Hostel fire leading to three fatalities in Äkäslompolo, Kolari on 13 February 2024

Y2024-01

FOREWORD

Pursuant to section 2, subsection 2 of the Safety Investigation Act of Finland (525/2011), the Safety Investigation Authority decided to investigate the hostel fire that occurred in Äkäslompolo on 13 February 2024.

The purpose of safety investigations is to promote general safety, the prevention of accidents and incidents, and the prevention of losses resulting from accidents. A safety investigation is not conducted in order to allocate legal liability.

Fire Chief Jaakko Niskala, M.Sc. (Admin) was appointed as Head of the Investigation Team, and Krista Lyyra, Senior Safety Investigator, as well as Eero Nyman, M.Sc. (Admin) were appointed as its members. Senior Safety Investigator Timo Naskali served as the Investigator-in-Charge.

A safety investigation examines the course, causes and consequences of events as well as the rescue operations undertaken and the actions of the authorities. In particular, the investigation seeks to establish if safety was adequately addressed in the activities that led to the accident and in the design, manufacture, construction and use of the equipment and structures that caused the accident or hazard or were affected by the accident. The investigation will also determine if management, supervision and inspection activities were organised and taken care of appropriately. If necessary, any shortcomings in provisions and regulations applicable to safety and the authorities must also be investigated.

The investigation report contains an account of the course of events, the factors leading to the accident and its consequences as well as safety recommendations addressed to the appropriate authorities and other instances regarding measures that are necessary in order to promote general safety, the prevention of further accidents and incidents, the prevention of loss and the improvement of the effectiveness of the operations of search and rescue and other authorities.

An opportunity is given to those involved in the accident and to the authorities responsible for supervision in the field of the accident to comment on the draft investigation report. These comments have been taken into consideration during the preparation of the final report. A summary of the comments can be found at the end of the report. Pursuant to section 28, subsection 3 of the Safety Investigation Act, no comments given by private individuals are published.

The investigation report was translated into English by Lingsoft.

The investigation report and the summary thereof were published on the Safety Investigation Authority's website at *www.sia.fi* on 14th April 2025.

Investigation ID: Y2024-01
Investigation report 1/2025
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Cover image: OTKES

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1 EVENTS

1.1 Course of events

On Monday 12 February 2024, 34 people were accommodated in the buildings of a hostel in Äkäslompolo, Kolari. The hostel consisted of a two-storey main building as well as smaller holiday house and sauna buildings. The main building had 28 guests, 20 of whom were sleeping in rooms on the first floor. Of these guests, 16 were part of a group organised by a Belgian travel agency consisting of several nationalities. Smaller groups, individual tourists and a staff member were also accommodated in the building.

The travel agency's guide organised a northern lights excursion to Kuertunturi Fell, where a campfire was lit. The last participants returned to the hostel at approx. 23:30. The guide brought back the supplies used on this excursion and ashes from the campfire in a plastic storage box. Snow was added to the box on the way to cool down the remains of the campfire. The snow had also been collected in previous weeks. The guide put the storage box in an outdoor storage area on the ground floor deck.

On Tuesday night 13 February 2024 at around 00:30, some persons staying on the first floor woke up due to flames blazing outside the window - and due to people shouting and calling to exit the building. Some of the guests assumed that the noise was caused by arguments. At that point, there was already smoke in the indoor corridor on the first floor. People mainly escaped from the first floor through the indoor staircase and the main door. Most of those who escaped did not have time to bring their outdoor clothes.

The blaze spread rapidly from the seat of the fire along the outer surfaces and ventilation gaps of the building to the balcony access corridor and roof structures. The only escape route from three first-floor rooms was through the balcony access corridor and external staircase to the ground level. The guests staying in one of these rooms crossed the balcony access corridor while it was already on fire and jumped down from a porch roof. Three people in the other two rooms died as the fire prevented their escape.

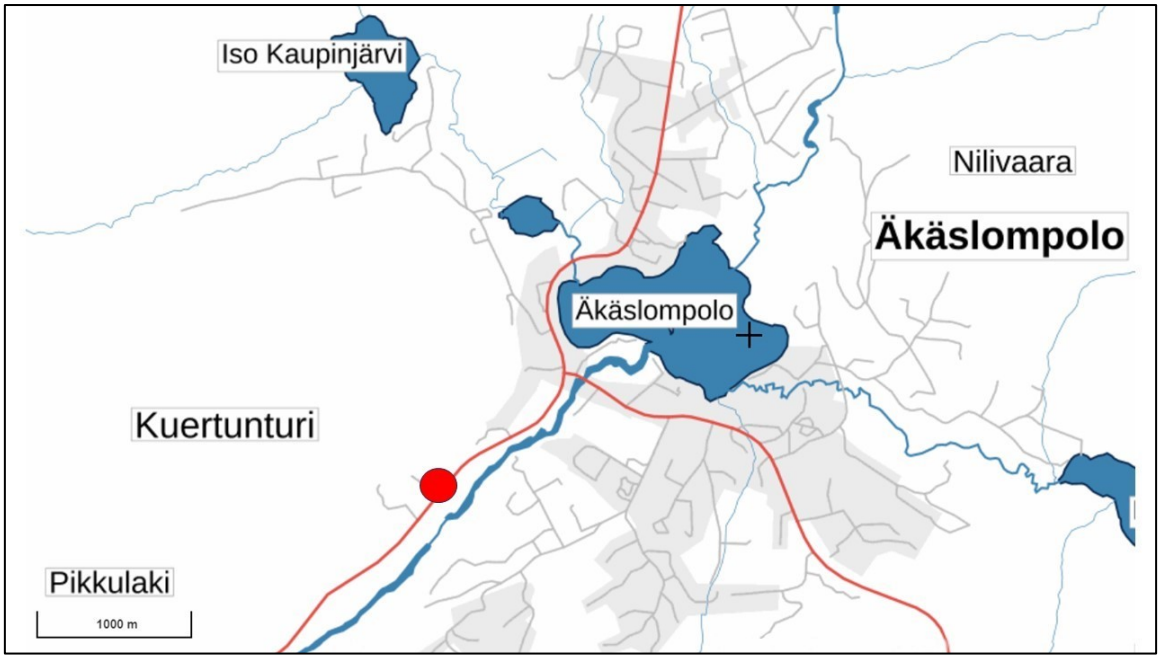

Figure 1. The location of the scene is marked in red on the map. (Image: National Land Survey of Finland)

Figure 2. One of the earliest photographs of the fire. The fire spread quickly to the first floor balcony access corridor. At this stage, some of the persons who escaped were still inside the building. (Photo: private person)

1.2 Alerts and rescue operation

1.2.1 Alerts

The first emergency call was made at 00:35 by a person who had escaped from the building. The caller said that the hostel was on fire. S/he stated that s/he did not know if there were still people inside the building. A total of seven emergency calls were made due to the accident. The callers reported that the building was burning intensely and that those who had exited it were freezing in the low sub-zero temperature. Some of the callers said that at least two people probably remained in the building. Most of the emergency calls were made by tourists who had escaped from the hostel.

At 00:37, the first rescue units were alerted to the scene with task code 402 A, *Building fire, medium*. The alert was relayed to rescue units RLA601 and RLA612 in Kolari and Äkäslompolo, hydraulic platform vehicle RLA746 in Sirkka, and tanker RLA603 in Kolari. Fire chief P30 on call in Rovaniemi and rescue team leader RLA56 on call in Kolari were also alerted to the task.

At 00:39, ambulance ELA222 from Kolari as well as a field commander and medical helicopter from Rovaniemi were alerted to the scene. Approx. one minute after receiving the alert, the field commander asked the Emergency Response Centre to also alert Kittilä and Muonio ambulances ELA221 and ELA223 to the task.

At 00:41, a police patrol in Kittilä was alerted.

At 00:44, the primary duty officer of the social emergency services in Rovaniemi was called. The primary duty officer conveyed the task by telephone to the backup duty officer in Kolari, who asked for more information about the situation. The primary duty officer called back at around 1:00 and forwarded the number of the emergency medical care field commander to the backup duty officer. Based on the information received from the field commander, the backup duty officer called in a partner to assist them.

Between 0:52 and 0:54, rescue unit RLA621 in Muonio and tankers RLA623 and RLA743 in Muonio and Sirkka were called.

Table 1. Emergency service alerts

Code	Alerted	On scene	Type and strength	Location	Distance
RLA603	00:37:23	1:19:43	tanker unit 0+2	Kolari	38 km
RLA601	00:37:23	1:34:50	fire brigade unit 0+2	Kolari	38 km
RLA6179	00:37:23	00:37	crew transport 1+2	Äkäslompolo	2 km
RLA612	00:37:23	1:03:43	tanker firefighting unit 0+2	Äkäslompolo	2 km
RLA30	00:37:23	remotely	on-call fire chief 0+0+1	Rovaniemi	176 km
RLA56	00:37:23	1:30:00	rescue team leader 1+0	Muonio	55 km
RLA746	00:37:23	1:45:34	hydraulic platform unit 0+3	Sirkka	65 km
RLA621	00:52:16	1:44:05	fire brigade unit 1+3	Muonio	55 km
RLA623	00:52:16	1:42:18	tanker unit 0+2	Muonio	55 km
RLA743	00:54:31	1:50:22	tanker unit 0+1	Sirkka	65 km

Table 2. Alerts to emergency medical care, police and social emergency services

Code	Alerted	On scene	Type	Location	Distance
ELA011 (L4)	00:39	remotely	field commander	Rovaniemi	176 km
ELA222 (L5)	00:39	1:08	ambulance	Kolari	38 km
ELA221	00:40	1:13	ambulance	Kittilä	52 km
ELA223	00:40	1:17	ambulance	Muonio	55 km
SLA031	00:44	passed on the task	social services	Rovaniemi	176 km
SLA134	00:45	approx. 2:00	social services	Kolari	38 km
PLL607	00:41	1:30	police patrol	Kittilä	52 km

1.2.2 Rescue operation

At around 12:30, an employee accommodated in a building attached to the hostel woke up with people screaming outside. After going out, they noticed the fire on the first floor of the building and called the hostel entrepreneur, who was staying in a nearby cabin. The employee then entered the ground floor of the building, which was almost free of smoke and where people were still discussing if the building was on fire. An employee ordered the persons they met inside the building to leave and directed them to wait beside a caravan parked outside the buildings. The hostel entrepreneur arrived at the scene and used a portable fire extinguisher inside the building, but it no longer slowed down the blaze.

A rescue unit from Äkäslompolo was the first one to arrive at the scene at 1:04. The first floor of the hotel was burning intense, and it was no longer safe to enter the building.

At 1:12, on-call rescue team leader P56 arrived at the scene. A few persons who had exited the building were standing along the road leading to the hostel and near the burning building. Some of those who had escaped had left the hostel area.

On-call fire chief P30, who led the rescue operation, ordered the rescue team leader to take over command at the scene, using call sign P32. The rescue team leader understood that s/he would take over as commander of the rescue operation, and s/he did not pass on situational awareness to the on-call fire chief.

The rescue department restricted the spread of the fire to adjacent buildings and worked to extinguish the fire from the outside. This consumed a large quantity of water, which was transported by tankers from Äkäslompolo fire station taken from a hole in the ice in the village. Both sources were located slightly over two kilometres from the scene of the accident. The use of firefighting water had to be regulated due to these problems in supplying it. Filling the tank from the water point at the fire station was slow. In addition, the pump used to pumping water out of the lake froze due to cold weather.

Some of the rescue unit personnel first alerted to the scene worked there for almost 24 hours. P30 and P32 were unable to obtain sufficient numbers of replacement personnel. The damping-down operation continued until Wednesday morning. On Tuesday evening, a debriefing was organised for the rescue personnel by the rescue department.

The on-call fire chief agreed on communications with Oulu Police Department. The rescue department published information related to the accident twice during the night. The accident was reported to the on-call fire chief in the morning of the following day.

1.2.3 Emergency medical care and keeping track of survivors

At 1:08, an ambulance from Kolari arrived at the scene, and its paramedic took over as the on-scene commander of emergency medical care. By 01:17, ambulances from Kittilä and Muonio had also arrived. Emergency medical care personnel examined survivors and recorded their personal data. Two persons who were slightly injured were transported by ambulance to Lapland Central Hospital in Rovaniemi.

The on-scene commander released the ambulance from Muonio and the medical helicopter from the task at around 01:25. The personnel of the ambulance from Kittilä organised an apartment in Kuerkaltio holiday cottages at approx. one kilometre from the scene where the survivors could gather.

At 1:30, a police patrol arrived at the scene and started examining the personal data of the survivors and missing persons. There was a large number of survivors, and most of them had

already left the scene. Emergency medical care and emergency social services also carried out their investigations. The hostel entrepreneur and hostel employee were present and provided assistance in this. At 3:23 a.m., the police confirmed that of the 34 people who had stayed in the hostel buildings, three were missing.

The backup duty officer of the social emergency services arrived at the scene at approx. 2:00, at which time most of the hostel residents had been assembled in Kuerkaltio. The officer's partner arrived at around 03:00.

The emergency social services surveyed the need for psychosocial support of those who had been at the scene of the accident, including emergency accommodation needs and missing property. At approx. 04:00, the last two persons to have escaped from the building were collected from Äkäslompolo village centre and brought to the emergency accommodation. No debriefing was held for the personnel of the emergency social services. Some of the people involved in the accident felt that they did not receive crisis assistance in the days following the accident. Some tourists used the opportunity provided by the tour operator to return to their home countries as soon as the following day.

1.2.4 Communication and cooperation

The rescue department and emergency medical services used the Virve network's group calls intended for daily operations in their communications. Multi-authority group calls and telephones were used for communication between the authorities. Those at the accident site also communicated face to face. While the emergency social services were alerted to the task on the Virve network, telephones were otherwise used for communicating.

1.3 Consequences

Three people who were staying at the hostel died in the accident. Two survivors suffered minor injuries.

The hostel building was destroyed completely.

2 BACKGROUND INFORMATION

2.1 Operating environment, equipment and systems

The **destroyed building** was known as Ylläskartano. It was built for residential use in the 1950s but later became one of the first building used for tourism in Äkäslompolo. Ylläskartano was a two-storey log building. There were four smaller accommodation buildings, a sauna and a storage area on the site. The floor area of the main building was 336 m^2.

The storage area where, based on the fire investigation, the fire started was built at the northwest end of the building on the deck attached to the ground floor in 2002. The external walls of the storage area were enclosed with boards. The boards of the deck and the balcony above it served as its floor and ceiling.

Electric bicycles, which were protected with a canvas wall at the time of the accident, were stored on the deck on the southwest side of the building. The bicycle batteries were charged and stored in the ground floor office.

Figure 3. Hostel building from the west. The arrow points to the unheated outdoor storage area. The stairs leading to the balcony access corridor are on the left. (Photo: private person)

The building had battery-backed emergency exit lights, first-aid extinguishing equipment and battery-powered smoke detectors.

The smoke detectors were located in accommodation rooms and shared spaces. Rather than following a uniform agreed operating model for testing the smoke detectors, the personnel tested them at random intervals and the batteries were replaced as necessary. At the time of the accident, there were no smoke detectors connected to a control panel or the mains. The

safety investigators asked the hostel guests involved in the accident if they had a memory or perception of the smoke detectors working during the fire. These guests pointed out that they could not hear the smoke detectors sounding an alarm at any stage.

The fire door controlled by a smoke detector at the top of the staircase closed during the fire. Exit lights also worked as people escaped from the building.

The main switchboard was located in the northwest corner of the building under the stairs leading to the outdoor corridor. The electrical equipment of the building was last inspected in 2014. Based on an investigation of the building's electrical system commissioned by the police, no indication was found of the electrical system having had an impact on the fire.

There was a fireplace in the building, which had not been used on the day of the accident or the previous day.

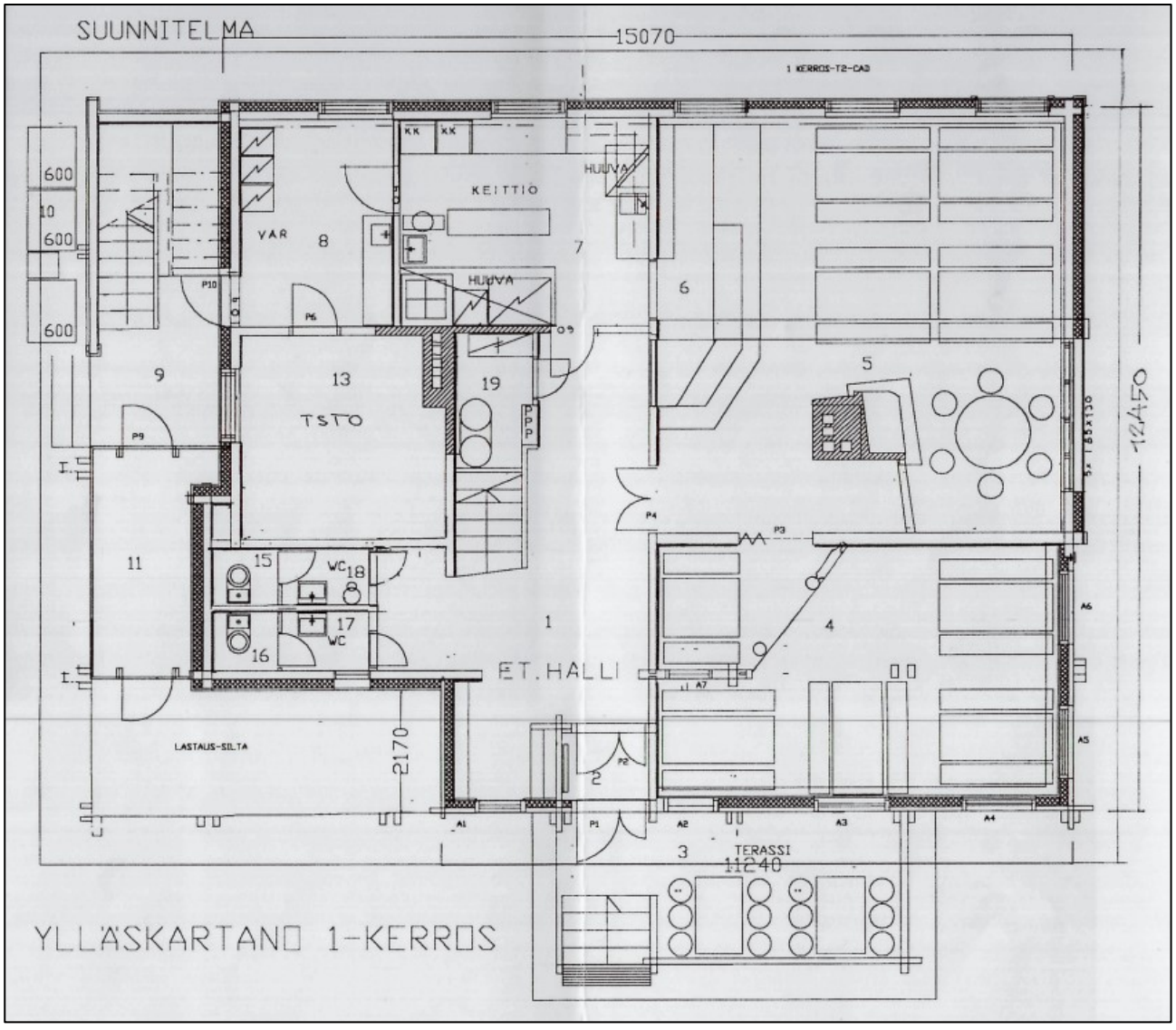

Figure 4. Ground floor of the main building. At the time of the accident, room 4 was used to accommodate guests. (Image: Kolari building control services)

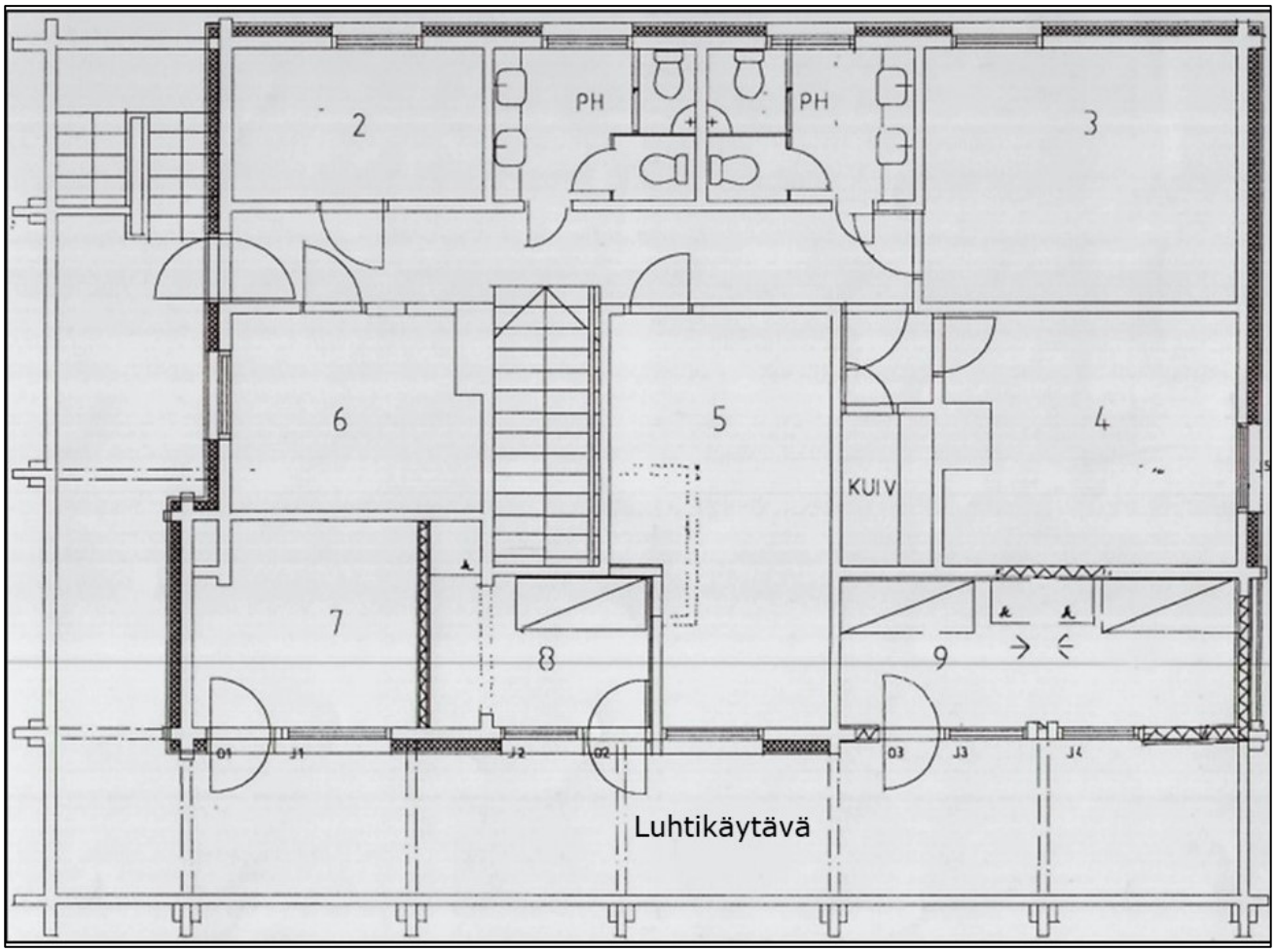

Figure 5. First floor of the main building. The guests who lost their lives were staying in rooms 7 and 8. (Image: Kolari building control services, balcony access corridor ('Luhtikäytävä') marked by the Safety Investigation Authority)

2.2 Circumstances

At the time of the accident, 28 people were accommodated in the main building. Five of them were in the first-floor rooms from which the only exit route was along the balcony access corridor and stairs to the ground. The other rooms had two independent exit routes.

According to the Finnish Meteorological Institute, the weather at Kittilä Airport, approx. 35 kilometres northeast of Äkäslompolo, was calm and the temperature was -25 degrees Celsius. At the scene, the reading of the fire engine's thermometer was -32 degrees, and according to the observations there was little wind.

Different factors affected the organization of psychosocial support. Among these factors was language since the survivors spoke different languages (six mother tongues). After the accident, survivors were accommodated at different locations, and most of them wished to return to their home countries as soon as possible. The survivors lost almost all of their luggage in the accident.

Victim identification was needed to identify the remains found at the site. Delays in repatriating the remains to the victims' home countries were caused by discrepancies in document interpretations required in the official processes of different countries.

2.3 Recordings

The recordings of the Emergency Response Centre and data in the rescue services' resource and accident statistics system Pronto[1] associated with the accident showed, among other things, the times and content of the emergency calls as well as the relaying of alerts to rescue services, emergency medical services, the police and emergency social services.

Photographic and video material available on the fire, shows among other things the area where the fire ignited and how it progressed. In addition, the photographs used in the investigation show individual battery-powered optical smoke detectors in the rooms, the building's emergency exit arrangements and exit lights as well as the sliding fire door on the first floor.

2.4 Persons and organisations associated with the accident and safety management

Since 1979, **Ylläskartano** has been owned by an outdoor recreational organisation. It concluded a lease on the Ylläskartano complex with a hostel entrepreneur on 1 September 2020. The lease was renewed in 2023. The tenant was responsible for maintaining the property.

In addition to the entrepreneur, seasonal employees worked at the hostel. The entrepreneur provided the employees with instructions for performing their duties, using the customer booking system and cleaning the hostel. They received no separate training on safety issues, and no emergency plan had been drawn up for the property.

The hostel employees guided customers in handling fire in the accommodation building and outdoors at campfire sites as necessary. The hostel had varying numbers of staff during the day, and the guests could also check in at the hostel themselves. There was no staff on duty at night.

A Belgian tour operator organised trips for tourists from Central Europe. The tour operator and hostel entrepreneur had an agreement on accommodating groups of tourists. The tour operator's guides organised tourism activities for their customers, such as cycling, snowshoeing and excursions to see the northern lights.

The hostel entrepreneur advised the organiser of the excursions to obtain Metsähallitus' permission for lighting fires. They applied for permission concerning three areas. Metsähallitus concluded a land use agreement with the excursion organiser for the period 1 January 2024 – 28 May 2028 which only covered Lehmijänkä area in the village of Äkäslompolo. The terms of the agreement included using a fireproof base under the fire, keeping the area tidy and cleaning it in the spring, as materials that do not belong in nature had been found after the tour operator's excursions in the previous spring.

The guides used a firepit for the campfires on the excursions. The northern lights excursions were led by several guides, who had decided amongst themselves to bring back ashes from campfires to the hostel's storage area that was at their disposal. This operation had already been repeated four times earlier during the winter. The investigators could not determine as to how the tour operator had instructed the guides on identifying or managing risks.

[1] Rescue services' resource and accident statistics.

Figure 6. At the campfire site used during the northern lights excursions, the fire was lit in a firepit, and the supplies were transported to the site in a sled. (Photos: private person)

The tour operator had agreed with the hostel entrepreneur on the use of the unheated storage facility at the end of the building. Such equipment as snowshoes, clothing, the firepit and firewood were kept in this storage area. The hostel entrepreneur did not know that ashes from campfires lit on the northern lights excursion were also taken into this space.

Metsähallitus administrates state-owned forests and properties. A landowner's permission is required to light an open fire on someone's land, however. Metsähallitus has decided that lighting campfires on its lands outside nature conservation and wilderness areas in such regions as Lapland is permitted for private individuals. However, companies are required to have a Metsähallitus' permission to make open fires. Instructions for lighting and extinguishing fires are also available on Metsähallitus' website in English.

2.5 Preventive action by the authorities

2.5.1 Building control services and the State Provincial Office

The building control authority of Kolari supervises compliance with the statutes and regulations on construction and handles building permit applications. If necessary, the building control services consult other authorities, including rescue authorities, in matters related to fire and personal safety. The following building permits had been issued for the main building of Ylläskartano:

In June 1950, the Building Committee of Kolari municipality had issued a building permit for a residential building. The ground floor comprised one accommodation room for ten people, shared facilities, a dining room as well as service areas. The first floor had three accommodation rooms for a total of 24 people. The first floor had two exits to a balcony on the southwest side of the building.

In October 1974, the Building Committee of Kolari municipality issued a permit for a building whose purpose of use now was accommodation establishment. According to the permit drawings, the entrance was on the southeast side, and access to the first floor was along a staircase from the lobby. In addition to shared facilities, there was one accommodation room on the ground floor of the building. The first floor contained five accommodation rooms, toilets and showers. All rooms were accessed from inside the building. In the building designs, the floor area was approximately 250 m^2 and there were 24 beds. The building had a deck/balcony on the northwest and southwest sides on both floors. The balcony on the first floor was reached by stairs located at the northwest end.

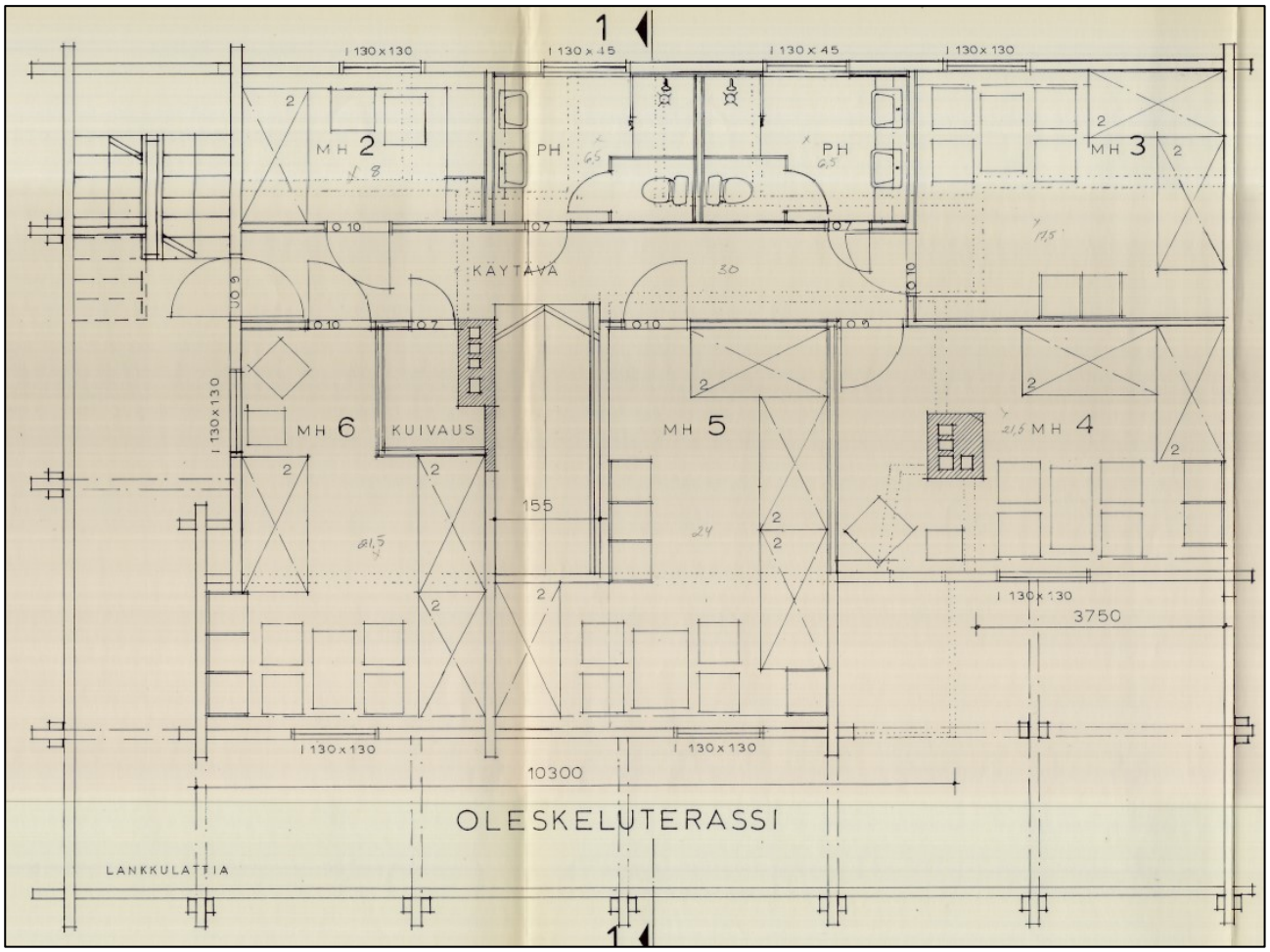

Figure 7. First floor in drawings of the building permit issued in 1974. (Image: Kolari building control services)

In 1980, the owner of the building applied to the State Provincial Office of Lapland for permission to provide accommodation and catering services in Ylläskartano building in compliance with the decree on accommodation and catering establishments [2] valid at the time. The State Provincial Office granted permission to provide accommodation services on the ground floor of the building. The State Provincial Office rejected the application regarding the first floor, as the building's fire class was 'fire slowing', and according to the Finnish Building Code E1[3] valid at the time, no accommodation rooms could be located on the first floor of a building of this type.

In August 1987, a building permit was issued for expanding the accommodation building. According to the permit documents, the most significant change took place on the first floor of the building, where an accommodation room was built in the southeast end of the balcony. This room was accessed from the balcony. According to the permit drawings, the accommodation rooms on the first floor were altered by separating two of the rooms on the southwest side, the only exit from which was through the balcony that had now become a balcony access corridor.

[2] 502/1969.
[3] 1976.

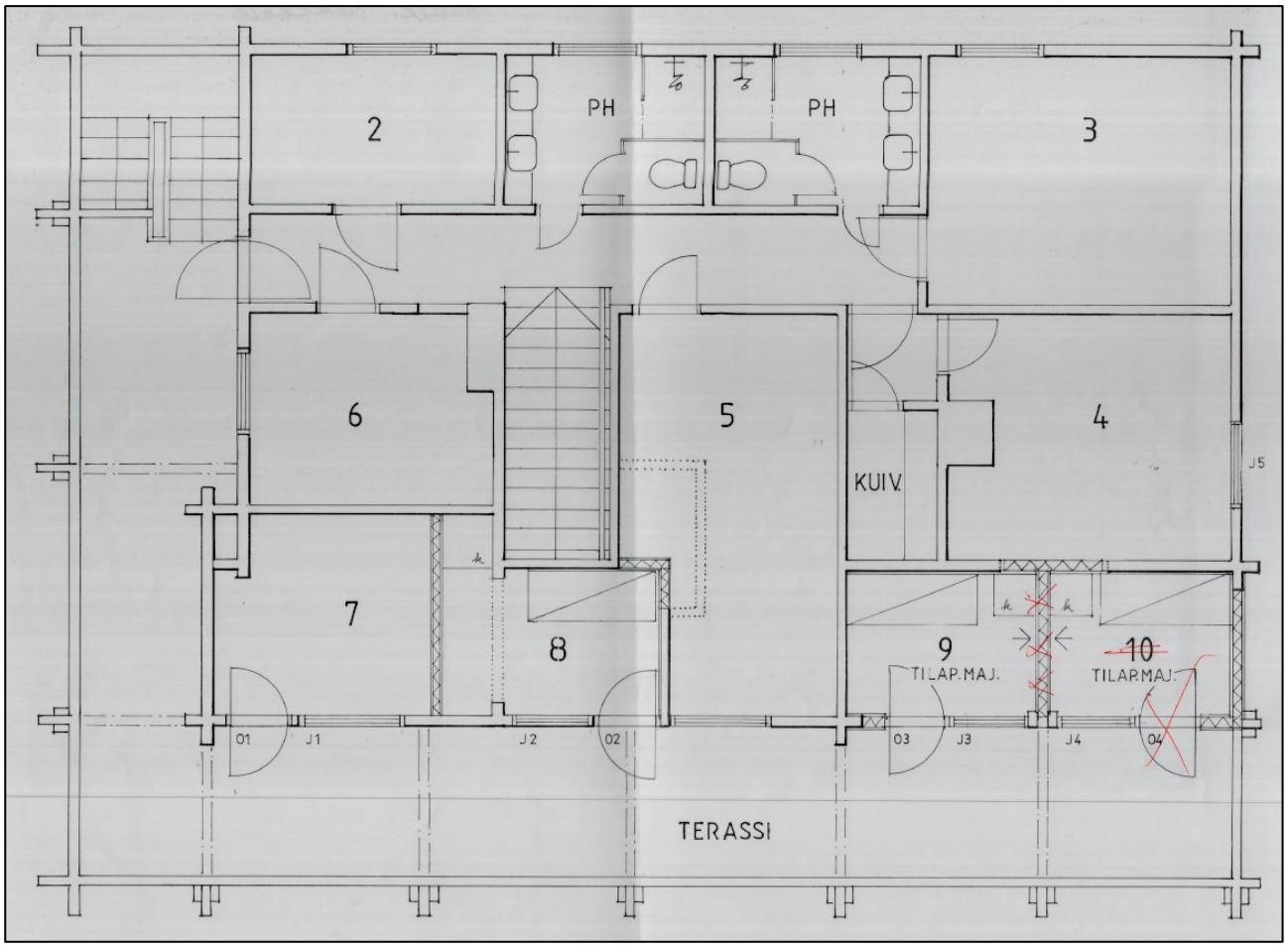

Figure 8. First floor in the drawings of the building permit issued in 1987. The rooms on the balcony side only had a single exit route into the balcony access corridor. Rooms 9 and 10 were combined into one. (Image: Kolari building control services)

In the building permit process of **August 2002**, a permit was granted to expand the accommodation building. The fire class of the building was P3, and its floor area was 336 m^2. According to the permit drawings, a room was built to replace the ground floor entrance on the southeast side. The entrance to the building was moved to the southwest side and a porch was also built to shelter it. A walk-in outdoor storage area was additionally built on the ground floor deck at the northwest end. Its timber cladding is shown for the first time in permit drawings from 2002.

Figure 9. Doors in the first floor the corridor with balcony access looking to the southeast. (Photo: private person)

In their undated statement issued with the building permit to the responsible foreman, the Fire Chief of Kolari required that, among other things, the following should be addressed in the renovations of Ylläskartano:

- horizontal compartmentation between the storeys,
- mains-backed smoke detector system connected to a control panel,
- emergency exit arrangements for the rooms that had no direct access to the balcony access corridor,
- exit lights,
- first extinguishing equipment subject to agreement with the official carrying out the fire inspection.

At the final inspection in October 2002, the building inspector required that a fire inspection be carried out on the site.

2.5.2 Rescue authorities

The last known fire inspection was conducted in October 2002. A record was drawn up of this inspection. Such as the following shortcomings were observed in the fire inspection:

- Not all detectors of the fire alarm system were connected, and some did not work,
- more illuminated exit signs were needed, and they were to be placed in more visible locations,
- emergency exist arrangements were inadequate and needed to be improved (ladders, fixed handles for emergency exits, and the size of the window used as an emergency exist)

The shortcomings were to be fixed no later than 30 November 2002. A follow-up inspection[4] was conducted on 29 November 2002. According to the inspection record, the required

[4] A follow-up inspection is conducted to ensure that the orders issued following a fire inspection have been complied with, particularly when shortcomings that put fire or personal safety at risk have been observed.

corrections had been made, excluding the order concerning the minimum size of two emergency exit windows.

Ylläskartano was again visited by the rescue authorities in 2014 as the new hostel entrepreneur was about to start operating. The Fire inspector of Kolari visited the site and issued an order to carry out an electrical inspection, which was conducted in August 2014. No record of this visit by the rescue authorities could be found, however. The main building was not defined as an accommodation facility in the fire inspection program. After this date, no control took place prior to the hostel fire.

Before regional rescue departments were established, the fire brigade in Kolari municipality was responsible for fire inspection activities in its area. The fire brigade had to determine the sites on which fire inspections were to be conducted based on risks identified in its area. When the regional Rescue Department of Lapland started operating at the beginning of 2004, regional supervision plans were introduced. According to legislation, the sites and supervision (fire inspections) had to be determined in this plan on the basis of the rescue department's risk assessment and service level decision. (until 2011, accommodation facilities with more than 10 beds had to be inspected annually.)[5] The risks were still assessed and sites to be inspected selected at local level until 2021. After this, joint planning of control covering the entire area of the rescue department was introduced.

The rescue department uses Merlot fire inspection program to plan and direct the control. The program contains information on buildings in the area, including technical data and information on their intended uses. The Rescue Department of Lapland updates the program with building and apartment information from the Population Information System once a year. The updates of information in the fire inspection program are not automated in all respects. The use of the building in the fire inspection plan had been recorded as *holiday houses*. It should have been *accommodation building*, but this information was corrected neither in connection with updates nor in the program.

The fire inspection interval is determined with a risk-based approach on the basis of the building's use. In addition to its own observations, the rescue department usually receives information on the use of buildings from other authorities. In the risk-based approach, the inspection interval of accommodation facilities[6] varies from six months to five years and is two years on average.

To facilitate data processing, one of the buildings belonging to the same complex may be recorded as the so-called main site in the fire inspection program, while the others are marked as subordinate to it. A holiday house on the site was recorded as the main site among the hostel buildings, while the other buildings were subordinate sites. The fire inspection interval of the subordinate sites was determined based on the main site's purpose of use, which is why the inspection interval for the hostel was also 10 years in the fire inspection program. The correctness of entries in the program is not checked systematically. The information about hostel operation on the site was recorded in the additional information of the holiday house.

The rescue department carries out fire inspections following a plan that it prepares annually. Sites to be inspected periodically are divided into categories from A1 to A6 as well as

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5 Rescue Act (468/2003) and Government Decree 787/2003.

6 Ministry of the Environment Decree on Fire Safety in Buildings 848/2017. Accommodation facilities refer to such premises as hotels, holiday homes and dormitories that are usually used 24 hours a day and in which persons to be cared for or isolated are not housed. (Section 5, subsection 3, paragraph 2).

residential buildings. Accommodation buildings belong to category A1. In 2013–2021, the Rescue Department of Lapland fell short of all targets for periodically inspected sites. In the worst year, only 55% of planned inspections were carried out. Despite a lack of resources, the rescue department attempted to carry out risk-based fire inspections on category A1 sites to ensure personal safety. The statistics indicate that for several years, the targets set for fire inspections at these sites were not reached either. Since 2022, the rescue department has achieved its annual targets.

2.5.3 Environmental health care

Rovakaari Environmental Health Services is responsible for promoting and supervising living environment health in Kolari area as laid down in the Health Protection Act.

The hostel entrepreneur who started operating in Ylläskartano in 2014 submitted the notification referred to in the Health Protection Act (763/1994) to the environmental health care services on 14 July 2014. According to this notification, there were 40 beds in all the buildings in total. The notification stated that the main building comprised eight guest rooms. Based on the notification, the environmental health care services decided to approve the activities and stated that no inspection would be carried out on the premises as the change of operator did not constitute a significant enough of a change to justify a new inspection. The decision was forwarded to the rescue department for information.

The hostel entrepreneur who started operating in 2020 submitted a notification to the health protection authorities on 25 November 2022. An inspector at Rovakaari Environmental Health Services processed the notification and prepared a certificate on it on 29 November 2022. The environmental health inspector did not forward the information to the rescue department.

2.5.4 Finnish Safety and Chemicals Agency (Tukes)

Under the Consumer Safety Act (920/2011), the Finnish Safety and Chemicals Agency Tukes is responsible for supervising service providers who organise tourism activities. The supervision is based on documents and control visits. Tukes conducts monitoring visits on the basis of reports submitted to it and an annual control plan.

Organisation of low-risk tourism activities, including northern lights excursions, need not be notified to the authorities, and no permit is needed for them. Tourism services are usually subject to ex post supervision, for example when an accident has occurred. Tukes did not treat the event under investigation as a supervision matter as it deemed that the case fell within the scope of the Rescue Act.

Tukes website provides information in English on such topics as safe provision of tourism services and self-assessment of safety activities.

2.5.5 Regional State Administrative Agency

The Regional State Administrative Agency supervises the rescue services in the Wellbeing Services County of Lapland as well as the availability and standard of these services[7]. In the early 2000s the Regional State Administrative Agency's predecessor, the State Provincial Office of Lapland, found that fire inspection competence in municipalities was poor and hired a person to develop it.

[7] Section 17, Act on the Organisation of Rescue Services (613/2021).

In the 2010s, the Regional State Administrative Agency observed that the rescue department repeatedly failed to reach its annual fire inspection targets. It commented on the matter and eventually in 2022 directed the rescue department to rectify the issue. The Regional State Administrative Agency did not issue an order to rectify deficiencies regarding this matter.[8]

In addition to its supervision duties, the Regional State Administrative Agency is responsible for promoting regional and local government's safety planning.[9] The Regional State Administrative Agency for Lapland was already involved in developing safety in tourism in the times of its predecessor, the State Provincial Office of Lapland. Safety surveys were carried out in the province of Lapland in 1990, 2000 and 2002 to examine the safety of tourist resorts.

The surveys found that safety plans were absent or inadequate, there were significant deviations from the level required in the National Building Code in the number of persons and surface areas, and emergency exit arrangements were made in an attempt to rectify shortcomings relating to exit routes.

Based on the observations, several proposals for measures were made. Among other things, they recommended that companies develop their risk analysis and safety plans and provide staff with training on safety issues. In particular, they were urged to stress documentation of actions taken, such as internal fire inspections and staff training, in their plans. In addition, increased supervision of adventure and experience services was recommended.[10] Cooperation between tourism companies and the authorities began to evolve following the safety survey conducted in 2002.

The results of the efforts to improve the safety of tourism in Lapland have included a regional tourism safety network and a safety system of the tourism sector that everyone can join. The safety network of tourism in Lapland is an extensive network of actors that includes several hundred companies, authorities, NGOs, educational institutions and associations. The safety network has helped improve safety in tourism in the 2000s, and safety information is also available in English.

Rovaniemi University of Applied Sciences (since 2014, Lapland University of Applied Sciences) enabled the development of tourism safety in Lapland, which was coordinated by the State Provincial Office. The University of Applied Sciences has played a key role in several projects aimed at improving safety in tourism. A package of six projects related to safety in tourism was launched in 2009. It included the organisation of several training events and evacuation exercises. The project also made it possible to implement online tools that promote safety, including a safety tool for tourism[11], Arctic Guide online training [12] and a safety pass for tourism[13]. These tools are also available in English.

2.5.6 Ministries

The Ministry of Social Affairs and Health is responsible for planning and guiding health protection. It is also responsible for drafting legislation on emergency medical care and emergency social services as well as providing support and guidance for its implementation.

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8 If the Regional State Administrative Agency finds that there are significant deficiencies or shortcomings in the service level, the Agency may issue an order to rectify them. Section 18, Act on the Organisation of Rescue Services (613/2021).
9 Section 4, Act on the Regional State Administrative Agencies (896/2009).
10 Safety survey of tourist resorts in the province of Lapland in 2002.
11 15.9.2024. https://blogi.eoppimispalvelut.fi/turvallisuusnormisto
12 2.10.2024. www.arcticguide.fi
13 2.10.2024. www.spek.fi/koulutus/turvallisuuskortit/matupa/

The Ministry of the Interior steers and supervises rescue services and is responsible for drafting legislation on them. It also takes care of the national arrangements for and development of rescue services and coordinates the activities of different ministries and sectors.

The Ministry of the Environment is responsible for drafting legislation on construction and fire safety of buildings.

The Ministry of Economic Affairs and Employment drafts consumer safety legislation and steers Tukes, which supervises consumer safety. In addition, the ministry is responsible for tourism policy and the development of tourism together with other ministries and actors in the sector.

2.6 Organisations that participated in the rescue operation and their standby readiness

The Emergency Response Centre Agency provides Emergency Response Centre services in Lapland. The task of the Emergency Response Centre is to receive emergency calls and alert the necessary units following the instructions issued by the competent authority.

The Rescue Department of Lapland provides rescue and accident prevention services in the Wellbeing Services County of Lapland. The decision on services to be organised is contained in the service level decision, which must be based on the risks and threats in the area.[14] In the regional risk assessment of the Rescue Department of Lapland, tourism has been identified as a key risk in the region that requires preparedness of the rescue authorities, preparation of plans addressing the accident risks, and accident prevention measures.

The hostel was located in an area for which no minimum response time for rescue operations had been determined based on the estimated risk level. However, effective rescue operations should be initiated in the area within 40 minutes of receiving the alert.[15]

The Rescue Department of Lapland's area has been divided into fire station groups. At least one full-time rescue team leader is on call in the area of each group. The emergency response units of contract fire brigades supply the other members of the rescue team. A rescue station group must have the ability to form a minimum-strength rescue team (1+3) within the standby readiness times.[16]

According to the service level decision, the on-call rescue team leaders are responsible for leading minor tasks, and the command system as a whole is coordinated by the operations centre, which is on-call fire chief P30. The on-call fire chief is mainly responsible for taking command in medium to large accident situations. Fire chief P32 can be determined in each individual situation.

The on-call fire chief must supervise and lead rescue operations and maintain situational awareness in Lapland. The on-call fire chief is responsible for communication in major accident situations, initiates actions aiming to establish a rescue service command centre, and

[14] Section 6, Act on the Organisation of Rescue Services (613/2021).

[15] Finland has been divided into 1 km x 1 km squares based on the risks represented by each square. Risk categories I to IV describe the magnitude of the risks, and standby readiness times have been specified for the first unit and rescue operation in category I to III situations. A risk category is attributed to each risk square. The risk category of each square is determined based on its risk level estimated using a regression model and past accidents that determine the risk category. *Instructions for planning the standby readiness of rescue operations 21/2012.*

[16] Decision on the service level of the rescue services 2024–2025. Wellbeing Services County of Lapland.

participates in other authorities' management team tasks as a representative of the rescue services.

Emergency medical services in Lapland are delivered by the Wellbeing Services County of Lapland. The region is divided into five service areas, of which Kolari is part of Northern Lapland service area. The field commander of emergency medical care is on call in Rovaniemi, from where they support other emergency medical care service areas. If necessary, they assign an on-scene commander for an emergency medical care task.

The service level decision specifies the times within which the emergency medical services can be reached in the Wellbeing Services County of Lapland. In Ylläs area, this time for an urgency category A/B task is 16 minutes in 90% of the tasks.

Emergency social services and crisis work services in Lapland are delivered by the Wellbeing Services County of Lapland. Social workers and social counsellors work in the emergency social services in Lapland. The tasks of the emergency social services include organising initial-stage psychosocial support in sudden crisis situations, such as a fire. Outside office hours, contacts made with the emergency service are centralised to the emergency social services unit in Rovaniemi, where the primary duty officer is placed. If necessary, the primary duty officer in Rovaniemi alerts the backup duty officer located in the area covered by the emergency service. The Wellbeing Services County of Lapland has been divided into five backup duty officer areas. These officers are on backup duty for a week at a time. If the backup duty officer needs a partner for a task, they will request a colleague who is off duty to join them.

Crisis work services in Lapland are provided by the mental health services of health centres and Lapland Central Hospital. Crisis groups consisting of regional social welfare and health care professionals, which were operational before the wellbeing services county reform and which currently work in an informal capacity, continue to operate in parallel with these services. For example, the emergency social services can ask this group for help.

Lapland Police Department takes care of police duties in the region. In a building fire, the tasks of the police include isolating the area, searching for missing persons, and investigating the cause of the fire and cause of death.

2.7 Statutes, regulations and instructions

The purpose of the **Rescue Act (379/2011)** is to improve people's safety and reduce accidents. The Act imposes general obligations on everyone, such as a duty of care and care when handling fire. In addition, the Act imposes obligations on business operators and owners and occupants of buildings. These obligations include maintaining arrangements and equipment relevant to fire and personal safety. Under the Rescue Act, operators and accommodation facilities have a duty to prepare an emergency plan for the site.[17] The emergency plan includes an assessment of hazards arising from the building and its functions, instructions for preventing hazards and other safety and operating instructions.

The Act lays down provisions on the rescue department' duty to take care of supervision tasks, guidance and advice as well as safety communication and rescue operations falling within the rescue services' remit. Pursuant to the Rescue Act, rescue departments draw up a supervision plan that covers the carrying out of the supervisory duty. The supervision must

[17] Government Decree on Rescue Services (407/2011) lays down provisions on the obligation to draw up an emergency plan, among other things for accommodation establishments referred to in the Act on Accommodation and Food Service Activities (308/2006).

be based on risk assessment. Among other things, the supervision plan must specify the fire inspections to be conducted and other supervisory measures and describe how the carrying out of the supervision plan is assessed.

The Act on the Organisation of Rescue Services (613/2021) contains provisions on the wellbeing services county's task of organising services and the Regional State Administrative Agency's duty to guide and control them.

The Land Use and Building Act (132/1999) is a key statute that guides construction. The Act also regulates fire safety requirements for buildings.

Under **the Social Welfare Act (1301/2014)**, wellbeing services counties must arrange 24-hour emergency social services to ensure the provision of urgent and essential assistance. In addition, the emergency social services lead and coordinate the initial-stage activities of psychosocial support in urgent situations.

The Health Care Act (1326/2010) states that urgent psychosocial support in unexpected distressing situations is provided as a crisis emergency service and as part of other health care activities. The Act also contains provisions on the organisation and content of emergency medical services, as does the **Emergency Medical Services Decree (585/2017).**

The Health Protection Act (763/1994) provides that the municipal health protection authority in charge of supervision must be notified of the commencement of accommodation activities. This authority must inform the police and the rescue authorities of the accommodation operator's notification and of any inspection visits conducted.

The obligation of the health protection authority to inform the rescue authority of notifications received was laid down in the Health Protection Act in 2006. This obligation was previously included in the Decree on Accommodation and Food Services. The notification obligation was incorporated in health protection legislation because the police and the rescue authorities' access to information on the notification procedure referred to in the Health Protection Act was inadequately arranged in the legislation.

Before the notification obligation was transferred to the Health Protection Act, accommodation and food service operators were obliged to submit a notification referred to in the Health Protection Act concerning the establishment and commissioning of accommodation and food premises to the municipal health protection authority. The notification procedure was updated under a legislative amendment according to which the health protection authority must send information on a notification concerning accommodation and food premises and any inspection visits to such premises to the police and rescue authorities, who have the right to be present at the inspection. [18] In 2016, the Health Protection Act was amended to state that, if necessary, the building control authority in the municipality of the premises must also be informed of the notification. [19]

Among other things, the purpose of **the Consumer Safety Act (920/2011)** is to secure the safety of consumer services and consumer safety supervision. Compliance with the Act is supervised by Tukes.

Under the Consumer Safety Act, a service provider is responsible for the safety of their service. A general duty of care applies to all service providers. In addition to the general duty of care, a safety document must be drawn up for services listed in the Act. This document

[18] HE 138/2004 vp.
[19] HE 124/2016 vp.

shows that the service provider has identified the hazards associated with the activities and that risk management has been ensured. Under the Act, nature services and other similar activities are also included in these services, unless the risk contained in them can be deemed minor. For example, the authority has not required the preparation of a safety document on an ordinary excursion to see northern lights in nearby outdoor areas.

The Decree on Accommodation and Food Services 727/1991 was repealed, and the notification procedure for commencing accommodation activities was incorporated in the Health Protection Act in 2006.

In 1976–2017, **Building Code E1** was the set of standards that guided fire and personal safety in buildings. E1 was updated six times in total. For the purposes of interpreting it, Environmental Guide 39[20] was published, which was also updated.

In Building Code E1, buildings were divided into three classes based on their fire resistance:

- fire resistant building (later category P1),
- fire retardant building (later category P2),
- fire slowing building (later category P3).

'Fire slowing' meant that the building's load-bearing structural components were, in practice, subject to no requirements regarding their fire resistance class. Attempts were made to keep the building safe by such means as limiting the number of storeys and people in it.

According to Building Code E1[21], which was valid as the *building permit of 1987* was issued, an accommodation establishment comprising no more than four guest rooms was comparable to an apartment. An accommodation establishment in a fire slowing building was allowed to have 50 beds, however with no accommodation activities permitted on the first floor.

The size of the fire compartment was limited to 200 square metres. The different floors of the building usually also had to comprise separate fire compartments.

On the subject of exit routes, the Building Code notes that their number must be adequate and they must be appropriately located. Doors leading directly out to the ground level or a similar area from a compartment are deemed comparable to exits.

When the building permit of 2002 was issued, Building Code E1[22] was valid (1997). The changes compared to the previous version included allowing a two-storey class P3 (fire slowing) accommodation building where guests also sleep on the first floor to have a total of ten beds. Under a new provision, smoke detectors had to be connected to the mains. It applied to accommodation facilities with less than 50 beds.

As the main rule concerning exits, the code stated that each compartment usually had to have two separate exits. A single exit was allowed in small accommodations facilities, for example, if they did not pose a risk to personal safety. A compartment usually had to have an emergency exit. The application guide noted that one exit is sufficient in a single-storey accommodation building with direct access to outdoors.

Ministry of the Interior decision on fire resistance of buildings 327/1962 was the valid regulation when the building permit of 1974 was issued to Ylläskartano. According to this

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20 Ministry of the Environment. (1997) Environmental Guide 39. Fire safety in buildings & Fire safety in renovations.
21 1981.
22 1997.

decision, the main rule was that a building corresponding to the fire-slowing class could not have accommodation facilities on the first floor.

Under **Ministry of the Interior Regulation 5/93,** smoke detectors were mandatory in accommodation facilities from 1 May 1993. This Regulation stated that a sufficient number of smoke detectors, a group of interconnected smoke detectors or a smoke detector system had to be installed in an accommodation facility that did not have an automated fire alarm. It also required accommodation facilities to have instructions for fire and accident situations.[23]

The **Rescue Services Act (569/1999)**[24] made fire alarms a statutory requirement. A sufficient number of smoke detectors or devices with an equivalent protection level had to be installed in apartments and accommodation facilities. Vastuu hankinnasta oli tilan haltijalla. Viimeistään 1.9.2000 palovaroittimet tuli olla asennettuna kohteisiin.

2.8 Other information

2.8.1 Handling of ashes as the cause of fire

Glowing coals and 'cold' ashes from burning wood that have been moved from the original location have often been found to be the cause of delayed ignition. The delay is caused by slowly developing incipient fire inside the insulating ash layer that needs little oxygen. Such incipient fire may, in favourable conditions, persist for up to several days.

Pronto statistics show that in 2019–2024[25], of all fires in buildings, handling of ashes was deemed to be the cause of ignition in 49 cases. It is likely that some cases are missing from this figure, as fires caused by the handling of ashes are not recorded separately, and more detailed definition is provided in a freely worded text field of the statistics. In most cases, the storage container used for hot ashes had been made from a combustible material, defective or missing the lid.

According to Pronto statistics, there have been 323 fires in accommodation facilities in Finland between 2019 and 2024. [26] The most common causes of ignition have been related to electrical equipment (50 cases), or the fire was lit intentionally (42 cases). A hot or glowing object or ashes were the cause in seven cases. Six people died and 57 received minor injuries in these fires.

2.8.2 Forwarding of notifications submitted under the Health Protection Act to the rescue department

The rescue departments were asked how they are informed of notifications referred to in the Health Protection Act and how this information is processed.[27] Most responses noted that the number of notifications passed on to the rescue department is very small or practically non-existent. According to one rescue department, the environmental authority in the region has started forwarding these notifications after the hostel fire. According to another, the last time such notifications were made in its area was around ten years ago.

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[23] The requirements concerned accommodation businesses referred to in section 1 of the Decree on Accommodation and Catering Establishments (727/91) and accommodation facilities referred to in the provisions on structural fire safety of the Finnish Building Code.

[24] Repealed on 13 June 2003.

[25] Statistics retrieved on 16 May 2024.

[26] Statistics retrieved from the Rescue Services' resource and accident information system on 12 May 2024. The figure includes building fires and building fire incidents.

[27] 21/22 rescue departments responded.

The practices of sending and processing these notifications vary by municipality and rescue department, but information about the notifications is usually received to the rescue department's generic e-mail address. The site is included in supervision based on the notification. Information on accommodation establishments is also received from the building control services in connection with building permit processes.

2.8.3 Tourism in Lapland

Based on overnight stays in accommodation establishments, tourism in Lapland has increased throughout the 2000s, with the exception of the COVID-19 pandemic years. In 2022, this figure was almost back to the pre-pandemic levels, and the growth continued in 2023. In that year, around 3.35 million overnight stays were recorded at accommodation establishments in Lapland. Slightly more than one half of these visitors were foreign tourists.[28]

2.8.4 Holiday house fire in Levi, Kittilä on 12 April 2019

The Safety Investigation Authority investigated a fire that occurred in Levi in 2019. The investigation team made the following observations concerning the Rescue Department of Lapland and the Regional State Administrative Agency for Lapland: The rescue department had not carried out fire inspections in the holiday house destroyed in the fire or provided the owner with self-monitoring or self-assessment materials since the house was built, even if the self-monitoring procedure had been included in the supervision plans for years. While self-monitoring of holiday houses had been included in the supervision plan of the Rescue Department of Lapland for years, the supervision activities did not get off the ground. There was no intervention by the Regional State Administrative Agency. In a joint review of the Regional State Administrative Agencies conducted in 2017, the Rescue Department of Lapland was one of the three rescue departments that did not see to the self-monitoring. This finding did not lead to any steering measures. [29]

[28] Statistics Finland. Overnight stays in accommodation establishments by region 1995–2023. Lapland.

[29] Safety Investigation Authority. Holiday house fire that led to the deaths of three children in Levi, Kittilä on 12 April 2019. Investigation report Y2019-01.

3 ANALYSIS

To analyse the event, the Accimap[30] method developed further by the Safety Investigation Authority was used. The analysis text is structured based on an Accimap diagram prepared in the course of the investigation. At the bottom of the diagram, the accident is described as a chain of events. Factors emerging in the background of the chain of events are analysed in the diagram at different levels.

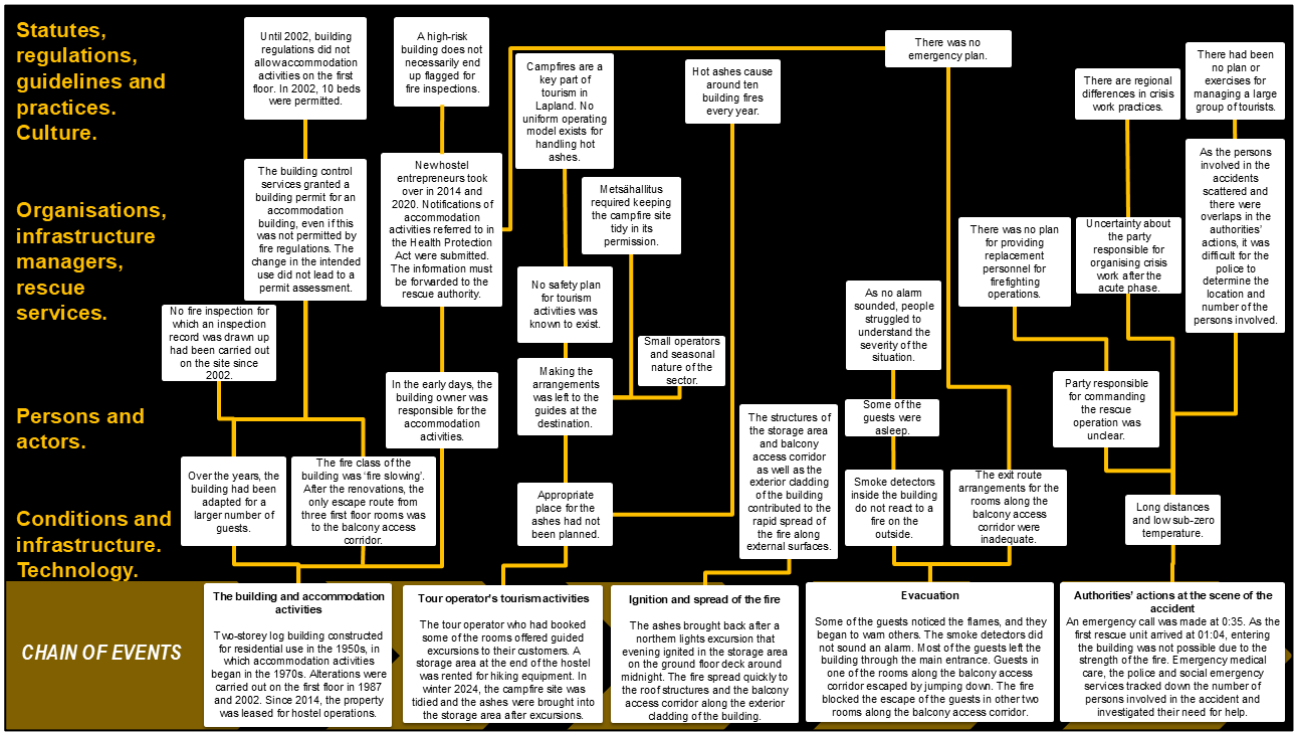

Figure 10. ACCIMAP analysis diagram Y2024-01. (Image: OTKES)

3.1 Analysis of the accident

3.1.1 The building and accommodation activities

The two-storey log building was constructed for residential use in the 1950s. Since the 1970s, the building was increasingly used for accommodation activities. At that time, several alterations were made to the building, which changed the room order and increased the building's surface area and number of beds. As the alterations were made, the fact that building regulations did not allow accommodation activities on the first floor was ignored. Even later, the regulations only allowed this to a limited extent.

In terms of fire safety, the most significant alterations were the partitioning of the first-floor rooms and the building of a storage area in connection with the deck. These alterations significantly impaired the emergency exit safety of the three rooms on the first floor.

When processing the building permits, the building control services did not take the fire safety requirements applicable to accommodation activities into consideration. Converting a residential building into an accommodation building did not lead to a comprehensive permit

30 Rasmussen, J. & Svedung, I. (2000) *Proactive Risk Management in a Dynamic Society*. Karlstad, Sweden: Swedish Rescue Services Agency.

assessment at any stage. However, the State Provincial Office of Lapland took the fire safety requirements into account as it turned down the application to provide accommodation services on the first floor. The accommodation activities continued nevertheless.

The most recent fire inspection conducted in 2002 manage to increase the level of structural fire safety. However, the problems of emergency exit safety persisted regarding the balcony access corridor. No stand was taken on the number of beds on the first floor.

Even after the consultation visit of the rescue authorities requested by the previous hostel entrepreneur, the building was not flagged as a site requiring fire inspections. The building was also not entered correctly in the fire inspection program.

An incorrect entry in the program or a missed fire inspection cannot be detected externally. Many entries are made in the program manually, and site data are not checked systematically. An update of the building information does not ensure that the information on the uses of buildings is up to date.

The guidance provided by the Regional State Administrative Agency was inadequate to ensure the rectification of recurrent shortcomings in the number of inspections carried out by the rescue department.

The practices of informing the rescue department of notifications submitted to the health protection authority vary across the country, and some rescue departments do not receive this information at all. Information about accommodation activities does not necessarily reach the rescue department.

The owners of the building did not have the knowledge required to address personal safety issues when applying for building permits. Neither did the building control authority or the fire safety authority pay sufficient attention to the impaired fire safety of the building following the alterations. Safety aspects had not been sufficiently addressed in the accommodation activities.

3.1.2 Tour operator's tourism activities

The risks associated with northern lights excursions are typically low and no permit is required to organise them. The authorities do not usually supervise them, and they consequently rely on the organiser's risk management for their safety.

The land use agreement concluded with Metsähallitus specifically refers to keeping the excursion site tidy and cleaning it up in the spring. The travel guides who arranged the excursions cleaned up the site on every visit, and the ashes were also taken away. When selecting the storage container and location for the ashes, the guides did not consider the significant risks associated with them.

Tourism in Lapland is a seasonal industry characterised by a large number of tourism operators of different sizes. Staff turnover is high and their competence varies. It is the employer's responsibility to ensure that the employees have sufficient safety competence. Training material for safety management is freely available. However, the authorities do not have the means to ensure that all operators achieve an adequate level of safety management.

Campfires have a key role in tourism in Lapland and the organisation of excursions. Information on safe handling of fire is publicly available. However, there is no clear operating model for handling ashes for all tourism and tourism activity operators.

Incorrect handling of ashes is not an exceptional cause of ignition. In most cases, the container is made from a combustible material, defective or missing its lid, and the container is additionally stored in an inappropriate place.

3.1.3 Ignition and spread of the fire

The ashes from the campfire ignited in the outdoor storage area on the ground floor. The conditions for the spread of the fire were good, as the ash container was made from a combustible material and the structure of the storage area enabled the unobstructed spread of the fire along the building's outer cladding to the roof structures and the balcony access corridor. The fire was only detected when it had already spread widely across the external surfaces of the building.

3.1.4 Evacuation

The fire started at a time of the day when most of the guests were already asleep. Some of the guests were woken up by the flames visible outside the window. The smoke detectors of the building did not sound an alarm, and the guests' screams alone were not enough for everyone to realise that there was a fire hazard.

Excluding those accommodated in the rooms on the balcony access corridor, the guests exited their rooms through the main entrance. The rooms along the balcony access corridor depended on a single exit for their emergency escape safety, which was a critical factor in this case. The guests in one of the first floor rooms managed to escape across the balcony access corridor and jump over the railing. The fire prevented the guests in the other two rooms on the first floor from escaping.

The fire was detected with a delay. There was no smoke in the building in the initial stage of the fire. The smoke detectors indoors did not go off. The fire door that separated the first floor corridor from the staircase closed automatically once smoke had spread to this corridor.

The safety management of the hostel operation was inadequate, for example due to the absence of an emergency plan.

3.1.5 Authorities' actions at the scene of the accident

As the first rescue unit arrived at the scene, the fire was already well advanced, and no persons still inside the building or property could be saved. Due to long distances, it may take a long time for help to arrive at the scene in Lapland. The rescue operation focused on preventing the spread of fire, which was successful.

The rescue operation's chain of command was not defined unambiguously, which is why situational awareness was not fully communicated between the scene of the accident and the operations centre. The general leadership of the rescue operation was inadequate, and cooperation between the authorities did not work optimally. Replacement personnel could not be obtained as there was no plan for this.

The emergency medical care resources were sufficient. Considering the available resources, the police succeeded well in tracking down the tourists.

The emergency social services succeeded well in providing psychosocial support in the acute phase during the night of the accident, despite their limited resources. The backup duty officer managed to find a partner to support them through their personal networks, even if there was no plan for alerting additional resources. There was no agreement on or plan for providing continued support over the subsequent days. The need for psychosocial support in the days

following the accident was greater than what the area had been prepared for. A national psychosocial support actor designated by the Ministry of Social Affairs and Health was used in the debriefing organised in the aftermath of the accident but not in client work.

4 CONCLUSIONS

The conclusions include the causes of the accident or incident. The cause refers to the different background factors of the accident and the direct and indirect elements that had a bearing on it.

1. At a later date, accommodation activities were started in a building constructed for residential use in the 1950s. Alterations were made on the premises, aiming to convert them for accommodation needs, from the 1970s onwards.
   The personal safety risk associated with accommodation activities was not addressed in the building design, processing of building permits, use of the building or supervision by the rescue department.

   Conclusion: *Alterations made over the years impaired the fire and emergency exit safety. Different actors' security management was inadequate.*

2. While grounds for this did exist, the building did not become subject to regular control by the rescue authorities. Inspection visits had been conducted to the site, and a notification of commencing accommodation activities had been forwarded to the rescue authority once.

   Conclusion: *No fully watertight mechanism exists for ensuring that buildings with a high personal safety risk are subjected to regular control.*

3. The fire started from the ashes of a campfire, which were carried away from the excursion site and placed in a storage area in the building. Fires caused by ashes are not exceptional.

   Conclusion*: A need to handle and transport ashes sometimes arises in nature tourism activities. Ash related risks are not sufficiently understood.*

4. Safety management in tourism activities is part of the overall safety of tourism. The organiser is always responsible for the safety of their service. No safety document is required for low-risk tourism activities.

   Conclusion: *Materials to support the risk management of tourism activities are available, but they do not reach all operators organising low-risk activities.*

5. A fire that starts outside the building may be well advanced before the smoke detector inside the building is activated.

   Conclusion: *The purpose of a smoke detector is to give persons inside the building time to react and, if necessary, to exit safely. Without the alarm sound, awareness of the possibility of a fire is delayed.*

6. Following alterations in the building, some of the first floor accommodation rooms had only one escape route, which led to the balcony access corridor. The structures of the balcony access corridor and external cladding promoted the rapid spread of the fire along the external surfaces of the building.

   Conclusion: *As the fire spread and blocked the only exit, it prevented the guests in the rooms along the corridor from escaping. The emergency exit safety of these rooms had not been addressed.*

7. No emergency plan had been prepared for the hostel.

   Conclusion: *If an emergency plan had been drawn up, it could have helped to draw attention to essential safety-related points.*

8. In a sparsely populated area, the resources are scarce and distances are long. The authorities had not organised joint exercises for accident situations involving a large number of tourists. No cooperation plan for such situations existed.

   Conclusion: *The authorities' capabilities for collaboration are especially brought to the fore in accidents involving a large number of tourists.*

9. The emergency social services were responsible for providing acute psychosocial support, after which the responsibility for organising crisis work was transferred to the health care services.

   Conclusion: *The organisation of psychosocial support after the acute phase had not been planned, which is why the transfer of responsibility failed. There are regional differences in the practices of carrying out crisis work.*

5 SAFETY RECOMMENDATIONS

5.1 Safety management in tourism activities

Safety management in tourism activities is part of the overall safety in tourism. The time span of tourism activities covers actions from initial preparations to conclusion of the activities.

Official control is carried out with a risk-based approach, and a safety document is required for specifically named services. Even if no safety document is required, this does not eliminate the organiser's responsibility for carrying out a risk assessment and ensuring the safety of the tourism activities.

Information on risk management in services, such as handling fire and the hazards related to ashes, is available in different sources.

The Safety Investigation Authority recommends that

the Finnish Safety and Chemicals Agency (Tukes) as the authority responsible for supervising tourism activities update the safety management guidelines for activity and experience services as a whole to also provide the prerequisites for ensuring the safety of low-risk tourism activities. It should additionally be ensured that this information can also be accessed by foreign operators. [2025-S1]

Tourism activities are one of the key element of tourism and its safety. Tourism is an important industry whose safety consists of several elements, and tourism is subject to several different statutes. However, overall responsibility for safety management in tourism is fragmented and not vested in a specific single actor.

New tourism activities are constantly being developed, which means that the risks may also change, and keeping the instructions up to date is important.

5.2 Supervision of fire safety in accommodation facilities

The user of accommodation services must be able to trust that the facilities are safe and appropriately supervised by the authorities. Accommodation operators do not always notice potential shortcomings in fire and personal safety, and the rescue authorities should ultimately intervene in them through regular control. As a rule, the fire inspection interval of accommodation facilities is two years.

Information is not passed on by the health protection authority adequately. Information about changes in accommodation services is not always communicated to the rescue authorities. The observations made by the rescue department in the course of its activities do not always lead to the building being flagged for supervision.

The Ministry of the Interior, which steers rescue services, is responsible for coordinating the activities of different ministries and sectors for its part.

The Safety Investigation Authority recommends that

> *the Ministry of the Interior ensure that information on accommodation activities in a building reaches the local rescue authority in a timely manner, making it possible to target supervision work. [2025-S2]*

Cooperation between different ministries and agencies is required to rectify this issue.

5.3 Safe practices for handling ashes

The use of open fires and fireplaces is a key part of nature tourism. No uniform and safe operating model for handling ashes exists. Every year, fires are ignited due to hot ashes. Understanding that ashes may be hot and hazardous based on casual observation is difficult. Efforts to keep areas in tourism and recreational use tidy also increase the need to handle ashes. Sometimes it is necessary to transport hot ashes.

The Safety Investigation Authority recommends that

> *Metsähallitus create uniform, effective and safe practices for handling ashes, especially in nature tourism. [2025-S3]*

When a model for a good practice is created, it usually spreads into wider use.

5.4 Actions taken

In 2024, the **Rescue Department of Lapland** compiled a report on accommodation buildings that covered 1,631 sites. The information on the sites was obtained from the supervision system, accommodation notifications requested from the health control authorities, and building owners. Based on this report, 107 guidance and advisory visits were made to sites recorded as holiday houses that were actually used for accommodation services.

In addition, the Rescue Department of Lapland launched a self-assessment procedure of fire safety in residential buildings at the beginning of 2025. This means that the residents assess the safety of the building using a standard form developed by the rescue authority.

REFERENCES

Written references

Safety Investigation Authority. Holiday house fire that led to the deaths of three children in Levi, Kittilä on 12 April 2019. Investigation report Y2019-01.

Rasmussen, J. & Svedung, I. (2000) Proactive Risk Management in a Dynamic Society. Karlstad, Sweden: Swedish Rescue Services Agency.

Incove, D. & Haynes, G. (2014) Kirk's Fire Investigation. Pearson Education, 2014.

Ministry of the Interior. Instructions for planning the standby readiness of rescue operations 21/2012.

Investigation material

1) Investigation material and photographs from the scene
2) Weather information
3) Hearings
4) Emergency Response Centre voice recordings
5) Building control documents
6) Building owner's documents
7) Regional State Administrative Agency's documents
8) Rescue department's documents
9) Police investigation documents
10) Environmental health care documents
11) Rescue services' resource and accident statistics
12) Statistics Finland's statistics
13) Surveys addressed to rescue departments and parties involved in the accident

SUMMARY OF COMMENTS RECEIVED ON THE DRAFT INVESTIGATION REPORT

The draft investigation report was circulated for comments to the Ministry of the Interior, the Ministry of the Environment, the Ministry of Economic Affairs and Employment, the Ministry of Social Affairs and Health, Metsähallitus, the Finnish Safety and Chemicals Agency Tukes, the Lapland Wellbeing Services County, the Rescue Department of Lapland, the Regional State Administrative Agency for Lapland, the Rovakaari Environmental Health Services, building owner, tour operator and persons who were involved in the accident. Pursuant to the Safety Investigation Act of Finland, comments given by private individuals are not published.

Statements were received from the Ministry of the Interior, the Ministry of Social Affairs and Health, the Ministry of Economic Affairs and Employment, the Finnish Safety and Chemicals Agency Tukes, the Rescue Department of Lapland, the City of Rovaniemi's Environmental Board and the company that operated the hostel services.

In its statement, the **Ministry of the Interior** proposes supplementing certain sections of the investigation report and adding detail to the conclusions and recommendations in some respects. The proposed supplementations and additional detail concern the report sections about regulation on and placement of smoke detectors as well as the rescue authority's supervisory task and risk-based supervision.

Fire inspections are the rescue authorities' keyway of supervising compliance with the requirements laid down in the Rescue Act. It can be assumed that fire inspections conducted in the accommodation building under investigation would have flagged it if, for example, the number of smoke detectors had been inadequate or if no rescue plan had been drawn up. While a fire inspection carried out by the rescue authority is not an approval procedure for the fire safety of the building nor a comprehensive review of the premises and the activities carried out on them in the nature of an inspection, fire inspections would probably also have brought up the question of whether the building was suitable for the type of accommodation activities it was used for in terms of fire and escape safety in general.

Under the Rescue Act, regulation on supervision starts from the premise that official supervision complements the operator's responsibility. Lack of supervision by the rescue authorities does not justify non-compliance with regulatory requirements. The supervision, or lack of it, does not preclude or reduce the operator's responsibility for identifying risks, preventing and eliminating accident risks and preparing for accidents. The accommodation operator must be aware of the regulation applicable to accommodation services and, for example, of any conditions or restrictions set out in the permit documents of the building in question. The responsibility for ensuring that the activities are safe always rests with the operator, not the authorities.

In the context of safety recommendations, the ministry notes that the rescue authorities' control plays an important role in the supervision of fire and escape safety of accommodation facilities while they are in use. However, the description of regulation and official supervision excessively emphasises the role of the Rescue Act and the official supervision laid down in it in relation to other regulations on the provision and safety of accommodation services. The Ministry of the Interior consequently finds that safety recommendations should also focus on regulation applicable to the provision of accommodation services and, for example, on how the awareness of accommodation service operators of the requirements and potential risks of the activities could be improved. The recommendations should proactively address the

ongoing changes in the operating environment of accommodation services, including the increasingly professional nature of short-term apartment rentals.

The purpose of safety recommendation 5.2 included in the report is not clear. The statutes falling within the Ministry of the Interior's remit do not lay down an obligation to give notification of accommodation activities in a building. The wording of the recommendation should reflect the fact that the provision of accommodation services is not subject to a permit in general, and that no control visit by the rescue authority, a process by the building supervision authority or similar is required for starting such activities. The notification given at the commissioning stage enables the rescue authority to make a risk-based decision on any measures, including control visits, but a notification entails no obligation to carry out such a visit.

Provisions on the operator's obligation to notify the health protection authority of the commencement of accommodation activities or essential changes in the activities are laid down in the Health Protection Act (763/1994). How is the Ministry of the Interior expected to be able to ensure that the municipal authority's reporting obligation based on regulation in another sector is met? The Ministry of the Interior finds that in its current form, the recommendation should be addressed to the Ministry of Social Affairs and Health.

In the context of the observations concerning rescue operations the Ministry of the Interior notes that, based on the description of how the rescue operation unfolded, concrete development measures concerning rescue operations could be brought up in addition to the planning of cooperation between authorities. They could include cooperation between the on-scene commander and the commander leading the rescue operation remotely, at least when it comes to ensuring the communication of situational awareness, taking the winter conditions of natural water sources into account in the plan for obtaining water for firefighting, and the planning of continuity management of rescue operations.

The Ministry of the Interior points out that the statutory duties of the wellbeing services county's rescue services and the rescue department are laid down in the Rescue Act. The service level decision determines the level of statutory services but it can naturally also include the organisation of additional services.

The **Ministry of Social Affairs and Health** finds the conclusions made by the Safety Investigation Authority correct and supports the recommendations made.

Recommendation 5.2 states that the information on notifications made under the Health Protection Act is inadequately passed on by the health authority to the rescue authority, and that information about changes in accommodation activities is not always communicated to the rescue authorities

This is why the Safety Investigation Authority recommends that cooperation between different ministries and agencies is needed to rectify this issue, and that the Ministry of the Interior ensure that information on accommodation activities in a building reaches the local rescue authority in a timely manner, making it possible to tar-get supervision work.

The ministry supports this recommendation. The current practice of the health protection authorities passing on information about notifications referred to in section 13 of the Health Protection Act to other authorities has been found inadequate.

The Ministry of Social Affairs and Health is working on an overhaul of the health protection legislation, and one of the topics examined is enforcement practices and notification obligations under the legislation. Accommodation facilities are classified as low-risk sites in

terms of health protection, and a less stringent notification obligation concerning them has been considered in connection with the overhaul. The ministry finds that the notification obligation related to accommodation services should be re-examined in cooperation with different ministries and authorities. Maintaining the reporting obligation solely for the purpose of obtaining information for other authorities is not fit for purpose, and in such cases, the notification should be submitted directly to the appropriate authority.

The **Ministry of Economic Affairs and Employment** is responsible for the general administrative steering and supervision of the Finnish Safety and Chemicals Agency Tukes. Under section 4 of the Consumer Safety Act (920/2011), which falls within the remit of the Ministry of Economic Affairs and Employment, this Act is secondary and complementary in relation to other legislation. The Consumer Safety Act can be applied alongside such statutes as the Rescue Act (379/2011), with each act focusing on the safety of the service from its specific angle. Parliament is currently debating a Government proposal on legislation supplementing the EU General Product Safety Regulation and an Act on the Safety of Consumer Services (HE 213/2024 vp). Regarding consumer services, the relationship between the proposed Act on the Safety of Consumer Services and other legislation would be similar as in the case of the current Consumer Safety Act.

Based on the draft investigation report, the Ministry of Economic Affairs and Employment finds that the legislation relevant to the accident in Äkäslompolo mainly comprises rescue and construction sector legislation falling within the remit of other ministries' administrative branches, and the link between the accident and general consumer safety legislation is weak or non-existent. The Ministry of Economic Affairs and Employment also points out that fire safety, which is relevant to the matter, does not fall within the competence of Tukes.

In any case, the Ministry of Economic Affairs and Employment also draws the Safety Investigation Authority's attention to Tukes' instructions on promoting the safety of tourism services. These instructions also apply to low-risk services. The Ministry of Economic Affairs and Employment additionally points out that Tukes website has extensive content on ensuring the safety of consumer services in English.

The Ministry of Economic Affairs and Employment is responsible for the priorities of tourism policy and tourism development together with other ministries and operators in the sector. As stated in the draft, overall responsibility for managing tourism safety does not belong to any one party. Consequently, managing the overall safety of tourism is not within the competence of the Ministry of Economic Affairs and Employment. However, the Ministry of Economic Affairs and Employment and especially Business Finland's Visit Finland service operating in the ministry's administrative branch promote sharing and disseminating instructions and information on safety management in tourism as part of other measures, including the Sustainable Travel Finland programme. Safety is an element of sustainability in tourism.

It is not possible for the Ministry of Economic Affairs and Employment or Tukes to ensure that all available information actually reaches tourism entrepreneurs. Targeting individual control measures, such as inspections, at all service providers is not possible. This is why the Ministry of Economic Affairs and Employment stresses that it is the service provider's responsibility to ensure that the service they provide is safe and to obtain the information and competence needed for this.

In view of all that has been said above, the Ministry of Economic Affairs and Employment does not consider the recommendation addressed at Tukes and other matters concerning the ministry's administrative branch brought up in the draft investigation report relevant to this fire safety matter.

The **Finnish Safety and Chemicals Agency Tukes** assessed the draft from the perspective of the safety of consumer services. In the context of northern lights excursions, Tukes notes that the risks of the service provided in the present case are so low that Tukes has not proactively targeted supervision at it or similar services. While Tukes deals with accidents as reactive supervision matters, it did not treat this accident as a supervision matter, deeming that it falls within the scope of the Rescue Act (379/2011). The risk level of guided tours and also the need for supervision depend on multiple factors, including conditions at the time, terrain, type of customers and distances covered. Due to the large number of service providers, supervision is targeted at an estimated 1% of them annually.

Tukes guideline Promoting the safety of tourism services currently applies to both low and high-risk services. The sweeping instructions given in this guideline cover general safety issues. In addition to more than 20 service-specific guidelines, Tukes also provides information on the service provider's obligations and service-specific safety requirements on its website and, in the future, on its Kampus learning platform. Efforts have been made to draw up all guidelines ensuring that they are appropriate for service providers of all sizes and risk levels. Tukes' guideline Promoting the safety of tourism services (2/2015) and the most important website sections have already been translated into Swedish and English, making it easier for foreign actors to use Tukes' materials.

Following a legislative amendment, the instructions issued by Tukes on the safety of services will be updated, as the new Act on the Safety of Consumer Services will enter into force in 2025.

Tukes has for several years been involved in organising a seminar on safety of tourism in Lapland and given lectures on this topic in Finnish and English. The safety seminar has also included practical safety exercises.

Regarding safe handling of fire and the hazards related to ashes, Tukes notes that this issue is covered by the requirements in sections 4 (Duty of care) and 5 (Care when handling fire) of the Rescue Act (379/2011) and, consequently, the Consumer Safety Act as a general act supplementing other legislation cannot be applied to fire prevention. In addition to supervisory competence, the authority's obligation to provide advice is restricted by the limits of its competence, which is why Tukes cannot provide instructions on the safety of handling fire from the perspective of fire prevention.

As Tukes had no competence in preventing accidents of this type and the investigation uncovered no shortcomings in Tukes' activities, Tukes proposes that recommendation 5.1, or at least the reference to the handling of fire and the hazards related to ashes, be removed. From Tukes' perspective, the recommendation would in any case be irrelevant to the accident and Tukes' competence.

The regulation, supervision and guidance of tourism safety are divided between different administrative branches and regulations. However, full responsibility for the safety of tourism services rests with the operator providing them.

In its statement, the **Rescue Department of Lapland** proposes some corrections and added detail to the sections on fire inspections and fire inspection activities.

The Rescue Department also notes that the system does not flag holiday houses used for tourism services as targets for regular supervision. In terms of building technology, the fire safety requirements for residential buildings are not as high as those applied to buildings used for accommodation services regarding the arrangements for evacuation and fire

detection. In addition, the number of persons is limited based on the building's fire resistance class in buildings used for accommodation services but not in residential buildings.

The Rescue Department points out that the rescue authority is not competent regarding the uses of buildings. Where residential buildings comply with the building permit requirements, they cannot be expected to meet the requirements set for buildings used for accommodation services for inspection purposes, even if information on these services being provided on the sites had been received from the health supervision authority.

The Rescue Department of Lapland highlighted in its statement measures taken in its area following the accident, which have been added to section 5.4 of the investigation report.

The **City of Rovaniemi's Environmental Board** serves as the health protection authority of Kolari Municipality, and Rovakaari Environmental Health Services is the municipality's local unit. The Environmental Health Services supervise accommodation services, such as those involved in the accident, from the perspective of health.

The Board agrees with the investigation report conclusion according to which the passing on of information from the health protection authority to the rescue authority is generally inadequate. The Environmental Health Services believe that while there are shortcomings in the forwarding of notifications, the response of the rescue department to those notifications that are forwarded has also been uncertain. While the investigation group asked rescue departments about the passing on of notifications, environmental health care units had not been contacted.

It should also be noted that accommodation service operators' awareness of their notification duty under the Health Protection Act is low, which is why the environmental health care authorities do not receive these notifications, either. From the perspective of environmental health care legislation the risks of accommodation services are low, and supervision measures on these sites are consequently not prioritised within the field of environmental health care supervision as a whole.

The Board supports the Safety Investigation Authority's recommendation that the Ministry of the Interior take the lead in ensuring that information on accommodation service provision reaches the rescue authorities. The Board finds that the obligation to notify the police and the rescue department imposed on the health protection authority should be removed from the Health Protection Act and replaced by accommodation service operators' obligation to notify the rescue authorities directly laid down in some other act.

The **company that operated the hostel** brings up a few points in its statement. It states that the use of fire outdoors was mainly discussed with the tour operator's staff. Other customers have been given instructions for using the campfire site outside the building and, if necessary, those along the trails. They note that the fire extinguishers and hydrant had been serviced and inspected in compliance with regulations. As regards the terms of the building's lease, the operator notes that it was leased for accommodation purposes.