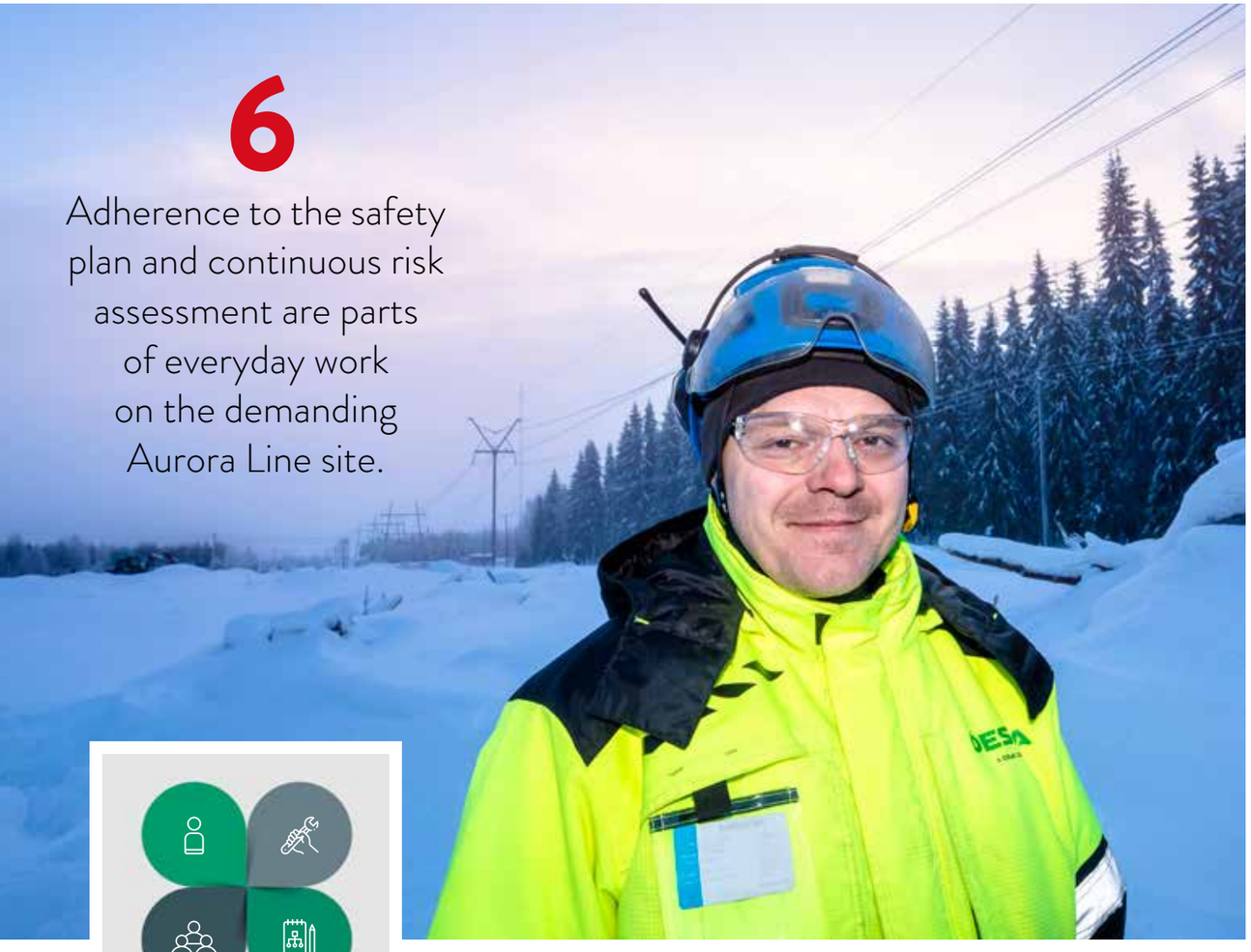
SAFETY ON THE LINES

The team working on the major Aurora Line project follows safety plans and assesses risks continuously



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Adherence to the safety plan and continuous risk assessment are parts of everyday work on the demanding Aurora Line site.

12

14

Getting home safely every day

LAST YEAR was a year of contrasts in terms of electrical safety in the main grid. The number of near misses related to electrical safety on worksites decreased by about 20% compared to the previous year, which is a good thing.

However, the proportion of incidents in the most severe category increased, which is a worrying trend. This calls for everyone to remain alert – those who plan the work and those who do it.

Every near miss could lead to an accident causing personal injury or property damage. Nobody was injured, despite the serious electricity-related incidents. We are working to ensure that no injuries occur in the future. Personal safety always comes first in Fingrid's operating and electrical work.

We will continue to invest heavily in the main grid to promote Finland's competitiveness and achieve the carbon neutrality objectives. A record number of investment and maintenance projects are underway in the main grid.

Despite the large workload, electrical safety must be a priority at all times.

"Personal safety always comes first in Fingrid's operating and electrical work."

Our occupational safety goal is zero accidents. With the cooperation and awareness of all parties involved, we can ensure safe operational and electrical work in high-voltage installations in the main grid.

At Fingrid, we care about people and want everyone to get home safely at the end of every workday.

Jani Pelvo
Senior Expert, Person in charge of operation of electrical installations
Fingrid

FINGRID

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CONTACT US! Occupational safety is a shared issue that we aim to develop in collaboration with our suppliers. All feedback is important. Contact Karri Koskinen with tips for articles, development ideas, and feedback on the magazine. Do not hesitate to contact us if you have any questions about occupational safety. Karri Koskinen, *Expert, Safety,* tel. +358 40 631 2152, karri.koskinen@fingrid.fi

Occupational safety in 2023

More occupational accidents leading to absences happened on Fingrid's worksites in 2023 than in the previous year, and the frequency of occupational accidents increased slightly. The number of serious occupational accidents decreased compared to the previous year. Preventive occupational safety work was performed actively on Fingrid's worksites.

COMPILED BY KARRI KOSKINEN | INFOGRAPHIC LAURA YLIKAHRI

A total of

559

safety observations were made on Fingrid's worksites in 2023 – fewer than in the previous year.

The goal for 2024 is still to have at least **700 safety observations.** Everyone can contribute to this goal by submitting observations of any hazards they notice. Safety observations should also be made to highlight positive things.

In 2023 *(2022)* there were a total of

1,148 *(1 089)* person-years of work
663 *(642)* person-years of service providers' work
485 *(447)* person-years of Fingrid employees' work

In 2023 *(2022)* a total of

27 *(25)* **recordable occupational accidents occurred**

14 *(10)* **occupational accidents leading to absences**

13 *(11)* **occupational accidents requiring medical attention**

6 *(5)* **first-aid incidents**

0 *(4)* **occupational accidents resulting in replacement work**

A large proportion of workplace accidents leading to absences affected sub-suppliers in transmission line and substation projects, causing scrapes and bruises. There were also several incidents of slipping and tripping. Three (6) of the workplace accidents were classified as severe.

Occupational safety was actively discussed on Fingrid's worksites in 2023. The goal for 2024 is to hold at least 1,100 safety toolbox talks.

In 2023, approximately

1,340

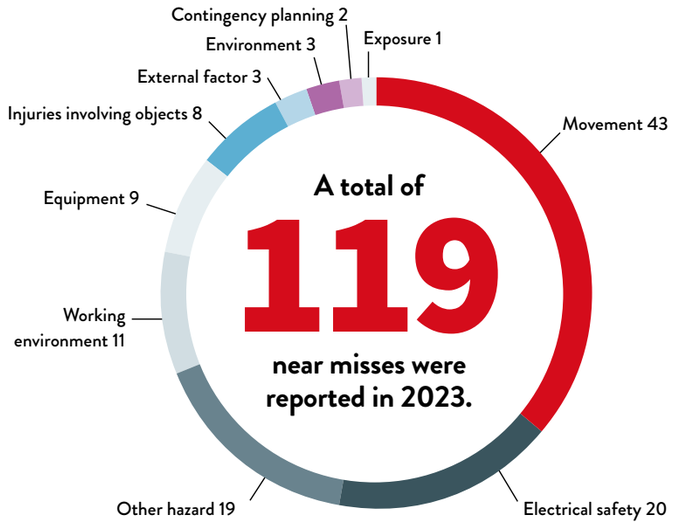
safety toolbox talks were held, setting a new record and surpassing the target of 1,000 safety toolbox talks by a large margin.

The lost-time injury frequency in 2023 *(2022)* was

7.2 ***(5.4)***

The combined occupational accident frequency includes the hours worked by Fingrid's personnel and service providers and the occupational accidents resulting in absences. The goal for 2023 was to get below five, but the actual occupational accident frequency was 7.2. On the road towards zero accidents, Fingrid's milestone for 2024 is to get below five.

In 2023, 119 near misses were reported. Two of these were in category A (severe near misses): A cable reel fell onto a pallet at an angle during transport, and an underground cable was cut at a substation. Electrical safety and movement accounted for many of the near misses in 2022 and 2023.



PLANNING ELIMINATES OCCUPATIONAL ACCIDENTS

On an Aurora Line worksite nearly 50 kilometres long, the conditions can change daily. Therefore, even if the work phase feels familiar, safety must be assured every time the team starts work. Adherence to the safety plan and ongoing risk assessment are part of the everyday work on this demanding site.

TEXT SUSANNA CYGNEL | PHOTOS NINA SUSI

“The hazards associated with the work and environment are carefully assessed so that the work can be done as planned,” says Jarkko Honkarinta, Safety Supervisor at Destia.

Safety is a constant topic of discussion as tasks progress. Ultimately, the responsibility for following safety instructions lies with each employee.

Construction of the Aurora Line, a transmission line connection from Finland to Sweden, has progressed as far as Tornio. In November, construction began on a section of the line measuring nearly 50 kilometres in length from Vuennonkoski in Tornio to Viitajärvi in Keminmaa. The line will pass over marshlands, the Tornionjoki River, and many other safety challenges.

"A line of this length will encounter every type of terrain, and the risks and safety requirements are reviewed separately on every site," emphasises **Jarkko Honkarinta** from Destia. He works as a safety supervisor on the Aurora Line construction project.

Planning a worksite as large as the Aurora Line is a long and detailed process which must be done before the first work phase can start. Destia's occupational safety team visits the site and familiarises itself with the safety requirements imposed by the conditions.

The greatest risks on transmission line worksite include induced voltages, so the work group is especially careful to check parallel and intersecting transmission lines. There are many other things to look for too.

"Safe access routes and safe movement in the area are mapped with the land owner. The line will also pass over some protected environmental areas that must be taken into account when planning work and safety," says **Teemu Palosaari**, Director at Destia.

PLANS ARE REVIEWED AS WORK PROGRESSES

In addition to detailed preliminary plans, various safety and risk observations are made as the work progresses because situations can evolve and the conditions change.

A kick-off meeting is held before every new work phase, bringing together all the installation technicians, supervisors and subcontractors.

"The kick-off meeting covers the plans for the work phase, safety plans, work instructions, safety equipment, workwear and, for example, how to get around a worksite in marshland," says Honkarinta.

He emphasises that even if a work phase feels familiar, no two places are identical, and the conditions may vary. The preliminary work plan is revised if necessary to facilitate safety and efficiency.

"Safe access routes and safe movement in the area are mapped with the landowner."

The hazards associated with the work and environment must always be identified before the work begins. The team must then assess whether the work can be done as planned.

"Nobody should charge headlong into a new task. The potential risks should be assessed every time to see whether anything has changed since the previous phase or day," says Honkarinta.

On the Aurora Line site, Destia's people ensure that safety plans are followed and the work is done as agreed. Third-party observers also visit the site occasionally.

Safety is discussed during kick-off meetings and in smaller work groups as the work progresses. Ultimately, however, the responsibility for following safety instructions lies with each employee.

"If you are not 100% sure that the work phase can be done safely, you must not do it. Even the slightest doubt should be taken into account. You must be absolutely sure that you stay safe," Palosaari emphasises.

"Even the slightest doubt should be taken into account. Everyone should be completely sure that the work will be safe."

WORK PLANNING REDUCES THE URGENCY AND STRESS

Every site has its own practices, but Fingrid's internal occupational safety team meets four times a year to reflect on how to promote occupational safety on worksites.

Fingrid organises training and occupational safety briefings for contractors several times a year. Fingrid also invites the people responsible for worksite safety to attend meetings with contractors.

"Many of the accidents that have happened on Fingrid's sites could have been prevented with relatively minor changes and better planning. That is why Fingrid's theme for this year is 'Planning for safe work'," says **Rami Isomäki**, Project Manager in transmission line construction, is the latest member of the transmission system operator's occupational safety team.

The occupational safety team has reviewed accidents on worksites. Over the years, many of them have been caused by slips and trips. Therefore, worksite safety plans should require spiked or studded shoes to prevent slipping, as on Destia's worksite.

The Aurora Line, Fingrid's most important main grid investment of the decade, has progressed all the way to Tornio. The 50-kilometre section that Destia is now working on includes varying terrain. Jarkko Honkarinta (left), Juha Pitkänen (front), Risto Nilosaari and Elina Ojalehto review the conditions.

"Slippery conditions present a risk in the winter, especially when temperatures range from -30°C to around zero. Using the right footwear is one example of following the safety plan," Honkarinta says.

Even more dangerous near-misses have occurred in Fingrid's worksites due to induced voltage. These were caused by a lack of planning. In some cases, work was started or additional earthing was removed without permission. In others, the additional earthing was poorly planned in general.

"Planning work reduces the urgency and stress. This is important because when rushed, you may be tempted to take shortcuts in safety matters. Safety should always take precedence over timetables and money," says Isomäki.

Destia has succeeded in making and adhering to safety plans:

"Everything has gone as planned on the Aurora Line worksite. We have had no accidents leading to absences on any of our transmission line worksites for two-and-a-half years," Palosaari says. ◆

UNDERSTANDING *human activity improves occupational safety*

The human factor is a mindset – a perspective from which we analyse and develop occupational safety. The key is understanding human activity to identify how different factors affect work performance and success at work.

TEXT MINNA SAANO | PHOTO TTL, GRAPH LAURA YLIKAHRI

The human factor is traditionally understood to refer to a person's mistakes: someone presses the wrong button on a work machine, mishears instructions, or forgets to check something.

"But the human factor as a mindset has a much wider meaning. It is defined as factors that affect the individual, work, organisation, group and environment," says **Anna-Maria Teperi**, Research Professor at the Finnish Institute of Occupational Health.

The human factor (HF) is also a scientific discipline that explores how human activity and capacity should be taken into account in work planning, training, delegation, and all work organisation.

Teperi has developed the HF Tool, which illustrates human factors. It can be thought of as a four-leaf clover where the leaves represent an individual, a job, a group and an organisation.

"The field is very wide," Teperi points out.

Human factors connected to individuals include professionalism, motivation and attitude. Work-related factors include the amount and type of work, tools and working conditions. Group activities such as control centres, production or maintenance teams and work groups are concerned with matters such as communication, competence utilisation and atmosphere. Organisational factors include leadership, the manifestation of leadership, decision-making methods, resources, and procurement methods.

Human factors can be analysed to study deviations and hazards and identify the factors contributing to the situation.

"We can also explore successes in the same way, by looking at what works already," Teperi says. She gives an example:

"The human factor should be considered in planning, training, and the division and organisation of work," says Research Professor Anna-Maria Teperi from the Finnish Institute of Occupational Health.

Human factors are illustrated by a four-leaf clover where the leaves represent an individual, a job, a group and an organisation.

"A hazard has occurred in the workplace, but it was only a minor one. Why? Because people were professional, noticed it in time, spoke up, and communicated information, the procedures were clear and the leadership supported the operation."

COLLABORATION, ANALYSIS AND DISCUSSION

"Occupational safety is largely thought of as personal protective equipment, helmets, safety shoes and slip prevention. The focus has been on physical risk factors and individual mistakes: 'Pekka did it' or 'Heikki failed to do it'," explains Teperi.

"People's actions must be taken into account in everything."

She points out that safety is actually about how everyone works together: the interaction between HR management, occupational health and safety, employees and managers and how managers create the conditions for work.

"People's actions must be taken into account in everything, from management, to work and purchasing tools."

A Human Factor perspective has helped to create a more analytical understanding of occupational safety, uncovering the reasons behind deviations or successes and identifying areas where improvements are necessary.

Teperi encourages companies that plan to adopt a Human Factor approach to safety work to ensure extensive collaboration between different parties and look at safety as an entity influenced by many factors.

"This facilitates discussion in teams, management groups and various collaborative forums about our strengths and weaknesses – what works well already, which factors were behind any accidents that have happened, and what needs to improve."

The Human Factor perspective represents a change in mindset, which eventually manifests in positive results in practical work.

"The change requires systematic, long-term and wide-ranging collaboration to meet the goals of a Human Factor mindset: well-being, safety and productivity," says Teperi. ◆

Occupational safety comes down to attitude and openness

According to an experienced site manager, the most important aspects of occupational safety are attitude and openness. Both must be reinforced over the long term.

TEXT VESA VILLE MATTILA | PHOTO TERO IKÄHEIMONEN

Jyrki Toljander from Caverion Industria Oy has been a supervisor and site manager on numerous Fingrid substation projects since 1998.

Occupational safety takes up about a third of Toljander's working hours. His job description includes coordinating workplace safety on worksites and providing an orientation to occupational safety for contractors and employees working on substation construction.

Recently, Toljander made a valuable contribution to ensuring that no accidents happened during the construction of Fingrid's Alajärvi substation.

A MARATHON FROM ONE WORKSITE TO THE NEXT

Toljander, who has been involved in a few near misses himself, says that good occupational safety boils down to two factors: attitude and openness. He works proactively and sustainably to strengthen these aspects.

"Occupational safety is like an endurance sport – a marathon that takes me from one worksite to the next."

However, the foundations of good occupational safety are laid during the planning of construction projects.

"For example, when installing materials, the safest work method can be chosen from the outset. If necessary, I suggest this during the preliminary review of the plan," says Toljander.

SHORTCOMINGS SHOULD BE ADDRESSED IMMEDIATELY

Before work begins on a site, Toljander reviews the occupational safety matters and requirements with his personnel and subcontractors. The discussions cover potential hazards, machine placement, high electrical voltages and safety distances.

"When I provide orientations, I go through the most important occupational safety aspects and enhance the participants' knowledge of them. At the same time, I remind everyone that talking and asking questions are important ways of preventing ambiguities and rectifying shortcomings."

Toljander returns to the topic of safety in subsequent work phases and locations and during daily tours with subcontractors.

"It is essential to address any detected shortcomings immediately. I also encourage everyone to look after each other, as there is more wisdom in two ends than one."

In November 2023, Fingrid arranged a Main Grid Day, where Jyrki Toljander received an occupational safety award.

A PRACTICAL QUESTION

How can planning ensure safety in high-voltage work?

Earthing and careful planning ensure safety in high-voltage work, says **Jussi Ala-Kokko**, Construction Manager at Eltel Networks Oy.

TEXT MARJO TIIRIKKA

1 How do you make sure that induced voltage does not pose a hazard in high-voltage installations in the main grid?

We ensure safety by implementing earthing according to the site earthing plan. A plan is drawn up for each job, covering the site's specific characteristics and the customer's guidelines. If the work situation or site changes while work is going on, it is important to reassess the risks and plan the earthing again.

Eltel's guidelines for worksite earthing follow Fingrid's electrical work safety instructions. The main principle is to use secondary additional earthing near the transmission line's work location in addition to the additional earthing that is already on the work location.

2 How do you make sure employees have the competences required to work in high-voltage installations?

All individuals complete SFS6002 electrical safety training and any other customer-specific training. Employees' electrical work skills are assessed continuously – for example, during performance reviews – and they receive an orientation for the work and site. Skills tests are also arranged for employees from time to time.

Safety toolbox talks, which review good practices and hazardous situations, also boost expertise and foresight.

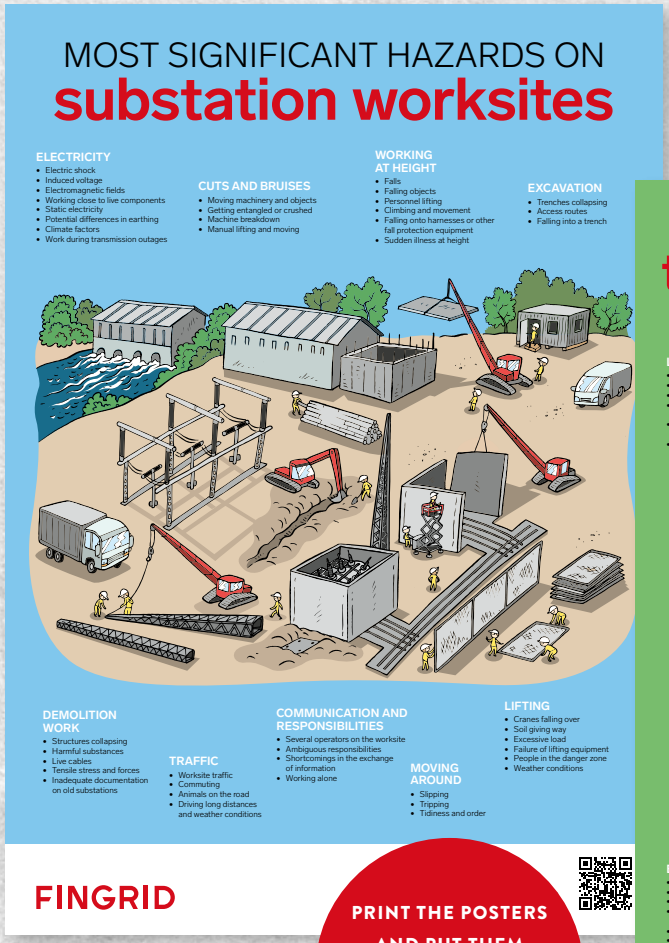
3 What kind of hazards have induced voltages caused?

The hazards we have identified include installing jumpers and coupling conductors when a conductor needs to be cut. In addition, changes in the work situation and broken or otherwise unsuitable earthing equipment can cause hazards.

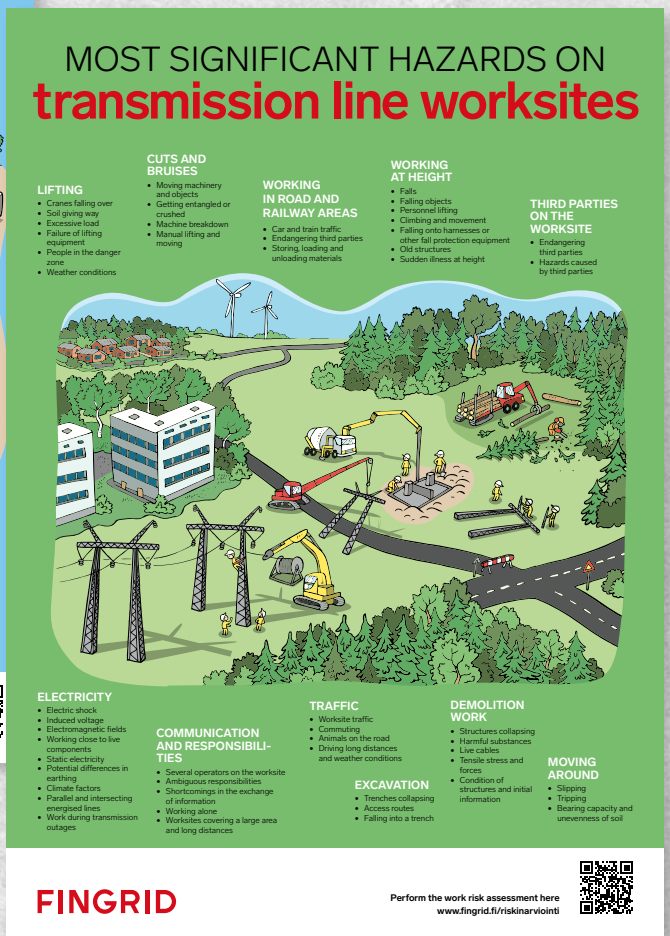
When work is well planned and done according to the plan, hazards do not usually arise. ◆

"Safety toolbox talks, which review good practices and hazardous situations, also boost expertise and foresight."

Print the Most Significant Hazards poster for your worksite!



WE HAVE WORKED with our service providers to make posters about the most significant hazards of substations and transmission lines. The posters are on Fingrid's website at **www.fingrid.fi/en/occupationalsafetyposters**



PRINT THE POSTERS AND PUT THEM ON THE WALL OF A BREAK ROOM AT THE WORKSITE.

@fingrid_oyj | Fingrid Oyj | Fingrid Oyj | @fingridfi | @Fingridoyj

FINGRID
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