

M9-EN.2 MECHANICAL HAZARDS

M9-EN.2.1. Mechanical factors of occupational risk in hotels and restaurants

M9-EN.2.2. Hazards of using manual and mechanical cutting equipment

M9-EN.2.2.1. Risk factors and their effect on human health

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M9-EN.1.3. Hazards related to parts moving out of control

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M9-EN.2.3.2. Personal protective equipment

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M9-EN.2.4.2. Personal protective equipment

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Short description of the chapter

This chapter covers **mechanical risk factors** related to various mechanical hazards to human health. The following mechanical risk factors **##G4##** that employees working in hotel and restaurant sector are most often exposed to (major attention is given to **kitchen and waiting staff, housekeeping staff**) are distinguished:

- Manual and mechanical cutting equipment
- Parts moving out of control
- Slips, trips and falls.

Goals of this chapter:

- Define mechanical risk factors
- Analyse the most common types of mechanical factors that can cause harm to **kitchen and waiting staff, housekeeping staff, grounds keepers**.
- Discuss the effect of these mechanical factors on human health
- Present safety measures and equipment helping to reduce or prevent the negative effect on human health.

This chapter will help the managers to determine mechanical factors of occupational risk in hotel and restaurant sector, to assess each particular situation and take appropriate preventive measures to reduce the risk. (M9.2.jpg)

M9-EN.2.1 Mechanical Factors of Occupational Risk in hotels and restaurants

According to the definition (**##G4##**), risk factors can be divided into the following groups:

- Manual and mechanical cutting equipment (knives, spits, can openers, cutting and mixing equipment, meat mincers and the like)

- Things with dangerous surfaces (roasting tins, sharp edges, cans, glassware and the like)
- Moving equipment (carts, swing doors)
- Parts moving out of control (falling shelves, slipping drawers, stacks of plates)
- Trips and slips (slippery floor, e.g. spilled grease, floor cleaned with improper detergent, wet floor, improper footwear, unsuitable floor surface, changes in floor level, narrow gangways, untidy surroundings, improper lighting, absence of emergency lighting and the like)
- Falls (absence of handrails, steep staircase, defective or unstable ladders)

Accidents related to mechanical risk factors most often result from:

- Staff attempts to repair faulty equipment and ignoring safety requirements
- Using not properly prepared equipment
- Equipment cleaning without following safety instructions
- Failure to abide to equipment maintenance schedules
- Using unsafe stairs or ladders
- Failure to keep safe distances
- Failure to use personal protective equipment
- Narrow, block or poorly illuminated gangways
- Improperly cleaned, slippery, not regularly maintained floor

M9-EN.2.2 Hazards caused by manual and mechanical cutting equipment

M9-EN.2.2.1 Risk factors and their effect on human health

Taking into consideration groups of physical risk factors, hotel and restaurant employee structure (see: M9-EN.1.2, M9-EN.1.3), employee activities, and tools and equipment used we may see that **kitchen and waiting staff, gardeners and grounds keepers** are most often exposed to hazards caused by manual and mechanical cutting equipment.

Kitchen staff while using different cutting, mincing, mixing and similar equipment for food preparation

Waiting staff while laying tables, cleaning cutlery and glassware

Gardeners and grounds keepers using mechanical and electric lawn movers, tree and scrub trimmers

Body injuries resulting from mechanical effect may differ from easy cuts to deadly injuries. Any part of the body may be injured; however, the following parts suffer most often:

- hands
- arms
- feet

- head
- chest

The seriousness of injury depends on the energy of the object that caused the injury. Wounds are classified as follows:

- cuts (even edges, heavy bleeding, quicker healing and seldom suppuration. Dangerous in palm area as blood vessels may be damaged)
- lacerations and abrasions (uneven edges, not heavy bleeding, more tissues are damaged, problematic healing, possibility of infection)
- puncture wounds (very small area (1-2 cm) of skin is damaged, however the wound may be very deep, blood vessels and internals may be affected)
- other types of wounds

Therefore, the analysis of hazards caused by machinery and equipment with unprotected moving parts should cover all equipment used and answer the following questions:

- Is it possible to be injured while using the equipment and machinery (e.g. cut, bang, squeeze etc.)?
- Are modifications made in order to prevent touching hazardous zones during cleaning or maintenance?
- Is personal protective equipment (PPE) used while working with knives and applying force (meat boning, opening oyster shells etc.)?
- Is equipment guarded from causing incidental cuts, punctures by sharp edges, can tops, broken glass?

All equipment must be inspected separately.

M9-EN.2.2.2 Personal protective equipment

To avoid mechanical hazards it is important to comply with safe equipment operation instructions:

- Never open covers of machines while the engine is still running
- Never touch interlocks and safeguarding systems
- Never put anything into the container while the machine is in operation
- Never press ingredients by hands.
- Not overload the machine
- Regularly check the fuses
- Switch off the power while changing components of the machine
- Switch off the power while cleaning the machine

In addition, it is necessary to:

- Handle all sharp things (knives and cutting discs, bands, graters, spits) with appropriate care

- Keep all tools and instruments in designated places (**M9.2.2.2.jpg**)
- Install appropriate holders for knives
- Collect glass and cans in separate containers
- If possible, use PPE (protective aprons, special cut-proof gloves)

M9-EN.2.3 Hazards related to parts moving out of control

M9-EN.2.3.1 Risk factors and their effect on human health

Parts moving out of control are those, which may:

- **Fall and sway**

Things or work tools with unstable centre of gravity may fall when the centre of gravity changes after the thing or work tool is pushed or moved (for instance a stack of packs loaded on top of each other in several lines. When attempts are made to take a pack from the bottom row there is great possibility that the stack will start swaying and may fall).

- **Roll and slide**

When rolling or sliding things (loaded things, beer barrels, drawers etc.) are impacted by force they may start rolling or sliding and injure people. The effect may be caused by external force, shock, slippery surface and the like.

- **Fall, disengage, spread and scatter**

Things loaded on elevated surfaces (bottles, plates, glasses etc.) may fall through openings, get disengaged as a result of vibration, pushing or moving and injure people.

Taking into consideration groups of physical risk factors, hotel and restaurant employee structure (see: M9-EN.1.2, M9-EN.1.3), employee activities, tools and equipment used we may see that **kitchen and waiting staff** are most often exposed to hazards caused by parts moving out of control.

The following shall be determined during risk assessment:

- Are there any things in kitchen premises that may fall, roll or slide?
- Are equipment safely fixed to the base, is their stability ensured during handling?
- Are supplies in the storage safely loaded, with respect to the allowed height, appropriate order, not obstructing gangways or exits?
- Are shelves firm and not overloaded, are they used for their intended purpose?
- Are protective sides used to avoid the falling of things from elevated surfaces?
- Are clean plates loaded in a manner preventing falls?

M9.2.3.1.jpg

M9-EN.2.3.2 Personal protective equipment

To avoid hazards caused by parts moving out of control the following shall be ensured:

- Stable position of machinery and equipment
- Correct loading and unloading of supplies
- Form, dimensions and load capacity of shelves shall be adjusted to specific items stored on them
- Protective sides and strips shall be used to protect things stored on elevated surfaces from falling
- Employees shall be instructed on correct loading and unloading procedures

M9.2.3.2.jpg

M9-EN.2.4 Hazards related to slips, trips and falls

M9-EN.2.4.1 Risk factors and their effect on human health

M9.2.4.jpg

Slips, trips and falls are the most common cause of major accidents at work in hotels and restaurants. Especially great attention shall be given to **kitchen and waiting staff** as working conditions in the kitchen inherently involve greater risk compared to other workplaces. (M9-EN.3.2, M9-EN.3.3).

Instructors and service staff working in swimming pool areas face a big risk of slipping and tripping on wet surface.

While assessing risk factors resulting in slips, trips and falls the following shall be inspected:

- Are working surrounding neat and tidy?
- Is lightening sufficient?
- Are oil and other spillages in the kitchen and dining hall cleaned immediately?
- Are suitable detergents used for cleaning the floor?
- Are warning signs used after cleaning to keep people off the wet area?
- Are employees supplied with proper slip preventing footwear?
- Is the floor surface free from holes, damage or unevenness and properly fixed?
- Are there any sudden changes in floor level?
- Are gangways of appropriate width?
- Are gangways free of electric wires and cables trailing across the floor?
- Are stairs marked out?
- Are staircase steps of appropriate height?
- Is the surface of steps not slippery?
- Are handrails installed on the staircase?
- Are ladders used for reaching things safe and in proper order?
- Is emergency lighting installed?

Negative effect on human health:

- Strained leg and arm ligaments
- Torn tendons
- Broken bones
- Slips, trips and falls may result in unexpected combinations of injuries, for instance broken leg and hand burn when a kitchen employee slipped and tried to catch hold of the nearest surface – a grill pan
- Slips, trips and falls may result in heavy injuries and even death

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M9-EN.2.4.2 Personal protective equipment

Slips, trips and falls are the most common reason of accidents and injuries in all sectors. However, it is an occupational safety area requiring least investment for risk prevention. Usually, good housekeeping practice and compliance with safety rules prevents from hazards:

- Organize the workspace so that everything has a place
- Make sure walkways have proper lighting, a free of obstructions, electric wires and cables are fixed following the requirements
- The whole floor surface must be well lit and all potential hazards (obstacles or spills) must be clearly visible
- Spillages must be cleaned immediately with suitable cleaning substances (chemical detergents may also be used depending on the nature of spilled liquid)
- Handrails, handles or other holding means shall be installed in inconvenient places
- Steps of stairs must be covered with non-slippery material, equipped with handrails, properly lit; steps must be not too steep
- The floor condition must be inspected on a regular basis: is it free from holes, damage or unevenness, is floor carpet in good shape and securely fixed, is floor free of obstacles that may cause slips and trips

To avoid falls:

- Use only proper functioning equipment and maintain them regularly
- Instruct employees on safe use of equipment (ladders etc.)
- If possible, perform the job from the floor or another safe surface

M9-EN.2.5 SELF ASSESSMENT TEST

Based on the above information list mechanical risk factors that people working in hotel and restaurant sector are exposed to.

Try to name essential safety measures to prevent these hazards.

Fill in the form below using the template. You can check your knowledge ##D12##.

| Mechanical risk factors | | Employee | Harm | Essential safety measures |
|--------------------------------|---------------------------|-----------------|-------------|----------------------------------|
| Activity/source | Hazard description | | | |