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**Ceramic tiles — Guidelines for  
installation —**

**Part 2:  
Installation of thin ceramic wall and  
floor tiles and panels**

**iTeh STANDARD PREVIEW**  
*Carreaux et dalles céramiques — Lignes directrices pour  
l'installation —*  
**(standards.iteh.ai)**

*Partie 2: Installation des carreaux et dalles céramiques minces au  
sol et aux murs*

ISO/TR 17870-2:2015

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ISO copyright office  
Ch. de Blandonnet 8 • CP 401  
CH-1214 Vernier, Geneva, Switzerland  
Tel. +41 22 749 01 11  
Fax +41 22 749 09 47  
copyright@iso.org  
www.iso.org

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 189, *Ceramic tile*.

ISO/TR 17870 consists of the following parts, under the general title *Ceramic tiles — Guidelines for installation*:

- *Part 1: Installation of ceramic wall and floor tiles*
- *Part 2: Installation of thin ceramic wall and floor tiles and panels*

## Introduction

There are currently International Standards available for

- ceramic tiles, and
- adhesives and grouts for tiles.

NOTE ISO test methods for thin ceramic tiles and panels, as well as ISO 13007-5 dealing with liquid-applied waterproofing membranes for use beneath ceramic tiling bonded with adhesives, are under preparation.

For these products to give satisfactory service, they need to be selected and installed competently, and they have to receive appropriate initial treatment, protection, and maintenance.

Some countries have published standards and/or guides that specify the design and installation of ceramic tiling. The purpose of ISO/TR 17870 is to foster good installation practices for thin ceramic wall and floor tiles and panels, internationally.

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# Ceramic tiles — Guidelines for installation —

## Part 2: Installation of thin ceramic wall and floor tiles and panels

### 1 Scope

This part of ISO/TR 17870 defines the quality of thin ceramic tiling and provides guidance for materials selection, installation, and use, to achieve required levels of quality and performance.

It considers aspects related to the specification and installation of the tiling project, in terms of:

- manufacture and distribution of the materials (thin ceramic tiles and panels, adhesives, grouts, etc.),
- specification of the thin tiling, and
- installation of the tiling (thin tile fixing operations).

It is applicable to internal and external thin ceramic floor and wall tiling, installed by adhesive methods.

NOTE The quality of thin ceramic tiling depends on the following general characteristics:

- regularity;
- durability;
- safety.

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The durability of the thin tiling can depend on its use and management.

### 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.

ISO 13006, *Ceramic tiles — Definitions, classification, characteristics and marking*

ISO 13007-1, *Ceramic tiles — Grouts and adhesives — Part 1: Terms, definitions and specifications for adhesives*

ISO 13007-3, *Ceramic tiles — Grouts and adhesives — Part 3: Terms, definitions and specifications for grouts*

ISO 13007-5<sup>1)</sup>, *Ceramic tiles — Grouts and adhesives — Part 5: Liquid applied waterproofing membranes for use beneath ceramic tiling bonded with adhesives — Requirements, test methods, evaluation of conformity, classification and designation*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given ISO 13006, ISO 13007-1, ISO 13007-3, ISO 13007-5, and the following apply.

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1) To be published.

## 3.1 General

### 3.1.1

#### **thin ceramic tile**

ceramic tile with thickness  $\leq 5,5$  mm, surface area  $\leq 3\ 600$  cm<sup>2</sup>, and no tile edge  $> 600$  mm or a ceramic tile declared as a thin ceramic tile by its manufacturer or having properties meeting an international or national standard for thin ceramic tiles

### 3.1.2

#### **thin ceramic large format tile**

ceramic tile with thickness  $\leq 5,5$  mm, surface area  $> 3\ 600$  cm<sup>2</sup>, and no tile edge  $> 1\ 200$  mm or a ceramic tile declared as a thin ceramic large format tile by its manufacturer or having properties meeting an international or national standard for thin ceramic large format tiles

### 3.1.3

#### **thin ceramic panel**

ceramic panel with thickness  $\leq 5,5$  mm, surface area  $> 1$  m<sup>2</sup>, and any tile edge  $> 1\ 200$  mm or a ceramic tile declared as a thin ceramic panel by its manufacturer or having properties meeting an international or national standard for thin ceramic panels

### 3.1.4

#### **thin ceramic tiling**

thin ceramic tiles and panels installed, together with its associated bedding and jointing

### 3.1.5

#### **design (of thin ceramic tiling) specification (of thin ceramic tiling)**

selection of thin ceramic tiles and panels, backgrounds, fixing methods, and fixing and jointing materials as appropriate for the structure and intended use

### 3.1.6

#### **installation (of thin ceramic tiling) thin tile fixing**

application of thin ceramic tiling in accordance with the specification

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## 3.2 Components of thin ceramic tiling

### 3.2.1

#### **background**

any material system used as a base over which the thin ceramic tile or panel is to be fixed

### 3.2.2

#### **filling out layer**

separate application of material to achieve the required vertical flatness (walls)

EXAMPLE Plaster, render, proprietary tile backer boards.

### 3.2.3

#### **fixing surface**

plane rigid surface upon which the thin tile or panel is fixed

### 3.2.4

#### **insulating layer**

layer included to obtain sound or thermal insulation

### 3.2.5

#### **intermediate joint**

movement joint to divide large areas of tiling into smaller, approximately square areas



**3.2.6****levelling layer**

layer applied to compensate for unevenness and differences in height of the base or to accommodate services (floors)

**3.2.7****movement joint**

joint in thin tiles or panels, backgrounds or substrates, designed to accommodate movement

Note 1 to entry: Types of movement joints: structural joint, perimeter joint, intermediate joint.

**3.2.8****perimeter joint**

movement joint to isolate the thin ceramic tiling from adjacent building elements

**3.2.9****primer**

fluid material, used separately or mixed with binder to form a slurry, applied as a thin layer to improve adhesion of the bedding to the background, or to isolate the bedding material from the background surface

**3.2.10****separating layer**

material which separates layers within the thin tiling system (floors)

**3.2.11****structural joint**

movement joint in thin ceramic tiling to correspond with structural movement joint in the background

**3.2.12****tile bed****bedding**

layer of specified materials in which the thin tile or panel is set and which bonds the thin tiles or panels to the background

**3.2.13****tile joint**

space between adjacent thin tiles or panels

**3.2.14****waterproofing membrane**

continuous layer of impervious material to resist the passage of water

**3.3 Thin tiling techniques and operations****3.3.1****bonded method**

floor tiling laid with a system where the bedding is bonded to the background

**3.3.2****buttering method**

adhesive applied to the back of the thin tile or panel, just before the tile or panel is placed

**3.3.3****contact area**

proportion of the thin tile or panel back and/or background support that is in contact with the bedding after the thin tile or panel has been fixed into position

**3.3.4****direct bedding**

thin tile or panel fixing directly onto a structural background

**3.3.5**

**floating method**

adhesive applied to the fixing surface, just before the thin tile or panel is placed

**3.3.6**

**floating and buttering method**

adhesive applied to the fixing surface and to the back of the thin tile or panel, just before the thin tile or panel is placed

**3.3.7**

**grouting**

operation of filling the joint space between thin tiles or panels other than at movement joints

**3.3.8**

**maintenance (of thin ceramic tiling)**

all aspects of the cleaning, treatment, and periodic repair of damage to the thin ceramic tiling

**3.3.9**

**plastering**

application of a gypsum plaster to a vertical background

**3.3.10**

**rendering**

application of a cement mortar to a vertical background

**3.3.11**

**screeding**

application of a screed on a floor background

**3.3.12**

**tanking**

application of an impermeable layer beneath thin tiling and bedding to prevent water penetration into the background

**3.3.13**

**unbonded method**

any method of laying floors which provides separation of the thin tiling system from the background

**3.4 Characteristics/aspects of thin ceramic tiling**

**3.4.1**

**durability**

quality of thin tiling which maintains its characteristics over time

**3.4.2**

**flatness**

conformity of the surface of the thin tiling to a theoretical plane within an allowable tolerance

**3.4.3**

**levelness**

conformity of the surface of thin floor tiling to a fixed horizontal level within an allowable tolerance

**3.4.4**

**lippings**

deviation between thin tile surfaces either side of a joint (including movement joints)

**3.4.5**

**plumbness**

conformity of the surface of thin wall tiling, designed to be vertical, to a fixed plane within an allowable tolerance

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**3.4.6****slip resistance**

ability of a thin floor tile to provide sufficient friction to resist slipping by pedestrians

**4 Exchange of information**

In order for the correct floor/wall covering to be installed in appropriate conditions, at the right time, etc., it is essential that all parties have a clear understanding of the requirements of the project. To ensure that this is achieved, it is essential that there is wide consultation between all the parties involved in the project, including client, sub-contractors, and materials suppliers.

As each project will be unique, it is impossible to give a definitive list of the information to be exchanged, but the following are common examples.

- a) Specification: the information required (see [Clause 6](#)).
- b) Special attendances: access, unloading, hoisting and storage facilities, heat, light and power, and any additional items considered necessary to expedite the work.
- c) Materials: technical specification and instructions for transport, storage, use.
- d) Backgrounds: type and age of construction; location within the building; type, characteristics (mechanical strength, deformation, etc.), and regularity of background (see [Clause 6](#)); and any need for an intermediate substrate or for movement joints.
- e) Associated work: services embedded in or passing through the backgrounds and junctions with other adjacent finishes
- f) Finishes: type, size, and colour of thin tiles or panels and layout requirements.
- g) Installation: type and technique (see [Clause 7](#)).
- h) Programme: a time schedule for the progress of the work taking into consideration drying and curing periods of backgrounds and thin tiling until completion

**5 Materials****5.1 General**

This clause identifies and lists the materials that can be involved in a thin ceramic tiling installation using thin ceramic tiles or thin ceramic panels, and defines the main information and rules that apply to these materials.

The identification and selection of materials suitable for any given application are aspects of the specification. The relative criteria are therefore set out in [6.3](#).

**5.2 Basic materials**

The basic materials for “thin” tiling can be the following:

- finishing layer:
  - thin ceramic tiles or thin ceramic panels;
  - cementitious grouts;
  - reaction resin grouts;

- pre-prepared or proprietary grouts;
- bedding:
  - adhesives;
  - admixtures;
  - water;
- movement joints:
  - sealants;
  - primers;
  - back-up material;
  - special components (profile, etc.).

Additional intermediate layers can be the following:

- primers;
- separating layer;
- filling out layer;
- levelling layer;
- anti-fracture/de-coupling membranes;
- waterproofing membrane;
- insulating layers (sound, thermal);
- reinforced screed, etc.

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### 5.3 Basic information

For each material, the following basic information should be provided.

a) Classification

With reference to ISO 13006, ISO 13007-1, ISO 13007-3, ISO 13007-5.

b) Safety requirements

The specification should define the safety requirements.

NOTE Safety requirements can be defined in national regulations.

c) Materials transport, storage use

d) Technical information

The technical information for a given material is usually in the form of a document, supplied by the manufacturer, containing a list of the technical characteristics as specified in the standards (where available, see Section 2 and Bibliography) and the results of the respective measurements, carried out according to the standardized test methods.

The information document is a basic requirement for the correct and knowledgeable selection, application, and use of materials for thin tiling.