

Royston Lead Ltd

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Agrément Certificate
91/2662
Product Sheet 1

ROYSTON LEAD BUILDING PRODUCTS

ROYSTON LEAD'S CAST LEAD SHEET

This Agrément Certificate Product Sheet⁽¹⁾ relates to Royston Lead's Cast Lead Sheet⁽²⁾, for use in roofing, cladding and flashing applications.

- (1) Hereinafter referred to as 'Certificate'.
(2) Royston Lead's Cast Lead Sheet is a registered trademark.

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 profiled product has adequate resistance to the passage of moisture into the building (see section 6).

Resistance to wind uplift — the profiled product can adequately resist the effects of wind suction (see section 7).

Performance in relation to fire — the product is classified as 'non-combustible' (see section 8).

Durability — under normal conditions, the profiled product will perform effectively with a service life in excess of 60 years (see section 10).

The BBA has awarded this Certificate to the company named above for the product described herein. This product has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

A handwritten signature in black ink, appearing to read 'Simon Wroe'.

Date of First issue: 10 February 2014

Originally certificated on 4 July 1991

Simon Wroe
Head of Approvals — Materials

A handwritten signature in black ink, appearing to read 'Claire Curtis-Thomas'.

Claire Curtis-Thomas
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, Royston Lead's Cast Lead Sheet, if installed, used and maintained in accordance with this Certificate, will meet or contribute to meeting the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):



The Building Regulations 2010 (England and Wales) (as amended)

Requirement: A1	Loading
Comment:	The product can contribute to satisfying this Requirement. See section 7 of this Certificate.
Requirement: B4(1)(2)	External fire spread
Comment:	The product may be unrestricted under this Requirement. See section 8 of this Certificate.
Requirement: C2(b)	Resistance to moisture
Comment:	The product can contribute to satisfying this Requirement. See section 6 of this Certificate.
Regulation: 7	Materials and workmanship
Comment:	The product is acceptable. See section 10 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 can contribute to a construction satisfying this Regulation. See sections 9 and 10 and the <i>Installation</i> part of this Certificate.
Regulation: 9	Building standards applicable to construction
Standard: 1.1(a)(b)	Structure
Comment:	The product can contribute to satisfying this Standard. See section 7 of this Certificate.
Standard: 2.6	Spread to neighbouring buildings
Standard: 2.7	Spread on external walls
Comment:	The product is classified as 'non-combustible' and 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 8 of this Certificate.
Standard: 2.8	Spread from neighbouring buildings
Comment:	The product is unrestricted under this Standard, with reference to clause 2.8.1 ⁽¹⁾⁽²⁾ . See section 8 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⁾ , and 3.10.7 ⁽¹⁾⁽²⁾ . See section 6 of this Certificate.
Standard: 7.1(a)	Statement of sustainability
Comment:	The product can contribute to meeting the relevant requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard.
Regulation: 12	Building standards applicable to conversions
Comment:	All comments given for this product under Regulation 9, Standards 1 to 6 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) 2012

Regulation: 23(a)(i)(iii)(b)(i)	Fitness of materials and workmanship
Comment:	The product is acceptable. See section 10 and the <i>Installation</i> part of this Certificate.
Regulation: 28(b)	Resistance to moisture and weather
Comment:	The product can contribute to satisfying this Regulation. See section 6 of this Certificate.
Regulation: 30	Stability
Comment:	The product can contribute to satisfying this Regulation. See section 7 of this Certificate.
Regulation: 36(a)(b)	External fire spread
Comment:	The product is unrestricted under this Regulation. See section 8 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* (1.3) and 13 *Safety* of this Certificate.

Additional Information

NHBC Standards 2014

NHBC accepts the use of Royston Lead's Cast Lead Sheet, provided it is installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards*, Chapters 6.3 *Internal walls*, 6.9 *Curtain walling and cladding*, 7.1 *Flat roofs and balconies* and 7.2 *Pitched roofs*.

CE marking

The Certificate holder has taken the responsibility of CE marking the product in accordance with harmonised European Standard BS EN 14783 : 2006. An asterisk (*) appearing in this Certificate indicates that data shown are given in the manufacturer's Declaration of Performance.

Technical Specification

1 Description

1.1 Royston Lead's Cast Lead Sheet comprises a lead/copper alloy.

1.2 The sheet is available in standard 3 m and 6 m lengths. Standard production widths range from 0.15 m to 1.5 m. Other lengths and widths are available on request.

1.3 The code designations for nominal thickness and mass are given in Table 1.

Table 1 Code designations for nominal thickness and mass⁽¹⁾

Code		Nominal thickness (mm)	Mass of a 300 mm x 300 mm square (kg)
Number	Colour		
3	green	1.32	1.35
4	blue	1.80	1.84
5	red	2.24	2.29
6	black	2.65	2.70
7	white	3.15	3.22
8	orange	3.55	3.62

(1) Owing to the nature of lead, tolerances for the sheet are determined on a weight basis. This is defined as $\pm 5\%$ of the specified mass.

1.4 All material supplied for the casting of sheet is in the form of pig lead, purchased against a specific chemical composition and accompanied by certificates of analysis.

2 Manufacture

2.1 Royston Lead's Cast Lead Sheet is manufactured by a continuous casting process using a purpose-made and computer-controlled casting machine.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

2.3 The management system of Royston Lead Ltd has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 (Certificate 8714-QMS-001), BS EN 14001 : 2004 (Certificate 8714-EMS-001) and BS OHSAS 18001 : 2007 (Certificate 8714-001) by ISOQAR.

3 Delivery and site handling

3.1 The product is delivered in rolls bound onto pallets.

3.2 Each pallet carries the BBA logo incorporating the number of this Certificate.

3.3 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 Royston Lead's Cast Lead Sheet.

Design Considerations

4 Use

Royston Lead's Cast Lead Sheet, when installed in accordance with BS 6915 : 2001, is satisfactory as a roofing or wall cladding. The sheet is satisfactory for use as a flashing when installed in accordance with principles laid down in the relevant parts of BS 5534 : 2003.

5 Practicability of installation

The product is designed to be installed by a competent general builder, or a contractor, experienced with this type of product.

6 Weathertightness



The profiled product, when incorporated into a cladding or roofing system designed and installed in accordance with conventional good practice and section 12 of this Certificate, will adequately resist the passage of moisture.

7 Resistance to wind uplift



The profiled product, when incorporated into a cladding or roofing system designed and installed in accordance with conventional good practice and section 12 of this Certificate, can adequately resist wind loads likely to be encountered in the UK.

8 Properties in relation to fire



8.1 Cast lead sheet is deemed to belong to fire class A1* (no contribution to fire) in accordance with Commission Decision 96/603/EC.

8.2 Cast lead sheet can be considered to have a $B_{ROOF}(T4)^*$ classification to BS EN 13501-5 : 2005.

9 Maintenance and repair



9.1 Regular maintenance inspections should be carried out to ensure that rainwater goods are present and in good order, that flashings are secure and that fixings are present and secure.

9.2 Damaged areas can be repaired using traditional techniques.

9.3 The product may be used to repair existing lead flashings and may be used to repair zinc flashings without introducing a risk of corrosion.

10 Durability



10.1 Lead is a corrosion-resistant metal which, on weathering, forms a strongly adhering, insoluble, protective patina under normal atmospheric conditions. It is therefore possible to fix lead in contact with other metals without increasing the rate of corrosion of either by galvanic effects. In marine conditions contact between aluminium and lead should be avoided.

10.2 Royston Lead's Cast Lead Sheet can be fixed in contact with preservative-treated timbers (providing any CCA treatment is allowed adequate time for fixation), including those treated with fire retardants. When used in contact with acid-bearing timbers, such as western red cedar, oak or sweet chestnut, it should be protected by a coat of bitumen paint.

10.3 Lead is susceptible to corrosive attack by cement, concrete and mortar when in consistently damp situations. In such circumstances the lead sheet should be protected by coating with bitumen paint.

10.4 The profiled product will perform effectively as a cladding or roofing with a service life in excess of 60 years.

11 Reuse and recyclability

The product comprises lead, which can be recycled.

Installation

12 Procedure

12.1 The product is installed by specialist roofing contractors using traditional tools and techniques for lead sheet in accordance with BS 6915 : 2001 or relevant parts of BS 5534 : 2003.

12.2 Lead flashings and joints between flashing should be made to ensure that free thermal movement and weathertightness are maintained. The installation of lead sheet in a particular situation should be determined by reference to BS 6915 : 2001.

12.3 Where joints are appropriate, adjacent lengths of lead may be joined by welting, soldering, leadburning 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.

12.4 Joints across the fall of pitched roofs or vertical cladding may be formed by laps giving a cover of 75 mm measured vertically in accordance with BS 6915 : 2001, depending on the pitch of the roof.

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

13 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.

Technical Investigations

14 Tests

Tests were conducted on Royston Lead's Cast Lead Sheet and the results assessed to determine:

- weight/unit area
- tensile strength
- resistance to impact (effect of dropping chisel)
- effect of cold bend.

15 Investigations

15.1 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and compositions of materials used.

15.2 An assessment was made of an investigation into continuously cast lead sheet (*Microstructures of mechanical properties of milled and continuously cast lead sheet*, from *Materials Science and Technology Journal*, Volume 7, Issue 12, December 1991).

Bibliography

BS 476-3 : 2004 *Fire tests on building materials and structures — External fire exposure roof test*

BS 1521 : 1972 *Specification for waterproof building papers*

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

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

BS EN 13501-5 : 2005 *Fire classification of construction products and building elements — Classification using data from external fire exposure to roofs tests*

BS EN 14783 : 2006 *Fully supported metal sheet and strip for roofing, external cladding and internal lining — Product specification and requirements*

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

BS EN ISO 9001 : 2000 *Quality management systems — Requirements*

16 Conditions

16.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page — no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- 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.

16.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

16.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and 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.

16.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

16.5 In issuing this Certificate, the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- 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
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

16.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal 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, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue 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.