

M3-EN.14 RISK ASSESSMENT TOOL

| Hazard | | Who (Employees that might be harmed) | Harm | Current Safety Measures |
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| Source | Hazard description | | | |
| OFFICES– SUPPORTING SERVICES | <ul style="list-style-type: none"> • Inability to rapidly and safely evacuate workplace • Inability to confront fire • Slips and trips • Improper indoor air quality • Improper temperature • Improper lighting • Breaking in glass surfaces • Ergonomic strain of work-post • Eye fatigue due to computer screen | <p>Employees working in the offices and at supporting services like secretaries, clerks, managers, accountants, cleaners etc.</p> | <ul style="list-style-type: none"> • Entrapment in the office • Burns • Musculoskeletal injuries • Respiratory hardness • General Injuries • Neck and back pains • Ophthalmologic problems | <ul style="list-style-type: none"> • Efficient (by means of number and dimensions) safety exits that can easily open outwards are never locked or obstructed, signal-indicated and lighted with redundant lighting • Mechanical doors should have a redundant manual handling system • Efficient escape routes that remain always unobstructed, signal-indicated and lighted with redundant lighting • Efficient number of fire extinguishers that are easy to access and use, recently retread and signal-indicated. If possible place a fire detection and extinguish that is frequently maintained • Properly trained personnel • Alarm systems maintained in a good operating fit • Efficiently wide pathways, housekeeping, cleanliness, re-motion of every obstacle lower than knee height or shelves opening towards the corridor, fixation of cables, proper floor maintenance • Efficient renewal with fresh air and control of continuous and proper operation of technical systems for air renewal when this cannot be achieved naturally • Keeping temperature in proper levels for the kind of tasks executed • Efficient lighting (natural if possible) • If electrical lighting is required then it should not be glaring and redundant lighting should exist for the case of blackout • Glass surfaces should be signal-indicated and if placed close to employees should be |

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| | | | | <p>of safety glass</p> <ul style="list-style-type: none"> • Seats and computer screens should be adjustable in height and lean and there should be frequent change of body positions that are not strainful. Frequent motion • Frequent interruption of work in screens interfering other tasks |
| <p>PRODUCTION FLOOR General safety</p> | <ul style="list-style-type: none"> • Improper indoor air quality • Improper temperature • Improper lighting • Improper signalling • Excessive noise • Aerosols | <p>All employees working in the production floor, or those being present temporarily</p> | <ul style="list-style-type: none"> • Respiratory problems • Ophthalmological problems • Accidents • Hearing problems | <ul style="list-style-type: none"> • Efficient renewal with fresh air and control of continuous and proper operation of technical systems for air renewal when this cannot be achieved naturally • Keeping temperature in proper levels for the kind of tasks executed • Efficient lighting (natural if possible) • If electrical lighting is required then it should not be glaring and redundant lighting should exist for the case of blackout • Glass surfaces should be signal-indicated and if placed close to employees should be of safety glass • Proper noise insulation of mechanical equipment and displacement of pumping equipment outside the production place • Use of ear protection in all stages of production |
| <p>Equipment and installations (operation)</p> | <ul style="list-style-type: none"> • Trapping in general • Struck by moving object • Ergonomic strain • Burn | <p>All employees working in the production floor</p> | <ul style="list-style-type: none"> • Neck and back pains • Musculoskeletal injuries • Burns • Stress, anxiety • Upper limbs entrapment • Mutilation | <ul style="list-style-type: none"> • Protection of large metallurgic equipment (e.g. foundries, rollers, etc.) with fixed guards. Where possible interlock or photo-cell system for automatic stoppage in case of presence in dangerous area. Efficient stop buttons or wire for machinery with of large length. Tight clothing and tighten hair (if long) when working close to moving or rotating equipment. Proper guarding (fixed guard if no frequent removal is required for maintenance – cleaning, or else interlocks system or photocell). Fixed guarding under metallurgical machinery |

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| | | | | <ul style="list-style-type: none">• Keep chuck of rotating equipment in good shape to avoid its potential blast. Place a strong guard around the rotating part to uphold in case of blast. Metal pieces should not be carried over employee work-posts. Stock should be secured in all directions independently from the direction-processing (horizontal, traversal, and vertical). A cover should be placed along with eye protection to protect from swarfs. Hold-to-run handling systems in every machine with exposed moving or sharp parts that cannot be fully covered• Use of lifting equipment for heavy stocks. Adjustment of moulding and metallurgical machinery positions (drillers, milling machines, planes, lathes) so as not to require body leaning• Protection of hot parts or stocks and isolation of foundries. Use of proper personal protective equipment of body, member and face protection• In general, guards should always be in place and there should be enough space between machines, without obstacles so as to ensure comfortable motion of employees without the risk of falling on a machine. Interlock systems should not be by-passed |
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| | | | | <ul style="list-style-type: none"> • Proper lighting • Efficient space • Isolation of the area and prohibition of entry of other employees • Backing up of heavy parts before disassembling • Shutoff of pressurized water – air supply, depressurization and disassembling of supply before starting with maintenance • Shutoff of electrical power supply and disconnection • Proper backup and personal protection during work in height |
| Maintenance | <ul style="list-style-type: none"> • Release of kinetic energy • Release of hydraulic - pneumatic energy • Electrical danger • Contact with sharp surfaces | All employees working in maintenance services | <ul style="list-style-type: none"> • Electrocutation • Entrapment • Upper limbs injuries • Mutilation | <ul style="list-style-type: none"> • Proper lighting • Efficient space • Isolation of the area and prohibition of entry of other employees • Backing up of heavy parts before disassembling • Shutoff of pressurized water – air supply, depressurization and disassembling of supply before starting with maintenance • Shutoff of electrical power supply and disconnection • Proper backup and personal protection during work in height |
| Vehicle movement | <p>Risks from private cars Risks from suppliers' clients' trucks Risk from forklift trucks Risk from derrick Risks from personnel cars</p> | <p>Forklift operators Clients Employees from other departments</p> | <ul style="list-style-type: none"> • Accidents • Falls • Struck by trucks • Head, arms, hand, legs injuries • Permanent disability • Death | <ul style="list-style-type: none"> • Strict control of incoming – out coming vehicles in gate • Installation of certain pathways for each vehicle kind • Guidance of third party vehicles in workplace • Isolation of the area when a derrick is working • Checking of vehicles' good shape, especially braking system, backwards beeper, mirrors and lights • Personnel allowed only in specially designed seats of the vehicle • Use of vehicles only from skilled authorized |

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| | | | | <p>personnel</p> <ul style="list-style-type: none"> • No use of forklift trucks in tasks not specified • Low speed, especially when loaded • Load up to the point where visibility is not disturbed • Travel so as to keep load always leaning towards the vehicle • Signalling of vehicle pathways • Fixed mirrors in corners • Training of all related personnel |
| Manual handling | <ul style="list-style-type: none"> • Risks during use of metallic objects • Risks during box handling | All employees in all departments | <ul style="list-style-type: none"> • Musculoskeletal disorders • Upper limbs entrapment | <ul style="list-style-type: none"> • Training of personnel on correct load lifting • Automatisation of handling with special lifting equipment where possible • Use of lifting equipment and buggies in all boxes where possible |
| Strain due to body position | <ul style="list-style-type: none"> • Risk due to prolonged standing • Risk due to hands working in height over the shoulder • Risk due to bending | All employees in all departments | <ul style="list-style-type: none"> • Musculoskeletal disorders | <ul style="list-style-type: none"> • Avoiding standing position by putting proper seats where possible, or with small intervals • Automatisation where possible • Job rotating |
| Slips and trips | <ul style="list-style-type: none"> • Risk of trip in badly lighted areas • Risk of foot trap in drainage, missing cover or cable • Risk of slip • Risk of struck against fixed object of low height | All employees in all departments | <ul style="list-style-type: none"> • Accidents • Falls • Head, arms, hand, legs injuries • Permanent disability | <ul style="list-style-type: none"> • Efficiently wide pathways, housekeeping, cleanliness, remotion of every obstacle lower than knee height or shelves opening towards the corridor, fixation of cables, proper floor maintenance • Efficient natural lighting where possible • Efficient lighting (natural if possible) • If electrical lighting is required then it should not be glaring and redundant lighting should exist for the case of blackout |
| Falls | <ul style="list-style-type: none"> • Risk of falling on underlying floor • Risk of falling during maintenance • Risk of falling during cleaning | Employees working in height | <ul style="list-style-type: none"> • Accidents • Falls • Head, arms, hand, legs injuries • Permanent disability | <ul style="list-style-type: none"> • Rail of 1 m with a mast of 15 cm in every surface lying above 75 cm • Immediate replacement of any missing covers • Use of anti-fall equipment during specific maintenance tasks • Use of scaffolds or special personnel lifting vehicle with a continuous presence and control of the operator when work in height is required |

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| <p>Fire</p> | <ul style="list-style-type: none"> • Risk of spark production and fire • Risk of chemicals or metal cutting fuels ignition • Risk of fire in workplace • Risk of fire transfer to by-standing workplaces • Wrong selection of fire extinguishers • Risk of panic and chaos due to fire | <p>All employees in all departments</p> | <ul style="list-style-type: none"> • Accidents • Falls • Burns • Respiratory problems • Panic • Stress • Anxiety | <ul style="list-style-type: none"> • Efficient (by means of number and dimensions) safety exits that can easily open outwards, are never locked or obstructed, signal-indicated and lighted with redundant lighting • Mechanical doors should have a redundant manual handling system • Efficient escape routes that remain always unobstructed, signal-indicated and lighted with redundant lighting • Efficient escape charts for cases of danger should be placed in meeting points and corridors • Efficient number of fire extinguishers that are easy to access and use, recently retread and signal-indicated. If possible place a fire detection and extinguish that is frequently maintained • Frequent inspection of fire extinguishing means and systems according to fire service guides • Fire resistant doors and a system for checking ventilation • Proper signalling of fire extinguishing means and proper training of personnel on its use • Founding of a fire protection squad, development of a plan for risk management and information of squad members on their specific responsibilities • If possible a visual and auditory warning signal for fire and personnel evacuation. • Efficient number of Personal Protective Equipment and fire extinguishing means to be stored in a specially signalled area |
| <p>Electrical risks</p> | <ul style="list-style-type: none"> • Bad maintenance of electrical installations • Worn cables and plugs • No grounding of electrical installations in places with non-insulated floor | <p>All employees</p> | <ul style="list-style-type: none"> • Electrocutation • Permanent injuries • Death | <ul style="list-style-type: none"> • Installation and maintenance of electrical infrastructure only from skilled and authorized personnel • Frequent check and inspection of electrical installations • Immediate replacement of broken switches |

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| | <ul style="list-style-type: none"> • Risk of electrical shock in humid places • Risk of electrical shock from contact to naked wire, worn hand tools, etc • Risk of electrical shock from overheating and strain of cables • Risk of electrical shock during maintenance of electrical installations • Risk of electrical shock of an employee coming to the rescue | | | <p>and plugs, as well as worn-out equipment and cables</p> <ul style="list-style-type: none"> • Immediate replacement of fuse cartridges that burn with new ones of the same nominal intensity. However, if they burn often, identification and repair of the potential impairment or change in the load of the specific line. Check for turnout box covers in guards installations in every part of a device or machine under voltage before electrical power supply is connected • Grounding for every electrical installation, device or machine, especially if it is in area without insulated floor. This also concerns small devices like drillers. Shutoff of power supply before any tasks of cleaning, repair, maintenance or movement of machinery. Especially in cleaning, in order to avoid water, soap, etc. that leave humidity before power supply is reconnected • Avoid contact with switches, plugs and electrical equipment or devices with wet or very sweaty hands • Proper training of personnel on First Aid in electrical shock victims • Use of proper hand-tools with insulated handles |
| Chemical risks | <ul style="list-style-type: none"> • Non properly ventilated area for the use of emulsifiers, stabilizers, anti-corrosives, biocides, aromatics and high pressure additives • Improper indoor air quality due to breathable droplets or smother of oil and fumes that can be produced during machine operation • Risk of mistaken use of metal cutting fluids • Risk of contamination of personal effects or clothing of personnel from chemical substances | Employees working with chemical substances | <ul style="list-style-type: none"> • Breathing difficulties • Dermatitis • Respiratory problems • Poisoning • Confusion • Stress • Burns | <ul style="list-style-type: none"> • Efficient renewal with fresh air naturally, or when it can only be by artificial means, to check their effective and continuous operation • Proper training of personnel in correct handling of metal cutting fuels • Use of the proper Personal Protective Equipment for skin, eye and face protection from chemical substances • Handling of metal cutting fluids should take place in a well ventilated area under controllable conditions • Ensuring that protective equipment has been |

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| | <ul style="list-style-type: none"> • Non-available Material Safety Data Sheets of chemical substances - dissolvers • Risk of infection of employee coming to the rescue from chemicals | | | <p>thoroughly cleaned with water after use and checked for slashing (e.g. needles or cuttings in gloves, especially in finger covers)</p> <ul style="list-style-type: none"> • All contaminated clothes should be professionally cleaned before used again • Employees should avoid contact with contaminated equipment, as well as putting respiratory protection off with their gloves, which could lead to burns in face • Material Safety Data Sheet of every substance should be demanded by importer, producer or vendor of the substance • Proper training of personnel on issues of First Aid of chemical accidents victims |
| Personal Protective Equipment | <ul style="list-style-type: none"> • Erroneous selection • Erroneous use • Non-use • Bad maintenance | All employees having given PPE | <ul style="list-style-type: none"> • Confusion • Allergic reaction due to PPEs' materials • Injuries due to non-use | <ul style="list-style-type: none"> • Use of only certified Personal Protective Equipment • Selection of the proper equipment for every post and charging to employee • Personnel training on use and maintenance of Personal Protective Equipment. • Hearing Personal Protective Equipment use in all production stages • Head, eye and hand protection to all working in maintenance • Anti-slip shoes in all stages of production • Anti-fall equipment for occasional work in height |
| Stress at work | <ul style="list-style-type: none"> • Problems with colleagues • Stress by floor-walkers • Stress by the boss • Incapability of inferiors • Monotonous and repetitive work • Absence of breaks | All employees | <ul style="list-style-type: none"> • Absenteeism • High staff turnover • Poor time-keeping • Errors • Poor decision making • Bullying • Isolation • Aggressive communication • Sleep problems • Irritability • Alcohol or drug | <ul style="list-style-type: none"> • Clarity of employee's role and responsibilities • Development of knowledge, skills and capabilities • Organization of work (rotation, vacations, pauses etc) • Avoidance of repetitive and monotonous work • Training of managers and workers to raise awareness and understanding of stress, its possible causes and how to deal with it • Provision of adequate management support for individual and team |

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| | | | abuse • Back problems • Psychosomatic problems | • Performance of Risk Assessment |
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