: Container intended for power-assisted intra- and inter-plant relocation, power-assisted loading and unloading, multi-tier stacking, accumulation, storage and stocking of unit loads.

Affiliated branch: Separate subdivisions of a legal entity located outside its headquarters and performing all or part of its functions, including representation function.

Photoluminescence: Luminescence excited by exposure to external light quanta, wherein quantum frequencies and the emitted light spectrum change compared to the quantum frequencies and spectrum of the excitation light.

[GOST 12.4.026-2015, clause 3.9]

Photoluminescent material: Material having a property of photoluminescence which can manifest either during excitation or over time after an exposure to the natural or artificial excitation light.

[GOST 12.4.026-2015, clause 3.14]

Stander: A portable foldable structure in form of an arc or rectangle carrying information on one or two surfaces.

Environmental safety: State of protection of the natural environment and the vital interests of a person, society, and the Company against the possible adverse impact of economic and other activities, natural and man-made emergencies, and their consequences.

Evacuation exit: Exit leading to the evacuation route, directly out of the building or to a safe area.

[GOST R 12.2.143-2009, clause 3.24]

The Standard uses the following abbreviations:

MV – motor vehicle;

FRR – federal rules and regulations;
FSR – fire safety rules;
Company – Ilim Group JSC;
SSD—structural subdivision;
CP – checkpoint premises;
HIF – hazardous industrial facility;
JSC – joint-stock company;
HSE – Health, occupational and industrial Safety and Environment;
PES – photoluminescent evacuation systems.

5. General provisions

This Standard has been developed in accordance with the requirements of regulatory documents listed in clause 3.

Purpose of visual communication aids is to make employees aware of the information necessary and sufficient to ensure safety in the facility and unambiguous understanding of specific requirements concerning safety, safeguarding life and health of people and mitigation of material damage.

Safety signs, signal colors (marking) and other visual communication aids must be used to attract attention of personnel and visitors in the production or public facilities, or in other areas, to hazard, hazardous situation, warning about possible hazard, instruction or requirement to perform certain actions, and to communicate necessary information.

Use of safety signs, signal colors (marking) and other visual communication aids cannot replace the need for organizational and technical arrangements to ensure safe conditions, use of personal and group protective equipment, training and briefing.

6. Outer premises visualization

6.1. Standards for identification of buildings and structures (structural subdivisions), direction signs in the territory.

6.1.1. Outer finishing of SSD buildings, structures, reservoirs and other major equipment must be made in corporate colors defined in the Company brand book (Appendix No. 1), and according to the dedicated project (finishing is made at the stages of construction, renovation and scheduled repair of buildings and structures), approved by the communications and public relations directorate.

6.1.2. Facades of SSD buildings and structures should carry information signboards specifying SSD name (fig. 1) and designed according to the corporate brand book.

Size of the information signboard must be 850x600 mm.

Text font – **Arial, Black, italic.**



Figure 1 – sample information signboard to be placed on the SSD building

6.1.3. CP building should carry an information signboard “CP” and its sequential number (fig. 2) designed according to the corporate brand book.

Size of the signboard must be at least 600 mm wide with due proportions.

Text font – **Arial, Black, italic.**

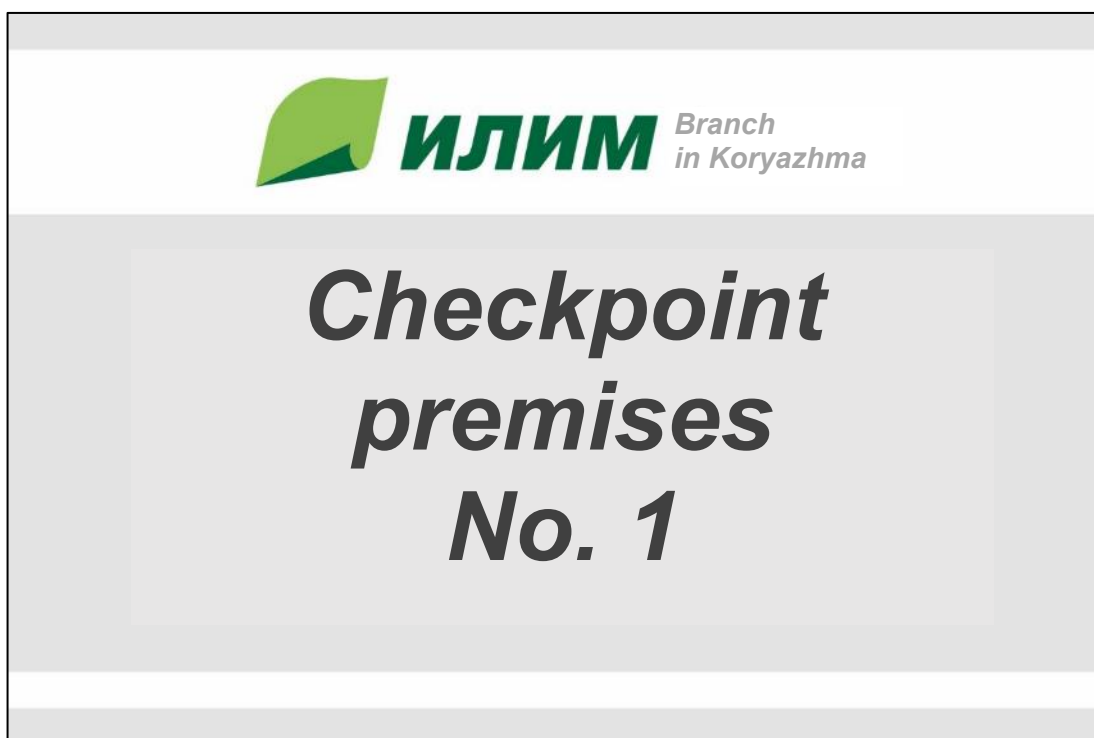


Figure 2 – sample information signboard to be placed on the CP

6.1.4. In front of CP entrance, the following signs shall be located:

- speed limit sign for traffic in the Enterprise’s territory;
- road sign 3.17.3 “Control”;
- height and width limit sign, if there is a less than 5 m height limit and less than 3.5 m width limit;
- sign “CCTV in operation”;
- sign prohibiting photo and video recording;
- sign prohibiting smoking in the Enterprise’s territory.

6.1.5. To inform drivers of the need to follow the safe traffic requirements established in the company, information posters (directional signs) are placed at the CP and across the territory of the branch, manufactured according to GOST R 52289-2004, GOST R 52290-2004.

6.1.6. CP must be provided with structural subdivision layouts showing traffic and pedestrian routes. Additionally, the layout must have “You are here” mark and cardinal directions. Board size must be at least 2 m long and must match the proportions of the Enterprise premises layout.

6.1.7. To specify the direction of a road (route), direction signs are used. They must be located at the traffic crossings and designed according to GOST R 52289-2004, GOST R 52290-2004 (fig. 3, 4).

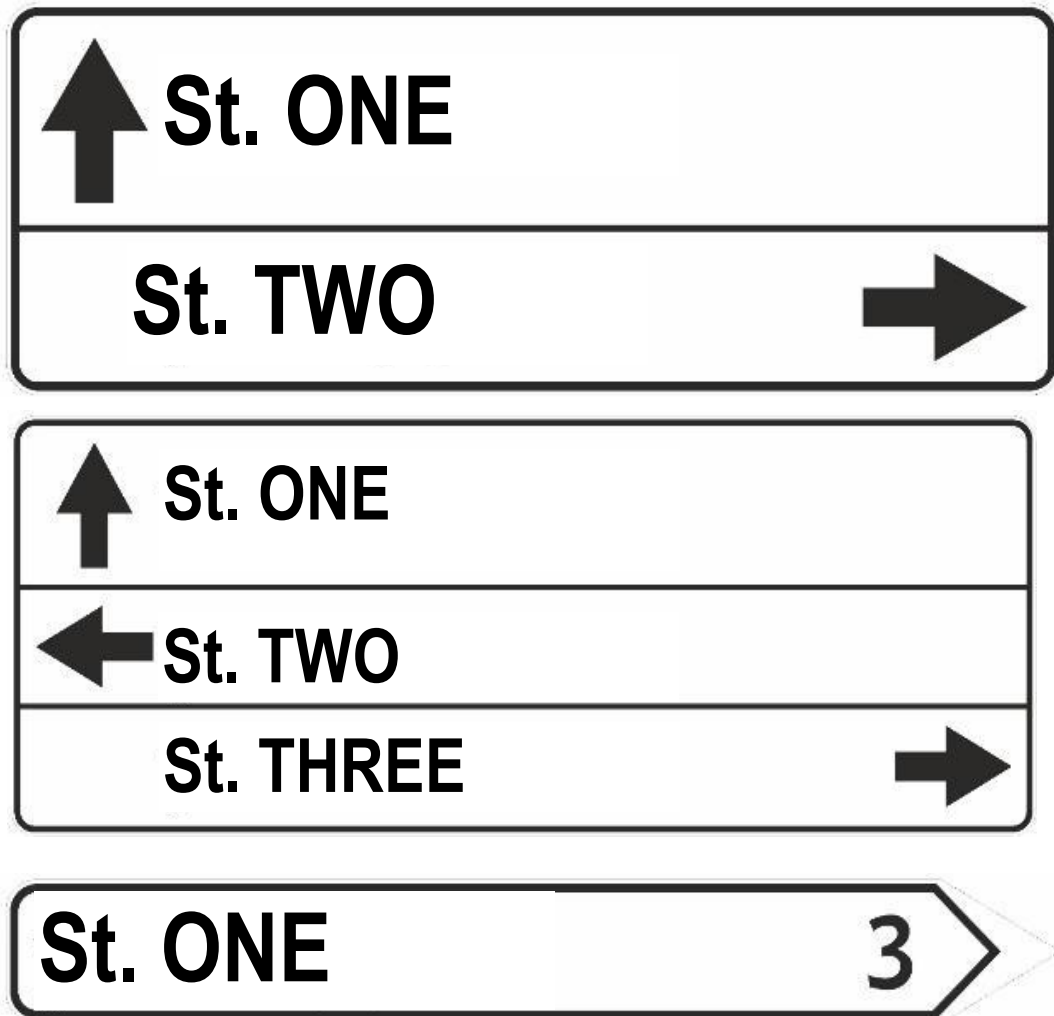


Figure 3 – road (route) direction signs



Figure 4 – sample road (route) direction signs

6.1.8. Third party drivers must be provided with written instructions, including site traffic scheme and instructions on the main safety requirements (fig. 4.a).

Схема передвижения транспорта в составе подвозки выгрузки по территории филиала АО «Группа Илим» в г. Коряжма

Duties of drivers using their vehicles in the territory of the branch:

1. При движении по территории филиала водители обязаны соблюдать Правила дорожного движения Российской Федерации.
2. Водители и пассажиры во время движения транспортного средства обязаны пристегнуть ремни безопасности.
3. Водителям обязаны предельно на протяжении рабочей смены избегать труда филиала, связанного с использованием гусеничной техники (БАТО), экскаваторов и бульдозеров с использованием транспортного средства.
4. Водителям запрещено нарушать стоянку транспортного средства с автоматическим двигателем автомобиля после административно-бытовых корпусов зданий, где на первом этаже есть окна и могут находиться люди, выше чем на 10 метров.
5. При необходимости оставить транспортное средство на стоянке, водители обязаны принять меры, исключающие его самопроизвольное движение и тем самым при отсутствии водителя.
6. Водителям запрещено оставлять транспортное средство в проходах или проходах общего пользования, под эстакадами, газонами, на обочинах дорог, газонах, проездах.
7. Максимальная скорость движения на территории предприятия – 40 км/ч.
8. На территории предприятия движение светового фара-жестко фиксируется световым режимом транспортных средств. Парки разгрузочного предприятия устанавливаются скоростными режимами 15 км/ч.
9. Движение по территории предприятия осуществляется с включенным ближним светом фар.
9. Выход для загрузки готовой продукции на территорию филиала осуществляется через КПП № 4 с обязательным прохождением полного контроля.
10. После завершения работы не допускается оставлять или оставлять без присмотра автомобиль, находящийся на территории предприятия, без разрешения.

Written instructions for drivers using their vehicles in the territory of the branch of Ilim Group JSC in Koryazhma and safe performance of vehicle loading and unloading

DRIVER, Always observe Rules of the road!

Figure 4.a – sample written instruction for drivers

6.1.9. All entrances to SSD buildings and structures should carry information signboards specifying SSD name (fig. 5) and manufactured according to the corporate brand book.

Size of the information signboard must be 420x300 mm.

Text font – **Arial, Black, italic.**

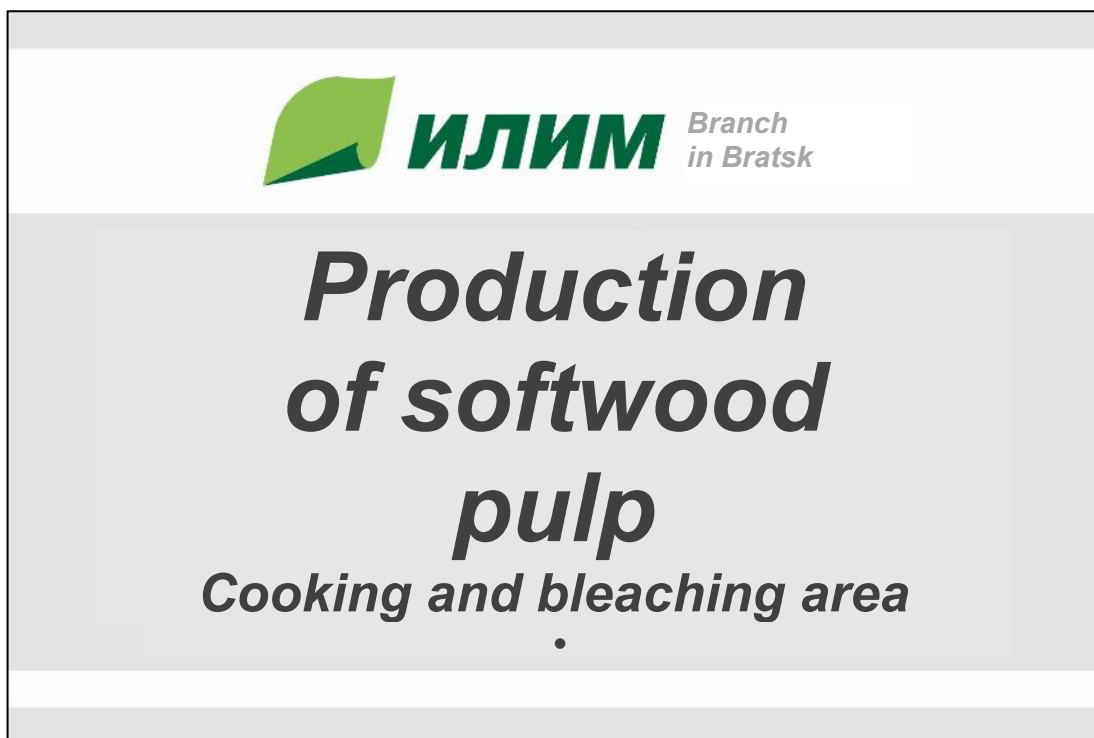


Figure 5 – sample information signboard to be placed at the SSD entrance in the outer premises

All entrances to SSD buildings, structures, rooms must be provided with safety signs according to clause 9.2 and according to GOST R 12.4.026-2015. Requirements of these documents shall apply to the entire building/room.

6.1.10. Identification of explosion and fire hazard categories of buildings and rooms, fire hazard and explosion hazard class.

Information plates (fig. 6) are used to identify explosion and fire hazard categories of buildings and rooms, fire hazard and explosion hazard class.

The plate should also specify the person responsible for fire safety.

Information plate size must be 300x200 mm.



Figure 6 – sample plate for designation of explosion and fire hazard categories of buildings and rooms, fire hazard and explosion hazard class.

6.1.11. Rooms without assigned explosion and fire hazard category are identified by a plate specifying the person responsible for fire safety (fig. 7). Information plate size must be 300x150 mm.



Figure 7 – sample table to specify the person responsible for fire safety in the room

6.1.12. Entrances to office buildings must be provided with information signboards designed according to the corporate standard (fig. 8).

Size of the information signboard must be at least 420x300 mm with due proportions.

Text font – ***Arial, Bold Italic***.

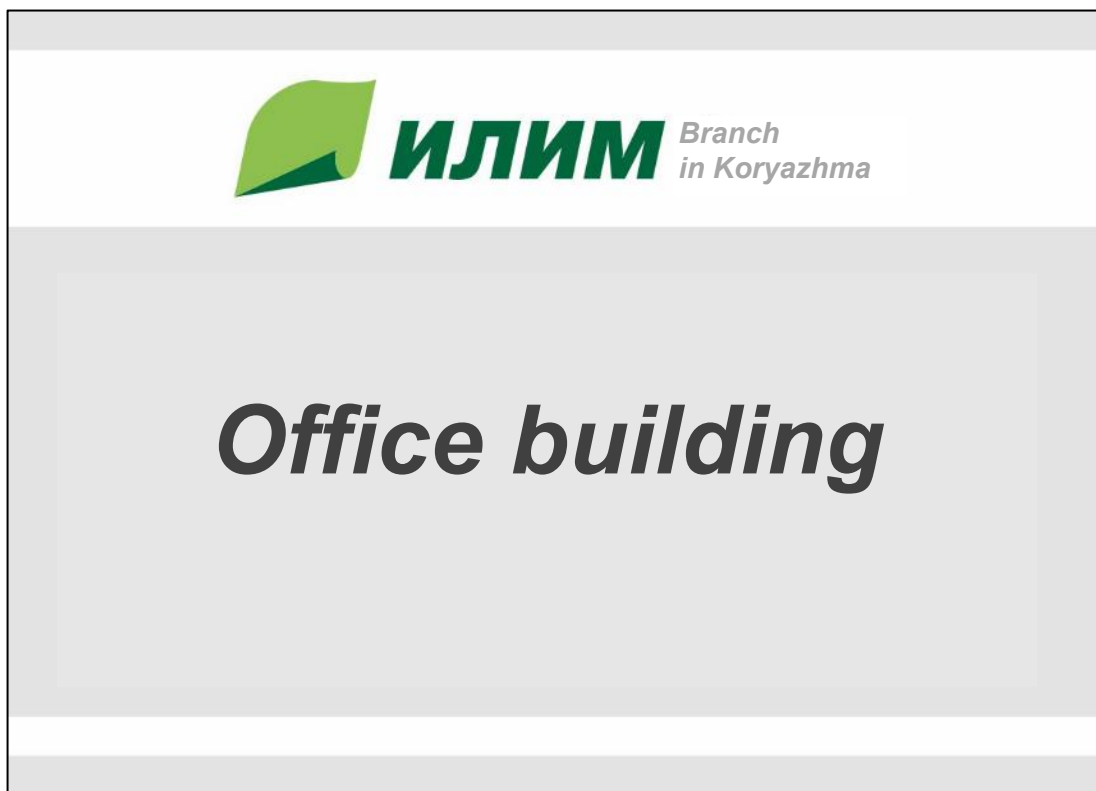


Figure 8 – sample placement of information signboard at the entrance to the office building

6.1.13. Transparent entrance doors must bear the “Yellow Circle” safety sign (SP 59.13330.2016), which should be located at the level of 1.3–1.4 m.

6.1.14. The “Yellow Circle” sign must be made of adhesive PVC tape, yellow on both sides. Sign diameter – 150 mm (fig. 9).

6.1.15. Steps of stairs presenting risk of slipping must be protected with antiskid coating (fig. 10).

This requirement applies to all stairs of internal and external fabrication, in office and production buildings.

6.1.16. For additional visualization of obstacles, the first and last step of the stair must be marked with a yellow signal stripe.

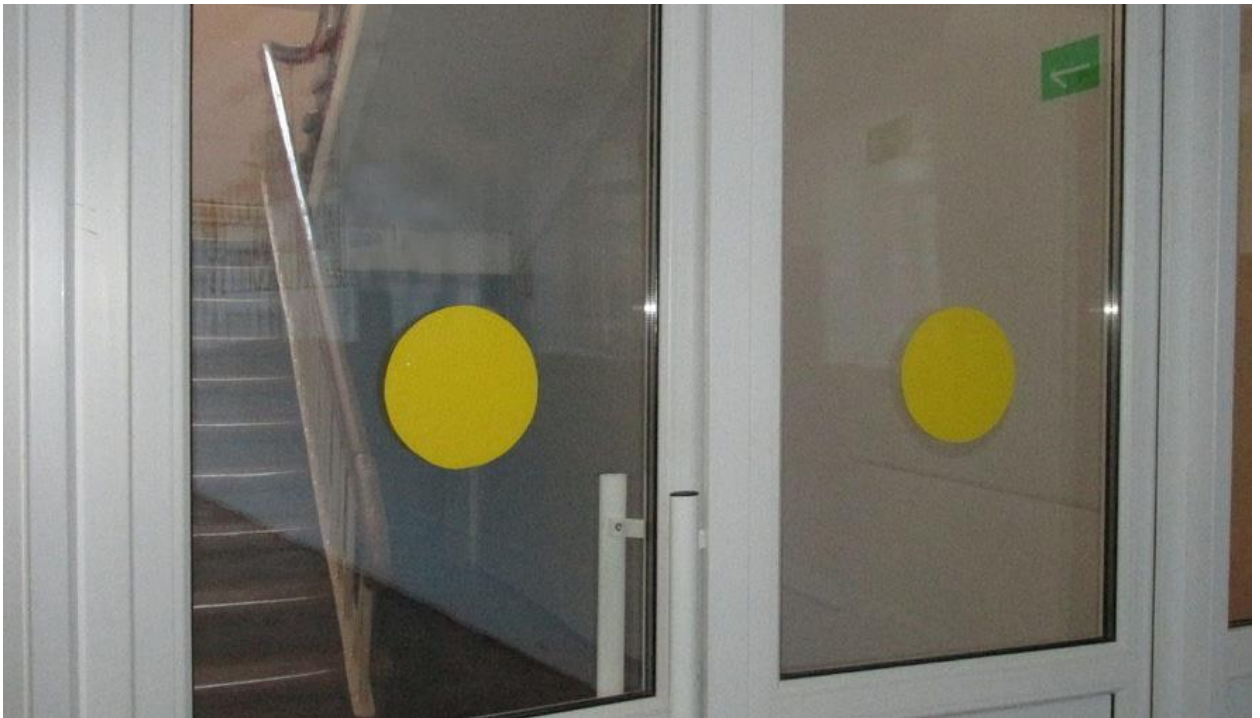


Figure 9 – sample placement of “Yellow Circle” sign



Figure 10 – sample antiskid coating application to stairs

6.2. Places of installation and content of structural subdivision layouts showing pedestrian routes.

6.2.1. At CP and across the territory of the enterprise, structural subdivision layouts showing traffic and pedestrian routes shall be installed. Additionally, the layout must have "You are here" mark and cardinal directions. Board size must be at least 2,000 mm wide and must match the proportions of the Enterprise premises layout.

6.3. Road marking requirements.

6.3.1. Road marking in the Enterprise's territory must be implemented according to the developed project for traffic arrangement, performed in line with the requirements of the traffic safety legislation.

6.3.2. Road marking establishes the traffic patterns and procedure, is a visual navigation aid for drivers and can be used either independently or in combination with other technical aids for traffic arrangement.

6.3.3. In terms of location on the motorway, the road marking (hereinafter the marking) can be categorized as horizontal or vertical.

6.3.4. For horizontal marking (including duplication of road signs) white and yellow colors shall be used.

6.3.5. Horizontal marking shall be made in paints (enamels), thermoplastic and cold plastic materials after GOST 32830, polymer strips and piece forms after GOST 32848.

6.3.6. For vertical marking, white and black colors shall be used.

6.3.7. Vertical marking lines and designations shall be applied to superstructures and supports of bridges, butt ends of tunnel portals, barriers, parapets, curbs and other road equipment elements to improve their visibility to road traffic participants (clause 6.6).

6.3.8. Vertical marking shall be made with paints (enamels) after GOST 32830, reflective materials after GOST 32945.

6.3.9. Micro glass beads are used to render reflective properties to the marking after GOST 32848.

6.3.10. Reflective properties of polymer strips used for horizontal road marking shall be incorporated in the process of manufacturing.

6.4. Road sign requirements.

6.4.1. Road signs placement in the Enterprise's territory must be implemented according to the developed project performed in line with the requirements of the traffic safety legislation.

6.4.2. Road signs are used to inform traffic participants about traffic conditions and patterns and location of facilities.

6.4.3. Road signs must meet the requirements of GOST R 52290 and in the process of operation the requirements of GOST R 50597.

6.4.4. Road signs must be manufactured using reflective materials.

6.4.5. Signs 1.1 "Railroad crossing with bar gate" and 1.2 "Railroad crossing without bar gate" (fig. 11) shall be installed in front of all railroad crossings either equipped or not equipped with a bar gate, respectively.

If the distance between railroad crossings is 50 m and less, the signs must be installed in front of the first crossing, and if the distance is more than 50 m – in front of each crossing.



Figure 11 – signs 1.1 “Railroad crossing with bar gate” and 1.2 “Railroad crossing without bar gate”

6.4.6. Signs 1.3.1 “Single-track railway” and 1.3.2 “Multi-track railway” (fig. 12) must be installed in front of all railway crossings without bar gate for single-track or multi-track railways, respectively. In presence of a traffic light in the crossing, the signs shall be installed on the same support with the traffic light, and in its absence in 6–10 m from the closest rail.

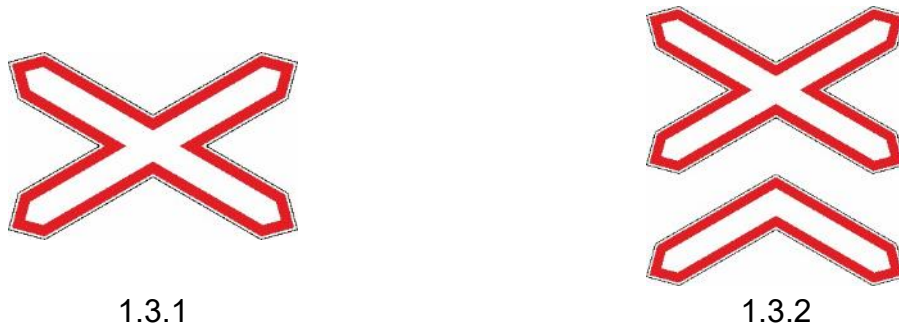


Figure 12 – signs 1.3.1 “Single-track railway” and 1.3.2 “Multi-track railway”

6.4.7. Sign 2.5 “Stop at intersection” (fig. 13) must be installed in front of a railroad crossing without attendant, unequipped with a traffic lights, at a distance of 10 m to the closest rail.



Figure 13 – sign 2.5 “Stop at intersection”

6.4.8. At railway crossings, marking 1.12 “Stop line” must be applied at a distance of 5 m from the bar gate or traffic light, and in their absence – at a distance of 10 m from the closes rail in one section with sign 2.5.

6.4.9. Sample marking of a motorway section approaching a railroad crossing are given in figure 14.

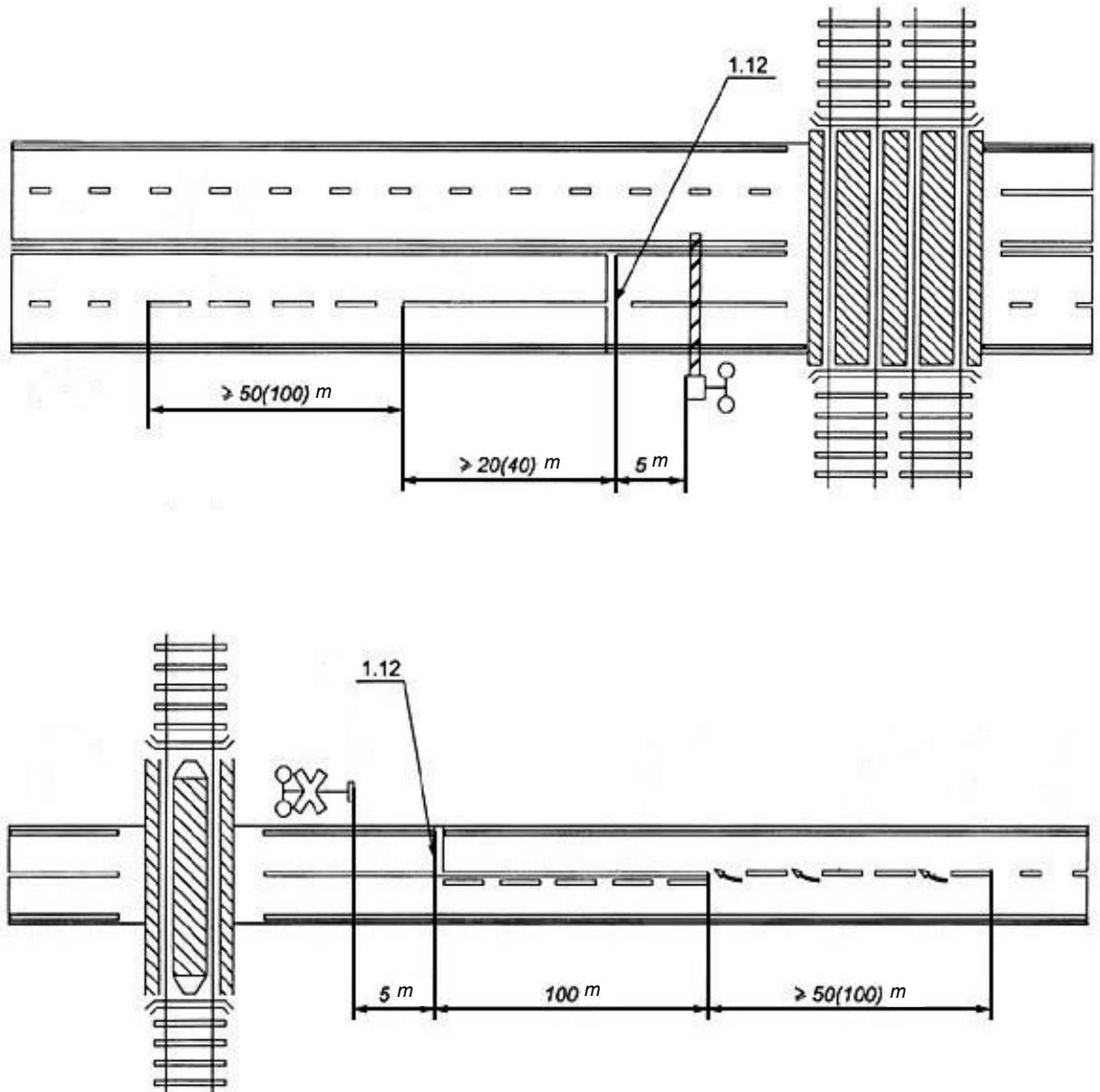




Figure 14 – samples marking of a motorway section approaching a railroad crossing

6.4.10. All crossings of pedestrian routes and railroads must be preceded with the sign “Railroad crossing” (fig. 15).

Size of the sign is 450x700 mm.

Signs must be placed so that the readability distance does not exceed 10 m.

Sign placement height is 2 m.



Figure 15 – sample placement of a “Railroad crossing” sign

Railroad crossings in high pedestrian traffic areas shall be arranged (using safety enclosures) so as to ensure maximum visibility of the approaching train to employees crossing the railway track.

6.5. Requirements to wayside and signal railroad signs.

6.5.1. Placement of wayside and signal railroad signs in the Enterprise's territory shall be implemented according to the project developed in line with the safety legislation for railroad transport operation.

6.5.2. Wayside and signal railroad signs shall meet the requirements of GOST 8442-65 and in the process of operation shall meet the requirements of the Rules for technical operation of the Russian Federation railroads.

6.6. Marking of piers, supports and trestles.

6.6.1. Black-and-white tilted marking according to GOST R 51256-2011, GOST R 52289-2004 is used to designate vertical surfaces of road structures, piers, trestle supports, butt ends of parapets and other obstacles located within the roadside at a distance of less than 1 m from road edge, in absence of a roadside, and in other cases when these obstacles present a hazard for moving vehicles.

It is only allowed to apply marking to the structure edge closest to the road, to a width of 0.5 m and a height of 3.0 m.

6.6.2. Black-and-white straight marking according to GOST R 51256-2011, GOST R 52289-2004 is used to mark the lower edge of structures, bridge installations or tunnel portals located at a height of less than 5 m.

The marking is applied above the middle of each lane of traffic towards the structure.

It is allowed to apply marking to superstructures across the entire width of the road of traffic towards the structure.

6.6.3. If the specified markings cannot be applied directly to the surface of artificial structures, it must be made on boards attached to these structures or installed directly in front of them.

6.6.4. Samples and examples of marking application are given in figure 16.



Figure 16 – samples marking on road structures

6.6.5. Height limit sign shall be placed on the lower edge of trestle superstructures, if there is a height limit of less than 5 m (GOST R 52289-2004, GOST R 52290-2004) (fig. 17).



Figure 17 – sample “Height limit” sign installation

It is additionally recommended to install clearance gates in front of low process trestles and galleries at a distance of at least 10 m (fig. 17.a).

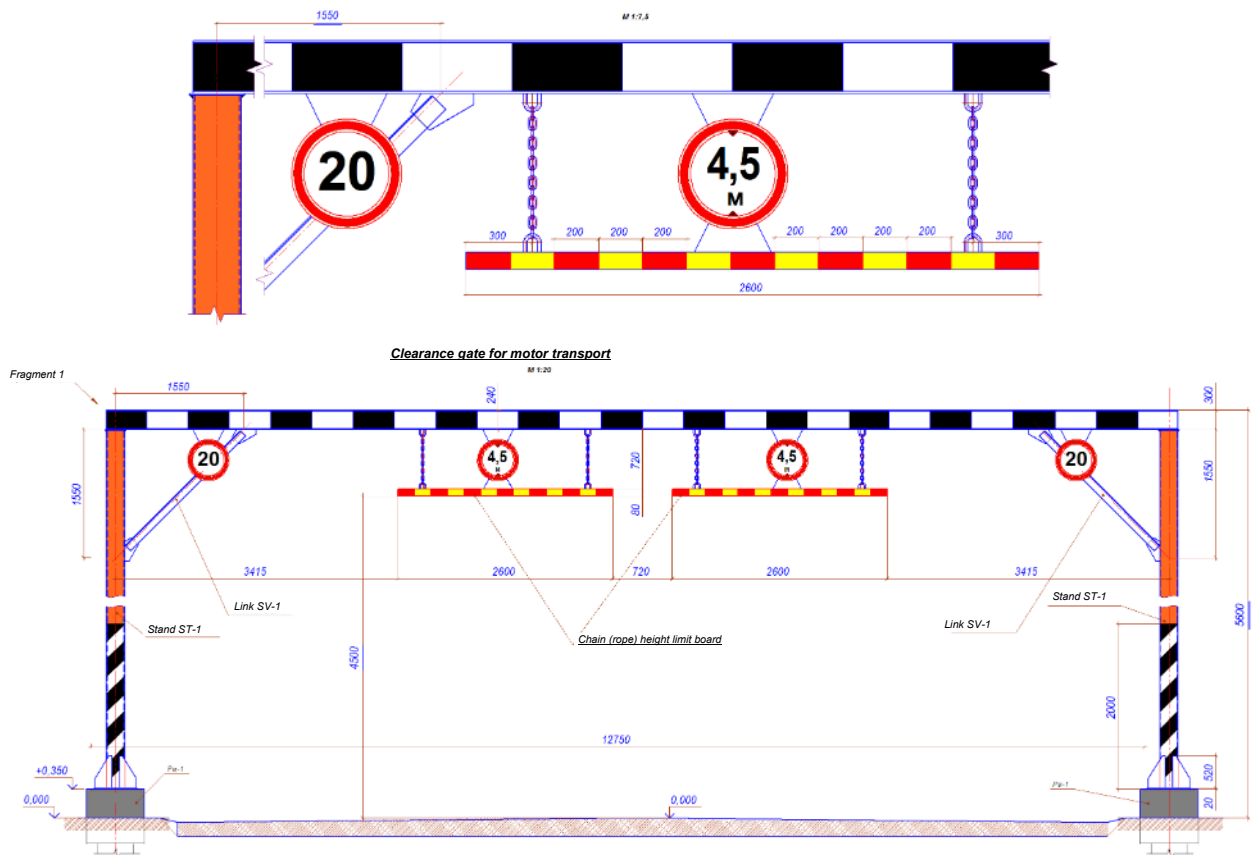


Figure 17.a – clearance gate visualization design

6.6.6. Numbering of piers and supports is performed by application of color design of a number using a stencil with the approved font – **Arial, Black**, to the structural element.

6.6.7. The design shall be applied at a height of 1.8 m from ground level, height is to be measured from the lower edge of the design.

6.6.8. The number must be applied in black paint. The background must be a white filled rectangle (square) (fig. 18).

6.6.9. Size of the design is selected pro rata to the structural element size so as to ensure the necessary visibility.



Figure 18 – sample application of color design numbers on piers, outer premises supports

6.7. **Information plates.**

6.7.1. To designate storage areas of spare parts, consumable materials, finished products, raw materials, chemicals, tools, parkings of mobile equipment, carts, forklifts, it is advisable to use information plates designed as black text on white background with a blue frame (fig. 19).

6.7.2. Plates must specify the type of stocked equipment/tools, position, full name, telephone number of the person responsible for the storage area or mobile equipment.

6.7.3. Plate size must be at least 300x200 mm.

6.7.4. Text font – **Arial, Bold**, font size proportional to the plate and easily readable.

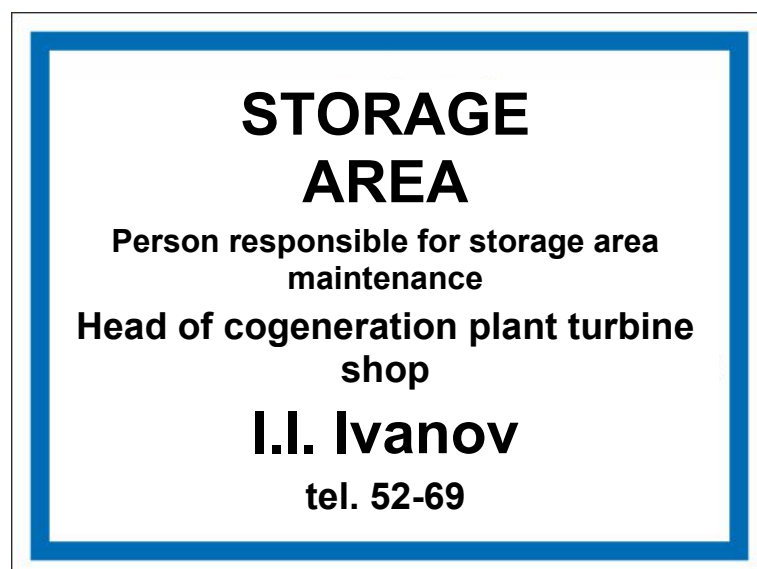


Figure 19 – sample information plate

6.7.5. In order to improve speed of interaction and alerting of subdivisions in case of an emergency, information plates of approved design with telephones of emergency services shall be installed across the Enterprise's territory in the high pedestrian traffic areas (fig. 20).

6.7.6. Plate size shall be 600x400 mm.

6.7.7. Text font – **Arial, Black**, font size proportional to the plate and easily readable.



Figure 20 – sample plates with emergency telephone numbers

6.8. Requirements to designation of production containers.

6.8.1. Outer and inner surfaces of production containers shall be primed and painted.

6.8.2. Paint and lacquer coatings must meet the requirements to appearance for class VII, GOST 9.032-74, operating conditions group – Y2 according to GOST 9.104-2018.

6.8.3. Black and gray colors shall be used for painting production containers.

6.8.4. Each container unit shall bear an information plate with the following details:

- owner SSD, shop, area;
- purpose (description of content);
- container weight;
- gross weight;
- container manufacturing date.

6.8.5. Plate size – 200x150 mm. The plate is made in black text with black frame on white background (fig. 21).

Text font – **Arial, Bold**, font size proportional to the plate and easily readable.

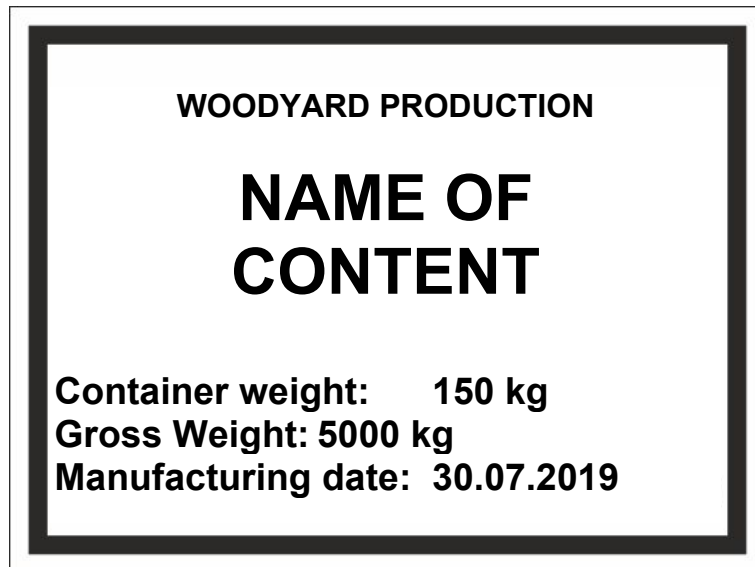


Figure 21 – sample information plate for production container

6.9. **Requirements to designation of waste accumulation areas.**

6.9.1. To designate waste storage areas in the inner and outer premises, information plates shall be designed as black text on white background with black frame (fig. 22).

6.9.2. The plates shall specify the kind of waste, and can specify the position, full name, telephone number of the person responsible for the waste accumulation area.

6.9.3. Plate size must be at least 300x200 mm.

6.9.4. Text font – **Arial, Bold**, font size proportional to the plate and easily readable.

6.9.5. Information plates must be located on the waste container or on the wall of a room in visibility area.

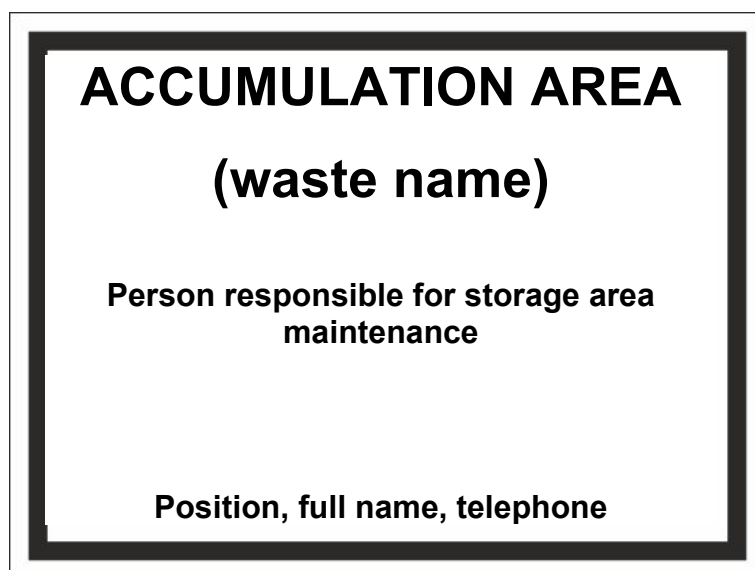


Figure 22 – sample information plate for designation of waste accumulation area

6.9.6. For containers used for well accumulation, the following colors are approved: production waste – gray, domestic waste – blue color (fig. 23).

6.9.7. Each container unit must bear an information plate according to clause 6.8.



Figure 23 – sample designation of waste accumulation area

7. Inner premises visualization

7.1. Requirements to designation of rooms.

7.1.1. Subdivisions and workplaces.

Subdivisions inside SSD buildings and structures must be equipped with information signboards carrying the subdivision or shop name (fig. 24), designed according to the corporate standard.

Size of the information signboard must be 420x300 mm.

Text font – **Arial, Black**.

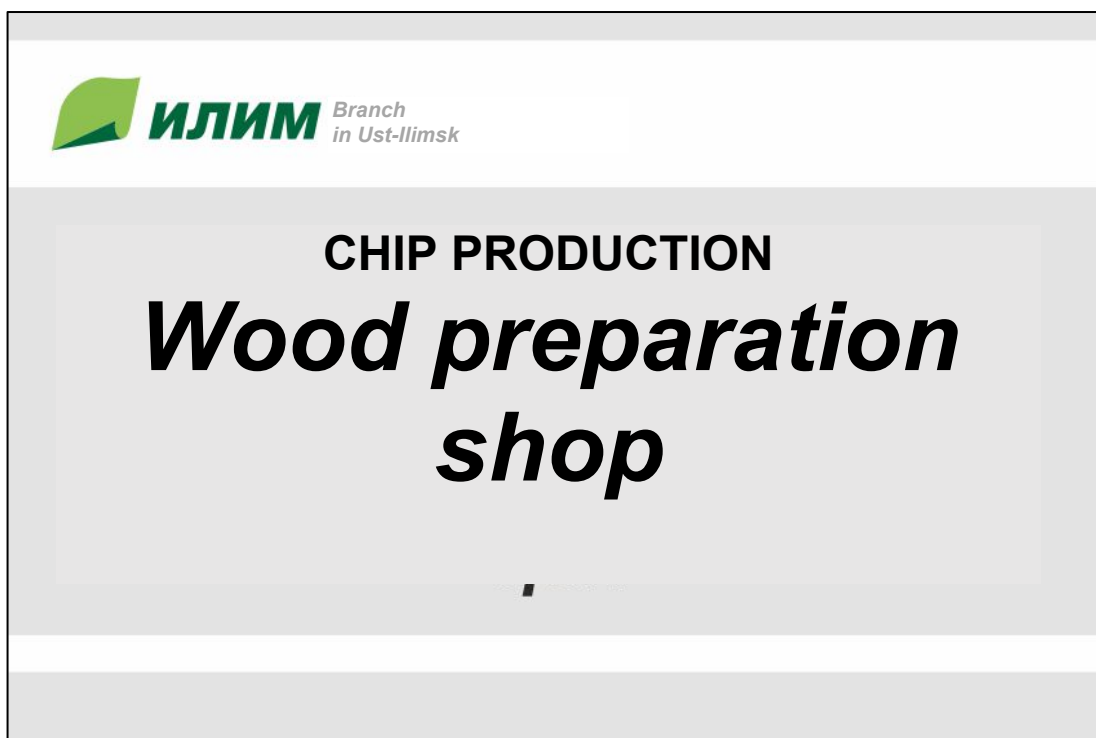


Figure 24 – sample signboard for designation of subdivisions and workplaces of the inner premises

All SSD entrances shall be provided with safety signs according to clause 9.2 and GOST R 12.4.026-2015, applicable to the entire facility.

Identification of explosion and fire hazard categories of buildings and rooms, fire hazard and explosion hazard class is performed according to clause 6.1.11 of this Standard.

7.1.2. Workshops, duty rooms, storerooms inside SSD buildings and structures must be equipped with information signboards bearing the name of a room (fig. 25), designed according to the corporate standard.

Information signboard size is 300x200 mm.

Text font – **Arial, Black**.

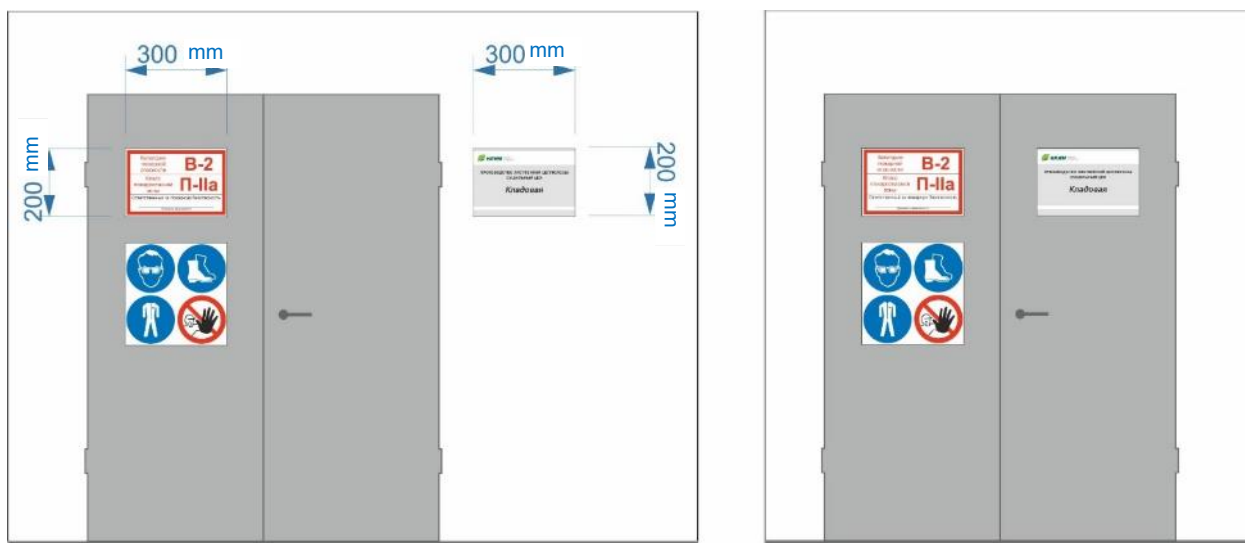
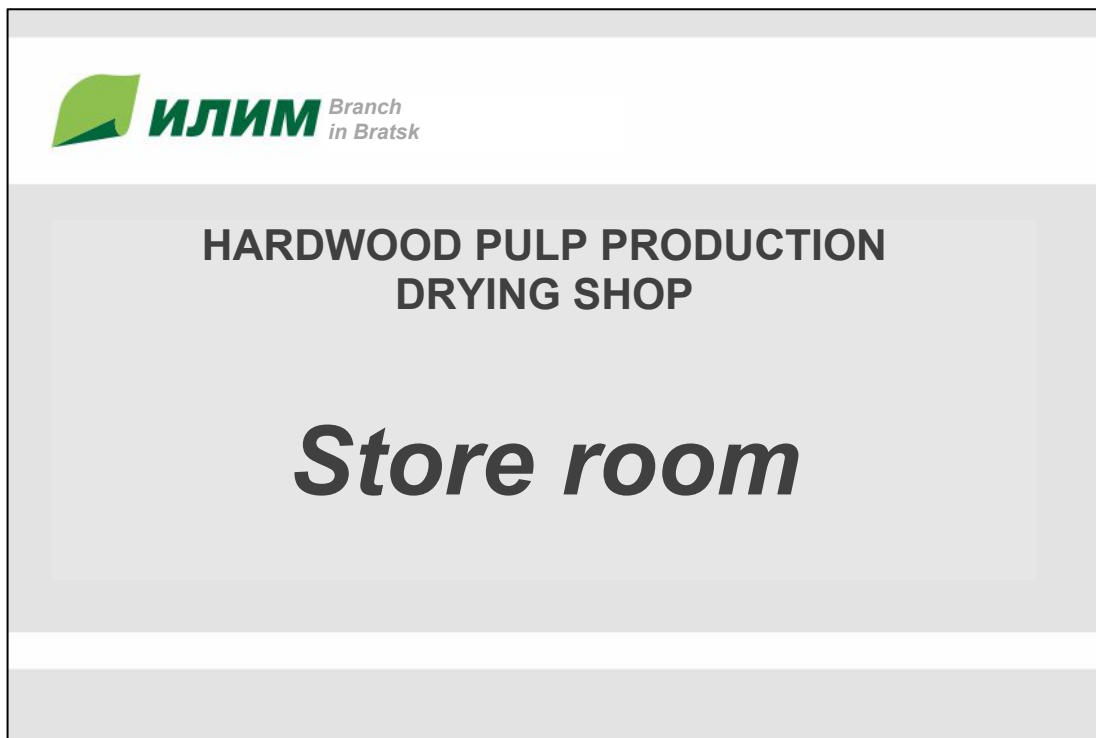


Figure 25 – sample signboard for designation of workshops, duty rooms, and store rooms

7.1.3. Offices

All offices must be equipped with information signboards designed according to the corporate standard (fig. 26a).

Signboards can be placed on doors or near doors of offices at the height 1.8 of the upper edge of the signboard. All signboards in the building must be uniformly placed. (fig. 26)

The information signboard size is 300x200 mm.

Text font: Full name – **Arial, Black**; position – **Arial, Bold**.

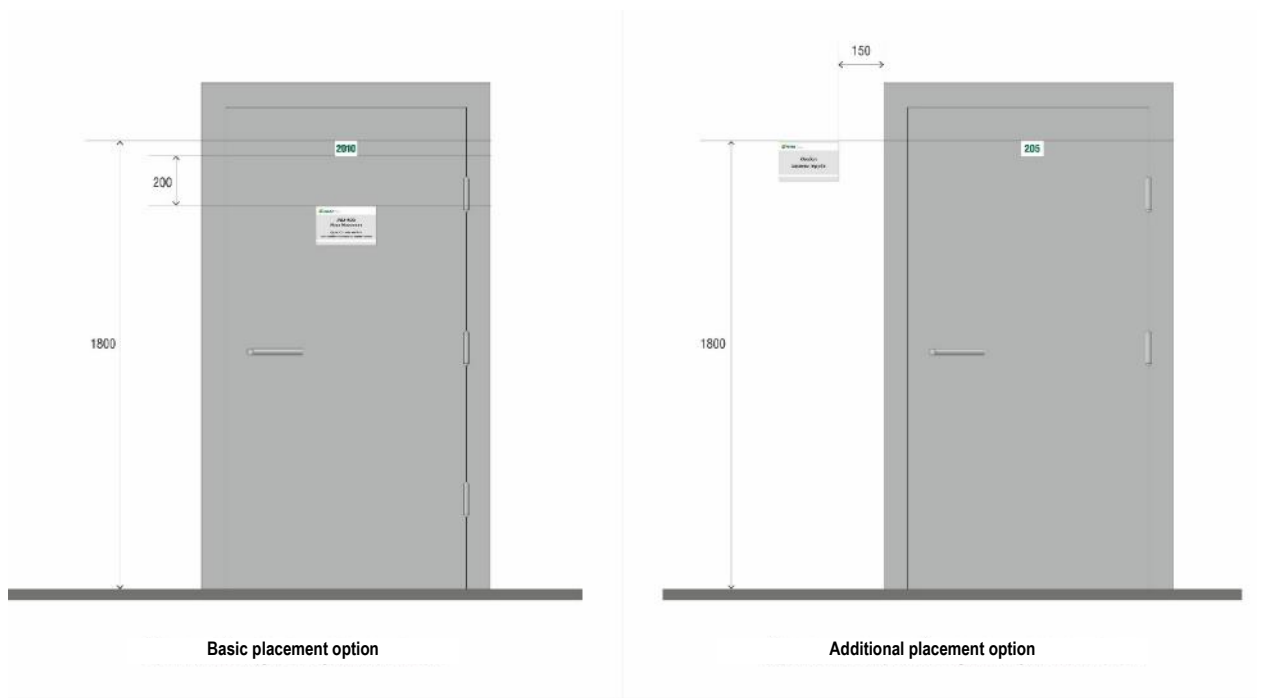


Figure 26 – sample placement of a signboard for designation of offices



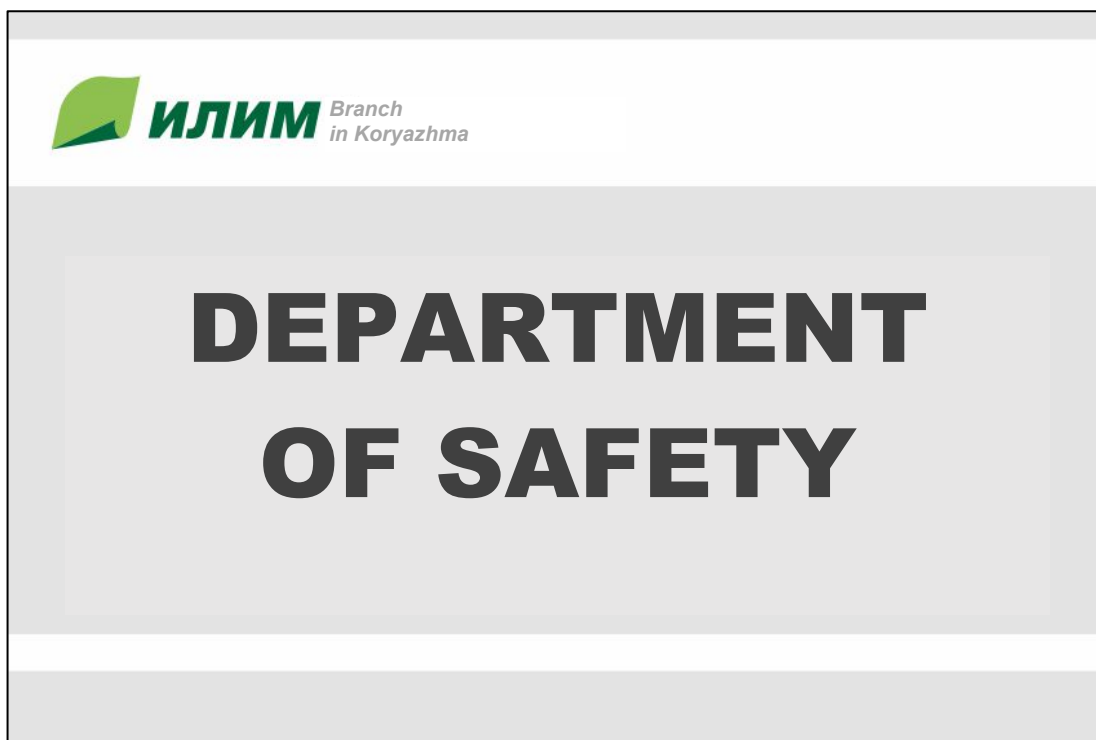
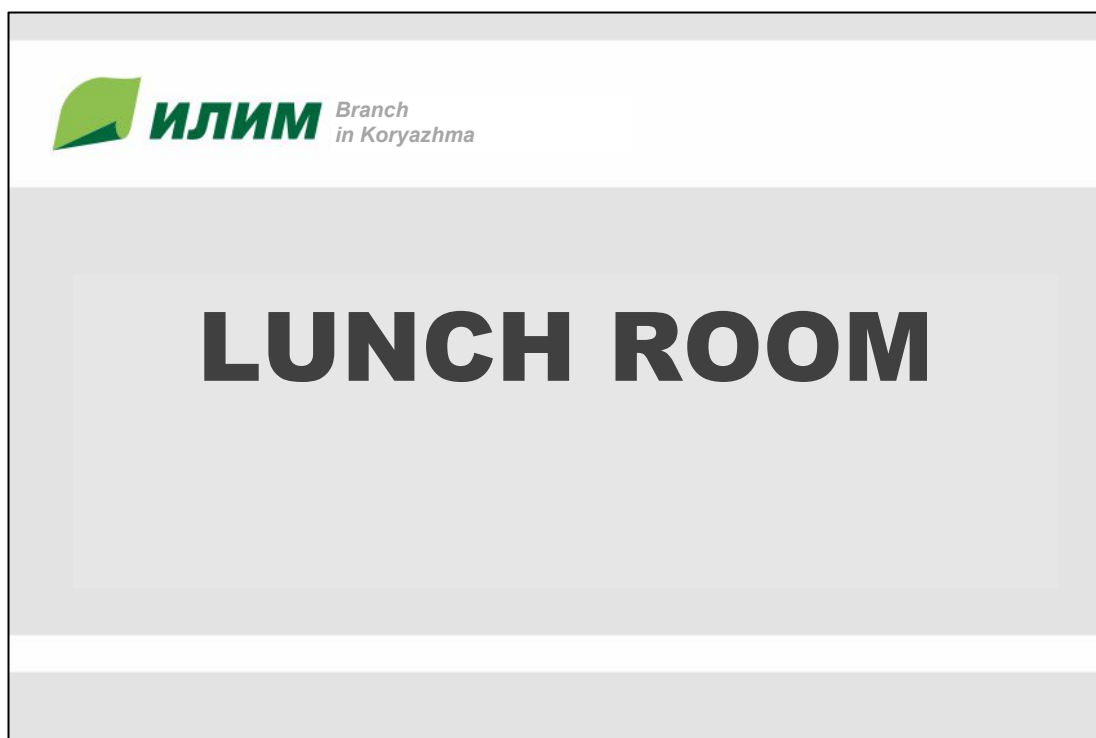


Figure 26a – sample signboard for designation of offices

7.1.4. Service rooms inside SSD buildings and structures must be equipped with information signboards naming the room (fig. 27), designed according to the corporate standard.

Information signboard size is 300x200 mm.

Text font – **Arial, Black.**



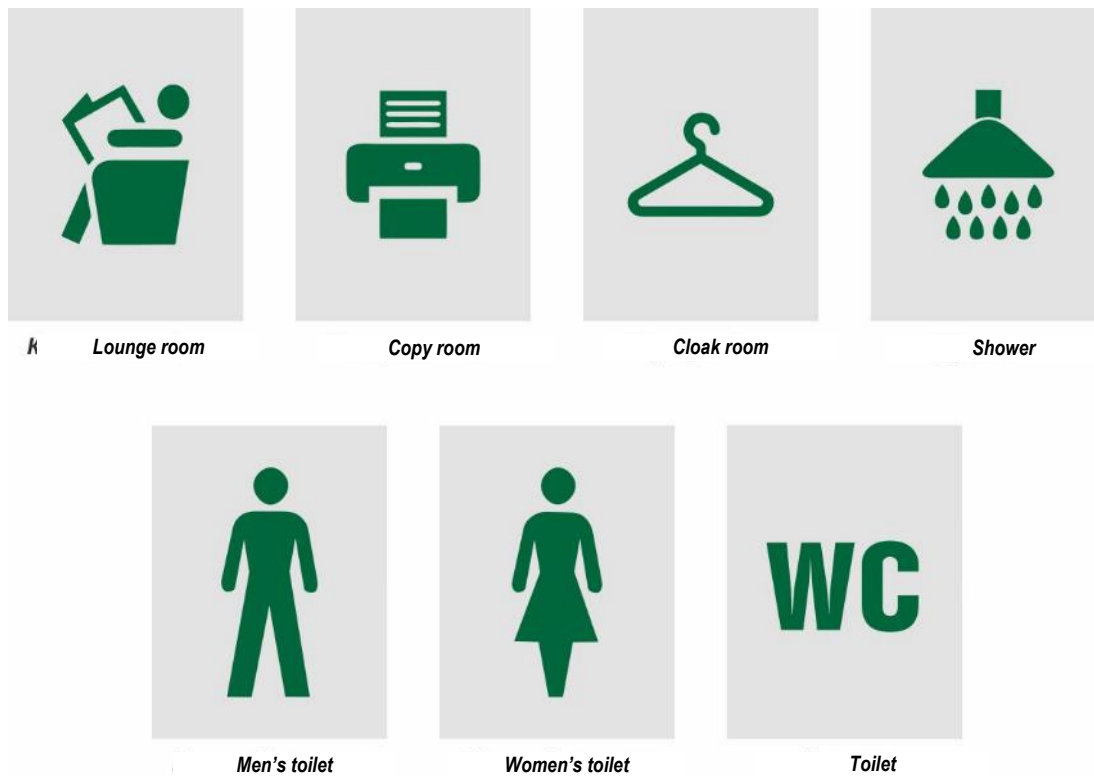


Figure 27 – sample signboard for service rooms

7.2. Interior painting in the production facilities.

7.2.1. Interior painting in the production facilities must be performed in corporate colors determined by the Company brand book (Appendix No. 1), and according to the individual design (finishing works are performed at the stages of construction, renovation and scheduled repair of facilities) approved by the communications and public relations directorate.

7.2.2. This section recommends painting for individual interior elements.

Table 1 – Recommended painting for individual interior elements

Interior element	Color	RAL Classic color
Walls and ceiling	Gray	RAL 7001
Links of metal structures, slabs	Silver	RAL 9023
Piers and vertical supports	Silver	RAL 9023
Gates, doors	Gray	RAL 7001
Impingement plates and stair steps*	Green	RAL 6002
Impingement plates and service platforms floor*	Green	RAL 6002
Guard rails of stairs and service platforms	Yellow	RAL 1021

* Service platforms and steps of stairs can be painted with RAL 6002.

If due to the design or technological reasons the structural elements are made of concrete, using stainless steel, various types of special coatings, painting of which can be difficult or unreasonable, surfaces of such materials can be left unpainted, unless it contradicts the current regulatory documentation.

7.2.3. According to the requirements of GOST 12.4.026-2015, permanent barriers or elements of barriers, including guard nets and ropes installed on the boundaries of hazard zones, areas, territories, shall be fully painted in yellow signal color or shall have alternating stripes tilted to the angle of 45–60° of yellow signal color and black contrasting color (fig. 29).

7.2.4. Elements of construction and other structures that can become reasons for personnel injuries: low beams, protrusions and height variations in the floor plane, low-visibility steps, ramps, places with falling hazard (edges of loading platforms, cargo pallets, leading edges, hatches, openings etc.), passage bottlenecks, low-visibility braces, assemblies, piers, stands and supports in high traffic areas – shall be painted with alternating stripes tilted to the angle of 45–60° of yellow signal color and black contrasting color (fig. 30).

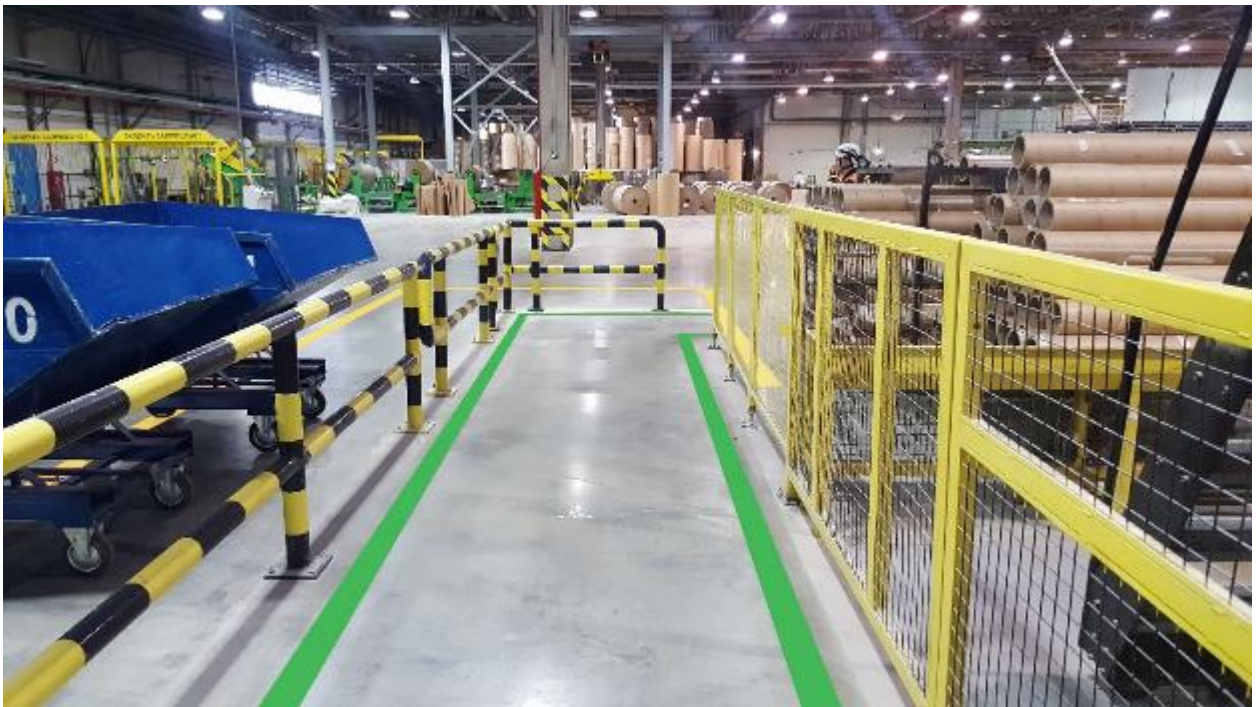


Figure 29 – painting solution for barriers

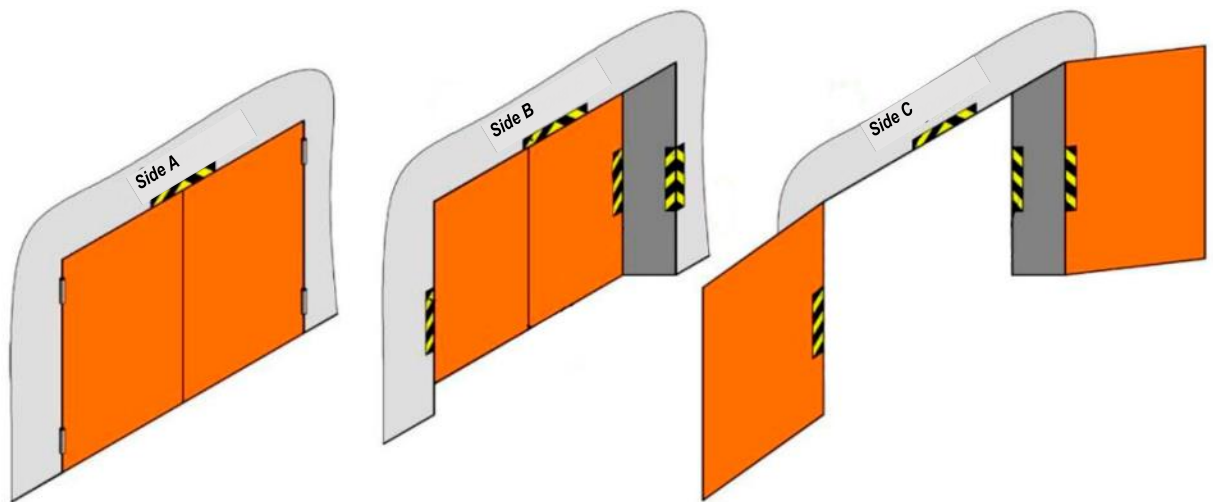


Figure 30 – sample designation of structural elements

7.2.5. To ensure additional protection of personnel in cases of collision with elements of construction and other structures, it is advisable to use anti-collision aids (e.g. flexible polyurethane profiles) bearing signal marking with alternating stripes tilted to the angle of 45–60° of yellow signal color and black contrasting color (fig. 31).



Figure 31 – sample anti-collision solutions

7.2.6. To ensure additional protection in cases of collision of vehicles with elements of construction and other structures, it is advisable to equip structural elements with anti-collision aids (e.g. protective rubber dampers, wheel bumpers, safety enclosures) bearing signal marking with alternating stripes tilted to the angle of 45–60° of yellow signal color and black contrasting color (fig. 32).



Figure 32 – sample anti-collision solutions for vehicles

7.3. Visual communications in the interior.

7.3.1. Visual color passport of the facility.

Visual color passports of the facility (fig. 33) must be located at the entrances to shop floor rooms and must contain the following information:

- designation of pedestrian passages (general use passages);
- designation of vehicle traffic areas, hazard areas (excluding service platforms);
- various storage areas, waste accumulation areas;
- indication for mandatory use of personal protective equipment in the site territory;
- potable water machine location;
- smoking areas;
- fire extinguishment aids locations;
- automatic fire-fighting aids and systems activation button;
- first aid kits locations.

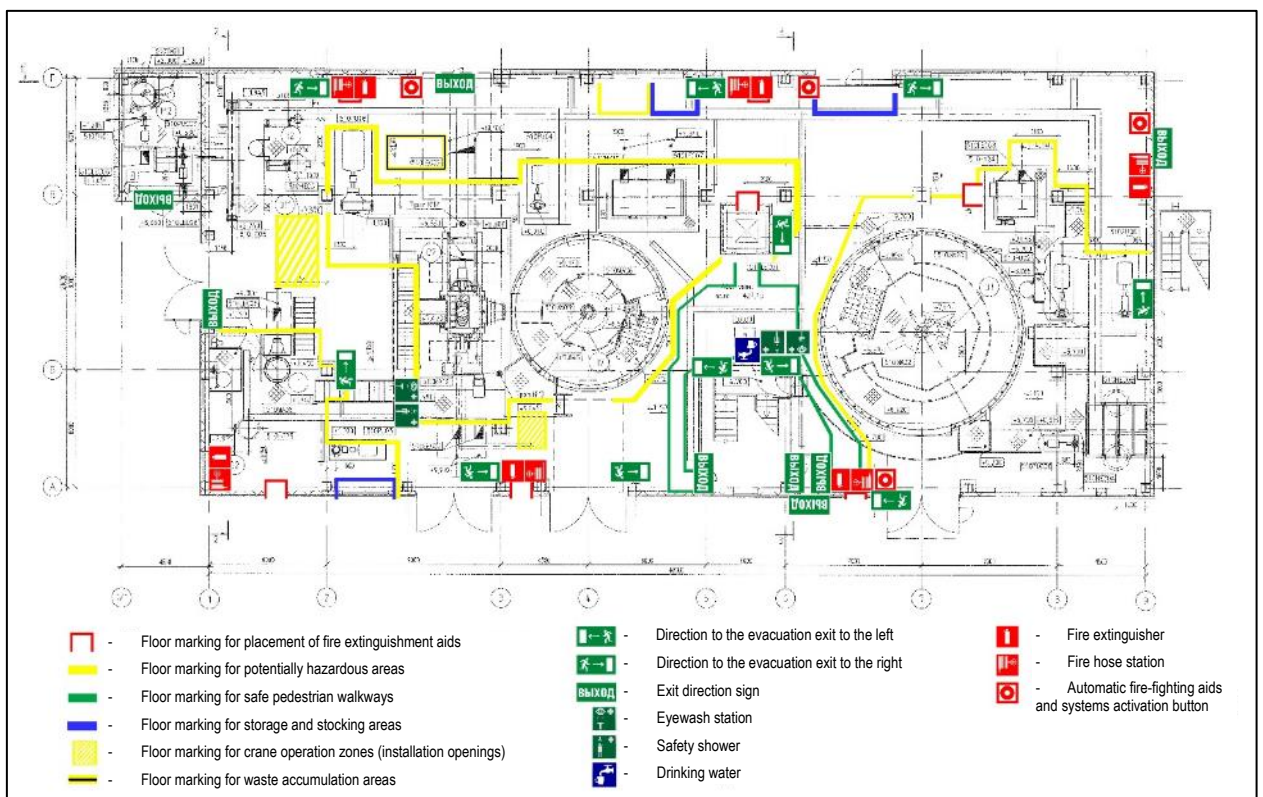


Figure 33 – sample visual color passport of the facility

7.3.2. Navigation signs.

7.3.2.1. For navigation of employees within the SSD premises, navigation signs in form of plates (arrows) of the approved design must be used (fig. 34);

7.3.2.2. The table must be gray on white background. Gray frame;

Navigation plate size must be at least 300x150 mm.

Text font – **Arial, Bold**, font size proportional to the plate and easily readable;

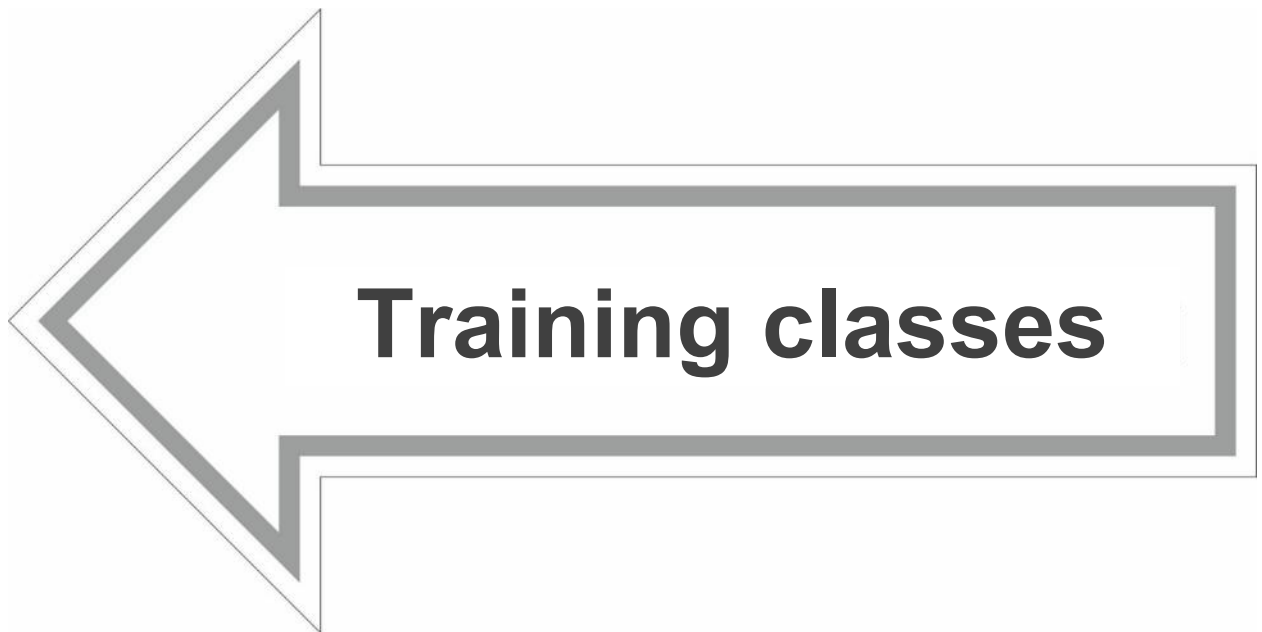


Figure 34 – navigation plate design

7.3.2.3. To indicate movement direction to the safety shower inside SSD premises in all hazard areas where chemical exposure can occur, special navigation direction signs are used (fig. 35), to be installed with an interval of at least 15 m.

Direction sign size must be at least 400x100 mm.



Figure 35 – design of a safety shower direction sign

7.3.3. Numbering of doors, gates.

7.3.3.1. For quick identification of zones and further response, all external doors and gates of buildings have to be numbered.

Numbering is performed within the scope of a building. Number 1 is assigned to the door/gate closest to grid line A-1 of the building, numbering is performed till end of the building by longitudinal grid line (e.g. till A-35), and next by lateral axis (e.g. till I-35), and next by longitudinal axis (e.g. till I-1) etc. along the outer boundary of the building, until all doors/gates are numbered.

7.3.3.2. Numbering of exits and gates is performed by application of color design of a number using a stencil with the approved font – **Arial, Black**.

7.3.3.3. If the gates are swing type, the color design of the number is applied to both sides of the gate leaf at a height of 2 to 2.5 m.

7.3.3.4. If the gates are lifting section type, the color design of the number is applied beside the gate at a height of 2 to 2.5 m. In case of close distances between the gates, it is allowed to apply the number design above the gate, in order to avoid ambiguity.

7.3.3.5. For doors, the color design of the number is applied above or beside the door.

7.3.3.6. The number is applied with black paint on light background and white paint on dark background (fig. 36).

7.3.3.7. Size of the design is selected pro rata to the size of a door or gate, so as to ensure the necessary visibility.

7.3.3.8. It is acceptable to perform numbering of exits and gates using plates that are installed on or beside the doors or gates.

7.3.3.9. If plates are used, the same font and color design apply as in marking with paint.





Figure 36 – sample application of color designs of a number on gates

7.3.3.10. All fire-fighting doors (FFD), gates (FFG), hatches (FFH) must be equipped with a special information plate (fig. 37), containing sequential number according to the register approved by the Enterprise and an indication of the door's fire resistance limit.

Plate size shall be 150x750 mm.

The plate shall be placed on the outer side of the door in its upper corner adjacent to the door hinges.



Figure 37 – sample designation of fire-fighting doors

7.4. Marking of piers, supports.

7.4.1. For quick identification of zones and further response, all piers and supports of buildings have to be marked (numbered).

7.4.2. Numbering of piers and supports is performed by application of color design of a number using a stencil with the approved font – **Arial, Black**, (fig. 18) to the structural element.

7.4.3. The design shall be applied at a height of 1.8 m from floor level, height is to be measured from the lower edge of the design.

7.4.4. The number must be applied in black paint. If the structure is painted in dark colors, white fill is used as a background. The fill is performed in the form of a rectangle (square) (fig. 38).

7.4.5. Size of the design is selected pro rata to the structural element size so as to ensure the necessary visibility.

7.4.6. Numbering of the building axis is performed according to clauses 7.4.2–7.4.5, with Arabic numerals and capital letters of the Russian alphabet.



Figure 38 – sample application of color design of a number of piers, supports of the inner premises

7.5. Information plates.

7.5.1. For designation of process equipment and its individual units, use information plates designed in black text on white background, with a thin black frame;

7.5.2. The plate shall specify the equipment name and its number according to the scheme;

7.5.3. To designate storage areas of spare parts, consumable materials, finished products, raw materials, chemicals, tools, parkings of mobile equipment, carts, forklifts,

it is advisable to use information plates designed as black text on white background with a blue frame;

7.5.4. Plates must specify the type of stocked equipment/tools, position, full name, telephone number of the person responsible for the storage area or mobile equipment.

7.5.5. To designate personal protective equipment storage areas, information plates shall be designed as black text on white background with a green frame.

PPE storage areas must be provided with a list of stored assets authenticated by the area head signature.

7.5.6. Plate size must be at least 200x150 mm.

7.5.7. Text font – **Arial, Bold**, font size proportional to the plate and easily readable.

7.5.8. Samples of information plates are given in figure 39.

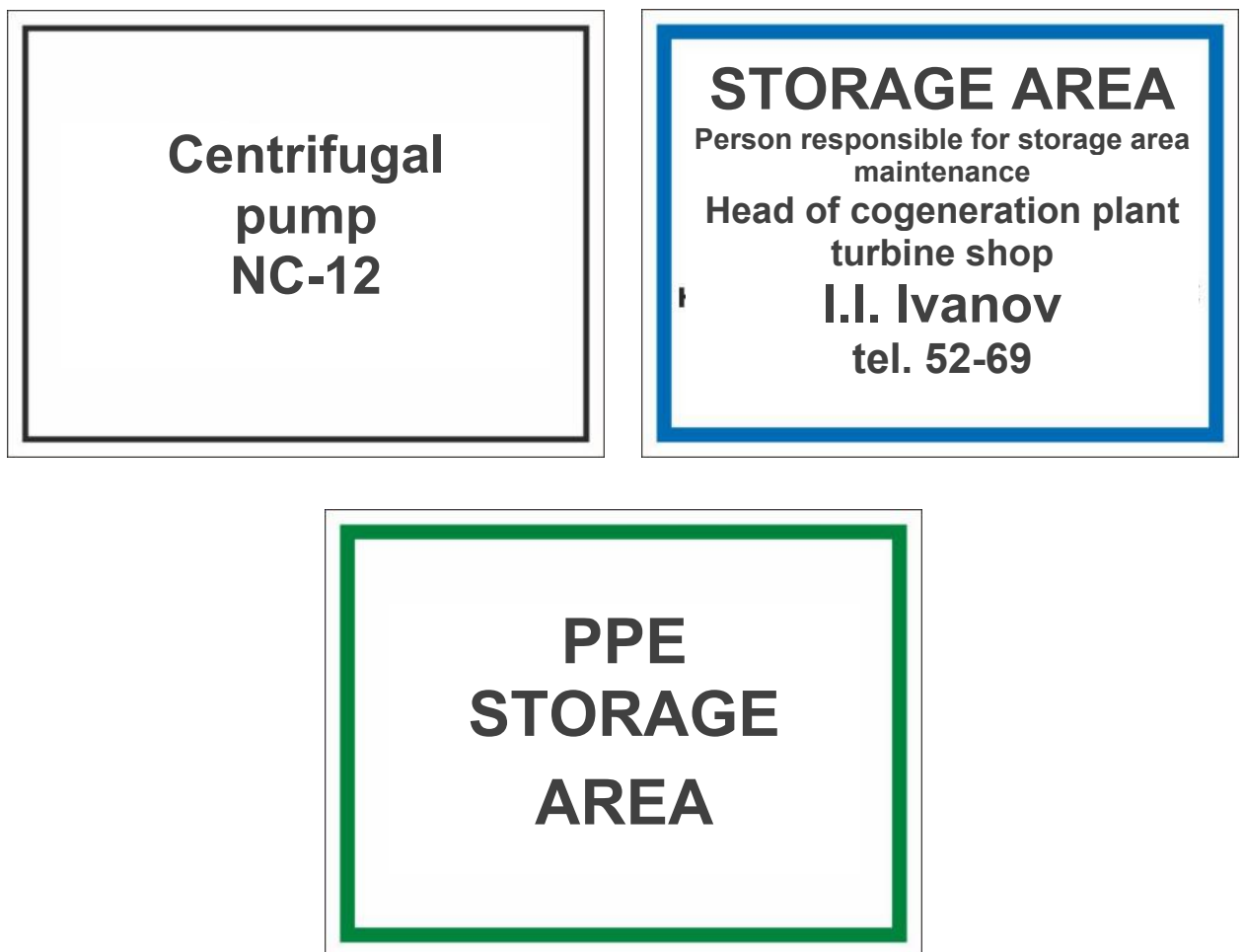


Figure 39 – sample information plates

7.5.9. All fire stairs and roof guard rails shall be provided with affixed plates specifying the sequential number according to the register approved by the Enterprise, latest test results, date of the last and pending test (fig. 40).

7.5.10. Plate size must be at least 150x225 mm.

7.5.11. Damaged external stairs or roof guard rails (that failed the test) shall be provided with a physical restriction of access and affixed restricting safety signs.

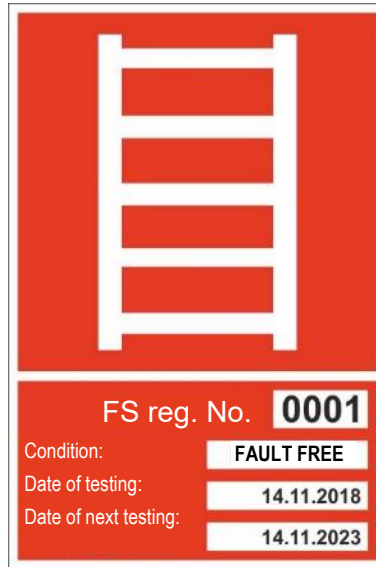


Figure 40 – sample information plate for testing of fire stairs and roof guard rails

7.5.12. Fire extinguisher locations must be equipped with a special information plate specifying fire extinguisher sequential number according to the register approved by the Enterprise, type and quantity of fire extinguishers (fig. 41).

7.5.13. Plate size must be at least 100x150 mm.



Figure 41 – sample of fire extinguisher location with an information plate

7.5.14. Locations of hazardous substances shall be provided with hazardous substance data sheets made according to the Policy for treatment of chemicals in Ilim Group JSC, approved by the order of the Chief Executive Officer No. GD-100 dd. 20.08.2014 (fig. 42).

The data sheet shall specify information on hazardous substance risk assessment by 4 categories.

The designation system is based on four fields of different color. Blue – hazard class after GOST 12.1.007-76, red – flammability group, yellow – reactivity and white – for special codes of individual hazards. The first three categories are assessed by the scale from 0 (no hazard, stable substance) to 4 (severe risk up to lethal outcome).

Data sheet size shall be selected to ensure the necessary visibility but shall be at least 300x400 mm.

The hazardous substance data sheet must be made of corrosion- and/or fire resistant materials so as to preserve its operational qualities in case of an emergency for the time necessary for the rescue services to arrive.

ИЛИМ Warning! Sulfuric acid!

Concentrated sulfuric acid

Danger! Oily liquid. In contact with skin causes severe chemical burns. Sulfuric acid vapors irritate and scorch the mucosa of the upper respiratory tract and lungs. Diluted with water, generates a lot of heat.
MAC – 1 mg/m³

Affected organs – eyes, skin, respiratory tract

GOST hazard class 12.1.007-76	2	1-Воздействие при вдыхании опасная 2-Воздействие при вдыхании 3-Воздействие при вдыхании 4-Воздействие при вдыхании
Группа горючести	4	1-Сильнейшее окисляющее 2-Среднее окисляющее 3-Слабое окисляющее 4-Не окисляющее
Реактивность	2	1-Опасная 2-Опасная при нагревании 3-Слабая окисляющая способность 4-При контакте с водой выделяется большое количество тепла
Определенная опасность	Категория: Коррозивно	Возв. веществ: Корр. раздражит. Опас. незначительную жару. В. разлития

Personal protective equipment should be donned

Confined space, permit to work is required

In case of fire call – 01, 53-04, +7-921-488-79-11
Medical aid – 03, 50-89

ИЛИМ Warning! Concentrated sulfuric acid.

Concentrated sulfuric acid

Hazard statement:
Strong oxidizer, not explosion and fire hazardous. Highly soluble in water. Reacts with water with generation of heat and spatter. In terms of severity of body exposure, belongs to hazard class 2. MAC in the air of the working area – 1 mg/m³
In case of contact with skin, causes severe, hard-to-heal burns. Sulfuric acid vapors irritate the upper respiratory tract and eye mucosa. Mild vapor intoxication manifests with cough, rhinorrhea, itchy throat, chest pain, and watery eyes.

Necessary personal protective equipment.
Protective goggles, Plexiglas shields, acid and alkali resistant overalls, aprons, rubber gloves and boots, leather boots, acid and alkali resistant mittens.

Group protective equipment:
Combination safety showers, eyewash stations.

First aid to persons who suffered an exposure to the substance:

Hazard	Symptoms	First-Aid Measures
Inhalation	Itchy throat, dry or productive cough, breathing difficulties, dyspnea, watery eyes	Remove to fresh air, take off tight clothes Rinsing of eyes, nose with 2 % soda solution
Skin contact	Skin burn, ulceration	Wash off with strong water jet under pressure during 5–10 min.
Eye contact	Smarting eyes, blindness	Immediately wash a widely open eye with a jet of cold water during 10–30 minutes.
Swallowing	Burns of esophagus, stomach, acute retrosternal pain	It is prohibited to induce vomiting. Immediately contact a doctor!

After first aid is provided, immediately contact a doctor!!!

Figure 42 – sample hazardous substance data sheet

7.5.15. Locations of hazardous substances should be additionally equipped with information boards carrying the scheme of hazardous substances location in the storage area, hazardous substance data sheets, other safety requirements for work with hazardous substances (fig. 43).

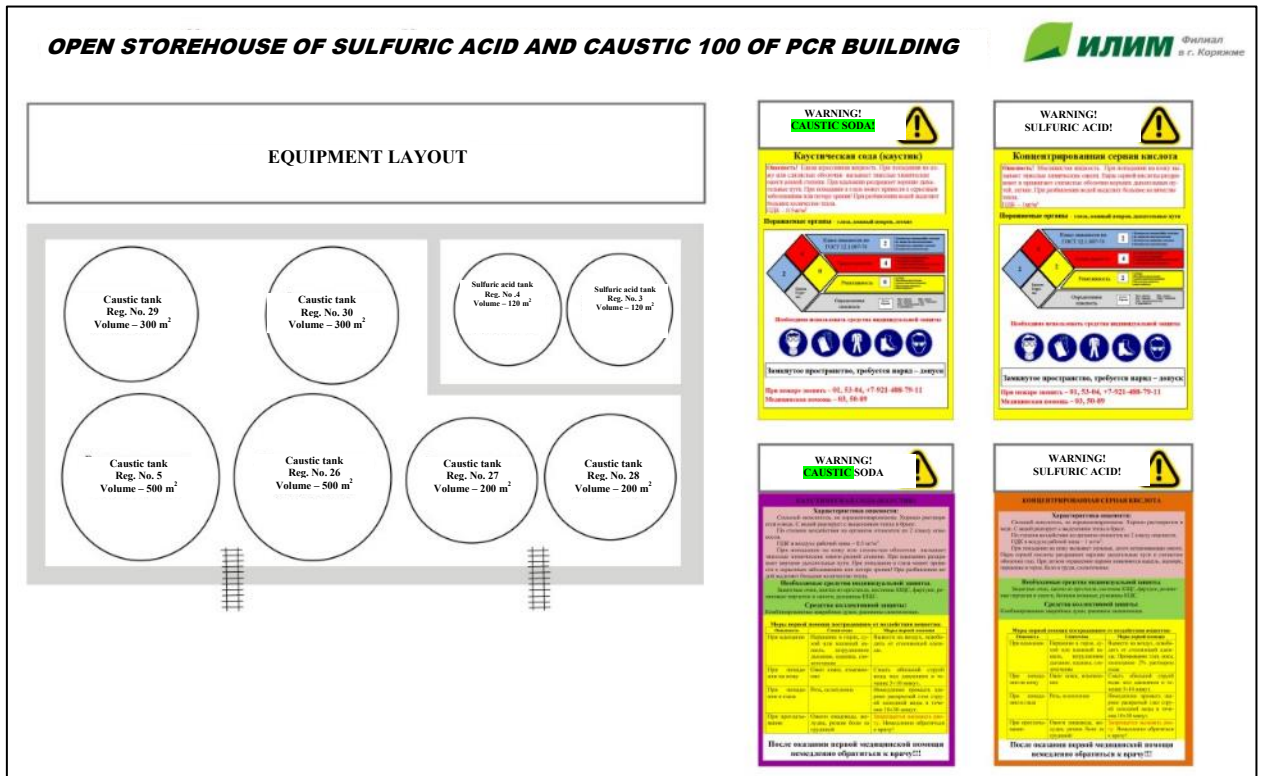


Figure 43 – sample hazardous substances information board

7.5.16. In order to improve speed of interaction and alerting of subdivisions in case of an emergency, information plates of approved design with telephones of emergency services shall be installed in SSD premises (fig. 20).

The plates shall be installed in high attendance areas, in control rooms, operator rooms and duty rooms.

7.5.17. Plate size must be at least 300x200 mm.

7.5.18. Text font – **Arial, Black**, font size proportional to the plate and easily readable.

8. Horizontal and vertical marking for outer and inner premises

8.1. According to GOST 12.4.026-2015, the following signal colors are established: red, yellow, green, blue. To reinforce visual perception of color designs of safety signs and signal marking, signal colors shall be applied in combination with contrasting colors – black or white. Contrasting colors shall be used for design of graphic symbols and written instructions.

8.2. Meaning, scope of application of signal colors and corresponding contrasting colors are established in table 2.

Table 2 – Meaning, scope of application of signal colors and corresponding contrasting colors

Signal color	RAL Classic color	Meaning	Scope of application	Contrasting color
Red	RAL 3020	Immediate hazard	Restriction of hazardous behavior or action	White
			Designation of immediate hazard	
		Emergency or hazardous situation	Message about emergency shutdown or emergency condition of equipment (process)	
		Fire fighting equipment, fire fighting aids, their elements	Designation and identification of locations of fire fighting equipment, fire fighting aids, and their elements	
Yellow	RAL 1021	Possible hazard	Designation of possible hazard, hazardous situation	Black
			Warning, caution of a potential hazard	
Green	RAL 6018	Safety, safe conditions	Message about normal operation of equipment, normal process condition	White
		Help, rescue	Designation of an evacuation route, first aid kits, offices, first aid equipment	
Blue	RAL 5017	Prescription to avoid hazard	Requirement of mandatory actions in order to ensure safety	White
		Instruction	Permission of certain actions	

8.3. Zones of potential hazard in SSD premises are designated with floor marking in form of yellow stripes or signal marking, made in form of alternating stripes tilted to the angle of 45–60° of yellow signal color and black contrasting color. Width of stripes is 50–100 mm (fig. 45).



Figure 45 – sample designation of possible hazard zones in SSD premises

8.4. To designate vehicle traffic areas in SSD premises, floor marking in form of yellow stripes is used. Width of stripes is 100 mm.

Width of driveways within production premises shall correspond to the dimensions of vehicles or transported cargoes.

Distance from road edges to building and equipment structural elements shall be minimum 0.5 m, and in case of pedestrian flow – minimum 0.8 m.

In addition, it is recommended to apply yellow floor sign “Attention. Forklift truck” in the forklift traffic zone (fig. 46).

At the boundary of vehicle and pedestrian traffic flows, it is necessary to install protective metal barriers separating the said flows (fig. 46).

8.5. Floor marking in form of green signal color stripes shall be used to designate safe pedestrian walking areas in SSD premises. Width of stripes is 50–100 mm. In addition, in the pedestrian walking areas it is recommended to apply man-shaped floor signs made in white paint (fig. 46).

8.6. To designate vehicle and pedestrian traffic intersections in SSD premises, floor marking “pedestrian crossing” in form of white stripes is used (fig. 46a).

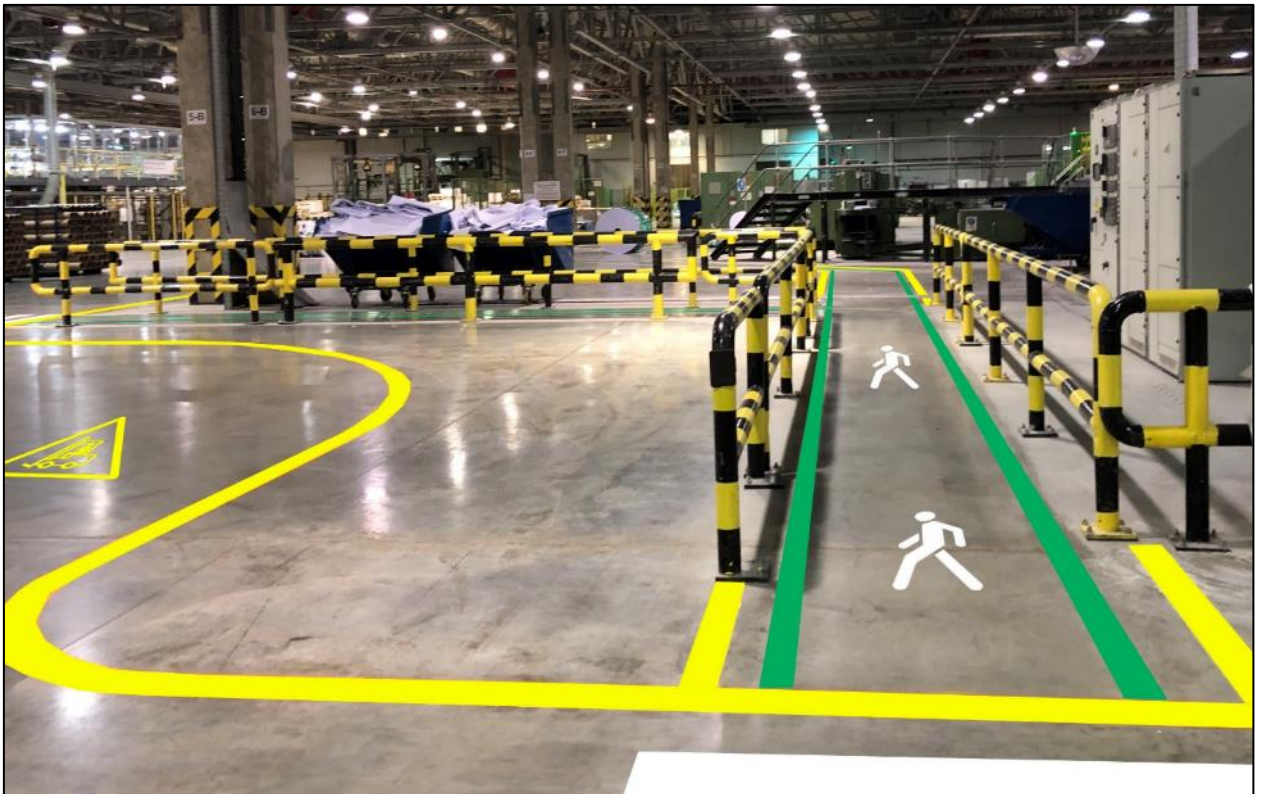
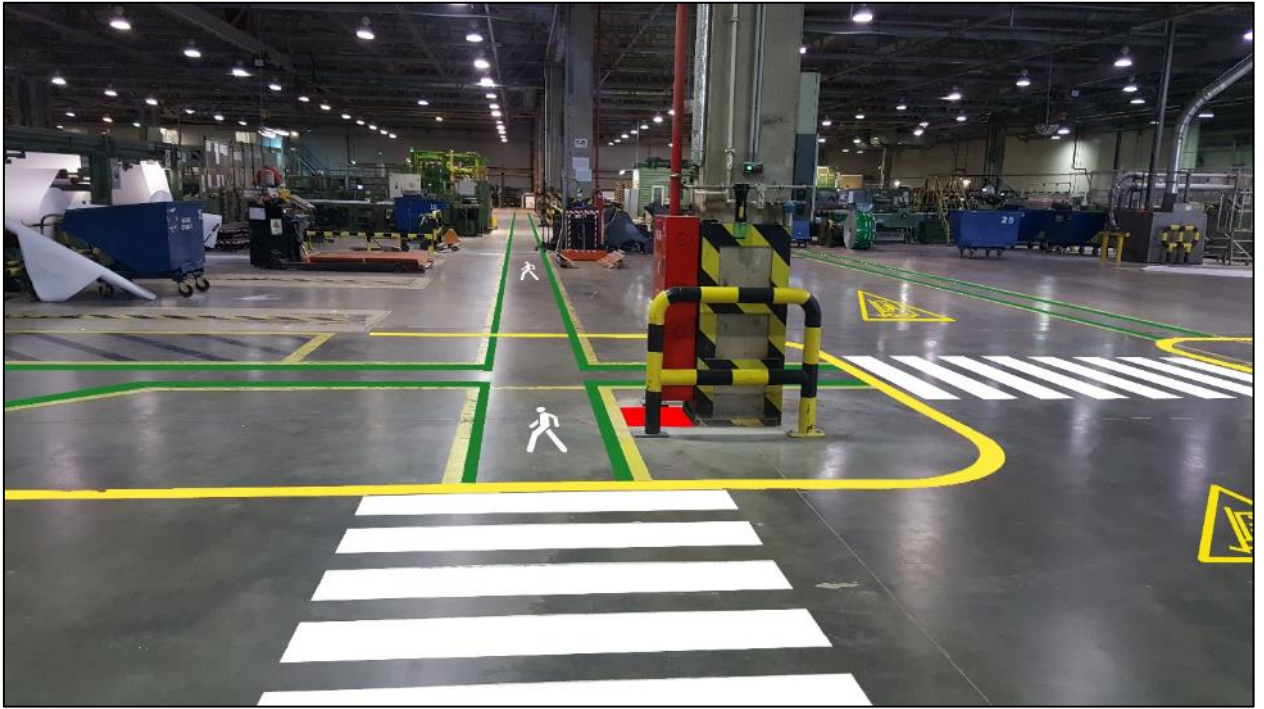


Figure 46 – sample designations of vehicle traffic areas in SSD premises



Figure 46a – sample designation of safe pedestrian walking areas in SSD premises

8.7. To designate the door opening trajectory in the office building and in the territory of production subdivisions, the floor should have yellow marking (50 mm wide), designating the door opening hazard area (fig. 47).



Figure 47 – sample designation of door opening zones

8.8. To designate locations of fire fighting and special equipment, and to prohibit halting of vehicles, use horizontal marking in form of alternating stripes tilted to the angle of 45–60° of red signal color and white contrasting color. Dimensions of the designated area shall be at least 5x3 m.

This marking is duplicated by installation of a road sign “Stopping prohibited” with indication of the zone regulated by the sign (fig. 48).



Figure 48 – sample designation of fire fighting equipment installation locations

8.9. Designation of fire hydrant locations in approach routes of fire fighting vehicles is made with horizontal marking in form of a white platform with a red frame and dimensions at least 2x2 m. Area marking should be completed with written instructions “Fire hydrant” and “Parking prohibited” made in red color on white background (fig. 49).

Fire hydrant location is additionally designated with a fire safety sign “Fire hydrant”.

8.10. Markings specified in clause 8.9 and clause 8.10 apply to road traffic area with asphalt or concrete surface.



Figure 49 – sample designation of fire hydrant locations

8.11. For designation of fire extinguishment aids in SSD rooms, floor marking in form of a red platform is used (fig. 50).

All cabinets with fire hose stations must bear the marking “PK-No.”, specifying the fire hose station sequential number according to the register approved by the Enterprise. Marking is performed: with white color for red cabinets; with red color for white cabinets. Marking font – **Arial, Black**, character height – minimum 70 mm.



Figure 50 – sample designation of locations of fire extinguishment aids in SSD rooms

Area marking should be completed with the written instruction “Fire hose station. Do not obstruct”, made in white color.

Fire cabinets located in power-driven equipment and vehicle traffic areas must be equipped with metal protective structures having signal yellow-and-black marking (fig. 51).



Figure 51 – sample installation of protective structures for a fire hose station

8.12. For designation of spare parts and consumable materials storage areas in SSD premises, floor marking in form of blue stripes is used. Width of stripes is 50–100 mm (fig. 52).

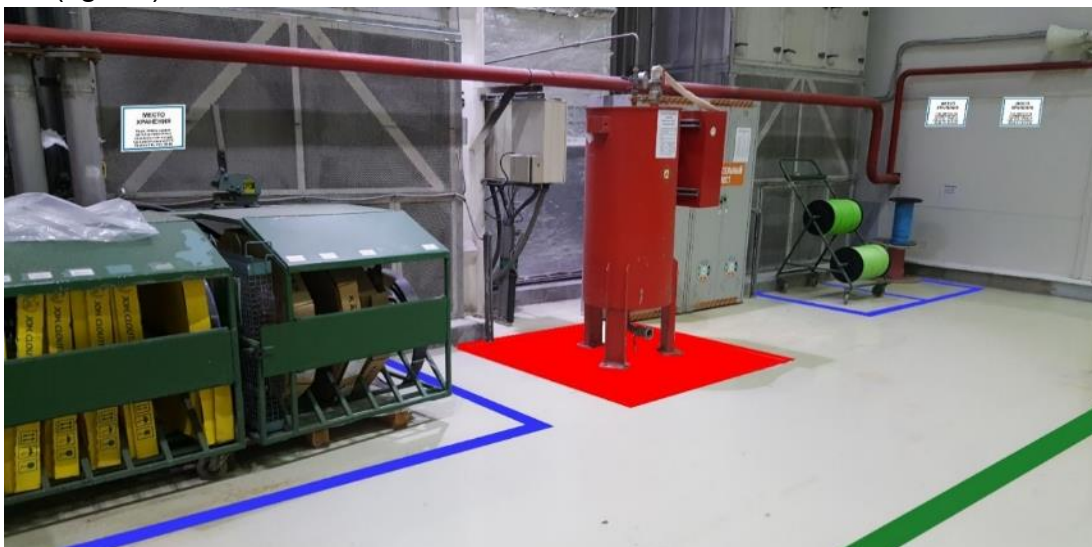


Figure 52 – sample designation of spare parts, consumable materials storage areas in SSD premises

8.13. For designation of storage areas of metal scrap, waste accumulation in SSD rooms, floor marking in form of black stripes is used. Width of stripes is 50–100 mm.

8.14. To designate storage areas of raw materials and chemicals in SSD premises, floor marking in form of yellow stripes is used. Width of stripes is 50–100 mm (fig. 53).



Figure 53 – sample designation of chemicals storage areas in SSD premises

8.15. To designate finished product storage areas in SSD premises, floor marking in form of yellow stripes is used. Width of stripes is 50–100 mm (fig. 54). The marking must be applied according to the storage process layout. Storage dimensions must be within the zone marked on the layout.



Figure 54 – sample designation of finished goods storage areas in SSD premises

8.16. For designation of storage areas of PPE, emergency and rescue aids in SSD premises, floor signal marking in form of green signal color stripes is used. Width of marking stripe is 50 mm (fig. 55).

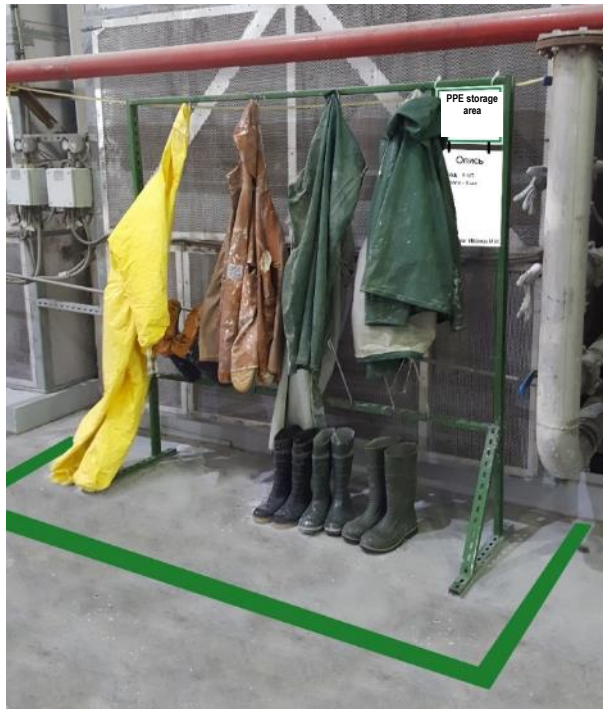


Figure 55 – sample designation of PPE storage areas in SSD premises

Pursuant to clause 5.4 GOST R 58202-2018 portable breathing apparatus locations are additionally designated with a special sign – sign F12 “Personal protective equipment location” (fig. 56).



Figure 56 – sign F12 “Personal protective equipment location”

8.17. Floor marking must be made with paint that has high resistance to fuels and lubricants, atmospheric resistance and freeze-thaw resistance, resistance to abrasive loads (brushes of washing devices).

9. Requirements to signal painting and safety signs in the facility territory

9.1. Requirements to signal painting.

9.1.1. Meaning, scope of application of signal colors and corresponding contrasting colors are established in GOST 12.4.026-2015 clause 8.2. table 1.

9.1.2. Red signal color must be used:

- for designation of shut-off devices of mechanisms and machines, including emergency shut-off devices (fig. 57);



Figure 57 – sample designation of shut-off devices of mechanisms and machines

- internal surfaces of lids (doors) of cabinets with open current-conducting elements of equipment, machines, mechanisms etc.

If equipment, machines, mechanisms have red color, than internal surfaces of lids (doors) must be painted in yellow signal color paint or lacquer:

- handles of emergency depressurization valves;
- housings of live oil switches in operating condition;
- designations of various kinds of fire fighting equipment, fire fighting aids, their elements requiring quick identification [fire vehicles, ground parts of hydrant devices, fire extinguishers, bottles, manual startup devices of fire automation* systems (installations) and alerting aids, direct link phones to fire brigade, fire stands, water barrels, sand boxes, buckets, spades, axes etc.] (fig. 58);



Figure 58 – sample designation of fire fighting aids

* Manual startup devices for smoke extraction system (orange), fire extinguishment system (yellow), door emergency opening system (green) can be left as painted by the manufacturer.

- frames of white fire safety boards used for mounting fire fighting tools and fire extinguishers. Frame width – 30–100 mm (fig. 59);

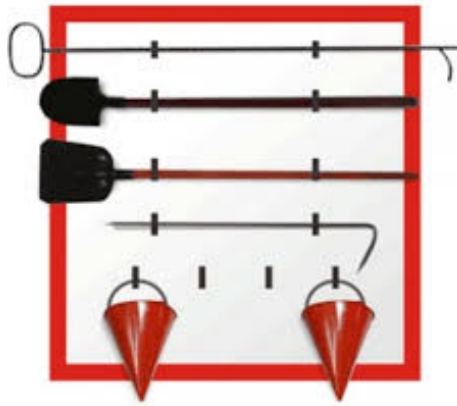


Figure 59 – sample designation of a fire safety board

- ornamentations of structural building elements (walls, columns) in form of a section of a horizontal stripe to designate locations of a fire extinguisher, manually activated fire extinguishment system, fire alarm button etc. Width of stripes is 150–300 mm. Stripes should be located in the upper part of the walls and columns at the height convenient for visual perception from workplaces, aisles etc. As a rule, ornamentation should include a fire safety sign with a corresponding graphic symbol of the fire fighting aid (fig. 60);



Figure 60 – sample ornamentation of structural elements of the building

- signal lamps and displays informing of a violation of the process or safety conditions: “Alarm”, “Fault” etc. (fig. 61);



Figure 61 – red signal lamp

- designations of grabbing tools of industrial installations and robots;
- designation of temporary enclosures or its elements installed at the boundaries of hazard areas, sections, territories, pits, ditches, temporary enclosures of chemical, bacteriological and radiation contamination areas, as well as enclosures of other places, zones, areas with temporarily restricted entrance (fig. 62).

Surface of temporary enclosures must be wholly painted in red signal color or have alternating stripes tilted to the angle of 45–60° in red signal color and white contrasting color. Width of stripes is 20–300 mm at red vs. white stripe width ratio from 1:1 to 1.5:1;

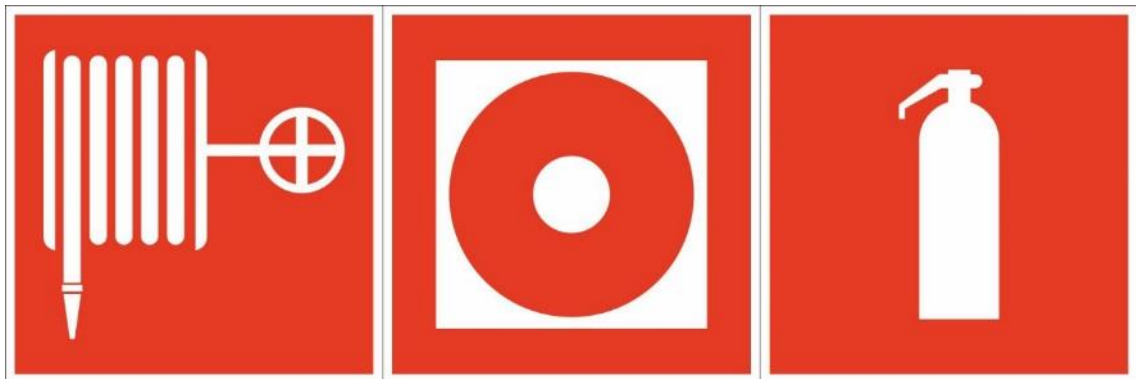


Figure 62 – sample temporary enclosures

- restriction safety signs and fire safety signs (fig. 63).



a)



b)

Figure 63 – sample restriction signs (a) and fire safety signs (b)

9.1.3. It is forbidden to use red signal color:
 - to designate stationary fire fighting aids (their elements) not requiring quick identification (fire alarm devices, fire pipelines, fire extinguishment sprinklers etc.) (fig. 64);



Figure 64 – sample unacceptable fire pipeline designation

- on the evacuation route, to avoid confusion and jumble (apart from restriction safety signs and fire safety signs) (fig. 65).



Figure 65 – sample unacceptable use of red floor marking

9.1.4. Yellow signal color must be used:

- to designate elements of construction and other structures that can become reasons for personnel injuries: low beams, protrusions and height variations in the floor plane, low-visibility steps, ramps, places with falling hazard (edges of loading platforms, cargo pallets, leading edges, hatches, openings etc.), passage bottlenecks, low-visibility braces, assemblies, piers, stands and supports in high traffic areas of in-plant vehicles etc. (fig. 66);



Figure 66 – sample designation of low beams

- designations of units and elements of equipment, machines and mechanisms that, if mishandled, can be hazardous to people: open moving parts, edges of guards, incomplete guards of moving elements (abrasive wheels, cutters, toothed wheels, drive belts, chains etc.), site barriers for work on height and for process aids constantly suspended on the ceiling or walls, or mechanisms protruding into the work space (fig. 67);



Figure 67 – sample designation of incomplete guards of moving elements

- designations of operationally hazardous elements of vehicles, lifting and transporting equipment and road construction vehicles, platforms of cargo lifting equipment, bumpers and side surfaces of electric cars, loaders, carts, side surfaces of excavator arms, grips and fork-lift truck platforms, work tools of agricultural machines, elements of cargo lifting cranes, hoisting hook blocks etc. (fig. 68);



Figure 68 – sample designation of hoisting machinery

- mobile erection devices, their elements and elements of cargo gripping devices, moving parts of manipulators, crossbars, hoists, moving parts of erection towers and ladders;

- inner surfaces of lids, shells and other barriers enclosing the locations of moving assemblies and elements of equipment, machines, mechanisms requiring periodical access for control, repair, adjustment etc. (fig. 69)

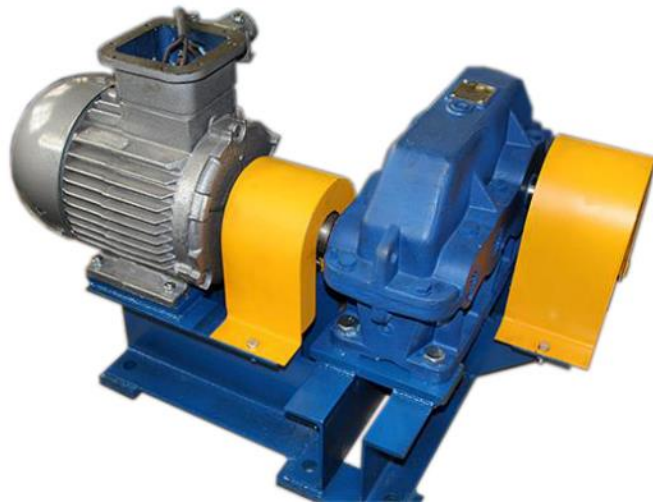


Figure 69 – sample painting of enclosure barriers of moving elements

If the said assemblies and elements are covered with removable enclosures, then yellow signal paint must be applied to the moving assemblies, elements and/or surfaces of adjacent stationary parts enclosed by the barriers;

- permanent barriers or elements of barriers installed at the boundaries of hazard areas, sections, territories: near the openings, pits, ditches, outboard platforms, permanent barriers of stairs, balconies, slabs and other places where falling from height can occur (fig. 70).

Surface of barrier must be wholly painted in yellow signal color or have alternating stripes tilted to the angle of 45–60° in yellow signal color and black contrasting color.

Width of stripes is 20–300 mm at yellow vs. black stripe width ratio from 1:1 to 1.5:1;

If production facilities use barriers made of stainless steel that are difficult to paint, it is recommended to use adhesive signal tape for application of signal marking (yellow-black).

In this case, marking of barriers must be made in sections of 0.5 m with an interval of 3 m. Marking of banisters in production stairs is performed in sections of 0.5 m in the beginning and end of the flight of stairs.

Additional yellow-and-black marking can be applied to the floor adjacent to the barrier (stringer of a flight of stairs).



Figure 70 – sample designation of permanent barriers of stairs

- warning safety signs (fig. 71).



Figure 71 – sample warning safety sign

9.1.5. For road construction machines and lifting and transporting vehicles that can occur on the road, it is allowed to use warning marking in form of alternating red and white stripes.

9.1.6. Blue signal color shall be used:

- for painting of luminous (lighting) signal indicators and other indicating or permitting signal devices;
- warning and indicating safety signs (fig. 72).



Figure 72 – sample indicating safety sign

9.1.7. Green signal color must be used:

- to designate safety (safe places, areas, safe condition) (fig. 73);

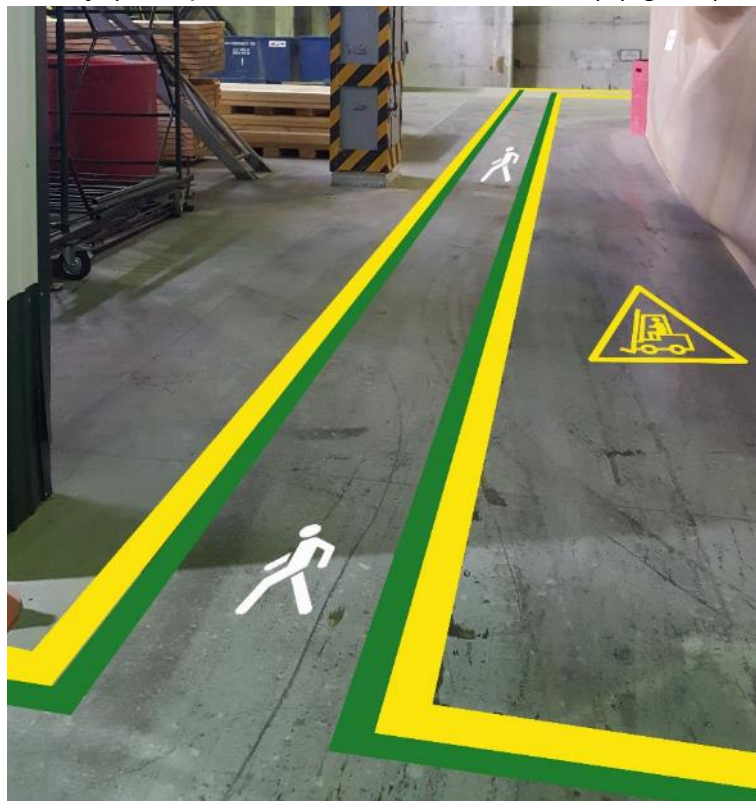


Figure 73 – sample designation of a safe area

- signal lamps informing of normal mode of operation, normal condition of processes etc. (fig. 74);



Figure 74 – green signal lamp

- designation of evacuation routes;
- evacuation safety signs and medical/sanitary safety signs (fig. 75).



Figure 75 – sample evacuation safety signs

9.2. Requirements to safety signs.

9.2.1. Safety signs can be basic, additional, combination or group (according to GOST 12.4.026-2015).

Basic safety signs contain an unambiguous indication concerning safety requirements. Basic safety signs are used individually or within combination or group safety signs (fig. 76).



Figure 76 – sample placement of basic safety signs

Additional safety signs contain a written instruction and are used in combination with the basic safety signs.

Combination and group signs consist of the basic and additional safety signs and carry combination safety requirements.

9.2.2. Types and designs of safety signs

Safety signs by types of materials can be non-luminous, reflective or photoluminescent (fig. 77).



a) non-luminous



b) reflective



c) photoluminescent

Figure 77 – designs of safety signs

Non-luminous safety signs are made of non-luminous materials and are visually perceived due to the scattering of impinging natural or artificial light.

Reflective safety signs are made of reflective materials (or with simultaneous use of reflective and non-luminous materials), and are visually perceived as luminous when a beam (ray) of light is directed at their surface (fig. 78) from the side of the observer, and as non-luminous when their surface is illuminated by the light which is not directed from the side of the observer (e.g. general lighting).

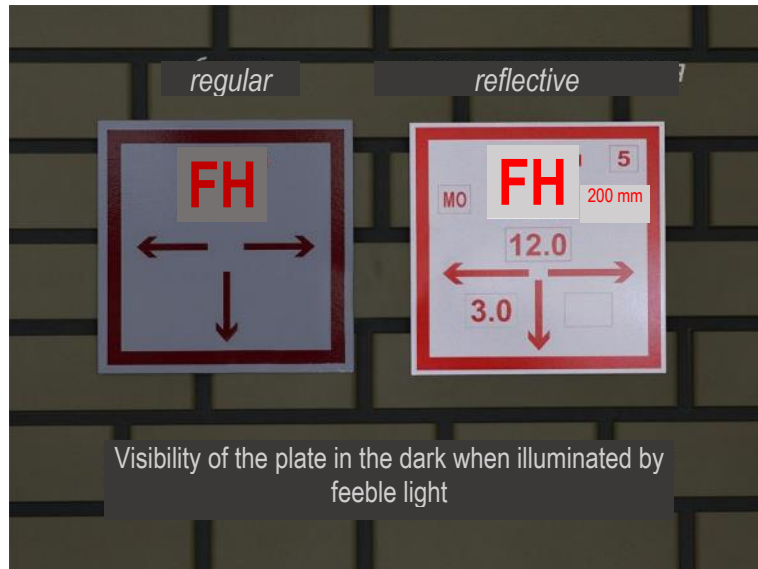


Figure 78 – sample reflective safety sign

Photoluminescent safety signs are made of photoluminescent materials (or with simultaneous used of photoluminescent and non-luminous materials). They are visually perceived as glowing in the dark after exposure to natural or artificial light and as non-luminous in diffuse light (fig. 79).



Figure 79 – sample photoluminescent evacuation plan

Fire safety signs placed along the evacuation route, as well as evacuation safety signs and EC 01 safety sign, must be made using photoluminescent materials or must use internal or external lighting from an autonomous or emergency power source.

Safety signs intended for placement in production conditions containing aggressive chemical media, must withstand exposure to gas, vapor and aerosol chemical media.

9.2.3. Regulations on the use of safety signs

Safety signs shall be placed (installed) in the field of vision of the persons for whom they are intended.

Safety signs must be located in a way to make them clearly visible but not distracting or interfering with the functional duties of personnel, to not obstruct passages or driveways, and not impede movement of cargoes.

Safety signs installed at the entrance for people (vehicles) to the facility (site), signify that they regulate the facility (site) in general.

Safety signs located on the gate and on (above) entrance doors of the premises signify that they regulate the entire territory and area behind the gates and doors.

Placement of safety signs on the gates and doors must be performed to that the safety sign is visible regardless of the gate or door position (open, closed). Evacuation safety signs E 22 "Exit" and E 23 "Emergency exit" must be placed only above the doors leading to the exit.

9.2.4. Basic and additional safety signs

Groups of basic safety signs







Basic safety signs are divided into the following groups:

- restriction signs;
- warning signs;
- fire safety signs;
- prescription signs;
- evacuation signs and medical/sanitary signs;
- direction signs.

Geometrical shape, signal color, meaning of the basic safety signs must correspond to table 3.

Color design of the basic safety signs is specified in Appendix 2.

Table 3 – Geometrical shape, signal color and meaning of the basic safety signs

Group	Geometrical shape	Signal color	Meaning
Restriction signs	Circle with a transverse stripe 	Red	Restriction of hazardous behavior or action
Warning signs	Triangle 	Yellow	Possible hazard warning. Caution. Attention
Prescription signs	Circle 	Blue	Prescription of mandatory actions to avoid hazard
Fire safety signs*	Square or triangle 	Red	Designation and identification of locations of fire fighting aids and their elements
Evacuation signs and medical/sanitary signs	Square or triangle 	Green	Designation of direction during evacuation. Rescue, first aid in emergency or fire. Written instruction, information to ensure safety
Direction signs	Square or triangle 	Blue	Permission. Instruction. Written instruction or information
<p>* Fire safety signs also include:</p> <ul style="list-style-type: none"> - restriction signs – P 01 “Smoking prohibited”, P 02 “Do not use open fire”, P 04 “Do not extinguish with water”, P 12 “Do not obstruct aisles and (or) stockpile”; - warning signs – W 01 “Fire hazard. Highly flammable substances”, W 02 “Explosion hazard”, W 11 “Fire hazard. Oxidizer”; evacuation signs. 			

9.2.5. Dimensions of the basic safety signs

Averaged dimensions of the basic safety signs at normal natural or artificial lighting and for the required recognition distance of maximum 25 m are indicated in table 4.

Table 4 – Averaged dimensions of the basic safety signs at normal lighting

Recognition distance L , m	Restriction and prescription signs	Warning signs	Fire safety signs, evacuation signs, medical and sanitary signs, direction signs		
	Circle diameter d , mm	Triangle side length b , mm	Square side length a , mm	Rectangle side length a , mm	Rectangle side length b , mm
1	50	50	50	50	100
2	80	100	80	80	160
3	100	100	100	100	200
4	100	150	100	100	200
5	150	150	150	150	300
6	150	200	150	150	300
7-8	200	250	200	200	400
9-10	250	300	250	250	500
11-12	300	400	300	300	600
13-14	350	450	350	350	700
15-16	400	500	400	400	800
17/18	450	550	450	450	900
19/20	500	600	500	500	1,000
21/22	550	700	550	550	1,100
23-24	600	750	600	600	1,200
25	650	800	650	650	1,300

Dimensions of additional safety signs must correspond to the dimensions of the basic safety signs that they complement.

It is allowed to increase the height of additional signs depending on the number of lines in the written instruction.

9.2.6. Combination and group safety signs

Combination safety signs must have rectangular shape and contain simultaneously the basic safety sign and the additional sign with a written instruction.

Sample designs of combination safety signs are provided in figure 80.





Figure 81 – sample designs of group safety signs

Surface of group signs' rectangular block is white.

Written instruction background color is white or same as the basic safety sign.

Written instruction font color is black or same as the basic safety sign.

Border color – black or red.

Edge color – white.

It is allowed to use combination and group signs without border.

9.3. Electrical safety signs and posters.

9.3.1. Purpose

Electrical safety signs and posters are intended to:

- prohibit actions with switching devices which, if activated by mistake, can conduct voltage to the place of work (restriction posters);
- warn about hazard associated with proximity to live current-conducting parts and movement without protection in switchyards of 330 kV and higher with electric field intensity above acceptable limit (warning signs and posters);
- permit specific actions only provided that special safety precautions are taken (prescription posters);
- indicate locations of various objects and devices (direction poster).

9.3.2. Technical requirements

Electrical safety posters and signs shall be manufactured according to the requirements of GOST R 12.4.026-2015 and STO 34.01-30.1-001-2016.





In terms of required use, posters can be permanent or portable, while signs can be only permanent.

Permanent posters and signs must be manufactured from electrical insulation materials.

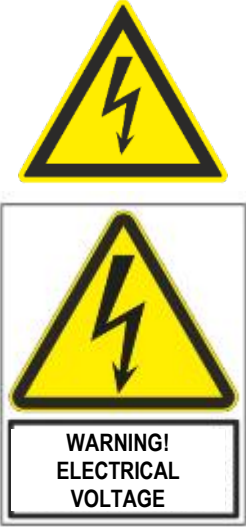


Portable posters must be manufactured from electrical insulation materials.






List, shape, dimensions, locations and conditions of using the electrical safety posters and signs are specified in table 5.

Table 5 – List, shape, dimensions, locations and conditions of using the electrical safety posters and signs

Number of poster or sign	Purpose and designation	Image	Design, dimensions, mm
Restriction posters			
1	To forbid supply of voltage to workplace DO NOT POWER ON! PEOPLE WORKING	 A rectangular poster with a white background and a red border. The text "DO NOT POWER ON! PEOPLE WORKING" is written in red, bold, uppercase letters.	Red letters on white background. White edge. Red border. 200x100 and 100x50 Portable poster
2	To prohibit supply of voltage to the line where people work DO NOT POWER ON! WORKS ON THE LINE	 A rectangular poster with a red background and a white border. The text "DO NOT POWER ON! WORKS ON THE LINE" is written in white, bold, uppercase letters.	White letters on red background. White edge. 200x100 and 100x50 Portable poster
3	To forbid supply of compressed air, gas DO NOT OPEN! PEOPLE WORKING	 A rectangular poster with a white background and a red border. The text "DO NOT OPEN! PEOPLE WORKING" is written in red, bold, uppercase letters.	Red letters on white background. White edge. Red border. 200x100 Portable poster
4	To forbid manual re-activation of high voltage circuit breakers after their automatic deactivation unless approved by the supervisor of works LIVE WORKS. DO NOT RE-ACTIVATE!	 A rectangular poster with a white background and a red border. The text "LIVE WORKS. DO NOT POWER ON!" is written in red, bold, uppercase letters.	Red letters on white background. White edge. Red border. 100x50 Portable poster

Warning signs and posters

<p>5</p>	<p>To warn about hazard of electrical shock WARNING – ELECTRICAL VOLTAGE</p>		<p>After GOST R 12.4.026 (sign W08). Background and edge are yellow, border and arrow are black. Side of triangle: 50 80 100 150</p>
<p>6</p>	<p>To warn about hazard of electrical shock WARNING – ELECTRICAL VOLTAGE</p>	<p>Same as in sign No. 5</p>	<p>Dimensions are same as in sign No. 5. Border and arrow must be applied using a stencil to concrete surface with indelible black paint. Background is concrete surface The sign is permanent</p>
<p>7</p>	<p>To warn about hazard of electrical shock STOP! VOLTAGE</p>		<p>Black letters on white background. White edge. Red border. Red arrow according to GOST R 12.4.026 300x150 Portable poster</p>
<p>8</p>	<p>To warn about electrical shock hazard during high voltage tests TEST. LIFE THREAT</p>		<p>Black letters on white background. White edge. Red border. Red arrow according to GOST R 12.4.026 300x150 Portable poster</p>

9	To warn about hazard of going up the structures in close proximity to current-conducting live parts DANGER! KEEP OUT		Black letters on white background. White edge. Red border. Red arrow according to GOST R 12.4.026 300x150 Portable poster
10	To warn about hazard of personnel exposure to electrical field and prohibit movement without protective aids HAZARDOUS ELECTRICAL FIELD WITHOUT PROTECTIVE AIDS NO ENTRY		Red letters on white background. White edge. Red border. 200x100 Permanent poster
Prescription posters			
11	To indicate workplace WORK HERE		White square with side 200 or 80 mm on blue background. White edge. Black letter inside square. 250x250, 100x100 Portable poster
12	To indicate safe route for ascending to workplace located at height ASCEND HERE		Same
Direction poster			
13	To indicate that it is prohibited to supply voltage to the grounded part of an electrical installation GROUNDING		White letters on blue background. White edge. 200x100 and 100x50 Portable poster

9.3.3. Operating instructions

Use of electrical safety posters and signs (fig. 82) is regulated by the Occupational safety rules for operation of electrical installations and other current regulatory documents.

In places where the grounding terminal of electrical equipment is connected to the protective conductor, the corresponding grounding sign is installed (fig. 83)

Use of permanent posters and signs made of metal is allowed only away from current-conducting parts.



Figure 82 – sample placement of electrical safety posters



Figure 83 – sample placement of grounding sign

10. Requirements to color design of enclosures around rotating parts of equipment, requirements to equipment color design

10.1. Requirements to color design of enclosures around rotating parts of equipment

10.1.1. All moving, rotating and protruding parts of the process equipment and auxiliary mechanisms must be reliably enclosed or located so as to exclude the possibility of personnel injury.

10.1.2. Surface of permanent enclosures and elements of enclosures installed on the boundaries of hazard zones, areas, territories, shall be painted in yellow signal color or shall have alternating stripes tilted to the angle of 45–60° of yellow signal color and black contrasting color (fig. 25).

10.1.3. Surface of temporary enclosures and elements of temporary enclosures installed on the boundaries of hazard zones, areas, territories, shall be fully painted in red signal color or shall have alternating stripes tilted to the angle of 45–60° of red signal color and white contrasting color (fig. 29).

10.1.4. Inner surfaces of lids, shells and other barriers enclosing the locations of moving assemblies and elements of equipment, machines, mechanisms requiring periodical access for control, repair, adjustment etc. must be painted in yellow signal color.

10.1.5. Edges of enclosures and incomplete enclosures of moving elements must be painted in yellow signal color.

10.2. Requirements to color design of equipment

10.2.1. In case of overhaul, renovation and construction of the Company facilities, and in case of development of design documentation for overhaul, renovation and construction of the Company facilities, major equipment design must include corporate colors defined in the Company brand book and must be approved by the communications and public relations directorate. Exceptions are surfaces whose color is dictated by the current regulatory documentation and surfaces whose painting is not justified by technological or design reasons (high temperature, high degree of contamination in the process of equipment operation, equipment execution from stainless or galvanized steel, or use of various special coatings).

10.2.2. Electrical motors must be painted with blue color.

10.2.3. All pumps must be painted according to the requirements to color visualization of the transported medium (fig. 84). Classification of groups of transported substances and their identification colors are specified in table 5, clause 13.2 of the Standard.



Figure 84 – sample color design of pumps

10.2.4. Pipelines shall be painted according to clause 13 of the Standard.

11. Requirements to availability of visual communication aids, protective enclosures, and safety signs in the hazard areas

11.1. All sources of hazard and respective hazard areas must be identified.

11.2. For all identified hazards, risk assessment must be performed according to the Occupational safety risk assessment standard at the facilities of Ilim Group JSC.

11.3. For organization of works associated with exposure of employees to harmful and (or) hazardous production factors, take precautions to exclude or reduce such factors to the level of acceptable exposure established by the requirements of respective regulatory documents.

If it is impossible to exclude or reduce harmful and (or) hazardous factors to the acceptable exposure levels, it is prohibited to perform works without personal and group protective equipment provided to employees.

11.4. Installation (use) of group protective equipment is performed by the branch management depending on the specific harmful and (or) hazardous production factors based on design solutions accepted according to the regulatory documents and technical (operational) documentation of the producing organization.

11.5. Territory of the enterprise must be illuminated during dark hours.

11.6. Entrances and exits, passages and driveways, both inside production buildings (structures) and production premises (production sites) and outside at the adjacent territory, must be free from obstacles and equipped with lighting for safe traffic of employees and vehicles.

It is prohibited to obstruct passages and driveways or use them for placement of cargoes.

11.7. Hazard area boundaries must be designated with signal marking, signal signs, signal and (if necessary) protective enclosures.

11.8. Trenches, pits, ditches, underground utilities in the Enterprise's territory must be closed or surrounded with safety enclosure (fig. 85). Enclosures shall be fitted with warning notices and signs, and overnight – with signal lighting.



Figure 85 – sample enclosure of open trenches

At crossings over trenches, pits and dikes, crossing bridges at least 1 m wide shall be installed, with at least 1.1 m high banisters at both sides, 0.15 m high through lining at the bottom and additional limiting plate at 0.5 m from the flooring (fig. 86).



Figure 86 – sample crossing bridge

11.9. Wells and process reservoirs located in the territory of the company must be closed. Temporarily open wells and process reservoirs must have protective enclosures at least 1.1 m high.

11.10. Sewers, sump holes and other hollows in the floor of production premises must be closed with strong covers (fig. 87), and open hollows and platforms protruding above the floor level by more than 0.3 m must be enclosed with banisters at least 1.1 m high.



Figure 87 – sample covers of sewers and floor hollows

11.11. Covers of process openings in the floor must be fully painted in yellow color (fig. 88).



Figure 88 – sample painting of a process opening cover in the floor

11.12. Crossings, stairs, platforms and their banisters must be maintained in good working order.

For the period of repair, instead of dismantled banisters install temporary enclosures. Banisters and decking removed for the time of repair shall be installed back in place after completion of repair works.

11.13. All staircases (office and production) must be provided with combination signs informing employees of safety precautions on stairs (fig. 89).

Size of the sign is 200x300 mm.



Figure 89 – sample sign “Precautions on stairs”

11.14. Combination signs must be installed near all lifts to inform employees that it is forbidden to use lift during fire (fig. 90).

Size of the sign is 200x300 mm.



Figure 90 – sample sign “Precautions on stairs”

11.15. Boundaries of hazard areas, premises with harmful substance content exceeding MAC, exposed to noise, vibration or other negative factors exceeding MAL,

must be identified with corresponding warning or prescription signs according to Appendix 2 (fig. 91).



Figure 91 – sample placement of safety signs and information plates at the entrance to the production shop area

11.16. On exits from control rooms, duty rooms etc. to the production shop areas, warning and prescription signs must be repeated. It is advisable to additionally use written instructions together with the basic safety signs.

11.17. In storage rooms of chemicals and solutions, post safe handling instructions and material safety data sheets.

11.18. In the areas where accidents have occurred, it is advisable to place information posters describing the incident and prescribing increased focus on the hazard area and precautions on production site.

11.19. Confined space entrance must be equipped with a warning plate (fig. 92). Plate size must be at least 300x300 mm. Text font – **Arial, Bold**.



Figure 92 – sample placement of warning plate at the entrance to the confined space

11.20. Hazard area boundaries in the vicinity of a building or structure where falling objects may occur, must be enclosed around the entire perimeter by signal (fig. 94) or protective enclosures (fig. 94 a) at a distance of possible spill of objects. Enclosure elements must be reliably fixed. In places where pedestrians might be walking (roads and pedestrian routes) in the vicinity of a hazard area, post additional safety signs “Warning! Hazard area”, “No entry”.

11.21. At the border of the hazard area of load transportation by hoisting machinery, where fall from height may occur, install signs warning about ongoing hoisting machinery operation. Signs shall be installed at the entrance to the premises (territory) and in places where pedestrians might be walking (roads and pedestrian routes) in the vicinity of a hazard area (fig. 93).

11.22. Zones of process openings intended for transportation of loads with hoisting machinery, must have floor marking at zero elevation point in form of yellow stripes tilted to the angle of 45–60°. Width of stripes is 50–300 mm.

Additionally such zones must be designated with a warning instruction “Crane operation area” made in yellow paint.

The installation opening area should be also designated with a floor sign “Warning. Watch out for falling load”, made in yellow paint using a stencil.



Figure 93 – sample designation of a process opening at elevation +0.00

11.23. To enclose hazard areas during works (openings in slabs, stationary platforms, sump holes, pits, open hatches of wells etc.), use protective enclosures around the entire perimeter (fig. 94 a). Enclosure elements must be reliably fixed and provided with plates “Warning! Hazard area”. Pits and trenches excavated in pedestrian, wheeled and rail traffic areas must be enclosed with protective barriers. Enclosures must be provided with the corresponding warning signs, written instructions, and overnight – with signal lights with maximum voltage of 50 V. (fig. 95). During hazardous gas work, lighting must be explosion- and fire-protected and must meet the category and group of explosive mix.



Figure 94 – sample types of hazard area signal enclosures



Figure 94 a – sample protective enclosure of a hazard area



Figure 95 – sample designs of signal lighting

11.24. During works on height, protective enclosures must be installed at a distance of minimum 0.3 m from the edge boundary; signal enclosures – at a distance of minimum 2 m.

11.25. Boundaries of hazard areas in the vicinity of equipment, installations, crane pre-assemblies etc. under test pressure during hydraulic or pneumatic tests must be marked with standers, warning signs (fig. 96).



Figure 96 – sample stander installation at the hazard area boundary

11.26. Boundaries of hazard areas in the vicinity of hot works and hazardous gas works must be marked with signal enclosures. If it is impossible to install signal enclosures, places where pedestrians might walk in the vicinity of the hazard area must be equipped with corresponding standers and (or) safety signs (fig. 97).



Figure 97 – samples standers

11.27. If stationary workplaces for electric gas welding works (welding shops) are installed in the vicinity of places with constant presence (traffic) of people, use portable or stationary lightproof enclosures (shields, curtains or screens) made of fireproof material,

11.28. To exclude the possibility of occurrence of hazardous or harmful production factors in the working zone where equipment is decommissioned for repair, actuators of shut-off devices (apparatus, keys) must be provided with special-purpose lockout devices and respective plates (“Do not open”, “Do not close”, “Do not activate, people are working”) and information tags associated with installation of lockout devices according to the Standard “For isolation and control of hazardous energy sources in Ilim Group JSC” (Zero energy system). Their height must ensure protection against hazardous factors.

11.29. In case of incident, emergency, fire, or accident, the hazard area boundary shall be marked with signal enclosure and respective standers (fig. 98) prohibiting entry of people and vehicles into the hazard area.



Figure 98 – sample emergency stander

11.30. Access of people and transport uninvolved in rescue operations to the hazard area is prohibited.

Participants of rescue operations must wear special bands according to the requirements of the order of the Russian Emercom dd. 16.10.2017 No. 444 and other regulatory documents for performance of rescue operations.

12. Requirements to information plates installed on equipment supervised by Rostekhnadzor

12.1. Equipment operating under excess pressure and stationary hoisting machinery are supervised by Rostekhnadzor and must be equipped with special information plates according to the effective FRR.

12.2. Information plates installed on equipment operating under excess pressure must contain the following information:

- a) equipment numbers (according to the numbering system adopted by the operating organization);
- b) accepted parameters (pressure, working medium temperature);
- c) dates of the next external and internal inspections (EII) and hydraulic test (HT) of boilers and vessels, external inspection (EI) of piping;
- d) service life expiry date established by the manufacturer or specified in the industrial safety expert review.

12.3. Information plates installed on stationary hoisting machinery must contain the following information:

- a) accounting number (the accounting number is assigned to the HM by a territorial Rostekhnadzor body);

- b) HM factory number;
- c) lifting capacity according to the data sheet;
- d) dates of the next full and partial technical inspection (FTI and PTI).
- 12.4. Plate size must be at least 300x200 mm.
- 12.5. Text font – **Arial, Bold**, font size proportional to the plate and easily readable.
- 12.6. It is advisable to use plates with rewritable or replaceable fields for indication of dates.
- 12.7. Sample information plate installed on equipment supervised by Rostekhnadzor is shown in figure 99.

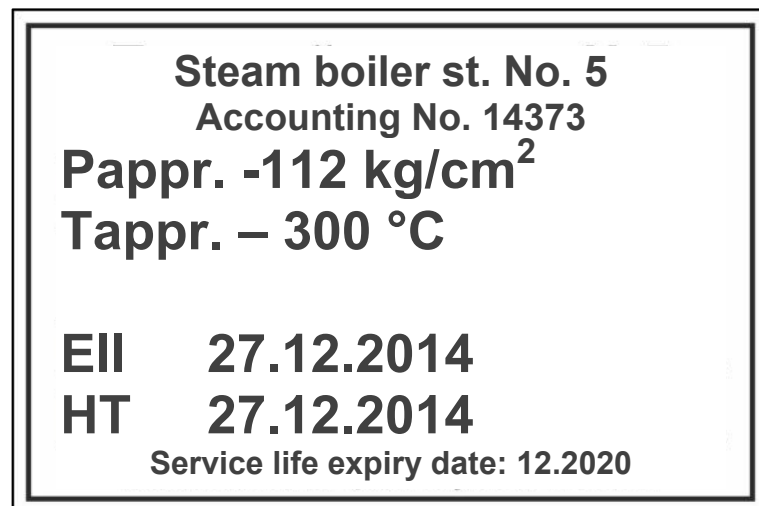


Plate for equipment operating under pressure

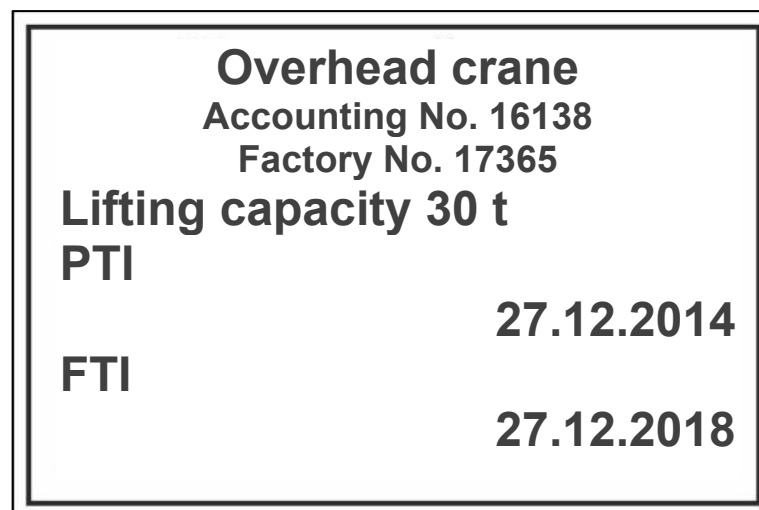


Plate for stationary hoisting machinery

Figure 99 – sample information plate placed on equipment supervised by Rostekhnadzor






13. Piping identification painting designation




13.1. The following ten high-level groups of substances transported via piping are established:

- 1) water;
- 2) steam;
- 3) air;
- 4) flammable gases (including liquefied gases);
- 5) non-flammable gases (including liquefied gases);
- 6) acids;
- 7) alkali;
- 8) flammable liquids;
- 9) non-flammable liquids;
- 0) other substances.

13.2. Identification colors and digital designation of large piping groups shall correspond to table 6.

Table 6 – Identification colors and digital designation of large piping groups

Transported substance		Samples and designations of identification colors	RAL Classic color
Digital designation of the group	Description		
1	Water	Green 	RAL 6018
2	Steam	Red 	RAL 3020
3	Air, oxygen	Blue 	RAL 5017
4 5	Flammable gases Non-flammable gases	Yellow 	RAL 1021
6	Acids	Orange 	RAL 1003

Transported substance		Samples and designations of identification colors	RAL Classic color
Digital designation of the group	Description		
7	Alkali	Violet 	RAL 4008
8 9	Flammable liquids Non-flammable liquids	Brown 	RAL 8002
0	Other substances	Gray 	RAL 7004

13.3. Fire fighting piping, regardless of their content (water, foam, steam for fire extinguishing etc.), sprinkler and drencher systems in locations of shut-off and control valves and connections of sleeves and other fire extinguishment devices must be painted red (signal color).

13.4. Identification painting of piping must be applied to the entire surface of the utilities or in separate sections (fig. 100).

Piping painting in sections is advised for shops with a large number and length of utilities, and also when concentration of bright colors is undesirable due to the conditions of work that pose special requirements to color rendition or due to the nature of the architectural design of the interior.

Identification painting of the entire surface of piping is advised for short lengths and quantity of utilities, unless it deteriorates working conditions in production shop premises.

Outer installations shall be fully painted only in cases when it doesn't deteriorate the operating conditions due to exposure of utilities to solar radiation.

It is prohibited to paint piping between sections with identification colors adopted for designation of other large groups of substances.

13.5. Sections of identification painting must be applied taking into account the local conditions in the key utility units (at offsets, connections, flanges, sampling points and instrumentation, penetrations of walls, partitions, slabs, at inputs and outputs of production buildings etc.) at least each 10 m within production premises and outer installations and each 30–60 m on external trunk lines.

13.6. Width of identification paint sections must be accepted depending on the outer diameter of pipelines (taking into account the insulation):

- for pipes with diameter up to 300 mm – at least four diameters;
- for pipes with diameter above 300 mm – at least two diameters.






Figure 100 – sample application of identification paint on pipelines

13.7. For designation of the most hazardous transported substances, warning color rings must be applied to piping (fig. 101).

Identification colors for warning rings must correspond to the ones specified in table 7.

Table 7 – Identification colors for warning rings

Signal color samples	Color as per RAL Classic	Signal color name	Transported substance properties
	RAL 3020	Red	High flammability, fire and explosion hazard
	RAL 1021	Yellow	Hazardous or harmful (poisonous, toxic, capable of causing asphyxia, thermal or chemical burns, radioactive, high pressure or deep vacuum etc.)
	RAL 6018	Green	Safe or neutral

13.8. Separation of substances transported via piping by degree of hazard to health or life of people is performed according to GOST 14202-69.

13.9. If the substance simultaneously has several hazardous properties, designated by different colors, piping must have rings of several colors.



Figure 101 – sample painting with warning rings

13.10. If due to the design or technology reasons, the shell is made of stainless or galvanized steel that is difficult to paint, identification painting and warning rings can be made with adhesive tape of the corresponding colors. Width of identification sections is accepted as equal to 2 piping diameters.

13.11. For designation of piping with content especially hazardous for health or life of people or operation of the enterprise, as well as in need to specify the type of hazard, additionally to the warning color rings, warning signs must be used (according to GOST 12.4.026-2015).

13.12. Warning signs must be used to designate the following substances: poisonous, fire- and explosion hazardous, radioactive, as well as other hazardous content of piping (e.g. substances that present hazard when spilled etc.).

13.13. To designate types of substances and their parameters (temperature, pressure etc.) that are required according to the operation conditions, and medium flow direction, use marking shields made of plastic and painted in corresponding colors.

13.14. Warning signs attached to piping must be installed in combination with marking shields.

13.15. There are four types of marking shields:

- 1 – to designate flow in both directions;
- 2 – same, to the left;
- 3 – same, to the right;
- 4 – to designate transported substance sampling points.

13.16. Dimensions of marking shields must correspond to drawing 1 and table 8.

Drawing 1 – Dimensions of marking shields

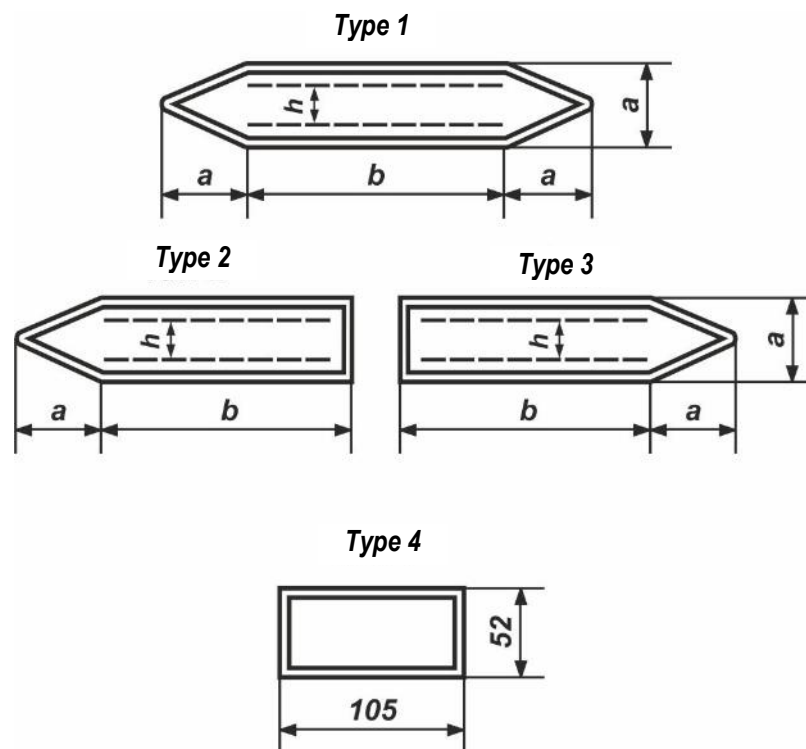


Table 8 – Dimensions of marking shields

Dimensional options	a, mm	b, minimum, mm	Height of letters h, mm	
			one line	two lines
1	26	74	19	-
2	52	148	32	19
3	74	210	50	25
4	105	297	63	32
5	148	420	90	50

13.17. Sample marking shield is shown in figure 102. Sample designation of piping with marking shields is shown in figure 102a.

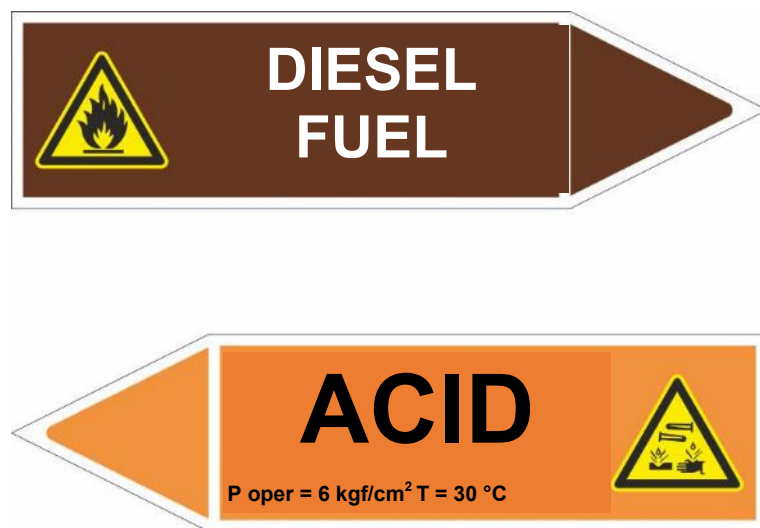


Figure 102 – sample marking shield



Figure 102a – sample designation of piping with marking shields

14. Requirements to application of photoluminescent evacuation systems

14.1. FES is an autonomous, independent safety system applied for management of pedestrian flows along the evacuation routes to minimize evacuation time and inform about the structure of evacuation routes, rules of behavior in limited visibility conditions (dusk, smoke, fog etc.) or complete darkness (emergency shutdown of lighting), in case of threatening or actual incident (fire, emergency, natural disaster, catastrophe, act of terror etc.), causing the need for safe evacuation and rescue of people (according to GOST R 12.2.143-2009).

14.2. Frequency and quantity of photoluminescent elements installed in FES, depend on the complexity of the evacuation route. All additional signs are visual reminders along the evacuation route, and therefore create additional comfort and confidence of rescue.

14.3. FES includes (visualization of) elements that designate:

- evacuation routes;
- evacuation doors (emergency exits);
- hazardous places located along the evacuation routes;
- locations of rescue aids, fire safety and emergency aids, communication aids;
- quick identification points.

14.4. In FES locations, general artificial or natural lighting must be provided.

In rooms without natural lighting or in case of insufficient artificial lighting, use evacuation safety signs with internal lighting (according to SP 52.13330.2016).

14.5. FES elements include signs, marking and light transducers:

14.5.1. Signs include:

- safety signs as per GOST R 12.4.026;
- IMO symbols according to IMO Resolutions and industrial regulatory documents;
- arrows;
- evacuation plans;
- labels, tags, plates with written instructions and (or) graphic images;
- marking.

14.5.2. FES marking includes linear, flat and 3D objects (figures), floor marking direction signs made using photoluminescent materials and intended for visualization of evacuation routes.

14.5.3. FES light transducers include light background screens – flat and 3D objects with photoluminescent surface.

14.6. Signal marking with alternating black and yellow-white (white) stripes located directly (vertically or horizontally) or tilted at an angle of 45–60°, is used to designate permanent obstacles, hazard areas, sections, zones along the evacuation routes (fig. 103).

14.7. Signal marking with alternating and zig-zag stripes (“herringbone”) of green and yellow-white (white) color is used to designate safe movement boundary and as a component of direction lines (lanes) to additionally point to the exit (fig. 103).

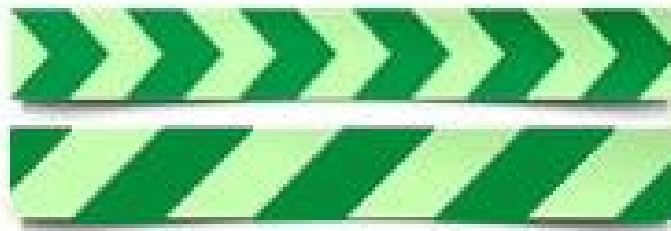


Figure 103 – types of FES signal marking

14.8. Requirements to evacuation plans:

14.8.1. Evacuation plans can be floor- or section-based, local, or master (general) plans.

Floor-based evacuation plans are developed for one floor. Section-based evacuation plans shall be developed:

- if floor area exceeds 1,000 m²;
- if a floor has several segregated evacuation exits separated from other parts of the floor space with a wall or partition;
- in presence of horizontal or vertical sliding doors or rotating doors, tourniquets on the floor;
- in case the evacuation routes are complex (tangled or long).

Copies of floor (section) evacuation plans related to the same building, installation or facility, shall be included in the master (general) evacuation plan for the building, installation or facility.

Master evacuation plans shall be stored with the duty person and provided upon first instruction of the emergency response manager.

Local evacuation plans shall be developed for individual rooms (hotel rooms, hostels, hospital wards, passenger vessel cabins etc.).

14.8.2. Evacuation plans must contain a graphic and textual part. The graphic part must include floor (sectional) layout of the building, installation, facility specifying:

- a) evacuation routes and exits;
- b) staircases, stairwells and emergency exits intended for evacuation of people;
- c) locations of the evacuation plan itself;
- d) locations of fire fighting aids, rescue and medical communication aids, designated with fire safety signs and IMO symbols.

14.8.3. Color designs of safety signs on evacuation plans must correspond to requirements of GOST R 12.4.026.

Height of safety signs and symbols on evacuation plan must be 8 to 15 mm, and in one evacuation plan they must be made in the same scale.

14.8.4. Floor evacuation plans must specify floor number in the graphic part.

14.8.5. The textual part shall specify:

- ways of alerting about emergency (fire, accident etc.);
- order and sequence for evacuation of people;
- duties and actions of people, including procedure for calling fire fighters or emergency rescue services, emergency medical assistance etc.;
- procedure for emergency shutdown of equipment, mechanisms, power etc.
- procedure for manual (back-up) activation of systems (installations) of fire and emergency automation.

14.8.6. The textual part of evacuation plans must include an instruction for actions in emergency situation (fire, accident etc.), completed with visual safety signs and symbols.

14.8.7. Written instructions and graphic images in the evacuation plan (apart from safety signs and symbols) must be black regardless of the background. Font height – minimum 3 mm.

14.8.8. Dimensions of evacuation plans are selected depending on the purpose of the plan, room area, number of evacuation and emergency exits:

600x400 mm – for floor and sectional evacuation plans;

400x300 mm – for local evacuation plans.

14.8.9. At the stage of facility operation, evacuation plans must be made on the basis of photoluminescent materials.

At the stages of design, construction and renovation of the facility, and during new FES installation, use of evacuation plans based on photoluminescent materials is mandatory.

14.8.10. Evacuation plan background must be yellow-white or white for photoluminescent materials.

14.8.11. Evacuation plans must be posted on the walls of rooms and corridors, on columns and in strict compliance with location specified on the evacuation plan.

It is recommended to post evacuation plans next to evacuation exits and in places where the direction to evacuation exit is not obvious.

14.8.12. Sample evacuation plan is shown in figure 104.

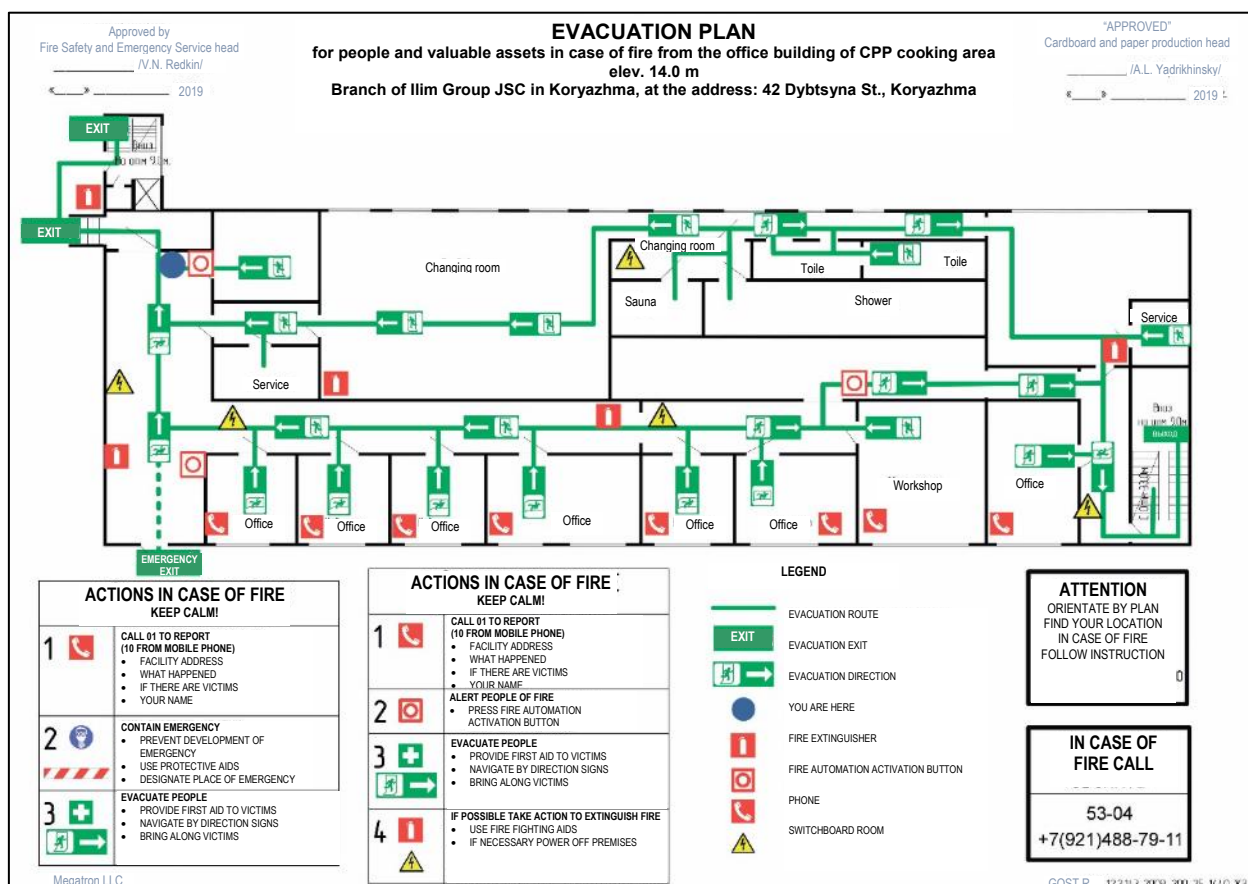


Figure 104 – sample evacuation plan

14.9. Placement of FES elements in buildings and structures.

14.9.1. Warning signs and direction signs must be placed with intervals sufficient for ensuring stability and continuity of information at a height from 1.2 to 1.8 m above floor level.

Dimensions and frequency of safety signs and direction signs placement at the upper, middle and lower levels must be determined according to table 3 clause 9.2.5 of this Standard.

14.9.2. Low direction lines with direction information must be placed in addition to evacuation signs along the entire route for its clear designation. Interruptions must not exceed 0.2 m, unless there are doors along the evacuation route. Door leaves must be marked with a direction line.

Maximum height of low signs is 0.4 m above floor level.

It is advisable to apply direction lines to both sides of the evacuation route. Evacuation route with a width of up to 2 m can have direction line only on one side.

14.9.3. High warning signs and direction signs must be located so as to point out the change in the direction of the evacuation route or to intermediate and final muster points of the evacuation routes, and they must be installed on all doors of evacuation exits at the evacuation route and on the final exit.

14.9.4. Doors of evacuation and emergency exits along the evacuation route and final evacuation exit doors must be designated by marking with stripes of photoluminescent material on frames with minimum width 25 mm.

There must be a clearly designated area for placement of the door opening mechanism, method and direction of its opening, with an installed sign specifying how the door will open.

14.9.5. FES must exclude alternative options of direction that can cause uncertainty and insecurity during evacuation.

14.9.6. In multistoried buildings, FES must include the floor numbering system in all stairwells. Each floor or main corridor leading to the evacuation exit must have an evacuation plan to help navigate.

14.10. Warning signs for fire-fighting and emergency equipment, communication aids intended for use in emergency, must be placed in the same location with the equipment.

14.11. People muster points must have the corresponding sign for safe location. Direction signs must navigate people out of exits, fire exits and emergency exits to the muster point.

14.12. If it is impossible to locate direction lines and signs on the wall, use floor direction marking in form of arrows and/or limiting lines that help designate safe zone of movement to the evacuation exit. Dimensions of floor directional marking shall be as per table 3, clause 9.5.5. of this Standard. Width of limiting lines shall be minimum 50 mm.

14.13. FES elements brightness must be at least as specified in GOST 12.2.143-2009:

- light intensity in 10 min after shutdown of light sources – 200–230 mcd/m;
- light intensity in 60 min after shutdown of light sources – 25–35 mcd/m;
- afterglow time – minimum 1440 min.

14.14. FES should be visually inspected and cleaned from dust and dirt at least once per month.

14.15. Sample application of FES elements are shown in figure 105.

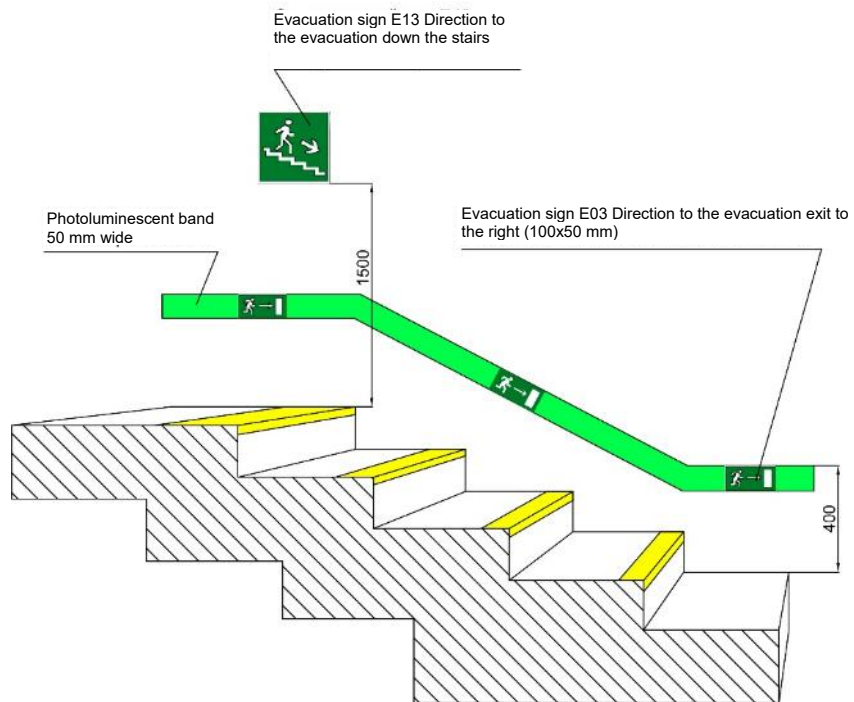
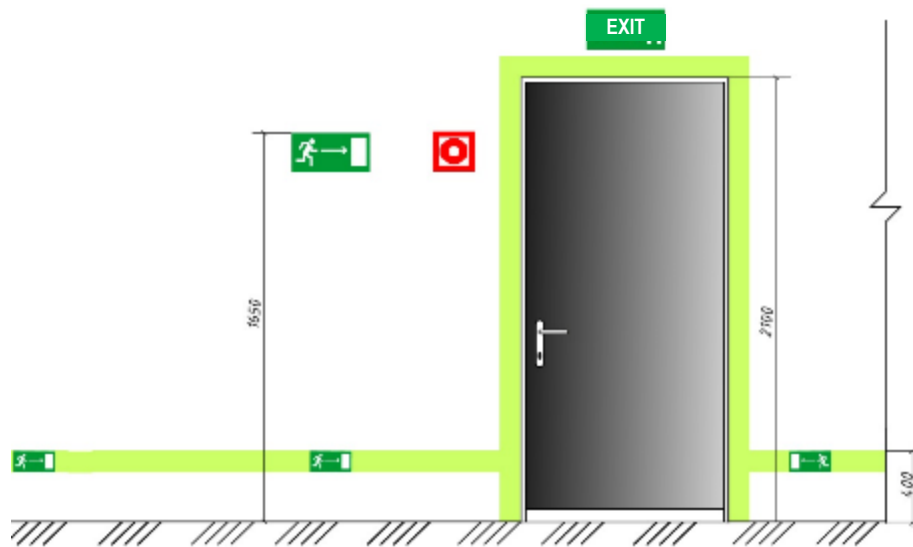
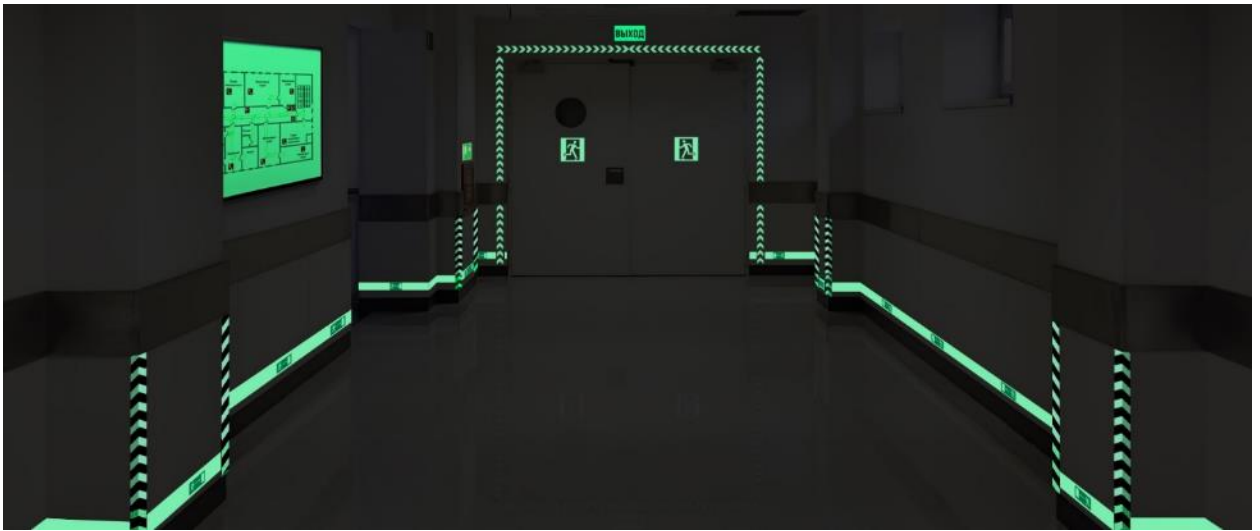


Figure 105 – samples application of FES elements.

15. Requirements to visualization of civil defence objects

15.1. All civil defence shelters must be identified.

Identification is performed by installation of an information signboard (fig. 106) in a visible place near all entrances to civil defence shelters.

The information signboard is a rectangle of minimum 50x60 cm, inside of which shall be:

- inventory number of the installation;
- installation owner (organization, production shop, housing body, address etc.);
- storage locations of keys (telephones, addresses, positions and full names of responsible persons).

Signboard field must be white. Written instruction should be black. Height of letters – 3–5 cm, width – 0.5–1.0 cm.

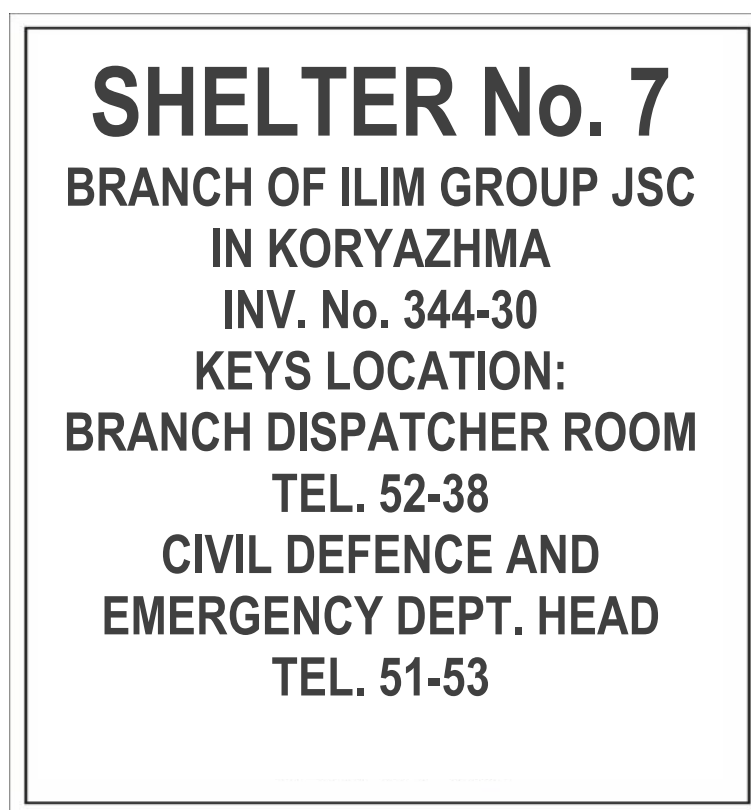


Figure 106 – sample information signboard for designation of civil defence shelters

15.2. All safety and pressurized safety gates, doors and shutters of shelters shall be marked with a sequential number to be applied with white paint on the outer and inner side: “Door No. 1”, “Shutter No. 2” etc. Marking should be applied to all internal equipment of the shelter (fig. 107).



Figure 107 – sample numbering of civil defence shelter doors

15.3. Routes towards shelters shall be selected on the basis of minimum possible time of movement from the workplace or residence of people to be sheltered.

Routes shall be designated with direction signs (fig. 108) in places with good night and day visibility (over night the direction signs shall be illuminated as per requirements of blackout).

Direction signs shall be installed at each change of the route direction. Sign dimensions: length – 50 cm, width – 15 cm. White field with black letters: SHELTER or COVER and distance in meters to the entrance to civil defence shelters.



Figure 108 – sample direction sign to civil defence shelters

15.4. Signs and direction marking of civil defence shelters shall be made using photoluminescent materials (fig. 109).



Figure 109 – sample information signboard of a civil defence shelter using photoluminescent materials

15.5. Interior of shelters shall be made of non-flammable or slow burning materials, whereas walls, ceilings and partitions must be mostly painted in light colors.

15.6. Walls and ceilings in filtering ventilation chambers shall be painted in polyvinyl acetate paints.

15.7. Metallic doors and shutters shall be painted with synthetic paints (glyptal, alkyd-styrene etc.). It is forbidden to paint rubber parts of seals, rubber shock absorbers, cotton, rubber-treated or rubber flexible inserts, metal sleeves, plates with manufacturer name and technical data of equipment.

15.8. Elements of engineering systems inside civil defence shelters shall be painted in different colors (fig. 110):

- white – air intake pipes for clean ventilation and air ducts inside rooms for sheltered people;
- yellow air intake pipes in filtering ventilation mode (downstream of absorption filters), reservoirs of fuels and lubricants for DES;
- red – regeneration mode pipes (downstream of heat capacity filter) and fire extinguishment system;
- black – electrical wiring pipes and sewerage pipes, reservoirs for black waters;
- green – water piping, water storage reservoirs;
- brown – heating pipes;
- gray – pressurized safety doors, pressurized doors, shutters, gates, excess pressure valves.



Figure 110 – samples designation painting of engineering systems within civil defence shelters

16. Requirements to visualization projects design

The developed project for marking of hazard areas and use of visual aids (hereinafter the projects) shall not contradict the law of the Russian Federation.

All technical solutions in the developed projects must conform to the Standard “Visual aids management and procedure for use of safety signs in the Ilim Group JSC facilities”.

Projects shall be developed:

- by trained and certified specialists of the Company having sufficient qualifications and experience in development of visualization projects;
- dedicated company having the necessary personal with proper qualification, engineering staff with minimum 2 years of work experience in design companies, industrial enterprises, knowledge of regulations and GOSTs, higher engineering education and experience in development of facility visualization project and photoluminescent evacuation systems.

All projects must be approved by the head of the structural subdivision owning the project, and by the occupational and industrial safety directorate, fire and emergency service, production performance and improvement directorate, communications and public relations directorate of the branch.

Textual and graphic materials included in the project, in general, must include:

- cover;
- title page;
- project scope;
- textual part;
- graphic part (scheme);
- specification of materials;
- visualization of solutions;
- technical requirements to materials.

1. Textual part.

The textual part shall include:

- introduction;
- project purpose;
- main technical solutions;
- preferred method for installation of visualization elements;
- regulatory documentation.

2. Graphic part.

Content, location and size of the main text lines, additional lines, and size of frames must meet the requirements of GOST R 21.1101-2013 (Construction design and estimate documentation).

Schemes of facilities must be made in optimal scale taking into account their complexity and information intensity, and must be up-to-date. Project development using an outdated scheme is not allowed.

Visualization elements placement schemes must be made on separate layers depending on the type of element.

Each layer must have its separate legend.

3. Materials specification.

Master specification must specify all materials which will be used in the project.

It shall specify the material for signs, plates, their overall dimensions and quantity.

Each item of the specification must contain an explanatory illustration of the element.

In case of project development for the 2-storeyed building or higher, or for a building separated into individual rooms (departments, sections, shop floors), it is advisable to make local specification of materials for each floor/section (department, shop).

4. Visualization of design solutions.

All standard design solutions must be visualized in real photographs taken at the site for which the project is being developed.

Visualization is made using a graphic editor.

Each visualized image must contain explanatory text describing the applied solutions for visual aids placement.

In presence of a 3D design of the facility, visualization shall be also made in the 3D design.

5. Technical requirements for materials.

Minimum technical requirements to materials of safety signs, road signs, information signboards and plates shall be specified.

Minimum technical requirements to paint materials used for road, horizontal and vertical marking, shall be specified.

Minimum technical requirements to photoluminescent materials shall be specified.

17. Appendices

Appendix 1. Company corporate colors

Corporate colors are determined according to the Ilim Group JSC brand book

MAIN COLORS



Pantone 376 C
CMYK – 53/0/85/0
RGB – 147/187/82
RAL – 6018



Pantone 349 C
CMYK – 92/0/88/50
RGB – 33/87/44
RAL – 6002



Pantone Cool Gray 9 C
CMYK – 0/0/0/60
RGB – 128/128/128
RAL – 7045

ADDITIONAL COLORS



Pantone Cool Gray 3 C
CMYK – 0/0/0/15
RGB – 222/222/222
RAL – 7001








Pantone 1795 C
CMYK – 0/94/75/0
RGB – 190/63/63
RAL – 3000















Silver: Pantone 877 C
CMYK – 10/0/0/40
RGB – 158/163/168
RAL – 9023

Appendix 2. Basic safety signs

Restriction signs






Sign code	Color design	Meaning	Place of location (installation) and guidance for use
P01		Smoking prohibited	Use when smoking can cause fire On doors and walls of premises, areas with flammable and highly combustible substances, or in rooms where smoking is prohibited
P02		Do not use open fire or smoke	Use when open fire or smoking can cause fire. On entrance doors, walls of premises, areas, workplaces, vessels, production containers
P03		No entry	On entry to hazard areas, rooms, sections etc.
P04		Do not extinguish with water	In locations of electrical equipment, warehouses and other places where water must not be used for fire extinguishment
P05		Do not use as potable water	On technical water duct and technical water reservoirs unsuitable for drinking and domestic needs







P06		Unauthorized access prohibited	On doors of premises and entrances to facilities, areas etc. to designate restriction to enter (pass) into hazard areas or to designate service entrance (passage)
P07		No entry to floor vehicles	In places where floor vehicles (e.g. forklifts or floor-level transporters) are prohibited
P08		Do not touch. Danger	On equipment (equipment assemblies), doors, boards or other surfaces dangerous to touch
P09		Do not touch. Housing under voltage	Surface of housing, boards, etc., where there is a possibility of electric shock
P10		Do not power on!	On control and activation panels of equipment or mechanisms, during repair and commissioning works
P11		Presence (work) of people with pacemakers prohibited	In places and on equipment where people with implanted pacemakers are prohibited to work or stay







P12		It is prohibited to obstruct passages or use them for placement of cargoes	On evacuation routes, at exits, in fire fighting equipment locations, locations of first aid kits etc.
P13		Ascent (descent) of people along pit shaft is prohibited (passenger transportation is prohibited)	On doors of cargo lifts and other lifting mechanisms
P14		Entry (passage) with animals is prohibited	On gates and doors of buildings, structures, rooms, facilities, territories etc. where animals are undesirable and where it is prohibited to enter (pass) with animals
P16		Presence (work) of people with metal implants prohibited	In places, areas and on equipment where people with implanted metal objects are prohibited to work or stay
P17		Water splashing prohibited	In places and areas where water splashing is prohibited
P18		Do not use mobile (cell) phones or portable transceiver	On doors of premises, at entrances to facilities where it is prohibited to use communication aids with own radio frequency electromagnetic fields







P21		Restriction (other hazards and hazardous actions)	Use to designate hazard not stipulated by this Standard. The sign shall be used in combination with a written instruction or additional safety sign and written instruction
P27		Do not carry any metal objects (watches, etc.)	On entrance to facilities, at workplaces, on equipment, devices etc. Sign scope of application can be extended
P30		Food intake prohibited	In places and areas of work containing substances harmful to health, and in places where meals are prohibited. Sign scope of application can be extended
P32		Do not approach elements of equipment with high amplitude swing motions	On equipment and workplaces servicing equipment with elements that make high amplitude swing motions
P33		Do not handle. Free-flowing mass (frail packaging)	On production containers, in warehouses and other places where free-flowing materials are used
P34		Do not use lift for ascent (descent) of people	On doors of cargo lifts and other lifting mechanisms The sign is included in the group safety sign "Do not use lift during fire, use stairs"







Warning signs

Sign code	Color design	Meaning	Place of location (installation) and guidance for use
W01		Fire hazard. Highly flammable substances	Use to attract attention to rooms with highly flammable substances. On entrance doors, doors of cabinets, reservoirs etc.
W02		Explosives	Use to attract attention to explosive substances, rooms and areas. On entrance doors, walls of rooms, doors of cabinets, etc.
W03		Danger. Poisonous substances	In places of storage, emission, production and use of poisonous substances
W04		Danger. Caustic and corrosive substances	In places of storage, emission, production and use of caustic and corrosive substances
W05		Danger. Radioactive substances or ionizing radiation	On doors of premises, doors of cabinets and other places where radioactive substances are located or used, or ionizing radiation is present. Radiation hazard sign after GOST 17925 can be used






W06		Danger. Falling load hazard	Hear hazard areas where lifting and transportation equipment is used, in construction sites, areas, production shops, workshops etc.
W07		Caution. Fork-lift truck	In rooms and areas used for cargo handling operations
W08		Electrical shock hazard	On power transmission line supports, electrical equipment and devices, doors of power cabinets, electrical panels and boards, and on enclosures of current-conducting parts of equipment, mechanisms, and devices
W09		Caution. Hazard (other hazards)	Use to attract attention to other hazards not specified in this Standard. The sign shall be used in combination with an additional safety sign and written instruction
W10		Danger. Laser radiation	On doors of premises, equipment, devices and in other places where laser radiation can occur
W11		Fire hazard. Oxidizer	On door of premises, doors of cabinets to attract attention to presence of an oxidizer







W12		Caution. Electromagnetic field	On doors of premises, equipment, devices and in other places where electromagnetic fields can occur
W13		Caution. Magnetic field	On doors of premises, equipment, devices and in other places where magnetic fields can occur
W14		Warning. Low visibility obstacle	In places where low visibility obstacles can cause tumbling over
W15		Warning. Hazard of falling from height	Before entrance to hazard areas and in places where falling from height can occur
W16		Warning. Biological hazard (infectious substances)	In places of storage, production and use of biological substances harmful to health
W17		Warning. Cold	On doors of fridges and freezers, compressor installations and other refrigeration systems


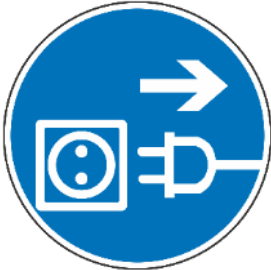

W18		Warning. Allergic (irritating) substances harmful to health	In places of storage, production or use of allergic (irritating) substances harmful to health
W19		Gas cylinder	On gas cylinders, warehouses or areas of storage and use of compressed or liquefied gases. Cylinder color: black or white, to be selected as per GOST 19433
W20		Warning. Batteries	In premises and areas of production, storage and use of batteries
W22		Warning. Milling shafts	In work areas and equipment that have unenclosed milling shafts, e.g. on wood processing, road or agricultural equipment
W23		Caution. Restraint hazard	On doors of tourniquets and bar gates
W24		Warning. Tumbling hazard	On roads, ramps, in warehouses and areas with possible tumbling of in-plant vehicles

W25		Caution. Automatic activation (startup) of equipment	In workplaces, equipment or individual assemblies with automatic startup
W26		Warning. Hot surface	In workplaces and on equipment with hot surfaces
W27		Warning. Possible hand injury	On equipment, assemblies, lids and doors where hand injury can occur
W28		Warning. Slippery surface	In territories and areas where slippery surfaces can be present
W29		Warning. Entanglement hazard	In workplaces and on equipment with rotating elements, e.g. rolling mills
W30		Warning. Narrow passage (driveway)	In territories, areas, production shops and warehouses with narrow passages (driveways) or protruding structures that impede passage (drive-through)



Prescription signs







Sign code	Color design	Meaning	Place of location (installation) and guidance for use
M01	 A white silhouette of a person's head and shoulders wearing safety glasses, centered within a blue circle with a white border.	Work in safety glasses	In workplaces and areas where eye protection is mandatory
M02	 A white silhouette of a person's head and shoulders wearing a safety helmet, centered within a blue circle with a white border.	Work in safety casque (helmet)	In workplaces and areas where head protection is mandatory
M03	 A white silhouette of a person's head and shoulders wearing large earplugs, centered within a blue circle with a white border.	Use hearing protection	In workplaces and areas with excess levels of noise
M04	 A white silhouette of a person's head and shoulders wearing a respirator mask with a circular filter, centered within a blue circle with a white border.	Use respiratory protective equipment	In workplaces and areas where respiratory protection is mandatory
M05	 A white silhouette of a safety boot, centered within a blue circle with a white border.	Work in safety shoes	In workplaces and areas where personal protective equipment is mandatory

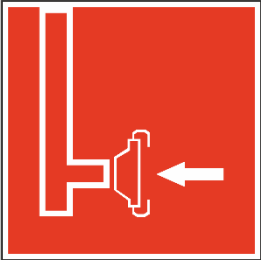
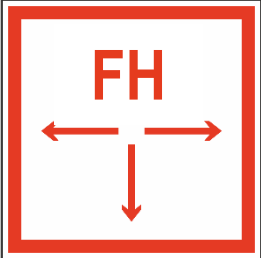
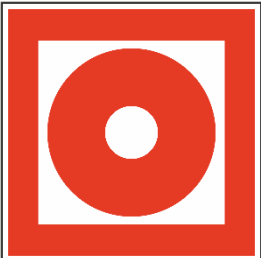
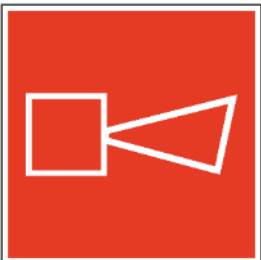

M06		Work in protective gloves	In workplaces and areas where hands must be protected from harmful or aggressive environments, or from electric shock
M07		Work in safety clothing	In workplaces and areas where personal protective equipment is mandatory
M08		Use safety shield	In workplaces and areas where face and eye protection is mandatory
M09		Don protective (fall arrest) harness	In workplaces and areas where safe work requires use of protective (fall arrest) harnesses
M10		Pass here	In territories and areas where passage is allowed
M11		General prescription sign (other prescriptions)	For prescriptions out of scope of this Standard. The sign shall be used in combination with an additional safety sign and written instruction on it

M12		Use pedestrian overpass	In areas and territories where pedestrian overpasses are installed
M13		Plug off	In workplaces and equipment where plugging off from mains is required during adjustment or shutdown of electrical equipment and in other cases
M14		Switch off before work	In workplaces and on equipment during repair or commissioning works





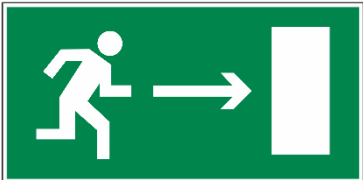

Fire safety signs









Code	Color design	Meaning	Place of location (installation) and guidance for use
F01-01		Direction arrow	Use only in combination with other fire safety signs to indicate direction towards location (placement) of fire fighting equipment
F01-02		Direction arrow 45°	Use only in combination with other fire safety signs to indicate direction towards location (placement) of fire fighting equipment







F02		Fire hose station	In locations of fire hose and nozzle stations
F03		Fire stairs	In locations of fire stairs
F04		Fire extinguisher	In locations of fire extinguishers
F05		Telephone to use during fire (including direct fire brigade call telephone)	In locations of telephone which can be used to call fire brigade
F06		Location of several fire fighting aids	In places of simultaneous location of several fire fighting aids
F07		Fire water source	In locations of fire reservoir or pier for fire fighting vehicles






F08		Fire dry riser	In locations of fire dry riser
F09		Fire hydrant	In locations of underground fire hydrants The sign should bear figures designating distance from sign to hydrant, m. Distance from sign to fire vehicle road edge must not exceed the sign recognition distance
F10		Automatic fire-fighting aids and systems activation button	In places of manual activation of fire alarm, fire extinguishment installations and smoke protection systems. In places (locations) of fire alarm signaling
F11		Sound fire alarm annunciator	In locations of sound fire alarm annunciator or in combination with sign F10 "Automatic fire-fighting aids and systems activation button"
F12		Personal protective equipment location	In personal protective equipment locations (respiratory and eye protection during fire, breathing apparatus)

Evacuation signs






Sign code	Color design	Meaning	Place of location (installation) and guidance for use
E01-01		Exit here (left-side)	Above doors (or on the doors) of evacuation exits opening from the left side. On walls of rooms in combination with arrow to direct towards evacuation exit
E01-02		Exit here (right-sided)	Above doors (or on the doors) of evacuation exits opening from the right side. On walls of rooms in combination with arrow to direct towards evacuation exit
E02-01		Direction arrow	Use only in combination with other evacuation signs to indicate direction
E02-02		Direction arrow 45°	Use only in combination with other evacuation signs to indicate direction
E03		Direction to the evacuation exit to the right	On walls of rooms to direct towards evacuation exit
E04		Direction to the evacuation exit to the left	On walls of rooms to direct towards evacuation exit


E05		Direction to the evacuation exit to the right and up	On walls of rooms to direct towards evacuation exit using a tilted surface
E06		Direction to the evacuation exit to the left and up	On walls of rooms to direct towards evacuation exit using a tilted surface
E07		Direction to the evacuation exit to the right and down	On walls of rooms to direct towards evacuation exit using a tilted surface
E08		Direction to the evacuation exit to the left and down	On walls of rooms to direct towards evacuation exit using a tilted surface
E09		Direction sign of an evacuation exit door (right-sided)	Above evacuation exit doors
E10		Direction sign of an evacuation exit door (left-sided)	Above evacuation exit doors
E11		Direction to the evacuation exit straight	Above passages, openings, in large rooms To be placed on the upper level or suspended on the ceiling
E12		Direction to the evacuation exit straight	Above passages, openings, in large rooms To be placed on the upper level or suspended on the ceiling

E13		Direction to the evacuation exit down the stairs	On staircase landings and walls adjacent to a flight of stairs
E14		Direction to the evacuation exit down the stairs	On staircase landings and walls adjacent to a flight of stairs
E15		Direction to the evacuation exit up the stairs	On staircase landings and walls adjacent to a flight of stairs
E16		Direction to the evacuation exit up the stairs	On staircase landings and walls adjacent to a flight of stairs
E17		For access open here	On doors, walls of premises and in other rooms where access to or exit from a room requires opening a special device, e.g. breaking a glass panel etc.
E18		Push to open	On doors of premises to indicate door opening direction




E19		Pull to open	On doors of premises to indicate door opening direction
E20		Slide to open	On doors of premises to indicate actions for opening a sliding door
E21		Muster point	On doors and walls of premises and in other places to designate an intended muster point of people in case of fire, accident or another emergency
E22		Exit direction sign	Above evacuation exit doors or as part of combination safety signs to indicate direction towards evacuation exit
E23		Emergency exit sign	Above emergency exit doors

Medical and sanitary signs

Sign code	Color design	Meaning	Place of location (installation) and guidance for use
EC01		First aid kit	On walls and doors of premises to designate first aid kit locations
EC02		Stretchers for victims	On doors and walls of premises in location of stretchers for victims
EC03		Shower (hygienic procedure) room	On doors and walls of premises in locations of showers etc.
EC04		Eyewash station	On doors and walls of premises in locations of eyewash stations.
EC05		Medical office	On medical office doors

EC06		Telephone for calling a medical office (ambulance)	In locations of telephones
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Direction signs

Sign code	Color design	Meaning	Place of location (installation) and guidance for use
D01		Lunch room	On doors of lunch rooms, buffets, canteens, amenity areas and other places where food intake is allowed
D02		Potable water	On doors of amenity rooms and in locations of taps with water suitable for drinking and domestic uses (toilets, showers, lunch rooms etc.)
D03		Smoking area	Used to designate smoking areas