Understanding Brick Classification: A Guide to Compliance and Selection

Essential Guide
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BRICK DEVELOPMENT ASSOCIATION

The Brick Development Association

The Brick Development Association (BDA) is the national authority on clay bricks and pavers. The membership accounts for almost 99% of the bricks produced in the UK; the BDA members are commitment to manufacturing products of outstanding quality and developing one of the nation's most productive and sustainable supply chains.

The BDA Guides, Technical Guides and Essential Guides are continually updated to take account of the latest materials, systems and products developed in the clay brick and paver sector.

Better with Brick

The Better with Brick campaign, launched by the BDA in February 2024, underscores clay brick as a versatile, sustainable, and high-performance building material. With a minimum lifespan of 150 years, clay brick offers exceptional durability. Its natural composition from locally sourced clay, water and sand contributes to its low carbon footprint, one of its many sustainable attributes. The campaign showcases the material's versatility and design flexibility, demonstrating how clay brick can complement modern architecture while upholding traditional aesthetics. Additionally, clay brick's compliance with evolving regulatory standards, such as the Building Safety Act and Future Homes Standard, reinforces its position as a reliable and responsible building material. By emphasizing these key benefits, Better with Brick aims to inspire a renewed appreciation for clay brick as a sustainable and enduring choice for construction. We extend our sincere gratitude to our team, members, and industry experts for their invaluable contributions to the campaign's success.

Scope of Document

This is a top level essential guide. Please refer to the BDA general, technical and structural guides for more in-depth information.

Published by the Brick Development Association (BDA).

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Understanding Brick Classification: A Guide to Compliance and Selection

Understanding the grading and classification of clay bricks is crucial for selecting the right product to ensure structural integrity, longevity, and compliance with UK Building Regulations.

If you've ever come across terms like F2, Class A, or BS EN 771-1 and wondered what they actually mean in practice, this essential guide will break down the classifications you need to know.

The Standards: BS EN 771-1 and UK Compliance

BS EN 771-1: Specification for Masonry Units – Part 1: Clay Masonry Units This standard sets out the required specifications for clay bricks and is the definitive reference for product declaration and compliance in the UK. (Note: The former national standard, BS 5628, has been largely superseded for design by Eurocode 6.)

1. Frost Resistance Grades (Durability)

The frost resistance rating is a critical measure of a brick's ability to withstand repeated freezing and thawing cycles without cracking, spalling, or deterioration. This directly impacts the durability and maintenance cycle of a building's exterior.

Grade	Classification (F-Rating)	Description	Typical Application & Compliance
Grade	F2 (Frost Resistant)	Bricks with the highest resistance to frost.	Essential for external walls exposed to severe weather conditions (e.g., facades, chimneys, retaining and boundary walls, parapets). Required for long-term compliance in exposed sites.
Moderate	F1 (Moderately Frost Resistant)	Bricks with moderate frost resistance.	Suitable for external use only in sheltered locations (e.g., under wide eaves, or where direct exposure to rain and saturated freezing is limited).
None	F0 (Non-Frost Resistant)	Bricks with no specific resistance to frost.	Not suitable for external use or exposed locations. Typically used for internal walls or hidden applications.

Key Takeaway: For any brickwork that will be exposed to the elements on a UK site, always specify **F2-rated bricks** to ensure compliance and prevent long-term weather damage.

2. Strength and Load-Bearing Classification

Compressive strength is a core structural property, measured in **Newtons per square millimetre** (N/mm2). This rating determines the maximum load the brick can withstand before structural failure and must align with the design specifications of the structure (Eurocode 6).

Strength Range (N/mm2)	Typical Application
7 – 20	Suitable for internal partitions, non-load-bearing walls, and general domestic use where loading is low.
>20	Used for structural applications, external load-bearing walls, and high-load areas.

Specialist Engineering Bricks

Engineering bricks are specifically manufactured for superior strength and extremely low water absorption, making them essential for demanding civil and structural engineering applications.

Class	Compressive Strength	Water Absorption	Typical Application
Class A	Minimum 125 N/mm2	Maximum 4.5%	Highest strength and durability. Used for foundations, manholes, tunnels, bridge abutments, and severe structural/below-ground work.
Class B	Minimum 75 N/mm2	Maximum 7.0%	High strength and durability. Used for retaining walls, damp-proof courses (DPCs), and general civil engineering work.

Key Takeaway: For all load-bearing structures, verify the brick's compressive strength to ensure it meets the requirements of the structural design specification.

3. Water Absorption and Durability Ratings

A brick's ability to resist moisture ingress is critical, as it prevents issues like frost damage (when water freezes inside the brick) and efflorescence (salt deposits).

Water Absorption Rate	Typical Application	Durability Implication
High (12-20%)	Suitable for internal walls and non-exposed areas.	Higher risk of efflorescence and frost damage if used externally.
Low (<7%)	Essential for external brickwork and highly exposed facades.	Helps to prevent damp, efflorescence, and saturation-related damage.
Very Low (<4.5%)	Found in Class A Engineering Bricks.	Maximum resistance to water penetration and sulphate attack.

Key Takeaway: For retaining walls, basements, or highly exposed facades, selecting low-absorption bricks is a critical step for long-term compliance and durability.

Specialist Brick Groups

Beyond the core technical ratings, bricks are also grouped by their final appearance or intended use:

Brick Group	Description	Typical Use
Facing Bricks	Designed for external walls where aesthetic appearance (colour, texture, finish) is paramount. Classified using BS EN 771-1 criteria.	External facades, visible elevations.
Common Bricks	Basic, lower-quality options often used for internal walls or areas that will be rendered or hidden from view.	Internal leaf of a cavity wall, concealed backing brickwork.
Fire Bricks	(Refractory Bricks) Manufactured to withstand extremely high temperatures.	Fireplaces, kilns, furnaces.
Perforated / Hollow Bricks	Designed with holes to reduce weight and raw material consumption, potentially improving thermal performance while maintaining strength.	Load-bearing and non-load-bearing walls.

Note: Always ensure that a facing brick intended for external use also meets the required F2 (Frost Resistance) and strength specifications for your project.

Brick Development Association Products and Services

Brick Awards

The Brick Awards celebrate the best examples of clay brick in our built environment. Each year the awards attract over 350 entries from leading architects, housebuilders, developers and contractors; across 18 hotly contested categories. It is FREE and simple to enter on our website: www.brick.org.uk

Brick Works Events

The BDA regularly runs courses and seminars for all those professionals involved with the design and construction of brick buildings. Please contact George Spreckley our Events & PR Manager on email: georgespreckley@brick.org.uk

The Brickmakers Quality Charter

The Brickmakers Quality Charter is a globally recognised scheme for ensuring that the bricks you procure are made by brickmakers who follow clearly identified and well established business norms in the manufacture of their clay brick & paver products.

The use of the Brickmakers Quality Charter logo on the brickmakers branding and web site, identifies, those brickmakers that meet those norms and hold correctly assessed credentials in real time. Thus we are able to assure the purchaser of the credentials expected of a responsible brickmaker meaning that the manufacture of clay bricks and pavers has reached a set of internationally recognised product, labour, quality, energy, environmental and other standards.

A full list of certified companies is available here: www.brick.org.uk/bqc/bqc-approved-brickmakers Further details can be obtained by email at: brick@brick. org.uk

Brick Bulletin

This widely acclaimed e-magazine features the latest developments in brick design and is recognised world wide as the foremost journal of contemporary brickwork. It is available free through the 'Brick Bulletin' tab our website: www.brick.org.uk.

Technical Publications

The BDA provides a range of technical publications and guides; which are freely available to Architects, Developers, Builders and General public on our web site: www.brick.org.uk

The Fourth Edition of 'Guide to Successful Brickwork' is available at all good book shops.

Training and Education

The BDA offers lectures and other educational services for Architects, Engineers, Developers as well as support for students and public interested in creating successful brickwork. We also provide technical input to events for practicing architects, engineers and organisations involved in continuing professional development.

Research and Testing

The BDA identifies specific areas where independent research and testing programmes are required to further the confident use of clay brick and to ensure quality.

Statistical and Marketing Information

The Brick Development Association is an independent body committed to providing authoritative information about the use of clay brick in construction.

We collate statistical information on brick production, UK deliveries, and related supply for imported products together with volume information including testing, research and development.

We provide free technical support on the use of clay brick, and encourage best practice in the use of brick in the built environment.

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The Brick Development Association
Commerce House
Festival Park
Stoke-on-Trent
ST1 5BE

01782 744631
brick@brick.org.uk
www.brick.org.uk

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