

Analysis of The Reliability Value of Building Safety System (NKSKB) and Level of Occupants Readiness in Facing Fire at Johar Market, Semarang, Central Java (South Johar)

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Abstract. Public buildings are buildings used by people from various walks of life, which are built or intended not for the benefit of private residences, but for the general public which are identical to community service centers (Siti Azizah, 2013). One of the public buildings is the Johar market, Semarang. An important aspect of a public building is fire safety. The purpose of this study was to determine the level of reliability of the public building security system against fire hazards in the Johar Semarang market (Johar Selatan), and the readiness of the occupants of the Johar Semarang market building in the face of fire disasters. The method used in this research is descriptive-quantitative research method which is collecting data obtained from interviews, field notes, personal documentation, researcher notes, and other supporting documents. The results of the analysis of the utility component assessment of the four variables resulted in a Building Safety System Reliability Value (NKSKB) of 86.12%, based on these results it can be concluded that the reliability value of the building is in good and safe condition. The level of readiness of residents in facing the danger of fire disasters is still in the poor category with an average level of readiness of residents of 51.12%. This shows the need for increased application of protection systems and rescue facilities, especially for several protection systems that are still damaged and not functioning as well as socialization to residents regarding the use of fire extinguishers, fire simulations, and the need to provide adequate PPE.

Keywords: Public Buildings, Level of Reliability, Occupants Readiness

1. Introduction

Public buildings are buildings used by people from various walks of life, which are built or intended not for the benefit of private residences, but for the general public which are identical to service centers community, whether related to the needs of the government, economy, security, or other needs [1]. Based on the explanation above, public buildings must be designed as well and as comfortable as possible for their users [2]. Various types of public buildings. One of the public buildings is the Johar market, Semarang.

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On May 10, 2015, a fire broke out at Pasar Johar, Semarang, which scorched the stalls of the traders inside. The fire is thought to have been caused by an electrical short circuit originating from an improper arrangement of electrical installations. Then it was rebuilt in January 2021 until January 2022. On January 5, 2022 the Johar market was again inaugurated by the President of the Republic of Indonesia Joko Widodo. Fire is a catastrophic event originating from an unwanted fire and can cause losses, both material losses (in the form of property, physical buildings, depots, facilities and infrastructure) and non-material losses, to loss of life or disability caused by fire. [3]. The causes of fires are varied, including electricity, lightning strikes, cigarettes, etc. Public buildings such as markets really need a protection system and very adequate means of rescue to minimize the occurrence of fire disasters, because fire disasters can cause a lot of material and non-material losses and can even cause fatalities [4].

2. Methods

The research method used in this research is descriptive-quantitative. Descriptive analysis is a method used to describe or analyze a research result but is not used to make broader conclusions [4]. While quantitative analysis is a research method based on positivistic (concrete data), research data in the form of numbers that will be measured using statistics as a calculation test tool, related to the problem under study to produce a conclusion [5]. The purpose of this study was to determine the value of the reliability of the building safety system (NKSKB) and the level of readiness of building occupants in dealing with fire disasters. Data collection at this stage requires the most field observations and targeted interviews by random sampling.

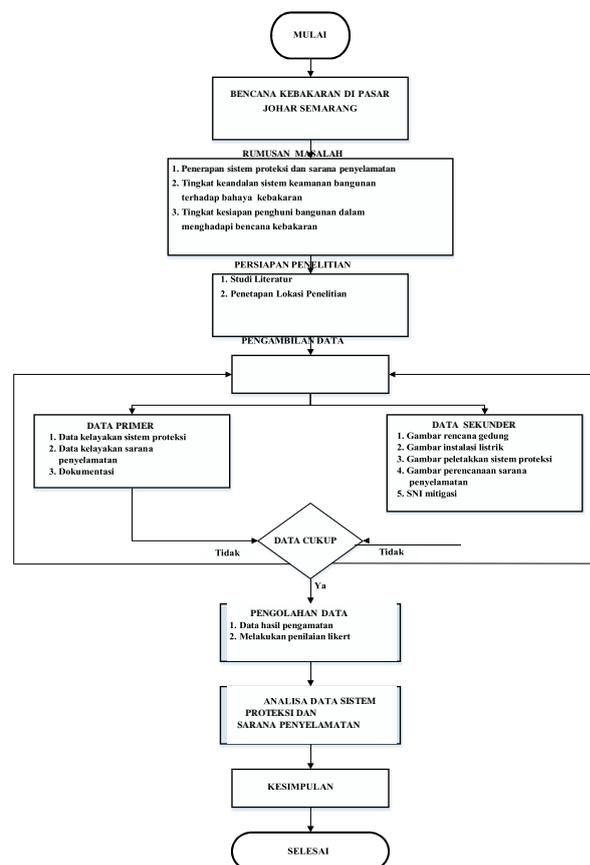


Figure 1. Research Methodology

3. Results And Discussion

To analyze the reliability value of the building safety system (NKSKB) referring to the weighting of each component variable, it is presented in the following table:

Table 1. Weighting grouping table

No	Parameter KSKB	Bobot KSKB (%)
1	Sistem Proteksi Aktif	25
2	Sistem Proteksi Pasif	25
3	Kelengkapan Tapak	24
4	Sarana Penyelamatan	26

source: Peraturan Pd – T – 11 – 2005 – C, 2005

Based on the results of the analysis based on weighting, the results are presented in the following table:

Table 2. NKSKB analysis results table

No	Komponen Utilitas	Nilai	Nilai Maksium
1	Sistem Proteksi Aktif	23,5	25
2	Sistem Proteksi Pasif	15,625	25
3	Kelengkapan Tapak	23,28	24
4	Sarana Penyelamatan	23,712	26
NKSKB (%)		86,117	100

source:researcher,2022

From the analysis results of the utility component assessment above, it produces a Building Safety System Reliability Value (NKSKB) of 86.12%, this indicates that the reliability value of the Johar Market Semarang (Johar Selatan) building is in good condition based on Regulation Pd – T – 11 – 2005 – C regarding Building Fire Safety Inspection.

The results of the level of readiness of building occupants in dealing with fire disasters based on the results of interviews and filling out questionnaires are presented in the following table:

Table 3. Table of readiness analysis of building occupants

No	Jenis Responden	Jumlah	Total	Rata-rata (%)
1	Pengelola pasar	10 org	670	67
2	Pedagang	40 org	1732	43,3
3	Pembeli	43 org	1850	43,02
	Jumlah	93 org	4252	
Rata-rata				51,12

source:researcher,2022

Based on the results of the calculation analysis above, the average value of the readiness of building occupants in dealing with fire disasters at Pasar Johar Semarang is 51.12%. This shows that the residents of the Pasar Johar Semarang building are still not ready or do not have sufficient provisions to deal with the dangers of fire disasters.

4. Conclusion

Based on the results of the analysis, it can be concluded that the calculation results of the utility component assessment at the Johar Market Semarang (South Johar) resulted in a Building Safety System Reliability Value (NKSKB) of 86.12% and an analysis of the readiness level of building occupants of 51.12%. This shows that the reliability value of the Johar Semarang market building safety is in the safe category but for the occupants of the building it is still at a low level to deal with fire disasters.

Thank-You Note

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