



**SLOVENSKI STANDARD**  
**SIST-TP CEN/TR 16940:2017**  
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**Gospodinske plinske napeljave - Priporočila za varnost**

Domestic gas installations - Recommendations for safety

Sicherheit von häuslichen Gasinstallationen - Empfehlungen

Installations intérieures de gaz - Recommandations pour la sécurité

**Ta slovenski standard je istoveten z: CEN/TR 16940:2016**

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## Domestic gas installations - Recommendations for safety

Installations intérieures de gaz - Recommandations  
pour la sécurité

Gas Installationen in Haushalten - Empfehlungen für  
die Sicherheit

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
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EUROPÄISCHES KOMITEE FÜR NORMUNG

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## European foreword

This document (CEN/TR 16940:2016) has been prepared by CEN/SFG\_I/SFG\_U JWG “Safety of domestic gas installations”, the secretariat of which is held by AFNOR/BNG.

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

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## Introduction

As a result of the liberalization of the gas and services market in Europe and the need to reduce potential barriers to trade, the development of mutually recognized standards covering design, installation, inspection and maintenance of pipework and appliances downstream of the point of delivery, including the development of a competence assessment scheme for gas operatives and companies engaged in this sector is considered important.

The quality and safety of the gas installations are generally ensured through competent operatives, installers and inspectors complying with technical regulations, inspection and maintenance regimes, safety inspection of work.

To assist and facilitate the movement of operatives between states, a mutual recognition framework/matrix that is agreed by all Member States can be envisaged. This should be designed and developed to help Member States and those operatives wishing to relocate, to be able to benchmark their respective knowledge, experience and qualifications against the requirements of the Host State. In particular, the mutual recognition framework is described in the recommendations at the end of this document.

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## 1 Scope

This Technical Report gives recommendations to ensure the quality and safety of domestic gas installations. This Technical Report covers pipe work, appliances installation, their combustion air supply and flue products exhaust commissioning, inspection and maintenance activities carried out by operatives.

This document addresses the following three main factors, which have an influence on gas safety in general:

- a) quality and safety of components of gas installations and gas appliances,
- b) quality of the work when gas installations are constructed and commissioned,
- c) inspection and maintenance of installations and gas appliances.

Potential ways in which individual competence of operatives and/or businesses can be ensured and mutually recognized between Member States are considered.

The means of assuring responsible behaviour of consumers is not covered in this document.

It does not address metering or non-domestic (industrial and commercial) installations.

## 2 Normative references

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

CEN/TR 1749, *European scheme for the classification of gas appliances according to the method of evacuation of the combustion products (types)*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

(From CEN Guide 14)

(From Marcogaz National Competency Framework)

### 3.1

#### **inspection**

checking or testing of an installation, by duly competent operatives, against established parameters (which may relate to emission limits), its performance and its conformance to safety requirements (checking the actual condition against a target condition), followed by the supply of a written report confirming either compliance with all test parameters or detailing identified deficiencies (where these are deemed so significant as to warrant such action)

### 3.2

#### **maintenance**

performance of preventative examinations, checks, cleaning, adjustment and repairs necessary to maintain target conditions, and the remedying of deficiencies identified during inspection by duly competent operatives, re-establishing target conditions as necessary

## 4 Assuring the quality of installation and service work

Domestic gas installations offer safe, efficient and user-friendly comfort to end-users provided they are designed and installed by competent operatives, together with adequate maintenance and regular inspection.

The competencies needed are given in 7.2; how to assess them is dealt with in 8.1 and 8.2.

In order to ensure quality and safety of gas installations, the following elements shall be considered:

- technical requirements for pipe work;
- technical requirements for appliance installations, including combustion air supply, ventilation and flue products exhaust;
- prescriptions for inspection and maintenance of installations and appliances;
- if applicable, prescriptions for third party safety inspection of new and existing installations;

**NOTE** Safety inspection will often be incorporated into a maintenance specification, but may be offered as a separate service, which can be compulsory, in the interests of assuring adequate safety performance of an appliance/installation at an economic cost.

- assuring competence of operatives.

There is considerable variation, across Member States, with regards to the manner in which these elements are provided for. Each of these elements are considered, in order to provide a basis for a European best practice for minimum safety requirements.

Technical standards may be complemented by more detailed national standards, which should be applied in association with European Standards, but will not conflict with them. There may also be additional requirements in national legislation / regulations, particularly those relating to the construction of services within buildings, which shall take precedence.

## 5 General technical requirements for pipework

General technical requirements for pipework, so as to achieve a consistent basis for the safe and efficient installation of gas pipework in domestic premises, are given in EN 1775.

EN 1775 covers principles of gas supply systems.

This functional standard specifies the common appropriate principles and the recognized practices concerning:

- design;

It is emphasized that gas pipework shall be sized so that the pressure at the inlet of all gas appliances is compatible with their safe and effective operation.

- installation and construction;
- testing;
- commissioning;
- operation and maintenance;
- working on operating pipe.



It shall be applied by competent persons who have suitable knowledge, experience and approval.

The standard is for pipework between the point of delivery of the gas and the inlet connection to the gas appliances. It applies to new installation pipework and replacement of, or extensions to, existing pipework. It does not cover buried pipework, gas metering systems, LPG storage vessels or single appliance LPG installations without fixed pipework, achieved by a flexible appliance connector from an adjacent LPG storage cylinder.

## 6 Technical requirements for appliance installations

### 6.1 General

This clause deals with the achievement of a consistent basis for the sustainable, safe and efficient installation of gas appliances in domestic premises, whether in specific appliance rooms or other spaces where gas appliances are installed, in relation to the requirements for:

- a) design and installation;
- b) correct appliance selection;
- c) correct location;
- d) combustion and ventilation air;
- e) flue products exhaust;
- f) correct commissioning;
- g) correct maintenance.

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It shall be applied by competent persons who have suitable knowledge, experience and approval.

The occupants and owners of domestic dwellings are responsible for the installation during its operation. They shall be provided with written information about the functioning, maintenance and safety of the appliances.

Single appliance LPG installations without fixed pipework, achieved by a flexible appliance connector from an adjacent LPG storage cylinder are also considered in this document.

### 6.2 Competence of operatives

The general requirements for competence are dealt with in 8.1.

The design of the boiler room, or any other space the appliances are placed in, will usually be the responsibility of a structural engineer or heating design company in new build or refurbishment projects. However, on one-off domestic installations, this responsibility for design will lie with the installer / installation company.

To ensure the safe functioning of the appliances, the safety of occupants or operatives, efficiency and the environmental considerations, the designer/operative shall have sufficient education and/or proven knowledge in the following areas:

- a) the selection of an appropriate appliance type;
- b) the national installation regulation;
- c) the applicable standards (European or national);

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- d) the application of manufacturer's installation/operating instructions;
- e) the calculation of ventilation requirements;
- f) the design of flue duct / chimney size, route, materials, etc.;
- g) the design of flue termination for effective and safe performance;
- h) the design of condensate drainage systems, when applicable.

**6.3 Selection of components and equipment**

New appliances to be installed in domestic dwellings have to be in compliance with the Gas Appliances Directive and have to be CE marked with an appliance category allowed in the Member state in which they are installed. Since there are different gas qualities delivered to domestic users in the European community, it is of importance that the designer / operative is aware of the range of gas quality on site.

Previously used (i.e. second-hand, previously owned or customers own) or modified appliances can be found not being CE marked and so particular care needs to be taken to ensure both their fitness for purpose and their compatibility with the supplied gas. Therefore, it is essential that a suitable appliance and, as appropriate, the components of the gas installation match the gas quality on site. As gas quality may change over time, adjustment to the quality of the gas supplied on the day of commissioning can result in unsafe conditions when gas quality varies afterwards. Settings shall be able to accommodate the range corresponding to the appliance category (see EN 437) declared by the manufacturer.

The designer/operative shall take into account the national safety regulations especially those regarding the connection of gas appliances through a flexible appliance connector or a length of rigid pipe work, the compatibility of connectors and the use, when necessary, of a safety shut off device.

A manually operated valve or equivalent mean shall be installed on the fixed pipework in the immediate vicinity of each appliance in order to allow a quick shut off of the gas flow to the appliance or, if applicable and allowed, group of appliances in case of emergency.

Where an en fitting is designed to permit quick connection and disconnection of the flexible appliance connector, this fitting shall be self-sealing and shall prevent the release of gas from the upstream pipework. This fitting shall be designed to prevent accidental disconnection and incorrect assembly.

**6.4 Requirements applying to appliance rooms****6.4.1 General**

As far as known at the time of writing, there are no European Standards on appliance rooms. Therefore, these rooms shall be in compliance with national regulations/standards and appliance manufacturers' instructions. General principles of coherence are described in Annex A.

**6.4.2 Basic conditions**

As the functioning of gas appliances may be affected by the construction of the room or space in which the appliance is installed, it is essential that the operative checks that the flue, ventilation and location requirements meet manufacturer's instructions and any national safety regulations.

When selecting gas appliances, coherence shall be ensured between the type of appliance regarding the evacuation of combustion products (see CEN/TR 1749), the type of appliance room and its ventilation. The rules of installation and the rules for supply of combustion air, ventilation and for fire protection are defined in the national safety regulations.

### 6.4.3 Specific location requirements

#### 6.4.3.1 Boiler rooms

Boiler rooms shall meet specific appliance manufacturer's requirements and national legislation (e.g. Occupational Health and Safety, Building, Factory and Labour Law) may be applicable. The following should also be taken into account:

- fire protection and precautions,
- contamination of combustion air,
- persons coming into contact with hot surfaces,
- the removal of any flue gas leakages or other dangerous gases and/or vapours which can occur in the appliance room.

#### 6.4.3.2 Cooking and washing appliance rooms

Installation of cooking and washing appliances can only be made in sufficiently ventilated rooms according to national or local codes.

Ventilation shall be able to supply appliances with enough combustion air according to manufacturer's instructions and to evacuate flue products in order to prevent in the room or space concerned, a concentration of substances harmful to health likely to present a danger.

Such appliances shall not be installed in living rooms as sleeping rooms, bathrooms or dining rooms separate from kitchens.

It is supposed for the application of the present document that all gas appliances installed to be used indoor are equipped with a flame safety device (or an equivalent system). Unfortunately, many gas domestic cooking appliances still exist which are not equipped with such a device on all the burners. In that case, the ventilation system shall be designed in order to avoid an accumulation of unburned gases, according to national regulations.

#### 6.4.3.3 Other type A appliance rooms

For health and safety reasons, it is not recommended to install and use type A appliances other than cooking and washing appliances inside domestic dwellings. Consequently, it may be only done if allowed by and according to national or local codes and in addition according to the appliance manufacturer's instructions.

### 6.4.4 Flue exhaust systems

#### 6.4.4.1 General

Where appliances are connected to a flue, the effective operation of the appliance depends on the quality of the flue system design and construction. It is essential that the operative is aware of the possibility of condensation of flue gases and knowledge of the dew point of flue gases, together with the consequential effects. Awareness of the differing requirements for the different classification of flue types under CEN/TR 1749 is necessary.

The operative shall consider the following aspects in relation to chimney/flue construction.

General flue systems requirements include:

- robustness of construction,
- suitability of materials of construction,