PENSION COMPANY

Working life information and solutions to support work ability

Construction sector

Summaries

Everyday working life
– general information about the construction sector

Workload factors and resources

Phenomena and trends

Solutions

Statistics and graphs

This series on working life information and solutions to support work ability is a compilation of the working conditions, work strain and job resources that are typical of the tasks, occupations and sectors of our client companies.

The contents are based on statistics, expert information and research data, Elo's data and open data from research institutes.

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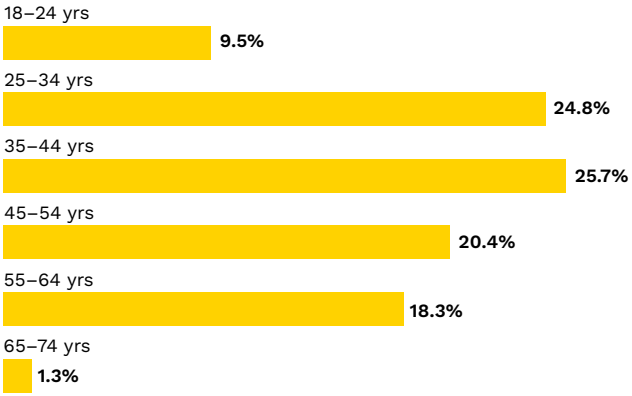
Summary on everyday working life

Construction sector jobs are primarily found in building construction, civil engineering and the construction product industry. The majority of the workplaces in this industry are small in terms of their number of employees, but a significant proportion of the employees in this industry also work in larger companies. The sector covers a wide range of professions and work tasks. Employees in this sector work, for example, as painters, electricians, builders, HVAC installers or furniture fitters at worksites. White-collar workers and experts in the construction sector are working as architects, engineers and construction site managers.

A large percentage of the workers in the construction sector are men. The average share of women is about 10 per cent, but the gender distribution varies between different occupational groups within the sector. The sector also has a range of employees from different age groups, and the share of persons aged over 45 is about 40%.

The construction sector has employees of different ages

Source: Statistics Finland, Employment statistics (2022)



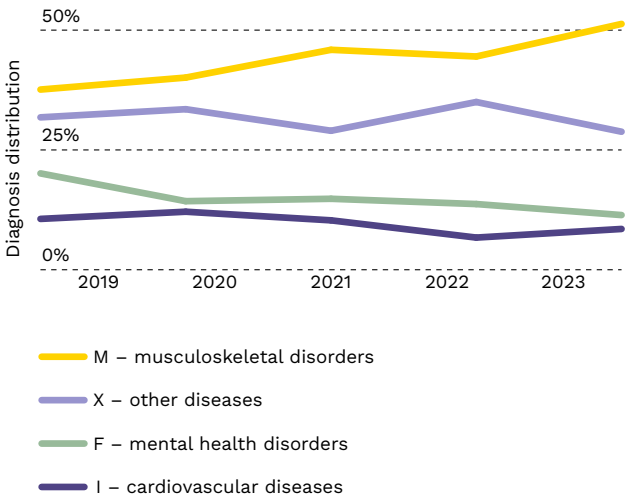
Shares of employed persons by age group

Work disability in the construction sector

Most of the disability pensions granted in the construction sector are related to musculoskeletal disorders. The share of disability pensions granted on the basis of mental health issues in relation to all disability pensions in the construction sector has remained at nearly the same level throughout 2020–2023.

Musculoskeletal disorders are a significant factor in terms of work disability in the construction sector.

Source: Elo's data (2019–2023)



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Summary of load factors and resources

Work-related stress and strain arise from the interaction between work and the employee. The relative strain experienced by the individual depends on both the work-related factors and the employee's own capabilities and resources. Harmful strain is preventable. Work that is appropriately demanding supports work ability.

Many musculoskeletal disorders develop as a result of long-term work-related strain. Adopting healthy working habits that support work ability early on in one's career will help to prevent the development and occurrence of musculoskeletal disorders later in one's career.

Physical workload

The physical work strain may be related to specific movements and working positions or to the working environment and physical working conditions. In the construction sector, physical loading is caused in particular by:

- Difficult working positions such as kneeling or working with a bent back
- Working positions that twist the back
- Continuous overhead work that requires hands above shoulder level
- Extensive standing or walking during the workday
- Lifting and moving heavy loads

Psychosocial work strain

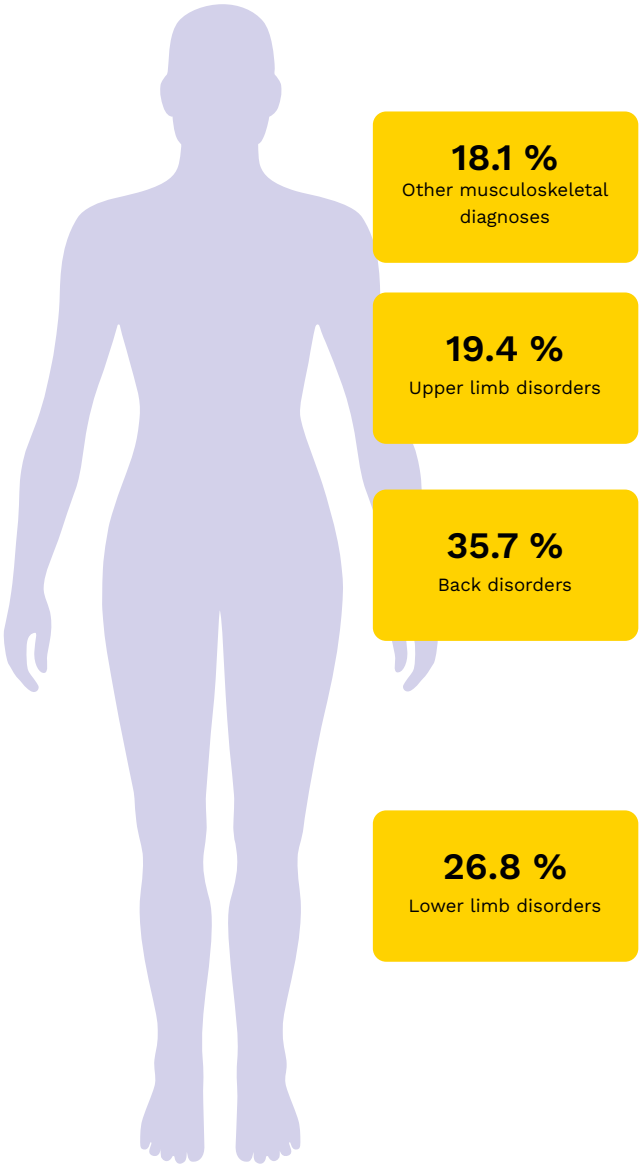
Psychosocial workload factors are factors relating to the work arrangements, the content of work, the way in which work is organised and social dynamics at work. Psychosocial loading in the construction sector is particularly brought about by the hectic pace of timetables and the risk of accidents involved in dangerous work. According to studies, psychosocial risks such as a hectic pace and excessive time pressures also increase the risk of developing musculoskeletal disorders. Physical strain can lead to musculoskeletal pain, which can also affect the mental wellbeing of employees in the construction sector.

Key resources

In ideal situations, the construction sector has a lot of resources available to support the work ability of its personnel. Key resources in the construction sector include sufficient work recovery, opportunities for competence development, opportunities to influence one's own work, support from one's supervisor and work community, fair treatment and open communication.

Back diseases are a common reason for disability pension in the construction sector. The musculoskeletal diagnoses are relatively evenly distributed to different parts of the body and subdiagnostic categories.

Source: Elo's data (2019–2023)



Read more about load factors and resources >

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Summary of phenomena and trends

Competence within the construction sector

Changes in working life affect the construction sector and generate new skill requirements. The evolving need for different types of skills and knowledge requires employers to support the continuous learning of their employees at different stages of their working life and alongside their work. Insufficient work-related knowledge or occupational competencies can be a risk for work ability. Learning and competence management is a tool that work ability management utilises to strengthen work ability and the sustainable growth of the company. In terms of competence management, it is important to identify the specific characteristics of the sector within educational and training paths, the current competence needs of the company for different personnel groups, and the future competence needs caused by a changing operating environment. Personnel that are professionally competent and open to learning are more productive and boost the competitiveness of the company.

- There is a shortage of skilled workers in the construction sector, even though unemployment is high among graduates in this sector.
- Supporting continuous learning alongside work helps businesses to stay on top of new areas of competence required by the sector
- Greater co-operation between companies and educational institutions can support the transition of young people to working life and strengthen their working life competencies.
- As the construction sector is evolving, there will be an emphasised need to increase diversity skills and strengthen the working life competencies of young people.

Diversity among personnel

In construction sector companies, it is essential to take into account the employees' individual needs for support and plan their tasks in a way that ensures that they can be carried out smoothly and that they offer diverse learning opportunities. The use of foreign labour is common in the construction sector, with the result that language skills, among other issues, may affect the onboarding process of employees and the formation of a functional work community. In addition, neurodiversity in the workplace brings its own components to learning, working approaches and interaction situations.

- The share of the foreign labour force in the construction sector is approximately one fifth, which is explained by factors such as the cyclical sensitivity, labour intensity and local nature of the work.
- It is a good idea to support the building of language skills alongside the development of professional skills. Language learning requires the support of the entire work community.
- Neurodiversity can be taken into account in workplaces by, for example, facilitating individual learning and working methods and utilising work accommodation
- Neuroinclusion strengthens the well-being of the whole work community.

Digitalisation

Digitalisation and artificial intelligence are having a dramatic effect on working life, and the changes are also expected to impact work in the construction sector. According to the competence requirement survey carried out by the Confederation of Finnish Construction Industries RT in 2021, a large number of representatives of construction sector companies mention digitalisation as one of the most significant drivers of change affecting the sector evolution. Despite this, digital development is still only in the initial stages in many sector companies. New technologies create opportunities to enhance work efficiency, sustainability and green transition. The physical burdens of the work can also be reduced if heavy tasks can be handled by machinery. However, the introduction of digital tools requires orientation and proven experience that the new technologies are beneficial and support the work.

- Digitalisation is believed to be one of the most significant drivers of change in the evolution of the construction sector.
- A lack of knowledge and skills in the use of digital tools may prevent the utilisation of new technologies.
- Sufficient time to learn new technologies and the utilisation of appropriate digital devices are good ways to strengthen work ability.
- Digital solutions create new opportunities for, e.g., planning, timetable management, data analysis and the identification of safety risks.

Read more about phenomena and trends >

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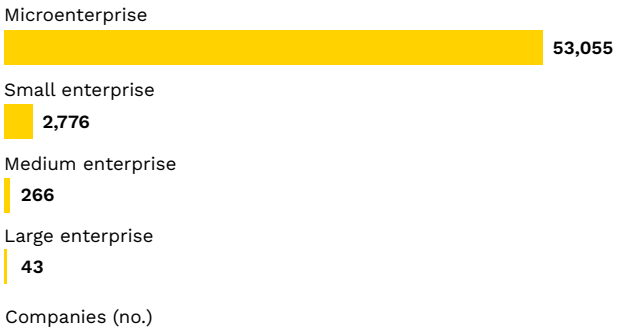
Everyday working life – general information about the construction sector

Construction sector

Construction sector jobs are focused mainly in building construction, civil engineering and the construction product industry. The majority of the workplaces in this industry are small in terms of their number of employees, but a significant proportion of the employees in this industry also work in larger companies. The sector covers a wide range of occupations and work tasks. Employees in this sector work, for example, as painters, electricians, builders, HVAC installers or furniture fitters at worksites. White-collar workers and experts in the construction sector are working as architects, engineers and construction site managers.

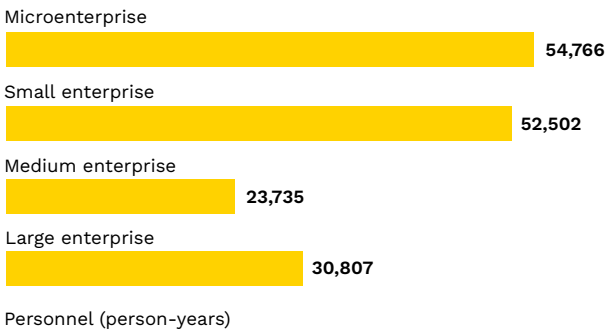
The majority of construction sector companies are microenterprises with fewer than 10 employees.

Source: Statistics Finland, Structural business and financial statement statistics (2022)



A significant proportion of employees in the sector also work in larger companies.

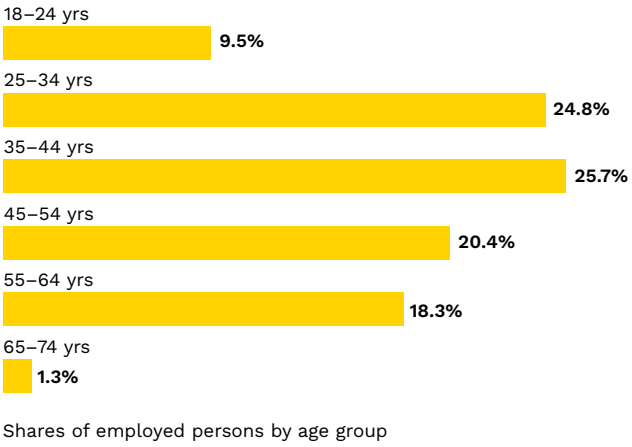
Source: Statistics Finland, Structural business and financial statement statistics (2022)



A large percentage of the workers in the construction sector are men. The average share of women is about 10 per cent, but the gender distribution varies between different occupational groups within the sector. Employees from different age groups work in the sector, and the share of persons aged over 45 is about 40%. A large proportion of employees in the construction sector are engaged in so-called specialised construction activities, which include preparatory work prior to construction, installation and finishing work on buildings and the demolition of buildings. The use of foreign labour is common in the construction sector. On average, about one-fifth of the labour force on worksites have foreign backgrounds.

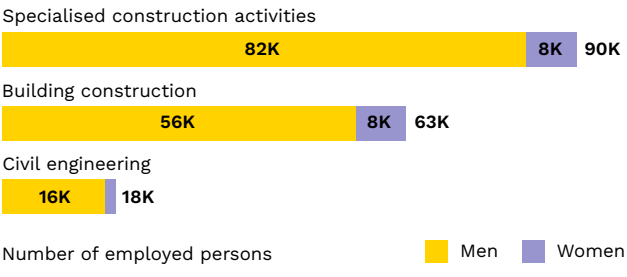
People of different ages work in the construction sector.

Source: Statistics Finland, Employment statistics (2022)



The largest number of employees are employed in specialised construction activities.

Source: Statistics Finland, Employment statistics (2022)



Work ability within the construction sector

According to Elo's data, a larger proportion of employees in the construction sector assess their work ability as being at least good. However, there is

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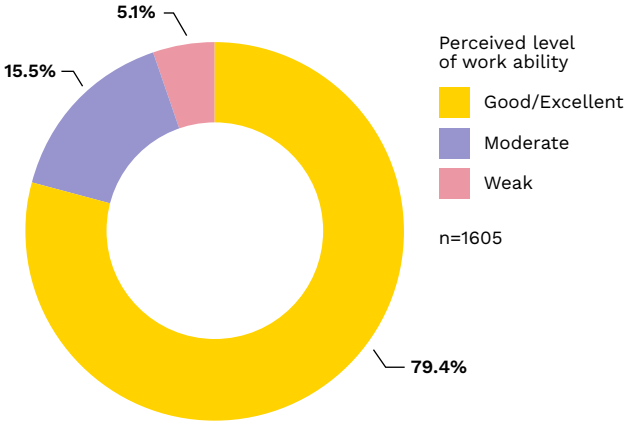
a significant number of employees who assess their work ability as being moderate or weak. The load factors in the construction sector vary according to task. Many tasks often involve physical, environmental (noise, vibration, dust) and chemical load factors, as well as a risk of accidents. In the case of experts working in the construction sector, the load factors vary, for example, depending on how much work involves visits to the worksites. Those working as construction managers often carry out a portion of their working hours on active worksites. However, in the construction sector, many types of expert work primarily take place in office environments, where psychosocial load factors and cognitive demands (memory challenges, accuracy, problem solving) are emphasised.

The majority of employees in the construction sector assess their working ability as being at least good.

Source: Elo's Work Community Survey* (2023)



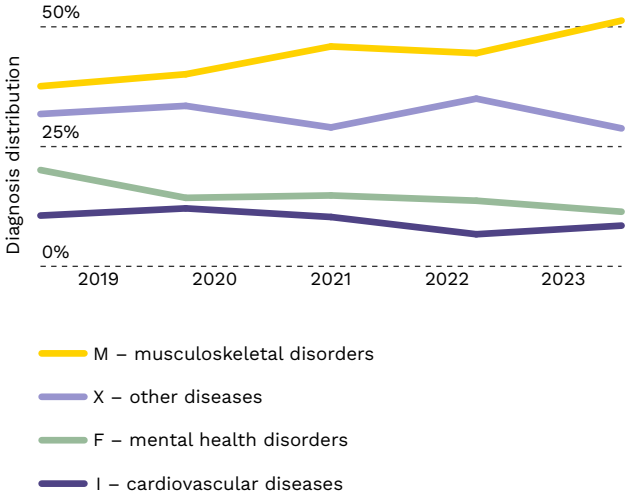
*The Work community survey is a tool provided by Elo to its customers to assist with knowledge-based management. The tool helps customers to gain a situational picture of the workplace resources that, if strengthened, could be utilised to support the work ability of the personnel. Each year, more than 25,000 workers in Finnish workplaces respond to the survey.

Work disability in the construction sector

Most of the disability pensions granted in the construction sector are related to musculoskeletal disorders. The share of disability pensions granted on the basis of mental health issues in relation to all disability pensions in the construction sector has remained at nearly the same level throughout 2020–2023.

Musculoskeletal disorders are a significant factor in terms of work disability in the construction sector.

Source: Elo's data (2019–2023)



SOURCES – EVERYDAY WORK

Reading guide concerning sources

For the purposes of this report, when the reference number is within a sentence, the reference only refers to the portion of the text preceding the specific reference number in question. If the reference number comes after the full stop at the end of a sentence, the source reference applies to the whole paragraph or to the sentences from the previous to the current reference number. A full source reference is given in the source list when the source first appears. When the same source is referenced again, only the (primary) author's surname and year of the source publication are given as well as, if necessary, more specific identification information, such as the name of the source.

External sources for graphs

Statistics Finland. (2023). Employment. Employed labour force by area, industry (TOL 2008), occupational status, age, sex and year, 2007–2022. Variables Area, Industry, Occupational status, Age, Sex, Year and Information. PxWeb (stat.fi)

Statistics Finland. (2023). Employment. Employed labour force by area, industry (TOL 2008), occupational status, age, sex and year, 2007–2022. Variables Area, Industry, Occupational status, Age, Sex, Year and Information. PxWeb (stat.fi)

Statistics Finland. (2024). Structural business and financial statement statistics. Enterprises by industry and size class in personnel (enterprise unit), 2018–2023. Enterprises by industry and size class in personnel (enterprise unit) with variables Year, Industry (TOL 2008), Size category of personnel and Information. PxWeb (stat.fi)

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Workload and resource factors

Introduction

Workload factors vary in the construction sector depending on the nature of the work, the working environment and the specific work tasks. Musculoskeletal disorders are a common cause of sick leaves and disability. Work-related stress and strain arise from the interaction between work and the employee. The relative strain experienced by the individual depends on both the work-related factors and the employee's own capabilities and resources. Harmful strain is preventable and work that is appropriately demanding supports work ability. Many musculoskeletal disorders develop as a result of long-term work-related stress. Adopting healthy working habits that support work ability early on in one's career will help to prevent the development and occurrence of musculoskeletal disorders later in the career.

Back diseases are a common reason for disability pension in the construction sector. The musculoskeletal disorder diagnoses are relatively evenly distributed to different parts of the body and subdiagnostic categories.

Source: Elo's data (2019–2023)

18.1 %
Other musculoskeletal diagnoses

19.4 %
Upper limb disorders

35.7 %
Back disorders

26.8 %
Lower limb disorders

Physical workload

The physical workload factors may be related to specific movements and working positions or to the working environment and physical working conditions. In the construction sector, physical workload is caused in particular by[1]:

- Difficult working positions such as kneeling or working with a bent back
- Working positions that twist the back
- Continuous overhead work that requires hands above shoulder level
- Extensive standing or walking during the workday
- Vibration
- Lifting and moving heavy loads

Working for an extended period with raised arms (overhead work) is harmful for upper limb and shoulder muscles and increases the risk of musculoskeletal disorders in the neck and shoulder area[2]. Work in the construction sector may call for such overhead work as well as a lot of repetitive movements, which further increases the risk of developing musculoskeletal disorders[3].

In the construction sector, expert work and office work carry the risks associated with sedentary work. Prolonged and constant sitting can lead to, for example, cardiovascular diseases. Constant and excessive sitting also places stress and strain on the neck, shoulders and lower back. Sitting has also been shown to reduce blood circulation in the lower extremities, which can contribute to an increased risk of musculoskeletal disorders[4]. The risks associated with cognitive load and brain work are emphasised in expert work. Elo's 'Working life information and solutions to support work ability' series provides more information on these risks.

Construction-related tasks can place a degree of mechanical stress on skin, which can damage tissues and nerves under the skin. The use of hand tools creates vibrations that are loading for the circulatory system, musculoskeletal system and nervous system.[5] In addition, worksite stress is brought about by noise, exposure to dust and harmful chemicals, and by working in hot or cold temperatures.[6] Working in hot temperatures increases the risk of heat exhaustion. The risk of heat exhaustion is further increased by the combined effect of physical loading, heat and inadequate hydration.

Occupational diseases are diseases primarily caused by physical, chemical or biological factors at work. Any compensation for occupational diseases is paid by the accident insurance company in which the employer has accident insurance at the time when the occupational disease appears. According to the Work-Life Knowledge Service of the Finnish Institute of Occupational Health, the common occupational diseases of construction workers include:

- Allergic dermititis
- Noise-induced hearing loss
- Diseases associated with asbestos exposure
- Bursitis of the knee
- Hand-arm vibration syndrome
- Lateral epicondylitis (tennis elbow)
- Synovitis and tenosynovitis

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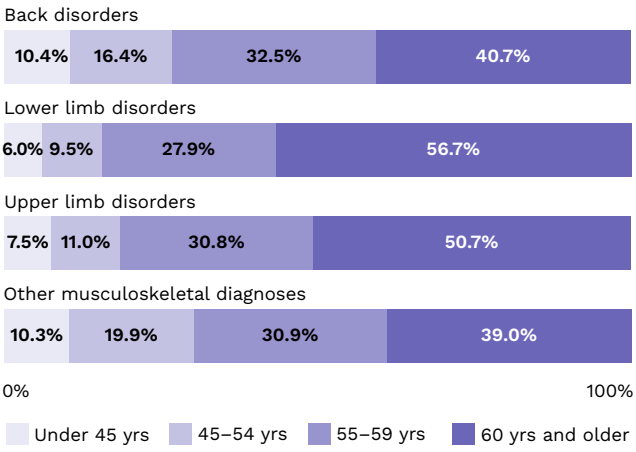
A significant proportion of disability pensions resulting from musculoskeletal disorders are granted in the construction sector to persons 60 years of age and older.

Source: Elo's data (2019–2023)



Psychosocial work strain

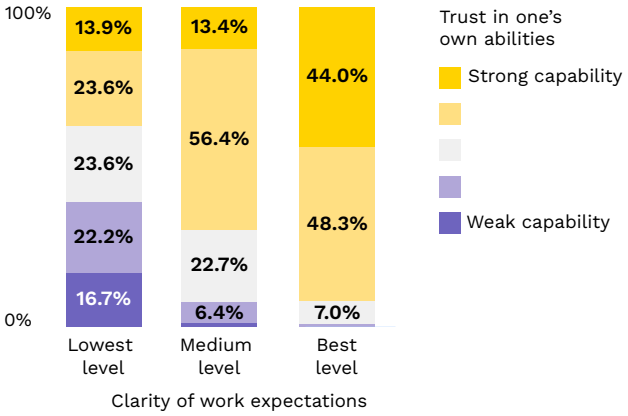
Work-related psychosocial load factors can be generated by work arrangements, the content of the work or the social functioning of the work community. Psychosocial load factors are often not sector-specific and the level of them depends on factors related to the functionality of, for example, the work arrangements and work organisation, the management and the work community. The following paragraphs highlight issues that are important to take into account in construction sector workplaces. Psychosocial strain in the construction sector is particularly brought about by the hectic pace of timetables and the risk of accidents involved in dangerous work[7]. According to studies, psychosocial load factors such as a hectic pace and excessive time pressures also increase the risk of developing musculoskeletal disorders[8]. Work in the construction sector is cyclical and seasonal, which sometimes has an impact on employment prospects. Uncertainty and the threat of layoffs and dismissals can increase insecurity and work-related stress. Physical workload factors can lead to musculoskeletal pain, which can also affect the mental functioning of employees in the construction sector.

The psychosocial strain of supervisor positions can be caused by, for example, work stress related to personal safety and financial responsibility, the uncertainty that often comes with competitive tendering situations, excessively long work days, the blurring of the boundaries between work and leisure, timetable pressures and challenges concerning information flow (e.g., in contracting chains). Studies have shown that heavy work strain, especially when combined with limited job autonomy and limited possibilities to influence one's own work are likely to lead to long periods of sick leave and increase the risk of disability.[9,10]

A lack of clarity regarding work goals or expectations can increase work stress in all tasks and areas of the construction sector[11]. Role conflicts can arise if the work is managed by several different parties or the expectations concerning the work are expressed simultaneously by several different parties. This may be compounded by insufficient work instructions, guidelines on work prioritisation, gaps in information flow or unclear job descriptions. The clarity of work-related goals and expectations supports mental well-being and work productivity. The clarity of expectations for the work also increases the feeling of control at work.

Clear work expectations increase the prerequisites for good work performance.

Source: Elo's Work community survey* (2023)



Worksite management and project managers are often not employees' administrative supervisors. However, they often need to be able to motivate, encourage and address issues in everyday working life. The responsibilities and roles of work ability management can be unclear due to the structure of the management system, which is why it is important to agree on the areas of responsibility for daily work ability management tasks.

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Key job resources

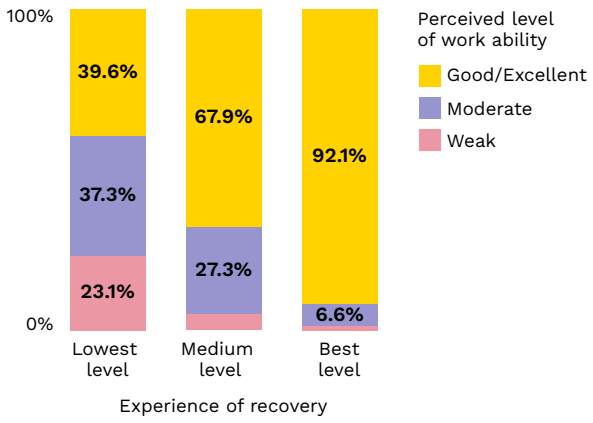
In an ideal situation, the construction sector has a lot of job resources available to support the work ability of its personnel. Key resources in the construction sector include sufficient work recovery[12], opportunities for competence development[13], opportunities to influence one's own work[14], support from one's supervisor and work community, fair treatment and open communication[15].

Promoting recovery

Work recovery refers to the process of allowing your body and mind to recuperate from the stress and strain of working. Work recovery can be enhanced during the workday by implementing effective break strategies and encouraging employees to use available recovery practices during their time off. Effective work recovery enhances work ability. Work recovery can be promoted by, for example, planning working hours to support recovery, providing adequate work breaks and ensuring that they are utilised, giving guidance and coaching that supports employees' stress management. Ensuring sufficient variety in work tasks throughout the day and promoting healthy lifestyles in the workplace.

When recovery is at a good level, the personnel experience a higher level of work ability.

Source: Elo's Work community survey* (2023)



Competence development and opportunities to influence work

High-quality onboarding is used to ensure the competence of the personnel and the use of working methods that support work ability.

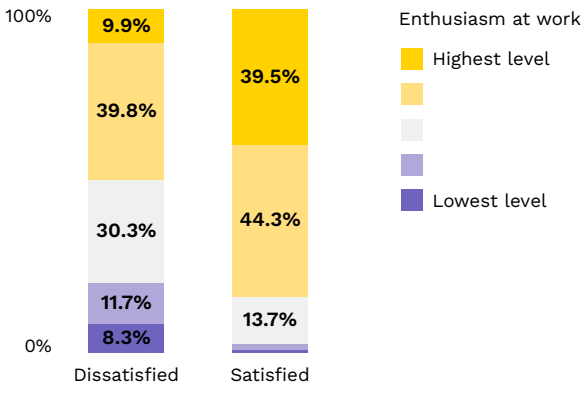
A successful onboarding process includes structured planning, constant dialogue between the new employee and trainer, as well as accommodation for different learning styles. Work communities in the construction sector are often multicultural, so it is important for the onboarding situation to consider the new employee's needs regarding language skills and cultural aspects. It is essential for the entire work community to understand the rights and obligations involved in Finnish working life and to have all the necessary information on occupational health and safety and well-being at work. As part of managing work competence capacity, it's important to ensure that supervisors have the skills and tools to lead a multicultural work community.

A level of competence that meets the demands of the work will promote a safe and healthy work environment. Up-to-date knowledge and skills also reduce errors and support problem-solving in everyday work. Opportunities for competence development result in strengthened motivation.

In addition to sufficient competence, work ability is enhanced by possibilities to influence one's own work. An appropriate number of possibilities to influence one's own work supports work satisfaction, work autonomy and work recovery. The possibilities to influence work can refer to autonomy in terms of how the work is carried out or opportunities to participate in decision-making concerning one's own work. Possibilities for influence can contribute to work recovery during the workday if, for example, employees are able to shift between heavier and lighter tasks or can prioritise their tasks within common guidelines. Possibilities to influence working hours and shifts support the reconciliation between work and other facets of life.

When the employees of a construction sector company feel that the work offers them opportunities to develop their competence, they also feel that their enthusiasm towards the work is greater.

Source: Elo's Work community survey* (2023)



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Competence management methods

- Systematic onboarding that takes into account different learning styles, language skills and cultural backgrounds, and an assurance that the onboarding was successful
- Surveying the competence needs of personnel
- Emphasising the opportunities and needs for competence development in discussions between employees and supervisors
- Identifying future competence needs and preparing for changes in the operating environment
- Implementing common practices to share expertise within the workplace (e.g., assign more experienced employees to work together with new employees)
- Personnel training that addresses specific needs

Support from the work community

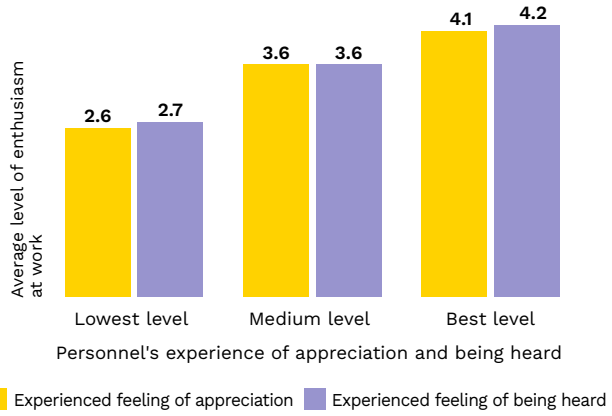
A positive work atmosphere and support from a supervisor and co-workers are key resources that support work ability in all areas of the construction sector. High-quality supervisor training provides the workplace with tools to carry out supervisory work that strengthens the work ability and productivity of personnel. Important topics in supervisor training include an understanding of the factors that cause psychosocial stress and ways to moderate the workload, as well as methods to build an atmosphere of trust.

Fair treatment and open communication

Fair treatment improves employee motivation, promotes work results, supports work ability and can reduce absences from work. Good management skills are the key element for fair treatment. The key cornerstones of fair treatment are consistency, equal treatment of employees, giving employees the opportunity to be heard and expressing appreciation. Work-related uncertainty can be reduced through regular open communication, for example, in workplace change situations and by listening to employees' questions and concerns. Those employees who feel a sense of appreciation and that they are being heard have stronger work motivation. In order to improve the level of fair treatment and the work atmosphere, it is important to provide supervisors and managers with training and orientation on communicating with workers and developing management styles that promote work ability and personnel productivity.

The level of enthusiasm and motivation are higher at work when construction personnel feel appreciated and heard at work.

Source: Elo's Work community survey* (2023)



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SOURCES – WORKLOAD FACTORS AND JOB RESOURCES

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[1] Työterveyslaitos. https://www.ttl.fi/teemat/tyoterveys/rakennusalan-ammattikohtaiset-tyopaikkaselvitykset-rats. Luettu 16.9.2024 Rakennusalan ammattikohtaiset työpaikkaselvitykset (RATS) | Työterveyslaitos (ttl.fi)

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Phenomena and trends

Introduction

Trends in working life, new phenomena, and the typical characteristics of this sector affect work ability and the associated risks. Understanding the phenomena of working life supports work ability management. Key phenomena of the construction sector include the growing need for skilled labour, the diversity of personnel in the workplace, digitalisation and the utilisation of new technologies.

Competence in the construction sector

Changes in working life are affecting the construction sector and generating new skill requirements. The evolving need for different types of skills and knowledge requires employers to support the continuous learning of their employees at different stages of their working life and alongside their work. Insufficient knowledge or skills can be a risk for work ability. Learning and competence management is a tool that work ability management utilises to strengthen work ability and the sustainable growth of the company. In terms of competence management, it is important to identify the specific characteristics of the sector within educational and training paths, the current competence needs of the company for different personnel groups, and the future competence needs caused by a changing operating environment. Personnel that are professionally competent and open to learning are more productive and boost the competitiveness of the company.

- There is a shortage of skilled workers in the construction sector, even though unemployment is high among graduates in this sector.
- Supporting continuous learning alongside work helps businesses to stay on top of new areas of competence required by the construction sector.
- Greater co-operation between companies and educational institutions can support the transition of young people to working life and strengthen their professional capacity.
- As the construction sector is evolving, there will be an emphasised need to increase diversity skills and strengthen the working life skills of young people.

Read more about competence in the construction sector >

Diversity among personnel

In construction sector companies, it is essential to take into account the employees' individual needs for support and plan their tasks in a way that ensures that they can be carried out smoothly and that they offer diverse learning opportunities. The use of foreign labour is common in the construction sector, with the result that language skills, among other issues, may affect the onboarding process of employees and the formation of a functional work community. In addition, neurodiversity in the workplace brings its own components to learning, working approaches and interaction situations.

- The share of the foreign labour force in the construction sector is approximately one fifth, which is explained by factors such as the cyclical sensitivity, labour intensity and local nature of the work.
- It is a good idea to support the building of language skills alongside the development of professional skills, and language learning requires the support of the entire work community.
- Neurodiversity can be taken into account in workplaces by, for example, facilitating individual learning and working methods and utilising work modification.
- Neuroinclusion strengthens the well-being of the whole work community.

Read more about diversity among personnel >

Digitalisation

Digitalisation and artificial intelligence are having a dramatic effect on working life and the changes are also expected to impact work in the construction sector. According to the competence requirement survey carried out by the Confederation of Finnish Construction Industries RT in 2021, a large proportion of the representatives of construction industry companies raise digitalisation as one of the most significant drivers of change in the development of the industry.[17] Despite this, the development is only in the initial stages in many constructions sector companies[18]. New technologies create opportunities to enhance work efficiency, sustainability and green transition[19]. The physical workload can also be reduced if heavy tasks can be handled by machinery. However, the introduction of digital tools requires orientation and proven experience that the new technologies are beneficial and support the work.

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- Digitalisation is believed to be one of the most significant drivers of change in the evolution of the construction sector.
- A lack of knowledge and skills in the use of digital tools may prevent the utilisation of new technologies.
- Sufficient time to internalise new technologies and the utilisation of appropriate digital devices are good ways to strengthen work ability
- Digital solutions create new opportunities for, e.g., planning, timetable management, data analysis and identification of safety risks

Read more about digitalisation in the construction sector >

Competence in the construction sector

Talent profile to showcase competence

Competence can be defined as the overall knowledge and skills of an individual, community or organisation, as well as the related understanding and application capabilities[1]. In general, competence can be divided into three levels: generic competence, working life competence and sector-specific competence. The primary meta skills needed for working life in 2035 have been estimated to be customer-oriented service development skills, knowledge of the principles of sustainable development, knowledge processing skills and skills in utilising digital solutions and platforms. In addition to knowledge of the principles of sustainable development, some of the most important generic or general areas of competence are interaction and communication skills, problem-solving skills, multi-cultural skills and the ability to learn. In the future, the construction sector may have an increased need to strengthen young people's working life and multi-cultural skills[2]. From 2014 to 2020, the number of applicants for vocational upper secondary qualifications in the sector has decreased by about 16 per cent. The number of university of applied sciences and university degrees has been systematically increased by means of education policy.[3]

Shortage of skilled workers

The construction sector is facing a shortage of skilled workers, which is expected to continue in the future as the need for labour grows. A lack of skilled workers is a significant barrier to growth in the construction sector, regardless of the economic cycles. Despite the labour shortage, there is a high level of unemployment among vocational school graduates in the construction sector. Some employers feel that the educational programmes do not provide sufficient skills for actual work, and they wish that more emphasis would be placed on practical working life skills as part of the vocational qualification. Companies want employees that master practical working life skills, and they are more than willing to participate in concrete co-operation with educational institutions. The availability of labour in the construction sector is also affected by the locality of the work.[4]

Solutions to the shortage of skilled workers

It is important to help organisations to identify and establish solutions to recruit well-trained workers and to maintain the competence that employees need in their work. One solution to the shortage of skilled workers may be to further develop education in the construction sector and to intensify co-operation between working life and educational institutions. In addition, there is a growing need for co-operation between companies and educational institutions during working life periods, practical training and apprentice-ships. This will support the transition of young people to working life and strengthen their professional abilities. Continuous learning in the workplace takes place through both training and the introduction of new tasks. Recruiting international talent and supporting the building of a multilingual work community are also key.[5]

Diversity of personnel

Multiculturalism and multilingualism

The foreign labour force is estimated to account for approximately one-fifth of all employed persons in the construction sector in Finland[6]. This percentage is expected to increase or at least remain unchanged in the near future[7]. There are, in particular, a large number of foreign employees working in building construction. In the region of Uusimaa, the share of foreign employees is higher than elsewhere in Finland. The largest number of foreign workers in Finland come from Estonia and other Baltic and Eastern European countries.[8] Work in the construction sector is labour-intensive, cyclically sensitive and local, which partly explains the significant share of foreign workers[9].

The foreign labour force in Finland is subject (with a few exceptions) to the same conditions, rights and employer obligations as for employees with a Finnish background[10]. Foreign workers are not, however, always aware of, for example, the employee rights prescribed by labour law or even the occupational health services that they are entitled to use. The foreign workforce is largely made up of workers employed by temporary agencies and subcontractors, so it is not necessarily easy to establish which specific company an employee is actually working for[11].

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With their share of foreign workers, construction sites are often multilingual workplaces, where language skills can determine what work individuals are doing even more than their professional skills. Employees that have language proficiency in, for example, Finnish or English can play a significant role in relaying information to those who do not have sufficient language skills. In addition to interpreting, the use of gestures and pointing is common when communicating instructions. Multilingualism is not necessarily a phenomenon that permeates the entire work community, but the use of different languages may be related to certain interaction situations. In this case, smaller groups that use the same language may form within the work community. The establishment of social networks and the mastery of new methods and systems have an impact on mental work ability and require language skills. It is not only up to the individual, however, to learn the language; it calls for support from the entire work community and situations that facilitate language use and learning. In the construction sector, it would be essential to find ways to support the learning of both professional and language skills at the same time.[12]

Neurodiversity

Neurodiversity refers to the natural neurobiological and developmental variation among humans, which includes both neurotypicality and neurodivergence (e.g., autism spectrum disorder, ADHD and learning and personality disorders). Neuroinclusion in the workplace ensures that every employee feels that they are a meaningful part of the work community and that their individual strengths and needs for support are taken into account[13] People who are considered neurodivergent are also employed within the construction sector. A general awareness of the different forms and impacts of neurodiversity in everyday work creates a foundation for the development of working conditions.[14]

Neurodiversity manifests itself in different ways in working life and everyone's situation is unique. Neurodiversity can bring many perspectives that can be turned into strengths in the workplace. The challenges associated with neurodiversity can arise in connection with executive functions, maintaining attention or concentration. Neurodiversity can also bring challenges related to social interaction. However, by increasing awareness and training on neurodiversity, it is possible to reduce false prejudices and develop working conditions that will improve the work ability of the entire work community. A neurodivergent employee may need different support from the organisation and the supervisor in terms of work onboarding, learning and performing their work in a safe and healthy manner. This requires the identification and understanding of the employee's individual needs and the building of trust in the employee, so that tasks can be adapted appropriately, in a way that supports work ability.[15]

Awareness and recognition of neurodivergence also helps to reduce the risk of poor compensation and symptom management methods, such as addiction problems or social isolation, which increase the risk of disability. The entire work community benefits from neuroinclusion, which, in turn, improves the well-being and innovativeness of the community and can be used to find new ways to solve problems. Concrete means of support for neurodivergent workers in the workplace may include, depending on the situation, support for employees' self-awareness, breaking down tasks and adapting the rhythm of work, use of different learning methods (e.g. practical approach and learning by doing), support for concentration, job adaptation with consideration of the employee's overall situation, clarification of the employee's job description and tasks, an increase of awareness within the community, sensory accessibility and accessible communications. When it comes to neurodiversity, work ability is equally supported by the general of work ability management, such as support for work recovery, feedback and support from a supervisor as well as support from the rest of the work community.[16]

Digitalisation

Digital competence

Lack of knowledge in the use of digital tools is a fundamental barrier preventing the use of new technologies[20]. The underlying reasons behind a technology-critical attitude include previous poor experiences, challenges with the functionality and ease of use of digital tools, the time it takes to learn and the fact that new technologies are not viewed as an essential part of one's own work. It has been shown that, for example, digital documentation tools have increased the accuracy of reporting and the time it takes; it is often felt that this time reduces the time left for other work.[21]

It is important to build a culture in which working with digital tools would be viewed as part of the work as a whole and not as an additional task. In addition, it is necessary to ensure sufficient time and orientation for employees to learn to use new tools and to ensure that the technologies in use are appropriate and functional. Instead of increasing work-related stress, digital technology must support work ability. Inclusive digitalisation, where every employee knows the reasons and expected benefits behind the introduction of new tools, can reduce prejudice towards the use of digital tools.

Digitalisation and new possibilities

Digital tools are already in use in the construction sector, for example, in the modelling of buildings and for project and quality management. In the future, digital solutions will offer possibilities for efficient planning, monitoring and data analysis. Artificial

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intelligence facilitates the identification of safety risks, optimisation of the costs and emissions of a building's life cycle, timetable management and the drafting of forecasts. Technology can help to generate transparency and avoid unnecessary work and idle time.[22,23] Automation can reduce the physical loading of the work[24]. Virtual reality offers new types of training opportunities and studies have shown its potential in strengthening skills[25,26].

In recent years, exoskeletons (wearable machines) have also been developed and studied to assist with physically heavy work. Promising results have also been achieved in the construction sector, but there are still challenges related to usability and more research is needed on the impact of exosuits in terms of work-related loading. In light of current data, exosuits are not recommended for continuous use over multiple hours. Furthermore, its use is only recommended when necessary.[27]

In addition to competence, the use of new technologies also requires financial investments. Construction work is often done outdoors, which is why any tools used must be weatherproof and cannot be damaged by dirt or dust, for example. Exploiting the full potential of digitalisation also requires that both main contractors and subcontractors are using digital tools.[28]

SOURCES – PHENOMENA AND TRENDS

Reading guide to sources

For the purposes of this report, when the reference number is within a sentence, the reference only refers to the portion of the text preceding the specific reference number in question. If the reference number comes after the full stop at the end of a sentence, the source reference applies to the whole paragraph or to the sentences from the previous to the current reference number. A full source reference is given in the source list when the source first appears. When the same source is referenced again, only the (primary) author's surname and year of the source publication and, if necessary, more specific identification information, such as the name of the source.

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Solutions for work

Solutions for physical workload factors

The best result is achieved when development actions are targeted at several different levels: The personnel's own capabilities and competence, the operating models and competence of the supervisors, as well as the structures and working conditions of the organisation.

Work environment

- **Plan the work environment, working methods and workspaces to facilitate a healthy and safe working atmosphere**
- The **placement of tools, devices and equipment** can help to improve the work functionality and ergonomics
- The **choice of chairs and desks** as well as adjustments reduce strain caused by sedentary work
- **Co-operation with occupational health care** helps to identify ways to plan the work environment and determine the optimal ways to realise work ergonomics in the workplace

Assistive devices and personal protective equipment

- The **use of respirators** protects against chemicals, vapours and dust that are harmful to the respiratory system
- **Assistive devices for the transfer of heavy loads** reduce the strain on the back and limbs, in particular
- The **use of knee pads or braces** reduces harmful strain in work that is hard on knees
- **Visible and reflective warning clothing and fall protection equipment prevent accidents**
- **Protective helmets, goggles, safety footwear, protective gloves prevent more serious harm** in the event of an accident
- Sunlight or cold protection with **appropriate workwear** (e.g., breathable materials, layering)

Working methods and work planning

- **Orientation on ergonomic and healthy working methods** (e.g., lifting loads, using hand tools, sitting positions) supports work functionality and reduces the work strain.
- **Monitor and ensure the learning of work methods** that support work ability
- **Careful planning of work in advance, anticipation of peak workload and reasonable work schedules** reduce physical and mental strain.

Recovery practices

- **Plan working hours** so as to support work recovery
- **Commonly agreed organizational practices and guidelines for work breaks** and related monitoring
- Muscle-relaxing **stretches and callisthenics** during work and breaks to improve muscle metabolism
- Employers must **limit the amount of time that employees are exposed to work in hot conditions**
- Sufficiently frequent **breaks from work in hot and cold working conditions** reduce the strain caused by temperature variations
- Adequate **hydration in hot working conditions** prevents heat exhaustion

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Solutions to prevent psychosocial work strain

Leadership and management

- Divide and clarify the roles and responsibilities for managing the well-being of personnel among the supervisors (e.g., construction manager, project manager)
- **Sharing positive feedback that drives change**
- **Support for learning and competence management and development** (e.g., onboarding, personnel training, on-the-job learning, competence surveys, operating models for HR training, workplace-specific learning paths and common practices for the sharing of knowledge and skills in everyday life)
- **A management culture that promotes the work process** (e.g., expressing appreciation and trust, consistency, clear communication of expectations for work, striving to maintain dialogue, defining common goals)
- **Fair and equal treatment** of personnel
- **Realise management of well-being at work, work ability and occupational safety as a whole and as a process and utilising the same management structures**

Developing a sense of community

- **Development of the work community and working atmosphere**
- **Development of psychological safety** (e.g., constructive attitude towards errors, show of appreciation, striving to maintain dialogue, an understanding of diversity, openness, raising of problems and concerns)
- **Strengthening of language awareness and language skills** in diverse work communities Language awareness refers to consideration of the language used in different situations and the importance of language in terms of community and learning. Language-aware practices include critical assessment of the language level required at work, the parallel use of more than one language, accessibility of instructions and systems from a language perspective, consideration of language in personnel surveys, development discussions, meeting practices, common discussion practices and key documents in the workplace (e.g., collective agreement, guidelines for supporting occupational safety and work ability)

Information flow

- **Promoting the flow of information** (e.g., within the work team and between work teams)
- Developing workplace information management (e.g., minimising unnecessary information flooding)

Planning and organisation of work

- **Moderation of work requirements and timetable pressures**
- **Management of work pace** with effective advance planning and preparedness for disruptions
- **Clarification of work expectations and guidance on prioritising work**
- **Supporting expert work that requires focus** through the development of cognitive ergonomics
- **Providing opportunities to influence** work, working hours and shifts

Work adaptation[1]

- Work adaptation improves the conditions for an employee to work successfully when a disability, illness or life situation weakens their work ability.
- Effective work adaptation requires commonly agreed operating models in the workplace. A common operating model within the workplace promotes the equal treatment of personnel.

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Steps involved in work adaptation

- **Planning of the practical work adaptation measures.**
- **Identification of the need for work adaptation** (e.g., by the employee themselves, a co-worker, a supervisor or the occupational health service)
- **Understanding and gathering information about the individual situation**
  - What is the specific cause of the work-related stress (for example, social work requirements, tasks requiring concentration)?
  - What are the important work resources for the specific situation (for example, what increases work satisfaction, which tasks are most easily carried out)?
  - What type of support is needed?
- **Determining the optimal individual methods** in accordance with the workplace's operating model (e.g., working time changes, tools that support work ability, increased support for concentration, executive functions in everyday working life, temporary replacement of physically or socially loading work phases with other work tasks)
- **Introducing work adaptation measures to everyday working life**
- **Monitoring the status of work functionality and work ability**

Other methods for supporting work ability

- **Support for stress management** (for example, individual or group coaching)
- **Individual therapy**
- **Support from occupational health care in lifestyle interventions** (for example, nutrition therapy to support weight management or a healthy diet, substance abuse rehabilitation)

SOURCES – SOLUTIONS FOR WORK

Reading guide to sources

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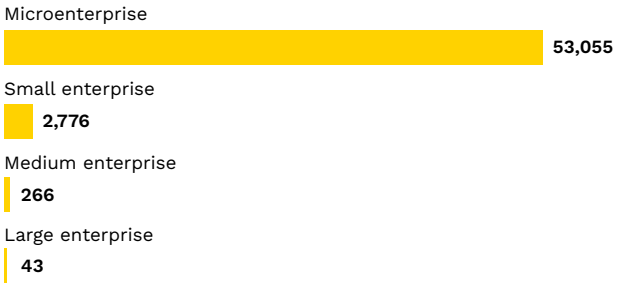
Statistics and graphs

The majority of construction sector companies are microenterprises with fewer than 10 employees.

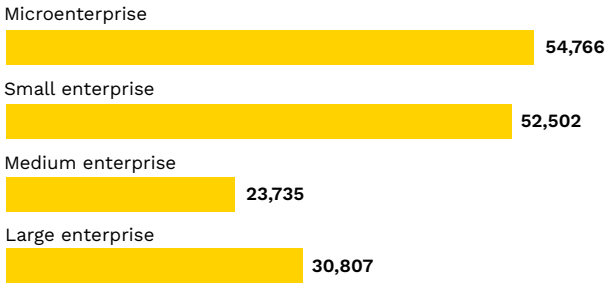
Source: Statistics Finland, Structural business and financial statement statistics (2022)



Companies (no.)

A significant proportion of employees in the sector also work in larger companies.

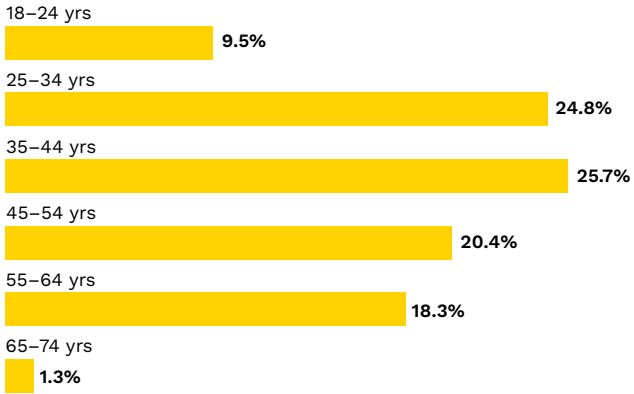
Source: Statistics Finland, Structural business and financial statement statistics (2022))



Personnel (person-years)

People of different ages work in the construction sector.

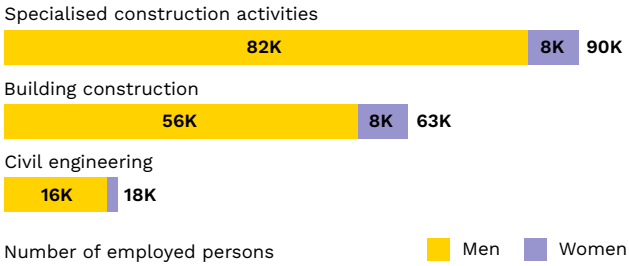
Source: Statistics Finland, Employment statistics (2022)



Shares of employed persons by age group

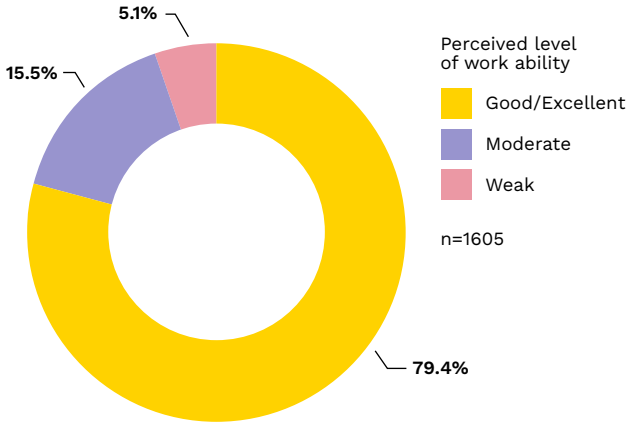
The largest number of employees are employed in specialised construction activities.

Source: Statistics Finland, Employment statistics (2022)



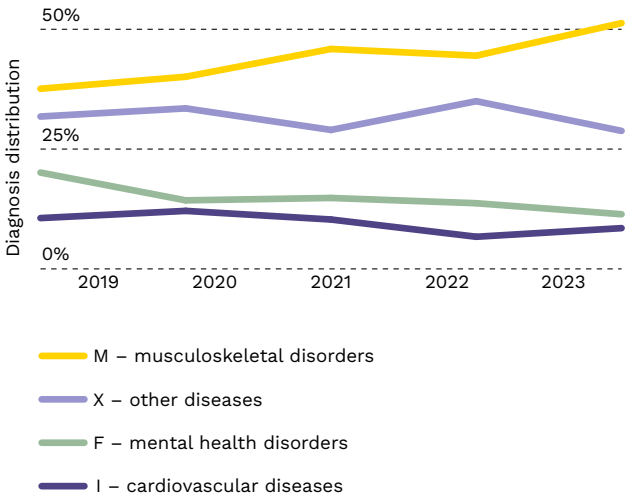
The majority of employees in the construction sector assess their working ability as being at least good.

Source: Elo's Work Community Survey* (2023)



Musculoskeletal disorders are a significant factor in terms of work disability in the construction sector.

Source: Elo's data (2019–2023)



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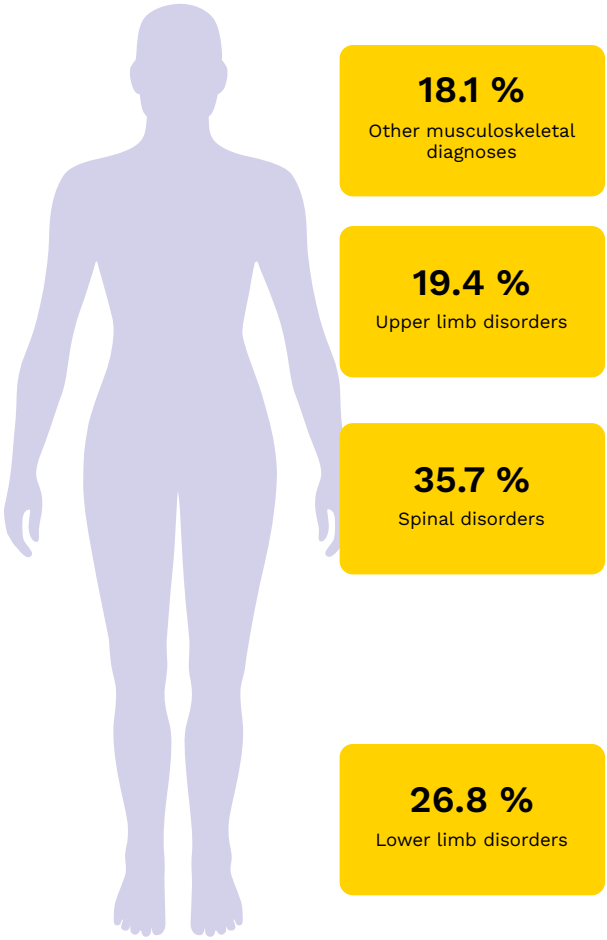
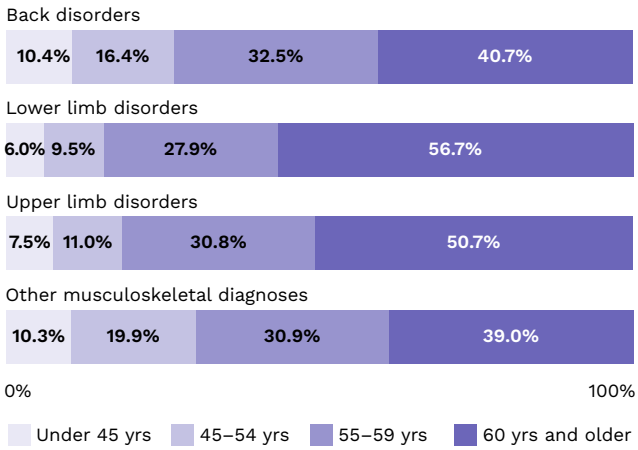
Spinal diseases are a common reason for disability pension in the construction sector. The musculoskeletal disorder diagnoses are relatively evenly distributed to different parts of the body and subdiagnostic categories.

Source: Elo's data (2019–2023)



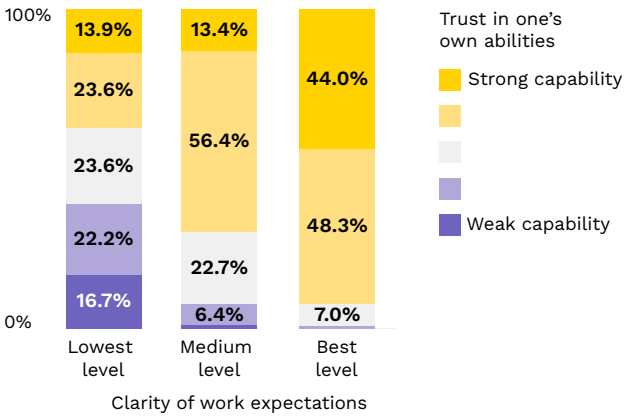
A significant proportion of disability pensions resulting from musculoskeletal disorders are granted in the construction sector to persons 60 years of age and older.

Source: Elo's data (2019–2023)



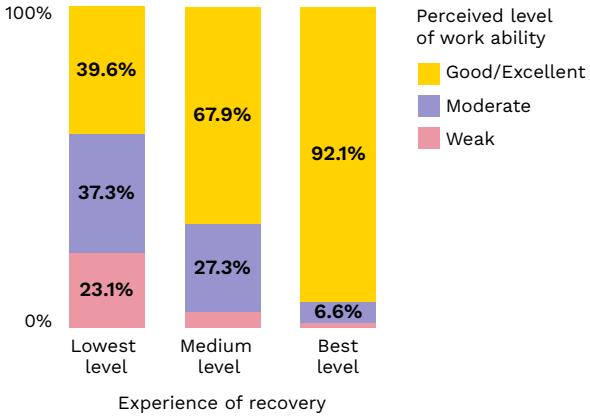
Clear work expectations increase the prerequisites for good work performance.

Source: Elo's Work Community Survey* (2023)



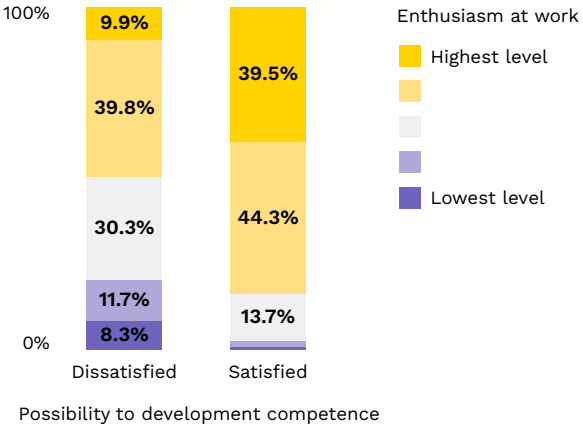
When recovery is at a good level, the personnel experience a higher level of work ability.

Source: Elo's Work Community Survey* (2023)



When the employees of a construction sector company feel that the work offers them opportunities to develop their competence, they also feel that their enthusiasm towards the work is greater.

Source: Elo's Work Community Survey* (2023)



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The level of enthusiasm and motivation are higher at work when construction personnel feel appreciated and heard at work.

Source: Elo's Work Community Survey* (2023)