Training On The Use Of Light Fire Extinguisher For Residents In Densely Populated Housing Duri Pulo Subdistrict, Central Jakarta

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Abstract.

The dense population in a residential area often faces a high risk of fire. The main factor, apart from the dense population, is also due to limited access to fire extinguishers and vulnerable environmental conditions. A simple and effective solution to handle small fires before they spread widely is to use APAR (light fire extinguishers). This Community Engagement (Community service) activity aims to increase awareness and skills among residents in the use of APAR, so that they can better prepare for potential fires. This Community service was carried out in a densely populated area in the Duri Pulo sub-district, Central Jakarta. The Community service method was carried out through counseling and direct training on how to use APAR. At the end of this activity, 10 APAR units were handed over from the COMMUNITY SERVICE FTKE Trisakti University Team to Karang Taruna DuriPulo to be distributed and installed in strategic locations within the area.

Keywords: *APAR; HSE&CSR; HSE; CSR and Community service.*

I. INTRODUCTION

According to the Central Bureau of Statistics (BPS), there were 2,286 fires in the Jakarta area in 2023, representing a 35% increase compared to the 1691 incidents. There were 256 fire incidents in the Central Jakarta area. The fires in Jakarta mostly hit residential buildings, 139 cases were caused by electrical short circuits, 40 by gas leaks, 4 by candles, 15 by burning of garbage, and 15 by cigarettes. In the implementation of this Community service, information will be provided on fire prevention and methods, as well as the use of Light Fire Extinguishers. If a fire occurs, we only have a short time to think and try to save ourselves or put out the fire (Badan Pusat Statistik Kota Jakarta Barat, 2024).The Duripulo area is one of the sub-districts in Gambir District, Central Jakarta, consisting of 10 RW and 106 RT, the characteristics of the Duripulo area are a mixture of densely populated settlements in 5 RW environments. Some are office areas in 2 RW, and the rest in 3 RW have become empty land.

At the same time, 3 RW are inhabited by residents who are still waiting for the land acquisition process by developers who will build business centers. This Community service will be held in densely populated settlements in Duripulo Village, Central Jakarta.In 2018, a fire occurred, burning down 31 houses inhabited by 25 families, resulting in 191 people losing their homes. The fire was caused by an electrical short circuit. In 2023, a fire hit a food stall caused by a gas cylinder leak and resulted in two deaths. This Community service program is about training in the use of APAR, which aims to prevent and extinguish small fires. The method that will be used is to train members of the youth organization who will later disseminate their knowledge to the community. The Community service team will donate and distribute 10 APARs, which will later be installed and placed in a position that is easy to see and reach, and must not be blocked by any objects.Fire can occur if there are three elements, namely: flammable materials, heat, and oxygen. Commonly called the fire triangle. So, when these three elements are present together, a fire can occur. On the other hand, when at least one of these elements is absent, a fire will not occur.

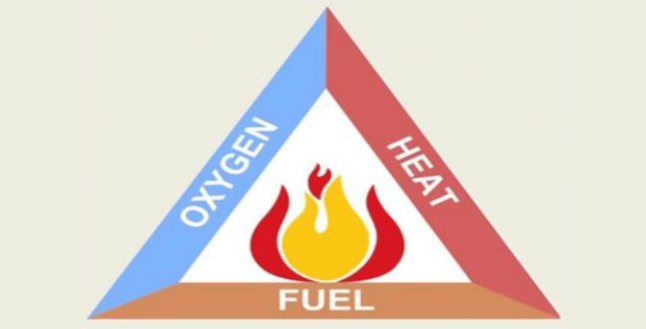

Fig 1. Fire triangle

Fires are divided into several classifications, namely:

1.1. Class A fires

For fires caused by ordinary flammable materials, such as wood, paper, clothing, and similar materials, the type of extinguisher used is typically water as the main extinguishing agent. Prevention methods: place oily rags in closed or separate containers.

1.2. Class B fire

Fires caused by flammable liquid materials, such as petroleum, gas, fat, and the like. The type of extinguisher used is a foam-based extinguisher as the primary extinguishing tool. Prevention methods:

a. Use flammable liquids only in well-ventilated areas.
b. Store flammable liquids in tightly sealed containers and place them in areas that are hard to reach or inspect.
c. Do not use glass or plastic containers for storage.

1.3. Class C fires

Electrical fires, such as electrical leaks, short circuits, and fires in electrical equipment. The types of extinguishers used are chemical and gas, which are the main types.Electrical short circuits or short circuits occur due to an electric current that deviates from the installed cable line. Causing the flow of electric current to pass through a shorter network than it should. Or technically, the cause of this short circuit occurs because the electric current is cut off. There is a collision between positive electric current and negative electric current, which causes an electric short circuit.

There are many causes of short circuits. Here are some of the causes of short circuits.

1. Imperfect cable connections
2. Loose electrical sockets
3. Low-quality electrical devices
4. Exposure to high temperatures
5. Inappropriate cables
6. Overloaded electrical outlets
7. Wet electrical outlets

Prevention methods :

a. Replace damaged or worn cables, sockets, and fittings immediately.
b. Use electrical equipment that meets safety standards and has been properly installed.
c. Electrical quality and load used must match requirements.
d. Do not overload sockets and avoid the use of multiple plugs that exceed capacity

1.4. Class D fires

Fires caused by metal materials, such as zinc, magnesium, sodium, and titanium. The type of extinguisher used is a specialized type, consisting of dry chemical powder.

Prevention methods :

a. Metal that is reactive or potentially explosive must be kept in airtight containers.
b. Store in cool, dry places.
c. Avoid surface oxidation (oxidation of the surface) due to contact with air.

Potential Fire Hazards

Based on observations at the Community service activity location, the potential for fire, when viewed from the source of the fire, is caused by the presence of flammable materials, and there are triggers for fires associated with electrical installations. Combustible materials such as paper, cloth, and electronic equipment. The danger of electrical installations is that short circuits can occur, causing sparks, which can potentially cause a fire.

II. RESULT AND DISCUSSION

This community service is specifically for training in the use of APAR, which is used to extinguish fires in the early stages, when the fire is still small and easy to control. Because, as the saying goes, fire when small becomes a friend, but when big becomes an enemy (Moorcy et al., 2024).This training aims to prevent people from panicking when facing a fire and to find the cause of the fire, and to know how to handle it (Akbar et al., 2021).The main difference between APAR and other fire extinguishers lies in their portability and ease of use. In this community service activity, the community service Team from FTKE Trisakti University demonstrated and provided direct training on how to use APAR, assisted by Mr. Junaedi, one of the Firefighters.

Fig 2. Demonstration of how to use a fire extinguisher

Fig 3. FTKE CSR team

Fig 4. FTKE CSR team and audiences

Fig 5. Residents receive light fire extinguisher units

2.1. Fire Prevention

Proactive fire prevention is important in maintaining workplace safety. Before a fire occurs, the most critical step is to implement effective preventive measures. Every institution must begin by thoroughly understanding both regional and national fire safety regulations. This includes compliance with guidelines on the proper storage of hazardous chemicals, building construction standards, and other relevant codes. By prioritizing regulatory awareness and adherence, organizations can significantly reduce the risk of fire and protect both personnel and assets. In this case, it is in the Decree of the Minister of Manpower No. 187 / Men / 1990, which regulates the Material Safety Data Sheet (MSDS)(MENTERI TENAGA KERJA REPUBLIK INDONESIA 1999).

2.2. Fire Extinguishment

Extinguishing fires at an early stage. A key action in preventing the escalation of fires. Extinguishing small fires requires the right tools and quick action (Komalasari et al., 2024).

The tools needed at this stage are as follows:

a. Light Fire Extinguisher (APAR)
b. Hydrant that provides high-pressure water
c. A fixed system that is usually installed in buildings

2.3 The Placement of the Fire Extinguisher

The equipment must meet the requirements to ensure it can be accessed quickly in the event of a fire (Nasution et al., 2021). The Fire Extinguisher should be placed in clearly visible and easily accessible locations, distributed across the area rather than concentrated in a single spot, not locked away, and positioned appropriately according to the specific conditions and environment (Hironimus Panja, 2020).

2.4. How to Use a Light Fire Extinguisher (APAR)

Follow the pass method to use a portable fire extinguisher (Musadek et al., 2021) :

a. Pull the pin – This will break the tamper seal and allow you to operate the extinguisher.
b. Aim the nozzle or hose at the base of the fire – Targeting the base is essential to extinguish the source of the flames.
c. Squeeze the handle – This releases the extinguishing agent.
d. Sweep the nozzle from side to side – Move slowly across the base of the fire until it is completely out. Be sure to monitor the area in case the fire reignites.

Fig 6. How to Use a Fire Extinguisher

2.5. Evacuation Procedure

The evacuation is carried out according to the evacuation system in the burning building, for example:

a. The door width must be able to pass 40 people per minute
b. There are route instructions that must be taken in the event of an emergency
c. There is an access road that is available for use by emergency vehicles.

III. CONCLUSION

The expected results of the community service program include

1. Increasing community understanding of their role in the use of APAR (Light Fire Extinguishers) in fire risk management.
2. The community's ability to use APAR in the event of a fire.
3. The community's ability to save themselves and patients in the event of a fire.

The training participants were very enthusiastic about participating in the training, as evidenced by the many questions asked during the activity. The participants understood and understood how to use Light Fire Extinguishers (APAR) to deal with small fires.

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