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| ***Branch  in Ust-Ilimsk*** |  | **APPROVED BY**  **Director for Occupational Health and**  **Safety**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_S.V. Vinnik**  **\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_2015** |

**INSTRUCTIONS**

for occupational safety

on working at height

**И ОТ 01-07-15**

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**INTRODUCTION**

The present instruction is developed on the basis of the Occupational Health and safety regulations in the pulp, paper and wood chemical industry POT RO 00-97, Occupational safety rules for working at height, approved by the Order of the Ministry of Labor and Social Protection of the Russian Federation of March 28, 2014 N 155n.

The Instruction establishes a unified procedure for organizing and conducting works at height by the Branch, subsidiaries and contractor employees in the production units of the JSC Ilim Group Branch in Ust-Ilimsk (hereinafter – the Branch).

Requirements set forth in this Instruction shall be mandatory for employees of all units of the Branch and contractors performing works in the territory of the Branch.

**TERMS AND DEFINITIONS**

**Anchoring device** is a component of the safety system attached to a solid surface that has sufficient strength to absorb the forces that arise from fall arrest. It can also be an element or series of elements or components that includes a point or anchor points; the minimum permissible static load on anchoring devices is 10 kN

**Anchorage point** is an element to which the personal protective equipment can be attached after mounting of the anchoring device.

**Fall arresting personal protective equipment (hereinafter referred to as PPE)** is a component of restraint or fall arrest systems, as well as positioning systems, access systems and rescue and evacuation systems designed to ensure safety while working at height and holding the person in such a way that falling from height is either prevented or safely arrested, and at steeple works – for independent moving and positioning of the worker with observance of a principle of continuous self-control.

**Safety systems for work at height** are fall-arresting personal protective equipment with various functions comprised into systems.

**Restraint system** is a system for limiting movement at height, designed to prevent the employee from getting into fall risk zone. System itself consists of a retaining harness, attachable subsystem for restricting movement (for example, retention sling) and an anchoring fastening device.

**Restraint harness** is a restraint system component that envelops its user’s body to prevent the worker from getting into fall risk zone.

**Safety system** is system for providing safety at height and during steeplejack works, designed to safely stop the fall and consisting of a safety harness and attached connecting and shock-absorbing subsystem that connects the harness and the anchor fastening device.

**Safety harness** is a safety system componentthat envelops its user’s body to prevent the worker from falling or to arrest the falling that already happened. A safety harness may include connecting slings, straps, buckles and other separate parts fixed appropriately to support the entire human body and to restrain the body during and after the fall.

**Harness for sitting position** is a safety system component that is used for providing comfort for the worker in position that requires a low anchorage point

**Connecting and shock-absorbing subsystem** is an element connecting the tether and the anchor device, which ensures arresting of the fall and the absorption of the force that occurs upon full stop to acceptable values in accordance with GOST R EN 363-2007.

**Rope access system** is an individual fall arrest system which includes two separate subsystems: one using a load rope and the other designed for provisioning of safety. These subsystems are used to get to the place of work or go back, and they can be used for positioning in the workplace and for rescue.

###### GENERAL OCCUPATIONAL SAFETY REQUIREMENTS

1.1 Works at height include works which:

a) impose risks associated with possible falling from the height of 1.3 or more meters, including:

- upon the worker climbing up for more than 5 meters or descending from the height of over 5 meters down the stairs with slope angle to horizontal surface over 75°;

- when conducting works on platforms at a distance of less than 2 m from unfenced level difference over 1.3 m, and also if the height of the protective fence of these areas is less than 1.1 m;

b) there are risks associated with the possible fall of an employee from a height of less than 1.3 m, if the work is carried out above machines or mechanisms, above surface of liquid or loose fine materials, protruding objects.

1.2 Depending on the labor conditions, all works at height are divided into:

a) works at height with usage of padding (for example, scaffolding, gantry, towers, lift cradles, stairs and other means of padding), as well as works carried out on platforms with protective fences of height 1.1 m and more.

b) works without the use of padding, performed at a height of 5 m and higher, as well as works performed at a distance of less than 2 m from unfenced level difference over 5 m at platforms without protective fences, or if the height of protective fences is less than 1.1 m.

1.3 Persons that reached age of eighteen, undergone medical inspection in accordance with the established procedure, and without any restrictions for works at height.

1.4 Workers that operate at height shall have corresponding works qualification. Qualification level shall be confirmed by professional education (training) and (or) qualification document.

1.5 Workers are allowed to work at height after:

a) training and with testing of knowledge of the occupational safety requirements.

b) training in safe methods and ways of working at height;

1.6 Prior to the commencement of work at height, training in safe methods and ways for performing work at height is carried out by workers:

a) admitted to work at height for the first time;

b) appointed from other works, if the said workers haven’t had a corresponding training before;

c) resuming work at height after on over-1-year break.

Employees who have mastered the safety requirements for performing work at height and successfully passed the knowledge and skills test are provided with certificate on permit for work at height.

1.7 Workers that are allowed to operate without padding at height of 5 m or higher and at a distance of less than 2 m from unfenced level difference over 5 m on platforms without protective fences, or with protective fences height of less than 1.1 m, as well as workers who organize technical and technological or organizational arrangements for these works at height, are divided into the following 3 groups on work safety at height (hereinafter – groups):

Group 1 consists of workers admitted to work within a group or under the direct supervision of the worker appointed by the employer's order (hereinafter referred to as workers of group 1);

Group 2 consists of experts, foremen, practice supervisors, as well as workers appointed as per the work permit by responsible сontractors with practical work at height (hereinafter referred to as workers of group 2)

Group 3 consists of workers appointed by the employer responsible for organization and safe work at the height, as well as for conducting briefings, planning of measures for evacuation and rescuing workers in the event of an emergency and during rescue operations; workers performing maintenance and periodic inspection of personal protective equipment (hereinafter – PPE); employees issuing work permits; responsible supervisors of work at height performed as per the work permits; officials who have the authority to approve the plan for the production of works at height (hereinafter referred to as workers of group 3).

Workers of group 3 also include experts who conduct training for working at height, as well as members of the certification commissions of organizations that provide training in safe methods and ways for working at height, and employers.

Periodical trainings for workers of groups 1 and 2 in safe methods and ways for working at height shall be effected at least once in 3 years.

Periodical trainings for workers of group 3 in safe methods and ways for working at height shall be effected at least once in 5 years.

1.8. Training in safe methods and ways of working at height is completed by a test. Workers that pass the test receive a certificate permit for work at height as per the approved template. Workers that operate at height using rope access systems shall be additionally given a personal record book for works at height.

1.9 Upon completion of training in safe methods and ways of working at height, trainees have practice to confirm the theoretical knowledge necessary for the safe performance of work, as well as obtaining and developing practical skills and abilities in safe methods and ways of operational practices.

Practice duration shall not be less than two full work days (shits).

Supervisor for practical studies for workers of groups 1 and 2 is appointed from foremen, experts, skilled workers with practical work at height experience of at least 1 year.

1.10 Knowledge of safe methods and ways of working at height shall be tested not less than once a year. This test of knowledge of safe methods and ways of working at height is carried out by the affiliated commissions of the branch: for workers – as part of an annual knowledge test for occupational safety requirements; for managers and specialists – annually, as per the decree for running a knowledge test of occupational safety requirements among managers and specialists.

Knowledge test results on safe methods and ways of working at height shall be documented with a protocol indicating the date of the knowledge test, full name of the person that passed the knowledge test and the results of the knowledge test. Test protocol shall be signed by the members of the attestation commission, who have been adequately trained in safe methods and ways of working at height in the organization that carries out educational activities.

1.11 Novice workers shall be familiarized with:

a) occupational safety instructions;

b) general information on the technological process and equipment at their workplace, production site, workshop;

c) production instructions;

d) workplace occupational conditions;

e) main requirements for occupational and personal hygiene;

f) circumstances and indicative causes of accidents, emergencies, fires that occurred at height in organizations (enterprises), cases of occupational injuries suffered while working at height; duties and actions in case of an emergency, fire; methods of operating fire extinguishing equipment available on the site, emergency protection and signaling tools, their location, emergency evacuation schemes and routes;

g) main dangerous and harmful occupational aspects typical for working at height;

h) zones of increased danger, machines, mechanisms, devices; safety means for the equipment (safety lock, brake tools and fencing, locking and alarm systems, safety signs);

i) safe methods and ways of works performance.

Novice workers shall have practical skills in the use of equipment, devices, mechanisms (checking the serviceability of equipment, starting devices, tools and applications, locks, earthing and other protective equipment) and providing first aid to injured, practical skills of using corresponding PPEs, their inspection before and after use.

1.12 Workers of the group 1 on work safety at height (workers admitted to work within a group or under the direct supervision of the worker appointed by the employer's order) shall additionally be familiarized with:

- methods and means for preventing emergencies and occupational diseases;

- basic technics of evacuation and rescue.

1.13 Workers of group 2 on work safety at height (supervisors, foremen, interns, as well as workers appointed by work permit to operate at height by the responsible contractors for works at height) shall be familiarized with the following, in addition to the requirements for the workers of the group 1 on work safety at height:

- requirements of from regulatory documents, rules, standards and regulations on occupational and work safety; order of investigation and registration of accidents and occupational diseases;

- rules and requirements for the use, application, operation, issuance, care, storage, inspection, testing, rejection and certification of protective equipment;

- organization and maintaining of workplaces; collective means of protection, fences, safety signs.

Workers of the group 2 on safety for works at height shall have experience on works at height of more than 1 year, be able to supervise the work, carry out rescue activities, organize safe transportation of an injured person, and also have practical skills in providing first aid to the injured.

1.14 Workers of the group 2 on safety for work at height, in addition to the requirements for employees of the group 2, shall:

a) have a full understanding of the risks of falling and be able to inspect the workplace;

b) be fully acquainted with the work rules, occupational safety requirements;

c) be fully acquainted with the actions that provide safety of works;

d) be able to organize safe conduct of works, develop a work plan; to issue work permits, to supervise the members of the group;

e) be able to clearly identify and state the requirements for safety measures when conducting targeted training for the workers;

f) to be able to train personnel in safe methods and ways of performing work, practical methods of providing first aid;

g) have knowledge in PPE inspection actions.

Requirements for trainers and employees of the group 3 on work safety at height: over 21 years old, experience in working at height or organizing technical and technological or organizational arrangements for work at height of more than 2 years.

1.15 Prior to the commencement of works at height, the following technical, technological and organizational actions shall be carried out:

a) technical and technological actions, including the development and implementation of plan of works at height (hereinafter referred to as "method statement for works at height") performed in workplaces with working areas of varied elevation (hereinafter – non-permanent workplaces); fencing of the place of production; hanging warning and prescriptive posters (signs); use of collective and personal protection equipment;

b) organizational actions, including appointment of persons responsible for organizing and safety of works at height, for issuing work permits, drawing up of action plan for the evacuation and rescue of workers in the event of an emergency situation and during rescue operations, as well as providing maintenance and periodic inspection of PPE.

**1.16 Carrying out works at height as per the work permit.**

1.16.1 Works at height are carried out according to the work permits for carrying out works of increased risk in accordance with the Instruction “Procedure for carrying out works of increased risk. List of works of increased risk” И OT 01-06.

If works at height are carried out simultaneously with other types of work requiring issuance of a work permit, then one permit can be issued with mandatory indication of information on the performance of works at height, measures to ensure the safety of work at height and the appointment of persons responsible for the safety of work performance.

When performing works at height specified in the List of Works at Height, as per the work permit in the JSC Ilim Group Branch in Ust-Ilimsk (hereinafter – the List), given in Annex 1, it is mandatory to fill in the cl. 3.1 of the work permit. Cl. 3 in the Provided Safety Measures shall contain the points and methods of safety system anchoring.

Method statement shall be drawn up for the works stipulated in the List. Contents of the Method statement for works at height is set forth in the Annex 2.

1.16.2. It is not allowed to change the complex of actions set forth in the work permit and method statement, ensuring occupational safety at height.

1.16.3 Upon detection of dangerous production factors and harmful working conditions that were not stipulated in the work permit, the work shall cease as per the decision of the work supervisor, the work permit shall be canceled, and the work shall be resumed after the issuance of a new work permit.

1.16.4 Upon violations of safety measures for works at height specified in the work permit and the method statement for works at height, or upon other circumstances that increase risk for safety of workers, members of the team shall be removed from the work site by the responsible contractor. Only after the violations are resolved, the team members can be re-admitted to work.

1.17 Persons guilty of violation of occupational safety requirements shall be held liable in accordance with the current legislation of the Russian Federation.

**2 OFFICIALS RESPONSIBLE FOR OPERATIONAL SAFETY,**

# THEIR RIGHTS AND LIABILITIES

2.1 Officials responsible for organization and safe conducting of works at height are:

a) for drawing up of occupational safety documents, Director for Occupational Health and Safety

b) for drawing up of plan of actions on evacuating and rescuing workers in case of emergency or rescue operation, Head of the Fire Safety And Emergency Response Service

c) for approval of the Method Statements on work at heights for non-permanent workplaces – Maintenance manager;

d) for drawing up and implementation of technological charts for the production of works at height for permanent workplaces; for registration of work permits; for the provision of collective and personal protection equipment in accordance with the instructions in the manufacturer's operational documentation, as well as for the timeliness of their maintenance, periodic inspections, rejection of unsuitable PPE; for the maintenance of personal work at height log books – the head of the production unit, in which works at height are carried out;

e) for the timely training of employees in safe methods and ways of performing work at height – the head of the production unit, to whom the worker that performs works at height reports;

f) for conducting trainings, Supervisor for Works at Height.

2.2 For the organization of safe works at height performed with the issuance of the work permit, the following shall be appointed:

a) officials authorized to issue a work permit, from managers and experts;

b) responsible works supervisor, from managers and experts;

c) responsible contractor (performer of works) from the workers (foremen, team leaders and highly skilled workers).

The aforecited officials shall have special training.

**2.3 Officials entitled to issue work permits:**

2.3.1 Work permits for works at height can be issued by head of the unit (or their supervisor) where the works at height will be performed.

**2.3.2 Officials that issue work permits shall:**

a) stipulate technical and technological actions aimed to ensure the safety of workers and the place of works, in the method statement;

b) appoint a responsible work supervisor;

c) determine the number of work permits issued for one responsible work supervisor for the simultaneous production of work;

d) appoint a responsible performer of works;

e) determine the place of works production and the scope of work to indicate equipment and mechanical tools used in the work permit;

f) issue two copies of the work permit to the work supervisor, which shall be recorded in work permit works registration log;

g) familiarize the work supervisor with the design and technological documentation and fencing scheme attached to the work permit;

h) organize control over the implementation of security measures for the execution of works stipulated in the work permit;

i) upon completion of works, accept a closed work permit from the work supervisor, against an entry in the work permit works registration log.

2.3.3 The officials issuing the permit are responsible for:

a) timely, correct documenting and issuance of a work permit;

b) actions specified in the work permit, ensuring the safety of workers during performance of works at height;

c) composition of the team and appointment of workers responsible for safety;

d) organization of control over fulfillment of safety measures specified in the work permit;

e) storage and accounting of work permits.

**2.4 Work supervisor:**

2.4.1 Work supervisor can be appointed from engineering technicians of the unit: shift leader, senior foreman, shift foreman, shifter, foreman, mechanist, etc.

**2.4.2 A work supervisor shall:**

a) receive work permit from the official that issues work permits, and register it in the work permit accounting log book;

b) familiarize themselves with the method statement for works at height, design and technological documentation, plan for emergency response and rescue operations, with log books necessary for work, and ensure that this documentation is available when the works are carried out;

c) check the equipment level of the team members indicated in the work permit with tools, materials, protective equipment, signs, fences, and also check the members of the team for the availability and validity of certificates on admission to work at height;

d) provide instructions to the responsible executor of the works for the preparation and reparation of the tools, materials, means of protection, signs and fencing specified in the work permit;

e) upon arrival at the place of production, organize, provide and monitor the execution of technical actions aimed at preparation of the workplace for works commencement, completeness of the method statements for works at height and PPE against falls from height, including an emergency kit of rescue and evacuation equipment, completeness of the first aid kit, correct arrangement of safety signs, protective fences and fences for work sites issued in accordance with the work permit, by means of personal inspection;

f) check the compliance of the team's composition against composition specified in the work petmit;

g) bring information about the safety measures for the work at the height to the attention of the team members, conduct a targeted briefing for the team members against their signature in the work permit;

h) when conducting targeted briefings, explain work procedure and procedure for emergency and emergency situations to the team members, and to bring to their attention their rights and obligations;

i) after a targeted briefing, check the completeness of team members knowledge of the safety measures for works at height;

j) organize and ensure the implementation of safety measures at height specified in the work permit, during preparation of the workplace for the works commencement, during production of work and upon its completion;

k) admit the team to work as per the work permit directly at the work site;

l) stop the works upon detection of additional hazardous production factors not stipulated in the issued work permit as well as upon changes in the team composition, until a new work permit is issued;

m) during work, organize documented breaks and admission of employees to work after the end of such breaks;

n) after the end of the work, organize cleaning and sorting of materials, tools, fixtures, fences, garbage and other items, withdrawal of team members from their place of work.

2.4.3 Work supervisor shall be responsible for:

a) performance of all security measures specified in the work permit and their sufficiency;

b) additional security measures adopted as was required per working conditions;

c) completeness and quality of the targeted briefing for the team members;

d) organization of safe works at height.

**2.5 Responsible contractor is a team member.** They shall comply with the orders given by the work supervisor. From the moment the team is admitted to work, the responsible contractor shall constantly be present at the workplace and carry out continuous monitoring of the work of the team members, their adherence to safety measures and observance of the production technology. In case if responsible contractor needs to leave the work site and can not transfer the performance of their duties to the works supervisor or a worker entitled to issue a work permit, it is required to remove the team from the work site.

For the time of responsible contractor temporary absence in the workplace, they shall hand over the work permit to the backup worker with an appropriate entry in it indicating the time of handover of the work permit.

2.5.1 A responsible contractor shall:

a) in the presence of the work supervisor, check preparation of workplaces, implementation of security measures stipulated in the work permit, availability of PPEs, equipment and tools, consumables required by the team members in the process of work and specified in the work permit;

b) indicate workplace for every team member;

c) prohibit the team members from leaving their work site without admission of the work supervisor, as well as prohibit performance of works not stipulated in the work permit;

d. withdraw team members from the work site for breaks during the work shift;

e) resume the work of the team after the break only upon a personal inspection of the workplace;

f) upon the end of the works, ensure cleaning and sorting of materials, tools, fixtures, fences, garbage and other items;

g) withdraw team members from the work site at the end of the work shift.

**2.6 Team member – worker.**

2.6.1 The members of the team may be persons who have undergone special training and knowledge testing in occupational safety requirements and who have no medical reasons that prohibit them to work at height.

**2.6.2 Team member – worker shall:**

a) perform only the work assigned to them;

b) maintain continuous visual communication, as well as voice communication or radio communication with other team members;

c) be able to use PPE, tools and technical equipment that ensure the safety of employees;

d) personally inspect the PPE provided before each use;

e) keep PPE, tools and equipment in good working order;

f) be able to provide first aid to the injured at work;

2.6.3 Worker that commences works as per work permit shall be familiarized with:

a) with job description or instruction in occupational safety as per their profession, type of work performed, local regulatory acts on occupational safety in the amount corresponding to the work performed;

b) with terms and conditions of occupational safety in the workplace, with the existing risk to health, with the rules and methods of safe work performance;

c) with measures aimed to protect against harmful and hazardous production factors;

d) with the availability and condition of collective and personal protective equipment, with instructions for their use;

e) with the rules of the corporate labor code and the performance schedule of the forthcoming work.

Each team member shall follow the instructions of the responsible contractor, as well as the requirements of instructions on occupational safety as per profession and the types of works they are admitted to perform.

**2.7 Works at heights performed by contractual organizations.**

2.7.1 Workers from contractual organizations are allowed to perform work at height in accordance with the requirements of this instruction and Instructions “Procedure for carrying out works of increased risk. List of works of increased risk” И OT 01-06.

###### 3 OCCUPATIONAL SAFETY REQUIREMENTS PRIOR TO COMMENCEMENT OF WORK

3.1 The worker shall check availability and serviceability of the personal protective equipment. Put on work clothes, work shoes, in case of working in harmful and / or dangerous conditions, personal protective equipment: protective helmet, goggles, earplugs, etc.

3.2 Conduct a visual and tactile inspection of safety systems for work at height. Inspection shall cover all metal, textile, plastic elements of the system. Inspection shall specifically be aimed at detection of: spots of unknown origin, traces of burning / melting, cracks, deformation, scratches; for the textile components, the condition of the sewn sections, cut / torn / stretched threads are also checked for.

Upon detection of defects in the safety system for work at heights, the system is handed over to the head of the unit against an entry in the Safety Systems accounting and maintenance log, with a description of the reason for the rejection (Log template is set forth in Annex 6).

3.3 Check the availability and serviceability of the tools necessary for performance of works. Tools and spare parts (bolts, nuts, nails, etc.) shall be packed into a work bag.

3.4 Check the condition of the workplace illumination. Artificial lighting shall not create glare and shadows that distort the view.

3.5. Check if the workplace is equipped with primary fire fighting means, as well as tools for communication and signaling, other technical security tools, and their serviceability.

3.6 Check the workplace tidiness. Storage of blanks, materials, tools and wastes shall be appropriately organized. It is not allowed to place and store unused materials, production waste, clutter out the ways of approach and exit of the workplace.

3.7 Check the integrity of the scaffold, gautry and other scaffolding tools from which the work will be carried out.

3.8 Check the presence and condition of fencing tools, ladders or gangways for people exiting and entering the scaffolding.

3.9 Check the serviceability and reliability of anchoring of the minor mechanical tools means (blocks, jigs, etc.) designed to lift the load to the scaffolding.

3.10 Make sure that there are no openings near workplaces and on the pass route. Openings in which the workers may fall shall be securely closed with solid deck or fenced and marked with safety signs.

3.11 Before commencing work at height, it is necessary to install fences and mark the boundaries of the hazard areas (places above which the cargo is moved by cranes, the places of possible falling of objects when working on buildings, structures, near moving parts of machinery and equipment, within 5 m).

3.12 Prior to the commencement of work per work permit and to detect any risks associated with the possible worker fall, it is necessary to inspect the workplace. The workplace shall be inspected by the work supervisor in the presence of the responsible contractor.

3.13 During inspection of the workplace, causes for the possible fall of the workers shall be identified, including:

a) unreliability of anchoring devices;

b) presence of brittle (collapsible) surfaces, hatches and openings that can be or are open, inside the work site area;

c) a slippery working surface with unfenced elevation differences;

d) possible loss of balance by the employee when carrying out work from scaffolding, gantry, ladders, side ladders, lift cradles; defect in their stability, their breaking or tipping;

e) collapse of the structure, equipment or their components when performing work directly on them.

3.14 During inspection of non-permanent workplaces, the following shall be taken into account:

a) weather conditions;

b) the possibility of workers, materials and items of production falling;

c) the use of welding equipment and burners, cutting tools or tools that can cause flying of small fragments;

d) sharp edges in structural elements which may cause, including but not limited to, the risk of damage to components and elements of protective equipment;

e) Potential hazards determined by location of anchoring devices (Annex 5):

fall factor (the characteristic of the height of a possible fall of a worker, determined by the ratio of the height of the worker's fall before the shock absorber actuation to the total length of the connecting elements of the safety system);

fall clearance absence factor (the fall clearance is calculated with regard to the total length of the sling and connectors, the length of the actuated shock absorber, height of the worker, and also the free space remaining to the underlying surface when the worker has reached equilibrium state after the fall was arrested);

pendulum factor in the fall (occurs when location of the anchor device relative to the location of the worker, causes the worker falling to be accompanied by a pendulum movement).

3.15 All the malfunctions detected before work shall be reported directly to the immediate work supervisor. Commencement of works is not allowed until all malfunctions are eliminated.

###### 4 OCCUPATIONAL SAFETY REQUIREMENTS DURING WORK

4.1 When carrying out works at a height, the worker shall use personal protective equipment issued in accordance with the approved standards and appropriate for working at height.

4.1.1 Depending on the specific working conditions at height, workers shall use the following PPE – compatible with the fall arresting safety systems:

a) protective clothes – depending on the present harmful factors of production;

b) protective helmet – to protect the head from injuries caused by falling objects or impacts against objects and structures, to protect the top of the head from damage by alternating current with a voltage of up to 440 V. Workers that work at height are required to use protective helmets with their chin strap closed. The inner rigging and chin strap shall be removable and be equipped with devices for attaching them to the helmet case. The chin strap shall be adjustable, its attachment method shall ensure its quick disconnection and prevent its spontaneous fall or dislodgement of the helmet from the head of the worker.

c) protective goggles, shields – to protect against dust, flying particles, bright light or radiation;

d) protective gloves or mittens, protective creams and other products – for the protection of hands;

e) special shoes with a metal toe cap – to protect the feet;

f) respiratory protective equipment – to protect from dust, fumes, vapors and gases;

g) anti-noise headphones or anti-noise inserts – for hearing protection;

h) protective equipment designed for electrical installations – when working in electrical installations;

i) high visibility waistcoats – when carrying out work in the traffic areas.

4.1.2 Safety system sling for electric gas welders and other workers performing fire works shall be made of steel rope, chain or special fire-resistant materials.

4.1.3. Workers without suitable PPE or with defective PPE are not allowed to work at height.

**4.2 Occupational safety requirements set forth for production facilities and production sites.**

4.2.1 When carrying out work at height, it is necessary to ensure the presence of protective, safety and signal fences and to determine the boundaries taking into account the largest dimensions of the transported cargo, the distance of the scattering of objects or hot metal particles, the dimensions of moving parts of machines and equipment. The location of the fences and safety signs is indicated in the technological chart for the works or in the method statement for works at height in accordance with the current technical regulations, standards and rules.

If it is not possible to use protective fencing, work at height is allowed with the use of security systems.

4.2.2 When carrying out works at height, risk areas directly under the working site shall be defined and appropriately designated and fenced. The boundaries of areas of increased risk in the places where objects are possible to fall worn during works at height shall be determined from the far point of the horizontal projection of the dimension of the moving (falling) object with the addition of the largest overall dimension of the moving (falling) cargo and the minimum distance of the object's side fall according to  [table](#sub_21011).

# Distance of the cargo, objects side fall depending on the fall distance

|  |  |  |
| --- | --- | --- |
| Possible cargo (object) fall distance, m | Minimum side fall distance of the moved (falling) cargo (object), m | |
| cargo transported by a crane in case of fall | objects in case of their fall from the building |
| Up to 10 | 4 | 3,5 |
| Up to 20 | 7 | 5 |
| Up to 70 | 10 | 7 |
| Up to 120 | 15 | 10 |
| Up to 200 | 20 | 15 |
| Up to 300 | 25 | 20 |
| Up to 450 | 30 | 25 |

4.2.3. To prevent the overheated metal particles from entering into adjacent rooms and floors during fire operations at height, all inspection, technological and other hatches (openings) in ceilings, walls and partitions inside the premises shall be covered with noncombustible materials, and the hazard area where sparks can be flying during electric welding (cutting) works, depending on the height of the welding process, must be cleared of combustible substances and materials within the boundaries in accordance with the regulations on fire safety.

4.2.4 When the works on the same elevation mark are performed simultaneously, the lower sites shall be equipped with appropriate protective devices (decks, nets, protective shields) installed not more than 6 m above the work site located below.

4.2.5 In order to prevent the workers and unauthorized persons from entering the hazard areas, such areas where workers can fall from height or can be injured by materials, tools and other items falling from height, as well as by structural parts being under construction, maintenance, repair, mounting or dismantling shall be provided with fencing.

If it is not possible to install fences that restrict workers access to increased risk areas, the responsible contractor (performer of works) shall monitor the location of workers and prohibit them from approaching areas of increased risk.

Construction sites, working sites located outside the fenced territory of an organization shall be fenced to prevent unauthorized access of third persons.

4.2.6 Railings shall be installed and removed as per the technological procedure providing for safety of execution of construction and installation works.

4.2.7 At height, installation and removal of fencing and protection devices shall be performed using safety systems.

Installation and removal of fences at height shall be carried out by specially trained workers under the direct supervision of the responsible contractor.

4.2.8 Materials, products, structures for receipt and storage in workplaces at height shall be received in the volumes necessary for the current processing and be packed so as not to clutter the workplace and passages to it, based on the bearing capacity of scaffolds, gantry, sites where the said cargo is placed.

4.2.9 Workplace shall be kept tidy and clean. Storage of blanks, materials, tools, finished products, production wastes shall be carried out in accordance with technological and route maps.

It is not allowed to place and store unused materials, production waste, it is prohibited to clutter the ways of approach and exit of the workplace.

4.2.10 Sites for storage of materials is provided in the Method statement for works at height.

4.2.11 Openings the employees may fall into shall be closed or fenced and shall be marked with safety signs.

4.2.12 Passages at sites and workplaces shall meet the following requirements:

a) width of single passages to workplaces and at workplaces shall be not less than 0.6 m, the distance from the floor of the passage to the overhead partitions (hereinafter – headway) shall be not less than 1.8 m;

b) ladders or staples used by workers to ascend to or descend from workplaces at a height of more than 5 m shall be equipped with security systems.

4.2.13 To safely move at a height from one workstation to another, if safety gates with protective fencing are not an option, safety systems shall be used, with rigid or flexible anchor lines as an anchor device, installed horizontally or at an angle of max 7° to the horizon.

**4.3 Safety requirements for scaffolding and gantry.**

4.3.1 Scaffolding shall be used for their intended purpose, and technical supervision shall be established for the conditions of their use in the organization.

4.3.2 Scaffolds, gantry and other devices for work at height shall be made under the standard projects and shall be registered in the organization inventory stock.

4.3.3 Manufacturer’s data reports should be available for the inventory scaffolds and gantry.

4.3.4 Non-inventory scaffolds are only permitted to be used in exceptional cases and they shall be constructed under an individual project with all key elements being rated for strength and the scaffolds in general for stability. The installation and dismantling of non-inventory scaffolds shall be carried out in accordance with the requirements of Regulation R 04.01-07-12 “Design, receipt and disassembly of scaffolding when performing work at fixed assets facilities”

4.3.5 Scaffolds and their component parts:

a) shall provide for the safety of workers during installation and disassembly operations;

b) shall be prepared and installed in accordance with the manufacturer’s certificate and have dimensions, strength and stability suitable for the intended use thereof;

c) rails and other protective structures, platforms, decks, consoles, props, bearers, ladders and entrance ramps shall be easy to install and safely fixed;

d) shall be maintained and operated so as to exclude collapsing and loss of stability thereof.

4.3.6 There shall be not less than two decks when performing the works on scaffolds with the height of 6 m and more: working (upper) and protective (lower) ones, and each workplace on the scaffolds adjacent to a building or a structure shall be additionally protected by the upper deck located at the distance up of not more than 2 m from the working deck.

No works in several layers on one vertical without intermediate protective decks between them shall be permissible.

In cases where the performance of works or movement of people or transport under the scaffolds and near them is not stipulated for, construction of protective (lower) deck is not necessary.

4.3.7 In case of work as several tiers at once, protection against falling objects shall be done by equipping platform, decks, scaffoldings and ladders with protective screens of sufficient dimensions and strength.

4.3.8 The scaffolds shall be equipped with the ladders or gangways for ascending and descending of personnel located at no more than 40 m from each other. Two or more ladders or gangways shall be installed on the scaffolds which are less than 40 m long. The upper end of the ladder or gangway shall be fastened with the scaffolding bearers.

Openings in the scaffolding decks to exit from ladders shall be fenced. Slope of ladders shall be not more than 60 degrees to the horizontal surface. The gangway pitch shall not exceed 1:3.

4.3.9 To lift the load to scaffolds one shall use blocks, jibs and other labor saving tools to be fastened according to the method statement for works at height.

Openings for moving of loads shall have four-sided railings.

4.3.10 Near the driveways the scaffolding means shall be installed at a distance of at least 0.6 m from the vehicle's overall dimensions.

4.3.11 Scaffolding more than 4 m above the ground floor or site level on which the scaffold stands are installed are allowed to be used after acceptance by the person designated as official responsible for the safe organization of work at height.

4.3.11.1 When works are carried out by a contractor organization using their own scaffolding, the latter shall be approved for operation by the official appointed by the person responsible for the safe organization of works at height by the contractor in the presence of the person responsible for the safe organization of work at height of the organization on whose territory the work is being carried out.

4.3.11.2 The results of scaffolding approval for operation shall be also approved by the chief engineer (maintenance manager) of the organization that takes the scaffolding into operation, or directly by the head of the organization. It is allowed for the scaffolding to be approved by the supervising foreman of a site (workshop) of the organization that constructed the scaffolding for its needs.

4.3.11.3 Prior to approval of the results of the scaffolding acceptance, operating thereof is not allowed.

4.3.12 The scaffolds up to 4 meters in height are allowed to be used after their approval by the works supervisor against a record in the approval and inspection of scaffolds and gantry log-book.

4.3.13 When accepting the scaffolds and gantry, the following shall be checked: ties and fastenings ensuring stability, strength of fastener assemblies of certain elements; serviceability of working decks and railings; vertical position of poles; security of base platforms and available earthing system (for metal scaffolds).

4.3.14 Scaffolding inspections shall be carried out regularly at the time specified by the scaffolding manufacturer's certificate, and after exposure to extreme weather or seismic conditions, other circumstances that may affect their strength and stability. Upon detection of scaffolding defects they must be eliminated and re-approved in accordance with the requirements of paragraphs 4.3.11-4.3.12 of this instruction.

4.3.15 The works supervisor (foreman) inspects the scaffolding before the start of the work of each shift, the official appointed by the person responsible for the safe organization of work at height, inspects the scaffolding at least once in 10 shifts.

Inspection results shall be recorded in the approval and inspection of scaffolds and gantry log-book.

4.3.16 When inspecting the scaffolds one shall establish the following:

a) any defects or damages of the scaffolds structural elements effecting their strength and stability;

b) strength and stability of scaffolds;

c) availability of required fencing;

d) suitability of scaffolds for further operation.

4.3.17 Scaffolds not used for works within a month or more shall be re-accepted before resumption of works.

4.3.18 During the work and every day after completion of work, the decks and ladders of scaffolds and gantry shall be cleared of garbage, and in winter time – of snow and glaze ice and, if needed shall be sprayed with sand.

4.3.19 Working from an improvised platforms (boxes, barrels) is prohibited.

4.3.20 The assembly and disassembly of scaffolds shall be carried out in accordance with the sequence provided by the MS. The workers involved in the assembly and disassembly of scaffolds shall be instructed on safe operation methods and ways of working, as well as the methods and sequence of work and safety measures.

4.3.21 During the disassembly of the scaffolding adjacent to the building, all the doorways of the ground floor and the exits to the balconies of all floors within the disassembly area shall be closed.

4.3.22 Partial disassembly of scaffolding and their abandonment for the production of works from them shall not be permitted.

4.3.23 Access of unauthorized persons to the area where scaffolds and gantry are installed or disassembled shall be prohibited.

4.3.24 Scaffolds located at the entrance to the building shall be equipped with protective shields with a solid side panels to protect against accidentally falling objects.

Protective shields shall protrude beyond the scaffolding for at least 1.5 m and have a slope of 20° towards the scaffolding.

Headway shall be at least 1.8 m.

4.3.25 When organizing a mass passage in close proximity to the scaffolding tools, such passage shall be equipped with a continuous protective canopy, and the facade of the scaffolding shall be covered with a protective net with a cell no larger than 5x5 mm.

4.3.26 When using movable scaffolding tools, the following requirements shall be met:

a) the slope of the surface over which the scaffolding tools are relocated in the transverse and longitudinal directions shall not exceed the values specified in the certificate or the manufacturer's instructions for this type of scaffolding tool;

b) relocation of scaffolding tools at a wind speed of more than 10 m/s is not allowed;

c) before relocation of scaffolding tools they shall be cleared of materials and containers, no people shall be allowed admittance;

d) the doors in the scaffolding tools fence shall open inward and have a double-action fixing device to prevent them from spontaneous opening.

4.3.27 Suspended scaffolds, gantry and lift cradles may be approved for operation after appropriate tests upon their installation (assembly, construction).

In case of repeated use of suspended scaffolding or gantry, they can be admitted for operation without testing, provided that the structure on which the scaffold is suspended is checked for a load that is at least twice as high as the estimated one, and the fastening of scaffolding is carried out by typical assemblies (devices) that can withstand the necessary tests.

Test results shall be recorded in the approval and inspection of scaffolds and gantry log-book.

4.3.28 Suspended scaffolds shall be attached to the bearing parts of the building (construction) or structures to avoid swaying.

4.3.29 Lift cradles and mobile scaffolds not used for work during the shift shall be lowered to the ground.

4.3.30 Every day before work, the condition of the cradles, mobile scaffolding and ropes shall be inspected and checked, and a test conducted to simulate breaking of the working rope.

4.3.31 Safety of workers during work at height in suspended lift cradles in addition to the general requirements for work on scaffolds shall be provided by the use of a safety system.

4.3.32 No workers shall be admitted to be present on the scaffolding during their relocation.

**4.4 Requirements for using the safety systems for work at height**

4.3.1 Safety systems for work at height are divided into the following types: restraint systems, positioning systems, safety systems, rescue and evacuation systems (Annex 4).

4.4.2 Safety systems for work at height shall:

a) be equipped with shoulder and hip straps;

b) correspond to the existing conditions at workplaces, type and nature of performed works;

c) take into account the ergonomic requirements and worker’s condition;

d) fit the gender, height and size of the worker upon adjustment.

4.4.3 Safety systems for work at height are designed for:

a) for holding the worker in such a way as to prevent falling (restraint or positioning system);

b) for safe fall arresting (safety system) and reducing the severity of fall arresting consequences;

c) for rescuing and evacuation.

4.4.4 In accordance with the technical regulations of the Customs Union “On the safety of personal protective equipment” approved by the Resolution of the Commission of the Customs Union of December 9, 2011 N 878, fall arresting PPE are subject to mandatory certification.

4.4.5 Collective and personal protection equipment for employees shall be used for their intended purpose in accordance with the requirements set forth in the manufacturer's instructions for standard technical documentation, put into effect in accordance with the established procedure. Usage of protective equipment without technical documentation shall not be allowed.

4.4.6 All collective and personal protection equipment shall be labelled in accordance with the established requirements.

4.4.7 ***Increased-load dynamic and static tests for fall arresting PPE shall not be conducted.***

4.4.8 The workers admitted for works at height shall inspect the PPE provided to them before and after each use.

4.4.9Safety systems for working at height comprise:

a) anchoring device;

b) harness (safety, restraint, positioning, for seating position);

c) connection and shock-absorbing subsystems (slings, ropes, carbines, shock absorbers, self-retracting type protection equipment, fall arresting equipment of slide type on a flexible or rigid anchoring line).

4.4.10 The type and location of the anchoring device of the safety systems for work at height shall be indicated in the MS for works at height or in the work permit.

4.4.11The use of the strapless safety belts is forbidden

4.4.12 Positioning systems according to the graphical diagram 2 for the safety systems for work at heights stipulated in the [P](#sub_22000) are used in cases where fixing the working position at height is necessary to ensure comfortable operation in the support, while minimizing the risk of falling below the support point by the worker adopting a certain working posture.

Positioning system usage requires mandatory usage of safety system.

As a connecting and shock absorbing subsystem of the positioning system, connectors from slings for the positioning of a constant or adjustable length shall be used, but also slide-type protection means over flexible or rigid anchoring lines can be used.

4.4.13 Safety systems, according to the graphic diagram 3 of the safety systems for work at heights provided for in Annex 6, are necessarily used in the case of a risk of worker falling below the support point upon losing contact with the supporting surface detected after the examination of the workplace, at that their use reduces the impact of falling from a height to a minimum by arresting the fall.

Harness used in the safety system is a safety harness. The use of strapless safety belts is prohibited due to the risk of injury or death due to impact on the spine of worker when the fall is stopped, the worker falls out of the safety belt, or the worker is unable to stay in the safety belt for a long period of time in a state of hanged-up.

The connection and shock-absorbing subsystem of the safety system necessarily includes a shock absorber. The connection and shock absorbing subsystem can be made of slings, retractable safety devices or a slide-type protection means over flexible or rigid anchoring lines.

4.4.14 The layout of the type and installation location of the anchoring device of the safety system prescribed in the MS for works at height or in the work permit shall:

a) provide a minimum fall factor to reduce the risk of injury to the worker during the fall (for example, due to impacts from the object elements) and / or when the fall is arrested (for example, due to the impact that stopped the fall);

b) exclude or reduce the pendulum trajectory of the fall to a maximum;

c) ensure sufficient free space under the worker after the fall is arrested, taking into account the total length of the sling and / or the safety rope of the safety device, the length of the activated shock absorber and all connectors.

4.4.15 Anchoring lines, ropes or fixed guides of separate structures shall meet the requirements of the manufacturer's instructions fit for the specific application, installation and operation.

4.4.16 In the event of emergency and during rescue operations, actions shall be taken and evacuation and rescue equipment shall be provided for the evacuation of people is the accident or emergency occurred during the performance of work at height.

4.4.17 In order to reduce the risk of injury to a worker who has remained in the safety system in a hanged-up state after a fall arrest, the evacuation plan shall provide for activities and means (for example, self-rescue systems) that allow the worker to be freed from this position as soon as possible (within max. 10 minutes).

4.4.18 Rescue and evacuation systems shall include:

a) additional or already used, but designed for additional loading, anchoring devices and / or anchoring lines;

b) backup restraint systems, positioning systems, access systems and / or safety systems;

c) necessary ascend and / or descend means, depending on the rescue plan and / or evacuation (for example, winches, blocks, tripods, elevators);

d) axles, splints, means of immobilization;

e) first aid kit.

**4.19 Accounting, operation and inspection of the safety systems for work at height.**

4.19.1 The head of the production department issues an order in which they appoint a person responsible for the registration, storage, maintenance and conduct of periodic inspections of the division safety systems for works at height.

4.19.2 **Official appointed responsible for accounting, storage, maintenance and periodical inspection of the safety system for works at height:**

- maintains a record in the for work at height registering and contents log (Annex 6);

- conducts regular checks on the integrity of the safety systems for works at height in accordance with the instructions in their operational manuals. When carrying out periodic inspections, it is necessary to peruse Annex 7 to this instruction;

- upon detection of defects, – timely rejection and replacement of elements, components or subsystems with reduced protective properties against a corresponding entry in the Log.

**4.5 Rope access system.**

4.5.1 The rope access system can only be used when a workplace inspection indicates that the use of other, safer methods and equipment is unfeasible when performing work.

4.5.2. For ascending or descending over a vertical (more than 70° to the horizon) and inclined (more than 30° to the horizon) planes, as well as for working in a suspended state in an unsupported space, a rope access system consisting of anchoring device(s) and the connecting subsystem (flexible or rigid anchoring line, slings, ropes, carbines, descent device, ascend device) shall be used by the worker.

4.5.3. Works using rope access systems shall be performed with mandatory use of a safety system consisting of an anchoring device, a connecting subsystem (flexible or rigid anchoring line, shock absorber, slings, ropes, carbines, catcher, safety harness).

It is not allowed to use one rope simultaneously both for safety system and rope access system.

4.5.4 Works at height using the rope access system require elaboration of MS of works at height and shall be performed as per the work permit.

4.5.5. The places and methods of securing the rope access system and the safety system to anchoring devices shall be indicated in the MS for works at height or in the work permit.

Rope access system and safety line shall have separate anchoring devices.

4.5.6 In places where the rope can be damaged or jammed, use rope protection.

4.5.7 All ropes fixed at one end (flexible anchoring lines) shall have finite limiters, for example a knot, to avoid the possibility to pass the end of the rope during the descent. In accordance with the recommendations of PPE manufacturers, the rope limiter can be combined with a weighting device.

4.5.8 Upon simultaneous performance of works by several workers, one worker shall not be allowed to operate directly above the other.

4.5.9 It is prohibited to use knots for securing the connecting subsystem to an anchoring device in rope access systems. Knots used for hanging up tools, tools, fixtures and materials, as well as those used on ropes, shall be indicated in the MS for works at height and shall not be prone to unintentional or intentional untying.

4.5.10 In exceptional cases (emergency evacuation, life hazard), taking into account the risk assessment of fall from height, it may be authorized to use only one rope simultaneously for the rope access system and safety system.

4.5.11 When working with a rope access system for more than 30 minutes, a work seat shall be used.

4.5.12. The work seat which is not structurally part of the safety harness, shall provide support for the back in the lumbar region. To improve ergonomics, the work seat can provide a height-adjustable leg support (footrest).

4.5.13 In rope access systems, static ropes made of synthetic fibers are predominantly used. It is allowed to use steel cables with appropriate lifting and lowering devices.

The length of the ropes used in the rope access system and in shared use in the safety system shared, as well as the ways to increase their length if necessary for performing of the work, shall be determined by the MS for works at height.

4.5.14 During a break in work shifts (for example, for lunch or according to work conditions), the team members shall be removed from the workplace (from the height), the components of the safety systems removed, and the rope access ropes either raised or rendered inaccessible by unauthorized persons. Team members are not entitled to return to their workplace after the break without supervision of the responsible contractor. Admission after such break is granted by the responsible contractor without registration in the work permit.

**4.6 Operational protection requirements for workers relocating along the structures and high-rise facilities.**

4.6.1. To ensure worker safety when relocating (ascending or descending) along the structures at height, in cases where it is not possible to organize a safety system with its anchoring device located above (a drop factor of 0), then according to graphical schemes 1 and 2 of the security system for works at height specified in Annex 5, self-protection or protection by the second worker (the one performing the protecting) from below can be used according to the graphical scheme 3 of the safety systems for work at height, Annex 5.

4.6.2 For using a self-protection system the worker shall be of group 2 and act so as to provide for protection consistency throughout the whole process.

4.6.3 To ensure worker safety when moving (ascending or descending) along the structures at height, the second worker (the one performing the protecting) shall be equipped with an independent anchoring device to which the braking system with a dynamic rope is attached. One end of the rope shall be connected to the safety harness of the ascending / descending worker, and the second shall be held by the person providing protection, ensuring a reliable retention of the first worker without sagging (weakening) of the rope.

4.6.4 When ascending along the structural elements in cases where another worker is protecting the ascending worker from below, said ascending worker shall install additional anchoring devices with connectors at every 2-3 m, and pass the rope through them.

4.6.5 When ensuring the safety of an ascending / descending worker, the worker that protects them shall hold the safety rope with both hands using PPE for hands.

Worker that provides protection shall be of group 2.

**4.7 Flexible and rigid anchoring lines.**

4.7.1. For safety relocation from one workplace at height to the other, safety systems with rigid or flexible anchoring lines used as anchoring devices shall be installed.

4.7.2. Anchoring lines of separate structures shall meet the requirements of the manufacturer's specification fit for specific application, installation and operation.

4.7.3 Anchoring lines shall be equipped with a device for their attachment to the structural elements of a building or structure. When used in the construction of a rope, a device for its tension providing ease of installation, removal, relocation and the possibility of changing the rope length depending on the distance between the attachment points.

4.7.4 Anchoring line parts construction parts design shall prevent the risk of injuring the worker’s hands.

4.7.5 It case it’s not possible to install pass-over bridges or when performing small jobs that require the worker to move at a height within their workplace and when the worker can not slide across an inclined plane, anchoring lines installed horizontally shall be used.

**4.8 Occupational safety requirements for usage of ladders, sites and gangways**

4.8.1. Construction of the side ladders and step ladders shall exclude the possibility of shearing and tipping them during operation. Butt plates with sharp tips for ground mounting should be fixed to the lower ends of side and step ladders. When the ladders and side ladders are used on smooth supporting surfaces (parquet, metal, tile, concrete, etc.) shoes made of rubber or other non-slippery material shall be put on the lower setting points.

When the side ladder is installed under the conditions when its upper end may shift, such upper end should be securely fastened to stable structures.

4.8.2 Upper ends of the ladders which are leaned against the pipes or wires shall be furnished with special catching hooks which prevent the ladder from falling due to wind pressure or accidental pushes.

Suspended ladders used for working on structures or wires should have devices providing for their secure fixation to the structure or wire.

4.8.3. Installing and securing ladders and platforms on the mounted structures shall be done before they are elevated. The length of the side ladder shall ensure that the worker can operate in a standing position on a step at a distance of at least 1 m from the upper end of the ladder.

4.8.4 When working with the step ladder at the height of more than 1.8 m it is necessary to use a safety system fastened to the construction structure or to the ladder (if it is fastened to a building or other construction).

4.8.5 Ladder ladders without work platforms may only be used for workers relocation between individual levels of the building or to perform work that does not require the worker to use building's structures for support.

4.8.6 The following is prohibited when using ladders or step ladders:

a) operating from two upper steps of a step ladder having no handrails or stoppers;

b) more than one person to operate on the steps of the free-standing ladder or step ladder;

c) lift or to lower the cargo using the free-standing ladder or to leave any tools on it;

4.8.7 It is not allowed to work on the portable and step ladders:

a) near and over rotating (moving) machinery, working machinery, conveyors, etc.;

b) using electrical and pneumatic tools, cartridge-operated guns;

c) when performing gas-welding, gas-flame and electro-welding works;

d) when the wires are loaded and used for supporting heavy parts at height, etc.

4.8.8 Ladders installation over the steps of staircases is not allowed. Gantries shall be used for performing works in these circumstances.

4.8.9 When operating from the ladder in locations with heavy transport or people traffic the installation site should be fenced or guarded to prevent the ladder falling from accidental jolts (regardless of the presence of tips at the ends of the ladder). In cases where it is impossible to fix a ladder when installing it on a smooth floor, a worker wearing a helmet shall be appointed to stand near it and keep the ladder in a stable position.

4.8.10 When the ladder is relocated by two workers, it must be carried with its tips pointing backwards and a vocal warning of possible danger shall be made for people nearby. When a ladder is being carried by one worker, it should be in an inclined position so that its front end is raised at least 2 m above the ground.

4.8.11 Staircases and ladders shall be inspected by responsible contractor (without a record in the approval and inspection of scaffolds and gantry log-book).

4.8.12 Ladders shall be stored in dry rooms, in conditions that prevent their accidental mechanical damage.

4.8.13 For workers who perform work on the roof of the building with a slope of more than 20°, as well as on a roof with a coating that is not designed for loads by the weight of workers, gangways shall be arranged with a width of at least 0.3 m with cross struts for the feet support. Gangways shall be fixed for the period of working.

4.8.14 Communication between the scaffolding levels shall be carried out through rigidly fixed ladders.

**4.9 Testing staircases and ladders.**

4.9.1 In a static test, the step and sliding wooden and metal ladders are mounted on a solid base or leaned against a wall or structure at an angle of 75° to the horizontal plane, the three-section ladders must be fully extended.

4.9.2 Tests of ladders and step ladders shall be carried out by suspending static loads to the steps and strings. Each test duration is 2 minutes.

4.9.3. For testing the strength of the step of the sectional ladder, a load of 2 kN (200 kgf) is suspended in the middle of the unenforced step of the lower section.

4.9.4 Strings are tested in two stages. First, a weight of 1 kN (100 kgf) is applied to the middle of each string. All sections shall be subject to testing by turns. After removing the load, a load of 2 kN (200 kgf) is applied to the middle of the string of the middle section (the load can be suspended to the middle step). Unintentional collapse of the ladder is not tolerated.

4.9.5. The extending sections of the ladder shall allow to be lowered and raised freely after the test.

4.9.6 When testing the side ladder, a 1.2 kN load (120 kgf) is suspended to one unenforced step in the middle of the section.

4.9.7 After the load is removed, no damage shall be tolerated to be detected on the strings and at the points of suspension.

4.9.8 The steps of the questionably-looking ladders shall be tested additionally by load suspension.

4.9.9 Ladder malfunctions detected during the test shall be eliminated, after which the test shall be repeated in full. Combined access ladder shall be tested in a similar way.

4.9.10 Before the test step ladders shall installed in the working position on a flat horizontal surface (platform). A load of 1.2 kN (120 kgf) is suspended by unenforced step in the middle. If there are steps on both adjacent sections, then after the first section test, the second section shall be likewise tested. If the second section is not operational and only serves for support, then it is tested with a load of 1 kN (100 kgf) suspended directly to each of the strings in the middle part of the section.

4.9.11 For string testing of ladders and ladders, a load of 1.0 kN (100 kgf) is applied to both strings in the middle.

4.9.12 Metal hanging ladders shall be tested in working position. The ladder is suspended vertically and secured to the structure with two grippers. A load of 1.2 kN (120 kgf) is suspended to the middle of the bottom step.

4.9.13 If the metal ladder is equipped with a work platform, then after the step test the cargo is suspended to this platform as well.

4.9.14 The date and results of periodic inspections and tests of ladders and step ladders shall be recorded in the “Rigging Tools, Mechanisms and Devices Accounting and Inspection Log”.

4.9.15 All the ladders and step ladders shall be inspected by the responsible contractor prior to use, without recording in the Log.

4.9.16 Ladders and step ladders shall be stored in dry rooms, in locations that prevent their accidental mechanical damage.

###### 5 OCCUPATIONAL SAFETY REQUIREMENTS IN EMERGENCY SITUATIONS

5.1 Works at height shall be ceased if conducted in open spaces at wind speed of 15 m/s and more, in case of ice storm, lightning storm snowfall or mist that prevents visibility within the working area, and the workers shall be withdrawn from the workplace. When working with the structures providing a huge windage area the works on mantling (dismantling) thereof should be stopped at the wind speed of 10 m/s and more.

5.2 In the event of a malfunction of the scaffolding tools, immediately stop all work and notify the direct supervisor of the work. Works are allowed to commence after all malfunctions are eliminated.

5.3 In case of fire:

- stop all work immediately;

- notify every worker on the construction site;

- immediately inform the dispatcher of the FS ER Service by calling 92-5-01 or 1-01;

- inform the immediate supervisor of the work;

- commence extinguishing fire with primary fire extinguishing equipment while ensuring that the front of the fire does not cut off the path of retreat to the stairs or gangways; if possible, arrange a meeting of the fire fighting squad.

5.4 In case of trauma, poisoning or sudden illness, act according to the inter-industry instruction for first aid in case of industrial accidents И OT 01-03.

- assess the nature of the injury (electric shock, moving parts of equipment, sharp edges, falling objects, falling from height or on the surface, etc.), its severity, the condition of the injured;

- rescue the victim from the traumatic factor, place them a safe location in a comfortable posture;

- call an ambulance by calling 92-5-10, if necessary accompany the injured to the health center of the ASB-2

- inform the immediate supervisor of the work;

- provide the victim with the first (pre-medical) assistance;

- keep the situation at the workplace and the condition of the equipment preserved as they were at the time of the accident, if this does not pose threat to the safety of people. Continue the work with the permission of the direct supervisor;

- provide explanations on the accident (both to eyewitnesses and the injured);

- when sending the injured to the hospital, or to receive a certificate of incapacity for work, immediately inform the direct supervisor to organize the accident investigation.

5.5 In the event of an emergency situation of chlorine discharge it is necessary to proceed according to the “Instruction on safety measures for chlorine discharge” И OT 01-01.

Upon detection of chlorine smell, the worker shall report the gas contamination to the direct supervisor and the FS ER service (tel. 92-5-01) or the senior dispatcher of PDO (tel. 92-2-22).

When the alarm is sounded a warning is received, a worker located in a hazard area shall immediately put on an individual filtering gas mask with an ABE filter and then proceed as instructed by the site work supervisor.

If it is necessary to evacuate people from the workshops premises, they should go out in an orderly manner, without panic, and head to the windward side of the site.

##### SAFETY REQUIREMENTS UPON COMPLETION OF WORK

6.1 Clear the scaffolding and other constructions of the remaining materials, mechanisms, tools, containers and production waste.

6.2 Lower the lift cradles and mobile scaffolds on the ground.

6.3 Clean and tidy up the workplace, remove tools and devices in specially equipped storage areas.

6.4 Upon completion of work, remove the protective clothes and footwear, personal protective

equipment, store them in the individual cabinet. In case if they are dirty, submit them for cleaning.

6.5 Comply to the personal hygiene requirements: wash hands with soap and water, shower.

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| Head of the Health and Safety Department | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  (signature) | N.V. Serbina |
| Chief Engineer for Occupational Safety | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  (signature) | L.V. Timoshenko |
|  |  |  |
| Approved by: |  |  |
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| Head of the FS ER service | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  (signature) | N.S. Sugakov |
| Chief Mechanist | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  (signature) | A)M. Turushev |
|  |  |  |

Motivated opinion of the primary trade union organization   
of the JSC Ilim Group Branch in Ust-Ilimsk

of \_\_\_\_\_\_\_\_\_ 2015 No. \_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ G.I. Basova

(signature)

# Annex 1

**List of works at height performed with a mandatory documenting of a work permit in the JSC Ilim Group Branch in Ust-Ilimsk**

1. Works performed without scaffolding tools, at the height of 5 m and higher;
2. Works performed at a distance of less than 2 m from unfenced level difference over 5 m at platforms without protective fences, or if the height of protective fences is less than 1.1 m.
3. Works performed on non-permanent workplaces.
4. Works performed with application of rope access.

# Annex 2

# Contents of the plan for work at height

1. Method statement for works at height (MS) defines and stipulates for the following:

a) initial design of permanent fences;

b) temporary fencing devices;

c) used scaffolding tools, including staircases, ladders, decks, rolling towers, scaffolds;

d) used load lifting machinery, lift (tower) cradles;

e) systems for ensuring the safety of work at height and the range of devices, tools and equipment for personal and collective protection of workers from falling from height and their necessity;

f) nomenclature of means for protecting workers from hazardous and harmful operational conditions identified during the assessment of working conditions – noise, vibration, exposure to other hazard factors, and harmful substances in the air of the working area;

g) location and types of fixing the safety systems for work at height

h) ways and means of lifting the workers to workplaces or locations of work performance;

i) lighting tools for workplaces, passages and driveways, as well as signaling and communication facilities;

j) requirements for the organization of workplaces with the use of technical safety equipment and primary fire extinguishing means;

k) requirements for sanitary and utility services provision for the workers.

2. MS for works at height sets forth requirements for:

a) ensuring serviceability of structures and equipment;

b) reduction of labor scope and intensity for the works carried out under the conditions of occupational hazard;

c) safe placement of vehicles and machinery;

d) arrangement of work places using technical security facilities.

3. In order to prevent the risk of structures, products or materials falling from height when they are moved by a crane or when stability is lost during their installation or storage, the following shall be indicated in the MS for works at height:

a) means of containerization and packaging for the movement of single-piece and loose materials, concrete and mortar, taking into account the nature of the cargo being transported and the convenience of bringing it to the work site;

b) slinging methods that ensure the supply of items to a position corresponding to or close to the design one;

c. tools (stacks, holders) for steady storage of the construction elements;

d. procedure and methods for stocking products, materials, equipment;

e. methods of permanent structures fixing;

f. methods for temporary fixing of dismantlable elements during disassembly of building and construction structures;

g. methods for elimination of wastes and garbage;

h. protective partitions (decks) or shields when performing works at the same elevation mark.

4. MS for works at height using machines (machinery) provides for the following:

a) choice of types, installation location and machines (machinery) operation mode;

b) methods and tools for protecting the operator and people working in close proximity from harmful and hazardous occupational factors;

c) restricting the movement path or turn angle of the machine;

d) operator tools of communication with the workers (audible alarm, radio and telephone communication);

e) special conditions for machine installation in hazard area.

5. To provide protection against electric shock the following is included into MS for works at height:

a) instructions for selecting routes and determining the voltage of temporary power and lighting electrical grids, fencing the voltage-bearing components and the arrangement of input and distribution systems and devices;

b) instructions on the grounding of metal parts of electrical equipment and the design of grounding circuits;

c) additional protective measures for the performance of works with increased risk factor and high-risk works.

6. MS for works at height envisages additional measures that shall be carried out during combined operations, when working in conditions of operating manufacturing facilities, near buildings, communications lines, operating installations.

# Annex 3

**Potential hazards determined by location of anchoring devices**

|  |  |  |
| --- | --- | --- |
| Item No. | Graphic diagram for factor determination | Factor characteristics |
| **1** | **Fall factor=2**  **Fall factor=1**  **Fall factor=0** | In fall arresting safety systems, the force transmitted to the person at the time of the fall shall not exceed 6 kN when using a safety harness. Force transmitted to the person at the time of the fall depends on the fall factor, defined by the ratio of the height of the worker's fall before the shock absorber actuation to the total length of the connecting elements of the safety system.  It is preferable to choose the location of the anchoring device above the head of the worker, that is, above the fixing point of the connecting elements of the safety system to the worker’s harness. In this case, fall factor equals zero.  The total length of the safety system with the sling, including the shock absorber, end connections and connecting elements, is specified by the manufacturer in the operational documentation for fall arresting personal protective equipment. |
| **2** | **2.0 m + а +2.0 m + 1.0 m**  **Free space**  **1.0 m**  **Worker height**  **2.0 m**  **Shock absorber length increase**  **Sling length  2.0 m** | Fall clearance is calculated with regard to the total length of the sling and connectors, the length of the shock absorber, the height of the worker, and the free space remaining to the underlying surface when the worker has reached equilibrium state after the fall was arrested.  The maximum length of the sling, including the length of the end connections with regard to the shock absorber, shall not be more than 2 m.  The maximum length of the activated shock absorber must be additionally indicated by the manufacturer in the operational documentation for fall arresting personal protective equipment. |
| **3.1** | [less than 6 m](http://context.reverso.net/%D0%BF%D0%B5%D1%80%D0%B5%D0%B2%D0%BE%D0%B4/%D0%B0%D0%BD%D0%B3%D0%BB%D0%B8%D0%B9%D1%81%D0%BA%D0%B8%D0%B9-%D1%80%D1%83%D1%81%D1%81%D0%BA%D0%B8%D0%B9/less+than+1+m)  [**less than 6 m**](http://context.reverso.net/%D0%BF%D0%B5%D1%80%D0%B5%D0%B2%D0%BE%D0%B4/%D0%B0%D0%BD%D0%B3%D0%BB%D0%B8%D0%B9%D1%81%D0%BA%D0%B8%D0%B9-%D1%80%D1%83%D1%81%D1%81%D0%BA%D0%B8%D0%B9/less+than+1+m) | If the fall clearance is less than 6 m, slide-type protection means on a rigid anchor line [(diagram 3.1)](#Par15) or fall arresting means of self-retracting type  [(diagram 3.2) shall be used as safety system.](#Par18) |
| **3.2** | **Height 1.8 m**  **Distance required to arrest the fall  0.5 m**  **Free space**  **1.3 m** |  |
| **4** |  | The location of the worker relative to the anchoring device in which  requires taking the pendulum factor into consideration, i.e. the characteristics of a possible fall of the worker, accompanied by a pendulum movement. The pendulum factor takes into account the fall factor, the change in the trajectory of the worker's fall due to the shock absorber actuation, fall clearance and free space available not only vertically under the place of fall, but also along the entire fall trajectory. |
| **5** |  | Possible movement of the sling along the edge from point 1 to point 2 with tear until breaking caused by the pendulum movement of the worker when he falls, shall be included into pendulum factor calculations. |

Annex 4

**Safety systems for working at height**

|  |  |  |
| --- | --- | --- |
| Item No. | Graphic diagram | Graphic diagram description |
| 1 |  | Restraint system  Legend:  1 – restraint harness enveloping the human body and consisting of individual parts that, in combination with the slings, fix the worker at a certain height during work;  2 – opening device for connecting components which allows the worker to attach the sling in order to connect themselves directly or indirectly to the support (hereinafter – connecting element (carbine);  3 – anchorage fixing point, to which personal protective equipment can be attached after mounting of an anchor device or structural anchor fixed permanently to the building;  4 – tensioned strap of adjustable length to hold the worker;  5 – elevation difference of more than 1.3 m  Components and elements of restraint systems shall withstand a static load of at least 15 kN, while slings made of synthetic materials shall withstand the same of not less than 22 kN. |
| 2 |  | A positioning system that allows the worker to operate with fall-arresting support.  Legend:  1 – body belt for supporting the body that holds the body at the waist;  2 – an elongated, adjustable-length sling for positioning during work, used to connect the body belt with the anchorage point or structure, embracing it as a support means;  3 – sling with shock absorber;  4 – safety harness;  Positioning system body belt may also be a part of the safety system.  When using the positioning system, the worker shall always be attached to the safety system. The connection must be made without any slack in the anchor ropes or connecting lines. |
| 3 |  | Safety system consisting of a safety harness and a subsystem attached for extra protection.  Legend:  1 – structural anchor on each end of the anchor line;  2 – anchoring line of flexible rope or cable between the structural anchors that the personal protective equipment can be attached to;  3 – sling;  4 – shock-absorber;  5 – safety harness (safety lash belt) as a component of the safety system to cover the body of a person in order to prevent from falling from a height that may include connecting slings, buckles and components fixed in a suitable manner to support the entire body of a person and to hold the body during a fall and after it.  Connection of the connection and shock absorbing subsystem to the employee is carried out to the element of the harness labeled with A)  Connection to the point located on the back and marked with the letter A on the diagram is preferable, since it excludes the possibility of its accidental detachment (unfastening) by the worker himself and does not interfere with the work. |
| 4 |  | Rescue and evacuation system that uses self-retracting type protection equipment with in-built winding engine.  Legend:  1 – rigid anchoring line, allowing simultaneous fixing of rescue and evacuation systems of the injured person and safety system of the rescue worker;  2 – self-retracting type protection equipment with in-built winding engine;  3 – rescue harness comprising straps, fittings, buckles or other elements suitably located and designed to support the human body in a convenient position for rescue;  4 – sling;  5 – shock-absorber;  6 – safety harness.  In the rescue and evacuation system, rescue loops can be used in addition to the rescue harnesses.  There are:  - class A safety loop: a loop designed and constructed in such a way that keeps rescued person held by the rescue loop with its straps under the person’s arms during the rescue process;  - class B safety loop: a loop designed and constructed in such a way that keeps rescued person held by the rescue loop in a “sitting” position during the rescue process;  - class C safety loop: a loop designed and constructed in such a way that keeps rescued person held head down by the rescue loop during the rescue process; |
| 5 |  | Rescue and evacuation system using a portable temporary anchor device.  Legend:  1 – tripod;  2 – hoisting gear;  3 – rescue harness;  4 – safety device with automatic self-blocking function for pulling out of the sling and automatic option for extension and pulling back of an extended sling;  5 – shock absorber contained in the retractable sling (energy dissipation function can be fulfilled by the safety device 4 itself);  6 – safety harness. |
| 6. |  | The rescue and evacuation system using an individual rescue device (IRD), designed for a worker to escape from height on their own.  Legend:  1 – IRD that prevents rotation and the possibility of a free fall of the worker during descent, as well as a sudden stopping of the descent while providing an automatic descent rate not exceeding 2 m/s;  2 – rescue loop of class B (it is also possible to use rescue loop of class A).  The manufacturer in the operational documentation for the IRD additionally indicates the maximum height for descent. |

Annex 5

**WORKER SAFETY PROVISIONING SYSTEMS**

**TO BE USED DURING**

**RELOCATION ALONG THE STRUCTURES**

|  |  |  |
| --- | --- | --- |
| Item | No. Graphic diagram | Graphic diagram description |
| 1 |  | The worker shall attach the carbine to the load-bearing structures, ensuring his or her safety by continuous self-safety control when moving (lifting or lowering) along the structures at height in cases where it is impossible to organize a safety system.  Legend:  1 – safety harness;  2 – self-safety slings;  3 – shock-absorber;  4 – connector (carbine), which allows the employee to attach the safety system in order to connect himself directly or indirectly with the support. The design of the carbine shall prevent accidental opening, and also exclude pinching and injury of hands when operating it. |
| 2.1 |  | The worker shall attach the carbine to the load-bearing structures, ensuring his or her safety by continuous self-safety control when moving horizontally along the structures at height in cases where it is impossible to organize a safety system.  Legend:  1 – safety harness;  2 – self-safety slings;  3- shock-absorber;  4 – connector (carbine); |
| 2.2 |  |
| 2.3 |  |
| 2.4 |  |
| 3 |  | The worker shall organize temporary anchorage points with a drop factor of not more than 1 (diagram 1 of Annex 5), while moving along structures and high-rise facilities with the help of the second worker (the one that is protecting them from below).  Legend:  1 – safety harness;  2 – safety rope;  3 – shock-absorber;  4 – connector (carbine);  5 – a manually operated device that creates friction which allows its operator to control the movement of the safety rope and a stop anywhere along the safety rope without having to use their hands;  6 – protection for the operator’s hands. |

# Annex 6

# SAFETY SYSTEMS FOR WORK AT HEIGHT REGISTERING AND CONTENTS LOG

| Inventory number, name of the system element | Date of manufacture / expiration date | Date for periodical inspection / rejection | Result of periodical inspection / rejection | Full name and signature of the person who conducted the inspection | Date of issuing for personal usage | Full name, position/profession, signature of a person that received PPE for personal usage | Note |
| --- | --- | --- | --- | --- | --- | --- | --- |
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Notes:

Periodical inspections shall be carried out within the timeframes set by the manufacturer specified in the certificate.

# Annex 7

**Main stages of periodical inspection of safety systems for work at height**

1. Analysis of the availability and content of certificates of conformity, manufacturer's instructions, labeling.
2. Protection device operational or storage history.
3. Visual and tactile examination of the product.
4. Checking of the performance.
5. Documenting of the periodical inspection.
6. Drawing up recommendations.

Safety provisioning system for work at heights are constructed of metal, textile, polymers and their combinations. The following things shall be subject to visual examination and checking during the inspection:

|  |  |  |
| --- | --- | --- |
| **Control list for visual and tactile inspection** | | |
| **Metal** | **Textile** | **Plastic** |
| Wear and tear | Wear and tear | Scratches |
| Marks | Marks / spots | Marks / spots |
| Deformation | Deformation | Deformation |
| Corrosion, chemical contamination, for instance corroded surface, aluminum flakes | Burnt / melted spots | Spots from chemicals |
| Cracks | Severed / torn / distorted threads | Cracks |
| Notches and nicks | Traces of ultraviolet exposure / fading | Traces of ultraviolet exposure / fading |
| Traces of ultraviolet exposure / fading | Condition of the stitched areas |  |
| **Other defects** | | |
| Self-made engravings, stamps | Self-made engravings, stamps |  |
| Peg, rollers, swivels, etc | Protective cover wear and tear |  |
| **Functional inspection** | | |
| Moving parts (casing sides, cams, blocking latches) work correctly, lock into place | Correct operation of buckles for fastening and adjusting |  |
| Latches located in correct part of the casing | Availability, condition, correctness of knots on the slings and ropes |  |
| Spring returns the moving part correctly |  |  |
| Manual coupling, automatic coupling, threaded element functions correctly |  |  |

The following is recommended after the inspection:

*Withdraw from operation*

* Product with missing documents (invoices, certificates, instructions).
* Expired product.
* Excessive wear and tear (over 1 mm) of any part of the product.
* Excessive chafing (to be assessed by an expert).
* Cut in the load-bearing textile element.
* Unknown debris and chemical contamination.
* Damage done by exposure to high temperatures.
* Stitching is cut, torn or worn through.

Any product that has negative score for inspection is dangerous to use further. It should be destroyed to prevent its further usage.

*Notice*

* Slight chafing (to be assessed by an expert).
* Analyze the worker’s preparedness make decision on additional training or review the relevant risk assessment and method statement.

*Repairs*

* Restoration of auxiliary textile element.
* Lubrication of shafts, springs.
* Replacement of defect element subject to replacement.
* Known debris: clean in accordance with the manufacturer’s instructions.

Inspection results shall be recorded in the Accounting and Maintenance of Safety Systems for work at height log.

# ACKNOWLEDGEMENT SHEET

Document Title: Instruction on Occupational safety for working at height И OT 01-07-15

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Head of the unit \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(shop, section, department, group) (signature, last name, initials)

**DOCUMENT REVISION SHEET**

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| --- | --- | --- | --- |
| Number  of the amendment | Name, date, number  of the administrative document | Pages with the amendments | List  of the amended sections  (sub-sections, paragraphs) |
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