



Evacuation plan process for case company and safety training for staff

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**Evacuation plan process for case company and safety training
for staff**

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Main goal of this thesis was to do a process-like study of the creation of an effective evacuation plan for Myyrmäki Sports Hall. The idea for this research came from the manager of the sports hall when we were informed that there was a need for an reformed evacuation plan. The research subject in question was selected from our own interest in the topic and as a result of its current need at the time.

An evacuation and emergency exit plan are important for the safe operation of a public sports hall. Sections of the Rescue Act determine what measures should be taken by property owners or occupiers to ensure safe operation, as well as to prevent accidents.

Literature review and survey were used as research methods. As literature, we used Finnish rescue act 379/2011 as well as related literature on evacuation. We created a survey for the employees of the sports hall with the aim of studying their level of knowledge about exit safety. The questions included potential incidents for which we asked operating procedures from employees to find out their current practices.

In this study, we discovered significant information on employee safety knowledge, as well as information on the development of an evacuation plan and legal requirements. We learned to understand what kind of safety measures the daily operation of a sports hall requires.

Keywords: Self-preparedness, Evacuation plan, rescue plan, Safety training

Laurea Ammattikorkeakoulu

Tiivistelmä

Turvallisuusalan koulutusohjelma

Tradenomi (AMK)

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Evakuointisuunnitelman laatiminen, sekä henkilökunnan turvallisuuskoulutus

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Opinnäytetyön päätavoitteena oli tehdä prosessimainen tutkimus tehokkaan evakuointisuunnitelman luomisesta Myyrmäen urheilutalolle. Idea tähän tutkimukseen tuli urheiluhallin johtajalta, kun meille ilmoitettiin uudistetun evakuointisuunnitelman tarpeesta. Kyseinen tutkimusaihe valittiin omasta kiinnostuksestamme aiheeseen ja sen hetkisen tarpeen perusteella.

Evakuointi ja hätäpoistumissuunnitelma ovat tärkeitä julkisen urheiluhallin turvallisen toiminnan kannalta. Pelastuslain kohdissa määritetään, mitä toimenpiteitä kiinteistönomistajien tai asukkaiden on toteutettava turvallisen toiminnan varmistamiseksi ja onnettomuuksien estämiseksi.

Tutkimusmenetelminä käytettiin kirjallisuuskatsausta ja haastattelua. Kirjallisuutena käytimme Suomen pelastuslakia 379/2011 sekä aiheeseen liittyvää kirjallisuutta. Haastattelimme urheiluhallin työntekijöitä tarkoituksena tutkia heidän tietämystään poistumisturvallisuudesta. Kysymyksiin sisältyi potentiaalisia hätätilanteita, joihin pyysimme työntekijöiltä toimintatapoja selvittääksemme heidän nykyiset käytäntönsä.

Tutkimuksesta saimme selville merkittävää tietoa työntekijöiden turvallisuus tietämyksestä, sekä tietoa evakuointisuunnitelman laatimisesta ja lain vaatimuksista. Opimme ymmärtämään, millaisia turvallisuustoimia urheiluhallin jokapäiväinen toiminta vaatii.

Asiasanat: Omatoiminen varautuminen, evakuointisuunnitelma, pelastussuunnitelma, turvallisuuskoulutus

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1 Introduction

The idea for this thesis came when we received information from the Myyrmäki swimming hall manager that they needed a new evacuation plan for the building and evacuation safety training plan for the staff. Myyrmäki Sports Hall was built in 1974 and it is located in Myyrmäki, Vantaa. It includes an indoor swimming hall with multiple swimming pools, sports field, gym, a café and classrooms (University of Jyväskylä, no date). This thesis was done as a functional thesis and we described the progress as we moved forward with the plan. We hope that the resulted data will be useful for the field.

More specifically, our research topic was the renewed evacuation plan of the sports hall and the training of staff in connection with evacuation safety. We studied what are the main things that needs to be trained and in what order. The study was initiated in the fall of 2020 and was scheduled for completion in January-February 2021. Due to Covid-19 lockdown measures the completion of thesis got delayed because the sports hall got closed for some time. The main objective of the thesis was to create an effective and justified evacuation plan for the case company.

The goal of the study was to understand the steps in the evacuation plan process, how to raise safety awareness focusing on exit safety, what the evacuation plan contains and what to consider when making the evacuation plan. In addition to this, our goal was to study the level of emergency exit competence of people working in the building by using a semi-structured survey.

According to Al Hour (2017,182) in order to protect human lives from risks and accidents, a building must have an effective evacuation plan against them. The evacuation plan must meet the criteria in a safe manner and must not pose any additional risks. When creating an evacuation plan, it is therefore important to take into account that when planning exit routes for example, they must not cause new risks to people leaving the building.

Thus, our research question was "how to make a effective evacuation plan and safety training plan for employees". Through survey, we studied what employees know about evacuation methods at the moment and whether there are any gaps in the overall knowledge. As a supporting tool in addition to other related literature, we used the newly completed safety and rescue plan for the building.

1.1 Case building

Myyrmäki swimming pool area includes a 25-meter pool with eight lanes, a shallow pool intended for teaching and it is divided into two-meter sections. The sports hall also has a sports field, gym and few classrooms which are used by Vaskivuori high school. (University of Jyväskylä. no date).

When planning the evacuation routes of the sports hall, the mobility and age of the customers must be taken into account. The swimming pool is used by customers of all ages and their mobility in emergency situation is different. Communication is critical in the evacuation of people with reduced mobility (Puranen,2018) and this applies to everyone from rescuers to workers. One part of overall security and risk management is preparedness. Contingency planning does not only mean preparedness for state of emergency but comprehensive overall safety.

1.2 Key words

Self-preparedness: Rescue act 379 (Finland, 2011) section 14 states that the owner or occupier must comply with the following 4 sections:

1: Owner or occupier must work to prevent fires and other dangers.

2: Owner or occupier must prepare to protect people in emergencies.

3: Owner or occupier shall endeavour to extinguish fires on their own initiative with primary extinguishing equipment as far as they are independently able to.

4: Owner or occupier must take action to ensure safe evacuation of the building in case of fire or another emergency.

Evacuation plan: According to Al Hour (2017,182) the purpose of evacuation plan is to prepare the people in the building to act properly in the event of an emergency.

Emergency plan: Rescue act 379 (Finland,2011) states that emergency plan for the measures referred to in section 14 shall be drawn up for a building in which the danger to personal or fire safety, the environment or cultural property or a potential accident can cause a serious threat. The emergency plan must include instructions on how to prevent accidents and what actions to take in case of an emergency.

2 Theory

The legal requirements for the evacuation plan come from the Government Decree on Rescue and Rescue Act. The Government Decree on Rescue services 2011/407 section 1 states that a rescue plan must be drawn up for sports halls in Finland and the Rescue Act 2011/379 15 § requires that users of the building must be instructed how to act in emergency situations and in any other possible measures.

According to 9 § of the Rescue Act, the owner, occupier, or the operator of the building must ensure that in the event of a fire or other danger, people must be able to leave the building safely. Rescue operations must be possible in the event of a fire or accident.

Emergency conditions must be prepared for by various means of self-preparedness. One of these means is the process of evacuation of the population, which takes place according to plans and arrangements (Al Hour,182).

When reviewing the literature, we aimed to analyze as many sources as possible. According to Al Hour (2017,182) the evacuation plan has common features that it should include. This fact is also reflected in other publications on evacuation plans, such as Finnish Safety and Chemicals Agency Tukes (20-21,2015): the plan should indicate where the exit routes, as well as the assembly point are located. Staff safety skills, such as guidance and response to the situation, should also be reflected in the evacuation plan. The one who alerts help as well as the way the persons being safe are reported, must also be included in the evacuation plan.

Al Hour (2017,183) states that evacuation plan must be easy to read for everyone and must not contain any ambiguous sections on instructions. Simplicity is important and guidelines should be written so that no preconceived beliefs about the readers prior knowledge about the building have been made. The total number of staff in the sports hall is about 26 and the number of customers per day is about 300-1000 so the simplicity and readability of the evacuation plan is important so that everyone understands how to act in emergency situation and unwanted chaos is avoided when choosing exit routes.

3 Research design and -tasks

During our research, our aim was to find out on how well the staff knows about safety measures during the event of emergency. One of our research questions was how to raise safety awareness focusing on exit safety and we interpreted this information through survey. Our aim was to find out answers to our questions through qualitative research. An essential

part of constructing thesis and planning it, is the preparation of a literature review. The term literature review means a method of bringing together sources related to a research topic. The literature review thus serves as an important element for analyzing the problem under study.

At the beginning of the research, our knowledge of the subject was very narrow. This caused problems at the beginning of the project. For this reason, we made a list of questions for ourselves for the project, and we found answers to these questions by visiting the sports hall, as well as by reading literature and material related to evacuation. These questions included: what is evacuation? What effects does safety knowledge have on the day-to-day running of a sports hall? How is public safety maintained in the sports hall? We planned to obtain written material by visiting libraries, as well as using Laurea's online library and an internet browser. At the beginning of the research, we stated that the research will not incur costs for either party, but while the project is running, the possibility of costs might appear.

According to Hirsjärvi and Hurme (2015,34) the use of interview as a data collection method is a flexible method and is suitable for a wide variety of different research purposes. It is an excellent method especially when you want to deepen the motives of the interviewees to the answers with additional questions, for example the purpose of the interview is to gather information with pre-planned questions and they are intended to solve some practical problem which, in the case of this study, is to study the emergency exit safety competence of those working in the building.

According to Saaranen-Kauppinen and Puusniekka (2006) a semi-structured interview refers to an interview in which all interviewees are asked the same or almost the same questions. A semi-structured interview can also be called a thematic interview if the questions are about a specific topic or theme. This interview method is suitable if the researcher wants to get answers to carefully thought-out questions and the interviewee's answer cannot deviate from the topic almost at all.

Through a semi-structured survey form we interpreted the employees' current level of knowledge and preparedness for actions related to emergency preparedness. In the survey form we asked the following questions:

Are you aware of who is your primary safety manager?
Are you aware of the most common sources of fire in the building? If so, what are they?
If a fire alarm goes off, do you know how to act? If you do then what actions are you going to take?
If a fire alarm goes off, are you capable of directing customers to the nearest emergency exit if necessary?
Are you aware of measures to prevent accidents? If so, what are the most important things in terms of order and cleanliness?
What are the most important things to remember about emergency exit doors?
Are you aware of the location of the assembly point in an evacuation situation? If so, where is it located?
Are you aware of the locations of the emergency fire equipment in the building?
Do you think the building emergency exit planning is comprehensive enough? If not then what would you add?

Table 1: Employee survey questions

Table 1 describes the questions we asked the employees of the building to know their competence in emergency exit safety.

Hypothetical emergency situations were also included on the form to find out if employees know how to act in these situations and can instruct customers to leave the building properly. Following hypothetical emergency situations are:

You work at the information desk in the lobby and there are about 10 customers. Electrical equipment causes a small fire with a risk of spreading. How do you act in this situation?
You work on the pool side and the fire alarm starts ringing. The cause of the fire is unknown, but evacuation of the building will begin. There are currently about 15 customers in the hall, including one customer with reduced mobility. How do you handle the situation?

Table 2: potential emergency situations

Table 2 describes the questions we asked the employees of the building to find out how they would react in these situations. Based on the results, we knew what issues need to be addressed in safety training.

In the survey, our aim was to ask the representative of the site how the current evacuation plan is implemented, whether it works and how it could be developed for their modern needs. We created a question chart and used it to analyze the material we receive.

4 Survey

According to Hirsjärvi and Hurme in a semi-structured survey, the forms of the questions are identical, but the order may vary. The answers are not tied to the questions, but a certain aspect is locked in them (2015,47). As a research method, this was the most appropriate for the purpose of obtaining the most comprehensive information on the knowledge of the people working in the building on emergency exit safety issues.

4.1 Survey results

In this section, we will go through the answers from table 2 and 3 surveys. The answers have been given by people working at the sports hall and the answers have been given anonymously.

Among the respondents, the general answer to sources of fire risk were sauna heaters and old hair dryers. Everyone who responded to the survey had an idea of what to do in the event of a fire alarm. The answers can be summarized to: "I urge people to move to the entrance lobby, check where the fire is located and if necessary, call the emergency number", each of the respondents was also able to direct customers to the nearest emergency exit if necessary.

Responses to measures to prevent accidents were maintenance of electrical equipment, as well as ensuring that the emergency exit lights were on. Checking the sauna heaters for objects that do not belong there also came up. Among the people who answered to the survey, the most important issues for the escape routes were to keep the roads unobstructed so that they could be passed freely during evacuation.

There were ambiguities among the respondents as to the location of the assembly point in evacuation situation, as the answers were, for example, "Entrance Hall". Respondents were aware of the locations of the emergency extinguishing equipment inside the building but when asking about training in their use none of the respondents had received any training. When asked about the adequacy of emergency exit safety planning and training, respondents answered that it is sufficient.

4.2 Survey analysis

As presented in the survey results section, most of the staff know how to act in an emergency. However, for example the location of the assembly point and proper usage of firefighting equipment was on an inadequate level. There was also no mention on guiding customers to the assembly point. From the above-mentioned responses to the survey, it could be seen that, in general, issues related to evacuation were at a valid level.

The following text reviews legislative requirements as well as suggestions for remedying the above issues.

According to section 5 of the Consumer Safety Act the sports hall or its use must not be dangerous to the property or health of its users. Everyday safety skills of the employees, as well as training, must be at the required level for safe day-to-day operation.

In order to ensure day-to-day operations and smooth evacuation it would be important to rehearse evacuation procedures and it would be important for all personnel to be able to prepare for an accident and to know how to use fire-fighting equipment. In addition to initial firefighting skills, staff should be provided with, for example, a safety walk, which covers the assembly point as well as the locations of the initial fire-fighting equipment.

This statement is also supported by Finnish Safety and Chemicals Agency Tukes guideline (19-20,2015). It states that it is important to practice operating in various accident situations. To ensure safe operations, staff should be trained, as well as preparedness should be exercised accordingly every year. Safety training would cover operations during the event of a seizure, as well as, for example, operations in rescue situations.

4.3 Survey conclusion

As can be seen from the survey analysis section, security related issues were mostly well known amongst the staff. The survey covered an imaginary situation, where the fire alarm had ringed. Employees who answered the survey stated that in this kind of a situation they would know how to act correctly. Customers would be able to be directed out and if necessary initial fire-fighting measures would be taken into consideration. Self-preparedness was also evident when examining the results of the survey. The accessibility of exit routes, as well as electrical equipment maintenance, reflected self-preparedness.

Because the assembly point location was not familiar to everyone who responded to the survey and no initial fire-fighting equipment training had been taken place, we decided that training, as well as arranging a safety walk, would be in place.

5 Conclusion

As the maintenance of safety and security competence of the sports hall, its facilities and its staff are important for a safe operation of Myyrmäki sports hall, it is important to know the safety- and self-preparedness know-how of the staff and to draw up an evacuation plan for the facility. The evacuation plan for Myyrmäki sports hall had expired and as a result we received an order for that thesis subject.

During the thesis, we visited the sports hall and surveyed employees. As a result, we gained a broad picture of the safety expertise of the staff as well as a better understanding of the facilities of the sports hall.

After reviewing the facilities, getting to know the site and executing the survey, we took action. We reviewed the legal provisions on the subject and combined the materials we examined with the information obtained from the survey, as well as the requirements of the subject. Therefore, we got a comprehensive picture of what kind of training the staff needs and what it takes to draw up an evacuation plan.

The actions required by law, successful safety planning, and self-preparedness together with safety knowledge guarantee the safe use of the sports hall.

The aim of this thesis was to conduct a process-like research on the creation of an evacuation plan for Myyrmäki Sports Hall. We succeeded well in our goals, although the current pandemic situation had a significant impact on our schedules. We believe that with the help of our work and the information we receive, it will be easier to maintain safe operations in the sports hall.

References

Printed

Al Hour, A. 2017. Business continuity management: Choosing to survive. It governance Ltd.

Hirsjärvi, S and Hurme, H. 2015. Tutkimushaastattelu: Teemahaastattelun teoria ja käytäntö. Gaudeamus

Electronic

Anita Saaranen-Kauppinen and Anna Puusniekka. 2006. KvaliMOTV - Menetelmäopetuksen tietovaranto [verkkojulkaisu]. Tampere: Yhteiskuntatieteellinen tietoarkisto. Accessed 16.12.2020. https://www.fsd.tuni.fi/menetelmaopetus/kvali/L6_3_3.html

Finland. 2011. Kuluttajaturvallisuuslaki 920/2011. Accessed 23.3.2021
<https://www.finlex.fi/fi/laki/ajantasa/2011/20110920#L2P5>

Finland. 2011. Pelastuslaki 379/2011 <https://finlex.fi/fi/laki/ajantasa/2011/20110379#L1P1>

University of Jyväskylä, Lipas, Uimahalliportaali. (no date). Accessed 7.10.2020.
<https://liikuntapaikat.lipas.fi/uimahallit>

Kaisu Puranen. 12.9.2018. Pelastustieto: Kommunikointi on tärkeintä vammaisten pelastamisessa. Accessed 16.11.2020.

P. Purpura, Philip. (2013) Security and loss prevention (Sixth edition). Science direct. Accessed 7.10.2020. <https://www.sciencedirect.com/topics/computer-science/evacuation-plan>

Scribbr. 2016. Miten kirjallisuuskatsaus tehdään. 16.12. Accessed 1.12.2020
<https://www.scribbr.fi/opinnaytetyon-rakenne/kirjallisuuskatsaus-opinnaytetyo/>

Turvallisuus ja kemikaalivirasto. 2015. Uimahallin ja kylpylöiden turvallisuuden edistäminen. 17.3. Updated 18.10. 2017. Accessed 2.12.2020
<https://tukes.fi/documents/5470659/6372871/Tukes-ohje+-+Uimahallien+ja+kylpyl%C3%B6iden+turvallisuuden+edist%C3%A4minen/d3159630-d077-4fa0-8938-5832709f8de5/Tukes-ohje+-+Uimahallien+ja+kylpyl%C3%B6iden+turvallisuuden+edist%C3%A4minen.pdf>

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