INTERNATIONAL STANDARD

ISO 9652-5

First edition
2000-03-01

Masonry —

Part 5: Vocabulary

Maçonnerie —

Partie 5: Vocabulaire

Reference number
ISO 9652-5:2000(E)

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 734 10 79
E-mail copyright@iso.ch
Web www.iso.ch

Printed in Switzerland

Contents

Page

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO 9652 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 9652-5 was prepared by Technical Committee ISO/TC 179, *Masonry*, Subcommittee SC 3, *Test methods*.

ISO 9652 consists of the following parts, under the general title *Masonry*:

— *Part 1: Unreinforced masonry design by calculation*

— *Part 2: Unreinforced masonry design by simple rules*

— *Part 3: Reinforced masonry design by calculation*

— *Part 4: Test methods*

— *Part 5: Vocabulary*

Masonry —

Part 5: Vocabulary

1 Scope

This part of ISO 9652 defines terms used in the structural design of unreinforced masonry.

This part of ISO 9652 is applicable to masonry in general, except for the following aspects of masonry design:

a) seismic design;

b) resistance to fire (see ISO/IEC Guide 52);

c) thermal insulation (see ISO 7345);

d) sound insulation.

NOTE It is assumed that the design of masonry is entrusted to structural or civil engineers or other appropriately qualified persons for whose guidance this International Standard was prepared.

2 Normative reference

The following normative document contains provisions which, through reference in this text, constitute provisions of this part of ISO 9652. For a dated reference, subsequent amendments to, or revisions of, the publications do not apply. However, parties to agreements based on this part of ISO 9652 are encouraged to investigate the possibility of applying the most recent edition of the normative document indicated below. For an undated reference, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 9652-1:—[1)], *Masonry — Part 1: Unreinforced masonry design by calculation.*

3 Units

3.1
masonry unit
preformed component, intended for use in bonded masonry construction

SEE 9.1 of ISO 9652-1:—[1)]

NOTE In the following terms and definitions, the term “masonry unit” is for simplicity referred to as “unit”.

1) To be published.

3.2 Unit types according to material

3.2.1
calcium silicate unit
unit formed from a mixture of lime and predominantly siliceous materials, shaped by pressing and combined by the action of steam under pressure

3.2.2
clay unit
unit formed predominantly from clay, loam, brickearth or shale, subsequently fired to a temperature sufficiently high to produce an adequate ceramic bond

3.2.3 Concrete units

3.2.3.1
autoclaved aerated concrete unit
unit formed from a mixture of fine siliceous aggregate, hydraulic binder, other materials and an aeration agent, then autoclaved after rising and cutting

3.2.3.2
dense-aggregate concrete unit
unit formed from a mixture of normal-density aggregate, hydraulic binder and other materials, moulded under pressure and/or vibration

3.2.3.3
lightweight-aggregate concrete unit
unit formed from a mixture of low-density inorganic principal aggregate, hydraulic binder and other materials, moulded under pressure and or vibration

3.2.4 Stone units

3.2.4.1
dressed stone unit
unit formed from natural stone by cutting or cleaving to a regular rectangular shape

3.2.4.2
manufactured stone unit
unit formed from aggregate and cementitious binder; intended to resemble, and to be used for similar purposes to that of, natural stone

3.3 Grouping of units according to their percentage and direction of holes as laid in the wall

3.3.1
group 1 unit[2)]
units without, or with less than or equal to 25 % by volume of, formed vertical voids that may or may not pass right through the unit or unit with less than or equal to 25 % by volume of frogs in the bed faces

See Figure 1a).

3.3.2
group 2 unit[2)]
unit with more than 25 % and less than 60 % by volume of formed vertical voids that may or may not pass right through the unit

See Figure 1b).

---

2) Units in which voids are filled with thermal insulating material are not considered to be solid.

3.3.3
group 3 unit[2)]
unit with less than 50 % by volume of formed horizontal voids that may or may not pass right through the unit

See Figure 1c).

3.4 Terms relating to units

3.4.1
cells
formed voids which do not pass through a masonry unit

3.4.2
frog
depression formed in one or both bed faces of a unit, the total volume of which does not exceed 25 % of the gross volume of the unit

See Figure 2.

3.4.3
grip-hole
hand-hold
two or more formed voids in a unit to enable it to be more readily grasped and lifted with one or both hands or by a machine

3.4.4
hole core US
formed void which passes completely through a masonry unit

3.4.5
void
empty space

3.4.6
web
solid material between the voids in a masonry unit

See Figure 3.

3.4.7
shell
peripheral solid material of a masonry unit including that between a void and end of a unit

See Figure 3.

3.4.8
face shell
solid material between the voids and the front and rear faces of a masonry unit

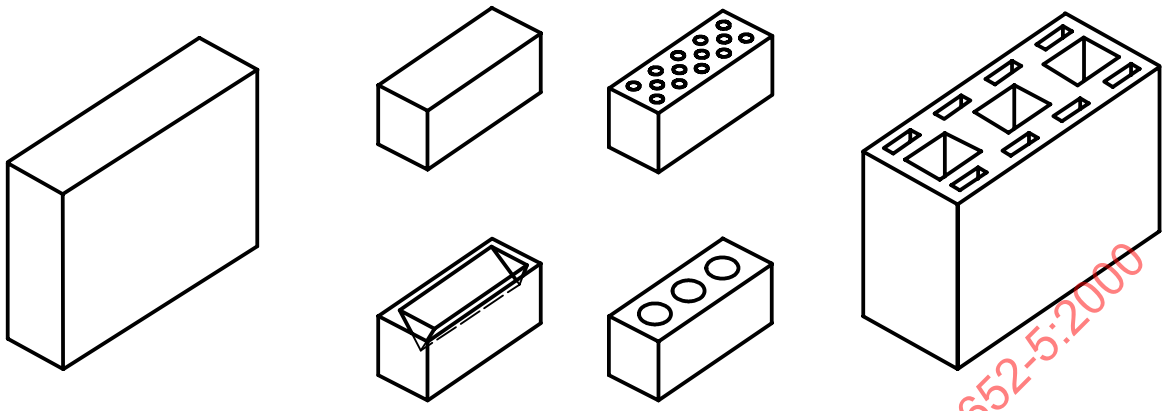
See Figure 3.

3.5 Size

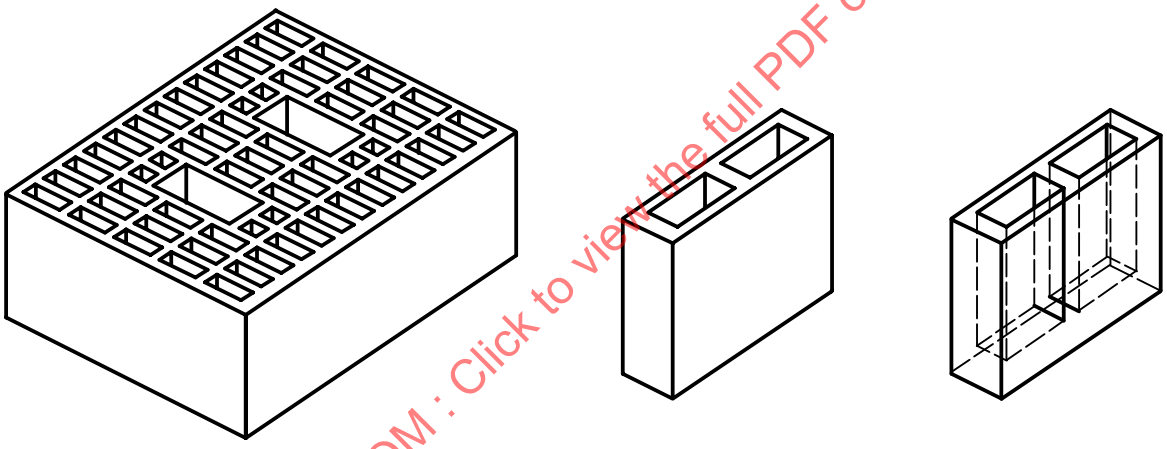
3.5.1
coordinating size
nominal size (deprecated)
size of a coordinating space allocated to a unit including allowances for joints and tolerances

3.5.2
work size
size of a unit specified for its manufacture to which the actual size should conform within specified permissible deviations

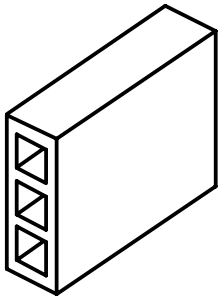
3.5.3
actual size
size of a unit as measured



a) Group 1 units

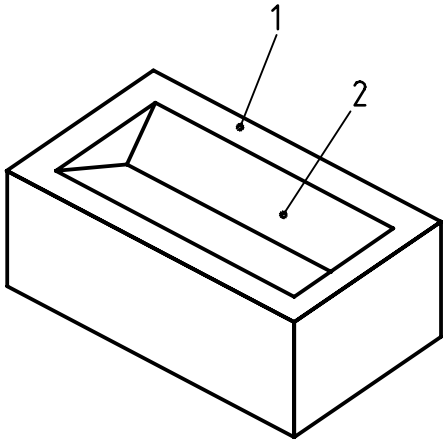


b) Group 2 units



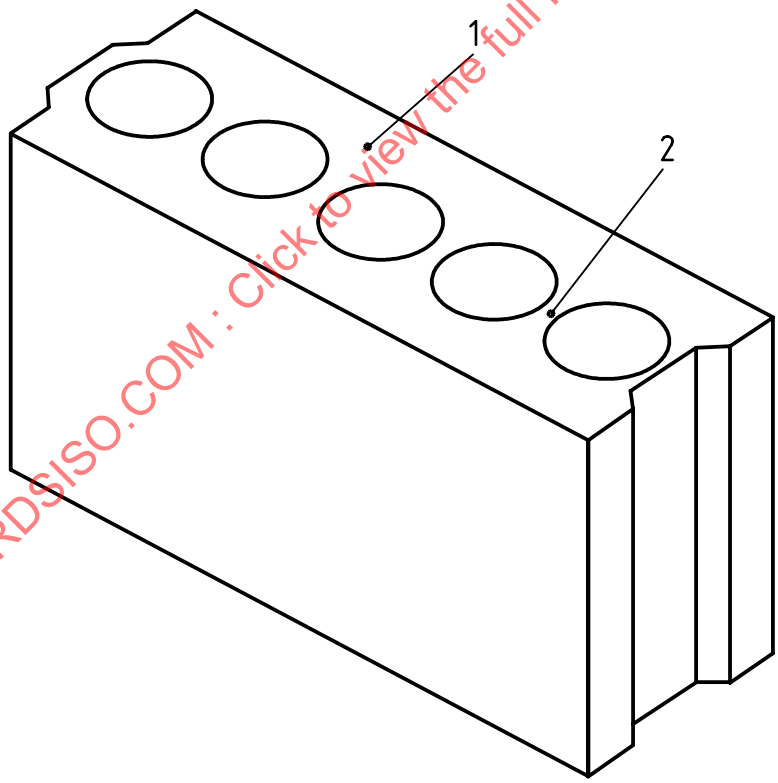
c) Group 3 unit

Figure 1 — Units in normal view



Key
1 Bed face
2 Frog

Figure 2 — Frog



Key
1 Face shell
2 Web

Figure 3 — Shell and web

4 Mortar

4.1
addition
finely divided inorganic material that may be added to concrete or mortar in order to improve properties or to achieve special properties

4.2
admixture
material added in small quantities in relation to the mass of the cement, before or during mixing of the mortar or concrete to produce specified modifications to the properties

4.3
binder
material used to hold solid particles together in a coherent mass

4.4
masonry cement
factory-made, finely powdered hydraulic binder consisting of Portland cement clinker, inorganic materials and, where appropriate, specified organic materials

4.5
face-shell bedding
two separate strips of mortar covering the front and rear faces of the units in both horizontal and vertical joints

4.6
grout
mortar or concrete of suitable consistency and particle size to fill cavities or holes in masonry

4.7
lime
product, consisting mainly of calcium oxide, obtained by heating limestone or other material containing calcium carbonate

4.7.1
hydrated lime
fine, dry powder consisting mainly of calcium hydroxide

4.7.2
lime putty
mixture of hydrated lime and water in plastic form ready for addition to mortar or grout

4.7.3
hydraulic lime
lime containing sufficient soluble silica, aluminates, etc. to enable it to set in the presence of water

4.8
mortar
material consisting of a mixture of inorganic binders, aggregates and water which may also contain additions and admixtures

NOTE Mortar is used for bedding, jointing, pointing or grouting of masonry.

4.8.1
lightweight mortar
mortar using lightweight aggregates and having a dry hardened density of less than 1 500 kg/m^3

4.8.2
factory-made mortar
mortar batched and mixed in a factory and supplied to the building site

4.8.3
ready-mixed mortar
dry factory-made mortar to which water is added on site

4.8.4
ready-to-use mortar
factory-made mortar containing a retarder to delay the set for sufficient time to allow for delivery and use

4.8.5
thin-layer mortar
ready-mixed mortar with a maximum particle size of 1 mm, containing additions and admixtures intended for use in beds not less than 1 mm nor greater than 3 mm thick

4.9
mortar bond
adhesion of the jointing mortar to the masonry units

4.10 Mortar joints

4.10.1
jointing
finishing of a mortar joint as the work proceeds

4.10.2
pointing
filling and finishing of raked-out joints

4.10.3
bed joint
mortar layer on which masonry units are set

4.10.4
collar joint
continuous vertical joint, between two leaves parallel to the face of the wall

4.10.5
cross joint
vertical joint perpendicular to the face of the wall

4.10.6
perpend
head joint
cross joint between two units

4.10.7
thin-layer joint
joint with a maximum thickness of 3 mm

5 Ancillary components

5.1
connector
component to attach two assemblies to one another

EXAMPLE A floor or a roof can be connected to a wall.

NOTE The term connector includes anchors, **straps** and **ties** (5.5.4).

5.2
damp-proof course
dpc
layer or coating of material covering the bedding surface of a masonry wall to resist the passage of water

5.3
joist hanger
metal connector, one end of which is firmly supported by a wall or other structural member and into which the end of a joist (timber beam) sits

5.4
lintel
beam over an opening in a wall

5.5 Steel

5.5.1
galvanized steel
steel coated with zinc to a prescribed weight per unit area

5.5.2
low-carbon steel
steel having a mass fraction of carbon not greater than 0,2 %

5.5.3
stainless steel
alloy steel which contains substantial quantities of chromium, with or without the addition of nickel and other elements, and which is resistant to many forms of corrosive attack

5.5.4
strap
tie
connector capable of transferring loads from one part of the structure to another

5.5.5
wall tie
connector capable of transferring loads from one wall or leaf to another wall or leaf

6 Structural design

6.1
eccentricity
distance between the line of action of a load and the centroid of the supporting member

6.1.1
accidental eccentricity
unintentional eccentricity

EXAMPLE Accidental eccentricities can be due to workmanship.

6.1.2
structural eccentricity
eccentricity due to the assumed behaviour of the structure

6.2 Height

6.2.1
clear height
height between the top surface of a floor and the underside of the structural floor above or between the top floor and a roof

6.2.2
effective height
value used in structural calculations to represent the height of a wall, pier or column allowing for restraints

6.2.3
storey height
distance between the centre of one floor and the centre of the next or the centre of the roof

6.3
stiffened section
combination of two or more intersecting walls to make one composite section

6.4
effective width
that part of a wall taken into account in the design of a stiffened section

6.5 Load

6.5.1
accidental load
load, which is not specifically foreseen because its occurrence is unlikely, but for which an allowance is made in design

6.5.2
dead load
load of constant magnitude and position that acts permanently, including self weight

6.5.3
characteristic dead load
dead load based on specified dimensions and densities

6.5.4
imposed load
load on a structure or member, other than wind load, produced by the external environment and intended occupancy and use

EXAMPLE Snow or moveable partitions.

6.5.5
wind load
load caused by wind flow around structures which exerts lateral or vertical pressure

6.5.6
characteristic imposed or wind load
load which has a probability of not more than 5 % of being exceeded where it acts unfavourably or, where it acts favourably, the load which has a probability of at least 95 % of being exceeded

6.6 Loading conditions

6.6.1
axial loading
application of a load to a member along an axis

6.6.2
concentric loading
application of a load to the centroid of the plan area of a member

6.6.3
eccentric loading
application of a load to a member at a distance from its centroid

SEE 6.4

6.6.4
lateral loading
application of a load to a column or wall at right angles to its vertical plane

6.7
movement joint
control joint
joint designed to permit movement in the plane of the wall to occur without impairing its functional integrity

6.8
restraint
means of restricting movement in one or more directions which may be horizontal or vertical

6.8.1
lateral restraint
⟨wall or pier⟩ restraint acting in the direction of the thickness

6.8.2
lateral restraint
⟨column⟩ restraint acting in the direction of the thickness or width

6.8.3
fixed restraint
lateral restraint that substantially restricts rotation

6.8.4
simple restraint
lateral restraint that permits rotation

6.9
slenderness ratio
ratio of the effective height to the effective thickness

6.10 Strength of masonry

6.10.1
compressive strength
strength of masonry in compression, without the effects of platen restraint or slenderness

6.10.2
design strength
characteristic strength of masonry divided by the appropriate partial safety factor for materials

6.10.3
flexural strength
strength of masonry in bending without the effects of edge restraint

6.10.4
shear strength
strength of masonry subjected to equal and opposite parallel forces that tend to displace, or produce relative sliding of, adjacent planes

6.10.5
tensile strength
strength of masonry subjected to direct tensile forces

6.11 Strength of masonry units

6.11.1
crushing strength
failure load under compression of a single specimen divided by its loaded area

6.11.2
compressive strength
mean crushing strength of a sample of a specified number of masonry units

6.11.3
normalized compressive strength
f_b
compressive strength of masonry units modified to the air-dried strength of an equivalent 100 mm wide × 100 mm high masonry unit

6.12 Strength of mortar

6.12.1
compressive strength
mean crushing strength of a specified number of mortar specimens after curing for 28 days

6.12.2
site compressive strength
compressive strength of mortar specimens made from samples of fresh mortar taken from the site

6.13
support
means of carrying vertical load

SEE also **restraint** (6.8)

6.14 Thickness

6.14.1
effective thickness
figure used in structural calculations to represent the thickness of a wall, pier or column used in calculating the slenderness ratio

6.14.2
thickness of masonry
thickness based on the work size of the units

7 Structural components

7.1
column
slender structural member, usually vertical, that transmits to its base the forces, primarily in compression, that are applied to it

7.2 Masonry

7.2.1
unreinforced masonry
assemblage of units laid in a specified pattern and joined together with mortar

7.2.2
reinforced masonry
masonry in which bars or mesh, usually of steel, are embedded in mortar or grout so that all the materials act together in resisting forces

7.2.3
prestressed masonry
masonry in which internal stresses have been induced, usually by means of steel

7.3
masonry bond
disposition of units in masonry to form a regular pattern

7.4 Masonry panels

7.4.1
confined masonry
masonry built rigidly between structural columns and beams on all four sides

7.4.2
infill panel
masonry restrained on at least two sides and which is not designed to resist vertical load other than its own weight

7.5
peripheral tie
ring anchor US
tie incorporated into the floor or beam elements around the periphery of a building capable of transmitting loads continuously over the whole length of the perimeter

7.6
pier
pilaster US
integral part of a wall, in the form of thickened sections placed at intervals along the wall

7.7
ring beam
horizontal beam around the structure tying it together at that level, capable of transmitting horizontal forces in bending

7.8 Wall

7.8.1
bracing wall
buttressing wall
stiffening wall
wall set at right angles to another to give it support against lateral forces

7.8.2
cavity wall
two parallel single-leaf walls, usually at least 50 mm apart, and effectively tied together with wall ties, the space between being left as a continuous cavity or filled with non-load-bearing material

7.8.3
double-leaf wall
collar-jointed wall (deprecated)
two parallel leaves with the space between (not exceeding 25 mm) filled solidly with mortar and tied together so as to result in common action under load

7.8.4
faced wall
wall in which the facing and backing are bonded so as to result in common action under load

7.8.5
grouted cavity wall
two paralled single-leaf walls, spaced at least 50 mm apart, securely tied together with wall ties and with the intervening cavity filled with grout so as to result in common action under load

7.8.6
load-bearing wall
wall primarily designed to carry an imposed load in addition to its own weight

7.8.7
panel
wall not subject to significant vertical load, usually subject to significant wind loading

7.8.8
pocket-type retaining wall
reinforced masonry wall with the main reinforcement in concrete-filled vertical pockets formed in the tension face of the masonry

7.8.9
shear wall
wall to resist in-plane lateral forces

7.8.10
single-leaf wall
wall without cavity or continuous vertical joint in its plane

7.8.11
wallette
small wall constructed for test purposes

8 Miscellaneous terms

8.1
chase
channel cut in masonry to accommodate pipes, ducts, etc.

8.2
recess
indentation in a face of the wall

9 Test methods and equipment

9.1
air-dried condition
moisture content achieved by prolonged exposure to ambient conditions in a laboratory

9.2
capping
material applied to the surfaces of a specimen to make them plane and parallel

EXAMPLE Mortar or gypsum.

9.3 Platens

9.3.1
auxiliary platens
separate plates of substantial and specified thickness attached to the platens

9.4
reference test
test specified sufficiently precisely to enable different laboratories to achieve comparable results and to ensure reliable data for design purposes

10 Dimensions and mass

10.1 Area

10.1.1
gross area
area of a section through a unit including the areas of any holes, voids and re-entrants

10.1.2
loaded area
area over which the load is applied

10.1.3
net area
mean area of the cross-section of solid material of a unit or the gross area less the area of voids and re-entrants

10.2 Density of masonry units

10.2.1
gross density
mass per unit gross volume

10.2.2
net density
mass per unit net volume of the solid material (excluding the volume of holes and indentations)

10.2.3
density
⟨powders and wet mortar⟩ mass per unit volume

10.3 Volume of masonry units

10.3.1
gross volume
⟨for units in which holes pass right through⟩ gross area multiplied by the mean height

10.3.2
net volume
net area multiplied by the mean height

10.3.3
net volume
⟨for units with cells or frogs⟩ gross volume of the unit less the measured volume of the voids

11 Water-related properties

11.1 Masonry units

11.1.1
suction rate
initial rate of absorption US
average rate, measured over 1 min, starting from the first contact, at which the bed face of the masonry unit absorbs water at ambient temperature

NOTE The suction rate is expressed as a mass per unit area of the gross area of the bed face per unit time. However, the initial rate of absorption is based upon the net area of the bed face.

11.1.2
water absorption
amount of water, as a proportion of the dry weight of the unit, absorbed under prescribed conditions

11.2 Mortar

11.2.1
consistence
degree of firmness with which the particles of a concrete mortar, or grout cohere

11.2.2
flow
measure of the consistence of freshly mixed concrete, mortar or grout

11.2.3
water retentivity
ability of mortar to retain its moisture under suction from a masonry unit