

Midland Lead Manufacturers Ltd

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Agrément Certificate
No 86/1764

PRODUCT SHEET 1 — MIDLAND LEAD MANUFACTURERS LTD'S CAST LEAD SHEET

PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate relates to Midland Lead Manufacturers Ltd's Cast Lead Sheet for use in external roofing, cladding and flashing applications.

AGRÉMENT CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.

KEY FACTORS ASSESSED

Weathertightness — the product has adequate resistance to the passage of moisture (see section 4).

Properties in relation to fire — the product can be taken as being 'non-combustible' and as having a 'notional' AA designation to BS 476-3 : 2004 (see section 5).

Durability — when correctly installed, the durability of the product will be at least equivalent to that of milled lead, with an ultimate life in excess of 60 years (see section 7).



The BBA has awarded this Agrément Certificate for Midland Lead Manufacturers Ltd's Cast Lead Sheet to Midland Lead Manufacturers Ltd as fit for its intended use provided it is installed, used and maintained as set out in this Agrément Certificate.

On behalf of the British Board of Agrément

Date of First issue: 30 October 1986
Date of Third issue: 31 January 2008

Greg Cooper: Chief Executive

The BBA is a UKAS accredited certification body — Number 113. The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk

Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

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Regulations

In the opinion of the BBA, Midland Lead Manufacturers Ltd's Cast Lead Sheet, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements of the following Building Regulations:



The Building Regulations 2000 (as amended) (England and Wales)

Requirement:	B3(2)(4)	Internal fire spread (structure)
Comment:		The product can contribute to meeting this Requirement. See section 5.1 of this Certificate.
Requirement:	B4(1)(2)	External fire spread
Comment:		The product is unrestricted under this Requirement. See sections 5.1 and 5.2 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		The product can contribute to meeting this Requirement. See section 4 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The product is an acceptable material. See section 7.1 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)(2)	Fitness and durability of materials and workmanship
Comment:		The use of the product satisfies the requirement of this Regulation. See sections 6.1, 6.2 and 7.1 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards – construction
Standard:	2.1	Compartmentation
Standard:	2.2	Separation
Standard:	2.8	Spread from neighbouring buildings
Comment:		The product is not assigned a notional 'low vulnerability' rating by the Tables to Annex 2.D ⁽¹⁾ and 2F ⁽²⁾ and so is restricted under these Standards, with reference to clauses 2.1.15 ⁽²⁾ , 2.2.7 ⁽²⁾ , 2.2.10 ⁽¹⁾ and 2.8.1 ⁽¹⁾⁽²⁾ .
Standard:	2.6	Spread to neighbouring buildings
Standard:	2.7	Spread on external walls
Comment:		The product is unrestricted under these Standards, with reference to clauses 2.6.4 ⁽¹⁾⁽²⁾ , 2.6.5 ⁽¹⁾ , 2.6.6 ⁽²⁾ and 2.7.1 ⁽¹⁾⁽²⁾ . See section 5.2 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 3.10.1 ⁽¹⁾⁽²⁾ , 3.10.5 ⁽¹⁾⁽²⁾ , 3.10.7 ⁽¹⁾⁽²⁾ and 3.10.8 ⁽¹⁾⁽²⁾ . See section 4 of this Certificate.
Regulation:	12	Building standards – conversions
Comment:		All comments given for the product under Regulation 9 also apply to this Regulation, with reference to clause 0.12.1 ⁽¹⁾⁽²⁾ and Schedule 6 ⁽¹⁾⁽²⁾ . (1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).



The Building Regulations (Northern Ireland) 2000 (as amended)

Regulation:	B2	Fitness of materials and workmanship
Comment:		The product is acceptable. See section 7.1 and the <i>Installation</i> part of this Certificate.
Regulation:	B3(2)	Suitability of certain materials
Comment:		The product is acceptable. See sections 6.1 and 6.2 of this Certificate.
Regulation:	C4	Resistance to ground moisture and weather
Comment:		The product can contribute to satisfying this Regulation. See section 4 of this Certificate.
Regulation:	E4	Internal fire spread – Structure
Comment:		The product is unrestricted under this Regulation. See section 5.1 of this Certificate.
Regulation:	E5	External fire spread
Comment:		The product is unrestricted under this Regulation. See sections 5.1 and 5.2 of this Certificate.

Construction (Design and Management) Regulations 2007

Construction (Design and Management) Regulations (Northern Ireland) 2007

Information in this Certificate may assist the client, CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

See sections: 1 *Description* (1.2) and 9 *Safety*.

Non-regulatory Information

NHBC Standards 2007

In the opinion of the BBA, the use of Midland Lead Manufacturers Ltd's Cast Lead Sheet, when installed and used in accordance with this Certificate, is capable of satisfying the requirements of *NHBC Standards*, Chapters 6.8 *Fireplaces, chimneys and flues*, 6.9 *Curtain walling and cladding*, 7.1 *Flat roofs and balconies* and 7.2 *Pitched roofs*.

Zurich Building Guarantee Technical Manual 2007

In the opinion of the BBA, the use of Midland Lead Manufacturers Ltd's Cast Lead Sheet, when installed and used in accordance with this Certificate, is capable of satisfying the requirements of the *Zurich Building Guarantee Technical Manual*, Section 4 *Superstructure*, Sub-sections, *External walls – masonry*, *External walls – chimneys*, *External walls – parapets*, *External walls – timber frame*, *External walls – steel frame*, *External walls – render/cladding/curtain walling*, *Pitched roofs* and *Flat roofs*.

General

This Certificate relates to Midland Lead Manufacturers Ltd's Cast Lead Sheet for use in external roofing, cladding and flashing.

The installation must be designed, and the product installed, using traditional practices for lead sheet.

Technical Specification

1 Description

1.1 Midland Lead Manufacturers Ltd's Cast Lead Sheet is manufactured by a continuous casting process and contains a fine dispersion of copper.

1.2 The sheet is available in 3 m, 6 m or 12 m rolls, up to 1.4 m wide and in the thicknesses (and corresponding colour codes) given in Table 1.

Table 1 Lead thicknesses and corresponding colour codes

Thickness and tolerance (mm)	Colour code
1.32 ± 0.07	Green
1.80 ± 0.09	Blue
2.24 ± 0.11	Red
2.65 ± 0.13	Black
3.15 ± 0.16	White
3.55 ± 0.18	Orange

1.3 Quality control is exercised over the raw material, during manufacture and on the final product.

2 Delivery and site handling

2.1 The product is delivered in rolls, shrink wrapped onto pallets.

2.2 Each pallet carries the BBA identification mark incorporating the number of this Certificate.

2.3 The rolls should be stored flat on a clean dry surface, clear of the ground, under cover and secure.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Midland Lead Manufacturers Ltd's Cast Lead Sheet.

Design Considerations

3 Use

Midland Lead Manufacturers Ltd's Cast Lead Sheet, when designed and installed in accordance with the relevant parts of BS 5534 : 2003, BS 6915 : 2001 and BS 8000-6 : 1990 is suitable for use in external roofing, cladding and flashing applications, including use as flashings to cavity trays.

4 Weathertightness



The product, when incorporated into a roofing or cladding system designed and installed in accordance with conventional good practice and Section 3 will adequately resist the passage of moisture.

5 Properties in relation to fire



5.1 Cast lead sheet, when used on an appropriate sub-structure, has been given a 'notional' designation of AA to BS 476-3 : 2004 as defined in the national Building Regulations as follows:

England and Wales — Approved Document B, Volumes 1 and 2, Appendix A, Table A5

Northern Ireland — Technical Booklet E, Table 4.6.



5.2 Cast lead sheet is 'non-combustible', as defined in the national Building Regulations as follows:

England and Wales — Approved Document B, Appendix A, Table A6

Scotland — Table to Annexes 2.C⁽¹⁾ and 2.E⁽²⁾

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

Northern Ireland — Technical Booklet E, Clause 6.4(c).

6 Maintenance



6.1 Damaged areas can be repaired using traditional techniques.

6.2 Cast lead sheet may be used to repair existing lead flashings and can be used to repair zinc flashings without introducing a risk of corrosion.

7 Durability



7.1 The fine dispersion of copper, which is maintained by the casting process, improves the product's resistance to creep and fatigue. When correctly installed, its durability will be at least equivalent to that of milled material, with an ultimate life in excess of 60 years.

7.2 Lead is a very corrosion-resistant metal and on weathering, forms a strongly adhering, insoluble protective patina. It is thus possible to fix lead in contact with other metals without increasing the rate of corrosion of either of the metals in contact. However, in coastal atmospheres contact between lead and aluminium should be avoided.

7.3 The product can be fixed in contact with most hardwood species and unpreserved and preserved softwoods (providing any preservative treatment is allowed adequate time for fixation), including those treated with fire retardants. It should be protected from acid-bearing timbers, such as western red cedar, oak or sweet chestnut, by a coat of bitumen paint.

Installation

8 General

8.1 Midland Lead Manufacturers Ltd's Cast Lead Sheet should be installed by plumbers or specialist roofing contractors using traditional tools and techniques for lead sheet in accordance with relevant parts of BS 5534 : 2003, BS 6915 : 2001 and BS 8000-6 : 1990.

8.2 Adjacent lengths of lead may be joined by welding, soldering, lead burning or other details. Solder should conform to BS EN ISO 9453 : 2006. The maximum size for a single sheet of cast lead sheet in a particular situation should be determined by reference to BS 6915 : 2001.

8.3 Joints across the fall of pitched roofs or vertical cladding may be formed by laps giving a cover of 75 mm measured vertically or 150 mm along the slope.

8.4 Underlays are necessary to isolate the lead from the substrate and may be of inodorous felt or non-woven polyester felt. Waterproof building paper to BS 1521 : 1972, Class A, may be used when the surface is smooth.

9 Safety

The conventional precautions for handling lead defined in the Control of Lead at Work Regulations 2002, the Control of Lead at Work Regulations (Northern Ireland) 2003 and the HSE Approved Code of Practice and Guidance *Control of lead at work* should be observed.

10 Tests

The following tests were conducted as part of the assessment of Midland Lead Manufacturers Ltd's Cast Lead Sheet leading to the issue of the previous Certificate No 83/1165:

- tensile strength/elongation/fatigue
- cold bend
- chisel impact
- metallographic analysis
- short-term weathering.

11 Investigations

11.1 The following investigations were carried out as part of the assessment leading to the issue of the previous Certificate No 83/1165:

- an assessment was made of the product's safety
- the manufacturing process and quality control procedures were examined and details were obtained of the quality and composition of the materials used
- a demonstration was attended where a plumber formed common lead details in both cast and milled lead sheet
- data were examined on the product's creep and fatigue resistance.

11.2 The following investigations were carried out as part of the assessment leading to the issue of this Certificate:

- a re-examination was made of the data and investigations on which the previous Certificate was based
- a user survey was carried out to assess the product's performance in use
- tensile tests were conducted on lead burned joints made using cast lead and milled lead sheet.

11.3 No failure of the product in use has been reported to the BBA.

Bibliography

BS 476-3 : 2004 *Fire tests on building materials and structures — Classification and method of test for external fire exposure to roofs*

BS 1521 : 1972 *Specification for waterproof building papers*

BS 5534 : 2003 *Code of practice for slating and tiling (including shingles)*

BS 6915 : 2001 *Design and construction of fully supported lead sheet roof and wall coverings— Code of practice*

BS 8000-6 : 1990 *Workmanship on building sites — Code of practice for slating and tiling of roofs and claddings*

BS EN ISO 9453 : 2006 *Soft solder alloys. Chemical compositions and forms*

12 Conditions

12.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is granted only to the company, firm or person named on the front page — no other company, firm or person may hold or claim any entitlement to this Certificate
- is valid only within the UK
- has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English law.

12.2 References in this Certificate to any Act of Parliament, Statutory Instrument, Directive or Regulation of the European Union, British, European or International Standard, Code of Practice, manufacturers' instructions or similar publication, are references to such publication in the form in which it was current at the date of this Certificate.

12.3 This Certificate will remain valid for an unlimited period provided that the product/system and the manufacture and/or fabrication including all related and relevant processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

12.4 In granting this Certificate, the BBA is not responsible for:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- individual installations of the product/system, including the nature, design, methods and workmanship of or related to the installation
- the actual works in which the product/system is installed, used and maintained, including the nature, design, methods and workmanship of such works.

12.5 Any information relating to the manufacture, supply, installation, use and maintenance of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used and maintained. It does not purport in any way to restate the requirements of the Health & Safety at Work etc Act 1974, or of any other statutory, common law or other duty which may exist at the date of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care. In granting this Certificate, the BBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the manufacture, supply, installation, use and maintenance of this product/system.

