

## **THE IMPLICATION of FIRE RISK TREATMENT USING PERFORMANCE BASED FIRE SAFETY DESIGN on OFFICE HIGH RISE BUILDINGS in DKI JAKARTA**

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**ABSTRACT :** In building industry, all stakeholders will work together in preventing from many kinds of risks on the building operation process in order to save their business assets. Studying the risk of office buildings on operation process in DKI Jakarta, fire is one of the most dangerous risks that can stop all the business activities process. Based on the research in DKI Jakarta that using the risk management and performance based approach to the office buildings, there are extremely high risks of fire that become the first risk priority to treat, such as: supporting facilities, education of building expert, sprinkler pump, building hydrant, the design of positioning for building fire hydrant, building elevator that protected from fire, the strength of building materials to the fire, emergency lighting, building accessibilities to escape from fire, the accessibilities for fire truck, the understanding for fire safety procedure, the socialization of fire drill, the socialization of fire safety manuals to prevent from fire. Then this research will find out the implication of the treatment of the high extremely fire risk above that can prevent the safety of office buildings' operation process in DKI Jakarta. In the future, the implication of the fire risk will impact to the building's design, the designers, all experts, the owner, the tenants, the government, the suppliers, and insurance companies.

**KEY WORDS:** fire, extremely high risk, office, treatment, implication

### **BUILDING SAFETY IN INDONESIA**

The understanding of building safety in Indonesia was referred to the relevant references, books and all standard in Indonesia. In this research, the building safety specifically will study from Perda 3/1992 that regulate the safety from fire in DKI Jakarta, UU No. 18/1999 that regulate all the actors in construction industry, and UU No. 28/2002 that regulate the building project in Indonesia.

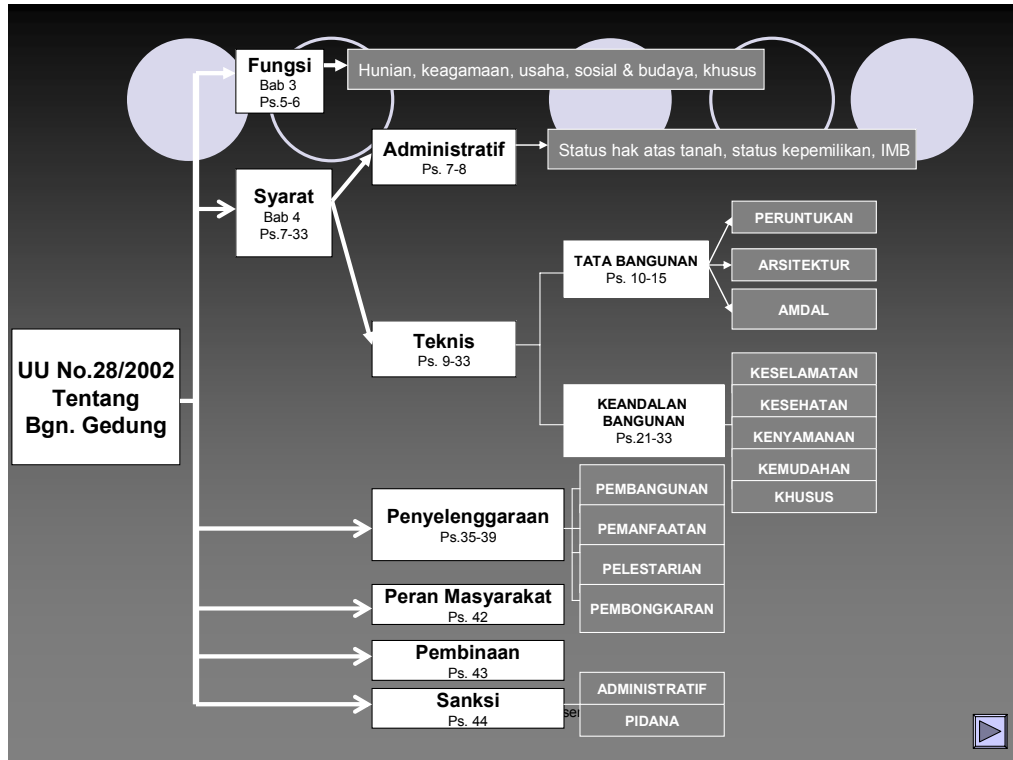
The safety factors became the focus in this research had been produced the variables that also had impact, cause and treatment aspect. All these will be researched in this paper. Then in the Picture 1 below will describe the building safety in UU No. 28/2002 that regulate the building project in Indonesia.

Then, on the table 1 below will describe the Description of Building Safety based on UU No. 18/1999, Perda 3/1992, and UU No. 28/2002.

**Table 1. The Description of Building Safety**

<b>Standard</b>	<b>Description of Building Safety</b>
<b>UU No. 18 / 1999</b>	The result of the research from UU No. 18/1999 found: the players in construction (owner, consultants, contractors, etc) the safety of the buildings have big contributions to: implement the safety aspect to all construction industry phase and players, the relationship of all the players, and find out the professional ability of all the players that can prevent and protect the office buildings from fire damage in Indonesia.
<b>Perda 3 /1992</b>	Perda 3/1992 should be completed by inputting view concepts, such as: the name of Dinas Pemadam Kebakaran should be becomes the Dinas Kebakaran which do not only attack the damage when fire comes but also to prevent from the fire damage happens, the environmental accessibility for fire brigade, the understanding of life safety facilities, the understanding of fire protection in the city, the understanding of fire protection in the buildings, and the insurance policy for fire damage that happens to the buildings in DKI Jakarta.

<b>UU No. 28 / 2002</b>	This regulation regulates: the function of the buildings, the building requirements, the running process, public responsibilities, government responsibilities, and the professional responsibilities. In the building requirements especially in technical aspect, the building safety was regulated to become the building reliability in Indonesia.
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Picture 1. Building Safety Aspect based on UU No. 28/2002

## RESEARCH PROBLEMS

The research problem of this paper is the implication of the treatment factors of the high extremely fire risk that can prevent from fire risk of the office buildings' operation process in DKI Jakarta.

## HIGH EXTREMELY FIRE RISK ON OFFICE HIGH RISK BUILDINGS IN DKI JAKARTA

### 1. Research Methodology

#### 1.1 First Methodology

In the first methodology analyzed the qualitative method according to the regulations of office high rise buildings Indonesia, such as: UU No.28/2002, Perda No.3/1992, UU No. 18/1999. In this phase resulted the understanding of the fire risk factors that had all the research variabels for the next analysis.

#### 1.2 Second Methodology

In this second methodology then will have the process of:

- a. Identification process of research variabels.
- b. Selection and testing the research variabels process.

The phase will have the process of:

- \* Find out the four factors of the understanding of fire risk: design and supervision, the design system of active fire protection, the design system of passive fire protection, and fire safety management. In this study was found 164 fire risk variabels.

- \* To select the 164 fire risk variabels to the expert and doing view testing to the variabels in order to find the definitive variables and the variables ranking.
- \* Find out the impact factors, cause factors and treatment factors of the 31 definitive variabels.
- \* Analysis: correlation, intercorrelation, validation, Cochran Q Test by using SPSS (*Statistical Programming For Social Science*). Those analysis will test the contribution and the relationship of the definitive risk variabels and find out the result from the expert.
- \* Probability Matrix analysis in order to arrange the variabels hierarchy based on the risk level.
- \* Statistical Simulation

## 2. High Extremely Fire Risk

The result of the analysis have the high extremely fire risk which have the cause factors, impact factors and treatment factors that related one each others, then can be read in the tabel 2 below.

**Tabel 2. High Extremely Fire Risk**

High Extremely Fire Risk Variabels	Impact	Cause	Treatment
Positioning the hydrant box which not in the right place in the building	The hydrant box can not be seen & reached	The lack of design on the Positioning the hydrant box	Design the hydrant box creatively in the right place
There is no understanding about the safety procedure of fire safety	The tenant/user is not aware of fire risk	Need more time to study the safety procedure of fire in the building	Study the safety procedure of fire risk in the building every time

From the tabel 2 there are two variables of high extremely fire risk: the design of hydrant box, and the understanding of fire safety procedures of fire damage. All the high extremely fire risks then have the implications in the tabel 3 below.

**Tabel 3. The Implication of Extremely High of Fire Risk on Office High Rise Buildings in DKI Jakarta**

High Extremely Fire Risk Variabels	Treatment	Implications
Positioning the hydrant box which not in the right place in the building	Design the hydrant box creatively in the right place	Fire Safety Management 1. Choose the right designer who have professional ability/design skills in fire protection of the buildings 2. Review/audit/check all the fire protection equipment regularly 3. Run the fire drill regularly in order to increase the awareness of the people in the building
There is no understanding about the safety procedure of fire safety	Study the safety procedure of fire risk in the building every time	Fire Safety Management 1. Choose an expert to make the safety procedure of fire risk in the building 2. Make and review the safety procedure regularly in preventing the building from fire damage 3. Run the fire campaign in order to socialize the safety procedure in the building

## CONCLUSION

The conclusion of the research problem in this paper is: the implication of the treatment factors of the high extremely fire risk that can prevent the from fire risk of the office buildings' operation process in DKI Jakarta is The Fire Safety Management. The fire safety management will participate all the people in the building and all the players in the construction industry in awareness to design, maintain and review/audit the hydrant box and the safety procedure of fire in the building that can prevent the building from fire damage.

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