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(दूसरा पुनरीक्षण)

Indian Standard

GLOSSARY OF TERMS RELATING TO CLAY PRODUCTS FOR BUILDINGS

(Second Revision)

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BUREAU OF INDIAN STANDARDS
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Price Group 2

FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Clay Products for Buildings Sectional Committee had been approved by the Civil Engineering Division Council.

Clay products, such as bricks, blocks and tiles, etc, are used abundantly in building work. To know the properties of such clay products, a clear understanding of the meaning of various terms is necessary. This glossary has been prepared to fulfil this objective. This standard was first published in 1969 and subsequently revised in 1981. In this revision the definition of bricks and blocks have been modified.

In the formulation of this standard, due weightage has been given to international co-ordination among the standards and practices prevailing in different countries in addition to relating it to the practices in the field in India.

Indian Standard

GLOSSARY OF TERMS RELATING TO CLAY PRODUCTS FOR BUILDINGS

(Second Revision)

1 SCOPE

1.1 This standard covers the definition of common terms applicable to clay products for building.

2 DEFINITIONS

2.1 Raw Materials

2.1.1 *Clay* — An 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.

2.1.2 *Shale* — A thinly stratified, consolidated sedimentary clay with well-marked cleavage parallel to the bedding.

2.1.3 *Surface Clay* — An unconsolidated, unstratified clay, occurring on the surface.

2.2 Manufacture

2.2.1 *Flashing* — The operation of heating the clay products with and without air alternately, where irregularly colourd bricks or tiles are required.

2.2.2 *Hand Moulding*

2.2.2.1 *Ground moulding* — When the clay products are moulded by hand on ground and the moulder shifts his position as moulding progresses.

2.2.2.2 *Sand moulding* — The process of moulding of bricks by hand in which fine sand is used to dust the mould before throwing in the clot.

2.2.2.3 *Slop moulding* — The process of moulding bricks by hand in which the mould is dipped in water, before clay is thrown into it.

2.2.2.4 *Table moulding* — Where bricks are moulded by hand on table and then transported using pallet boards to the drying ground.

2.2.3 *Machine Moulding* — The process in which the clay products are shaped in hand-operated or power-driven machines, such as a hand-screw press, a soft-mud moulding machine, an extruder or a semi-dry/dry press.

2.2.4 *Maturing Temperature* — The 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.

2.2.5 *Pugging* — This is the process by which the lean and plastic clay is tempered before moulding.

2.2.6 *Sanding* — The operation of imparting to the clay product a rough face by blowing sand on to it, that is, by sand blasting prior to drying.

2.2.7 *Soaking* — The process of imparting heat to the clay product by maintaining the temperature constant for a specified period near about the maturing temperature.

2.2.8 *Tempering* — This is the process of mixing clay, water and other ingredients, if any, by which a homogeneous paste is produced.

2.2.9 *Weathering* — This is 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.

2.2.10 *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.

2.2.11 *Docking* — Docking is the process in which freshly fired bricks are dipped in water to prevent lime blowing.

2.2.12 *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 clay it shows in the extruded brick as an 'S' crack.

2.3 Surface Features

2.3.1 *Combed Finish* — Units whose face surfaces are altered by more or less parallel scratches in manufacture.

2.3.2 *Exposed Finish* — Units whose surfaces are intended to be left exposed or painted.

2.3.3 *Natural Finish* — Units having unglazed or uncoated surface burned to the natural colour of the material used in forming the body.

2.3.4 *Roughened Finish* — Units whose plane die surfaces are entirely broken by mechanical means.

2.3.5 *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.

2.3.6 *Sand Finish* — Units whose surfaces are covered with sand.

2.3.7 *Smooth Finish* — Units whose surface are not altered or marked in manufacture.

2.4 Bricks — A masonary unit not exceeding 300 mm in length, 150 mm in width nor 100 mm in height.

2.4.1 *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.

2.4.2 *Common Building Solid Bricks* — The burnt clay building bricks which are commonly used in building and civil engineering construction work in which frogs do not exceed 20 percent of this volume.

2.4.3 *Facing Bricks* — Bricks made specially for facing purpose, that is, which are being exposed in use.

2.4.4 *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 strength and low water absorption.

2.4.5 *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.

2.4.6 *Perforated Bricks* — Bricks in which holes passing through the bricks exceed 25 percent of the volume and the holes are small. For the purpose of this definition, a small hole is a hole less than 20 mm wide and less than 500 mm^2 in area. The hole may be circular, square, rectangular or any other regular shape.

2.4.7 *Sewer Bricks* — Bricks intended for use in the lining of walls, roofs and floors of sewers used for the ordinary sanitary (domestic) sewage.

2.4.8 *Soling Bricks* — Bricks used for soling purpose. They are different from common building solid bricks.

2.4.9 *Wire Cut Bricks* — Bricks manufactured by cutting an extruding column through a die of weathered and processed clay with the help of wires fixed to a cutting frame.

2.5 Tiles — Burnt clay units which are appreciably smaller in thickness than the bricks and are used for flooring, roofing, ceiling and wall covering.

2.5.1 *Ceiling Tiles (Plain)* — Clay roofing tiles which are capable of being used on sloping roofs below the interlocking plain Mangalore tiles.

2.5.2 *Flooring Tiles* — Clay tiles made by pressing or extrusion and repressing, which are capable of being laid level on a prepared base.

2.5.3 *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.

2.5.4 *Ridge Tile* — A clay roofing tile which is capable of being used on the ridge of a sloping roof in conjunction with interlocking plain Mangalore pattern tiles.

2.5.5 *Roofing Tile, Mangalore Pattern* — A 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.

2.5.6 *Terracing Tile* — A 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.

2.6 Blocks — Masonary unit exceeding size of a brick in any dimension.

2.6.1 *Hollow Block* — A block in which holes passing through the block exceed 25 percent of its volume and the holes are not small. The hollows may be at right angle or parallel to the bearing surface.

2.6.2 *Solid Block* — A block which is hundred percent solid.

2.7 Tests

2.7.1 *Drying Shrinkage* — The 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:

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

(wet basis)

where

L = wet length in metres, and

Ld = dry length in metres.

2.7.2 *Efflorescence* — A 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.

2.7.3 *Fired Shrinkage* — The percentage reduction in length or volume of dry clay tiles or bricks when subjected to heating to a maturing temperature of the clay body.

2.7.4 *Flexural Strength* — A property of solid material that indicates its ability to withstand a flexural or transverse load.

2.7.5 *Warpage* — Distortion or deformation of original shape of the clay body during the manufacturing process.

2.7.6 *Water Absorption* — The 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.

2.8 General

2.8.1 *Cells* — Hollow spaces enclosed within the perimeter of the exterior shells of hollow clay blocks.

2.8.2 *Frog* — The depression made in one or both of larger sides of bricks in order to form a key for the mortar at the joints.

2.8.3 *Perforations* — A 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.

2.8.4 *Shells* — The outer walls of tiles or blocks.

2.8.5 *Webs* — The partition dividing blocks or tiles into cells.

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