



**Sandtoft** 

**Cassius**®  
New Generation thin leading edge clay tile



# CLAY MAKES HISTORY

Sandtoft Cassius is a New Generation clay tile that puts a whole new perspective on using natural roofing materials. Designed in collaboration with the UK's leading contractors, and following four years of research and development, Cassius not only dramatically cuts the cost of a natural clay roof but also provides a cost effective alternative to natural slate.

In Natural Red and Tuscan colours, the clean lines and thin leading edge of Cassius create an attractive natural clay roof, while the large format size and interlocking design reduce material and installation costs compared to traditional clay tiles.

In Antique colour, Cassius offers something very different - the Clayslate. Once fired in this slate colour, the flat profile and thin leading edge combine to give this clay tile an authentic slate appearance. In its clayslate form, Cassius offers similar aesthetics and weathering properties to natural slate because it is also a natural material. However, unlike slate, clay can be pressed into complex designs during the manufacturing process, and thus offers significant material and labour savings. The large format interlocking design of the Cassius provides big savings over traditional double lap slate.

So significant are the savings that, at only 10.5 tiles per m<sup>2</sup>, Cassius affords the same economic benefits as thin leading edge concrete interlocking tiles. For the first time natural materials can be specified at the same price as concrete.





### **A New Generation in clay tile design**

The Cassius is a New Generation clay tile that provides all the benefits of a natural clay roof at an affordable price. This is thanks to two key elements of its innovative design. Firstly, the new large format size gives a covering capacity that matches the largest concrete tiles. Secondly, the open gauge ensures the Cassius is fast and efficient to install, removing all the complications previously associated with interlocking clay tiles and dramatically reducing costs.

**Natural materials are growing in popularity but their benefits usually come at a price. A traditional natural material like quarried slate, is a labour intensive and specialised product that must be installed double lapped to perform correctly. This means high labour and material costs and longer completion times.**

In recent years these constraints have led to the evolution of alternative concrete slate-appearance products, which utilise interlocking tile design, resulting in considerably less slate per m<sup>2</sup> of roof. Whilst these products offer major cost savings in installation, they do not provide the aesthetic and 'planning friendly' benefits of natural materials.

In response, Sandtoft has turned to clay; an incredibly versatile natural material that can be pressed into precise shapes and then fired in a permanent slate colour. This has enabled Sandtoft to create a completely natural product that has the installation costs of concrete tiles, thanks to its size and flexible open gauge design.

When compared to slate-appearance products such as concrete thin leading edge tiles, Cassius not only matches the cost of installation, it also costs no more in material terms. In other words Cassius offers a natural roof at the same price as concrete thin leading edge slate alternatives.

### Superior performance moulded in clay

Another benefit of the flexible nature of clay is that it enables weatherproofing features to be pressed into the surface of the tile to improve performance. With the help of wind tunnel testing to simulate the varying extreme conditions of wind driven rain, Cassius has been designed to offer new levels in weatherproofing performance. Each tile is pressed using precision plaster moulds, to form high definition interlocks and weather bars together with protected nail holes to create a new clay tile that is highly resistant to all forms of weather.

Cassius is manufactured from natural clay taken from the alluvial plain of the Humber estuary. Sandtoft's abundant reserves of raw clay are excavated immediately adjacent to the manufacturing process requiring minimal transportation. The clay pits are periodically restored as wetland habitats, two of which are now registered as Sites of Special Scientific Interest (SSI).

### Features

- **New Generation clay tile with easy to lay open gauge design**
- **Antique Clayslate option fired in permanent slate colour available at equivalent price to thin leading edge concrete slate alternatives**
- **Thin leading edge with hidden interlock**
- **No tops or eaves tiles required**
- **60 year product guarantee when fixed according to Sandtoft's recommendations**
- **Pressed from natural alluvial Humber clay**
- **High performance weatherproof design developed through intensive wind tunnel testing**
- **Conforms with all current UK and European standards and fixing requirements**
- **Easy fix pushclip system available for fast and efficient mechanical fixing**
- **Manufactured and independently certified under Quality Management System BS EN 9001**
- **Certified to Environmental Management Standard EN ISO 14001**
- **All raw clay is extracted from an abundant source of local reserves located within 1 km of the production process**



68 Antique Slate



65 Natural Red



69 Tuscan



## Technical data

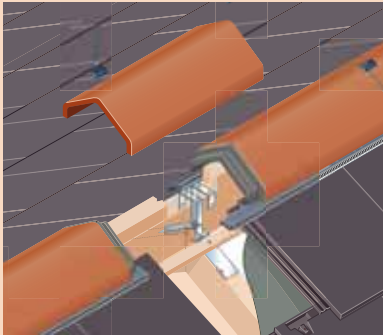
<b>Minimum roof pitch</b>	22.5°
<b>Headlap (minimum)</b>	75 mm
<b>Headlap (maximum)</b>	120 mm
<b>Batten spacing at max. gauge</b>	330 mm
<b>Batten spacing at min. gauge</b>	285 mm
<b>Size of tile</b>	405 x 330 mm
<b>Covering capacity</b>	10.5 tiles per m <sup>2</sup>
<b>Cover width</b>	289 mm
<b>Profile depth</b>	16 mm
<b>Hanging length</b>	365 mm
<b>Weight as laid</b>	37.5 kg per m <sup>2</sup>
<b>Weight per 1000</b>	3.8 tonnes
<b>Weight per tile</b>	3.8 kg
<b>Weight per pallet (including pallet and packaging)</b>	1.0 tonne
<b>Quantity per pallet</b>	240
<b>Battens per m<sup>2</sup></b>	2.9 m
<b>Batten size – up to 450 mm rafter centres</b>	38 x 25 mm
<b>Batten size – up to 600 mm rafter centres</b>	50 x 25 mm
<b>Nail size/type for tiles</b>	50 x 3.35 mm aluminium clout head
<b>Nail size/type for tile clips</b>	65 x 3.35 mm aluminium clout head

Note: Unless otherwise stated, data is based on tiles laid at minimum headlap.

Note: For projects where the rafters are below the minimum recommended roof pitch, please contact the Sandtoft Technical Support Team for advice.

# Cassius® fittings and accessories

## Profile Ridge system



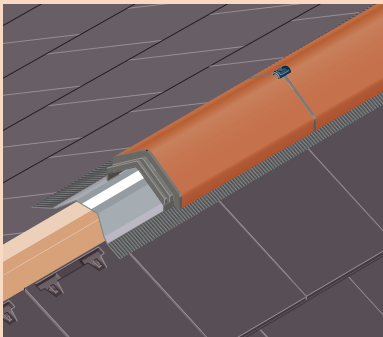
### Components

Each pack has sufficient components (excluding ridges) for 2.7 metres of ridge. For use with 457 mm Duracoat legged angle ridges and 305 mm clay half round ridges.

### Profile mono ridge system components

Each pack has sufficient components (excluding ridges) for 2.7 metres of ridge. For use with 457 mm Duracoat legged angle mono ridges and 305 mm clay half round mono ridges.

## RollRidge system



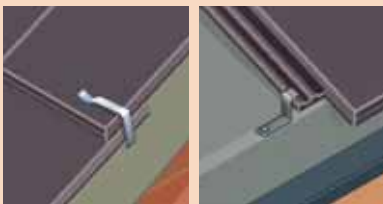
### Components

Each pack has sufficient components (excluding ridges) for 5.0 metres of ridge. For use with 457 mm Duracoat legged angle ridges and 305 mm clay half round ridges.

## Clip systems



Tile clip



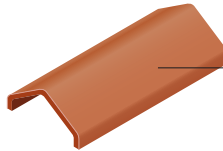
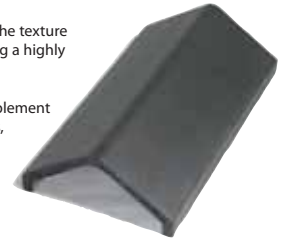
Verge clip

Eaves clip

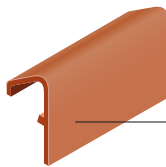
## Duracoat Ridge Range

Sandtoft has developed a new finish for concrete ridges, hips and related fittings that matches the texture and colour of our clay range. Duracoat gives the appearance of natural clay and is achieved using a highly durable multi-layered acrylic polymer coating.

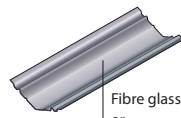
This new range of fittings has prolonged weathering properties and has been designed to complement Sandtoft's New Generation range of clay tiles. At a small premium over standard concrete ridges, Duracoat ridges further reduce the cost of a clay roof as they are at least 60% cheaper than clay ridges per linear metre and can save up to 5% on the total cost of the roof.



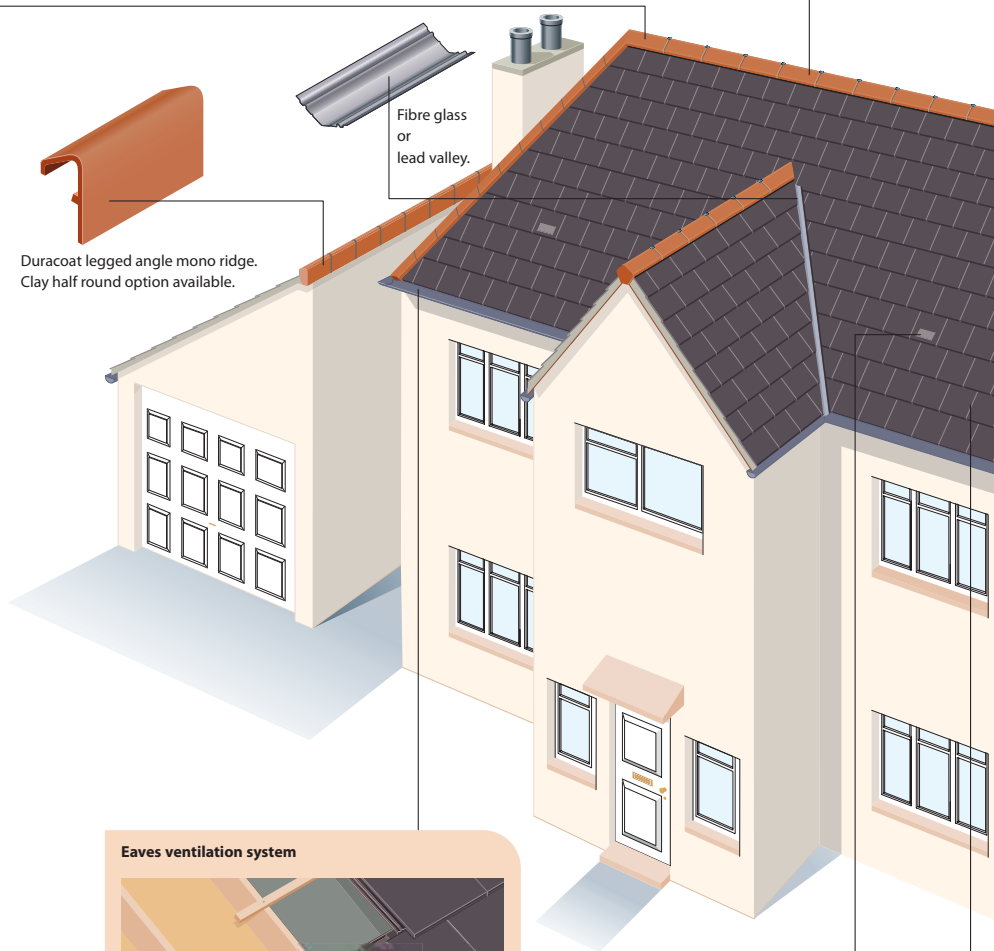
Duracoat legged angle ridge. Clay half round and clay angle options available.



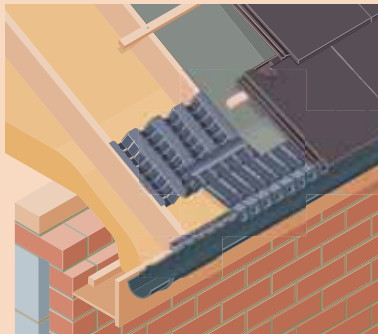
Duracoat legged angle mono ridge. Clay half round option available.



Fibre glass or lead valley.

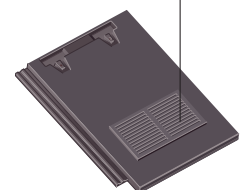


## Eaves ventilation system

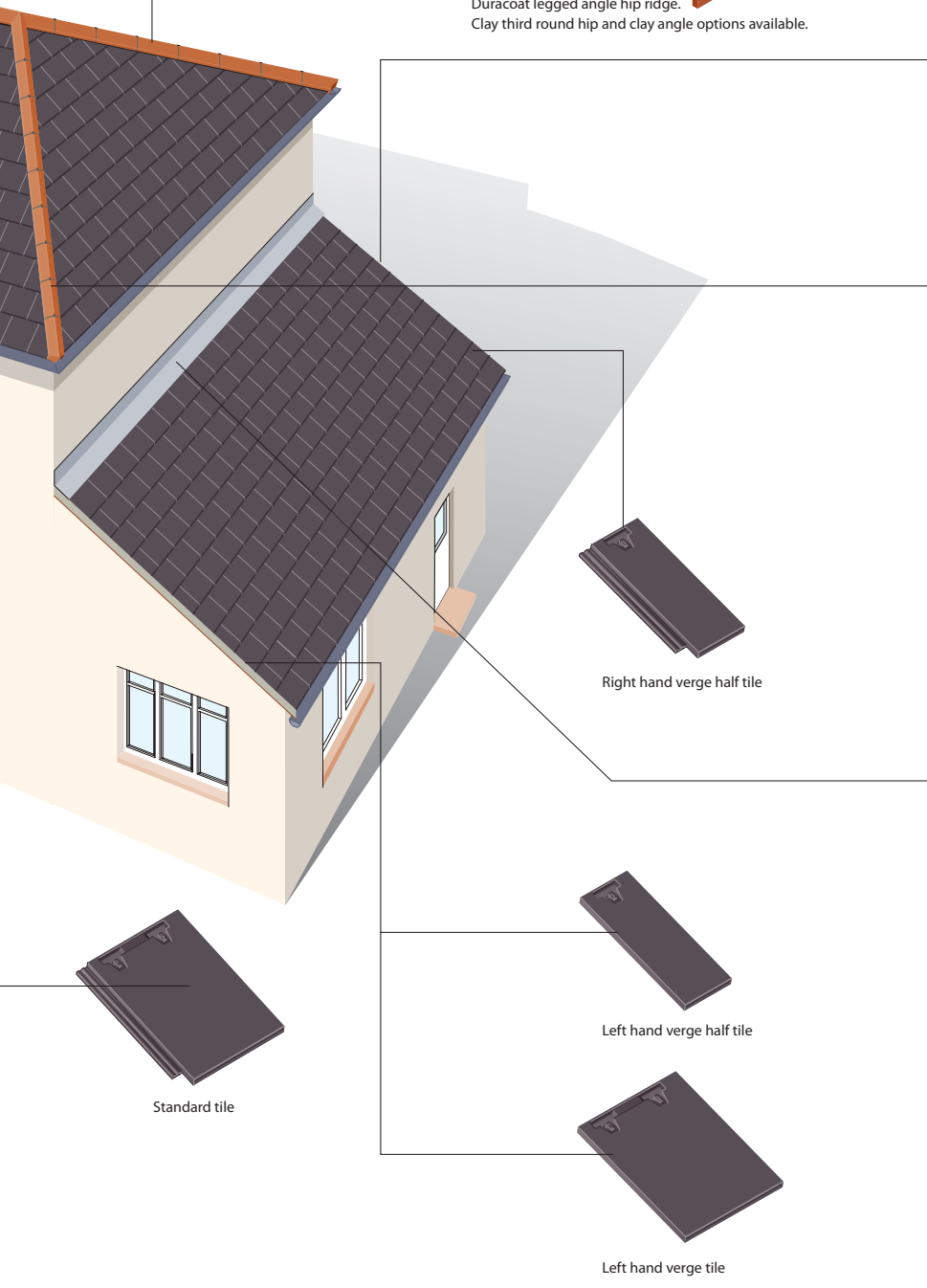
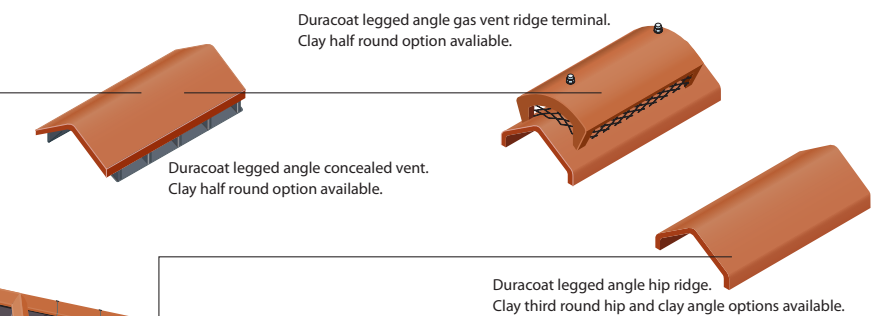


### Components

The Sandtoft eaves ventilation system is available in 6 metre packs. Systems are available in 10 mm and 25 mm.



Concealed tile ventilator



**Multiverge system**

**Components**  
Multiverge is colour matched to complement the tiles and is easy to fix, providing a neat, secure and mortarless finish at roof verges. The system is suitable for use at both left and right verges.

**Roll Hip system**

**Components**  
Each pack has sufficient components (excluding hip ridges) for 5.0 metres of hip. For use with 457 mm Duracoat legged angle hip ridges or 305 mm clay third round hip ridges.

**Abutment ventilation system**

**Components**  
Rollvent top abutment ventilation. The Sandtoft Rollvent top abutment system comes in 3 metre rolls. Copper fixing clips are included to secure the Rollvent and lead flashing.

For roof ventilation principles see Sandtoft Dry Roofing and Ventilation brochure or visit [www.sandtoft.com](http://www.sandtoft.com)

# Sandtoft Technical Support Services

## Technical Support

This brochure forms part of a package of technical information designed to provide everything you need to design, specify and install a roof using Sandtoft Cassius.

Sandtoft provide a number of free and comprehensive technical services that will help ensure that your project is trouble free and complies with the latest standards. To make use of these services simply complete the relevant information on the page opposite and fax back to our Technical Support Team on **0870 145 2019** or visit us online at **www.sandtoft.com**



### Roof SPEC

This service is available to assist the specifier by providing a complete roof specification.

- Bespoke specification clauses
- Ensures correct detailing
- Helps defect avoidance
- Achieves compliance with the latest British Standards

**Complete Parts 1, 2 and 3 of the data sheet opposite or online at [www.sandtoft.com](http://www.sandtoft.com) to obtain your bespoke Roof SPEC.**

Alternatively, full sets of specification clauses can be downloaded for self-completion from our website.



### Fixing SPEC

To ensure your roof is correctly and securely fixed in accordance with British Standards, make use of Fixing SPEC, our fixing specification service.

- Project-specific fixing recommendations produced to latest British Standard recommendations
- Sandtoft wind-loading software system uses BRE BREV data
- Postcode based system provides quick and accurate results
- Significantly reduces the long term risk of wind damage

**Complete Parts 1 and 3 of the data sheet opposite or online at [www.sandtoft.com](http://www.sandtoft.com) to obtain your bespoke Fixing SPEC.**



### CAD library

To complement the widest roof tile range in the industry, Sandtoft has developed an extensive library of CAD details for all our products that will save you time.

- CAD details are available for download at **www.sandtoft.com**
- All drawings in DWG, DXF and JPEG formats
- Bespoke details can be designed on request
- Includes specialist and more unusual details such as change of pitch and cottage eaves details

**Complete Parts 1 and 4 of the data sheet opposite or online at [www.sandtoft.com](http://www.sandtoft.com) to access our CAD library.**



### Quantity SPEC

A practical service to ensure the complete roof system has been correctly quantified.

- Detailed roofing material schedules ensure that vital components are not missed, thereby avoiding potential delays on site
- Comprehensive estimating advice and training available

**Send your drawings to Technical Support to obtain a comprehensive quantity estimate with Quantity SPEC, to the following address:**

Technical Support, Sandtoft Roof Tiles Ltd, Belton Road, Sandtoft, Doncaster DN8 5SY.

# Specifying Cassius®

To make use of the Roof SPEC, Fixing SPEC, CAD library services or for other information simply complete section 1 and other relevant sections and fax this data sheet to Technical Support on 0870 145 2019.

## 1. Personal details (please complete for all services)

Name

Position

Company

Address

Postcode

Tel

Fax

E-mail

## 2. Roof SPEC (please complete this section to enable us to write bespoke specification clauses for your project)

### Type(s) of tiling

Project reference (e.g. extension to dwelling):

Base (e.g. trussed rafters at 600 mm centres):

Rafter pitch

Lay underlay over .....

(e.g. trussed rafters, sarking, counterbattens)

Tile type

**Cassius**

Tile colour

### Vertical tiling (e.g. to gable walls)

Base (e.g. blockwork, vertical battens at 450mm centres)

### Ventilated eaves

Fascia ventilator grilles  Rafter ventilator trays

### Verges

Bedded undercloak  Dry verge  
 Nailed undercloak

### Hips

Mortar bedded hip  
 Dry hip  
 Mortar bedded and nailed hip

Hip tile (e.g. third round hip ridge):

Colour

### Valley

GRP valley  Lead valley

### Ridge

Dry ventilated ridge  
 Mortar bedded ridge  
 Mortar bedded and nailed ridge  
 Mortar bedded mono ridge  
 Dry ventilated mono ridge

Ridge tile (e.g. Half round ridge, monopitch ridge):

Ridge tile colour:

### Roof slope ventilators

Warm roof  Cold roof

Position (e.g. high level, eaves level)

Roof slope terminals

Ventilator tile type

To vent (e.g. soil and vent pipes, kitchen ventilation pipes)

### General

Change of roof pitch  
 Roof window  Side abutment  
 Top edge abutment  Snow guards  
 Top edge ventilated abutment

Junction (lead saddle) (e.g. junction of ridge with hip, junction of ridge with valley, junction of ridge with abutment, top junction of two valley gutters)

Sundry accessories (e.g. pipe flashing)

## 3. Fixing SPEC (to enable us to calculate a tile/slate fixing (i.e. nailing/clipping) specification please supply the following information)

Rafter pitch

Duo or mono pitch roof

Building height to eaves

Building width

Building length

Rafter length

Counterbattens  Yes  No

Counterbatten depth

Site address

Site postcode

## 4. CAD Library

CAD details can be supplied in the following ways – please tick format required:

Hard copy  
 E-mail file  
 CD-ROM

alternatively, visit our website

**www.sandtoft.com**

## 5. Further technical information

Installation guide

# Performance

## Guarantee

BS 7543, the British Standard guide to 'Durability of buildings and building elements, products and components' gives the normal design life of buildings to be a minimum of 60 years. Sandtoft clay tiles are guaranteed to remain durable for at least 60 years, subject to the standard terms of the guarantee.

All Sandtoft roof tiles are included in the National Federation of Roofing Contractors Co-Partnership Guarantee Scheme which offers a 10 year guarantee for workmanship (and also underwrites Sandtoft material guarantees for a 10 year period) along with insolvency insurance cover where the work is carried out by an NFRC member, subject to terms.

## Quality and Standards

All Sandtoft clay tiles are manufactured under a Quality Management System which is certified to comply with ISO 9001.

Sandtoft Cassius is manufactured in accordance with the requirements of BS EN 1304, the current British and European standard for clay roof tiles.

Tiles comply with all the requirements of the test methods applicable to BS EN 1304 which are set out in:

- BS EN 538 for flexural strength
- BS EN 1024 for geometric characteristics
- BS EN 539-1 for impermeability
- BS EN 539-2 for frost resistance

The tiles achieve results higher than the minimum recommended strength requirement and are classified Category 1 for impermeability. For frost resistance they are deemed suitable for use in geographical Zone D which includes the whole of the United Kingdom.

Sandtoft clay tiles will also meet the relevant performance requirements of BS 5534, the British Standard for Slating and Tiling.

Natural clay tiles are subject to small variations in size due to drying and firing shrinkage in the manufacturing process.

## Environmental Management

The manufacture of Sandtoft clay tiles is independently certified to comply with ISO 14001: Environmental Management Systems. This ensures that clay tiles are processed by the most energy-efficient means possible. The raw material is excavated from local reserves, within 1 km of the factory. Old clay pits are restored as wetland habitats, two of which are now registered as Sites of Special Scientific Interest (SSSI).

## Appearance

Clay is a natural and sustainable roofing material which is inherently strong and provides richness in colour which will not fade. The rich colouring of natural clay provides roofs with great beauty and character which become more attractive with age.

Sandtoft Cassius is manufactured to give a harmonious appearance to the finished roof. However, slight colour variations may occur as a consequence of the production process. It is therefore advisable to take tiles from several pallets and mix randomly on the roof. Minor abrasions may be caused during packaging, loading and transportation. These will not affect the performance of the tiles and will disappear over time through natural weathering.

## Composition

Sandtoft clay tiles are manufactured from naturally occurring alluvial clay deposits which are processed, extruded or pressed and fired at high temperatures.

## Fire Resistance

Sandtoft Cassius is classified SAA when tested in accordance with BS 476: Part 3: 1975, with respect to fire penetration and spread of flame.

## Environmental and Biological Effects

Sandtoft Cassius is highly durable and resistant to a wide range of environmental factors. Sandtoft Cassius is unaffected by frost, extreme temperature variation and prolonged exposure to sunlight. Except in extreme cases, tiles are highly resistant to atmospheric pollution in all areas of the UK. Tiles are

not attacked or degraded by birds, rodents, insects or the growth of mosses and lichens.

## Fixing Requirements

With Fixing SPEC, our fixing specification service, Sandtoft can carry out a wind loading calculation and provide fixing recommendations in accordance with BS 5534.

## Sitework

Sandtoft Cassius should be laid and fixed to comply with BS 5534: Code of Practice for Slating and Tiling and BS 8000: Part 6: Code of Practice for workmanship on building sites – slating and tiling. Comprehensive installation guides are available for all Sandtoft products. Contact our Customer Support Team or visit [www.sandtoft.com](http://www.sandtoft.com)

## Maintenance

Sandtoft clay roof tiles do not normally require any maintenance during their design life. However, in areas where mosses, lichen or wind-blown vegetation, such as pine needles are a risk, it is prudent to avoid blockage of the rainwater channels.

## Health and Safety

Health and safety rules and regulations must be adhered to at all times before any handling or installation of Sandtoft products. Health and safety and COSHH information is available from our Customer Support Team, and also available on our website.

## Packaging and Storage

Sandtoft Cassius is supplied polythene wrapped on pallets.

Sandtoft products should be stacked on firm, even ground with good drainage. We advise that you consult our Safe Stacking Recommendations for details of recommended stacking heights. Contact our Customer Support Team or visit our website for a copy of our Safe Stacking Recommendations.



# General enquiries

Tel 0870 145 2020

Sandtoft Roof Tiles Ltd., Belton Road,  
Sandtoft, Doncaster DN8 5SY

E-Mail [info@sandtoft.co.uk](mailto:info@sandtoft.co.uk)  
[www.sandtoft.com](http://www.sandtoft.com)

# Technical enquiries

Tel 0870 145 2021  
Fax 0870 145 2019  
E-Mail [technical@sandtoft.co.uk](mailto:technical@sandtoft.co.uk)

# Ordering and deliveries

## To order Cassius contact:

Tel 0870 145 2022  
Fax 0870 145 2018

Please state the tile type, fittings and accessories types, all quantities and colours, site address and any specific requirements when placing an order.



**CAMPAIGNING FOR  
BEAUTIFUL ROOFS**

Tile colours shown in this brochure are as accurate as the printing process will allow.  
Product samples are available upon request.  
At Sandtoft we are continually innovating and improving our product range.  
We reserve the right to change product specifications without notice.  
Please contact our Customer Support Team for the latest information or visit [www.sandtoft.com](http://www.sandtoft.com)



Cassius®  
Community registered design application No. 000165840  
UK patent pending: application No. 0407835.8  
European patent pending: application No. 05252150.7