



The Centre for
Occupational Safety

IMPROVING THE ERGONOMICS OF HOTEL HOUSEKEEPING



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To the Reader

Dear reader, The purpose of this guide is to serve as an orientation manual for workplaces and provide guidelines that promote occupational ergonomics. The aim is to promote the wellbeing of employees and their ability to cope at work. The guide provides concrete tips for working as a hotel housekeeper.

Our goal is that housekeepers could work in a way that is healthy and safe for them, without suffering any pains or aches due to their work. The focus is on prevention. Our body may ache once in a while, but working should not cause or add to our pains and aches.

Our starting point is that we can have an effect on work and ergonomic working methods. At best, this means that working methods are adjusted according to the goal of the work, the employee, the duties, the equipment and the working environment. In addition, the organization and management of work can affect how smoothly work is done.

Work often involves unilateral, frequently repetitive, long-lasting or strenuous movements that can cause musculoskeletal problems. We try to address these issues in this guide. This guide gives tips on how to perform the most typical duties of housekeepers that are repeated almost daily. In addition, we describe some special situations that occur more rarely.

Production of this guide has been coordinated by Anssi Kaarnalehto, Specialist at The Centre for Occupational Safety. The team behind the guide consisted of the following representatives of the labour market: Markku Björn, Collective Bargaining Specialist at Service Union United PAM;

Tiia Brax, Adviser in Industrial Politics at The Real Estate Employers; Janne Kiiskinen, Legal Counsel at The Finnish Hospitality Association MaRa; Katarina Neli-markka, Service Manager at SOL Services; and Katja Tuominen, Service Supervisor at SOL Services. Together, we have compiled the most important tips for workplaces to develop their ergonomics and support the wellbeing of their staff.

Development and implementation are the responsibility of individual staff members and workplaces.

We have achieved our goal if you find ergonomic tips to lighten your workload in this guide. You can influence your work and working methods. Workplaces can make sure that you have good conditions for doing your work and the right equipment at your disposal. Ergonomic working ultimately comes down to attitudes. It is in everyone's best interests that work is done efficiently, but also safely and without risking your health.

We wish you rewarding moments with this guide. We have tried to make it easier to read using visual elements. Pictures often say more than a thousand words. The photos are taken by photographer Aki Rask from AkiFoto Oy. Thank you to the photographer and all those who took part in the photoshoots!

You can find key instructions in boxes listing tips and "good to know" points – please read them carefully. Focus on these things in your work and you can congratulate and thank yourself for working ergonomically.

Kind regards, Author of the guide
Virpi Fagerström Ergomentor Oy

1. Hurry slowly to prevent occupational accidents



Housekeepers often find their work stressful due to the rush. The work requires speed, but rushing is also a risk factor that can increase occupational accidents. Occupational accidents and functional disorders add to the rush, if housekeeping is understaffed. Excessive rush that causes work overload should be avoided, as this will also prevent occupational accidents and unnecessary sick leaves.

Housekeepers are expected to work quickly

The job of housekeepers plays an important role in the hotel and accommodation industry, because the quality of housekeeping affects the customer's next purchase decision or whether they recommend a particular destination. Housekeepers are cleaning professionals whose duties include cleaning, laundry, restocking supplies and serving customers. The most typical places of work

are hotels, motels, guest houses, spas, the sleeping cars of trains and passenger ships.

There are more than 1 300 housekeepers in Finland. They work mainly in 7-hour shifts and clean 15–20 rooms during one shift. The numbers can vary greatly depending on the workplace. In some places, housekeepers clean up to 30 rooms in one shift. The housekeepers' cleaning pace depends on the size of the rooms and the common areas as well as the number of working housekeepers. Sick leaves cause extra work for others, as duties are divided among the working housekeepers if no substitutes have been found.

The working pace of housekeepers is also affected by customer behavior and turnover. Turnover is higher during peak periods and holidays. There will be a greater need for thorough cleaning between guests, meaning that there will be less time for mid-stay and maintenance cleaning. As a rule, house-

keepers work at a brisk pace. They take three breaks on average during a shift.

Rushing increases the risk of occupational accidents

Job resources include good supervision, the clear organization of work, an encouraging work atmosphere and friendly co-workers. Proper equipment and orientation improve job satisfaction. Housekeepers mention the rush and the forced working pace as workload factors. The work is physically active and mobile. Rushing increases accident-proneness. Those working in housekeeping suffer the most accidents near the start of the week, which is probably due to the rush caused by customer turnover.

Roughly 3 000 occupational accidents per year occur to those working in the cleaning industry as a whole. Of these, 20% are caused by an accessway or platform and about 5% by a material, item or product. Housekeepers are most prone to accidents when moving, handling items or lifting loads manually. Occupational accidents usually result in injuries to the fingers, other parts of the hand or legs.



Move carefully especially when carrying loads!

In the cleaning industry, workers aged 50–60 years suffer the most occupational accidents. Usually, the accidents only lead to a short sick leave: almost half of those who have an accident take 0–3 days off work. The injuries are typically sprains, strains, wounds or superficial damage. Musculoskeletal problems are caused by repetitive strain injuries, which are common in the cleaning industry.

Back problems are the most typical musculoskeletal problems in housekeepers

Back problems are the most common musculoskeletal problems in housekeepers. Pains in the hands, wrists and the neck and shoulder area are also common. Housekeepers associate their pains with their work and consider their work hard.

According to an international study, only 18% of Finnish housekeepers (n=244) use pain medication, whereas up to 65% of American housekeepers (n=600) need pain





medication for work-related problems. Of the Finnish housekeepers, 42% feel that work-induced pains affect their functional capacity, whereas 77% of American housekeepers have a similar experience. Although Finnish housekeepers experience less work-related pains than their American colleagues, the work may cause physical overload, as housekeepers reported that they often feel exhausted after a working day.

The experiences of strain vary from person to person and depend on a variety of factors. If the strain is excessive and causes harm, the stress factors should be addressed. On the other hand, our body needs a certain degree of strain to be able to remain physically active for example.

Housekeepers should recognize changes and warning signs in their body that signal when they should focus more on personal wellbeing.

The physical demands of housekeeping put strain on employees, and prolonged strain will increase the risk of musculoskeletal problems. Job strain further activates your body. At first, excessive strain causes physiological reactions and temporary symptoms, but in the long run, the cumulative symptoms will cause constant fatigue and occupational diseases. Ageing employees, in particular, have an obvious

risk of work overload in physically strenuous cleaning jobs. Physical overload causes sick leaves and premature retirement. Those working in the cleaning industry are among the most likely to get sick among all occupational groups. Repetitive strain injuries and skin conditions are common among them. Good ergonomics can help to reduce the physical strain of housekeepers, prevent repetitive strain injuries and reduce sick leaves caused by musculoskeletal problems.

Monitor the warning signs in your body

- Do your muscles feel sore or weak, and the feeling cannot be explained by increased physical activity?
- Is your heart rate constantly high, even at rest?
- Do you feel stiffness or pain in your joints, not caused by injuries or accidents?
- Do you have stomach problems or other symptoms of stress?
- Have you experienced emotional changes, e.g. feeling less motivated at work or hopeless?
- Do you suffer from insomnia or feel constantly tired?
- If you answered 'yes' to more than one question, stop and think about your feelings, make lifestyle changes that promote health, ask for further tests from your occupational health service and get help.



Prevention means preventing diseases or mitigating their consequences.

2. Good ergonomics prevents problems

Ergonomics refers to adjusting techniques and actions to fit human needs. In housekeeping, it means e.g. designing the housekeeping cart or vacuum cleaner in a user-friendly way for the employee so that using it makes work more effortless. This means that the vacuum wand is adjustable, because people who use the vacuum cleaner are of different heights and they must all be able to reach a variety of places with it.

Ergonomics improves human safety, health and wellbeing as well as the uninterrupted, effective operation of systems. When using the vacuum cleaner as an example, safety could mean that the vacuum cord coils up inside the device so that people will not trip on the extra cord, or that the cord is long enough so that it does not tauten and form an obstacle. Ergonomics comes from the Greek words 'ergo', meaning 'work', and 'nomos', meaning 'natural law'.



Ergonomics improves occupational safety and prevents musculoskeletal problems in housekeepers.

Ergonomics is knowledge about the structure, operating mechanisms, capabilities, needs and working methods of humans that need to be taken into consideration when designing the operating environment. The focus is on prevention, because it is economically more viable to prevent diseases rather than try to fill in production breaks caused by diseases. Ergonomics can be divided into organizational, cognitive and physical ergonomics.

The underlying principle of this guide is overall ergonomics. In Finland, the ergonomic policies of workplaces are governed by the Occupational Safety and Health Act 738/2002, providing for the obligations and processes of workplaces to promote occupational safety. Further provisions on working conditions that also concern housekeeping have been provided in Chapter 5 of the Occupational Safety and Health Act, which states that the ergonomics of the workstation, work postures and work motions shall be designed in a way that does not cause a harmful or hazardous load on the employee's health.

In practice, this means that

- the employee has enough space for working and an opportunity to change work postures
- the work is eased by auxiliary equipment, when necessary
- manual lifting and moving operations detrimental to health are made as safe as possible if they cannot be avoided or eased by auxiliary equipment
- the hazard caused by repetitive strain to the employee is avoided or, if this is not possible, it is minimized.


The section on ergonomics (Section 24) of the Occupational Safety and Health Act emphasizes physical ergonomics, and this guide also provides practical tips concerning it. They help individual employees to pay attention to their ergonomics at work and address the physical strain of their work. Supervisors are responsible for organizing work, processes and management, so they also need to be aware of overall ergonomics and how to fulfil the obligations of the Occupational Safety and Health Act.

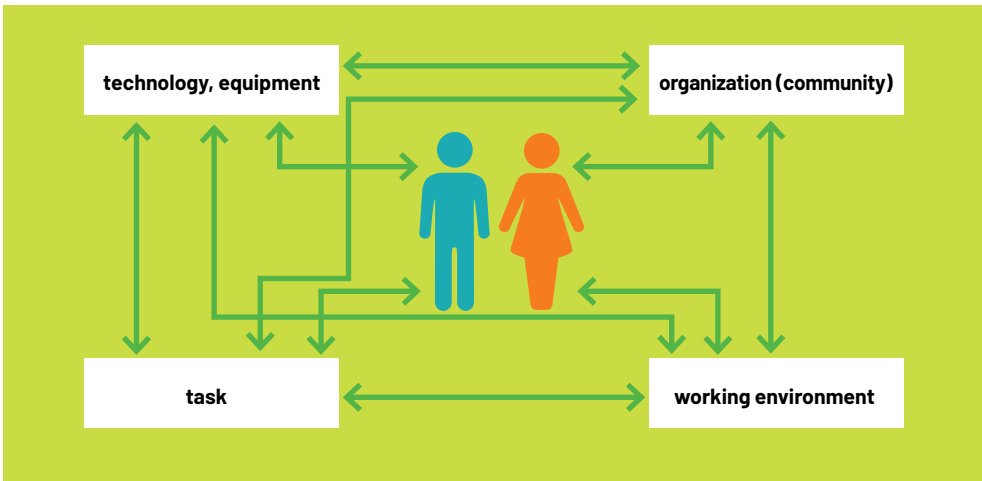


needs of humans. Ergonomics aims for smoother, high-quality, uninterrupted operations, such as housekeeping. This aim is pursued in humane ways, while also taking the efficiency and economy of work into account. The image below shows the elements of ergonomics in housekeeping. This guide focuses on these elements on a general level and in terms of how they have been provided for on a social level. Individual workplaces may have more detailed instructions and working methods, and employees are obligated to familiarize themselves with the ergonomics instructions of their workplace.

In addition to labour legislation, the ergonomic operations of housekeeping are governed by the guidelines and safety instructions of the industry and the competence requirements. A knowledge of these obligations and provisions is part of the professional competence of supervisors and others responsible for operations.

Ergonomics helps to adapt jobs, tools, working environments and other operating systems to match the capabilities and

 **The operating environments of workplaces and the instructions and processes of organizations affect how overall ergonomics is applied. Overall ergonomics includes work, the equipment, the environment and other operations.**



The ergonomics of housekeeping focuses on adapting the work, the equipment, the environment and the rest of the operating system to the employee's needs so that housekeeping can be done without disruption.

3. Housekeepers maintain their physical condition while working

The work of a housekeeper is physically active and the pace is brisk. The work consumes moderate or high amounts of energy. The strain of housekeeping can be described using the metabolic equivalent of task, or MET unit, which reflects the energetic metabolism that increases in muscular work. The MET unit is an alternative way to describe the oxygen consumption of the body (VO₂max) while working.



The MET value describes the increase in energy consumption during physical activity (active use of muscles) compared to the resting rate. One MET equals the amount of oxygen consumed by the body at the basal metabolic rate.

According to some sources, manual cleaning has a MET value of about 3.5. Other sources state that the MET value of housekeeping is 5.3, which corresponds to an extremely brisk walking pace, > 6 km/h. Cleaning therefore requires good physical stamina. In order for a housekeeper to be able to do their job and maintain a brisk pace throughout the working day, their physical stamina should be equal to a level where they could run at a speed of 8–10 km/h for a few minutes. In terms of maximum oxygen uptake, this equals approximately 31 ml/kg/min.

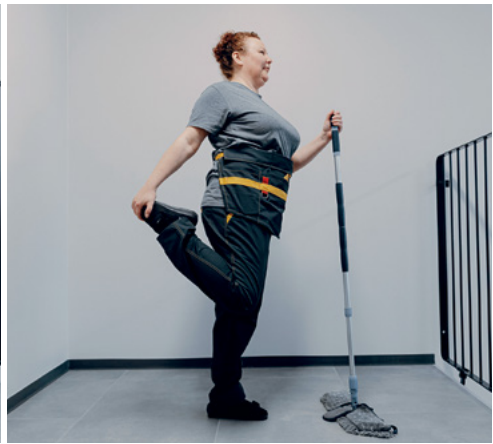
It is generally accepted that an eight-hour working day should not require more than 30–40% of an individual's maximum oxygen

uptake (VO₂max). The intensity of labour may exceed this momentarily, but the physical strain of even the heavier periods of work should be no more than 60–80% of the maximum level. You can measure the strain of your work using e.g. a heart rate monitor.

Housekeeping requires a good physical condition in terms of your respiratory and circulatory systems. Working as a housekeeper helps you maintain physical activity, because the work involves so much movement. Due to the fast-paced, mobile work, a housekeeper will achieve the 2 h 30 min of vigorous exercise, the recommended weekly amount of health-enhancing physical activity, already during one working day. Despite this, exercising in your free time is also recommended so that it would be as versatile as possible and also involve exercises that maintain muscular strength and balance.

According to a study, prematurely retired cleaners received significantly weaker results in physical performance tests compared to supervisory and working staff. In addition, those who left the job were significantly overweight and their maximum oxygen uptake and energy consumption were low compared to women of the same age. The risk of daily and long-term overload in prematurely retired individuals had already increased during previous tests. The result of the study confirms a good basic physical condition is required to be able to cope as a housekeeper.

Housekeepers mainly work on their feet and are rarely seated. In addition, the work involves a lot of reaching and working at different levels, so the employee's joint



mobility should be good to make it easy and painless to shift between positions. Housekeepers can reduce the strain caused by work postures using proper clothing, practices and counter-motions. Counter-motions are exercises done at work to activate muscles that have been resting or stretched and to stretch and increase the blood flow to contracted muscles.

Working clothes should be flexible, light and breathable to allow the housekeeper to move freely and possibly sweat. Knee padding in the trousers reduces the strain on the knees when housekeepers work on the floor kneeling down. Good work shoes support the foot, stay on firmly when you move and are comfortable to stand in even on harder surfaces. The sole of the work shoes should provide a firm grip to avoid

slipping. Employees must use personal protective equipment or other equipment at work as instructed by their employer.

The Occupational Safety and Health Act calls for employees to take care of their own and the other employees' safety and health. Workplaces have prepared instructions describing how housekeepers can maintain occupational safety and health. These instructions must be followed, and if a housekeeper notices a hazard or risk to his/her safety or that of others in the working conditions, the employee must report it so that measures can be taken at the workplace to eliminate the hazard.

Tip box

- Maintain your stamina also in your free time to be able to work as a housekeeper.
- Improve your joint mobility by doing counter-motions at work.
- Follow the employer's occupational safety and health instructions

Housekeeping involves working at floor level or above shoulder height. If you work in these positions for long periods of time, e.g. more than half an hour, your body is subjected to long-term strain, which may cause circulatory disorders and pain in your locomotor system. It is not possible to avoid working at different levels entirely, but you can optimize it to match the dimensions of your body, e.g. by crouching down, getting up on a stool or dividing the strain caused by work posture into shorter periods.

Tip box

- Change your work posture frequently and avoid working in one place.
- When working with your hands, try to use your core, i.e. the part of your body below the shoulders and above your hips.
- When working on the floor, crouch or kneel down. Use your free hand to lean on surfaces or your knee to stabilize your position.
- When working above shoulder height, use equipment with a long handle or step ladders/stools.
- Avoid taking unnecessary steps. Take and bring things with you.

The work of a housekeeper is extremely mobile and positions change rapidly, which is positive in terms of the strain to the

locomotor system. Remember that the best work posture is the next work posture!

When cleaning, you should avoid extreme positions that put a strain on your joints and cause repetitive strain symptoms. Changing your work postures, active movement and adjusting auxiliary equipment to your needs reduces the strain on your body. You should balance unilateral movements by doing counter-motions during the day as break exercises.

Avoid extreme joint positions

- Avoid bending your neck for long periods of time, e.g. when wiping high surfaces or mopping, make sure that your head does not always stay still in the same position.
- Avoid stooped or twisted back postures when e.g. vacuuming, emptying waste bins and lifting rubbish sacks. Straighten your back now and then when working.
- Avoid elevated positions of the upper arm when e.g. wiping surfaces. Remember to take breaks and lower your arms from an elevated position to increase the blood flow in your shoulders.
- Avoid twisted or bent positions of the wrist when e.g. drying a surface with a wiper.
- Avoid squeezing the handle of e.g. a mop or brush tightly with your fingers, because squeezing puts a strain on the wrist muscles and causes repetitive strain injuries.
- Avoid staying still and walking backwards. Long-term immobility increases the strain caused by work posture and constricts blood flow. Backing up increases your risk of tripping and having an accident, because it is harder to keep your balance with poorer visibility.

4. Typical housekeeping duties – tips for lightening the workload



The typical duties of a housekeeper include cleaning facilities, making beds, maintaining linen, refilling the minibar and keeping the housekeeping store rooms clean and replenished. A cleaning report is submitted and tasks are entered in an enterprise resource planning (ERP) system.

The ERP system for cleaning shows housekeepers which rooms are booked, becoming vacant and cleaned. The system guides the work of housekeepers in the rooms. In addition, housekeepers provide room service and other services to hotel customers. Most of the work is done during the day. Housekeepers mainly work alone or with a team or in pairs, when needed.





Housekeepers feel like they need to hurry, because not a lot of time has been reserved for cleaning one room. The working speed can be improved with a routine that aims to avoid unnecessary steps by observing the “take and bring things with you” principle. Hotel rooms are cleaned in the following order:

- Collect used dishes and other rubbish and empty the waste bins.
- Collect dirty linen and towels and replace them with new linen and towels.
- Clean the bathroom.
- Make the bed.
- Wipe the contact surfaces and dust.
- Clean the floor.
- Refill the minibar, if necessary.
- Mark the room as cleaned.

Focus on the routine – make beds more efficiently

Making beds is part of the housekeeping routine. Wide double beds, low beds and beds next to a wall require reaching and working in bad postures. Reaching up to make bunk and wardrobe beds is difficult. In addition, this means working with your arms elevated above shoulder height,

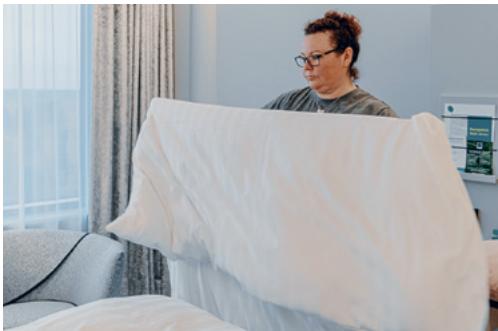




reducing the blood flow in the neck and shoulder area. Beds are also heavy when they are lifted up on the wall or in the wardrobe to wait for sleepers.

A good routine and little tips allow housekeepers to make beds more efficiently. The idea of the ergonomic instructions is that housekeepers will avoid unnecessary strain by e.g. leaning on a surface or furniture.

You should also avoid carrying the bedding, if at all possible. Usually, you can change the duvet covers on top of the bed that you are making so that you do not need to carry the heavy duvet.



Use a good routine to make beds faster

1. Remove the dirty linen and pile the bedding next to the bed.
2. Spread a sheet over the bed by opening its folds. If necessary, throw the sheet wide open. Be careful of lifting your arms above shoulder height or tugging too strongly with your hands. Tuck the sides of the sheet under the mattress and fold the corners. Move on both sides of the bed, if possible.
3. Slip your hands into the corners of the duvet cover via the foot of the cover. Note! You should fold duvet covers inside out, seams on top, so that it is easy to slip a duvet inside the cover.
4. Grab the corners of the duvet and pull it inside the cover. Flip the duvet cover right side out over the duvet.
5. Fold the duvet 1/3 of the way down and shake the duvet straight inside the cover.
6. Place the duvet on the bed.
7. Slip the pillow inside the pillowcase. Lean your leg on a chair or a step stool so that you can rest the pillow on your leg and keep your back straight. Push your thumbs inside the pillowcase to pull the case easily over the pillow. Avoid extreme joint positions, especially if you have hypermobile thumb joints.
8. Place the pillows on the bed.



Making bunk and wardrobe beds

When making bunk and wardrobe beds, be careful that you do not hurt yourself on the corners of the bed or hit your head on the top bunk. You should open and fasten the beds calmly and make sure that nothing extra falls off the bed and that they are fastened correctly. It is a good idea to stand in gait position when opening and closing the top bunk. When closing a bed, you should transfer your weight from your back to your front leg to use the strength of your entire body to push. The push begins at your chest, and both hands push equally in a sloped upward direction. Locking your elbows helps you hold the bed against the wall so that you can fasten it with one hand.



When making top bunks, you should use the lower bunk, a ladder, a chair or a stool to reach better. Mobility is important. You can reach better when you move across the side of the bed all the way to the end when making beds. When making bunk or ward-

robe beds, you can lean your other knee on the bed to improve your work posture.

Remember to crouch down or bend your knees when lifting the lower bunk. Lift the



bed with your back straight and push the bed in gait position against the wall. When opening the bed, take a step back. Turn your palms towards the ceiling and slow

down the opening of the bed by keeping your elbows firmly next to your body.

Remember the ergonomic tips for making beds

- Allow the load, e.g. a duvet, rest on the bed when placing a duvet cover.
- Avoid working above your shoulders.
 - > throw duvets/sheets open
 - > fold the duvet and shake it straight inside the duvet cover.
- Rest your leg on a surface and rest the pillow against your knee when slipping on a pillowcase.
- Avoid reaching and bending forward for long periods of time.

Avoid holding your arms up for prolonged periods when wiping surfaces

Use moist or damp microfibre cloths to wipe surfaces. Keep your wrist straight and use your whole upper limb when wiping. The movement starts in your shoulder. Keep your upper limb slightly bent at the elbow, if you can still reach by doing so. You can improve your work posture by leaning



your other hand or knee on e.g. a countertop or taking a step closer to the surface you are wiping.

It is important to clean handles and contact surfaces to eliminate microbes that cause a risk of infection. If you have difficulties reaching, wipe with a short-handled mop instead. You can also wipe tables with a short-handled (< 1 m) mop.

When cleaning windows or walls, you may need to work above shoulder height for long periods of time, and your neck and shoulder area will become tired. If such work lasts for more than 30 minutes without a break and more than 2 hours a day in total, the duration of the work and the unreasonable strain on the shoulder area increase the employee's risk. If such work is done regularly more than once a week or more than one week per year, auxiliary equipment for the task should be obtained as using them would reduce the strain on the employees' shoulders.



A suitable tool for cleaning windows and walls is e.g. an exoskeleton, which makes it easier to hold your arms up above shoulder height and uses springs to reduce the strain on your muscles when holding your upper limbs up. Window cleaning robots also make window cleaning easier and eliminate some of the strain on the user's body.

Skelex exoskeleton

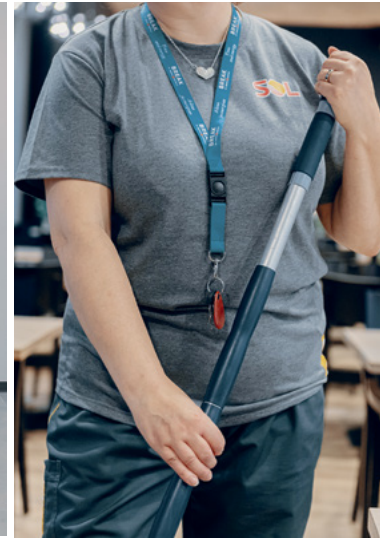
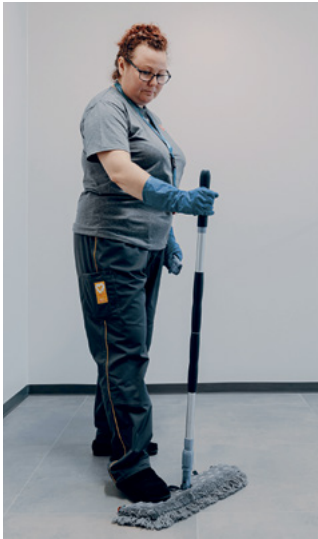
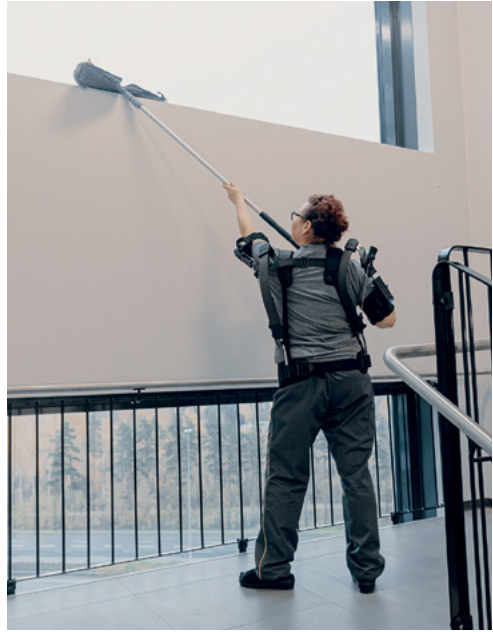
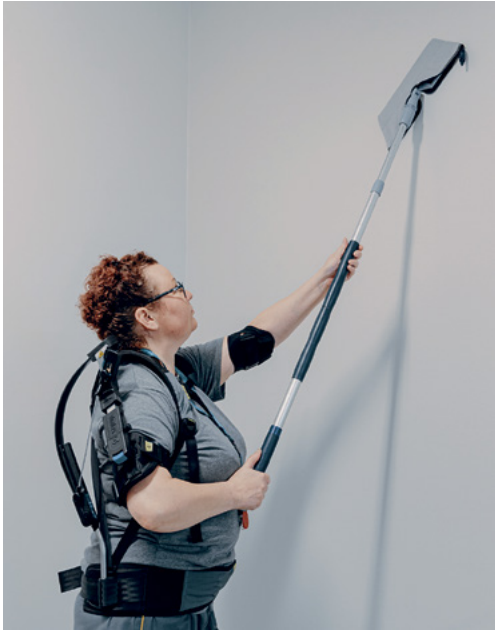
- reduces the strain on the upper limbs and shoulder area when working above shoulder height
- makes it easier to hold up your upper limbs and creates a sense of weightlessness in your upper limbs
- balances muscle activation and enables normal joint mobility in the upper limbs
- is worn like a backpack and adjusted to match the dimensions of the wearer's upper limbs.

The Skelex exoskeleton is suitable for tasks where

- you work above shoulder height for more than 30 min without a break
- you work above shoulder height for more than 2 h per day
- you have more than one task to be done above shoulder height per week or more frequently than in one week per year
- a tool or item weighing more than 5 kg is held by gripping it for more than 2 h per day.

Mop without splashing – choose moist cleaning techniques

When you start mopping, adjust the length of the handle to suit you. The length of the handle is ideal when the grips of the handle are level with our body and the top end of the mop is at chin height. Avoid squeezing the handle. When mopping, try to keep your arms below the shoulder line. Hold the mop equally with both hands.



Vary your mopping technique so that you do not strain only the muscles on one side for too long. You can mop from side to side, allowing your body to twist and gather the dirt in one place. When using a push-and-

pull motion to mop, you should transfer your weight back and forth in gait position. Try to keep your back straight and shoulders relaxed. The movement starts in your lower limbs. Bend your knees!



Try to work close to the surface you are cleaning. Use interior mops and articulated adjustable handles. You can also mop while sitting down to give your feet a rest once in a while.

Move around by shifting your weight when vacuuming

Avoid carrying the vacuum cleaner, because the best way to bring it with you is to pull it. Make sure that the vacuum cord is not taut or wound around anything. You should try to keep the vacuum cord behind your back to make it easy for you to move forward or back and forth.

Work in the gait position when vacuuming. Transfer your weight back and forth between your back and front leg and gradually move forward and to the side. This gives you a good reach and also effectively activates your upper body muscles. You should also adjust the handle and nozzle of the vacuum cleaner according to the task at hand. Occasionally, switch the vacuum wand into your other hand to try to work equally on





both sides of your body. Avoid reaching too far, but instead, take a few steps closer so that you can vacuum everywhere.

Try to keep your back straight and pass the vacuum cord behind your back. If necessary, you can lean your hand on the knee of your front leg to give your back a rest when working in a stooped position.

When vacuuming under beds or in tight spaces, crouch or kneel on the floor. Move

actively from kneeling on one knee to two knees and back up off the floor.

Avoid and minimize lifting when moving heavy loads

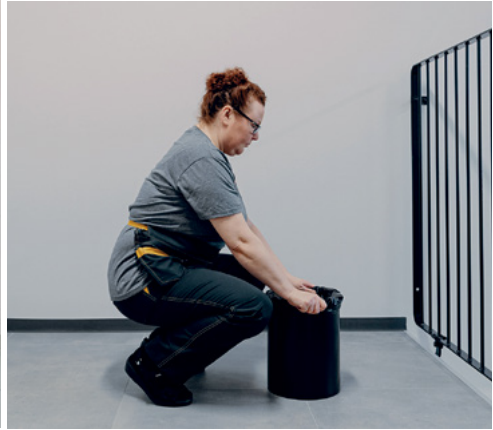
Cleaning involves work that requires muscular strength, such as carrying and lifting. No weight limits have been set in Finland for lifting loads at work, but employers are



obligated to obtain the necessary auxiliary equipment so that employees can avoid heavy lifting and carrying. The general guideline for housekeepers is as follows:

1. Avoid lifting and carrying, if possible.
2. Minimize the distance the load must be carried.
3. Try to work in pairs when carrying heavy loads.
4. Use auxiliary equipment, such as cage trolleys, carts and hand trucks.

Factors that contribute to the strain of lifting and carrying include the weight of the load, the employee's hold of the load and its shape, the lifting height, the distance of the load from the body, the lifting surface and space and the lifting technique. The Finnish Institute for Occupational Health has issued recommendations on the maximum weight of a load, providing that the lifting employee is accustomed to lifting



and his/her physical capacity and the lifting circumstances are good.

In temporary lifting, the recommended maximum weight is 55 kg for men and 30 kg for women. In repetitive lifting, the maxi-

mum weight is 35 kg for men and 20 kg for women. Housekeepers should keep in mind that lifting heavy loads (> 6 kg) always poses a risk of injury, so lifting should be done ergonomically without putting extra strain on yourself.



Lift ergonomically:

1. Prepare. Assess whether you can safely lift the load. Plan the lift from start to finish. Try to minimize the distance the load must be lifted.
2. When lifting, tighten your abdominal muscles to hold your core firm. Use your leg muscles, bend your knees and push yourself straight using your thigh muscles. Lifting with your legs is more recommended than lifting with your back to avoid straining your back. When lifting light loads, you can also use the golfer's lifting technique, standing on one foot.
3. Hold the load close to your body. Do not twist or bend your body when lifting. Also avoid sudden jerks when lifting.
4. Use lifting aids or a friend to help you.

5. Take the surface you are on and your footwear into consideration. Slide or move the load by rolling it across the surface, if possible.

Keep the casters rolling when moving housekeeping carts, cage trolleys and trash

Housekeepers need to frequently move housekeeping carts and cage trolleys as part of their job. They provide handy ways to transport items without carrying them. Pushing or pulling a cart can be hard work, especially if it is heavy. You should transport 150-litre waste bins in cage trolleys. You should avoid filling the rubbish bags too full, because big, heavy loads are difficult to handle.



Floor materials, uneven surfaces and thresholds in doorways make it harder to manoeuvre housekeeping carts and cage trolleys. Narrow hallways and cramped rooms also make it more difficult to turn and move them. The key to manoeuvring housekeeping carts and cage trolleys is that the housekeeper should produce push force with his/her whole body, instead of straining his/her shoulders in the process.

Move housekeeping carts and cage trolleys ergonomically:

1. Check the position of the caster wheels. Make sure that they are turned to the direction you want to go to make it easy to get going. Turn the casters to point to the direction you want to go. The swivel casters go in front.

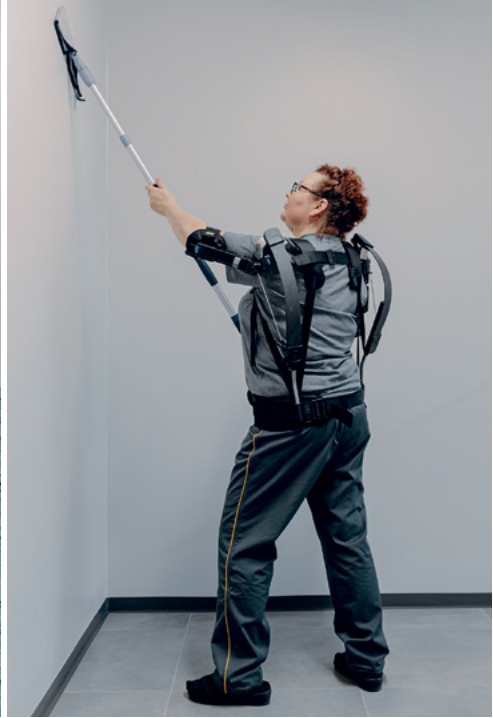


2. Use your full muscle power. Stand in gait position. Grab hold of the cart at chest height. Exert power by leaning forward and keeping your arms as straight as possible. This allows you to use the strength in your core. Keep your shoulders down and control your core.
3. Take advantage of your bodyweight. Exert power by leaning your body in the direction of motion and keeping your arms as straight as possible. Transfer your weight to get going.
4. Push rather than pull. Pushing allows you to face forward, making it easier to steer and anticipate situations as compared to backing up.
5. Avoid rotary movements of your back and neck. Keep your back straight and use steps to move, if you need to turn the cart or trolley. Move to the side if you need to see on the other side of the trolley.
6. Tilt the trolley to the side or proceed gradually. The best way to cross thresholds and obstacles is to first take the front casters over the obstacle by tilting the trolley backwards and then pushing the back casters over the obstacle. Note! Use ramps to cross thresholds and when transporting cage trolleys, if possible.
7. When going through doors, move your hands and fingers from the sides of the trolley to the end so that they do not get stuck between the trolley and the doorframe.
8. Keep the casters rolling. Proceed at a calm pace. Try to keep the pace steady.

Focus on your work posture

- Tense the deep muscles in your core when you start pushing a cart.
- Try to keep your elbows straight and below the horizontal level.
- Work with your back and neck straight. Tilt your body back and forth to create movement.
- Avoid backing up or moving sideways.

5. Diverse work environments of housekeepers



In addition to rooms, housekeepers are also responsible for cleaning common areas.

Spacious lobby, restaurant, sauna and pool areas are all common areas, and cleaning them is part of the job of a housekeeper. Many other people use the facilities, so you need to make sure that there are no obstacles in the way that cause a tripping hazard. The sizes of the working areas vary, and at times, housekeepers also work in tight spaces, making it challenging to apply ergonomics.

In sauna and pool areas, housekeepers can improve their safety by wearing watertight shoes with non-slip soles. Clothing should

also be light, because humidity and heat cause additional strain when cleaning. During cleaning, others using the facilities should be warned using caution signs indicating slipping or tripping hazards to avoid accidents.

Observe occupational ergonomics when cleaning lobby, restaurant, sauna and pool facilities

You should proceed through common areas systematically. In restaurants, moving the chairs by sliding them makes it easier to clean the floor under the chairs and tables. You should avoid any additional lifting of the chairs, if possible.

If necessary, you can reduce the strain caused by work posture by sitting on a chair to avoid bending your back. This also allows you to give your feet a rest, keeping in mind that housekeepers mainly work while standing or moving on their feet. Taking a sitting break from work adds variety to the strain caused by work posture, which mainly affects the lower limbs. When cleaning, you should try to relax your shoulders even when you need to move your hands. There is no need to squeeze the equipment tightly. This only puts extra strain on your upper limbs and shoulders.

Equipment with a handle gives you greater reach when cleaning tables and countertops and allows you to keep your back straight. You may also want to lean your other hand on a table to give your body more support and a larger supporting surface. The length of a short-handled mop is max. 1 m, because a mop that is too long is hard to manoeuvre. A 50–70 cm handle increases your working radius, but the mop head is not too heavy.





In sauna and pool areas, the air humidity, heat and steam increase the load of mobile work. You should wear light clothing in these areas. You should divide your work into periods and schedule cleaning during off-peak hours.

When working in the heat ($> 28^{\circ}\text{C}$), the duration of a working period can be no more than 50 min, because heat puts a strain on the body and reduces your performance. You should drink plenty of liquids to avoid dehydration due to sweating.

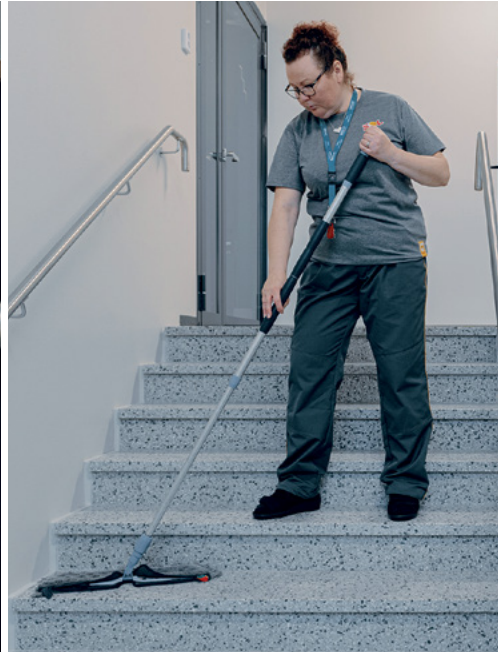
Cleaning sauna and pool areas is moderately hard work, meaning that the recommended temperature should be below 21°C . The recommended relative air humidity is 30–50 percent. The employer must ensure that tasks are varied and breaks are taken to temporarily interrupt the exposure to the heat or cold. Inform your employer if your thermal environment needs improvement.

Watch out for the risk of being wedged in a lift and tripping on the stairs

When cleaning lifts, be careful with the sliding doors so that you or the equipment do not get stuck between them. You should place a door stopper or something else in front of the door to prevent it from closing. Using door stoppers is also recommended when cleaning rooms, because they make it easier to move in and out of the room.

Housekeepers should be careful in lifts without inner doors, because items in cage trolleys or the housekeeper's body parts may be wedged between the lift gate and the wall of the shaft. The safest place for trolleys and people in such lifts is next to the solid wall.

The most important surfaces to wipe in a lift are the buttons and the handrails. When wiping mirrors and floors, try to find the best possible work postures that you can in the tight space. You can pull



the vacuum cleaner inside the lift or keep it outside if the wand and cord are long enough.

Housekeepers should move carefully when cleaning stair landings and stairways. You should light up the space as well as possible to be able to clearly see the differences in height. You should move forwards on the stairs to keep your balance using your sight.

If necessary, housekeepers can hold on to the railing if the work does not require both hands. Working in gait position and on a wide supporting surface makes it easier to move and stay balanced. The differences in height on the stairs can also be utilized by standing on different landings to keep your back straight. You should clean stairs from the top down, because this is the safest direction for the housekeeper to move. In addition, it is easier to remove rubbish when you go downwards.

Tight spaces in toilets and bathrooms create challenges

In toilets and bathrooms, the order of cleaning is from the cleanest to the dirtiest surfaces. These spaces are often cramped, which makes it difficult to move and also affects the choice of equipment. The same principles apply to strain caused by work posture in toilets and bathrooms as in other facilities. Learn the ergonomics tips in the box below and apply them in practice.

Remember the ergonomics tips for working in tight spaces

- Work in a wide gait position to ensure a stable supporting surface.
- Improve your balance by leaning your hand or foot on a countertop, a wall or a surface.
- Utilize auxiliary equipment with a handle to improve your reach.
- Vary your work postures and move. Remember to also take micro-breaks to relax your muscles.



Tips for working at floor level and reaching

When working at floor level, you should crouch down or work on your knees. Work clothing, such as trousers with knee padding, can reduce the strain on your knees when working while kneeling down. Housekeepers should maintain the mobility of their lower limbs to be able to kneel and get down on the floor easily.

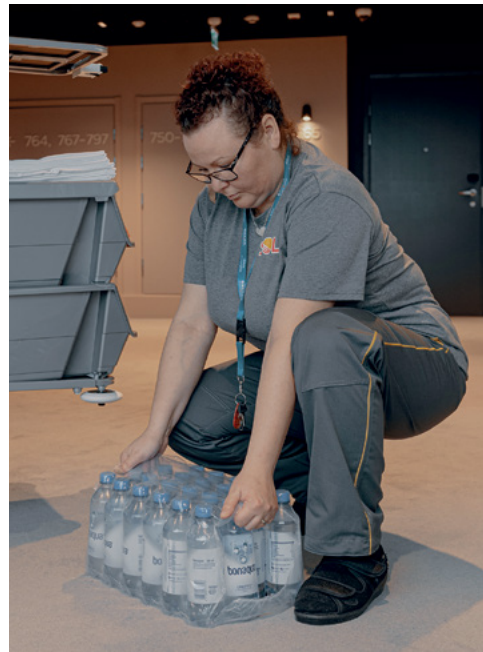
Standing up is easier if you bend your ankles and toes, shift your weight back from the balls of your feet to your heels and use strong thigh and gluteal muscles, allowing you to straighten your knee and hip joints. You should also utilize kinetic energy when standing up. If necessary, you can also stand up by first getting up on one knee. Place one foot forward and get up using one leg. Three-dimensional movement, or changing positions using rotary





movements and leaning your hands on surfaces, makes it easier to get up.

You can also work while sitting on the floor if kneeling down hurts. When sitting at floor level, even a small platform under your bottom will make it easier to extend your lower back, or lumbar spine, meaning that your pelvis will tilt forward and your reach will improve. It will also make it easier to control your sitting balance, since you use your back muscles instead of your abdominal muscles to maintain your posture.



6. Ergonomic equipment makes housekeeping easier – use, obtain and maintain proper equipment!



Housekeepers use cleaning carts, machines and equipment. The properties of ergonomic equipment are adjustability, usability and effortlessness. Since people are individuals and employees' body dimensions vary, housekeepers can improve their work by adjusting the equipment to match their needs.

When obtaining equipment, ergonomic properties should be taken into consideration so that each piece of equipment fits the purpose and environment where it will be used. For example, in equipment that is moved across the floor, wheels or casters that roll easily on the surface are important to make it easier to use them. If a piece of equipment requires constant lifting and carrying, its weight should be considered and a lighter model chosen to ease the workload of housekeepers.

Remember

- Check the condition of the equipment before you start.
- Become familiar with the operating and safety instructions of the equipment. Follow the instructions.
- Adjust the equipment to your needs.
- Avoid lifting and carrying equipment whenever possible. Use a co-worker or auxiliary equipment to help lift and carry equipment.
- Take breaks if you need to repeat similar movements or work in one position for long periods of time.
- Finally, take care of the cleaning, servicing and maintenance of the equipment.

Housekeepers possess a lot of tacit knowledge about the good and bad properties of equipment. Naturally, employees also have individual preferences and differences of opinion regarding equipment. Those responsible for acquisitions should utilize the experiences of housekeepers when buying new equipment so that selection criteria that facilitate work could be determined already when requesting offers for equipment. Table 1 shows some of the properties of cleaning carts, machines and equipment that improve ergonomics and should be considered when acquiring work equipment and clothing.

The daily duties of housekeepers include servicing and keeping equipment clean. Equipment is stored at the workplace in the places reserved for them, and the hygiene of cleaning cloths is ensured according to the instructions provided. Broken equipment must be removed from use or clearly marked so that others do not use them. The service life of machines and devices can be extended by servicing them regularly.

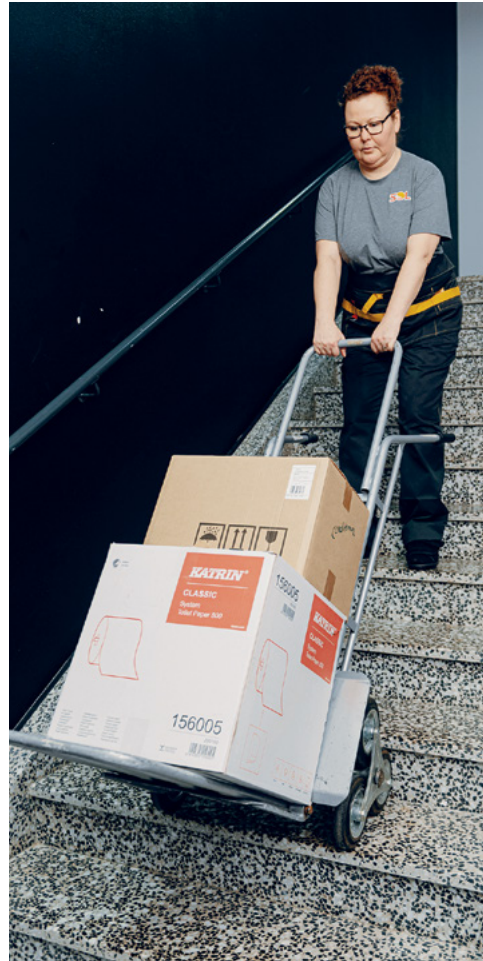


Table 1. Properties of ergonomic equipment for housekeepers

EQUIPMENT:		PROPERTY THAT IMPROVES OCCUPATIONAL ERGONOMICS:
1. Cleaning carts	Housekeeping carts	<ul style="list-style-type: none"> • Caster roll easily. They roll on the floor material in the operating environment. • There is a centre caster in the middle of the cart to make it easier to turn. • The housekeeping cart has a handle for pushing and manoeuvring. • No overfilling.
	Cage trolleys	<ul style="list-style-type: none"> • Casters roll easily. They roll on the floor material in the operating environment. • Doors open effortlessly. • No overfilling.
	Transport trolleys	<ul style="list-style-type: none"> • Sturdy and steady. • The push height is adjustable or a push/pull handle makes it easy to manoeuvre.
	Hand trucks	<ul style="list-style-type: none"> • Wheels that move and roll against the surface. • Foldable for storage. • Can be loaded by sliding the load.
	Vacuum cleaners	<ul style="list-style-type: none"> • Adjustable wand. • Replaceable nozzle options. • Cord coils up inside the device.
2. Machines and devices	Floor cleaning machine (walk-behind or ride-on)	<ul style="list-style-type: none"> • The push height of the walk-behind model is either adjustable or at hip height. • Control buttons of the machine are clear and easy to use. • Servicing and cleaning the machine is easy, e.g. wastewater tanks and brushes can be cleaned easily.
	Scrubber dryer	<ul style="list-style-type: none"> • Adjustable handle. • Servicing, filling and cleaning the machine is easy, e.g. wastewater tanks and brushes can be cleaned easily.
	Brush machine for fitted carpets	<ul style="list-style-type: none"> • Adjustable height of the handle. • The grips of the handle make gripping easier and are padded to reduce vibration. • Swivel wheels that are easily manoeuvred. Self-propelled wheels, if necessary. • Lightweight machine.

EQUIPMENT:		PROPERTY THAT IMPROVES OCCUPATIONAL ERGONOMICS:
3. Cleaning equipment	Mops, brushes and wipers	<ul style="list-style-type: none"> Adjustable handles. Pre-wetted mops, because wet mops are heavy to use. Soft grips that provide a firm grip. Articulated lock system between the handle and the mop frame, and the locking is easy to use.
	Cleaning cloths	<ul style="list-style-type: none"> Pre-wetted cloths to avoid wet cleaning techniques. Glove-shaped cloths are functional.
4. Carrying and storage equipment	Buckets and pails	<ul style="list-style-type: none"> Round handle with a diameter of at least 15 mm. The handle can be lowered to the side. Carrying capacity 8–10 kg.
	Bag or container for carrying equipment	<ul style="list-style-type: none"> Strap that is wide, padded and long enough in the model carried over the shoulder. Short strap in the model carried by hand. Hanging hook or sticker.
5. Work clothes	Gloves	<ul style="list-style-type: none"> Different sizes so that employees have gloves that are the right size and can wear cotton gloves underneath, if needed. Disposable and reusable gloves are available and they conform to the shape of the hand.
	Work trousers or apron	<ul style="list-style-type: none"> Breathable, flexible material that makes it easy to move and does not cause sweating. Trousers with pockets and knee padding to make it easier to work on the floor. Apron with pockets where you can put things to carry.
	Work coat, shirt or vest	<ul style="list-style-type: none"> Breathable, flexible material that makes it easy to move and does not cause sweating.
	Work shoes	<ul style="list-style-type: none"> Shoes that fit, support and protect your feet. Shoes with a back strap, if needed, so that they stay on properly. Slip-resistant soles that provide a good grip. Boots of different sizes in the pool area with soles that provide a good grip. Disposable covers to protect your feet next to shoes that are in common use. Separate shoes for outdoor use that prevent your feet from getting wet.

Adjust handles and focus on work postures and grips

Adjustable equipment enables optimal work postures, because each piece of

equipment can be adjusted according to the individual dimensions, task and environment of the employee. Cleaning involves reaching into and fitting in tight spaces, so the adjustable height, rotating joints and



replaceable nozzles or heads enable the use of the tool in various places.

Mops and vacuum cleaners are typically easy to adjust, so housekeepers should adjust each piece of equipment to the desired height before using it. The general rule for adjusting the handle is:

- Grab the tool in the same way you would hold it when cleaning.
- Assume the position you are in when you clean, e.g. stand with your feet at hip-width when mopping or in gait position when vacuuming.
- Adjust the handle so that the grip position on the handle is at core height when your shoulders are relaxed, your shoulder and wrist joints are in neutral position (= zero position, i.e. the muscles around these joints are at their resting length) and your elbow joint is at a 90-degree angle.

An ergonomic grip is round and padded. In addition, its dimension enables a firm grip. Cleaning usually requires a power grip, meaning that the diameter of the tool should be 30–40 mm. If the tool is meant for carrying, the thickness of the handle should depend on the weight of the load.



You should pay attention to these things to make sure that each piece of equipment is comfortable to use and fits its purpose.

Minimum handle thicknesses according to load weight:

- 10 mm / under 6 kg loads
- 15 mm / 6–10 kg loads
- 20 mm / 10–20 kg loads

It is easier to use a carpet cleaner if the length of the handle can be adjusted according to the employee's height. The handle of the carpet cleaner should be at elbow height when your arms are



Observe the compatibility of the housekeeping carts and other equipment in the working environment

You should pay attention to the casters of housekeeping carts and cage trolleys already when acquiring new equipment. In an ideal situation, you could test the piece of equipment in the working environment. Manoeuvring carts and trolleys is hard if the casters do not roll properly. In addition, the hallways may be narrow, making it more difficult to turn the cart or trolley, unless there is a centre wheel in the middle of the cart to make it easier to turn. A cage trolley should have two fixed and two swivel casters, making it easier to manoeuvre.

When acquiring housekeeping carts or cage trolleys, pay attention to the following properties of the casters:

- diameter
- width
- softness/hardness
- bearings
- maximum load, so that these properties are suitable for the purpose and the environment.

by your sides with elbows at a 90-degree angle. A self-propelled carpet cleaner or brush machine eases the housekeeper's workload.





Obtaining and servicing ergonomic auxiliary equipment – the basis for prevention

Equipment should be serviced after use and stored in the appropriate places. The cleanliness of equipment increases their service life and improves the quality of housekeeping. Typically, appropriate places for servicing equipment can be found in the laundry facilities.

In addition, the condition of machines and devices should be checked daily and annual maintenance carried out on time. Employees should be trained in the safe use of machines and devices. Guidance and instructions help to ensure that the employees know how to use and service the equipment safely.

You should acquire separate cage trolleys for outdoor use. They should be easy to manoeuvre in the loading bay, on ramps or in the yard. Housekeepers themselves can affect how easy it is to transport equipment by not overfilling their cage trolleys. The heavier the load, the harder it is to move. So you should avoid overfilling.

Before acquiring equipment, it is a good idea to ask the staff for their ideas on good equipment and try out the equipment in their environment of use. An ergonomic piece of equipment is adjustable to the user's dimensions. It is easy to use and light, but durable. It fits its purpose and is compatible with other equipment, users and the environment.



7. Summary – Putting ergonomic tips into practice in housekeeping

1. Avoid working in a hurry.
2. Pay attention to and respect what you sense in your body.
3. Take advantage of the entire space and work in different postures.
4. Ease your workload using auxiliary equipment.
5. Avoid lifting that is detrimental to health. Use auxiliary equipment or ask a co-worker to help you.
6. Avoid extreme joint positions.
7. Maintain your physical activity also outside work.
8. Include break exercises in your working day.
9. Observe a smooth routine that speeds up work.
10. Monitor the condition of your equipment.



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IMPROVING THE ERGONOMICS OF HOTEL HOUSEKEEPING

The purpose of this guide is to serve as an orientation manual for workplaces and provide guidelines that promote occupational ergonomics. The aim is to promote the wellbeing of employees and their ability to cope at work. The guide provides concrete tips for working as a hotel housekeeper.

