



■ EKSPERTGRUPPEN

■ FOR

■ ARBEJDSULYKKER

Expert group for Occupational Accidents 2025

Summary

2. Summary

In January 2024, the Minister of Employment in Denmark established the Expert Group for Occupational Accidents. From 2024-2026, the Expert Group will investigate, analyze and gather new knowledge on selected topics, and provide recommendations that can help prevent serious accidents at work regarding the topics.

In 2025, the expert group worked on the topic **"falls from heights during roof work"** in the construction industry.

Facts about accidents in the construction industry

The construction industry is one of the industries with the highest risk of accidents at work. Over a five-year period from 2020 to 2024, nearly 6,300 accidents at work were reported annually—equivalent to about 17 per day—in which there was an expected absence from work of at least one day in addition to the day of the accident.

During the same period, there were 33 work-related fatal accidents in the construction industry, seven of which involved the victim falling from a height while performing roof work¹.

The expert group's investigations

In 2025, the expert group investigated 18 accidents involving falls from heights during roof work. The accidents occurred partly in connection with major projects on a roof, such as roof replacement, as well as accidents that occurred during short-term maintenance tasks on a roof.

¹ The 33 fatal accidents refer to reports with a registered industry classification within the construction industry. The seven fatal accidents do not all refer to reports with a registered industry within the construction industry, but also to reports with an unknown or other industry, where the Danish Working Environment Authority assessed that the accident occurred in the context of the construction industry. Background data on accidents in the construction industry can be found in Appendix 3 (in Danish).

The expert group's investigators investigated the accidents using the **AcciMap method**², which is a systematic approach to investigating and analyzing accidents at work. It is based on the principle that accidents are rarely the result of single errors or incidents, but rather a complex interplay of factors in society and at government, industry and company levels. The expert group subsequently used the PreventiMap method³, as part of the process of moving from accident investigation to the proposal of preventive measures and recommendations.

The companies' participation in the investigations was voluntary, and 33% of the companies that were asked to participate said yes. The expert group's investigators investigated the accidents by visiting the accident site and talking to relevant people at the company, such as management, collaborative partners and the injured party.

The expert group's findings

Based on the 18 accident investigations, the secretariat of the expert group conducted a cross-sectional data analysis of factors that contributed to the accidents and that recurred across the various accidents. The analyses of accident patterns formed the basis for the development of recommendations.

The analyses show that the majority of contributing factors to accidents are found at the two lowest AcciMap levels, which relate to conditions at the construction site/workplace, individual actions, and conditions within the company. This points to potential for prevention at the company level. At the same time, in many of the cases, the expert group's researchers have heard companies explain that they act as they do due to the **economic competition** that exists at the industry and societal levels. The cases indicate that there is an understanding among the participating companies that a low bid must be submitted to win a contract, and that this can be achieved by **compromising safety**. On several occasions, the researchers encountered statements such as, "If we don't take the contract at that price, someone else will," and an understanding that profit on the contract is only possible if safety is compromised. This points to an opportunity to strengthen the safety culture in the industry, so that companies generally do not compromise safety in order to offer a low price.

The analyses also show that many of the participating companies do not pay much attention to safety. The interviewees have **limited knowledge** of occupational safety and health, and often do not realize that it is necessary to upgrade their knowledge, either at the individual or company level. Among those interviewed, the prevailing view is that vocational training—whether new or old—fully covers the knowledge needed for the technical performance of a task as well as safety.

The analyses suggest that there is a particular lack of knowledge regarding **roofing regulations**. Those interviewed find the regulations difficult to understand and put into practice. This is evident in the analyses, as incorrect decisions are being made regarding relevant safety measures for the work. The analyses also show a **lack of knowledge**

² The AcciMap method is presented in appendix 4. A more detailed presentation of the method can be found, for example, in: Branford, K, Naikar N, Hopkins A (2009). Guidelines for AcciMap Analysis og Newman S (2022). The Accident Mapping (AcciMap) Method.

³ The PreventiMap method is discussed in Appendix 6. A more detailed description can be found in: Goode, N, Read, GJM, van Mulken, MRH, Clacy A and Salmon PM (2016) Designing System Reforms: Using a Systems Approach to Translate Incident Analyses into Prevention Strategies.

regarding possible solutions that would allow the task to be completed properly and safely. In addition to regulatory compliance, this may also be due to the fact that, in some cases—such as the renovation and replacement of existing roofs — there are not yet any good solutions or suitable technical aids available.

The expert group's recommendations

Based on its analysis of the 18 accident investigations, the expert group views the construction industry as **complex**, in which many factors influence occupational safety and health and the investigated accidents. Several parties are involved in construction projects—at a minimum, a client and a contractor—and these parties influence each other's safety. The various parties may have **different interests** regarding their work, and these interests are often influenced by the price that can be obtained for a project. The price affects the amount of time it is profitable to spend on a project, including time spent planning the project and prioritizing safety in the work.

The expert group's recommendations are intended to address both issues closely related to working on roofs and general challenges in the construction industry that are believed to have contributed to the accidents under investigation. The recommendations are intended to **promote a safety culture** in the construction industry, where standards and behavior support safety and thereby reduce the number of accidents, including falls during roof work. The recommendations should be viewed as a comprehensive set of building blocks for lasting change that can prevent both falls from roofs and other accidents in the construction industry.

The expert group recommends that the **Danish Working Environment Authority, together with 3F and DI** (employee and employer unions, respectively), take the initiative to follow up on the expert group's recommendations. In following up on the recommendations, it is important to build upon the many good initiatives that already exist in the industry, as well as the industry's own understanding of the complexity of the tasks and the strengths and weaknesses of the current safety culture. The expert group's recommendations are illustrated below in Figure 2.1

Figure 2.1: The Danish Expert Group for Occupational Accidents' recommendations for preventing falls from heights during roof work.



More details on the 4 recommendations

Recommendation 1: Forming a coalition of role models for a safe construction industry of the future

The purpose of this recommendation is to set a **new standard** for safety culture in the construction industry, where the industry's most skilled professionals lead the way as **role models**, and thereby reduce the number of workplace accidents. The coalition is to develop a vision for what the **future safety culture** in the construction industry should look like. This vision should help dispel the widespread perception — seen in many of the accident investigations — that clients are unwilling to pay for safety, and that they lower the priority of safety in order to secure contracts. The role models must demonstrate that safety can be aligned with running a **healthy business**, and that **investing** in safety pays off.

The expert group recommends that the Danish Working Environment Authority, 3F and DI take the initiative to establish the coalition, and that it consists of **leading companies in the industry** that have demonstrated that it is not necessary to compromise safety in order to secure and complete projects in the construction industry. The expert group has spoken with leading companies in the industry that have expressed interest in joining the coalition. The coalition may be expanded to include stakeholders from the insurance industry, educational institutions, manufacturers, suppliers, and similar entities, if deemed relevant. The coalition must develop a plan for how its participants will serve as role models and promote the vision to others.

The expert group recommends that the Danish Working Environment Authority, 3F and DI, together with the coalition, focus on the **role of building contractors** in occupational safety and health during all phases of construction projects. This could be done, for example, by developing and disseminating "good practices" for repeat building contractors—both public and private—including insurance companies and pension funds. The coalition is also recommended to promote the use of well-known **internal learning methods and tools**, so that they are applied more systematically in day-to-day safety work — for example, through the use of safety rules, construction site bulletin boards or similar measures. Finally, it is recommended that the coalition focus on **leadership** in the construction industry, and implement measures that support a continuous and open dialogue on safety and health.

The expert group expects that, in the long term, the coalition will help **strengthen the safety culture** in the construction industry. A stronger safety culture will reduce the overall number of accidents in the construction industry — not just those involving falls from heights during roof work.

The expert group assesses that Recommendation 1 serves as a **foundation** for the other three recommendations.

Recommendation 2: Simplifying roofing regulations to make them easier to understand

The expert group recommends that the Danish Working Environment Authority **simplifies the rules for working on roofs**, so that they are easier to understand and translate into concrete preventive measures. The aim is to make it **more logical and**

easier for companies that plan or carry out roof work and work from roofs to understand and comply with the Danish Occupational Safety and Health Act, including roof safety rules. This will make it easier for companies to select **appropriate safety measures** for the work, and thereby perform the work safely. The current rules for roof work are based on different types of roof pitches and tasks, and for this reason are very detailed and, in some cases, illogical, when compared to other rules in the Occupational Safety and Health Act. In practice, this means that those carrying out the work find it difficult to determine, based on the roofing regulations, which safety measures must be used to comply with regulations.

The expert group also recommends that **roofing regulations be communicated** in a way that is easily accessible to project planners, and those who perform roofing work or work on roofs. The expert group recommends that the coalition urge the organizations within the Sector Occupational Safety and Health Council for the Construction Industry (BFA Bygge & Anlæg) ensure that BFA translates its knowledge on how to work safely on roofs into **easily accessible tools** for companies, complete with specific instructions on safety measures. These tools — such as an app or website — should be practical for everyday use, and accessible to multiple target groups, including project planners and skilled workers.

The expert group assesses that the expected effect of the recommendation will be that more companies than today will comply with the legal requirements when performing roofing work. This will result in more people performing roofing work safely, which will lead to fewer accidents involving falls from heights during roof work.

Recommendation 3: New Solutions and industry standards for roof work

The purpose of this recommendation is to ensure that companies that are project planners or contractors have knowledge of **good practices**, and are aware of possible solutions when planning roof work. This will be achieved by having the coalition from Recommendation 1 ask industry stakeholders—for example, through BFA Bygge & Anlæg or the Construction Industry's Occupational Safety Bus (Bam-bus) — to collect and develop **industry standards** (standard work methods) for safe and effective solutions for roof work. Role models from the coalition can be usefully involved in this effort. Developing industry standards can save time and provide safer solutions for roof work in the construction industry. The expert group recommends focusing on the most difficult and high-risk tasks in roof work, where there is a particularly great need for guidance and potential for prevention.

If, while drafting industry standards, the coalition determines that there are work situations for which no suitable solutions exist, it is recommended that **development efforts be initiated** in close collaboration with companies and manufacturers with the aim of developing one or more practical technical aid.

The expert group also recommends that these new industry standards for good practices be **disseminated** throughout the industry, including by communicating them in an easy-to-understand manner that is readily accessible during project planning and in day-to-day work on the construction site.

The expert group assesses that the long-term effect of the recommendation will be a decrease in the number of accidents resulting from falls from heights during roof work. It

will have a significant impact on reducing the number of accidents when workers are able to use well-designed safety solutions and appropriate technical aids for a wider range of tasks than is currently the case.

Recommendation 4: Training in occupational safety and health

The purpose of this recommendation is to ensure that individuals with **managerial responsibilities** at construction sites have the necessary **knowledge** regarding occupational safety and health (OSH). This is essential, as these individuals influence decisions and conditions that affect OSH of workers on the construction site. At the same time, the purpose is to ensure that workers on the construction site have a solid foundation from their training to perform their work safely, and in compliance with regulations.

The expert group recommends that OSH be incorporated as a standard component of relevant courses and modules, as well as included as specific **learning objectives** in **higher education programs** — such as those for engineers, architects, and structural engineers — whose graduates can be expected to become future project planners and construction managers. Prior to this, an **overview** must be prepared of where and to what extent OSH is currently taught in higher education programs that most often lead to leadership roles in the construction industry. This overview can be used to prioritize efforts. The recommendation can be implemented through collaboration between the coalition from Recommendation 1 and higher education institutions.

The expert group also recommends that students in construction programs receive more **training** — under more realistic conditions — in **risk assessments** and **risk scenarios** related to working at heights, and that the process of establishing the **necessary safety measures** for working at heights be **integrated into the training**.

The expert group's investigations included several examples of accidents in which one of the causes was scaffolding erected with significant errors and deficiencies. The expert group recommends that the Danish Construction Industry's Educational and Vocational Training Secretariat (Byggeriets Uddannelser) takes the initiative to schedule the course on **erecting rolling and trestle scaffolding** at a point in training programs, when students can derive the greatest benefit from the course in relation to their practical experience with work tasks involving the use of rolling and trestle scaffolding. It is also recommended that Byggeriets Uddannelser investigates whether a follow-up course can be offered later in the program, if the course on erecting rolling and trestle scaffolding is held during the basic training phase, when students do not yet have significant practical experience.

The expert group recommends that the coalition mentioned in Recommendation 1 engages in dialogue with Byggeriets Uddannelser and selected vocational schools in the construction industry regarding the implementation of recommendations concerning vocational education and training.

The expert group assesses that **strengthening the level of knowledge** among both future managers and workers on construction sites, will have a long-term positive effect in terms of reducing the number of accidents in the construction industry. A higher level of knowledge about occupational safety and health can help ensure that the design and

planning of work at every stage of the construction process are given higher priority, and that, for this reason, the work is carried out more safely.

Criteria to characterize the recommendations

The expert group has developed the recommendations in this report based on certain criteria that have helped determine the prioritized order of the recommendations. The criteria are:

1. **Prevention potential** in construction workplaces
2. **Feasibility**
3. Concrete and **action-oriented measures**, preferably targeting multiple audiences
4. **Voluntary participation and requirements**
5. **Effectiveness** in reducing accidents during roof work

The expert group has focused on proposing recommendations that are feasible, can gain support within the industry, and can be translated into a **stronger safety culture** in companies. The recommendations are intended to reduce serious accidents with significant socioeconomic costs, and to have the greatest possible impact. The expert group would like the Danish Working Environment Authority, together with key stakeholders in the construction industry, to take responsibility for improving the safety culture within a binding framework. In addition, the expert group wishes to make recommendations that, in its assessment, would have fully or partially prevented the accidents included in this year's investigations, had they been implemented before 2025.

The criteria are explained in greater detail in Appendix 6 (*in Danish*), which also states that, in the expert group's assessment, the four recommendations — along with their sub-recommendations — could collectively have prevented, to varying degrees, the 18 accidents examined in this year's report.

Economy in recommendations

The expert group has not been given a financial framework for the recommendations, and has not calculated how much it will cost to implement them. The expert group is aware that implementing the recommendations will entail costs for, among others, the industry, companies within the industry, and the construction industry's customers, and that ensuring fewer people are seriously injured or lose their lives in workplace accidents comes at a price. Conversely, the expert group also sees potential for reduced costs, including those related to sick leave and medical treatment following workplace accidents, which should also be viewed in the context of the reduced human cost of fewer workplace accidents.

