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Physical security and risk analysis of the hostel building for a case company

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building for a case company

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The thesis consists of the analysis of the risks for housekeeping workers and physical security in the hostel. The work includes theoretical background about risk management, e. g. methodology of risk analysis, different types of analysis etc., and the importance of safety and security. Several problems related to safety and security of the workers and of the building are defined and possible solutions are proposed. It can be interesting not only for the hospitality workers but for all the cleaning companies as well because it is important to provide good working conditions and to promote wellbeing at workplaces.

Key words: security, safety, risk management, risk analysis, physical security, housekeeping, hospitality, hostel

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1 Introduction

All buildings and facilities are objects that have some risk of danger. The objects, in the overwhelming majority of cases, have places to cause damage, the quality of the possible repairing works, the shape, that is, the set of conditions that contribute to the occurrence of a damage and determine its possible scale and consequences. The topic of the thesis is risk analysis of the hostel Forenom building in Otaniemi for the case company N-Clean OY. There was the investigation of the possible threats to the security and safety of the personnel and customers.

The safety and the security of a building during operation should be ensured through maintenance, periodic inspections and control checks and (or) monitoring of the condition of the foundation, building structures and engineering systems, and also through ongoing repairs of the building or structure. Parameters and other characteristics of building structures and systems of engineering support in the process of operation of a building or structure must comply with the requirements of the project documentation. This compliance shall be maintained through maintenance and confirmed during periodic inspections and control checks and / or monitoring of the condition of the foundation, building structures and engineering and technical support systems conducted in accordance with the legislation of a country. The operation of buildings and structures should be organized in such a way as to ensure that they meet the requirements of energy efficiency of buildings and structures and the requirements for equipping them with meters of energy resources used throughout the life of premises.

1.1 The introduction of the company.

N-Clean was founded in Finland in 2004 and its subsidiary in Sweden was founded in 2011.

The main owners of the company are Rauno and Helena Nurmi. The minor shareholders are capital investor company Juuri Partners and the vice president Suvi Kuusisto. The company offers wide range of services to its clients in many areas. N-Clean is specialized in hotel cleaning but office cleaning is also a strong and important part of the business. The different customer relationships that company's turnover consist of:

- Office cleaning 26%
- Hotel cleaning 57%

- Ship cleaning 16%
- House cleaning 1%

N-Clean serve its clients with quality and flexibility. The company's vision, i.e. its goal for the future is to offer the best customer-experiences and to be the most wanted and sought after partner and employer in the industry.

This goal is reached with a strategy i.e. a long term plan. It means that the company works systematically following its business concept, close to the client/customer, with a positive attitude and constantly developing its industry. Everything stems from the customer's needs and the goal is a satisfied customer. (N-clean guidebook for employees, 2018)

1.2 Research plan

The topic of the thesis has been chosen by the company, the possible topics were discussed with the representatives and teachers, the most relevant one was chosen. Analysis of possible work risks for housekeeping workers and physical security assessment for the accommodation providers in Finland based on the Otaniemi hostel. The building of the project work consists of four blocks (A, B, C and D) and it used to be a fire fighters school. The purpose of the research is to figure out the problems, which make the housekeeping work harder and even dangerous. The development target of the work is to learn more about the physical security of the premises and to improve the every day work in there since the supervisors are not able to see all the problems that may occur during the shifts. The one possible problem of the project is that it may become hard to implement thus it requires a lot of expenses. The form of the thesis is a functional study.

The timetable:

- The preliminary idea paper- week 4
- The research plan draft 1- week 5
Draft 2- week 6
- Theoretical part for the thesis e.g. methods to use and previous studies- weeks 7-9
- Practical part- checking of the buildings
A - week 9
B - week 10
C - week 11

D - week 12

- Write down the collected data and analysis of it - weeks 40
- Thesis draft 1 - week 40
- Draft 2 (final, with all the remarks) - week 41-48

2 Methodology

Risk management is the process of making and executing management decisions related to reducing the likelihood of an unfavorable outcome and minimizing the possible consequences of the project, caused by its implementation. (Risk management hand book, The University of Adelaide, 2008, 4)

Risk and uncertainty are an integral part of our lives. Depending on the area studied, it is possible to consider an individual, an enterprise, a model of technology, a society or any other object of the material and even virtual world as an object of the risk. In general, the implementation of risk has a certain "structure", consistency. The study of this structure is important not only for the formation of a complete picture of risk, but also for searching for principled ways to manage it. According to Ridley J. And Channing J., there are several key steps in risk management:

- risk identification and assessment of the likelihood of its implementation and the scale of consequences, determining the maximum possible loss;
- choice of methods and tools to manage the identified risk;
- development of a risk strategy in order to reduce the likelihood of risk realization and minimize possible negative consequences;
- implementation of risk strategy;
- evaluation of the achieved results and adjustment of the risk strategy.

The key stage of risk management is the stage of choosing methods and tools for risk management. The basic methods of risk management are the rejection of risk, reduction, transfer and acceptance. The risk-toolkit is much wider. It includes political, organizational, legal, economic, social instruments, and risk management as a system allows for simultaneous application of several methods and tools of risk management. The most commonly used tool for risk management is insurance. Insurance assumes the transfer of responsibility for compensation of the alleged damage to an outside organization (insurance company).

Examples of other tools include:

- refusal of excessively risky activity (method of refusal),
- prevention or diversification method of reduction),
- outsourcing of costly risk functions (transmission method),
- formation of reserves or reserves (method of acceptance).

2.1 Risk analysis

Risk analysis is procedures for identifying risk factors and assessing their significance, in fact, an analysis of the likelihood that certain undesirable events will occur and adversely affect the achievement of the project objectives. (Risk analysis and the security survey, Broder J., Tucker E. 2012) Risk analysis includes risk assessment and methods to reduce risks or reduce associated adverse effects.

Risk assessment is the quantitative or qualitative determination of the magnitude (degree) of risks. American expert B. Berlimer suggested using some assumptions in the analysis:

- Losses from risk are independent of each other.
- Loss in one area of activity does not necessarily increase the probability of loss in another (except for force majeure).
- The maximum possible damage should not exceed financial capabilities of the participant.

Risk analysis can be divided into two mutually complementary types: qualitative and quantitative. Qualitative analysis aims to identify (identify) factors, areas and types of risks. Quantitative risk analysis should provide an opportunity to determine the size of individual risks and the risk of the enterprise as a whole. The results of qualitative risk analysis, in turn, serve as initial information for conducting quantitative analysis.

However, the implementation of the quantitative assessment is also faced with the greatest difficulties associated with the fact that for the quantitative assessment of risks, the relevant initial information is needed.

Currently, the most effective is an integrated approach to risk analysis. On the one hand, this approach allows you to get a more complete picture of the possible results of the project, ie. about all the positive and negative surprises waiting for the

investor, and on the other hand, makes possible the wide application of mathematical methods (especially probabilistic-statistical) for risk analysis.

2.2 Methods

In the theory of risks, according to Dr. A. J. Boyle, the following types of mathematical models are distinguished: direct, inverse and sensitivity research. In direct problems, the risk assessment associated with the definition of its level occurs on the basis of a priori known information. In the inverse problems, restrictions are placed on one or several variable initial parameters in order to satisfy the given restrictions on the level of acceptable risk. The main idea of the sensitivity research method, applied in connection with the inevitable inaccuracy of the initial information, consists in the analysis of the vulnerability, the degree of variability of the performance indicators with respect to the variation of the model parameters (probability distribution, areas of variation of certain quantities, etc.). The conclusions of the sensitivity study of the investment project reflect the degree of reliability of the design results obtained during the analysis. In case of their unreliability, the analyst will be forced to implement one of the following possibilities:

- clarify the parameters, the inaccuracy of which is the most significant in the distortion of the result;
- change the methods of processing the original data in order to reduce the response sensitivity;
- to change the mathematical model of analysis of project risks;
- refuse to conduct a quantitative analysis of project risks.

Widely used for the analysis of projects are the following classes of mathematical models, taking into account the uncertainty and differing in the ways of its description:

- stochastic models;
- linguistic models;
- non-stochastic (game) models.

It is possible to classify existing methods of risk analysis and related models in the following areas:

- I. depending on the attraction of probability distributions:

- methods without taking into account probability distributions;
 - methods with allowance for probability distributions.
- II. depending on the consideration of the probability of realizing each individual variable value and conducting the entire analysis process taking into account the probability distribution:
- probabilistic methods;
 - sampling methods.
- III. depending on the methods of finding the resulting indicators for the construction of the model:
- analytical method;
 - imitation method.

A sign of the approach of the methods of group I is that for each stochastic quantity only one of its values is taken. The purpose of such a "condensation" of the risk of an exogenous variable is to obtain the possibility of applying methods developed for analysis in a situation of certainty without any changes.

The result of the calculations for the model constructed for approach II is not the individual value of the resulting variable, but the probability distribution. Probabilistic methods assume that the construction and calculations by the model are carried out in accordance with the principles of probability theory, whereas in the case of sampling methods all this is done by calculations based on the samples. (Risk analysis and the security survey, Broder J. F., Tucker E. 2012)

A characteristic feature of approach II is the use of decision-making modeling techniques. Here you can identify the target, optimization and system approaches. The target approach is characterized by a clear goal setting when designing the model. Any change in the targets leads to the reconstruction of the model itself and requires new calculations, which is associated with additional costs. The application of this approach is most expedient in case of need to constantly make decisions in similar situations with precisely defined goals.

The system approach is related to the construction of a model aimed exclusively at reflecting reality, rather than the formulated system of goals. As a result of the evaluation of such a model and calculations on it, a description of the behavior of the real system is formed, but not an optimal strategy of actions. Then the system of goals is chosen and it becomes possible to make decisions with the help of predictive information about the behavior of the system and the assumptions made.

The change in goals arising in the process of investment design does not lead to a change in the model itself and does not require new calculations.

Approach III identifies the analytical and simulation methods of finding the resulting indicators from the constructed model. The analytical method of obtaining the results is carried out directly on the basis of the values of exogenous variables. Its advantages include the speed of finding a solution, the drawbacks - the need to adapt the task to the available mathematical apparatus and its relatively small "transparency". The simulation method is based on step-by-step finding the value of the resulting indicator by conducting multiple experiments with the model. Its main advantages are transparency of all calculations, ease of perception and evaluation of the results of project analysis by all participants in the planning process. As one of the serious drawbacks of this method, one can call significant costs for calculations related to a large amount of output information.

2.3 Qualitative and quantitative methods

Professor A. Hale defined that qualitative risk analysis allows identifying and identifying possible types of risks inherent in the project, and the causes and factors affecting the level of this type of risk are also identified and described. In addition, it is necessary to describe and give a cost estimate of all possible consequences of hypothetical implementation of identified risks and propose measures to minimize and / or compensate for these consequences by calculating the cost estimate of these activities.

The first step in conducting a qualitative risk analysis is a clear definition (identification, description - "inventory") of all possible risks of a project. Substantial practical assistance in this direction can be provided by the proposed classification of risks. Consideration of each type of risk can be made from three positions:

1. From the point of view of sources, the reasons for the occurrence of this type of risk;
2. Discussion of hypothetical negative consequences caused by the possible implementation of this risk;
3. Discussing specific measures to minimize the risk in question.

The main results of qualitative risk analysis are: identification of specific risks of a project and the causes that generate them, analysis and cost equivalent of the hypothetical consequences of the possible implementation of these risks, the proposal for measures to minimize damage and their valuation. Additional, but also very significant results of qualitative analysis include the definition of the boundary values of a possible change of all factors (variables) of the project that are checked for risk.

Stages of qualitative risk analysis:

1. identification (definition) of possible risks;
2. a description of the possible consequences (damage) in the implementation of detected risks and their valuation;
3. description of possible measures aimed at reducing the negative impact of identified risks, indicating their costs;
4. research on the qualitative level of the risk management capabilities of the investment project:
 - Diversification of risk;
 - avoidance of risks;
 - compensation of risks;
 - localization of risks.

A qualitative analysis of risks is carried out at the stage of developing a project plan, and a mandatory comprehensive examination of the project allows you to prepare extensive information to begin work on risk analysis. In the process of qualitative risk analysis, we investigate the causes of the occurrence of risks and factors that contribute to their dynamics, and then we give a description of the possible damage from the manifestation of risks and their valuation. For the analyst, it is also important to evaluate the measures proposed for the next step aimed at reducing the negative impact of the identified risks. We must choose the right ways to reduce risks, as proper risk management will allow us to minimize losses that may arise during the project implementation and reduce the overall riskiness of the project.

Methods of expert evaluation include a set of logical and mathematical-statistical methods and procedures associated with the activities of the expert to process the information necessary for analysis and decision-making. The central "spot" of the expert procedure is the expert himself; this is a specialist who uses his abilities (knowledge, skill, experience, intuition, etc.) to find the most effective solution.

Experts involved in risk assessment should:

- to have access to all available information about the project;
- possess a sufficient level of creativity of thinking and the necessary knowledge in the relevant subject area;
- be free of personal preferences for the project (do not lobby it).

It is possible to single out the following basic methods of expert assessments used for risk analysis:

- Questionnaires

This method is based on the survey, it is crucial to look up at the research question and to create decent questions. It helps to analyze the risk easier and detailed. The survey can be conducted in different ways, e. g. emails, online survey or paper version.

- SWOT analysis

The SWOT method of analysis is a universal method of strategic management. The object of a SWOT analysis can be any product, company, store, factory, country, educational institution, or even a person. The advantages of the SWOT analysis are that it allows you to look at the position of a company, product or service in the industry quite simply, in the correct context, and therefore it is the most popular tool in risk management and management decisions.

The result of the SWOT analysis of the enterprise is an action plan with deadlines, priority of implementation and the necessary resources for implementation. (Fine L. G., The SWOT Analysis, 2010, 9)

- The Delphi Method

The Delphi method has its name from the Delphic oracle known from ancient Greek mythology, built by Apollo himself to obtain predictions. The modern Delphic method is the prediction of events, social phenomena, and scientific developments. The Delphic method combines sequential actions: surveys, interviews and brainstorming. The stages of the Delphi method:

- Preliminary. A group of experts is selected.

- Main. It includes: posing a problem (forming and sending questions to experts), receiving answers, analyzing and sending out a new improved questionnaire - so several times, until experts agree on all questions, if opinions differ greatly, the procedure is carried out at least 3 times.
- Analytical. Analysis of the findings and agreed conclusions, recommendations.

Advantages of the Delphic method:

- easy to use;
- takes into account the views of all people relevant to the issue;
- promotes the development of independent thinking;
- provides an objective study of the issue from different angles.

The disadvantage is the following points:

- the opinion of the team is not always correct;
- the organizers of the survey are endowed with more powers than the expert group - this means that the opinion of a number of experts may be unnoticed;
- creative solutions that are expressed by the minimum number of experts are discarded and not taken into account by analysts, although these can be very effective and successful solutions;
- the desire for a majority opinion;
- it takes a lot of time - one stage can take from a day to a month. (Linstone A. H., Turoff M. The Delphi Method: Techniques and Applications. 2002. 5-7)

Quantitative analysis of the risks of the project involves the numerical determination of the values of individual risks and the risk of the project as a whole. The quantitative analysis is based on the theory of probability, mathematical statistics, and the theory of operations research.

In order to carry out a quantitative analysis of project risks, two conditions are necessary: the existence of a baseline calculation of the project and the conduct of a full-fledged qualitative analysis. In qualitative analysis, possible types of investment project risks are identified and identified, and the causes and factors affecting the level of each type of risk are also identified and described.

The quantitative task consists in the numerical measurement of the impact of changes in the project's risk factors on the behavior of the project efficiency criteria. Most often, in practice, the following methods of quantitative analysis of the risks of investment projects are applied:

- method of adjusting the discount rate;
- sensitivity analysis of performance indicators (net present value, internal rate of return, profitability index, etc.)
- scenario method;
- trees making;
- simulation is the Monte Carlo method.

The listed methods of analysis of risks are based on the concept of time value of money and probabilistic approaches. At the stage of quantitative risk analysis, numerical values of probability of occurrence of risk events and the volume of damage or benefit caused by them are calculated. Considering the whole set of methods for quantitative risk analysis, we can say that the application of a particular method depends on many factors:

- For each type of risk analyzed, there are methods of analysis and specific features of their implementation. For example, in analyzing the technical and production risks associated with the failure of equipment, methods of constructing trees were most widely used;
- The volume and quality of the input data play an important role in the analysis of risks. Therefore, if there is a significant database on the dynamics of the ROF, it is possible to apply methods of simulation and neural networks. Otherwise, the most likely application of expert methods or methods of fuzzy logic;
- When analyzing risks, it is of fundamental importance to take into account the dynamics of indicators that affect the level of risk. In the case of risk analysis in markets in a state of shock, a number of methods are simply not applicable;
- when choosing the methods of analysis, one should take into account not only the depth of the calculated data, but also the horizon of forecasting the indicators that affect the level of risk;

- Great importance is the urgency and technical feasibility of the analysis. If the analyst has at his disposal a solid computing potential and a time reserve, it is possible to train neural networks, Monte Carlo simulation, etc.;
- The effectiveness of the application of risk analysis methods is enhanced by formalizing the risk with the purpose of mathematical modeling of its impact on the performance of the enterprise. At present, not only economic systems, but also industrial complexes have reached such complexity that often calculation of their stability is impossible without elements of the theory of probability;
- Should take into account the requirements of government regulatory bodies to the formation of risk reporting. In the event that the use of simulation methods is required at the regulatory level, their application is mandatory.

2.4 Probabilistic method

Probabilistic methods of risk analysis are based on knowledge of the quantitative characteristics of the risks accompanying the implementation of similar projects, and taking into account the specifics of the industry, political and economic situation. Within the framework of probabilistic methods, it is possible to analyze and evaluate certain types of risks.

The risk associated with the project is characterized by three factors:

- an event associated with risk;
- probability of risks;
- amount at risk.

In order to quantify the risks, it is necessary to know all the possible consequences of the decision and the likelihood of the consequences of this decision. There are two methods for determining the probability:

- The objective method of determining probability is based on calculating the frequency with which certain events occur. The frequency is then calculated on the basis of the actual data. For example, the frequency of occurrence of a certain level of losses A in the process of implementing an project can be calculated by the formula:

$$f(A) = n(A) / n$$

Where f is the frequency of occurrence of a certain level of losses;
 $n(A)$ - number of cases of occurrence of this level of losses;
 N is the total number of cases in the statistical sample, which includes both
successfully implemented and failed investment projects.

For probabilistic risk assessments, if there is not enough information to calculate the
frequencies, subjective probability indicators, i.e., expert estimates, are used.

- Subjective probability is an assumption about a certain result, based on
judgment or personal experience of the evaluator, and not on the frequency
with which a similar result was obtained under similar conditions.

Important concepts used in probabilistic analysis of risks are the concepts of
alternative, state of environment, outcome. (Risk analysis and the security survey,
Broder J. F., Tucker E. 2012)

An alternative is a sequence of actions aimed at solving a certain problem.
Examples of alternatives: to purchase or not to purchase new equipment, a decision
on which of the two machines differing in characteristics should be purchased;
whether it is necessary to introduce a new product into production, and so on.

Outcomes (possible events) arise when the alternative is realized in a certain state
of the environment. This is a kind of quantitative assessment, showing the
consequences of a certain alternative in a certain state of the environment (for
example, the magnitude of the profit, the value of the crop, etc.).

After taking into the account all the strengths and weaknesses of all the methods
above, we decided to use probabilistic method of the risk analysis, subjective in our
case. It includes the observation and risk assessment of the building. The analysis
was made by the observation during the workdays thus all the working related risks
can be found and assessed then.

Another method I used was a discussion with the co-workers, which were not
recorded and were conducted during working hours.

It was also important not to find as many issues as possible but find the most likely
to affect the housekeeping work and workers' health. Thus in our case, qualitative
methods were the best choice. I did not use any particular in the analysis, I
combined them to gather better results.

3 Background theory

A general definition of an object's security system can be outlined from its functional purpose. The security system is a set of means and methods for maintaining the safety of an object, preventing, protecting and eliminating threats to life, health and the environment, property and information.

In this case, it is necessary to maintain the state of the object, warnings, identify and eliminate security threats. (Automated firefighting, locking locks when penetrating, counteracting the comfort of information, managing the life support of buildings, the developed methods of operation of security services, etc.). Thus, a joint (or general) security system should include all aspects of protection (technical, organizational, legal and other methods and means) and cover all spheres of life of living organisms (primarily people), as well as material and intellectual property, then there are all protection objects. At the same time, an important feature of the common security system is the unification of all methods and means of protection under general management for maximum efficiency. A common security system is a set of all methods and means that ensure the maintenance of a secure state of an object, the prevention, detection and elimination of threats to life, health, habitat, property and information that have common means of collecting and processing information and management.

The safety and the security of a building during operation should be ensured through maintenance, periodic inspections and control checks and (or) monitoring of the condition of the foundation, building structures and engineering systems, and also through ongoing repairs of the building or structure. Parameters and other characteristics of building structures and systems of engineering support in the process of operation of a building or structure must comply with the requirements of the project documentation. This compliance shall be maintained through maintenance and confirmed during periodic inspections and control checks and / or monitoring of the condition of the foundation, building structures and engineering and technical support systems conducted in accordance with the legislation of a country. The operation of buildings and structures should be organized in such a way as to ensure that they meet the requirements of energy efficiency of buildings and structures and the requirements for equipping them with meters of energy resources used throughout the life of premises. (Dorfman M. S. 2007)

3.1 Physical security

Physical security is a set of measures aimed at ensuring the safety of the facility, the safety of its tangible property, and the protection of the life and health of its personnel. Physical protection of objects begins with the inspection of the object for possible risks and threats, ways to prevent them and thinking through the most effective and rational security system. Hostel security is ensured on the basis of the following principles:

- The personal responsibility of the client for their safety;
- The responsibility of the hotel administration for the personal safety of the client and his property;
- The responsibility of the hotel administration for ensuring the safety of employees and company property.

Ensuring the safety of fixed facilities is a multifaceted process of implementing security measures. At the heart of developing, a system for protecting an object and organizing its operation is the principle of creating successive security lines in which threats must be detected in a timely manner and reliable barriers will impede their proliferation. Such frontiers should be located consistently, from the fence around the hotel to the building and especially important premises, such as residential and administrative areas, kitchen, restaurant, safe zone.

The security service is created to protect guests, their property and hotel property from possible harm from all sorts of criminal elements. The concept of "hotel property" includes such an element as its reputation. Most of the crimes in the hotel it is all sorts of embezzlement. It should be noted that the main part of the thefts does not occur among the guests, but in the hotel units that are not in direct contact with the guests.

There are customers who, on departure, pack hotel towels and sheets in their suitcases, and guests are content with ashtrays. In the case of theft of towels or bathrobes, the standard practice of hotels is to blacklist unwanted customers. These lists also include professional complainants who provoke a conflict with the staff followed by a large claim for damages to the hotel.

The main task of the security service is not to investigate the crimes committed, but to prevent them. This is especially important to keep in mind, given the fact that security officers, unlike the police, are very limited in their rights when conducting an investigation: they have no right to interrogate, search and carry out other actions. The security service must have a good relationship with the local police station, from which it can receive useful information about the possible appearance of unwanted guests, expected demonstrations, riots and other phenomena that may disrupt the quiet operation of the hotel. (Fennelly L. J., Effective physical security, 2013)

3.2 ISO standart:31000:2018

Standard 31000:2018 is designed to meet the needs of a wide range of participants, including:

- persons responsible for developing a risk management policy within the organization;
- persons responsible for ensuring the effectiveness of risk management within the organization as a whole or within a specific area, project or activity;
- persons who need to assess the effectiveness of the organization's risk management;
- developers of standards, guidelines, procedures and good practices that, in whole or in part, determine how to carry out risk management in the context of specific situations in these documents.

Modern practices and management processes of many organizations include risk management components, and many organizations are already using a formal risk management process for specific types of risk or circumstances. In these cases, the organization may decide to conduct a critical review of its practices and processes in the light of this standard. The international standard was prepared by the working group on risk management of the ISO technical management bureau.

(<https://www.iso.org/standards.html>)

3.3 Safety and security systems in hotels

Hospitality industry is a complex sphere of professional activity of people whose efforts are aimed at meeting the diverse needs of customers. The main function of the hotel and the tourist complex is to provide comfortable and safe

accommodation. Their mission, in my opinion, is to make the maximum number of guests feel at home. (Hospitality security, Clifton D. 2012)

The issue of security, in the broadest sense of the word, is perhaps the most important in the life of any person. The hospitality industry, as well as the entire service sector as a whole, is based on human contacts, therefore vital issues for a person cannot be bypassed. Security is a common problem. It concerns the protection of the life and health of guests and hotel workers, as well as the safety of property. Every hotel should have a security program. The responsibility for the development of this program lies with the hotel management. When passing through hotel certification, security issues are paramount. In accordance with regulatory requirements, hotel managers must undergo not only professional training, but also safety training. The concept of safety also includes the creation of preventive measures to provide protection from fires, explosions and other emergencies. An effective solution to this problem requires a systematic approach based on the analysis of the operation of the facility, identifying the most vulnerable zones and especially dangerous threats, drawing up all possible scenarios for criminal actions and developing adequate countermeasures.

An integrated approach provides for an optimal combination of organizational, technical and physical measures of prevention and timely response to any dangerous situation. The right choice of technical equipment and security systems, their correct design, installation and maintenance gains key importance. Only the creation of an effective, reliable and comprehensive security system will allow the hotel to have the image of a peaceful, friendly house, guaranteeing all guests peace and confidence in their security.

Also in modern conditions, the safety of the hotel, its employees and customers is becoming one of the factors for increasing business competitiveness, and this is an indisputable fact. However, we must not forget that any hotel, as a commercial enterprise, is the subject of particular interest of competitors.

The presence on the market of a developed system for obtaining commercial information determines the legitimacy of creating a no less developed system of its protection against unauthorized receipt and malicious use. These functions and assumes the security of the hotel.

The classification of threats, including the dangers arising from various types of interaction, suggests that in modern conditions to ensure safety, both the staff,

customers, the hotel, and himself as a commercial enterprise, individual measures and actions cannot be avoided. We need a permanent system that covers the whole variety of forms and methods and ensures the security of staff, customers and commercial activities of the hotel. For the successful solution of the whole variety of tasks in servicing guests and observing their safety, the staff of hotels and tourist complexes need to master professional knowledge and skills, as well as constantly improve them. (Hospitality security, Clifton D. 2012)

Engineering - technical protection and fire safety. The main means of engineering protection and safety include:

- physical means of protection;
- hardware protection;
- technical means of protection;
- software protection;
- mathematical methods of protection;

These tools are used to resolve the following tasks:

- protection of the territory and monitoring it;
- protection of buildings, interiors and observations of them;
- protection of property of residents, hotel equipment and storage;
- the implementation of controlled access to protected areas, protected premises and vaults;
- neutralize spurious electromagnetic radiation and interference.

To perform these tasks, the engineering protection team uses organizational, organizational, technical and technical measures.

Organizational measures include restrictive measures, which consist mainly of regulating access and use of technical means of providing access and controlling the stay of residents and visitors to a hotel in traditional or automated modes.

They, as a rule, are carried out by security forces by using the simplest organizational measures and the technical means available for this.

Organizational measures include:

- the definition of the boundaries of the protected zone (territory);
- the definition of technical means used to obtain the necessary information within the protected area (territory);
- the definition of dangerous, in terms of the possibility of unauthorized access to the building and the premises of the hotel places, and the warning of this using technical means;
- the Organization of strict control of the passage and the carrying of any objects, devices, tools, mechanisms in a controlled area that could pose a threat to the safety of guests and hotel staff;
- the organization of strict control of the removal (removal) of things and equipment to prevent theft.

Organizational measures include restrictive measures, which consist mainly of regulating access and use of technical means of providing access and controlling the stay of residents and visitors to a hotel in traditional or automated modes. Security forces carry out these measures, as a rule, by using the simplest organizational measures and the technical means available for this.

In most hotel enterprises, the security service combines the functions of protecting hotel buildings and premises from fires. Fires are traditionally one of the worst threats to the safety of guests. Due to these circumstances, European countries have developed and adopted legislation regulating the obligations of owners of accommodation facilities to provide protection against fires. Compulsory certification of hotels for safety has been introduced, in the procedure of which an important role is given to the fire safety of hotels. (Hospitality security, Clifton D. 2012)

4 Analysis

As mentioned above, the aim of this thesis is to find out the problematic aspects in physical security and occupational safety for housekeeping workers by conducting the risk analysis in the building.

The process of the analysis of risk and physical security assessment for a case company started in the A building. It consists of four floors, which you can enter from three entrance doors. It also has two staircases and the basement floor with the diving pool. The rooms for the housekeeping workers are located on the first, third and fourth floors. The first problem, which appeared is the lack of the lift. Housekeeping work includes taking the garbage out, changing the bed linen, it

means that the worker takes the dirty bed linen, brings it to the first floor and take new set to the first, second, third or fourth floor. That makes this work physically hard, especially when there are many rooms to clean and carpets, pillows and duvets have to be changed. The plastic bags with the garbage are also heavy and not easy to carry down the stairs. The possible solution for that is to build the ramp on the main stairs of the buildings A and B, which will help not only workers, also it will be a great service for the tourists with big and heavy luggage bags. The best type would be the ramp with the rubber surface, it prevents the trolleys and bags, which are rolling up or down, from sliding.

Another issue is the doors, all the floors have the doors that cannot be opened easily, and it makes the work difficult, when the worker has a trolley or a vacuum cleaner. To be more precise, the doors to the corridors on the first floor, the doors to the corridor, to the toilets and the bathroom on the second floor, the doors to the corridor and the kitchen on the third floor and the doors to the corridor on the fourth floor. Moreover, the door to the staff dining and resting room is heavy and very difficult to open. There are few solutions for this issue, but the cheapest and easiest way to help workers is to provide door stoppers, hostel has four stoppers, it is not enough. The most efficient amount of them is at least ten, they are used on every floor, and so one worker might need at least three: to open the door to the floor, to open the door to the corridor and to open the room door.

The stairs are old and the rubber holders on it are broken in some places, this makes the work dangerous when the worker walks downstairs with the bed linen, trash or any other stuff, it makes the work difficult when the stairs have to be cleaned as well. Although, the premises are old it is necessary to take care of it. The hostel management was recommended to fix the stairs as fast as possible. The showers on the first floor have small ramps from the doors, which are slippery not only for workers but for customers too. The solution for this is to install there rubber holders to prevent the sliding. Another issue is concerned to the personal working equipment, according to Directive 89/686/EEC - personal protective equipment "personal protective equipment must provide adequate protection against all risks encountered"; however, the company have not provided workers with the safe shoes.

Further, B building, it consists of three floors that you are able to entry from two doors, one of the doors has no holders and it closes fast, which makes it dangerous for customers and workers, in case they carry anything with them. Same problems with doors to shower/sauna, toilets on the ground floors and entrance doors to the

first and second floors. The bed linen changing and throwing away the garbage are also challenging due the lack of lift, however, B building has less stairs so it is not high. Nevertheless, it is difficult to do when the doors cannot be held. The same solution is recommended in B building, the door stoppers will solve the problem.

Third block is C building; consists of three floors and four apartments. The entrance door has the holder so workers are able to hold it, while the beds are changed or the garbage is taking out. The main problem in this building it is circular staircase, it is absolutely not comfortable to use during the cleaning of the apartments, which requires a lot of walking with different stuff, such as bed linen, kitchenware, carpets and so on, to A or B buildings because all the things that workers need are placed in the cleaning rooms there. Another difficulty in C side is the cleaning of the basement floor, there is no light that makes it difficult and dangerous to work. The space is small but the cleaning has to be done. Unfortunately, there are no efficient solution for that, the cleaning workers were recommended to not carry a lot of work stuff during the cleaning in C building.

D building is a small house that consists of two floors. The main issue in that building is the staircase that goes to the second floors, it is located at an angle of almost 80 degrees to the floor and it is small, it makes it dangerous to work and it make cause some injuries for customers. However, the building is located far from the storages; it is also problematic for workers.

In addition, there is one common problem in all of the blocks, it is the location of trash bins, during the high season in the hostel when there are many customers, and there is a lot of garbage to be thrown away and those trash bags are very heavy. The bins are located far from the entrance doors of A side and even further from others. The solution for that is to provide the trolleys for that so the employees will be able to take out the trash and to carry in and out the stuff from and to C and D buildings. This will also help with the health issues; the housekeeping is highly physically required work so everything has to go easy.

5 Physical security

The access control of the building is supported by the code system on every door. All the customers get the key codes, which consists of five numbers and the symbol, to enter the buildings and all the allowed places for them inside of the buildings. All the workers have electronic keys, which open every door that is allowed to be opened by the workers. These locks must be checked regularly because there were

few accidents when random people were able to enter the building and they are not allowed to be there, since they were not the customers of the hotel.

Methods of protection of individual parts of the object should complement each other. In this case, the effectiveness of the entire system of protection against unauthorized entry will be estimated based on data on the minimum time that random person would need to overcome all security lines. While a person is trying to threaten the safety of guests, the safety of their property, a security alarm should be triggered, security officers must establish the cause of the alarm; take steps to detain the attacker or to eliminate the consequences of his actions.

Thus, the effectiveness of the protection system is assessed by the indicators of the time elapsed from the moment of the occurrence of the threat to the beginning of its liquidation. The more complex and extensive system of protection a hotel has, the more time is required to overcome it and the greater the likelihood that the threat will be detected at an early stage, recognized or eliminated.

The mode of protection of the object in time can be round-the-clock, partial or selective. Depending on the forces and means used, the required density of control of the territory and object, the protection mode can be simple or enhanced.

At a significant part of the hostel facility guards are recommended to be present around the clock. During the daytime, guests arriving at the hotel are monitored, they carry out the check-in regime, and at night they guard the facilities of the hotel complex and its territory, taking full responsibility for the safety of closed facilities and premises. Some objects of the hotel enterprise are protected only sporadically, i.e. selectively on time. Such objects include hotel rooms that are protected during the absence of guests, temporary storage facilities or territories for the period of delivery of inventory items, etc.

Although, it is understandable that the likelihood of the unauthorized entry for damaging the property or any other threat is not high, the best solution for the efficient guarding would be to check the territory and the premises four-six times per 24 hours.

Technical security equipment includes CCTV cameras, through which all public and many office premises are viewed. Records must be kept for at least 24 hours. The security service is also responsible for locks with keys, in-room safes and so on. CCTV monitoring is available outside and inside of the buildings, however there are couple of blind zones. This fact leads to the issue of the protection of material

values that are freely available. Second floor lounge has one camera and it can be covered by the curtain. The kitchen on the third floor must be equipped with the camera, thus there were few cases when customers were smoking inside. It is illegal according to the tobacco act and nevertheless, it is dangerous for every person in the building.

Monitoring the actions of visitors and employees is made by CCTV and by the reception in the hostel, however there must be some security person in case of any emergency, e.g. to prevent unauthorized access; as was mentioned above, the key codes on the doors fail sometimes, so any person can come inside.

Fire safety is ensured by the efforts of the entire staff of the Forenom hostel but without identifying special responsible persons, this problem would not have found a practical solution. For the prevention, detection and elimination of the source of fire, the hostel is equipped with all the necessary technical means, provided for by the relevant regulatory framework and documents of the State Fire Surveillance. However, during the analysis, the absence of fire extinguishers and fire blankets in the kitchens was detected. Since, in general, the provision of fire safety seems to be a special case of general safety, the responsibility for this lies with the fire services and the hostel management. Moreover, each structural unit of the service performs its specific functions in this process and bears special responsibility: the guards are obliged to prevent the building and premises of the hotel from explosives and flammable substances, the engineering and technical staff monitors the operation of sensors and alarms.

The coordinating role in this process belongs, as a rule, to a specially appointed person - the fire safety inspector.

6 Conclusion

The hospitality industry is the most important segment of the economy and the sphere of professional activity of people whose efforts are aimed at meeting the diverse needs of customers. (Boella M. J. 2000) Hotels, as security objects, have fundamental differences from industrial or regime facilities. The administration is extremely interested in creating the image of an "open house" with the most favored treatment for the maximum number of guests, so any security devices should not attract the attention of visitors, but at the same time provide a sense of personal safety and comfort

In the process of writing a term paper, I studied the basics of organizing the protection of a hotel enterprise, revealed the essence of the security structure, and analyzed its tasks and functions. I went into more detailed analysis for the risk for the cleaning workers in the hostel, since it was the task from the case company. It revealed that there are few issues that are dangerous for both, workers and customers.

Based on my work, it possible to define the issues were found at the hostel. The code system must be checked constantly due few cases that already have been accused, random people in the buildings. The hostel management was informed that those persons can be not sober and they can cause problems, especially because young athlete team is training in the sport hall located on the second floor. The fire safety problem caused by the absence of the fire extinguishers and fire blankets was discussed with the management and they reacted fast to solve it. The problem with the doors was discussed and new door stoppers were bought for usage of workers, nevertheless to say that it is still problematically for guests of the hostel. The big problem with the old stairs and absence of the lift is an open question due the expenses, which the company has to spend, they have decided that it is not efficient.

Overall experience was great; the management was helpful and answered fast my questions.

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