

This is a preview of "BS 5427:2016+A1:2017". [Click here to purchase the full version from the ANSI store.](#)

BS 5427:2016+A1:2017



BSI Standards Publication

**Code of practice for the use of profiled
sheet for roof and wall cladding
on buildings**

bsi.

This is a preview of "BS 5427:2016+A1:2017". [Click here to purchase the full version from the ANSI store.](#)

Publishing and copyright information

The BSI copyright notice displayed in this document indicates when the document was last issued.

© The British Standards Institution 2017

Published by BSI Standards Limited 2017

ISBN 978 0 580 96886 0

ICS 91.060.10; 91.060.20

The following BSI references relate to the work on this document:

Committee reference B/542/6

Draft for comment 17/30353759 DC

Amendments/corrigenda issued since publication

Date	Text affected
31 December 2017	A1: see Foreword

This is a preview of "BS 5427:2016+A1:2017". Click here to purchase the full version from the ANSI store.

CONTENTS

	Page
Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	3
<i>Figure 1 — Geometrical definitions of profiles</i>	3
4 Design	7
4.1 General	7
4.2 Weatherproofing properties of profiled roofing and wall cladding	8
5 Components	8
5.1 Profiled sheeting	8
<i>Table 1 — Harmonized European self-supporting profiled sheet standards</i>	9
5.2 Built-up metal	10
<i>Figure 2 — Schematic showing cross section of popular roofing and cladding systems</i>	13
5.3 Sandwich panels	15
5.4 Rooflights	17
5.5 Fibre cement	21
5.6 Bitumen fibre	22
5.7 Thermal insulation and moisture vapour control	23
<i>Table 2 — Common insulating materials for use with profiled roofing and wall cladding</i>	23
5.8 Spacers	24
<i>Figure 3 — Bar and bracket and halter spacer kits</i>	25
5.9 Fixings and fasteners	26
<i>Figure 4 — Examples of fasteners</i>	28
<i>Table 3 — Typical chemical composition of austenitic stainless steel fasteners (based on BS EN 10088-2, BS EN ISO 3506-1 and BS EN ISO 3506-4)</i>	31
5.10 Sealants and profile fillers	31
5.11 Flashings	33
5.12 Gutters and rainwater goods	33
<i>Table 4 — Standards for rainwater goods</i>	35
5.13 Roof and wall penetrations	35
5.14 Safety systems	37
<i>Figure 5 — Minimum heights for arrest systems</i>	38
6 Installation and weathertightness — laps and seals	39
6.1 Design detailing	40
<i>Table 5 — Size, shape and position of sealant(s) for typical 150 mm roof end lap details (built up systems)^{A)}</i>	41
<i>Table 6 — Size, shape and position of sealant(s) for typical 150 mm roof end lap details (sandwich systems)^{A)}</i>	41
6.2 Profiled metal and sandwich panels	41
<i>Figure 6 — Supported roof side lap</i>	42
6.3 Fibre cement sheeting	43
6.4 Rooflight laps	43
7 Building physics	45
7.1 Temperature and thermal movement	45
<i>Table 7 — Accommodation of thermal movement along sheets</i>	46
<i>Table 8 — Temperature limitations</i>	47
<i>Figure 7 — Examples of fixed point and floating point fastener positions for rigid aluminium flashings</i>	49

This is a preview of "BS 5427:2016+A1:2017". Click here to purchase the full version from the ANSI store.

	<i>Table 9 — Methods of determining strength and rigidity</i>	51
	<i>Table 10 — Normal maximum permissible deflection for profiled sheeting and sandwich panels under distributed loads</i>	52
7.3	Safety and non-fragility	53
7.4	Control of condensation	54
7.5	Limitation of energy use by control of air leakage and effective thermal insulation	59
7.6	Acoustics	59
	<i>Table 11 — Examples of sound pressure levels in relation to hearing thresholds and pain thresholds</i>	60
7.7	Fire precautions	60
7.8	Artificial lighting systems	60
7.9	Durability and coatings	61
	<i>Table 12 — Test methods for the durability of coatings</i>	61
	<i>Table 13 — Internal humidity classes: building types and limiting relative humidities^{A)}</i>	63
7.10	Compatibility of materials	65
	<i>Table 14 — The effect of various exposure conditions on the durability of profiled metal sheeting materials</i>	67
	<i>Table 15 — The effect of various exposure conditions on the durability of profiled non-metallic sheeting materials</i>	70
7.11	Lightning and electrical charges	73
8	Inspection and maintenance	73
8.1	General	73
	<i>Table 16 — Checklist inspection of profiled sheet roofs</i>	74
8.2	Maintenance of profiled sheeting	74
8.3	Indications of the need for maintenance	74
8.4	Paint and conversion coatings	75
8.5	Plain aluminium	75
8.6	Anodized aluminium	75
8.7	Metallic coated steel	75
8.8	Fibre cement	75
8.9	Stainless steel	75
8.10	Translucent sheets	76
8.11	GRP	76
8.12	PVC and polycarbonate	76
Annex A	(normative) Corrosion protection	77
	<i>Table A.1 — Corrosion categories for assessing the expected durability of profiles</i>	77
Annex B	(normative) Impact test for wall cladding	77
	<i>Table B.1 — Categories associated with impacts on surfaces of the vertical enclosure to buildings</i>	78
	<i>Table B.2 — Test impacts for retention of performance of exterior wall surfaces</i>	79
	<i>Table B.3 — Impactors for test purposes</i>	79
Annex C	(normative) Determination of strength and stiffness of profiled sheeting	80
Annex D	(informative) Types of spacer kits and halters	85
	<i>Figure D.1 — Bar and bracket spacer kit variants</i>	85
Annex E	(normative) Determination of the strength of attachment of a cladding system	88
	<i>Figure E.1 — Typical pull-through and pull-out test arrangements</i>	90
	<i>Figure E.2 — Spacer kit in-plane sway stability test set-up</i>	91
	<i>Figure E.3 — Space kit bracket detachment test set-up</i>	93
	<i>Figure E.4 — Spacer kit bracket compression test set up</i>	94

This is a preview of "BS 5427:2016+A1:2017". [Click here to purchase the full version from the ANSI store.](#)

Annex F	<i>Annex F deleted</i>	97
	Bibliography	98

Summary of pages

This document comprises a front cover, and inside front cover, pages i to iv, pages 1 to 100, an inside back cover and a back cover.

This is a preview of "BS 5427:2016+A1:2017". [Click here to purchase the full version from the ANSI store.](#)

Foreword

Publishing information

This British Standard is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 30 April 2016. It was prepared by Subcommittee B/542/6, *Corrugated sheeting materials*, under the authority of Technical Committee B/542, *Roofing and cladding products for discontinuous laying*. A list of organizations represented on these committees can be obtained on request to its secretary.

Supersession

BS 5427:2016 superseded BS 5427-1:1996, which has been withdrawn.

BS 5427:2016+A1:2017 supersedes BS 5427:2016, which is withdrawn.

Information about this document

BS 5427:2016 was a full revision of BS 5427. It took into account recent changes and developments in materials, components, cladding systems and design practice, such as sheeting profiles, surface coatings, fixing systems, thermal insulation, the use of liners, and alleviation of condensation.

Text introduced or altered by Amendment No. 1 is indicated in the text by tags A1 A1. Minor editorial changes are not tagged.

Use of this document

As a code of practice, this British Standard takes the form of guidance and recommendations. It should not be quoted as if it were a specification and particular care should be taken to ensure that claims of compliance are not misleading.

Any user claiming compliance with this British Standard is expected to be able to justify any course of action that deviates from its recommendations.

It has been assumed in the preparation of this British Standard that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its recommendations are expressed in sentences in which the principal auxiliary verb is "should".

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

This is a preview of "BS 5427:2016+A1:2017". [Click here to purchase the full version from the ANSI store.](#)

1 Scope

This British Standard gives recommendations for the design and construction of external cladding assemblies for roofs and walls of buildings in the UK, using longitudinally profiled sheeting as the external surface, including standing seam. It is not applicable to profiled sheeting used as a supporting substrate, decking, structural liner trays, fully supported profiled sheets, structural composite formations of profiled metal sheeting and concrete, small element cladding or exceptional applications, such as buildings for cold storage.

The principal profiled sheeting materials covered by this British Standard are steel, aluminium, fibre cement, bitumen fibre and plastics, including insulated sandwich panel assemblies of profiled sheeting, thermal insulation and linings.

In addition to referencing performance recommendations, materials and components identified by other British Standards, advice on other materials and components which are in common use but not covered by other British Standards is also given.

This British Standard is intended for use by designers, manufacturers and installers of the roofing products.

A1 This British Standard includes profiled metal sheets which conform to the scope of BS EN 14782 but excludes profiled metal sheets used for structural purposes, which come within the scope of the BS EN 1090 series of standards. **A1**

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Standards publications

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

BS 476-6, *Fire tests on building materials and structures — Part 6: Method of test for fire propagation for products*

BS 476-7, *Fire tests on building materials and structures — Part 7: Method of test to determine the classification of the surface spread of flame of products*

BS 476-20, *Fire tests on building materials and structures — Part 20: Method for determination of the fire resistance of elements of construction (general principles)*

BS 476-21, *Fire tests on building materials and structures — Part 21: Methods for determination of the fire resistance of loadbearing elements of construction*

BS 476-22, *Fire tests on building materials and structures — Part 22: Methods for determination of the fire resistance of non-loadbearing elements of construction*

BS 476-23, *Fire tests on building materials and structures — Part 23: Methods for determination of the contribution of components to the fire resistance of a structure*

BS 5250, *Code of practice for control of condensation in buildings*

BS 5516-1, *Patent glazing and sloping glazing for buildings — Part 1: Code of practice for design and installation of sloping and vertical patent glazing*

BS 6100-0, *Building and civil engineering — Vocabulary — Part 0: Introduction and index*