RWANDA STANDARD

DRS 546

First edition

2022-mm-dd

Clay products for buildings — Vocabulary

ICS 91.100.15

Reference number

DRS 546: 2022

In order to match with technological development and to keep continuous progress in industries, standards are subject to periodic review. Users shall ascertain that they are in possession of the latest edition

Rwanda Standards Board

P.O Box 7099 Kigali-Rwanda

KK 15 Rd, 49

Tel. +250 788303492

Toll Free: 3250

E-mail: info@rsb.gov.rw

Website: www.rsb.gov.rw

ePortal: www.portal.rsb.gov.rw

Contents

Page

Foreword

Rwanda Standards are prepared by Technical Committees and approved by Rwanda Standards Board (RSB) Board of Directors in accordance with the procedures of RSB, in compliance with Annex 3 of the WTO/TBT agreement on the preparation, adoption and application of standards.

The main task of technical committees is to prepare national standards. Final Draft Rwanda Standards adopted by Technical committees are ratified by members of RSB Board of Directors for publication and gazettment as Rwanda Standards.

DRS 546 was prepared by Technical Committee RSB/TC 9, *Civil engineering and building materials.*

In the preparation of this standard, reference was made to the following standard:

1. IS 32248: Glossary of terms relating to Clay products for Buildings

The assistance derived from the above source is hereby acknowledged with thanks.

Committee membership

The following organizations were represented on the Technical Committee on *Civil engineering and building materials* (RSB/TC 9) in the preparation of this standard.

A+Construction Group Ltd

Africeramics Ltd

Consultants Engineers Group (CEG) Ltd

D&D Resources Ltd

Dutureheza Ltd

Enabel Rwanda

Greenpack Africa Ltd

Integrated Polytechnic Regional Centre (IPRC) - Musanze

Mass Design Group

NP Construction Construction Company (NPCC) Ltd

Road Transport Development Agency (RTDA)

Rwanda Housing Authority (RHA)

Rwanda Inspectorate, Competition and Consumer Protection Authority (RICA)

Rwanda Quarries Association (RQA)

SKAT Consult

St Joseph Engineering Company (SJEC) Ltd

Standards for Sustainability (SfS)

Stonecraft Industries Ltd

University of Rwanda - College of Science and Technology (UR - CST)

Rwanda Standards Board (RSB) – Secretariat

Clay products for buildings — Glossary of terms

1 Scope

This Draft Rwanda Standard covers the definition of common terms applicable to clay products for building.

2 Normative references

There are no normative references in this document

3 Terms and definitions

For the purposes of this standard, the terms and definitions given in ASTM C896 and the following apply.

3.1 Raw materials

3.1.1

clay

earthy or stony mineral aggregate consisting essentially of hydrous silicates of alumina; plastic when sufficiently pulverised and wetted: rigid when dry; and vitreous when fired to a sufficiently high temperature

3.1.2

shale

thinly stratified, consolidated sedimentary clay with well-marked cleavage parallel to the bedding

3.1.3

surface clay

unconsolidated, unstratified clay, occurring on the surface

3.2 Manufacture

3.2.1

flashing

operation of heating the clay products with and without air alternately, where irregularly coloured bricks or tiles are required

3.2.2 Hand moulding

3.2.2.1

ground moulding

when the clay products are moulded by hand on ground and the moulder shifts his position as moulding progresses

3.2.2.2

Sand moulding

process of moulding of bricks by hand in which fine sand is used to dust the mould before throwing in the clot

3.2.2.3

slop moulding

process of moulding bricks by hand in which the mould is dipped in water, before clay is thrown into it

3.2.2.4

table moulding

where bricks are moulded by hand on table and then transported using pallet boards to the drying ground

3.2.3

machine Moulding

process in which the clay products are shaped in hand-operated 1 or power-driven machines, such as a hand-screw press, a soft-mud moulding machine, an extruder or a semi-dry/dry press

3.2.4

Maturing temperature –

temperature of firing at which the clay body used in the manufacture of the building material acquires the optimum mechanical strength and the necessary physical properties to satisfy the requirements set down in the standard specifications for the relevant building material

3.2.5

pugging

is the process by which the lean and plastic clay is tempered before moulding

3.2.6

sanding

operation of imparting to the clay product a rough face by blowing sand on to it, that is, by sand blasting prior to drying

3.2.7

soaking

process of imparting heat to the clay product by maintaining the temperature constant for a specified period near about the maturing temperature

3.2.8

tempering

the process of mixing clay, water and other ingredients, if any, by which a homogeneous paste is produced

3.2.9

weathering

the process of exposing excavated clay mass in the open air, so that it comes in contact with natural agencies, such as sun, rain and frost due to which there is change in some of the physical and chemical properties that are helpful in subsequent treatment and also impart better working properties

3.210

lime blowing –

if the soil contains lime nodules or calcarious ‘kankars’ the bricks get cracked due to the formation of Calcium Oxide within the brick mass during firing. The oxides so formed expand after taking moisture from the air and cause blowing of the bricks

3.2.11

docking

docking is which freshly fired bricks are to prevent lime blowing

3.2.12

lamination

lamination is a defect normally found in the extruded bricks caused by the differential movement of the clay mass when it is pushed by the auger or wing knife of the extrusion machine towards the die of the machine. If the spacer is too short, there may be hollow core in the centre when the clay mass enters the die. In the die this core is flattened and owing to the rotation of the clav it shows in the extruded brick as an ‘S’ crack

3.3 Surface features

3.3.1

combed finish

units whose face surfaces are altered by more or less parallel scratches in manufacture

3.3.2

exposed finish

units whose surfaces are intended to be left exposed or painted

3.3.3

natural finish

units having unglazed or uncoated surface burned to the natural olour of the material used in forming the body

3.3.4

roughened finish

units whose plane die surfaces are entirely broken by mechanical means

3.3.5

salt glaze

units whose surface faces have a lustrous glazed finish from the thermo- chemical reaction of the silicates of the clay body with vapours of common salt and/or other suitable chemicals

3.3.6

sand finish

units whose surfaces are covered with sand

3.3.7

smooth finish

nits whose surface are not altered or marked in manufacture

3.4

bricks

masonry unit not exceeding 300 mm in length, 150 mm in width nor 100 mm in height

3.4.1

Acid Resistant Bricks

bricks used for masonry construction, such as flooring, subject to acid attack, lining of chambers and towers in chemical units, lining of sewers carrying industrial effluents, etc, to prevent deterioration of the surface by acids

3.4.2

Common Building Solid Bricks

burnt clay building bricks which are commonly used in building and civil engineering construction work in which frogs do not exceed 20 % of this volume

3.4.3

Facing Bricks

bricks made specially for facing purpose, that is, which are being exposed in use

3.4.4

Heavy Duty Bricks

bricks required for masonry in heavy engineering work, such as, bridge structure, industrial foundations and multi-storeyed buildings having high durability and compressive absorption. strength and low water absorption

3.4.5

Paving Bricks

bricks which are used as a paving material for roads, heavy duty industrial floors, particularly suited to resist heavy wear and tear from steel tyred traffic

3.4.6

Perforated Bricks

Bricks in which holes 2.3.1 Combed Finish - Units whose face surfaces passing through the bricks exceed 25 percent of the volume and the holes are sma!l. For the are altered by more or less parallel scratches in manufacture. purpose of this definition, a small hole is a hole less than 20 mm wide and less than 500 mm2 in 2.3.2 Exposed Finish - Units whose surfaces area. The hole may be circular, square, are intended to be left exposed or painted. rectangular or any other regular shape

3.4.7

Sewer Bricks

bricks intended for use or uncoated surface burned to the natural in the lining of walls, roofs and floors of sewers colour of the material used in forming the used for the ordinary sanitary (domestic) body. sewage.

3.4.8

Soling Bricks

bricks used for soling surfaces are entirely broken by mechanical purpose. They are different from common means. building solid bricks

3.4.9

Wire Cut Bricks

bricks manufactured have a lustrous glazed finish from the thermo- by cutting an extruding column through a die of weathered and processed clay with the help body with vapours of common salt and/or other of wires fixed to a cutting frame.

3.5

tiles

burnt clay units which are appreciably smaller in thickness than the bricks and re used for flooring, roofing, ceiling and wall covering

3.5.1 Ceiling Tiles (Plain) –

clay roofing tiles which are capable of being used on sloping roofs below the interlocking plain Mangalore tiles

3.5.2

Flooring Tiles

clay tiles made by pressing or extrusion and repressing, which are capable of being laid level on a prepared base

3.5.3

Hollow Clay Tiles

burnt clay units in which holes passing through the tiles exceed 25 percent of the volume and the holes are not small. The perforations are parallel to their length. These tiles can be used both as filler material and structural units.

3.5.4

Ridge Tile –

clay roofing tile which is capable of being used on the ridge of a sloping roof in conjunction with interlocking plain Mangalore pattern tiles

3.5.5

Roofing Tile, Mangalore Pattern

type of clay roofing tile, capable of being laid down on sloping roof by means of nibs which catch on the reepers or battens interlock with and overlap similar tiles at the lower end on the sides

3.5.6

Terracing Tile

flat tile, which is capable of being laid level on a prepared base in one or more courses to provide satisfactory floor or roof finish

3.6

blocks

masonry unit exceeding size of a brick in any dimension

3.6.1

Hollow Block

block in which holes passing through the block exceed 25 percent of its volume and the holes are not small The hollows may belat right angle or parallel to the bearing surface.

3.6.2 Solid Block

block which is hundred percent solid

3.7 Tests

3.7.1

Drying Shrinkage

percentage reduction in the length or volume of bricks or tiles on drying, due to the removal of the film of water which surrounds the individual grains in the plastic form is given below:

$$Drying\ shrinkage, percent = \frac{L - LD}{L} \times 100$$

(Wet basis)

where

L = wet length in metres;

Ld = dry length in metres.

3.7.2

efflorescence

white, yellow or green powdry substance occurring on the surface of the clay product and caused by the migration of soluble salts, followed by precipitation

3.7.3

Fired Shrinkage –

percentage reduction in length or volume of dry clay tiles or bricks when subjected to heating to a maturing temperature of the clay body

3.7.4

Flexural Strength

property of solid material that indicates its ability to withstand a flexural or transverse load

3.7.5

warpage

distortion or deformation of original shape of the clay body during the manufacturing" process

3.7.6

Water Absorption

increase in weight of a test specimen after immersion in water, at a constant temperature and for a specified period, expressed as a percentage of the dry weight

3.8 General

3.8.1

cells

hollow spaces enclosed within the perimeter of the exterior shells of hollow clay blocks

.8.2

frog

depression made in one or both of larger sides of bricks in order to form a key for the mortar at the joints

3.8.3

perforations

hollow space of uniform section, within a brick, extending from one face to the opposite parallel face with its axis parallel to the two faces

3.8.4

shells

outer walls of tiles or blocks

3.8.5

webs

partition dividing blocks or tiles into cells

DRS 546: 2022

Price based on 5 pages