
**Preprečevanje kriminala - Urbanistično planiranje in projektiranje - 5. del:
Bencinske črpalke**

Prevention of crime - Urban planning and building design - Part 5: Petrol stations

Vorbeugende Kriminalitätsbekämpfung - Stadt und Gebäude Planung - Teil 5:
Tankstellen

Prévention de la malveillance - Urbanisme et conception des bâtiments - Partie 5 :
Stations-service

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des bâtiments - Partie 5 : Stations-service

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This Technical Report was approved by CEN on 10 August 2009. It has been drawn up by the Technical Committee CEN/TC 325.

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Foreword

This document (CEN/TR 14383-5:2010) has been prepared by Technical Committee CEN/TC 325 "Prevention of crime by urban planning and building design", the secretariat of which is held by SNV.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

The status of Technical Report (CEN/TR) was proposed to give all countries the opportunity to compare experiences and to harmonise procedures.

CEN/TR 14383, *Prevention of crime — Urban planning and building design*, consists of the following parts:

- *Part 1: Definition of specific terms*¹⁾
- *Part 2: Urban planning*
- *Part 3: Dwellings*
- *Part 4: Shops and offices*
- *Part 5: Petrol stations*
- *Part 6: Schools*²⁾
- *Part 7: Design and management of public transport facilities*
- *Part 8: Protection of buildings and sites against criminal attacks with vehicles*

1) Published as EN 14383-1.

2) Published as prCEN/TR 14383-6.

Introduction

The nature, cost and scale of crime against petrol stations can be hard to quantify and there are many factors that can influence whether or not an offence is committed. For the purpose of this Technical Report, apart from the three basic criminological approaches already described in CEN/TS 14383-4, there should be a further examination of the vulnerability of petrol stations. This vulnerability can depend on multiple factors that can vary from country to country. The diverse nature of regulations that apply to petrol stations and the differences in management and trading relations should be accounted for in any risk analysis.

Petrol stations can be described as highly accessible trading sites (they can be reached by foot or by car and can be left immediately). They can be quite isolated in space (even for citizen urban petrol stations) sometimes because of their size, their small number of staff, and/or because they have a multiple and free service function (fuel, food shop, drinks, accessories, car maintenance, etc.), with a wide opening time to the public.

In addition, factors that do not depend directly on the location of the petrol station and its activities should be taken into account, i.e. the general physical and social environment, the retailer's commercial strategies, the power of reaction of law enforcement agencies (police, gendarmerie, local police department).

The result is that crime in petrol stations varies in rate and nature according to the accumulation of the described risk factors, which means that producing uniform modes of management and security equipments for petrol stations is very difficult. In practice, each petrol station should be subject to individual analysis in order to optimize the safety strategies and apply the most efficient tools to prevent crime.

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1 Scope

This Technical Report gives guidelines for a recommended strategy for efficiently combating the different types of crime liable to be committed against petrol stations.

NOTE Crimes that are liable to be committed against petrol stations could include: armed robbery, violent theft, burglary (usually by breaking in at night), theft, fraud (failure to pay, use of stolen credit cards or cheques and other frauds), arson, vandalism and other crimes and offences.

This Technical Report is applicable to new and existing petrol station buildings that are open to and accessible by the public.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 356, *Glass in building — Security glazing — Testing and classification of resistance against manual attack*

EN 1063, *Glass in building — Security glazing — Testing and classification of resistance against bullet attack*

EN 1143-1, *Secure storage units — Requirements, classification and methods of test for resistance to burglary — Part 1: Safes, ATM safes, strongroom doors and strongrooms*

EN 1303, *Building hardware — Cylinders for locks — Requirements and test methods*

EN 1522, *Windows, doors, shutters and blinds — Bullet resistance — Requirements and classification*

<https://standards.iteh.ai/catalog/standards/sist/c866169e-2f62-40dc-af22-3622b9c41933/en-1522-windows-doors-shutters-and-blinds-bullet-resistance-requirements-and-classification>

ENV 1627, *Windows, doors, shutters and blinds — Burglar resistance — Requirements and classification*

EN 14383-1:2006, *Prevention of crime — Urban planning and building design — Part 1: Definition of specific terms*

CEN/TS 14383-4:2006, *Prevention of crime — Urban planning and design — Part 4: Shops and offices*

EN 50132-7, *Alarm systems — CCTV surveillance systems for use in security applications — Part 7: Application guidelines*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 14383-1:2006 and the following apply.

3.1

petrol station

liquid fuel supplying point for motor vehicles that provides supplies for the operation of motor vehicles, and can provide other services as well (i.e. food, catering, car wash, maintenance and car repair, emergency car repair)

3.2

petrol

liquid fuel comprising a mixture of several hydrocarbons that are derived from petroleum refining and/or organic fuel, and which is used to power combustion engines

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4 Historical background and design

4.1 General

The occupation of petrol supply to the general public has greatly changed over time from the petrol pump and emergency car repair to petrol self service and the multi service station.

The evolution towards the multi purpose service station may have satisfied the customer's need, but it has also created new opportunities of crime.

A new community business is created that satisfies the customer's need, but it is a business attractive pole located on very different sites that may generate problems that were unknown till then, ranging from vandalism, misuse of space to breaking in, armed robbery, racketing, drug use and trafficking, means of payment fraud, soliciting within the frame of prostitution, etc.

A petrol station is a typical example of a vulnerable business because of the existence of endogenous and exogenous factors that are linked with petrol supply.

The evolution of this business and the development of trading and service activities make the targeted sites vulnerable to crime because of the three following characteristics:

- the opening to the public with an access up to 24 hours and seven days;
- a certain isolation linked with the specific requirements and regulations that apply to this type of installation;
- a reduced human presence for economical reasons.

The interest that may be given by a petrol station to a criminal is not only linked to the profit itself but also to the easiness for committing the crime, the supposed quickness of execution together with a supposed reduction of risks taken by the criminal.

Petrol stations may be broken into five groups according to their geographic location:

- motorway petrol stations;
- ring and main road petrol stations;
- shopping centre petrol stations;
- urban district petrol stations;
- rural petrol stations.

The definition of security of a petrol station may be summed up by the consideration of:

- the site location;
- the local environment;
- the structure and the shape of the building (to protect the staff, the customers and their belongings from any attack).

The main design factors include:

- the physical location;

- the accesses;
- the location of doors and windows;
- the access control;
- the pedestrian and vehicle flow;
- vulnerable indoor and outdoor areas;
- formal and informal human surveillance.

Significant results in crime and anti-social behaviour control may be obtained by considering these elements of the architectural approach and taking into account their impact on safety at the design stage and by keeping in mind management measures at the same time.

To achieve this, planners, oil companies, owners, managers, in close relationship with urban planners, architects and designers, as well as professionals with crime prevention expertise should form the design team and should be involved to ensure that crime prevention factors are included in the design.

4.2 The image of the petrol station – First source of prevention

A criminal's first impression can have a great influence on their decision on whether or not to commit a crime. A well maintained petrol station that is clean and neat may give an impression of comfort and even wealth, but it may also be a message that the employees that work there are proud of their working place and are more liable to protect it.

If the staff is encouraged to work as a team, improve the environment and defend the territory against criminals, crime may be reduced and the quality of service for customers may be improved. Two ways of achieving this goal are:

- designing spaces in order to give the petrol station a clear identity;
- providing the maximum possible surveillance by a direct or indirect presence. Criminals do not like to be seen and wherever possible, it is also advised to encourage a mixing of use and occupation. This can result in more individuals being present to provide any formal surveillance.

4.3 Designing with regard to sociological and psychological factors

The joint design team should consider the various factors that can influence the opportunity to commit crime. The following are some of the most important factors:

a) Ownership

It is essential that the design of space be such that customers are immediately aware that they are in a private commercial space that is open to the public, and that they behave accordingly. In this case, it is less probable that a crime or an anti-social behaviour occurs without provoking a reaction from the staff or the customers.

b) Presence

One of the essential prevention factors to crime is the risk of being seen and identified. Therefore, human presence and natural surveillance are very important. The design of the petrol station should be carried out to allow clear sight lines and provide wide natural surveillance from the staff, the customers and public and private security forces. For the same reasons, buildings should front onto public spaces.

Fear of crime, whether real or perceived by the customers or the staff, needs to be considered and the design of the petrol stations should take it into account.

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c) Conflict minimization linked with misuse of space

Any design feature preventing space clarity that could give rise to a potential conflict situation having direct and durable consequences on the business activity of the site should be avoided, e.g. a low fence wall that could be used as seating, badly designed parking space that could be used as a point for drug dealing. Features that are badly designed can attract criminal activities and generate a fear of crime that can dissuade the customers from using the petrol station.

5 Risk assessment and management in petrol station**5.1 General**

The typology of risk that may be considered in petrol stations may vary more or less according to the category of the petrol station as defined in 4.1.

The petrol station is generally a semi-closed space marking a separate space with the road.

It is also a commodity space-taking customers who know what they will get various services.

Within the framework of any new building or renovation development, it is necessary to analyse the type of crime that could reasonably be expected to occur. It is essential to identify the crime and anti-social behaviour that belongs to the concerned site in its present or future layout. The primary aim is always to try and deter crime happening in the first instance (see 6.1).

Any crime prevention strategy is essentially one of risk management. Thus, before an effective strategy can be developed, it is important to identify and understand the risk factors involved.

5.2 Local factors

When assessing the level of risk, it is essential to give priority to local factors. This should involve the identification of the crime types in the immediate neighbourhood, to identify the type of crime reported, where and when incidents occurred and who the victims were. This may be achieved by spatial mapping to identify crime clustering or hot spots in connection with law enforcement agencies.

It is also important to be aware that factors that may influence the opportunity for crime may not necessarily be in the immediate locality. For example, the lack of meeting places in a given area may attract young people to the space offered and the goods on sale.

Where the development is on a new site, it may be that there has been no previous crime problem or records do not exist. In these cases, it is important to consider the proposed development in terms of potential crime generation in order to determine the types of crime or anti-social behaviour that could reasonably be expected to result from this development being completed.

Guidance on methods for assessing the risk of crime and methods aimed at reducing these risks in neighbourhoods, town centres and industrial estates, is given in CEN/TR 14383-2.

5.3 Environmental and social risks

At the building design stage, security provisions should be considered taking into account the specific location of the petrol station, decisions taken by agencies external to the petrol suppliers system (state or local authorities, officials). In this context, they are a whole series of operators whose action directly influences the policy of security in petrol stations, e.g. a policy that leads to protect the petrol station staff but whose consequence is to move the insecurity towards the exterior areas and the customers or security measures relying on technical standards, e.g. fire fighting requirements to prevent the blocking of vehicle at the level of petrol pumps.

The physical and sociological environment of the petrol station should also be taken into account as well as the space in which it is located without forgetting the all of environmental and social factors knowing that these elements are liable to evolve with time.

5.4 The site

Consideration should be given to the following:

- a) The selection of the location of premises may be justified by the market requirements and other factors, for example security.
- b) The security provisions that depend on the chosen location, taking into account:
 - 1) the types of crime that may occur if buildings are in high crime areas or known crime generators; and
 - 2) any special considerations, for example if the premises are in a suburban area with different requirements.
- c) Existing or potential levels of local delinquency as burglary, theft, arson and other crime and offences. Proximity to areas of public gathering including football and other sports grounds, licensed premises or playgrounds.
- d) The security problems may be influenced by natural or geographical features such as rivers, stream, waste ground, hiding place, the weather, the season or seasonal factors such as influx of tourists.
- e) Advantages that can be obtained from proximity to law enforcement agencies, fire and ambulance stations or from the existing security perimeters of well maintained premises with high walls or fences.
- f) Illumination and coverage provided by existing street lighting.
- g) Levels of security that owners and occupiers of other premises in the district apply to their premises.
- h) Natural surveillance, i.e. the extent to which property can be seen from other premises.
- i) Consideration of other facilities and the neighbourhood (e.g. foods).

5.5 Who are the potential offenders

- Organized gangs;
- armed robbers;
- drug users;
- burglars;
- shop lifters;
- fraud specialists;
- arsonist;
- vandals;
- etc.

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5.6 Types of crime that occur most frequently

5.6.1 General

Petrol stations suffer crime similar to the ones inflicted on shops. By nature, the offences committed against petrol stations depend on the time of the day. Crimes like armed robbery, theft, fraud, occur during opening time. Crime like burglary and arson take place during closing time, i.e. more often at night. Petrol stations should be equipped with several types of protection against several types of crime according to the time of the day.

It should also be remembered that work practices are changing and that petrol stations are having longer periods of opening or staying open 24 hours and seven days. The risk assessment should therefore allow for these variations.

5.6.2 Armed robbery

Armed robberies, aimed at the cash and more rarely the safe.

In many cases the cashier is assaulted but these crimes also target the petrol station takings during transfer to the bank especially at the end of long weekends and holiday rush, bank holidays. The assault is then directed against the manager of the petrol station itself. Armed robberies that take place at night target more petrol stations with badly protected cashiers as shopping centre petrol stations are then either closed or turned on automatic operation. These robberies are as easy to commit as the station offers easy access and escape routes.

5.6.3 Burglary

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Burglaries of petrol stations usually occur when the premises are empty, they target goods in the store, the safe and the storage room. All techniques are used including ram vehicle able to smash the walls of the petrol station that are not always sufficiently protected.

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Burglaries are easier to commit where the petrol station structure is weak, especially at the roof level.

5.6.4 Theft of goods/shoplifting

It is obvious that petrol stations, because of their anonymous customers and of possibilities of quick escape for criminals, encourage this type of offence. This situation makes up an attractive field for the commission of shoplifting that may concern food products, car maintenance accessories (car radios), books, magazines, etc. The good display in the shop is particularly vulnerable.

It is essential to bring special attention to the display and fitting out of goods for sale to reduce the risk of shoplifting.

5.6.5 Making off without payment

Various offences whose purpose is to obtain fuel, lubricants or goods and to leave the petrol station without paying are often committed by:

- a) somebody helping you while knowing that you are unable to pay or unwilling to pay the amount owed. This includes filling part or all of a tank by the pump attendant or petrol supplying professional³⁾;
- b) helping oneself and not paying (a self-service petrol station).

3) The legal classification of the crime may vary according to the national legislation.

5.6.6 Fraud

The fraudulent use of means aimed at obtaining funds, values, goods or the supplying of a service by:

- a) the use of stolen or falsified means of payment: credit cards, payment cards, check books, etc.;
- b) the use of forged bank notes.

Most of these offences are committed by experienced criminals, at least because of the need to prepare the means used to commit the offence.

5.6.7 Arson

Because of the presence of highly flammable or explosive products (gas bottles, LPG-c, G.N.V.), petrol stations are particularly sensitive to the risk of arson.

5.6.8 Vandalism

These are wilful acts of destruction or damage, including graffiti, especially against the facilities available to the customers of the petrol station.

5.6.9 Misuse of space

This phenomenon usually occurs where young offenders aggressively dominate the area. This behaviour can be a threat to customers and can lead to damage to petrol station facilities. It can also have an adverse effect on the petrol station's business.

Other examples of this type of phenomenon can be through prostitution, traveller occupation of the site and drug trafficking.

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5.6.10 Assault and robbery against customers

They are acquisitive crimes characterized by theft from the vehicles, or robbery against the driver or passengers, or theft of cargo or truck itself as well as theft of vehicle often performed by violence (car jacking).

The criminals are generally young experienced offenders coming from nearby suburbs or moving delinquency (travellers). According to opportunities (luxury cars, foreign registration plate, with displayed expensive personal belongings, with no specific surveillance of the area or no human presence nearby, weak lighting, possibility to know the nature of the cargo in a vehicle parked on a rest area, absence of the owner, etc.) they decide to commit the offence or not.

In cases of violent robbery, these groups generally operate by teams in fast cars and often make a succession of several operations on a given route by provoking by example fake accidents to force the driver potential victim to stop his car.

The action is always backed up by an excellent knowledge of the area, of the escape means and routes (e.g. locating of technical exits in motorway fencing, weapons, nails boxes to puncture the tyres of following vehicles, etc.). The attack is generally brutal and quick in order to impress the victims and to deter them from reacting.

5.6.11 Attacks against payment systems

They are acts intended to obtain in a fraudulent way confidential data relating to the customer's cards of payment (number of the card, name of the holder, confidential code, validity date, check code, etc.) without his knowledge, to even recover physically the means of payment itself.

The aim of the delinquents is to obtain by these means money, goods or services.

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The hacking of these data and sometimes theft of means of payment use technical devices mixing mechanics, electronics and/or video. These systems adding then themselves to the technical equipment of the payment device.

These offences can take place with the complicity of an employee.

6 Security strategy for petrol stations

6.1 General

The overall strategy for preventing crime in petrol stations should include consideration of the following points:

- the petrol station manager's contract binding him to his supplier or his employer;
- the operating conditions;
- the business opening times;
- the geographical and social environment;
- the crime level reported; and
- the views of staff working at the site.

All technical and human measures to be taken to fight crime should be analysed according to the following four levels:

- deterrence (dissuasion of attack); [SIST-TP CEN/TR 14383-5:2010](https://standards.iteh.ai/catalog/standards/sist/c866169e-2f62-40dc-af22-7ee822b9ac4f/sist-tp-cen-tr-14383-5-2010)
- denial (blocking the attack); <https://standards.iteh.ai/catalog/standards/sist/c866169e-2f62-40dc-af22-7ee822b9ac4f/sist-tp-cen-tr-14383-5-2010>
- delay (slowing down the attack);
- alarm (emergency and/or detection devices and procedures allowing to advise law-enforcement forces that an attack is in progress).

The result of the above analysis should be used to formulate the overall security plan. It is essential that all petrol stations, whatever their nature or mode of operation and characteristics, should have a security plan. This plan should cover all security measures and be shown to, and understood by, all employees.

Any policy of protection of petrol stations should incorporate and combine in a smooth way technical prevention and deterrence measures with the surveillance and prevention human plan of action, keeping in mind that official security forces are only seldom able to operate on site at the time of occurrence of the crime. Whatever the case, any security strategy implies choices that will condition the efficiency of prevention measures, taken to the crime whatever it is. These choices concern:

- the location of petrol stations;
- the internal organisation of the petrol station both on space and building level;
- protection facilities;
- human management.

Certain difficulties appear and must be solved. They concern for example responsibility disputes when security equipments are managed by other actors than the operator, e.g. the public street lighting which is

managed by the local authorities, or that this equipment is in opposition with other security requirements (fire fighting or emergency exits of persons). On the other hand, the policy of the oil companies should be taken into account, if applicable, whether they have implemented uniform procedures or have a case approach, for each petrol station.

It should not be forgotten that:

- the reinforcement of security in a site is liable to lead to a transfer to other sites less equipped;
- the supplying of petrol can often be secondary to other activities on the site such as the selling of cars;
- certain modes of operation (pre payment before petrol supply, automatic petrol supply), differentiated management of flows (lorries and private cars) are able to bring an answer to security problems;
- the notion of time or schedule should also be taken into account within the framework of technical and human security management, day/night, week, weekend and bank holidays;
- the important issue of human resources management, most of oil operators setting the number of the staff according to the quantity of petrol distributed, shop turnover, opening times.

NOTE In this context it should be noted that the recruitment modalities sometimes lead to make beginners in petrol stations highly concerned by the existing crime level, which makes it difficult to employ stable staff.

In the field of security, the nature and quantity of initial and continuous training given to the various actors according to the level of responsibilities should be adapted.

In any security policy, the staff motivation should be taken into account, as a lack of motivation may be weakened by the repetition of delinquent acts without supporting management.

Finally, the response of law enforcement agencies, their prevention and their investigative priorities should be taken into account in formulating a security strategy as often there is a gap between the expectancy of operators and the service that can actually be provided by the police.

6.2 Risk analysis

To formulate a security plan, it is first necessary to complete an in-depth risk assessment, in order to assess the security level needed for a petrol station. The following factors are amongst those that should be considered:

- a) type of business (petrol supplying, gas bottles, food shop, catering, repair and maintenance, car wash area, parking and rest area);
- b) attractiveness to the criminal for goods, petrol, products, spare parts, tires, cash and property belonging to the customers, cars, personal belongings, valuables, etc.;
- c) potential escape routes for the removal of stolen goods (the escape route may not be the same as the entry route);
- d) ease of access from either the streets, open areas, adjacent roofs, floors above and below the premises concerned if not under single occupancy, and from adjoining premises;
- e) degree of inherent security of the premises in relation to its construction;
- f) vulnerability relative to local trends in crime;
- g) surveillance provided either by normal public activity, routine police patrol in the area or by security patrolling of the premises and/or its surroundings;
- h) installation of safety devices like alarm detection system or CCTV;