

EST ENGLAND 1588



KEYMER SPECIFICATION GUIDE

The Keymer specification guide is a piece of roofing history, its drawings and explanations have become as much a part of the heritage of handcrafted roofing as has the brand in the hearts of those that touch, use and feel its products.

This guide is intended to act as a walkthrough for the many uses of clay plain tiles and the versatility of the products, all of the practices are still viable today, but many have become lost to the market apart from the few skilled roofers still working today.

Keymer wishes to thank David Baker Architects for their invaluable and extensive expertise in preparing the following drawings and details.

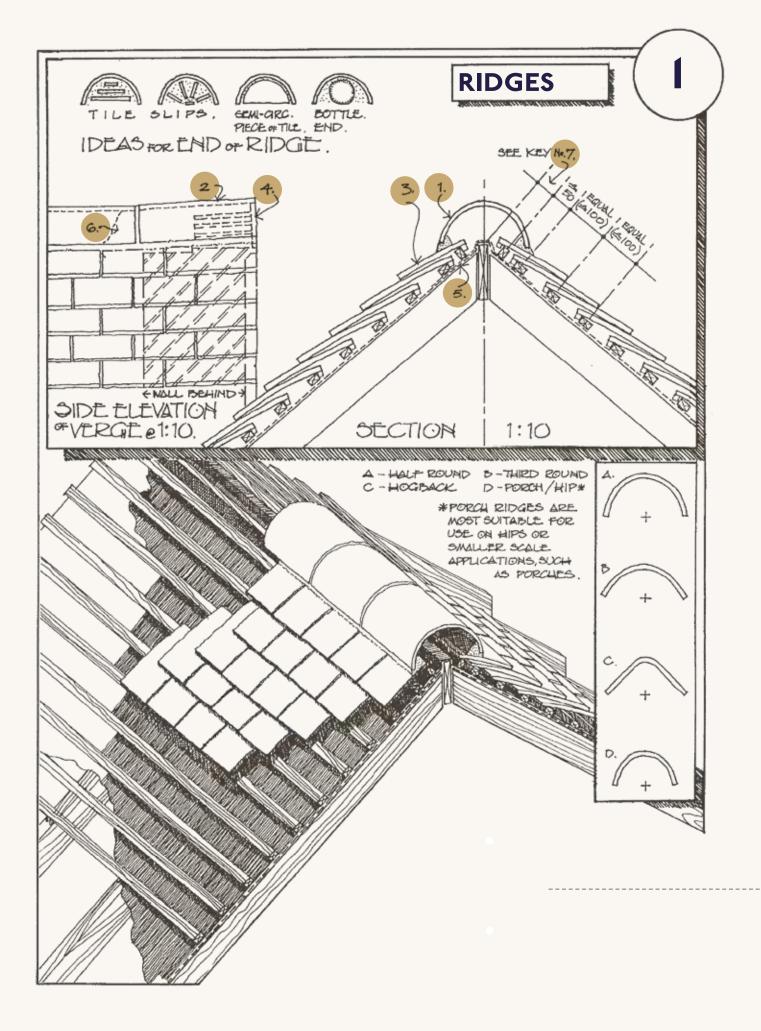
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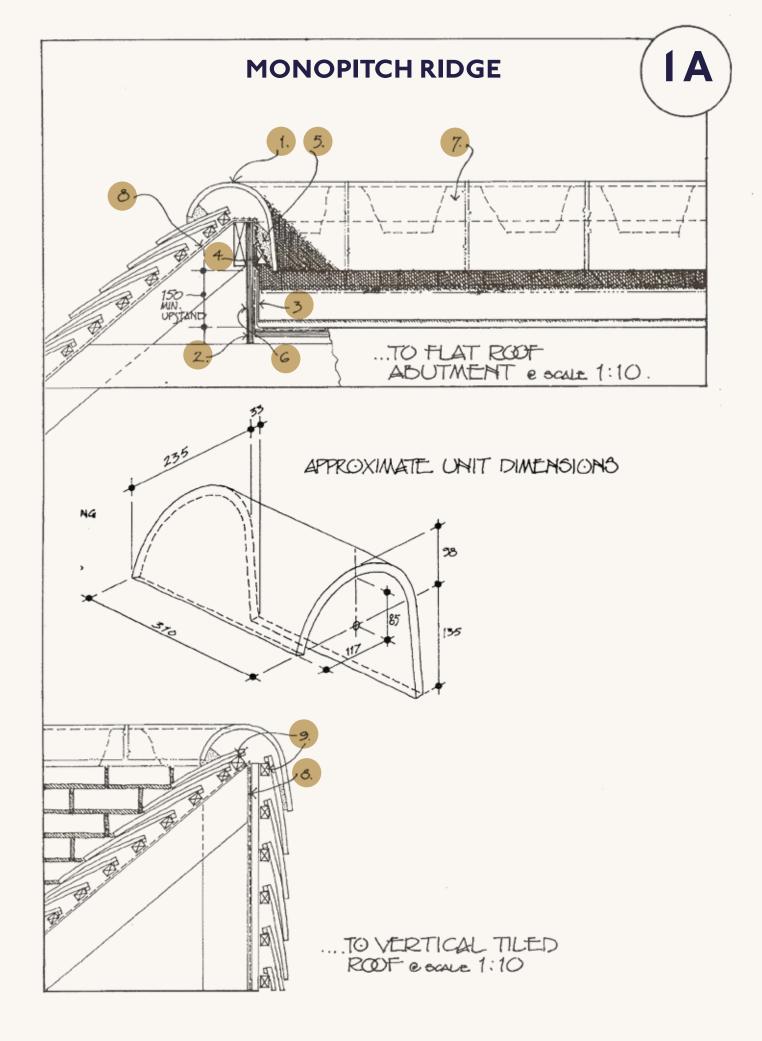
RIDGES

1 Ridge tile

2 Ridge is tilted up at verge and creasing tile slips inserted in ridge end to reduce visual impact of mortar bedding

- 3 Use 165 x 210 "Top Tile" here on batten turned through 90° to give correct pitch to top tile
- Pointing to ridge struck back 10mm or so, to keep tile edge clean, protect mortar, + make shadow line.¹/₂¹/₂³/₄
- 5 Strip of underlay fixed over ridge board to overlay general underlay by not less than 150mm
- **6** Mortar bedding of ridge tiles
- 7 Setting out the top tile batten requires care, + depends on the spread of the ridge tile. The line chosen must ensure that the ridge tile overlaps the top tile by a minimum of 65mm

Please note, these drawings are only intended as an aid to the correct usage of Keymers products.

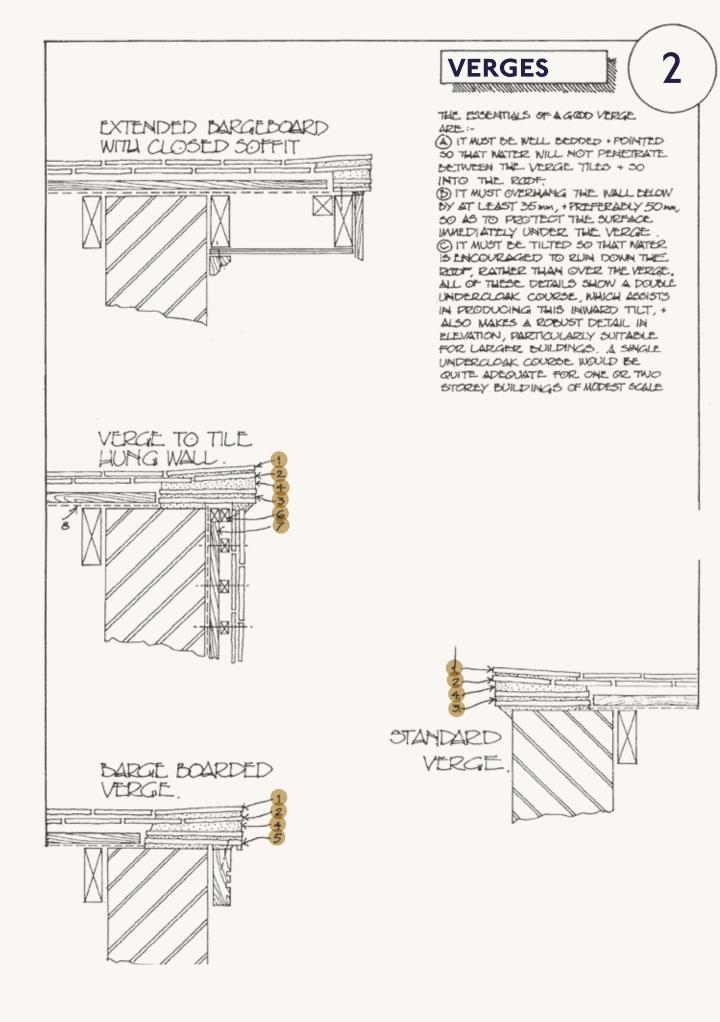




MONOPITCH RIDGE

XX

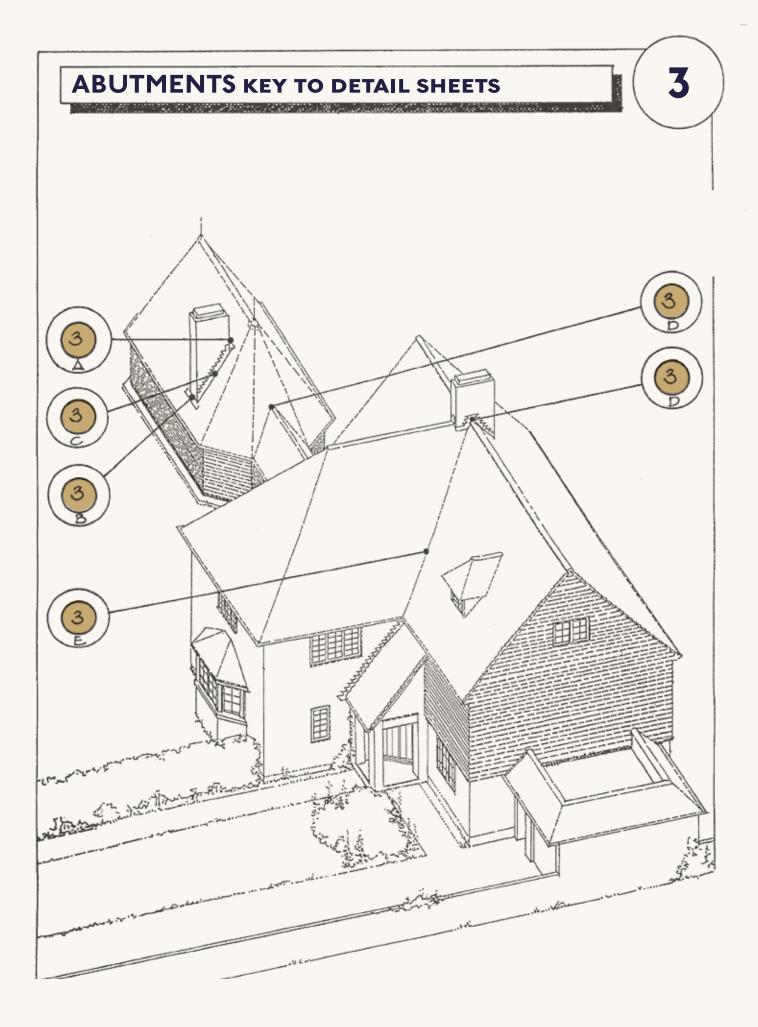
1	Monopitch ridge unit
2	Vertical board/sheet substrate for membrane roof covering
3	Flashing
4	Timber fillet carrying expanded metal mesh as key for mortar bedding
5	Mortar bedding
6	The flat roof covering is turned up under flashing min 150mm, and fixed/restrained to manufacturer's recommendations
7	Solid bedding under butt joints – see model spec
8	Underlay
9	For guidance on setting out first batten



VERGES

I	Tile and a half tile		
2	Standard tile	4	
3	Double undercloak coun tiles with 165mm edge s downwards		
4	Mortar bedding, pointed or as soon as possible th	ereafter	
5	'Tile-on-end' undercloa with nibs showing to giv	k course fixed to re dentil effect	o bargeboard
6	Battens		
7	Counterbattens		
8	Underlay. In cavity work cavity and lap onto the c		· ·

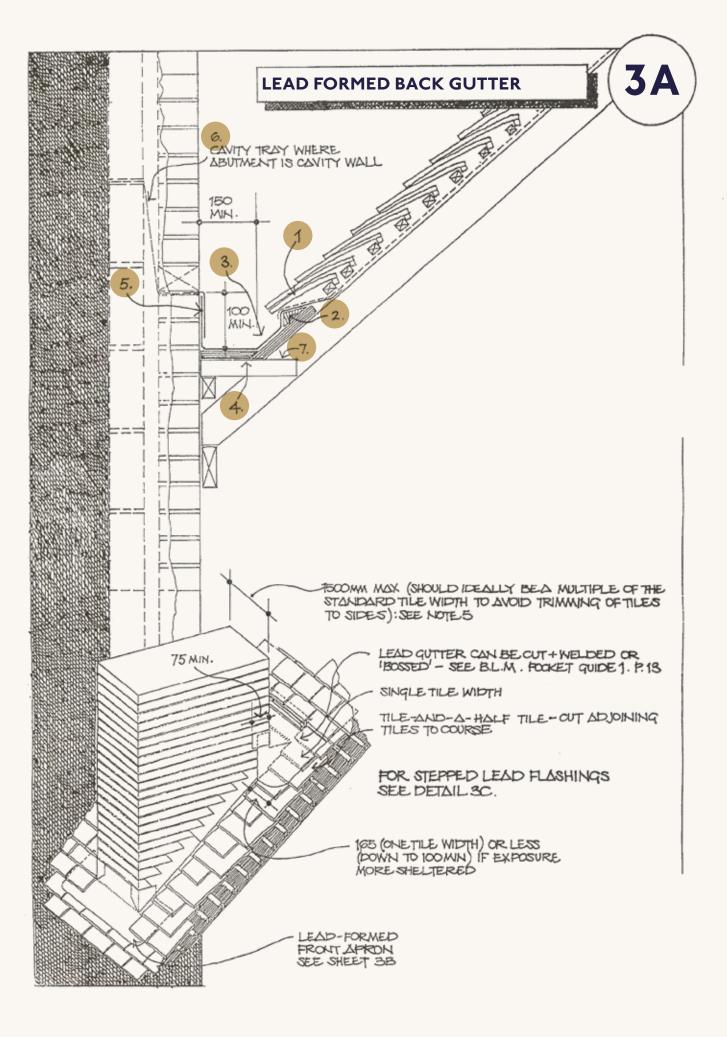
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ABUTMENTS

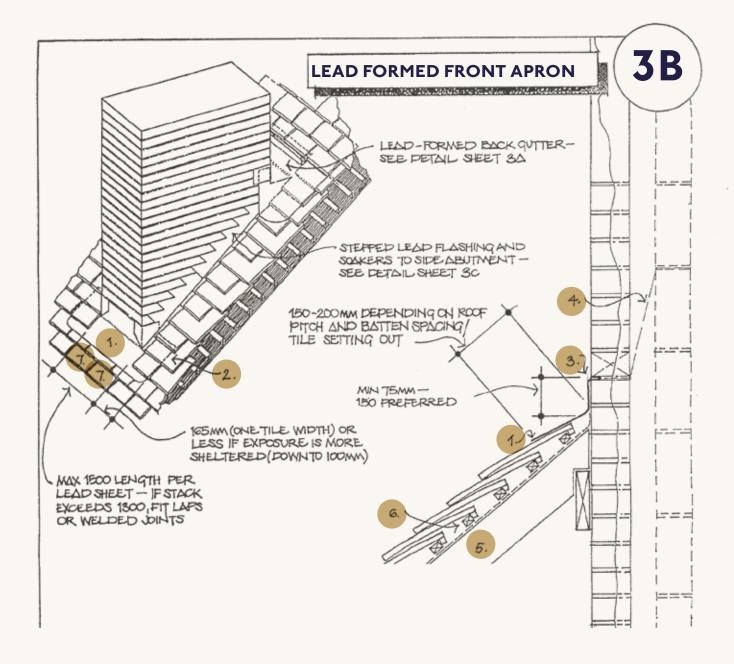
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LEAD FORMED BACK GUTTER

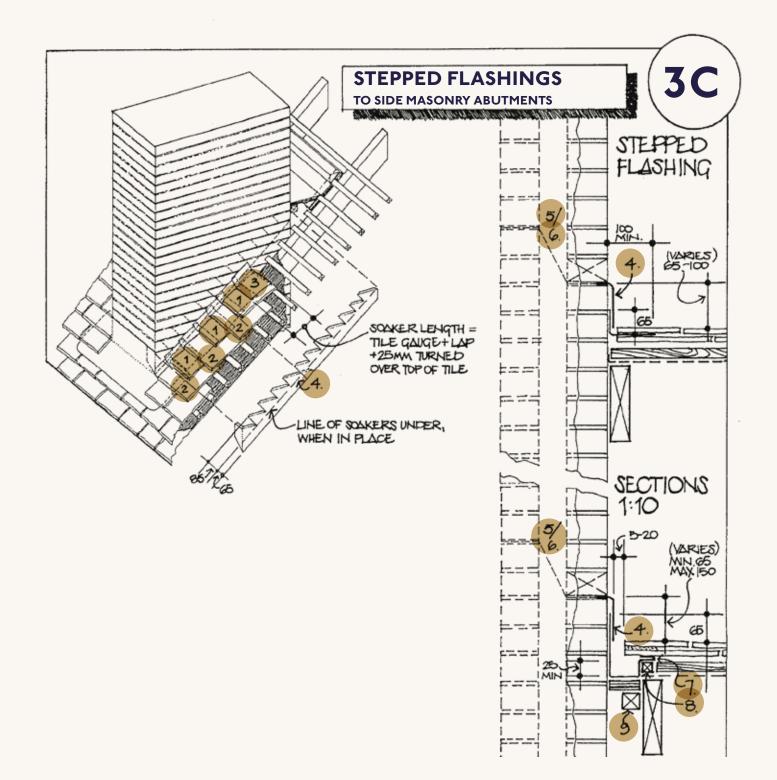
1	Eaves tile course
2	Treated timber fillet with lead-formed gutter bossed* over (*gutter gently worked to form)
3	British Lead Mills code 5 lead formed gutter. The gutter here is nominally flat, having a relatively short length. Maximum length for this detail is 1500. For longer abutments a stepped lead gutter should be used
4	Board/Sheet gutter former for lead-formed gutter
5	Code 5 lead flashing to masonry course.
6	Where abutment is to solid masonry, consider installing a through-wall D.P.C. to reduce damp penetration down through wall. Where abutment is to cavity wall, install cavity tray and weepholes.
7	Treated timber bearer supporting gutter former





1 British Lead Mills Code 5 lead-formed front apron 2 Apron is fitted under side abutment flashings and extends under tile courses as shown 3 Where abutment is to solid masonry, consider installing through-wall D.P.C. to reduce damp penetration down through wall 4 Where abutment is to cavity wall, install cavity tray and weepholes, for similar reasons 5 Rafter 6 Tile battens and underlay 7

If the width of the abutment is not a tile module, cut gable tiles to achieve half tile coursing

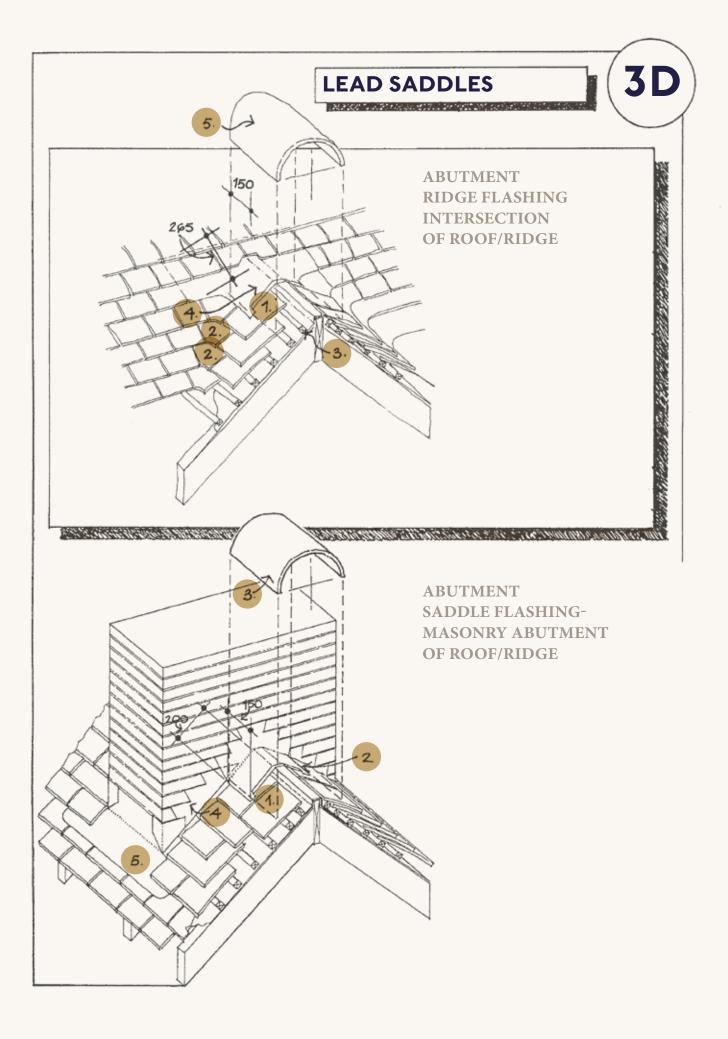


STEPPED FLASHINGS

To side masonry abutments

- 1 Full width tile (165mm) cut adjoining tiles as necessary to achieve half-tile coursing
- 2 Tile-and-a-half to alternating courses
- **3** British Lead Mills code 3-4 lead soakers to each abutment tile.
- 4 Stepped code 4 or 5 lead flashings fitted over soakers and fixed to masonry joints with lead wedges. Note lower extremity of stepped flashing is brought over and around front abutment flashing
- 5 Where abutment is to solid masonry wall, consider installing through – wall D.P.C. to reduce damp penetration down through

- 6 Where abutment is to cavity brickwork, install cavity tray and weepholes for similar reasons
- 7 Edge tiles are laid down over open welted lead secret valley lining. Upper edge tiles to be pointed
- 8 25 x 25 treated counter batten
- 9 Treated bearer / sheet valley former

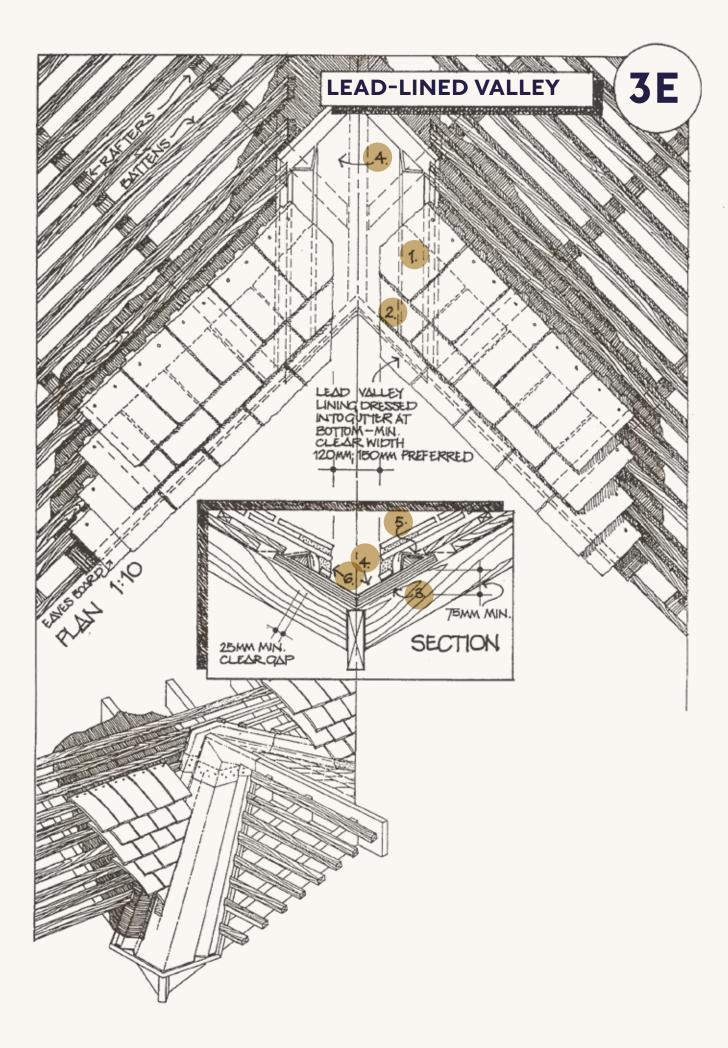




LEAD SADDLES

Abutment ridge flashing intersection of roof/ridge

1 Top tile 2 Purpose made valley tile 3 See ridge on pages 1 -2 or batten/felt details 4 British Lead Mills Ltd. Code 5 formed lead saddle to abutment junction. Saddle can be bossed or have welded gusset for steeper rood pitches - see BLM details Abutment ridge flashing intersection of roof/ridge 1 Top tile 2 British Lead Mills Ltd. Code 5 formed lead combined saddle/flashing. Flashing is wedged 25mm into masonry joints with lead wedges 3 Ridge sits on lead saddle and is pointed to masonry abutment 4 See detail: Page 13 for C3 side abutment flashing details 5 See detail: Page 11 for 3B for front lead formed abutment

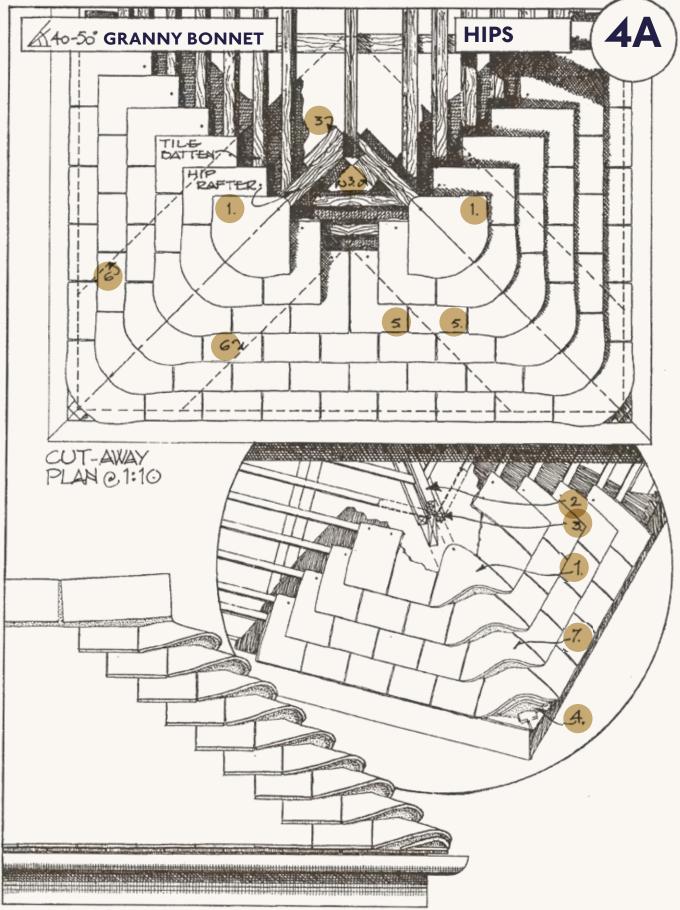




LEAD LINED VALLEY

1	Cut plain tiles to form valley channel
2	Cut gable (tile-and-a-half) tiles may be required to maintain half tile coursing
3	Ply valley board + timber fillets each side to support tiles at valley channel
4	British Lead Mills Ltd. Code 5 lead valley lining
5	Roofing felt to be dressed over fillet into 25mm gap

6 Mortar bedding on plain tile slips



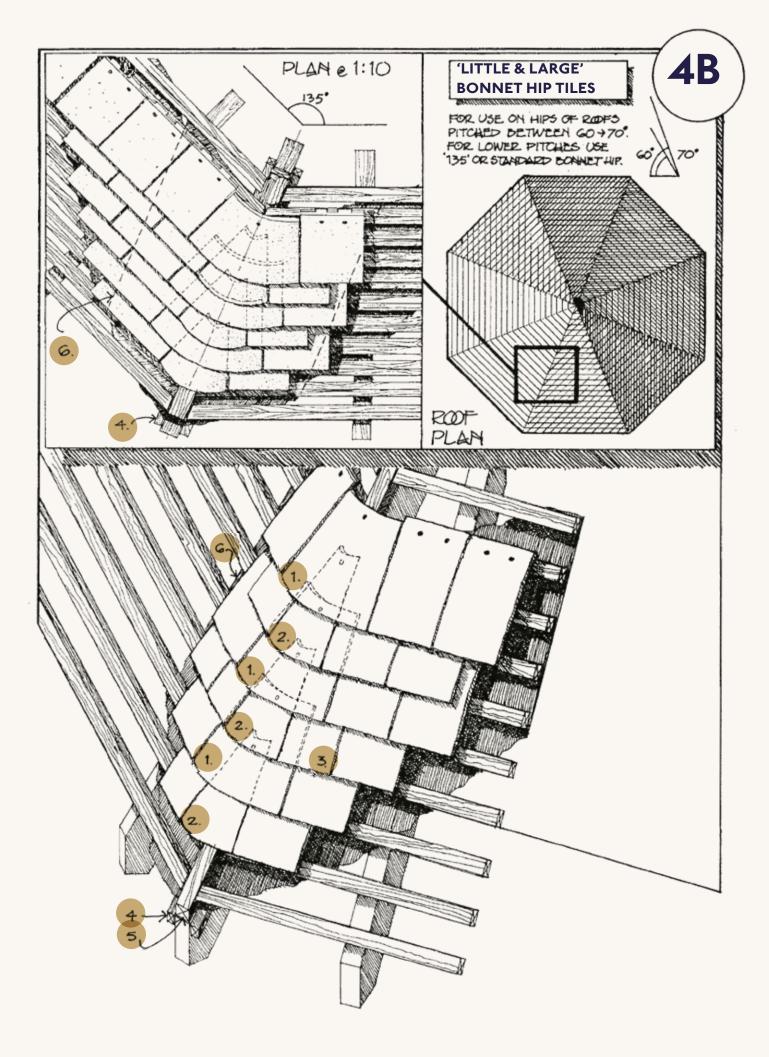
ELEVATION Cocale 1:10



40-50° GRANNY BONNET-HIPS

1.1.1	Granny	y bonne	1

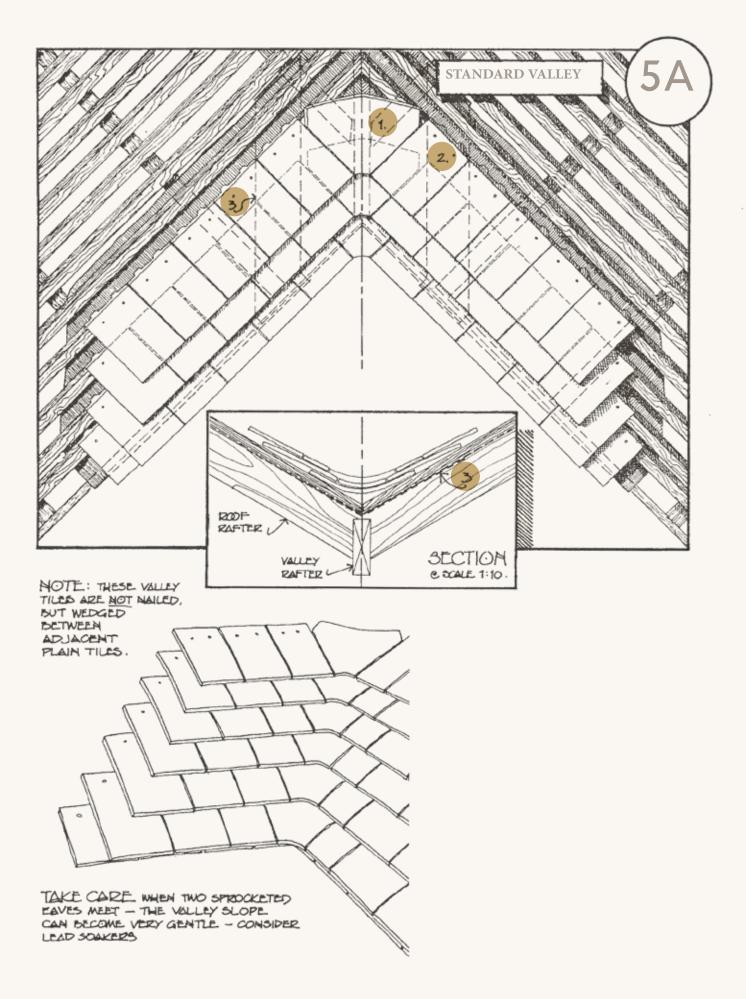
- 2 For lower roof pitches (ie 40-45°) it is recommended to fix a double batten along the hip rafter to tip the bonnet up, and so reduce the thickness of mortar bedding
- **3** Treated S.W. bearers support batten ends when doubled hip battens are used
- 4 Bonnet tile trimmed as 'undercloak' and tile 'tongue' to reduce visual impact of mortar bedding to bottom bonnet
- 5 Use gable tiles and out tiles as needed to achieve half tile coursing to main slopes
- 6 600mm wide strip of roofing felt laid over general roofing underlay
- 7 Jockeying of bonnets





'LITTLE + LARGE' BONNET HIP TILES

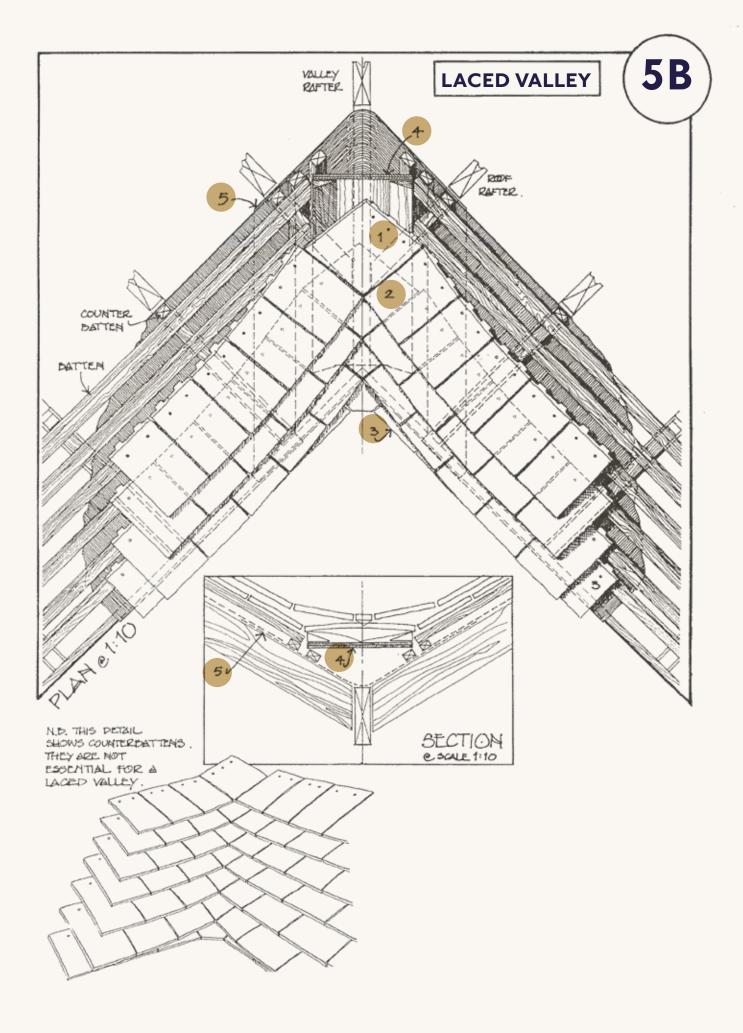
1	'Large' Tile	
2	'Little' tile	
3	Depending on pitch, cut tiles may good file + half tile coursing	be required to ensure
4	Timber bearer to batten ends	
5	Counter batten to give tile + good	fixing for bonnet nails
6	600mm wide strip of underlay, lai	d over general underlay





STANDARD VALLEY

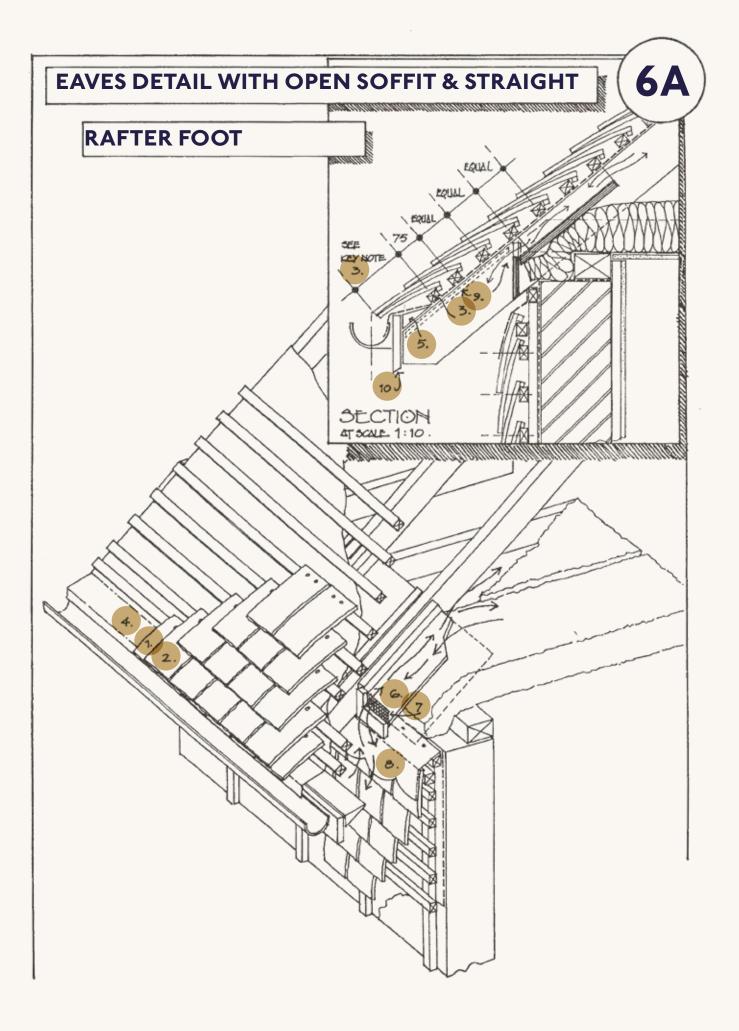
- 1 Tile-and-a-half ' tile turned through 90° in alternate courses
- 2 Adjacent plain tiles may require cutting to fit + course
- 3 Eaves tile course continues straight, but the next course (the first course of full size tiles) tilts up at the valley to start the 'lacing'





LACED VALLEY

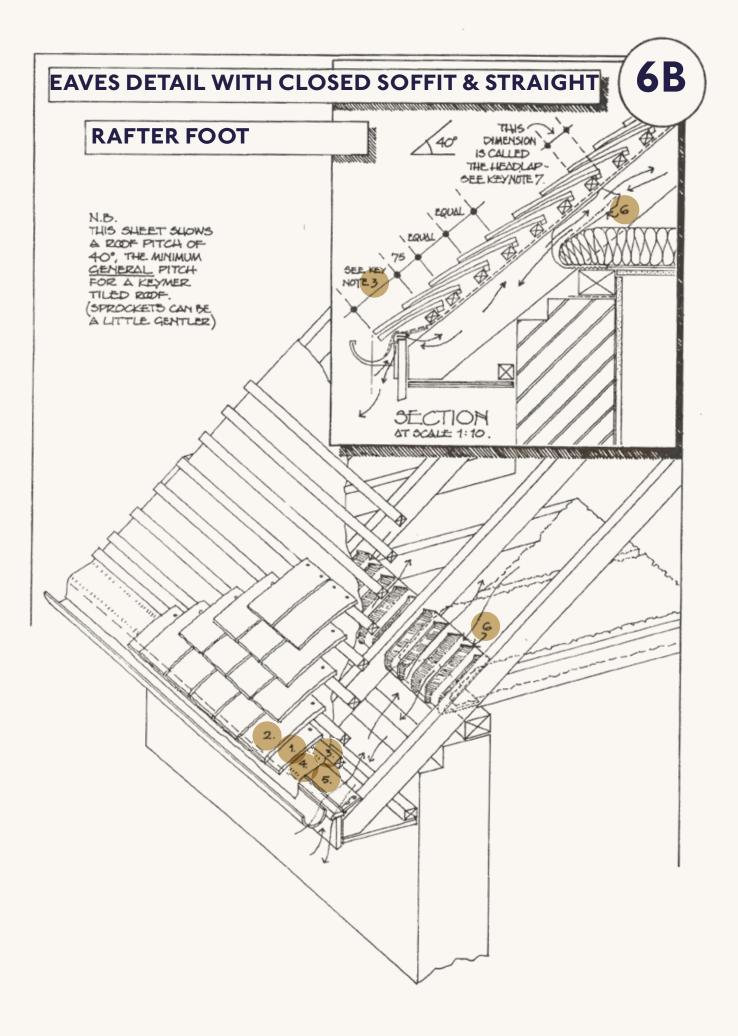
- **1** Standard valley tile, suitable for the meeting of equal pitch slopes of 40-50°. For pitches of 50-60°, use the Keymer 60° valley. For pitches outside these ranges, consult Keymer who will make special valley tiles
- 2 Depending on pitch, adjacent plain tiles may require cutting to form neat junction, + to keep ½ tile coursing
- 3 Continuous 600mm wide strip of underlay, under general underlay, + overlapped by the general underlay by at least 150mm
- 4 Ply valley board + timber fillets each side to support tile-and-a-half tile
- 5 Continuous 600mm wide underlay strip, under general underlay





EAVES DETAIL WITH OPEN SOFFIT & STRAIGHT RAFTER FOOT

1	Eaves tile (190mm long)
2	Standard tile (265mm long)
3	First batten set out to ensure that rainwater discharges to centre of gutter
4	Underlay extends into gutter and ponding is avoided by the use of a underlay support tray
5	Timber tilting fillet
6	Ply sheet + supporting noggins to maintain ventilation path
7	Mesh to keep out insects, birds etc
8	Flashing to neaten + weatherproof the top course of tile hanging
9	If the eaves overhang is large, consider using a dark stained timber under lining - looking up at underlay is not attractive – but make sure that it does not trap the underlay or obstruct the vent path
10	This detail shows a fascia – it can be omitted + the rafter feet exposed (but remember to use rafter brackets to support the gutter, not fascia brackets)

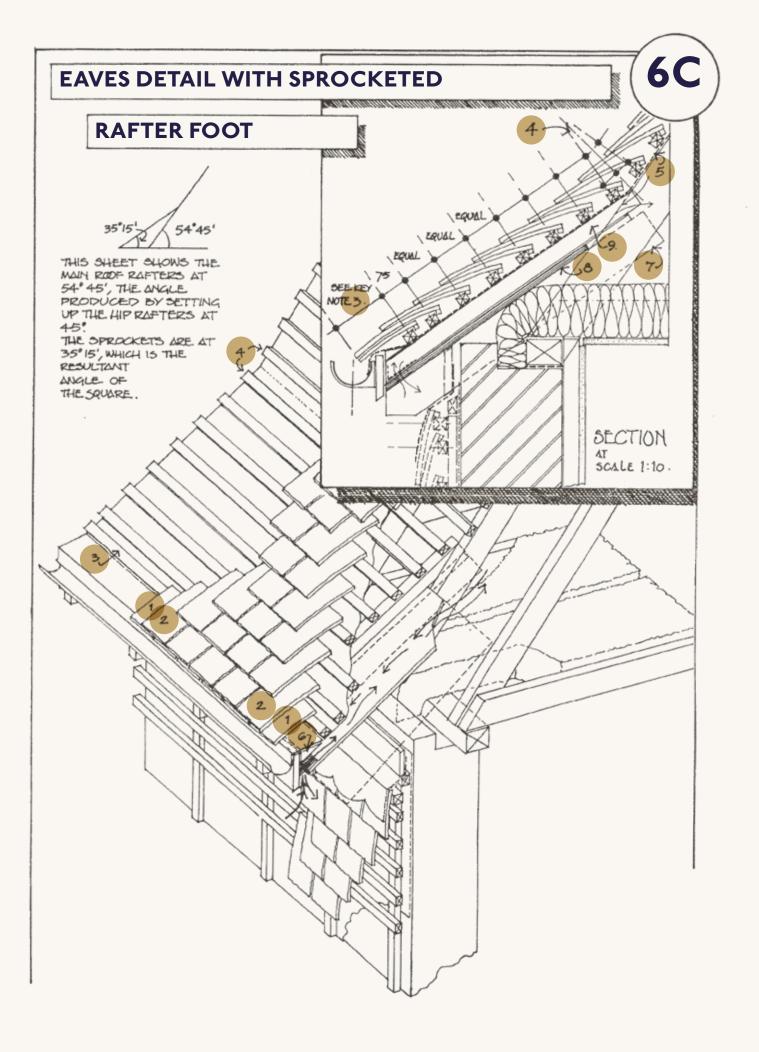




EAVES DETAIL WITH CLOSED SOFFIT AND STRAIGHT RAFTER FOOT

1	Eaves tile (190mm long)
2	Standard tile (265mm long)
3	First batten set out to ensure that rainwater discharges to centre of gutter
4	Underlay extends into gutter + is always sloping to avoid ponding
5	Keymer 'in-line' eaves vent accessory supports the underlay and gives continuous vent. The need for insect mesh etc., cutting of soffit board and so on is avoided
6	Keymer 'in-line' eaves vent accessory keeps insulation from obstructing air path venting the roof space
7	

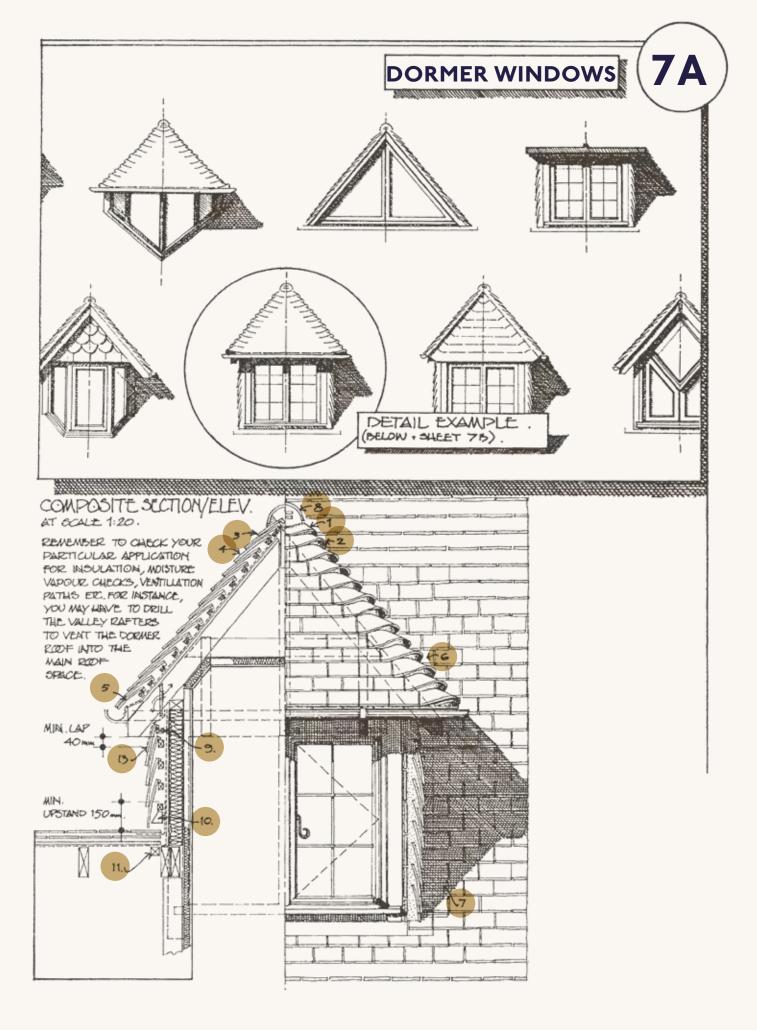
/ Battens set out to give minimum headlap of 65mm. In practice, this means a maximum batten spacing of 100mm





EAVES DETAIL WITH SPROCKETED RAFTER FOOT

1	Eaves tile (190mm long)
2	Standard tile (265mm long)
3	First batten set out to ensure that rainwater discharges to centre of gutter
4	These battens should be set out to miss the change in angle between sprocket and rafter. This gives a much gentler 'bell cast' shape to the roof
5	Underlay
6	Tilting fillet
7	Sprocket nailed to side of rafter foot
8	Ply sheet to maintain vent path*
9	Counter-batten to produce air path. (Don't forget the insect mesh)

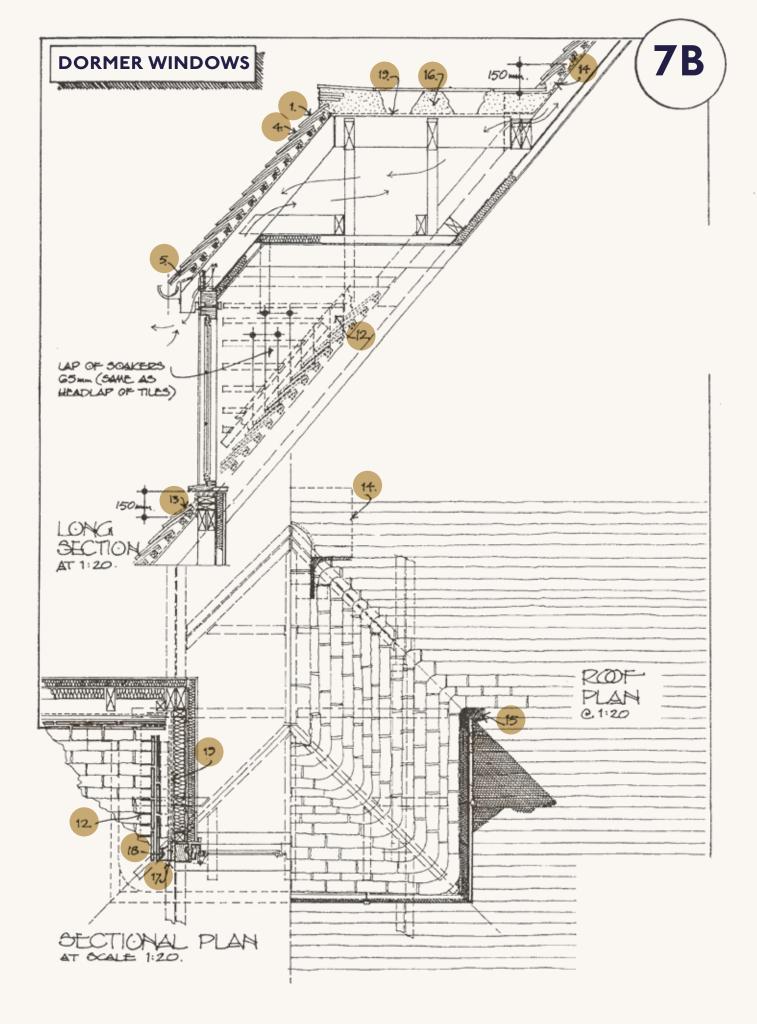




DORMER WINDOWS

From diagrams 7A - 7B

1	Top bonnets out to fit + to course, and to lift end ridge tile
2	Standard bonnet – sheet 2A for further guidance
3	Top tile (210mm long)
4	Standard tile (265mm long)
5	Eaves tile (190mm long)
6	Standard valley
7	Tile-and-a-half tile
8	¹ / ₂ Round ridge tile. Tile slip end filling
9	Top batten turned through 90° to build out top course
10	Tilting fillet
11	Batten bearer may be needed, depending on width of dormer cheek structure

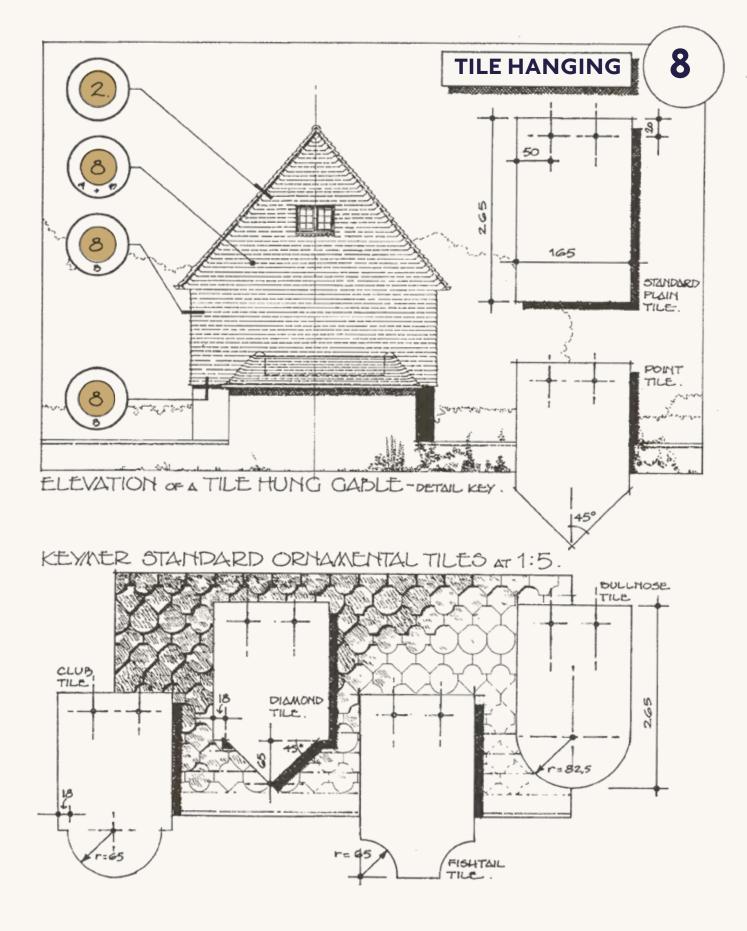




DORMER WINDOWS

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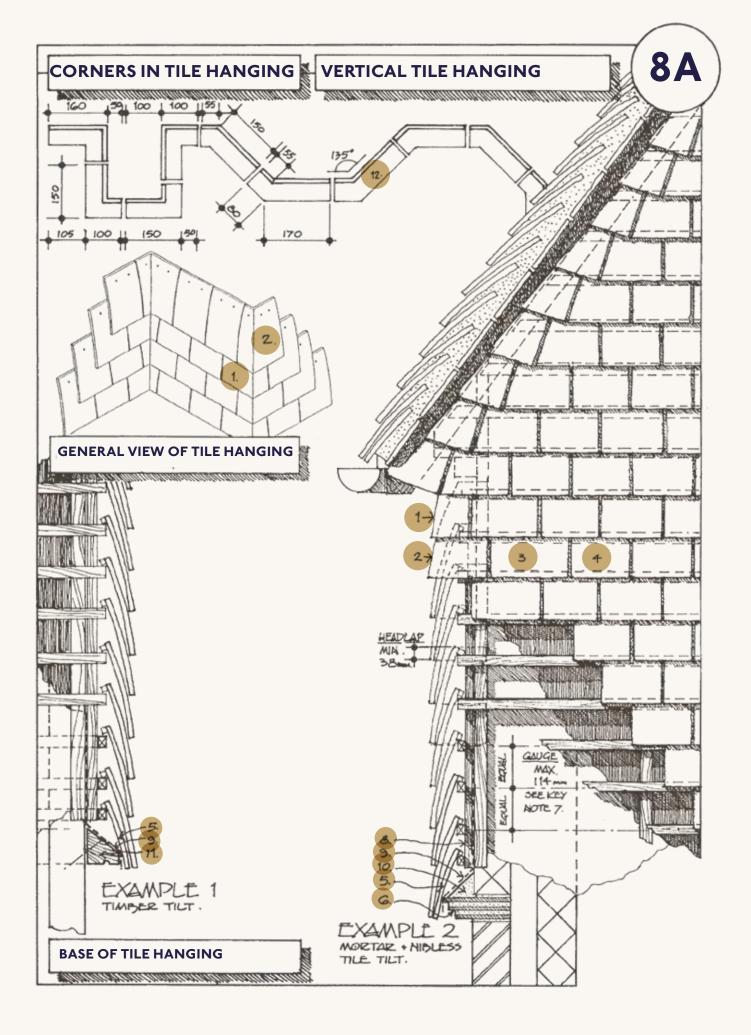
12	Lead soakers, 150mm upstand + 150mm under each tile, and projecting 10mm past leading edge of each tile
13	Lead dressing over top tile
14	Lead saddle under ridge and carried 150mm up slope
15	This area will receive rainwater from both the valley and the gutter. A lead apron would be sensible
16	Solid mortar bedding to ridge tile joints
17	¹ / ₂ Tile slips nailed to post, to stop battens, give key for mortar, and to reduce visual mass of mortar. Set the mortar back a little, and take care to keep the tile edges clean
18	Mortar pointing to weatherproof edge of tile – hung cheeks. Again, keep the tile edges clean
19	¹ ⁄ ₂ Round ridge tile. Tile slip end filling
20	Underlay is fixed in pieces + strips in accordance with the recommendations for each particular junction.





TILE HANGING

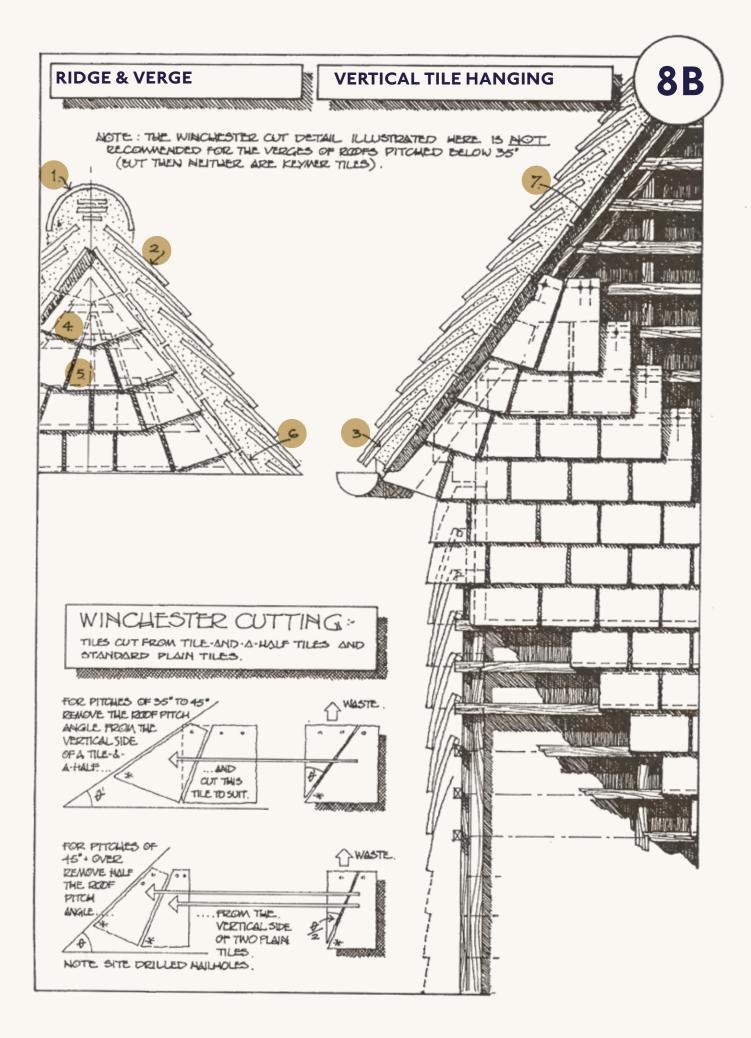
See key detail 8A + 8B on pages 74 - 77





CORNERS IN TILE HANGING. VERTICAL TILE HANGING. GENERAL VIEW OF TILE HANGING. BASE OF TILE HANGING.

1	90° external angle (left hand)
2	90° external angle (right hand)
3	Cut tile-and-a-half tile to achieve ½ tile coursing
4	Standard plain tile
5	Eaves tile (190 long)
6	Nibless tiles
7	Battens set out to give minimum headlap of 38mm. In practice this gives a maximum batten spacing for vertical tile hanging of 114mm. The formula is tile length-lap = gauge
8	Vertical counter battens
9	Underlay
10	Mortar tilting fillet
11	Timber tilting fillet
12	Keymer also produces 135° internal + external angles in handed sets

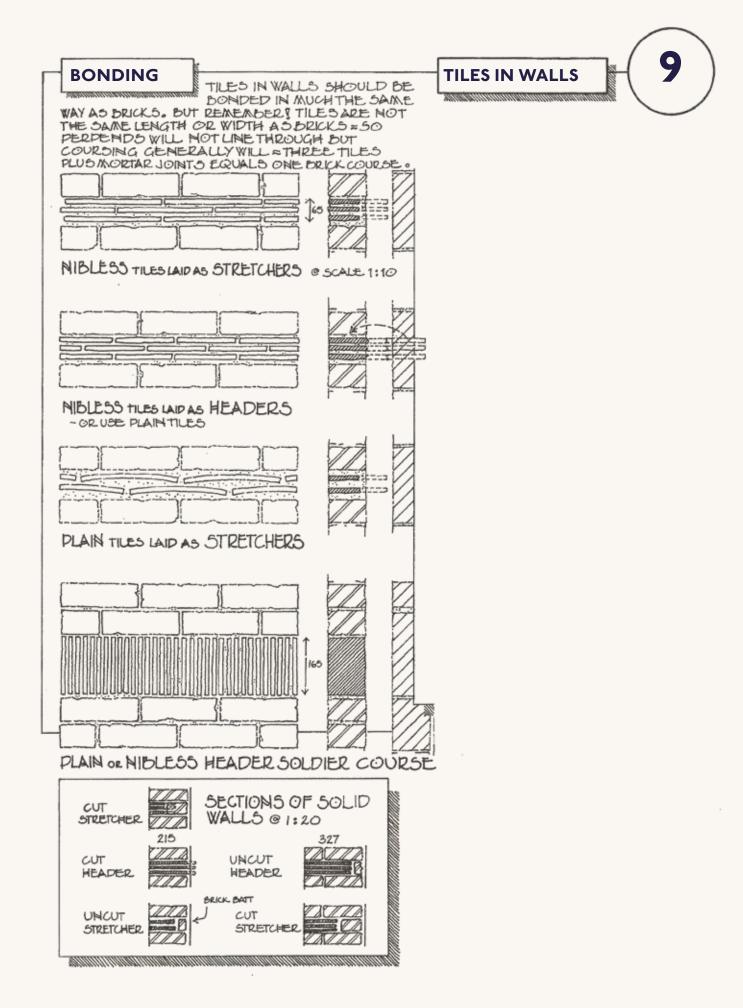




RIDGE + VERGE JUNCTIONS. VERTICAL TILE HANGING.

1 1/2 round ridge tile with tile slip filling 2 Top tile (see sheet 1 for further guidance) 3 Eaves tile (see sheets 6A, B + C for guidance) 4 Special tile cut on site from tile-and-a-half tile, and fixed with mortar, lead clips and/or nailed through site-drilled nail holes 5 Special tile cut on site from standard plain tile = fixed as noted in 4 above 6 Nibless or standard plain tiles with short side showing as undercloak 7

With all roof pitches when Winchester cutting, it will be necessary to fix anadditional tiling batten running parallel to the line of the roof pitch, in order to secure the last tile





BONDING.

TILES IN WALLS

Why use tiles in walls?

- Weather resistance use to resist the passage of moisture.
- Non brick shapes use to form arches, brackets + small module shapes.
- Colour/texture contrast use to break up large areas, introduce texture variations, run string courses bands and patterns

Which tiles to sse

- Plain the Keymer plain tile is suitable in many situations, but the nib must be taken into account (or used to advantage!).
- Nibless this solves any problems you may have with nibs.
- Ridges these are useful as copings.
- Other tiles your ingenuity is the only limitation!

Cutting

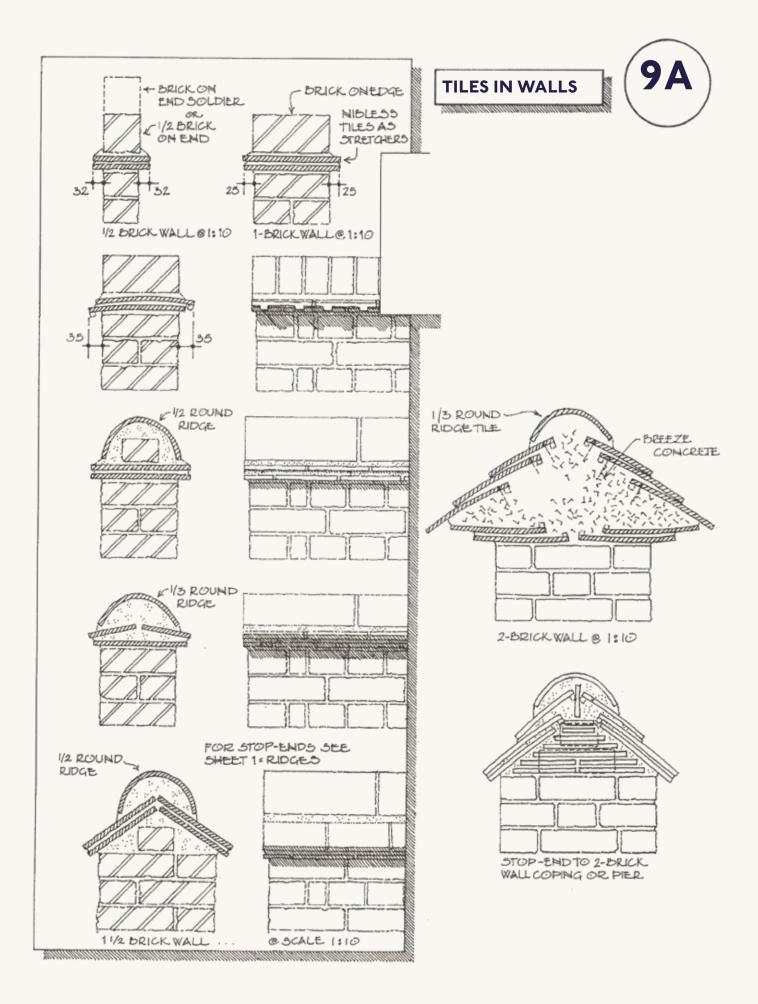
- How? disc cutter (neatest and less wasteful), skutch or nibbler.
- Avoid! Showing cut edges in face-work. They're ragged and lighter

Mortar

- MIX 1 cement : 1 lime : 1 fine aggregate Or 1 cement : 3 fine aggregate.
 - DON'T use soft building sand.
- JOINT don't point nominally recess the joint to keep the edges clean, but don't create ledges – bag or stipple on completion to remove cement laitance and to expose a little aggregate

Danger - Aesthetic Health Warning

In the words of Nathaniel Lloyd, "the adaptability of the unit frequently produced appalling results." Use tiles in walls sparingly and thoughtfully – and avoid fussiness. Laitance and to expose a little aggregate



TILES IN WALLS. COPINGS

¹/₂ round ridge tile with tile slip filling

Top tile (see sheet 1 for further guidance)

Eaves tile (see sheets 6A, B + C for guidance)

Special tile cut on site from tile-and-a-half tile, and fixed with mortar, lead clips and/or nailed through site-drilled nail holes

Special tile cut on site from standard plain tile = fixed as noted in 4 above

Nibless or standard plain tiles with short side showing as undercloak

With all roof pitches when Winchester cutting, it will be necessary to fix an additional tiling batten running parallel to the line of the roof pitch, in order to secure the last tile



FINALLY...

Here are some of the past projects we've been involved with

ROYAL HOUSEHOLDS

Windsor Castle Kensington Palace St James's Palace Hampton Court Apartments

RELIGIOUS BUILDINGS

St Pauls Cathedral, the Deanery All Saints Church, Ongar Choir House, Canterbury Cathedral St Thomas Church, Brentwood St Mary's Church, Rickinghall Portsmouth Cathedral Ely Cathedral Tewskesbury Abbey Bradwell Abbey Douai Abbey, Berkshire Blendworth Church, Hampshire Caldey Island Monastery Dunwich St James, Suffolk Golders Green Crematorium Our Lady Queen of Martyr's, Chideok William Booth College, London Rosslyn Chapel, Roslin St Columba's Church, Glasgow

NATIONAL TRUST / ENGLISH HERITAGE

Dover Castle, Kent The Vyne, Basingstoke Bodiam Castle, East Grinstead Scotney Castle, East Sussex Critchley Hall, Buckinghamshire Harvington Hall, Worcestershire Hever Castle, Kent Ightham Mote, Kent Michelham Priory, East Sussex Leeds Castle, Kent Watts Chapel, Surrey Chartwell, Kent Cliffords Tower, York Oxborough Hall, Norfolk Shakespeare's Birthplace, Stratford-on-Avon Tyntesfield, Somerset Welbeck Estate, Notts

PUBLIC & HISTORICAL BUILDINGS

Jane Austen's House, Hampshire Thames Hospice, Maidenhead Tonbridge Castle, Kent The Tower of London County Hall, London Market Cross, Wymondham Shakespeare's Birthplace Trust Lord Leycester Hospital, Warwick Cobtree Museum, Weald & Downland Museum, Sussex Leatherhead Town Hall, Surrey **Reading Town Hall** Bournville Village, West Midlands Zoological Museum, Hertfordshire Bursledon Brickworks Museum, Hampshire Goodwood Estate West Boathouse, Glasgow Green Boston Guildhall, Lincolnshire Mawley Hall, Shropshire Ashby Hall, Lincolnshire Cawood Castle, North Yorkshire Cliveden House, Berkshire Ednaston Manor, Derbyshire **Finsbury Circus Pavilion** Fountains Abbey, North Yorkshire Halnacker Windmill, Sussex India Building, Liverpool Middle Temple Hall, London The Old Curiosity Shop, London Queensbury House, Edinburgh Well Court, Edinburgh Reform Club, Pall Mall Saffron Walden Town Hall Stonor Park, Berkshire The Burge, Coventry The Old Courthouse, Worcs Verulamium Museum, St Albans Villa Urbana, Wroxeter The Rectory, Frome

EDUCATIONAL BUILDINGS

Sevenoaks School - new girls and boys boarding houses. Ibstock Place School Refectory Brentwood School Churchill College, Cambridge Queens College, Cambridge Farnborough Hill College Kings College, Cambridge Oxford University Duke of York Military School, Dover, Kent Clare College, Cambridge Cambridge University Library Eton College Merchant Taylors School, Middlesex Sawston School, Cambridge University of Manchester Fylingdale School, North Yorkshire

Sponsorships

English Heritage – Corporate Partnership Conservation in Action interpretation programme at Dover Castle 2021 – 2022

Historic England - Heritage Angels Awards 2018

Sponsor of Best Rescue of a Historic Building or Place (projects under £5 million) Winner | The Florence Institute, Liverpool

Society for the Protection of Ancient Buildings (SPAB) – Heritage Award Sponsors of Sustainable Heritage Category 2022

Winner | No.4, Black Bull Close – the rescue of an abandoned 18th-century building behind Dunbar High Street, by community-based charity the Ridge

Recent Awards

Pitched Roofing Awards 2022 Best Use of a Heritage Roof | Jane Austen's House with Clarke Roofing Southern Ltd

2017 Grand Designs RIBA House of the Year Caring Wood

RIBA National Award 2022 RIBA Regional London Award 2022 AJ Awards - School category 2021 Ibstock Place School Refectory by Maccreanor Lavington

RIBA Regional Southeast Award 2022 Aisher House Sevenoaks School, Kent by Tim Ronalds Architects'

RIBA Regional South Award 2022

AJ Awards - Health and Wellbeing category 2022 Thames Hospice, Maidenhead, by KKE Architects

RIBA Regional East Award 2022

Churchill College, Cambridge, by Cottrell & Vermeulen

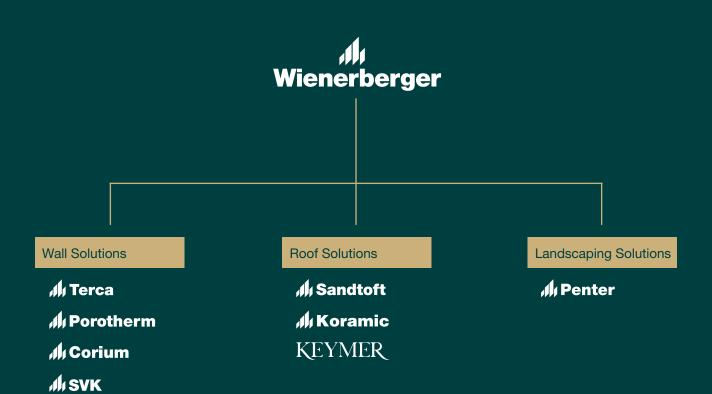
RICS Award 2018 (Finalist) AJ Specification Award 2019 (Finalist)

Grevel Lane - Arts & Crafts House with Design Storey Architects

RIAI Universal Design Award 2022

RICS Awards 2022 - Refurbishment/Revitalisation Project India Buildings, Liverpool





For further information please contact the Keymer team on 01444 232931 | info@keymer.co.uk



