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## SAFETY STUDY ON THREAT BY ACTIVE SHOOTER TO SCHOOL FACILITIES

**Abstract.** The reality of the danger of active shooters performing a terror attack at school facilities during the working hours, inspires to thought about possible guidelines under which an unarmed person could stop an armed aggressor in the moment he breaks into school and launches an attack. Quality physical security measures can prevent infiltration of a trespasser into a building or make it at least difficult, however it is necessary to always take into consideration that the physical security measures will be surpassed and the attacker infiltrates the building. Surviving an active shooter event is possible when following the “run-hide-fight & survive” guidelines.

**Keywords:** Active shooter, active killer, victim, protection of people and property, security guidelines.

## ANALIZA BEZPIECZEŃSTWA W PRZYPADKU WTARGNIĘCIA AKTYWNEGO STRZELCA DO BUDYNKÓW SZKOLNYCH

**Streszczenie.** Analiza zagrożeń w przypadku wtargnięcia aktywnego strzelca do budynków szkolnych skłania do analizy możliwości zatrzymania uzbrojonego agresora przez osobę nieuzbrojoną już w chwili rozpoczęcia ataku. Fizyczne i elektroniczne środki ochrony mogą uniemożliwić lub utrudnić przedostanie się osoby niepowołanej do obiektu, jednak należy rozważyć ewentualność infiltracji obiektu przez intruza. W takim przypadku niezbędne jest postępowanie zgodnie z zasadą „uciekaj, ukryj się, walczyć i przetrwać”.

**Słowa kluczowe:** aktywny strzelec, ofiara, ochrona osób i mienia, wytyczne w zakresie bezpieczeństwa.

## Introduction

Violence at schools is a frequently discussed topic in both media and academia lately. On one hand, there is a growing amount of news about growing school violence coming from abroad, and on the other there is a defined effort to prevent such events as the attack at Zdar nad Sazavou Business School from October 2014. There are multiple school violence prevention programs developed, primarily focusing at students and pupils, and the terms “active shooter” or “active killer” are defined.

As it is impossible to fully avoid a school attack, it is however possible to implement measures aiming at making an attack very difficult to perform or at least to minimize the impact of it. When the modus operandi of the Zdar nad Sazavou school attack is analyzed, substantial conclusions can be drawn with regards to devising such efficient security counter measures.

This article is not intended as a complex study on the school violence subject, it rather focuses on providing a response to whether it is feasible to encounter an active shooter who has already infiltrated the school grounds.

## Active shooter

It may not be widely acknowledged in the public, however the subject of active shooters is currently very topical on a global scale and active shooters undoubtedly present a specific security threat to the society. At this moment there is no technology or methodology known that would ensure a perfect security against an *active shooter* attack, which in its nature is an independent and individual decision and thus it is variable in time, place and mode.

Active shooter can be defined as a highly aggressive armed individual who resorts to using weapons and explosives against civilians at a specific site in order to reach his/hers objectives. The explosives are frequently used to increase the impact of the attack.

Why are firearms and explosives preferred? Besides the ultimate efficiency, it is also because they enable remote and thus less personal killing which is not as burdening for the attacker. In extreme cases of a depersonalized killing, when the impact on a human victim is not visible, the killer may assume that nothing “bad” had actually happened – just like in case of a bomber performing an air raid from high above the ground.

The active shooter prefers firearms to avoid any physical or emotional contact that would compromise the perfect delivery of the plan – indiscriminately killing as many as possible.

Active shooters would also carry more weapons than they are capable of using. They are neurotically pedantic about being equipped well enough and

even more than that. They would not rely on a single firearm and do assume that the more firearms they carry the better, and sometimes they carry armament that actually hinders their effort [4, 7].

Whereas the killing itself is indiscriminate, the choice of the place of the killing is not. Active shooter would operate in densely populated places where the shooting can be most efficient. The moments of surprise combined with uncontrollable panic caused by shooting at a crowded place are very important factors that increase the efficiency of the attack. This means that a school, especially the classrooms, is from this perspective a high-risk environment compared to toilets, cellars and other secluded places. Victims on the other hand are not selected and escaping individuals are never pursued – in active shooters logic pursuing individuals is wasted time that can be used to murder more victims.

What motivates active shooters' aggressive behavior? The psychological profiles describe an active shooter as an outsider with inclination to violence and aggression, or an individual fascinated by violence, playing violent video games, or a mentally ill person, or a person suffering from frustration or bullying, however high level of determination and independence in preparation and execution of the attack are common for the profiles.

The motivation to perform an attack stems from frustration and feeling of dispossession which originate in, for example, loss of employment, problems at work, exclusion from community, conflicts with classmates or teachers, unrequited love, reaction to a terror attack or various religious or political beliefs. The aggression does not surface prior to the attack, and if it does then it is done in private, for example by torturing animals. The dejected individual tends to locate the source of the frustration and to resolve it using weapons.

The outsiders are paradoxically far more dangerous than bullied individuals. Bullied pupils or students ventilate their negative emotions continuously, while outsiders expelled from the community of a school class are rather invisible, not successful, stamped as “weirdos”, and tend to release the accumulated frustration at once in a terminal and irreversible event, using the most lethal of means – weapons and explosives.

Active shooters are normally not under the influence of alcohol or drugs, they don't negotiate or take hostages, and they have no exit route planned either – they expect committing suicide or being killed in the shootout [1, 4, 7].

The victims are unarmed people, unprepared for the aggressive armed attack, crowded in a place with limited possibility of escape or concealment. Then the following questions are relevant:

- is a potential victim able to face an armed and motivated attacker?
- is an unarmed person able to stop such an attack?
- is a victim able to survive such an attack following any rules or method?

- Is there anything or anyone that can stop such an attack?

The answer to the above questions is definite: there is a minimal chance of surviving when facing an active shooter. However, well set-up and practiced security guidelines can improve this chance.

## Security study of school

The goal of the security study was to assess the current level of the inter-related physical security measures with focus on the possibility of infiltration of an armed trespasser into the school premises and at the same time to assess the level of security measures in case the trespasser breaches the physical security, enters the premises and launches an attack.

The security study investigated two types of facilities in scope – elementary school and grammar school. The infiltration through side entrances or building skin deficiencies was out of scope of the study. The risk assessment followed the process as recommended in ČSN 73 4400 Prevention of crime – management of planning, implementation and utilization of schools and school facilities.

The risk of unauthorized access to the object was determined using a semi-quantitative method and the risk level measured for the elementary school was ascertained as high, which corresponds to degree of “unacceptable”, for the grammar school the risk level was evaluated as medium with a corresponding degree of “conditionally acceptable”

Following questions were relevant in the study:

- Does the school take an attack by an active shooter into consideration when planning security measures?
- Has any scenario based on a real attack been elaborated?
- How are the teachers and students prepared for such a situation?
- Are there any evacuation rooms, or at least rooms that can be safely locked, available at the school?

The risk level in case of a trespasser having already infiltrated the building and having launched an attack, was assessed as very high, which corresponds to the degree of acceptability defined as “unacceptable”. The school managements are not ready for this type of attack. The outcome of the security study is a recommendation of security counter measures both in terms of the technical elements which aim to prevent unauthorized access to school or to make it difficult, and organizational measures applicable when the potential attacker breaches the physical security measures, infiltrates the building and launches an attack. The priority of this article is the latter – the recommendation of the organizational security countermeasures.

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### **Suggested security guidelines for barring of unauthorized access – making unauthorized access to schools difficult**

The level of protection of people and property depends on each school's security policy which results from the individual school management's decision on the level and strategy of security protection. Very important in this respect is the physical security which is represented by a system of precautions that prevent or make it difficult for a trespasser to enter the object.

The school management's goal should be to eliminate the possibility of an attacker entering the premises. As it is not possible to eliminate the risk to the full extent, a lot can be done in terms of securing the main entrance. Still, the security measures of a school need to be assessed from a high level perspective to avoid a situation where the main focus is dedicated to securing the main entrance, while the trespasser can enter the premises easily using the side entrances or takes advantage of security deficiencies of the building skin. However, it has to be taken into consideration that the attacker will breach the physical security system and enter the premises.

Given the fact that the basic steps towards security of any organization are risk identification, taking preventive countermeasures and periodical follow-up, each school's management should start with a qualified assessment of the actual security risks from the process and structural point of view and the definition of the threat levels to be addressed. Then it is necessary to deploy quality means of physical protection that combine technical means of security, security personnel and security routines that prevent or make difficult any unauthorized access to the premises [4, 6, 7].

The Czech Technical Standard ČSN 73 4400 Prevention of crime – management of planning, implementation and utilization of schools and school facilities provides the school managements with a qualified set of guidelines to uncovering physical security deficiencies and suggests counter measures [9].

A vital role in this respect plays prevention in the form of a sum of countermeasures aiming to reduce the risk of an attack and emergency situations of this type. The preparedness of the school management is depending on having developed relevant response scenarios, securing appropriate training and materials, securing the cooperation of the law enforcement agencies, their level of training, equipment, technical and economical means to provide competent response to threats [3].

## **Suggested security guidelines in case an attacker has entered the premises**

In case the system of physical security is breached by active shooter, it is of the utmost importance for everybody to safely escape the premises. Still, escaping may be impossible for some people. What options do have those who remain involuntarily in the building? First of all, it is necessary to find a shelter, and then, in the hiding, to stick to the guidelines of behavior. In theory this sounds easy, but to what degree is this actually feasible today?

There is a way how to prepare the potential victims – there is a set of security guidelines in terms of general organization and function of the emergency alert system, which the potential victims have to be familiar not only in theory but also in the way of active practice.

Based on the lessons learned from countries where an active shooter attack has already happened, the following method is suggested to minimize the number of victims:

**“RUN ► HIDE ►► FIGHT ►►► SURVIVE AN ACTIVE SHOOTER EVENT”**

**“RUN” – when an active shooter is in your vicinity**



Illustration no. 1 [8]

- if there is an escape path, attempt to evacuate!
- evacuate whether others agree to or not!
- leave your belongings behind!
- help others escape if possible!
- prevent others from entering the area!
- call 911 when you are safe!

**“HIDE” – if evacuation is not possible, find a place to hide**



Illustration no. 2 [8]

- lock and/or blockade the door using large objects – such as a copy machine, a bench, a cabinet, etc.!
- silence your cell phone!
- hide behind large objects!
- remain very quiet!
- the hiding place should be out of the shooter's view
- the hiding place should provide protection if shots are fired in your direction
- the hiding place should not trap or restrict your options for movement

**“FIGHT” – as a last resort, and only if your life is in danger:**



Illustration no. 3 [8]

- attempt to incapacitate the shooter – you are acting under self-defense and necessity!
- improvise weapons – use a chair, a fire extinguisher, a kettle!
- act determined, aggressively and use the moment of surprise!
- commit to your actions – your life is at stake!

#### **“When law enforcement & emergency arrive”**



Illustration no. 4 [8]

- remain calm and follow instructions!
- keep your hands visible at all times!
- avoid pointing or yelling!
- know that help for the injured is on its way!

**To evaluate any defense’s pertinence and usefulness, or to evaluate active resistance of individuals facing an armed attacker, based on operative experience it can be stated that if the active shooter met resistance, the outcome was negative in some of the events. However, if the active shooter remained unchallenged, the outcome was always negative!!!**

#### **The general organization and function of the emergency alert system**

The school principal is accountable for the organization and function of the emergency alert system, as such his/her responsibilities include:

- defining the way people will be informed about imminent danger
- defining possible and recommended evacuation routes



- defining evacuation rooms in relation to the size of the school, these should serve as shelter in case evacuation is impossible
- checking regularly that responsible personnel is familiar with the security guidelines published
- setting dates of practical rehearsals of evacuation of both staff and students, and making sure these rehearsals are regular and include synchronization with the emergency agencies
- regular assessment of the level and status of the security measures intended to prevent entry of the premises by an armed attacker
- regular update of the security documentation and ensuring that emergency agencies are consulted about any changes [6].

### **Acoustic Alarm Signal**

The acoustic signal used for warning against an active shooter threat should be different from the signal used as a fire alarm and at the same time shouldn't be identical with the school bell. The right to set off the emergency alarm should be restricted to every trained member of the staff, and the alarm should be set off in case the threat is detected, suspected or as soon as information about it is received.

### **Informing the emergency agencies**

The information about an emergency situation has to be passed immediately in the following extent: location, type of threat, information on injuries and casualties, number of attackers, their description, type of weapon used – firearm, stabbing or cutting weapon, explosive, etc., name, surname and phone number of the reporting person. If the situation changes suddenly, the emergency agencies have to be informed again and without delay. The moment the rescue arrives and the situation allows it, it is necessary to immediately contact the emergency personnel in order to provide more specific and up-to-date information.

### **If the evacuation is possible**

If possible, everybody has to escape the danger zone of the school following the evacuation route or any other safe route. The evacuation is considered feasible if the source of danger is remote and the escape routes are close. All personal belongings should be left behind, and people should move as quickly as possible along the designated escape paths avoiding the use of elevators. Everybody must remain silent, considerate and first aid can only be provided

only if this does not put anybody at risk. When reaching the outdoor area people should disperse and report back in person or by phone once the threat is over.

### **If the evacuation is not possible**

If case safe evacuation is impossible, there have to be places selected beforehand that serve as shelter. Such shelter should preferably be a room with thick walls and solid door that opens in the outward direction, and should be equipped with a first aid kit and a communication device that allows reporting on the status of the people hiding inside.

The locked door should be further blockaded by larger objects such as benches, tables, chairs, etc.. The lights should be shut off in the room and all electronic devices should be turned off. People in the room should lie down away from the door and windows and remain calm. The same rules apply also to any other rooms not primarily designated as evacuation rooms, where people may seek shelter [2, 6, 7].

In case of suspicion of planted improvised explosive device, it is necessary to inform the person in charge of the building and the emergency agencies and immediately evacuate the place. The suspicious object should not be moved or manipulated with, however if the situation allows it, it is favorable to take a picture of the object and its surroundings.

Explosives are substances able to transform in a detonative manner and release vast amount of energy in an instant. Given their high destructive potential, explosives are the most commonly used means of attack. Also, explosives are used in order to destroy any evidence that may lead to the attacker. During an explosion the air is compressed violently at the epicenter and is released into the surroundings in the form of shock wave. The size and severity of it depends on the type and amount of the explosive and also on the way it has been planted. The safe distance for a standing person is specified in the following equation [5]:

$$r_b = k_b \cdot k_u \cdot \sqrt{Q} \quad (1)$$

where:

$r_b$  = safe distance

$k_b$  = building type coefficient

$k_u$  = coefficient depending on the amount and type of planting of the explosive

$Q$  = the weight of the explosive [kg]

Explosive planted in the form of an improvised explosive device consists of the outer shell, which serves both as container and concealment, the explosive substance itself and the initiating system that determines the form and timing of the explosion. The explosive substances used can vary from military grade explosives, industrial explosives, explosive compounds used as propel-

lants in ammunition, low explosive pyrotechnic compounds used in fireworks, improvised explosives and even explosive gasses. If the outer shell is made of solid material, then the secondary factor of the device's lethal effect is the splinters and fragments with initial velocity reaching 1500 m/s. The effective range of these fragments depends on the same factors as severity of the shock wave with the addition of the shape of the fragments. The last contributing factor is the powerful acoustic bang. All factor named above contribute to the lethal and wounding effect of an explosion [5].

## Conclusion

Quality means of physical security are able to prevent or at least make difficult unauthorized entry of an offender to school grounds, however it is necessary to bear in mind at the same time that perfect security does not exist. Security counter-measures of all kinds and levels of protection can be surpassed, and the risk of a trespasser infiltrating the premises and launching an attack is always present. The chances of people surviving a direct encounter with an active shooter are minimal, however the others within the premises can raise their chance of surviving by being familiar with the emergency guidelines and being well versed in certain emergency behavior. Regular cooperation with police and emergency agencies is vital, the efficiency of an intervention is dramatically increased if the rescue teams know the premises well beforehand. Especially for the police tactical teams entering the premises, the prior knowledge of the technical and tactical features of the buildings as well as knowing the emergency routines rehearsed by the potential victims can mean the difference between success and failure.

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