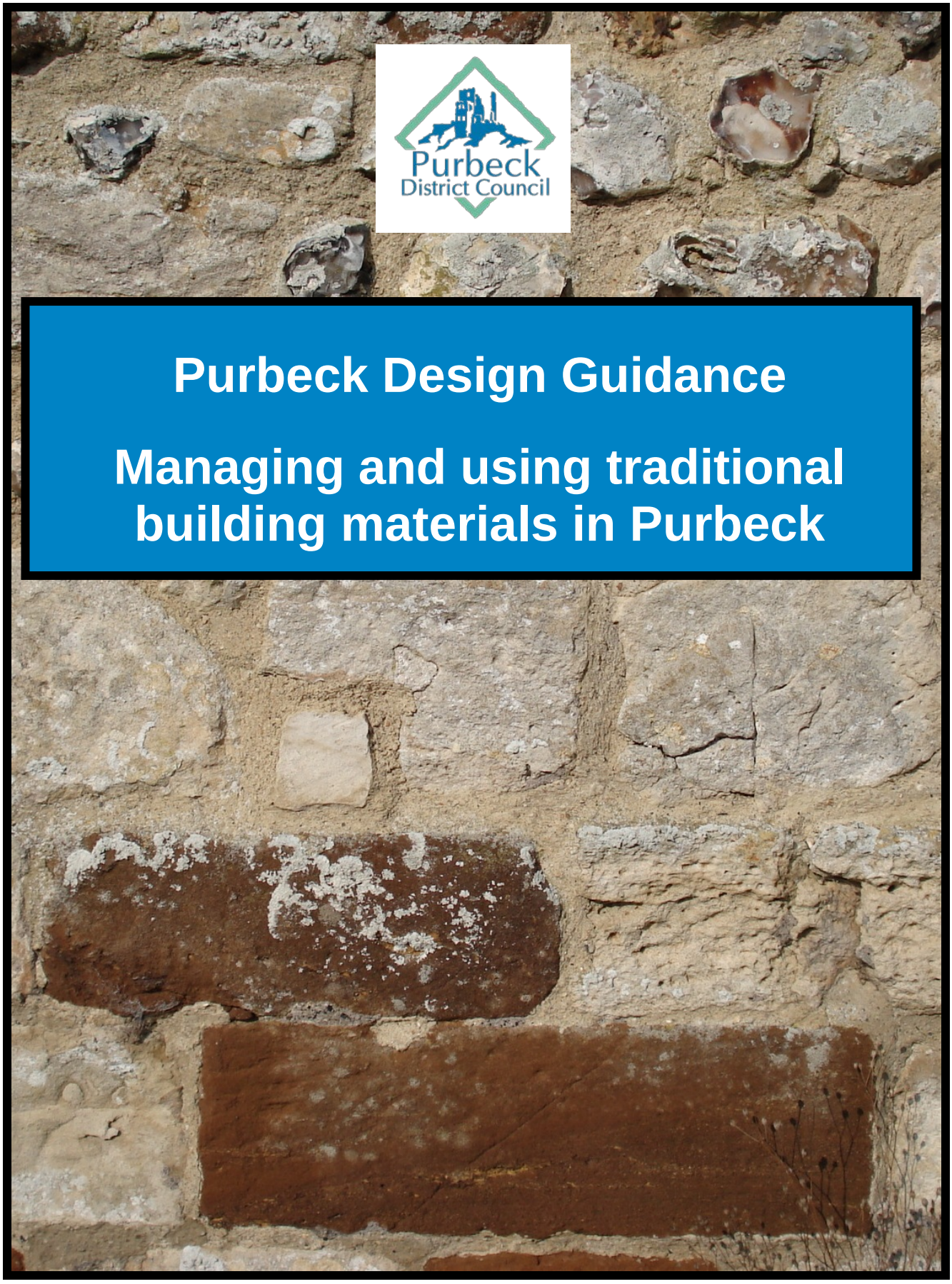


Purbeck District Council

Purbeck Design Guidance

Managing and using traditional building materials in Purbeck

Foreword

Achieving high quality design is a key planning objective. This document has been produced to support the District Design Guide Supplementary Planning Document. It provides an overview of traditional building materials typical around the District, which play an important role in providing a distinctive local character. It sets down expectations the Council will have when considering planning applications in which traditional materials are used, and should also be useful in those cases where planning permissions or consents are not required. The four key aims of this guide are:

- to provide a source of ideas by highlighting the importance of building materials;
- to provide guidance where altering traditional buildings;
- to assist in the assessment of planning proposals; and,
- to help deliver a more attractive and sustainable environment in Purbeck.

This document was first published in January 2014.

Contents

About this design guidance

1. This section explains the purpose of this design guidance, how it is structured, who should use it and how to use it.

What is design guidance?

2. Design guidance provides an overview of design principles and 'good' practice, and sets down the expectations the Council has when considering planning applications.

   This guidance aims to:

   - be a source of detailed guidance that expands upon topics in the District Design Guide Supplementary Planning Document;
   - be a practical source of ideas and suggestions; and
   - help you think through issues.

   This guidance seeks to:

   - raise the standard of design in all types of development;
   - raise the standard of applications for planning permissions and consents;
   - highlight the importance of traditional materials;
   - assist planning officers in assessment of proposals; and
   - facilitate delivery of an attractive and sustainable environment.

About this design guidance

3. This design guidance is organised into sections that deal with individual building materials, allowing quick reference to those aspects of particular interest using the contents list. Materials always have a context. You may find it useful therefore to read a number of sections, or to complement your reading where applicable by looking at the District's conservation area and townscape character appraisals. These offer a broader consideration of the role materials play in providing local character and distinctiveness.

4. This document is complemented by design guidance published by the Council entitled, *Managing and using traditional building details in Purbeck.*

Who should use this design guidance?

5. This design guidance will be particularly useful for people who own or who wish to alter a traditional building, including those that are listed. It will also be useful where designing in a traditional style, or in the context of traditional development (e.g. within

conservation areas or parts of the Area of Outstanding Natural Beauty), whether or not this requires formal consent (e.g. planning permission). This includes:

- Homeowners
- Developers
- Farmers
- Local businesses and shop owners
- Agents acting on behalf of any of the above

6. The Council is committed to improving the design of all forms of development, to provide better homes, business premises and public spaces, and to enhance the overall quality of the District's built environment. High quality, well designed development benefits the wider community and has a positive influence on the way in which the District is viewed as a place to live, work and visit. In providing this guide, the Council aims to help encourage high quality sustainable development across the District.

7. The Council is able to provide further assistance to prospective applicants for planning permissions and consents through the process of pre-application discussion. Meeting request forms and details of charges are available at www.dorsetforyou.com.

Why are materials important?

8. The traditional buildings which characterise the District's historic towns and villages are connected to their localities through use of materials drawn from their surrounding landscapes. Geological character and limited means of transportation in the past helped to influence this pattern, producing great variation and contrast across the District. This variation forms a linked component of landscape character which is of great significance within the Area of Outstanding Natural Beauty (AONB), whilst it helps to underpin local distinctiveness and identity. In some suburban parts of the District the pattern has been obscured by an 'anywhere' approach to development, whilst some modern use of local materials outside their historic ranges has also diluted the pattern.

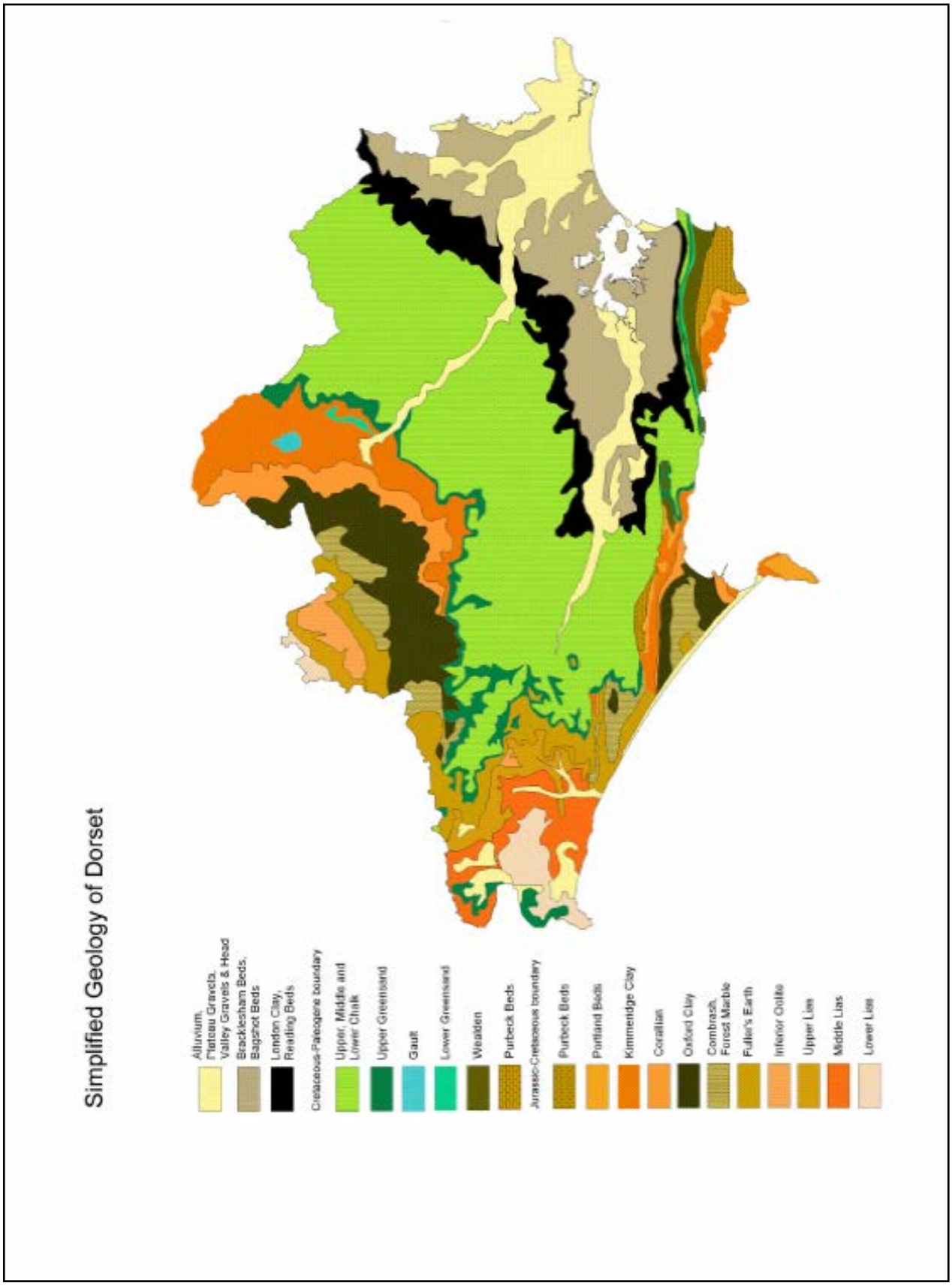
9. The careful specification and use of materials within building design and construction can both add and conserve visual interest and local distinctiveness, and help a development relate to its context. Using building materials sourced from within, or typical to the District can help to produce buildings, townscapes and places which are more engaging, and which have higher amenity value than might otherwise be the case.

10. Use of traditional materials within a development is no substitute for proper architectural design. You should never specify materials randomly within a design, or without thought as to how they relate to one another and to the locality.

11. Where seeking to use traditional materials it is important that you or your architect and/or contractor has an understanding/experience of their use, and where relevant, the way in which they were used in construction locally in the past.

12. With great care, traditional materials can be used in, and form a basis for 'contemporary' (stylistically modern) interpretations of traditional styles. Such reinvention can help to create a sense of vitality and interest, and has a long history in past movements such as Arts and Crafts design. This is a creative exercise which goes beyond simple addition of traditional materials to modern forms. Contemporary design is best handled by a skilled architect.

13. Materials play a crucial role in providing character and interest to listed buildings and buildings in conservation areas. The historic authenticity and architectural integrity of listed buildings depends upon their proper conservation, which includes the specification of matching materials (in terms of type, not simply appearance) in the event of a need to replace original or historic fabric. This ensures consistency with and continuity of the original design. You should always focus efforts on maintenance of existing buildings, and use them as a source of inspiration for the design of new development.



Simplified geological map of Dorset. (www.dorsetrigs.org)

Stone

14. Stone is the traditional material most recognisably associated with the District, and remains an important product of it. Whilst current attention tends to focus upon Purbeck stone, sometimes leading to its overuse for building in areas where it was not typical historically, both heathstone and flint also play an important role in providing local distinctiveness to traditional development.

Purbeck-Portland limestone

15. Purbeck-Portland limestone is a sedimentary rock (i.e. deposited in layers) contemporary with, but distinct from deposits at Portland. It was originally formed in shallow marine conditions by concretions of oolite (balls of calcite formed around grains of sand). There are various 'beds' (layers) with differences expressed in terms of the presence, absence or condition of fossils within the stone. Some of these beds contain 'freestone', which can be easily carved into straight edged blocks (known as 'ashlar').

Local distribution and use

16. Quarries operated historically in the cliffs along the south-eastern coastline of the District, the material loaded directly onto boats for export. Land based extraction continues at St. Aldham's Quarry.

17. Until the later nineteenth and twentieth centuries, Purbeck-Portland stone saw limited use within Purbeck itself, with most of the material being directly exported. The exceptions include a number of churches, and mansions such as Creech Grange and Moreton House. As the stone is easily carved it was often used in manufacture of architectural details including sills, lintels, quoins and window mullions.

Finely jointed ashlar employed at the parish church of SS. Magnus the Martyr and Nicholas of Myra in Moreton.

Purbeck limestone

18. Purbeck limestone is a sedimentary rock which originally formed within shallow, brackish, freshwater lagoons, through the accumulation and compaction of shells. Minor

fluctuations in sea level and phases of dry land during the period resulted in intermittent deposition of sediments eroded from elsewhere. This created a sequence of layers within which limestone beds are separated by clays, marls and shale. Not all layers are continuous, meaning that the rocks present at any given quarry may vary one from another. The character, thickness and usefulness of beds also varies. The different beds are collectively known as the Purbeck 'series' which is divided into three parts: the Lower Purbeck, Middle Purbeck and Upper Purbeck.

Local distribution

19. **Lower Purbeck**
This is principally quarried together with Portland freestone at Portesham in West Dorset. It is possible that some of the limestone historically used in the west of the District derives from this source.

20. **Middle Purbeck**
This was and continues to be the principal source of building stone within the District, which also yields some freestone (stone suitable for carving). Extensive small scale shaft mining took place historically, though today open cast quarrying is concentrated around Langton Matravers, Worth Matravers and Swanage. Material tends to be yellowish when fresh, weathering to a pale grey.

21. **Upper Purbeck**
This contains the so called 'marble' famous for its use in cathedrals. Rock is formed from shells of the freshwater snail *viviparus*, and is of varied colour able to take a polish. The beds were heavily quarried during the Roman and medieval periods, with much of the material exported for use inside churches and similar prestige buildings. St. James' Church at Kingston represents the best example of marble use within Purbeck.

Box 1: Purbeck stone: use and distribution

Use of Purbeck stone as a principle (unmixed) building material characterises traditional development in the parishes south and east of the Purbeck chalk ridge:

- Langton Matravers
- Worth Matravers
- Corfe Castle
- Church Knowle
- Steeple
- Tyneham
- Kimmeridge
- Swanage

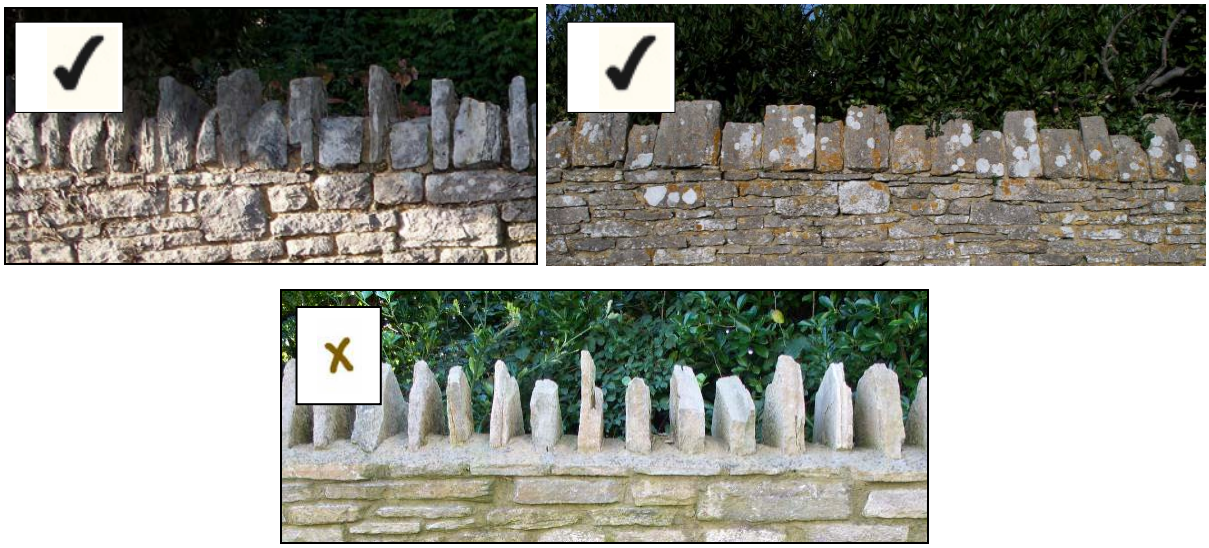
Beyond the Purbeck ridge, and with greater distance from the quarries, Purbeck stone usually only occurs as a principal material in prestige buildings (e.g. churches, high class houses) or, as in Wareham, structures built from their demolished remains. There is thus significant overlap of Purbeck stone usage into areas in which flint and heathstone are more common. This often illustrates itself in the blending of two, or sometimes all three types in poor quality rubble walling. The latter is particularly true in Winfrith, Chaldon Herring and to some extent Wool, West Lulworth and Coombe Keynes, though moving east, flint disappears from the mix. Stone roofing is rare beyond the Purbeck ridge, and again associated with prestige buildings, though use of a stone easing course (row of tiles above the eaves) is sporadically found on plain tiled roofs within this area.

Walling

22. Walls and buildings constructed close to historic quarry sites often used quarry waste made up of often relatively small and irregular pieces of ‘rubble’. This stone was normally laid either randomly or in rough courses with corners of buildings and edges of openings defined by squared stones known as ‘quoins’. Whilst the long axes of individual stones normally lie in the horizontal, one noted exception to this rule is the use of diagonal courses in drystone field walls around Langton Matravers. Random (i.e. not coursed) rubble work represents the most rustic construction type typical of many historic cottages. Where you are looking to replicate this finish in the present, you should consider using stone produced for drystone walling. That currently produced for house building typically contains a higher proportion of large squared blocks than that used traditionally.

23. Rubble stone walls were often rendered or limewashed historically, giving a more fashionable appearance and/or providing weather proofing to what were often poorly constructed walls. As fashions shifted these finishes were often removed, leaving a slightly distorted view of traditional character and lowering resilience to driven rain. Traces of render and limewash can often be identified through close inspection of historic stone walls.

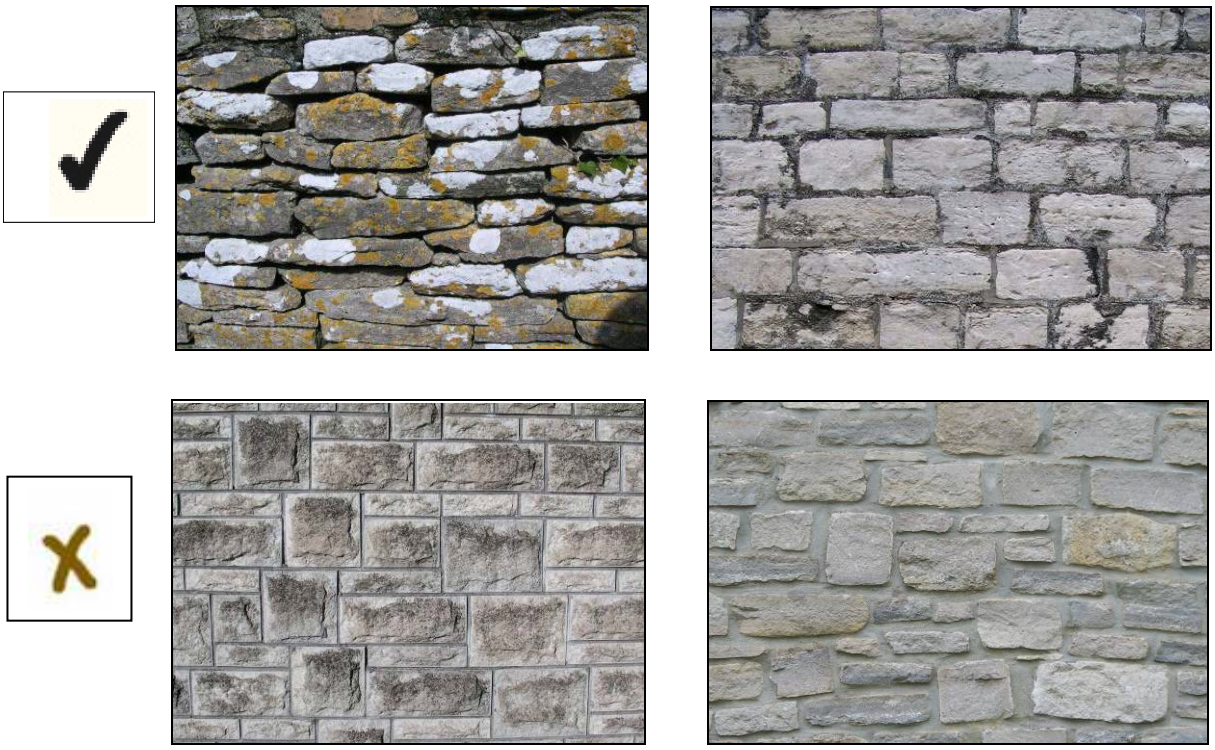
24. A range of different coping types can be found in traditional walling, amongst which variations of ‘cock and hen’ (where stones are packed vertically across the top of the wall and alternate between short and tall) are particularly common. This style was often formalised in Edwardian design seen around Swanage through use of roughly shaped triangular stones. Traditional copings of whatever type normally bridge the width of the wall and may be bedded in mortar.



Coping stones should bridge the width of the wall and be laid with no gaps between. Top left: rough cock and hen, typical of informal traditional building and the flank or garden walls of Edwardian properties. Top right: tightly packed, shaped stones in ‘cock and hen’ sequence, a finish typically seen on the front boundary walls of Edwardian properties in Swanage. Bottom: random shards of stone set in mortar and widely spaced.

25. High quality ashlar (stone carved into regular blocks), and squared rubble was laid in level, if some times inconsistently sized courses in construction of the walls of buildings and boundaries. Care was taken to achieve a close ‘fit’ of individual stones given that this provided the primary structural strength of the wall, and a visually superior finish. Given the high proportion of large squared blocks found in modern rubble building stone, laying in level courses is more consistent with traditional practice than laying in rough random courses.

26. The late nineteenth century onwards saw greater frequency in the use of high quality stone for building around the District. Use of closely set, randomly laid, squared ‘rock faced’ stone became fashionable during the Edwardian period where it played an important role in characterising architectural style.

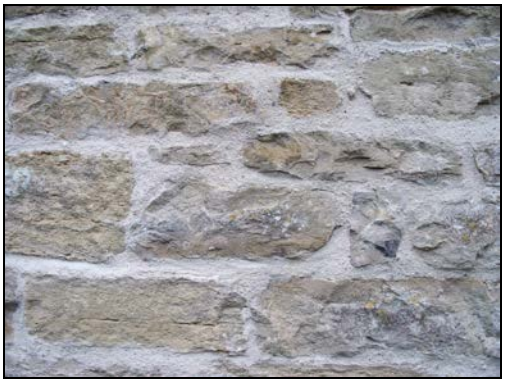


Stone walling. Top left: drystone wall using very tightly packed fine stones. Top right: squared masonry in level courses showing a similarly tight fit. Bottom left: Random stonework using highly processed material with sawn edges and rock faces. Bottom right: Stonework using mainly squared rubble but with limited attempt made at sorting into coherent courses. Many of the stones depart from the horizontal and the wide, recessed cement joints complete a poor job.

27. The pointing of stonework is an important aspect of the finish. Where repointing a historic wall you should aim to match the original finish. Samples of the original pointing material can be extracted, analysed and a mix specified which should produce material of matching colour, texture and strength. Traditional rubble stone walling should generally be pointed flush between, but not across the faces of the stone, and the

mortar gently rubbed with hessian sacking when semi-dry to roughen and raise the grain of the aggregate.

28. The appearance and character of pointing can be improved generally by incorporating well graded aggregate which may include stone dust.



Well coloured, textured lime mortar is finished flush between the faces of adjoining stones. See Appendix 2 for sample repointing method statement.

Roofing

29. Roofing stone was historically sourced from the 'Downs Vein' of the Middle Purbeck beds. The tiles were split by hand and then seasoned outdoors before use. Small quantities are still produced in this way and are best suited for repairing the roofs of listed buildings. With limited access to the Downs Vein at current quarry sites, 'New Vein' is now the principal source for roofing stone.

30. As tiles were traditionally produced in random sizes, roofs were laid in diminishing courses (tiles become progressively smaller between the eaves and ridge). The tiles were pegged over laths with small amounts of lime mortar bedding employed to prevent the tiles rocking. Stone roofs were typically provided with half round or triangular clay ridge tiles. Pointing appears to have emerged as a 'repair' or weatherproofing strategy, which often spoils the appearance of stone roofs and can seal in dampness.

Traditional stone roofing (left), artificial stone (centre), pointed roof (right).

31. Whilst the manufacture of stone tiles almost ceased during the late twentieth century there has been a revival. Stone tiles are now readily available, though manufacturing

techniques have changed. Fully sawn tiles with ‘fettled’ (roughly trimmed) edges with bush hammered or flame textured faces are most easily sourced. These finishes can however compare poorly with those of more traditionally produced stone tiles, though are superior to artificial stone. Tiles produced either as offcuts from the sides of block stone, or specifically produced by splitting smaller blocks of sawn stone provide a more natural riven surface finish. These tiles are available in smaller quantities, and are particularly well suited for work in conservation areas.

32. Reconstituted stone or pigmented concrete tiles began to displace use of traditional stone tiles roofing during the late twentieth century. These visually inferior products have harmed local character and distinctiveness. With increased availability of stone tiles the use of substitutes is now largely unjustified.

33. Use of second hand stone roofing tiles is often discouraged as these are sometimes derived from the stripping of material from roofs of unlisted rural buildings, or stolen from the roofs of uninhabited buildings. Both practices harm the character of the District.

34. The chimney stacks of historic stone buildings were sometimes constructed of stone ashlar (finely cut blocks). Use of rubble stone is more often associated with modern work. During the eighteenth and nineteenth centuries it became more usual for chimneys to be constructed from brick given the greater durability of the material when exposed to high temperature. Consequently heather red Swanage brick chimney stacks are a characteristic feature of stone buildings around the south east of the District.

35. The ‘cheeks’ (sides) of dormers in stone roofs should be coated in stone.

Surfaces

36. Paving and kerb stones were a major historic export, though also found local use in Corfe Castle, Worth Matravers, Langton Matravers, Kingston, Swanage and Wareham. Most slabs originally had a ‘droved’ finish (lines carved in the surface), though are now worn smooth. More informal but nonetheless functional surfaces were also produced using ‘pitching’ (closely packed slivers of stone set on edge) or through use of chunky ‘setts' (squared off blocks of stone). These finishes have sometimes inspired modern paving schemes (e.g. St John’s Hill, Wareham) and remain an important reference for the specification of hard landscaping within new developments.

Stone surfaces. Left: paving schemes in Kingston. Above: ribbon of ‘pitched’ stones set across an entrance with cobbled surface beyond.

37. Indian sandstone and other imported substitutes compare poorly to Purbeck stone. Use of these products harms local character and distinctiveness, and is inappropriate in and around listed buildings and conservation areas.

Box 2: Use of Purbeck stone

1. Use Purbeck stone for building and landscaping inside its historic range.
2. Follow traditional and stylistic conventions in selecting stone and building with it.
3. Where building walls, lay the stone with long axis in the horizontal.
4. Add well graded aggregate to mortar to produce a better colour and texture
5. If you are repointing a stone wall or relaying a traditional stone roof refer to the method statements in Appendix 2.
6. Avoid use of artificial, reconstituted or imported stone.

Purbeck stone in new build at Corfe Castle (left) and West Lulworth (right). Recent housing schemes which largely follows a traditional theme. Note use of newly manufactured stone roof tiles in the Corfe scheme, and careful use of bricks to define edges in the Lulworth scheme.

Chalk and flint

38. Chalk and flint are derived from geological deposits known as the Upper Greensand and Chalk beds. Chalk was formed in marine conditions resulting from the accumulation of coccolith (plankton) skeletons which solidified through compression. Within this, silica derived from the skeletons of sponges and other sea creatures formed nodules of flint. The character, colour and quality of flint varies around the country. Periods of geological uplift and weathering led to creation of the Purbeck chalk ridge.

Local distribution

39. Most chalk in the District is too soft for building, though was historically burned to produce lime for agricultural and building use. Chalk slurry can be added to clay to produce pale yellow bricks.

40. Blocks of chalk (known as 'clunch') are sometimes found as a component of rubble used in construction of walls in historic buildings between Wool and East Chaldon. These are usually only visible on the inner faces of buildings. Small pieces of chalk may be found as a component of cob (likely to have been introduced as part of the subsoil component of the mix) within the same areas.

Box 3: Flint: use and distribution

Flint was exploited for building mainly in the southwestern quarter of the District. It can form a principal building material in:

- East Chaldon
- Winfrith Newburgh

Use of flint does not characterise the appearance of development generally in either of the above parishes, however the true frequency of flint use is unclear given that render sometimes conceals walls built with it. In both parishes and those adjacent, flint otherwise commonly occurs in boundary walls. Flint is very *occasionally* found laced with brick or chequered with stone (treatments which have both a structural and decorative function and are more commonly found in North Dorset). Flint more often forms a mixed component of low grade rubble stone walling within which heathstone and/or limestone may also be present (see Boxes 1 and 5).

Flint walling

41. Most flint within the District appears used in its raw form as unmodified or broken nodules, much of which is likely to have been collected loose from the fields (so called 'field flint'). Higher quality construction historically used coursed knapped flint known as 'flushwork', which is seen at a few properties including St. John the Baptist Church, Bere Regis. Use of flint is more common in other parts of Dorset.

42. Where flint is used in building, it is necessary to form corners, edges and openings with a regular material such as brick or ashlar stone. Brick is most commonly seen in the District.

43. Scope for use of flint as a principal material around the District is limited by its restricted traditional distribution and general infrequency. You should not specify flint in contexts where it is either absent or rare, as this distorts local character.

Flint walls. Left: field flints employed in a boundary wall at Winfrith. Right: Cottage walling with brickwork forming openings and corners at East Chaldon.

Flint blocks

43. In modern construction flint is usually incorporated in new buildings through use of flint blocks – specially manufactured concrete blocks which have flints set into their faces. These can be pointed to give the illusion of a solid flint wall. The quality of flint blocks varies, as too the quality of finish and context of use, though you can achieve reasonable results with care.

Flint blocks used in new build. A recent project in Chaldon Herring conservation area.

44. Problems can arise where the joints between individual blocks become obvious when pointed. This can be a particular issue where you are producing a coursed finish. You can overcome this to some extent through incorporation of additional 'pinning' stones (additional flints added to pack out the wall) during pointing, though the technique is most effective where random coursing is being used.

45. You should ensure that flints are well packed and laid with long axis in the horizontal. Use well graded aggregates in pointing mortar to produce a textured flush finish.

46. Flint blocks generally fail visually where used to form token panels within brickwork, as the dimensions of the panels themselves are usually informed by the shapes of the blocks. In these cases it becomes all too obvious that blocks have been used, and the finish can therefore appear crude.

Box 4: Use of flint

1. Consider use of flint for building work in and around East Chaldon and Winfrith.
2. Use locally sourced flint; avoid that from elsewhere in the country.

Heathstone

47. Heathstone, also sometimes known as ‘carstone’, is an iron-cemented sandstone. It is found within layers geologically known as the Reading Beds and London Clay, and also as a redeposited material (i.e. displaced from earlier deposits) and gritty conglomerate within the Poole Formation of the Braklesham Group. Redeposited heathstone is found on top of clay either side of Poole Harbour, and in Studland it is known as Redend Sandstone (after Redend Point). In the north of the District heathstone is known as Lytchett Matravers Sandstone. Colour ranges between orange, red and brown varying according to the amount of iron present and length of time exposed (hence oxidisation).

Local distribution

48. Heathstone is found sporadically across the north, northwestern and western parts of the District, particularly within historic heathland areas. The connection with heathland derives from the presence of heathstone within those geological layers whose soils supported formation of heathland under past land management. Given the bright colour of heathstone, its selection for use in building was sometimes motivated by aesthetic considerations.

Box 5: Heathstone: use and distribution

Within its range, heathstone tends to be found in varying quantities within individual buildings and structures often alongside other materials. Heathstone can be found used as a principal or major component of building material in the parishes of:

- Wool
- Coombe Keynes
- East Lulworth
- Lytchett Matravers
- Studland
- East Holme

Both within and outside these areas heathstone is often employed in the plinths of cob buildings, while may also be found as a small but noticeable component of mixed rubble stone. In Wareham, East Holme, Coombe Keynes and East Lulworth heathstone may be found mixed with imported limestone, whilst in Chaldon Herring, Winfrith and Wool this is further mixed with flint. In some instances, particularly noted in East Lulworth, heathstone has been used to provide decorative banding in limestone walls. In some locations heathstone sees only limited employment for one off structures (e.g. St. Mary’s Church, East Morden).

Lytchett Matravers Sandstone seen at a historic building in Lytchett Matravers.

Heathstone walling

49. Heathstone is frequently used as coarse rubble, though may be roughly squared or shaped. It is occasionally found used for quoins, buttresses, sills and lintels. Where used as a principal building material the stone is typically roughly coursed.

Heathstone construction. Above Left: found as a component of flint and limestone walling in Winfrith. Above Right: Used as a principal material in construction at East Lulworth.

Box 6: Use of heathstone

Heathstone remains an attractive and particularly distinctive product though rarely sees use in new development. This is to some extent due to material having been overlooked, but also the discontinuity of quarrying within the District. Iron cemented sandstones can however, still be sourced as outcrops within active quarries in the surrounding area, offering the opportunity for use in new development.

Brick

51. The District is rich in various clays, each of which has different physical and chemical characteristics. In combination with materials added to the clay and conditions during firing, a range of different brick colours and textures can be produced. The basic tonal range can be established through examination of historic brickwork. This tends to vary locally between purple/red to pale peach/buff, allowing some decorative mixing of colours. This gives rise to subtle but distinctive variations in visual character around the District.

Local distribution

52. Prior to industrialisation, temporary or short lived brick kilns may have been constructed as required to serve specific building projects. These sites are sometimes remembered in place names.

53. Exploitation of brick clay led to establishment of several brickworks across the District by the late nineteenth century, many of which appear on early Ordnance Survey maps. Size varied, and a number of small works were located on and operated by the estates to serve their own requirements. Given the ample supply of locally produced brick, large scale importation was unnecessary until the second half of the twentieth century, however only one local brickworks has survived into the twenty-first century.

54. While many bricks are no longer manufactured locally, most can be either matched nationally or reproduced, including in imperial sizes and special shapes. Some firms offer a brick matching service.

Wealdon clay

55. Wealdon clay was formed from the deposition of sands and clays at the base of a large lake fed by rivers flowing from the west. These rivers carried grains of Dartmoor granite which accumulated forming deposits of coarse quartz grit. This is sometimes found as a component of rubble stonework in areas on Wealdon geology. Wealdon clay is found along the valley between Corfe Castle and Swanage, and was historically exploited for brick and tile making at Corfe Castle (*Lynch Brickworks*) and Godlingston (*Swanage Brickworks*/*Godlingstone Tileries*). Production of traditional hand made Wealdon brick continues at Godlingston.

Wealdon clay brick from Swanage Brickworks.

Reading Clay and London Clay

56. The geological layers known as the Reading and London Beds were formed from marine deposits laid down during a period of high sea levels. Within the District these clays always separate the chalk from the overlying deposits of the Bracklesham Group. The Reading and London Beds comprise layers of pebbles, followed by layers of sands and clays which include deposits of ironstone (i.e. heathstone).

57. Reading clay (also geologically known as 'West Park Farm Member') was historically quarried for use at *Briantspuddle Brickworks*, *Blackhill Brickworks* at Bere Regis, *Coombe Tilery* near Coombe Keynes, at Mount Pleasant in East Lulworth, and outside the District at Broadmayne.

58. Production of Reading clay bricks continues at HG Matthews brickworks, whilst Freshfield brickworks and WTLamb also offer reasonable matches. A match for 'Broadmayne' brick, which has a pinkish hue and is found sporadically in the north west of the District, is available from Ashdown Brickworks.

59. Due to lack of organic matter within the clay, additives – particularly clinker – were incorporated to aid firing. This left characteristic black speckles in the finished brick. Tonal variation between pink and purple-red, with a medium red most typical, was achieved through varying firing conditions, and by 'flaring' (burning) headers.

Reading Clay brick. Examples from Coombe Keynes (left), Bere Regis (centre) and Moreton (right).

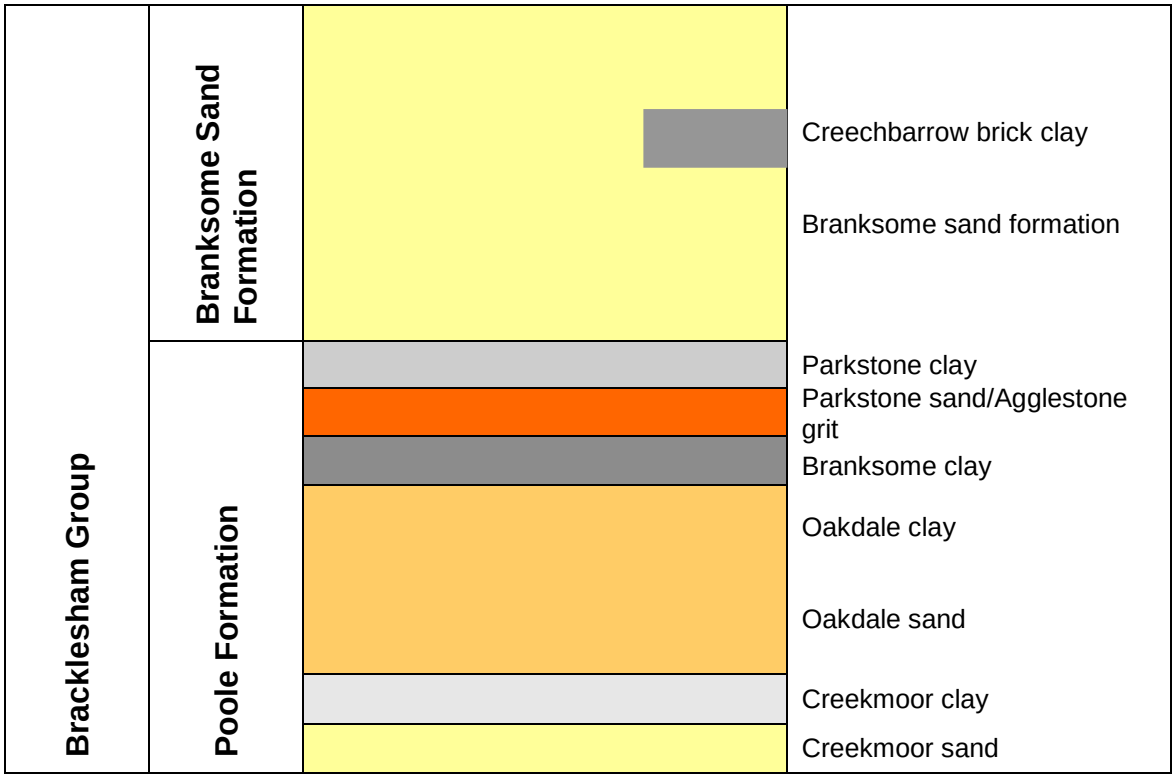
60. London clay is present at a number of locations in the District and appears to have been quarried for use at *Morden Brick Yard*. Pale orange bricks are common in the locality.

Bracklesham Group: Poole Formation and Branksome Sand Formation

61. The components of the Bracklesham Group were previously known geologically as the 'Bagshot Beds' and the 'Bracklesham Beds'. The Bracklesham Group was formed during a period of fluctuating sea levels with deposited derived from both marine and river sediments. The Group consists of a series of sand and clay deposits, with occasional lenses of sandstone and grit (redeposited from weathering of older ironstones to the north and west).

62. Brick was principally produced from clays in the Poole Formation, examples of which are provided below. It should be noted that minor works, such as that which operated at Moreton Station, also existed though were of lesser influence.

63. Within the Branksome Sand Formation the localised *Creechbarrow Brick Clay* was historically exploited at East Creech for production of buff bricks.



Geological diagram showing layers in of the Bracklesham Group in sequence, oldest at the bottom. (simplified, after Ian West, University of Southampton).

64. **Poole Formation: Oakdale Clay**

Oakdale clay was utilised by *Lytchett Brickworks* (Upton), and *Victoria Works* (Sandford) – see brick from the Victoria Works below. Victoria Works was succeeded by *Sandford Pottery* which manufactured pipes and chimney pots of similar buff colour.

65. Poole Formation: Parkstone Clay

Parkstone clay was historically used for brickmaking on Brownsea Island. Extensive outcrops of clay also occur around Creech and at Furzebrook, and at a smaller scale at Trigon. Use of the clay may be identified in the brickwork of buildings within these localities. Bricks are typically soft and may contain laminations, ranging between pale orange to a pale yellowy peach. They sometimes appear to contain 'grog' (crushed brick). See below.


66. Poole Formation: Broadstone Clay

Broadstone clay was used by *Jubilee Brickworks* (Lytchett Matravers), and *Beacon Hill Brickworks*. A small works using the clay also existed on Studland Heath. See below.

67. Poole Formation: Creekmoor Clay

Creekmoor clay was historically used by *Lytchett Brickworks* (Upton), and *Creekmoor Brick and Tile Works* (Creekmoor). See below.

Box 9: Brick: use and distribution

Use of brick as a principal historic building material is characteristic in the parishes of:

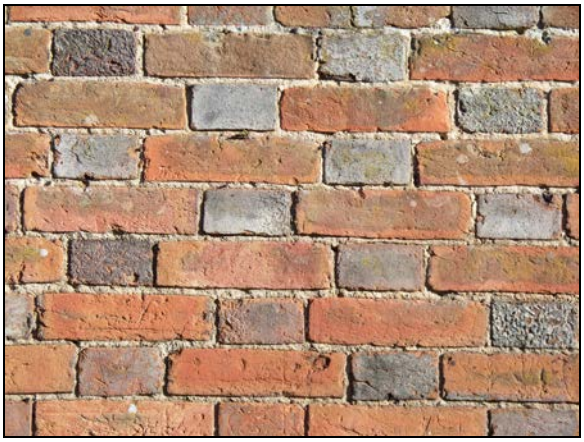
- Morden
- Bere Regis
- Swanage
- Studland
- Wareham/Wareham St Martin
- Lytchett Minster
- Lytchett Matravers
- Moreton

Brick types vary with geology. Wealdon brick plays an important role in characterising Edwardian development in Swanage though is also typically used for chimney stacks in the Purbeck stone parishes adjacent. It was a probable historic import to Wareham, and used for isolated buildings in Corfe Castle. Bricks of Poole Formation clays are found in Wareham/Wareham St. Martin, Lytchett Minster, Lytchett Matravers, and Brownsea Island with scattered outliers in Arne, Moreton, Steeple, Church Knowle and Studland. Reading clay brick appears to have been used within the District's northern and western parishes.

Brick bonds

68. The 'bond' describes the way in which bricks are fitted together to form a wall. There are numerous bonds which traditionally varied according to the context of application, aesthetic and structural considerations.

69. Whilst early brick sizes vary, most traditionally built walls using standard Imperial sized bricked are either 9″ ('double skin') or more exceptionally 12″ ('triple skin') thick. The separate 'skins' (or layers) of brick are tied together by laying bricks across them. These bricks are expressed as 'headers' in the face of the wall (the head being the end of the brick). This forms the basis of decorative bond patterns involving alternation between header and 'stretcher' (the broad side of the brick).



Traditional bonds. Left: Flemish (alternate headers and stretchers), West Morden. Very common in some northern parishes where possibly a former Estate style. Right: English (alternate courses of headers and stretchers), Bere Regis.

Garden wall bonds. Left: Flemish garden wall bond (three stretchers alternating with a single header), Bere Regis. Right: English garden wall bond (three courses stretchers alternating with a course of headers), Moreton.

70. Flemish and English bonds (see photos above) are often exploited for aesthetic value through flaring (burning) or glazing the headers, or simply using brick of a colour which contrasts with that of the stretchers. The most complex decorative patterns are termed 'diaper work'. More complex bonds may be replicated in a modern constructional context by use of snapped headers (i.e. bricks broken in half allowing use in a single skin cavity wall).

71. 'Garden wall' bonds are so called due to their traditional use in building double skin boundary walls, though are sometimes also found used in building construction.

72. 'Stretcher bond' (bricks laid broadside in staggered pattern) is typical of twentieth century brickwork. It is the simplest bond used in most single skin and cavity walling, and has the least aesthetic value. This bond is not generally suitable for work in the context of conservation areas and listed buildings, or where you are aiming to provide visual interest and a sense of quality.

A relatively simple nineteenth century cottage in Wareham is enlivened by use of a combination of brick colour and bond pattern.

Specials and detailing

73. ‘Special’ is the term given to brick produced in non-standard and decorative shapes. The most frequent special is the ‘red rubber’ a brick rubbed into shape allowing ultra fine joints filled with lime putty. These were used in construction of gauged brick arches common in Georgian period architecture seen around Wareham.

74. Other ornamental effects commonly seen in brickwork, including arches, corbelling (eaves and chimney stacks) and dog or saw tooth arrangements (usually at the eaves) are simply produced through careful arrangement of standard brick shapes. Some of these details can now be produced by using ready made kits, though building from scratch is likely to give better results.

Top: simple classical detailing arranged using specials, a soldier course (bricks on end) and rows of headers. Bottom: a Georgian gauged brick arch made using finely jointed ‘red rubber’ bricks.

Pointing

75. The contribution made by mortar colour, texture and finish to the appearance of finished brickwork was often carefully considered in the past. Brick colour and texture can be altered through careful selection of aggregates and incorporation of additives such as crushed brick, whilst a variety of finishes can be applied to the face of the joint itself. Where it is necessary to carry out repointing or other repairs, samples of historic mortar can be analysed to establish their composition, and this is generally appropriate where working with listed buildings. Where evidence survives, you should take careful note of the pointing finish in order to enable replication.

76. You should carry out repointing only when and where absolutely necessary. Significant harm to both the fabric and appearance of brick walls is frequently caused through careless repointing. This is due to several factors which often arise in combination:
    - Damage to the arisses (edges) of the bricks caused during removal of mortar which widens the width of the joint at the wall face - a particular problem where bricks are soft or finely jointed as in gauged brick arches. Pointing in these

circumstances is best undertaken by a specialist.

- Use of mortar whose strength, colour, texture and finish does not match the original, spoiling the intended appearance and potentially leading to decay.
- Careless bodging of mortar into joints creating messy and irregular appearance.
- Application of mortar over the top of existing joints creating a 'strap' finish – both disfiguring and harmful given potential trapping of moisture.

To assist in promoting sympathetic practice, Appendix 2 contains a sample method statement for repointing work.

Left: the catastrophic effect of pointing soft brick with hard cement mortar. Right: 'penny struck' pointing in header bond at Wareham. A finish in which the face of the joint has been scored using a penny.

Reclaimed brick

77. Second hand bricks sometimes play a useful role in repair of old walls, and in matching in new work, however caution is necessary. To be successful, both provenance and match should be certain.

78. Where specifying use of reclaimed brick for new build you should ensure that:
    - the bricks are of the same and relevant type;
    - the external faces of bricks are consistently clean (free from paint, soot etc.);
    - the bricks to be used externally were manufactured for external use.

Box 10: Use of brick

1. Use brick consistent with that historically produced and utilised within the locality.
2. Consider bond and detailing – design for visual interest, particularly where long runs of brickwork are involved.
3. Where building boundary walls specify a garden wall bond.
4. Repoint only where essential. Ensure that mortar mix and finish matches the original (see sample method statement in Appendix 2).
5. Clean smeared or spilled mortar from the face of brick when building or repointing.
6. Ensure that second hand bricks are intact, clean, consistent and well provenanced.

Cob

79. ‘Cob’ is the name given to mass earth walling produced from a mixture of moist clayey subsoil (clay component normally at least 30%) and strengthening additives such as straw, dung and lime/chalk. Cob is ‘monolithic’ in that in construction it forms and draws strength from being a single mass.

Local distribution

80. The current quantity and distribution of cob buildings does not accurately reflect the historic pattern due to the relative cheapness of the material, and high levels of past loss where structures were not maintained. Examples of decaying cob walls and structures can be readily seen around within the District. Cob may sometimes be found incorporated within the fabric of a building constructed with different materials. This arises where cob has been used as a cheap repair, has been used to raise the wall plates of a single storey dwelling, or where it survives as a vestige given substantial replacement with other materials following past failures.

81. It may not be immediately evident that a building has been constructed from cob given that the material is normally rendered, and that many cob buildings were historically ‘upgraded’ by encasing them in a brick shell. Thatched roofs are commonly, but by no means exclusively, associated with cob construction.

Cob is normally given a protective render. The eroded cob on the right appears to contain some chalky subsoil.

Box 11: Cob: use and distribution

Use of cob as a principal building material for both buildings, and to a lesser extent boundary walls, is characteristic in:

- Turnerspuddle and Affpuddle
- Wool
- Arne
- Bere Regis
- East Lulworth
- West Lulworth
- Chaldon Herring
- Winfrith

Cob is found more sporadically within other parishes, with the exception of those south and east of the chalk ridge.

Cob walling

82. Cob walls were traditionally constructed by stacking the mixed material in continuous even layers ('lifts') atop a brick or stone plinth. These were then trimmed back when dry and rendered. Sills and lintels were incorporated during this process. Walls can still be constructed in this way, however cob building blocks are also now available.

83. Maintaining stable moisture content within cob is important given that excessive wetting can lead to slumping and collapse, and excessive drying can cause general disintegration. This requires that radiators and other sources of heat are well insulated, that plasters, renders and finishes should be breathable, and that the tops of walls must be protected. This is typically achieved in traditional construction through use of lime based finishes, distinctive capped coping on boundary walls, and deep overhanging eaves.

84. The introduction of damp proof courses to cob buildings, or extensions to cob buildings where a cob wall is shared, can be hazardous due to changes in the moisture content of the walls this may cause. Impermeable floor finishes achieved by using concrete and plastic membranes can force moisture up the walls – a problem made far worse if combined with water resistant 'tanking' renders internally. One solution to this is the use of limecrete floor construction which can provide required levels of insulation whilst allowing the floor to continue to breathe. In all cases you must take care to avoid undermining and destabilising foundations.

85. Where a cob wall has cracked, moved or collapsed it is advisable to seek the advice of a structural specialist familiar with cob buildings. It is sometimes possible to reconstitute cob from a wall collapse for use in repair. Analysis of cob composition can be undertaken by specialists as a means of manufacturing a matching mix. Alternatively, ready made cob blocks bonded with lime putty mortar can be useful. You should never use concrete blocks in repairing a cob wall given lack of thermal compatibility.

86. In all cases where another material is being used alongside cob – including where building extensions – you will need to give careful thought as to the nature of connection between the two. This is due to the differential movement that may arise where the thermal properties of materials do not match, and where the structures themselves move differently due to factors such as foundation construction. Stitching rather than direct bonding, can help in these situations.

Cob blocks. These can be used like bricks in new build and repairs to existing cob walls. The blocks are joined using lime mortar.

87. Given the monolithic character of cob buildings, formation of new openings within them can weaken the structure and result in general movement. Given that such movement can be of unpredictable nature, you should avoid the formation of new openings.

88. Though use of cob in new build is not often seen, it does represent an eco-friendly option well suited to ‘sustainable’ designs.

89. In areas where cob characterises development, you can achieve a sympathetic finish to new development by applying an uneven, open faced lime render over brick or block. This was indeed historically carried out on the Bladen Estate where so called ‘Debenham block’ (concrete blocks) were manufactured for use during the early twentieth century for use in the construction of cottages and farm buildings. Designs were based upon a picturesque interpretation of local building tradition otherwise characterised by use of cob and thatch. Cottages were typically either rendered or painted to blend in.

Box 12: Use of cob

1. Use and maintain breathable finishes over cob.
2. Avoid conventional damp proofed floors; consider use of insulated limecrete.
3. Avoid forming new openings in cob.
4. Avoid bonding new buildings directly to cob.

Roofing tiles

90. Clay roofing tiles are an important, if easily overlooked, component of traditional development within the District.

Local distribution

91. Clay tiles were introduced historically as substitute for thatch following major fires in Wareham and Bere Regis at least as early as the late eighteenth century. Tiles were manufactured alongside brick at a number of locations within the District, and with the arrival of railways, importation of 'Roman' roof tiles manufactured in Somerset commenced. These saw particular use in agricultural contexts in the north and west of the District. Whilst tile has a wide distribution, its use is generally most characteristic of the District's urban areas, and those developed during the late nineteenth to mid twentieth centuries, where tiles were often favoured for stylistic reasons.

Plain clay tiles

92. 'Plain' clay tiles are the most common type, and are simply formed from thin rectangles of clay with nibs on the back, or peg holes for fixing to battens. These can be either 'single camber' (curve from top to bottom) or 'double/cross camber' (also curved from left to right).

93. Plain tiles are available in a wide variety of colours, though local colour variations generally match those seen in brick. Thus in Swanage (once supplied by *Godlingston Tilery* using Wealdon clay) tones of red are common, while tones of orange, darkened by weathering, are more usual in Wareham and elsewhere. Traditionally made tiles using Wealdon clay are still produced by a number of firms in Sussex.

Wareham roofscape. Clay tiles and stone eaves course and cornice below.

94. Within some late nineteenth and early twentieth century development, adornment of plain clay tiled roofs is sometimes achieved by use of ornamental tiles (e.g. 'club', 'fish tail' or 'diamond' or other shapes), the arrangement of which creates simple patterns. This can add considerable visual interest.

95. Use of stone 'easing courses' (rows of stone tiles fixed along the eaves of a plain clay tiled roof), is a feature of eighteenth century construction most commonly seen in Wareham. An easing course made up from large tiles helped to throw rain water clear of the wall face. This was important where rafters were positioned directly on the wall head of a building which lacked gutters. Use of stone easing courses as motifs in new build misses the functional point, and usually fails to provide the level of overhang seen in original use. For this reason it is best to avoid their use.

96. Hanging tiles (those hung vertically from walls) are extremely rare within traditional development in the District, and here most likely represent later additions. Hanging tiles do, however, find common stylistic use within some late nineteenth and early twentieth century house designs. Unless you are working in these styles or contexts, designs which incorporate hanging tiles will not generally reflect local character.

Box 13: Clay tiles: use and distribution

Clay tiles are used throughout the District in varying frequency, though are particularly characteristic in:

- Swanage
- Wareham/ Wareham St. Martin
- Arne
- Bere Regis (urban)
- Lytchett Minster

Plain tiles are typically, though not exclusively, used to cover the roofs of inhabited buildings, whilst Double Roman tiles are most commonly, though not exclusively associated with domestic and agricultural outbuildings or extensions. Plain tiled roofs infrequently carry an easing course of stone tiles, the original function of which may have been to shed water in the absence of gutters. Clay tiles tend to play a visually complementary or supporting role alongside thatch in those areas in which the latter is common, given they represented a historic local alternative to, and frequently a replacement for thatch.

Roman and other interlocking tiles

97. So called 'Roman' tiles are large in size and come in a range of designs. They are characterised by the presence of interlocking ridges on their surface which combine to give the roof surface a ribbed appearance. Most of these tiles were manufactured in Bridgwater, Somerset, the most common and recognisable form being the 'Double Roman' which has two vertical semi circular ridges. Use was usually in conjunction with special moulded ridge tiles. Double Roman tiles are found in varying frequency throughout the District, though particular concentrations occur in the north. They are most frequently used to cover outbuildings (given late availability in a traditional context) which can provide a visual distinction between structures of different status and age within groups. The tiles are still readily available manufactured in clay. Brightly pigmented concrete versions represent visually unsatisfactory substitutes characteristic of late twentieth century housing.

98. Infrequent variations on the interlocking Roman clay tile include those with saw tooth

profile and the so called ‘Poole Tile’ whose central ridge is tapered. Particularly distinctive around Affpuddle are the corrugated interlocking double vault tiles historically manufactured by Bladen Farms Ltd and used on some of their farm buildings. These tiles are now available manufactured as ‘specials’. The plain pantile – a tile which is ‘S’ shaped in section – is infrequently found within the District.

Shaped tiles. Left: reversible vault tiles, Affpuddle – a distinctive product manufactured and used by Bladen Farms Ltd during the 1920s. Right: Double Roman tiles, found mainly on outbuildings across the District.

Pitches

99. The minimum roof pitch for plain clay tiles varies between 40 and 35 degrees. Clay double Roman tiles can be used at 30 degrees. Modern concrete interlocking tiles may be used at lower pitches, though this generally appears incongruous alongside roofs of traditional covering and type.

Restoration work

100. Tiles from local works which are no longer extant can be matched from those using equivalent clay sources outside the District. Roof tile profiles no longer in general production can be manufactured as ‘specials’ from firms offering the service.

Box 14: Use of clay tiles

1. Use clay tiles in areas characterised by their use.
2. Avoid use of stone tile easing courses within new development.
3. Consider use of clay double Roman tiles for roofing outbuildings.
4. Avoid use of pigmented concrete and concrete interlocking roof tiles within sensitive contexts.

Slate

101. Slate is a metamorphic rock, formed from mudstone which has been placed under pressure. Hardness, and thus durability, varies greatly. Given its sedimentary character (i.e. formed as layers in water), slate may be split into thin sheets and thus is well suited to roofing.

Local distribution

102. Slate is not a material geologically present within the District, and thus did not find widespread use within Purbeck prior to construction of the railways – dated 1847 for Wareham and Wool, and 1885 for Swanage. Slate is therefore most commonly associated with properties constructed from the mid-nineteenth century onwards, and where present on buildings pre-dating this period, often represents a replacement roof covering.

103. The majority of slate used in historic development within the District was generally sourced from Wales. Welsh is one of the most attractive and durable of slates, and remains in production. Two key types of slate currently available may be matched to those commonly used within the District during the past:

- ***Penrhyn:*** a distinctive and visually attractive purple tinged blue Cambrian slate from Bethesda. Produced since 1786, 'heather blue' Penrhyn slate is frequently found within the District. Three thicknesses are available.
- ***Ffestiniog:*** a blue-grey Ordovician slate produced by quarries in and around Blaenau Ffestiniog. Whilst the quarry producing the slate branded 'Ffestiniog' has closed, so called 'Portmadoc Slate' remains available.

104. Slates are either hand or machine split, have a 'riven' or lightly rippled surface finish and 'fettled' edges.

105. Amongst other British slates still available, those from Cumbria are unlikely to have featured within historic construction, whilst Cornish Delabole slate is generally only found on prestige buildings.

106. Where replacing or repairing slate roofs on listed buildings, you should match the type of slate present (differentiating original materials from those derived from patching).

107. Where natural slate is specified for new build within conservation areas, or on extensions to listed buildings, Welsh or geologically equivalent slate will generally provide the best results (i.e. given this will usually match that used in traditional construction).

Box 7: Slate: use and distribution

As a late arrival to Purbeck where several indigenous roofing traditions were already well established, slate has a noticeable presence but is nowhere dominant. Slate is most frequent in urban locations around the District and is suited to covering shallow roof pitches. Historic material mostly comprises Penhryn and Ffestiniog slate with some Cornish material.

Imports, artificial and reconstituted slate

108. Imports are often specified due to their cheapness. Many foreign products lack the durability of home produced slate, whilst colour, texture and weathering characteristics may also significantly differ. Should take account of the presence of ‘pyrites’ (metallic inclusions, the corrosion of which shortens the life of the slate), in assessing quality.

109. Research at Bangor University in conjunction with Snowdonia National Park, has identified a number of products of comparable durability to Welsh slate. Amongst these ‘Glendyne’, quarried in Newfoundland, represents a good geological match to blue Welsh slates, and has been successfully used in the District. Caution is necessary in specifying slates from the Snowdonia list generally, as the colours of slates may not match those used locally.

110. Artificial or ‘reconstituted’ slate represents a poor visual match for natural material particularly where dead smooth, moulded in limited repeating patterns, or cut in sheets.

111. Use of ‘reclaimed’ slate is sometimes specified for new development. As with all reclaimed materials it is important to ensure that you confirm the type, source, and provenance of the material, and ensure that there is consistency within the batch.

Slate. Left: Del Carmen – a Spanish slate. Right: Penrhyn heather blue from North Wales. Note colour and texture differences. Spanish slates tend to be much darker.

Pitches

112. The minimum roof pitch for natural slate is 20 degrees, though this may vary with exposure. This provides great versatility in the context of traditional roofing, however such shallow pitches can give structures to which they are applied a ‘boxy’ appearance.

Box 8: Use of Slate

1. Slate is not a ‘local’ material. Where seeking to reflect local tradition in new build, other roofing materials will generally be more appropriate.
2. Slate used in maintenance of listed buildings should match the original material.
3. Use of Welsh, or geologically matching slate, is most suitable in conservation areas, and for extensions to listed buildings.
4. Have regard to geological source, durability, colour and texture in selecting slate.
5. Avoid use of artificial or reconstituted slate products in conservation areas.

Render

113. Render makes an important contribution to the District's character in its use alongside and in conjunction with local materials. The current popularity of render within 'traditionally styled' modern housing schemes, makes it a particularly appropriate topic for consideration.

Local distribution

114. The traditional role of render was to provide an external weathering to fragile or exposed walls such as those built from cob, or to mask unfashionable or poor quality walling (e.g. random stone rubble, or concrete block more recently).

115. Use of render underwent a revival during the Edwardian period in which it played an important role within contemporary architectural style (known as 'arts and crafts'), examples of which are scattered across the District, and particularly in Swanage. Render was subsequently applied as a cheap surface finish to inter war housing, whilst smooth renders also played a role in modernist design.

116. Within present day design, render is frequently applied in a superficial way to produce a mixed appearance within 'traditional' style housing developments, or to visually break up groups of attached buildings. This has little affinity with historic practice.

Box 15: Render: use and distribution

The current distribution of render sees particularly frequent presence in those areas in which cob remains common (see Box 11). Render is not common within those parishes typified by use of Purbeck stone (see Box 1), though was probably more frequent during the past. Within historic parts of Bere Regis, Swanage and particularly Wareham, lined stucco forms a frequent component within the street scene. Render is also seen as a stylistic element and cheap facing of estate housing from the late nineteenth century onwards.

Generally

117. Where applied over the face of a building or elevation, render was traditionally a continuous protective finish. Features such as lintels were not usually left exposed. These were however stylistic traits seen in some 'domestic revival' architecture of the late nineteenth, and early twentieth centuries, and are readily visible in housing constructed at this time.

118. Various types of render were produced historically, and where undertaking repairs efforts should be made to identify and match the mixes.

119. In terms of strength and performance, render used within and well suited to traditional construction can generally be produced with mixes based on lime. This will be either either non-hydraulic lime (or lime 'putty'), which has an air set, or hydraulic lime (currently marketed as 'NHL' in various strength grades), which sets on reaction with

water. Simple lime render allows the building fabric to 'breathe' (i.e. it allows a high level of vapour movement). Where such renders are replaced with hard cement or waterproof renders, dampness and degradation of the building fabric may result. In principle the reinstatement of lime render in such cases can be beneficial, however the process of removing hard renders can be damaging to the underlying building fabric in itself.

120. You should take care in choice of decorative finishes. Paint colour can have an impact upon the character of a building and contribution it makes to the appearance of an area. This is particularly the case where buildings form part of a terrace, in which maintaining consistency between properties is generally desirable. Finishes also vary in terms of the extent to which they are vapour permeable. Traditional finishes such as limewash are generally best for lime renders.

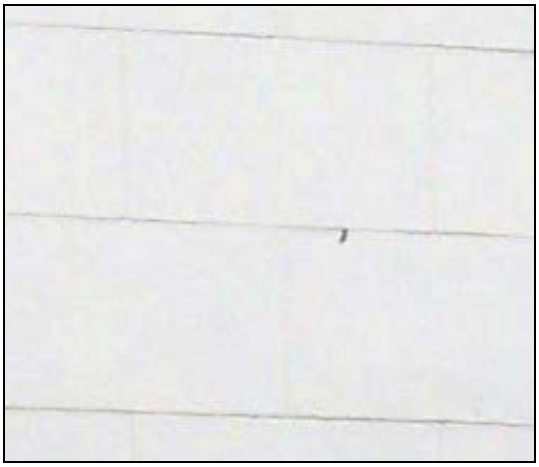
121. Generally speaking the render finish you specify in new build should be consistent with the style of architecture in which you are designing.

Open faced renders

122. 'Open faced' renders are those more roughly applied and lightly worked, meaning they lack the density and compaction typical of a smooth finish. This helps the surface to breathe where combined with limewash or similar highly breathable finishes. Open faced renders are usual features of cob buildings. Open faced renders are likely to have been more common historically in Purbeck stone areas than at present given application over low grade rubble. Shifting fashion during the late nineteenth century however led to 'hacking' to expose stone rubble.

Lined stucco

123. 'Stucco' is a type of flat render whose surface was scored, or lined out in imitation of finely jointed stone blocks (i.e. ashlar masonry). The finish was fashionable during the eighteenth and early nineteenth centuries and was applied to many historic domestic buildings within the District apparently regardless of class. Lined stucco is frequent in Wareham, and also notable in Bere Regis, though as fashion shifted it was again sometimes stripped to expose the typically low grade masonry beneath. The crisp and formal appearance of lined stucco sharply contrasts with the rougher, open faced renders commonly applied over cob.



Lined stucco in Wareham. The lines tend to become faint over time due to overpainting.

124. As lined stucco sought to imitate fine stone masonry, it was historically painted or washed in colours similar to that of local stone. This is rarely reflected in the varied palette of colours now used. Self coloured mixes (including the so called reddish-grey 'Roman Cement') could be produced to create similar effects, though examples are uncommon around the District.

125. Lined stucco finishes are striking where freshly produced, though historic examples are often lost or obscured under layers of paint. Traces usually survive however, and where replacement of originally lined out stucco becomes necessary you should reinstate the finish in new work. To do this, you should ascertain the dimensions and layout of the block pattern prior to stripping the existing stucco, and take note of detailing of quoins and lintels over openings and at corners.

126. The use of lined out finishes is currently rare in traditionally styled urban infill where render is specified, albeit its use will often be more appropriate stylistically than plain finishes.

Box 16: Use of render

1. Match render type and finish to architectural style and construction type.
2. Take care in selecting paint type and colour.
3. Consider use of lined out finishes for traditionally styled urban infill.

Timber boarding

127. Timber boarding includes traditional weatherboarding (sawn or riven planks overlapped – the former usually straight edged, the latter 'feather edged'), shiplap/half lap/tongue and groove and similar (interlocking boards laid flush, sometimes with a cover strip over the joints), and butt edged boarding (simple boards laid flush, sometimes with a cover strip over the joints). All such boarding is normally fixed to a timber frame.

Local distribution and application

128. Around Purbeck, horizontally laid sawn plank weatherboard – typically formed from broad 1″–1.5″ thick sawn planks – was historically used in an agricultural context for construction of timber framed granaries and, more rarely, elements of more substantial buildings. It was otherwise generally a material associated with the improvised modification of buildings (i.e. as a temporary blocking of openings), or construction of sheds. In the latter context use of butted vertical planking with joints sealed by cover strips (timber battens) was sometimes also used.

129. Whilst small scale stylistic application of external timber cladding does occur within some estate housing dating to the first half of the twentieth century, boarding is not otherwise a usual feature of traditional residential building types within the District.

Box 17: Timber boarding: use and distribution

Plank weatherboard sees infrequent (surviving) traditional use within the District in a mostly agricultural context. Other forms of timber boarding are rare within the historic context, and more usually associated with modern sheds.

Left: agricultural building outside Bere Regis. Right: timber framed granary on staddle stones, East Holme.

130. Tar or similar bituminous products were traditionally used as functional water repellant finishes for weatherboard. Here the practical consideration of protecting the timber was generally placed ahead of the modern appreciation of 'weathering'.

Box 18: Use of timber boarding

1. Avoid use of timber boarding in 'traditionally' styled new build unless required for stylistic reasons.
2. Apply black stain where boarding is used in/around traditional agricultural buildings.

Thatch

131. *The Dorset Thatching Report* (DCOG, 1996), a Dorset-wide survey and investigation of traditional thatching practice, was produced by the Dorset Conservation Officers Group as the basis for planning policy formulation and identification of a *Code of Practice* during the 1990s. This provides a useful guide for property owners and agents on the decision making process where works to the roofs of listed building are involved. It can be viewed at www.dorsetforyou.com.

Local distribution

132. Thatched buildings occur across most of the District, with particularly high frequencies in the north and west. Use of thatch was historically more common in all parts of the District than it is today. Aside from the historic restriction in use of the material in Bere Regis and Wareham following major fires, the twentieth century saw widespread clearance of thatched buildings (evidence for which remains in old photos), replacement of thatch with more durable roof coverings and virtual disappearance of thatch from new build prior to the relatively recent revival.

Thatch in new build. A good relationship between roof and façade has been achieved.

Box 17: Thatch: use and distribution

In the following parishes thatch plays an important role in characterising development, albeit often alongside other roofing types (commonly clay tile):

- Wool
- West Lulworth
- East Lulworth
- East Stoke
- Chaldon Herring
- Coombe Keynes
- Kimmeridge
- Moreton
- Morden
- Arne
- Lytchett Matravers (historic development)
- Bloxworth
- Bere Regis
- Lytchett Minster (excluding suburban Upton)

Thatch is most typical of Affpuddle and Turnerspuddle. In Studland and Lytchett Matravers thatch forms an important component of the local vernacular, though later development often obscures the contribution it makes. Thatch plays a relatively minor role in Church Knowle and is an infrequent feature in Corfe Castle, Wareham and Steeple.

133. The rate of decline has decreased in recent decades given protection of many historic thatched buildings by listing and use in new build, though the high cost of maintaining a thatched roof and destruction of buildings by fire still results in losses.

134. The materials historically used for thatching have varied both over time and locally, usually involving either plants gathered from within the immediate vicinity, or agricultural by-products. The two principal historic local sources of thatch were wheat straw – used across most of the District – and water reed – used in proximity to Poole Harbour. Historic importation of reed from Weymouth into the District seems unlikely given the distances involved. Other materials used for thatching the past include heather which was sometimes used on or adjacent to heathland. It is not unusual to find more than one material within a historic roof, or the same material used in different ways over time. To get an idea of the material originally used in thatching a property, inspection of the base coat can provide clues.

135. With changes in agricultural production wheat straw suitable for thatching has become less widely available, though material is still specifically grown to cater for thatching in the UK and abroad. Wheat-rye hybrids (i.e. *triticale*) have also been used as substitute. As water reed is no longer harvested from Poole Harbour, most material is imported.

Wheat straw thatch

136. Thatching with wheat straw was closely related to agricultural practice given that it used the waste products of threshing (process of removing the grain). 'Long straw' thatching was probably once common. This technique employed manually threshed straw. Thatching with 'combed wheat reed', however, became typical within the District from at least the early nineteenth century. In this technique, straw whose stalks have not been crushed (as is usual in conventional hand threshing) is densely dressed into place on the roof. Material of this type may have initially been produced by hand, though was latterly a product of early mechanisation of the harvest. It is thought that the technique may have developed in response to wetter weather within the region.

137. Thatching in cereal straw traditionally involved a gradual accumulation of layers over time. Roofs are stripped back to a sound base and recoated, as opposed to being stripped bare upon each rethatching. These 'multi-layered' roofs can be of significant historical and archaeological interest given the potential antiquity of the thatch they preserve, and evidence this provides of past agricultural and thatching practice. The accumulation of layers also provides distinctive visual characteristics noted below. Given the widespread replacement of historic roofs, these characteristics are becoming increasingly rare, though are commonly recalled in old photographs.

138. Combed wheat reed thatch is characterised by a number of traits relating to the nature of the material, and its technique of use:
    - multiple layers – time related development of thick roofs which swell towards the eaves and form an unbroken line over dormers;
    - rounded edges to verges and eaves;
    - flush ridges;
    - eaves cut horizontally; and
    - fixings visible at the ridge but not typically along the eaves.

Water reed thatch

139. Water reed thatch is similar in appearance to combed wheat reed, though normally differs from it in terms of some or all of these traits:
    - single layer roof covering in which the roof surface is flat and dormers clearly pronounced;
    - square verges, eaves and cheeks to dormers;
    - typical use of block ridges (usually applied in a different material); and
    - eaves dressed into place without cutting.

140. It is possible to use water reed in a stylistically similar way to wheat reed, and this is generally desirable where water reed is used in areas historically characterised by used of wheat reed. Time related characteristics derived from the accumulation of multiple layers on wheat reed roofs can only be imitated in a superficial way in water reed, by applying a deeper coat of thatch than is necessary. It is occasionally the case that a second layer of water reed will be applied over the top of the initial coat, though this is not normal practice.

141. Water reed is commonly held to be a more durable material than wheat straw, however the durability of any thatch will always vary with local conditions, the quality of the material employed (influenced particularly by the level of exposure to phosphate fertilisers which produce poor quality thatch), and the quality of the job. Assumed durability and relatively cheaper cost than straw are the principal reasons why water reed has become desirable to property owners.

Generally

142. During the past it was common for the life of a roof to be extended through application of a ‘shelter coat’ similar in type to those historically attached to hay ricks. This is rarely seen today, though again commonly seen in old photographs.

Shelter coats were traditionally applied over ricks of cereal crops awaiting threshing. The technique has been employed here to extend the life of the current top coat of thatch on a house. Old photos suggest that this was once a very common practice.

143. The ‘Dorset Model’ is a form of thatched roof construction incorporating fire proofing approved by building control officers for use within 12 metres of any boundary. All new roofs falling into this category, including those on existing buildings undergoing roof replacement, should generally be in conformity.

144. The ideal roof pitch for thatch is at least 50°or more, allowing 45° over windows, and at hips and valleys.

145. The ridge is an element which is likely to require maintenance more frequently than the rest of the roof covering, and one whose form can dramatically alter the appearance of a thatched roof. The treatment traditionally characteristic within Dorset was the simple 'flush' ridge, and this remains the case in the majority of villages within the District. The ornamental or straight cut 'block' ridge, historically more characteristic of East Anglia, is an introduction whose use on the roofs historic cottages and new build alike is both visually harmful, and undermines local distinctiveness.

Thatch ridges. Above: ornamental block ridge. Below: flush ridge.

146. Whilst the thatching of listed buildings often provokes heated debate, the principles used in consideration of intrusive works are much the same as those applicable to any given historic material and building. Your main objective should always be to conserve historic fabric. Where compelling evidence is provided for its replacement however (e.g. a structural engineer's report in the case of roof replacement), historic thatch should be recorded through archaeological assessment, and continuity of design and tradition maintained through use of matching materials, details and finishes in new work. As such work will always require listed building consent you should ensure that you have applied for and obtained this before works commence.

147. Where inappropriate materials and details have been added to a roof in the past (e.g. water reed applied over the top of wheat reed thatch, block ridges etc), you should take opportunities to delete and or rectify them.

148. Destruction of thatched buildings by fire is often caused by incorrect installation and use of wood burning stoves. Where installed you should ensure that you comply with building regulations, that the chimney flue is intact and properly lined, and that you only burn materials recommended by the manufacturer.

Box 18: Use of thatch

1. Maintain continuity in traditional thatching materials and style.
2. Use flush ridges rather than block ridges.
3. Refer to the Dorset *Thatching Code of Practice* if you own a thatched listed building.
4. Take extreme care installing wood burning stoves.

Appendix 1

The distribution and use of local building materials within Purbeck District – material selection tool

Parish/Area	Walls									Roofs		
	Limestone	Limestone and brick	Limestone + heathstone	Limestone + heathstone + flint	Heathstone	Flint	Banded brick and flint	Brick	Rendered cob/rubble	Thatch	Stone	Tile
Arne			•		•				*	*	•	
Affpuddle and Turnerspuddle					•				*	*		
Bere Regis								*	•	•		*
Bloxworth												
Church Knowle	*									•	•	
Coombe Keynes			*		*	•				*		
Corfe Castle	*										*	
East Chaldon						•	•		*	*		
East Creech								*		*		
East Holme			*					*				
East Lulworth				•					•	•		
East Stoke												
Kimmeridge	*									*	•	
Kingston	*										*	
Langton Matravers	*										*	
Lytchett					*							

Matravers												
Lytchett Minster										*		
Morden								*	*	●		
Moreton								*		*		
Shitterton									*	*		
Studland			*						●	*	●	
Stoborough									*	*		
Swanage	●	*						*			●	*
Tyneham	*										*	
Wareham			●					*				*
West Lulworth			*			●			*	●		
Winfrith Newburgh				●		●	●		*	●		
Wool				●	●				*	*		
Worth Matravers	*										*	

* Play a major role in characterising vernacular development.

* Formerly played a major role in characterising vernacular development.

● Play some role in characterising vernacular development.

Appendix 2

Sample method statements

Reroofing of stone roofed properties

a. Examine roof for bats (licence required to handle or disturb).
b. Where bats are found consult Natural England to identify mitigation measures. Where a building is listed, agree the specification with the LPA.
c. Strip tiles, clean down and sort.
d. Store securely.
e. Strip battens, clean down rafters.
f. In consultation with structural engineer and LPA Conservation Officer (if building is listed) repair and strengthen the existing roof structure (i.e. through splicing, side by side timbers, plates etc) replacing timber only where absolutely necessary.

Then, either (delete as appropriate):

g. Attach breather membrane and new treated battens using stainless steel nails.

or

h. Apply split laths and peg tiles over (most appropriate where buildings have an open roof).
i. Identify any measures used to facilitate ventilation where required e.g. counter battens *(provide details)*.
j. Identify any measures to incorporate insulation: natural hygroscopic products such as sheep wool/cellulose, etc, support a breathing construction *(provide details)*.
k. Relay roofing to diminished courses. Make up damaged tiles with new well seasoned split Purbeck tiles to match. Second hand material **not** to be used.
l. Use large headed clout nails to fix.
m. Lay tiles close set and as flat as possible using a minimum amount of mortar bedding (3 sharp sand: 1 NHL 3.5) to prevent tiles from rocking. Mortar to be kept clear of the joints. No pointing applied.

Repointing

a. Establish the extent of repointing necessary [typically where mortar is weathered and friable or spalling off].
b. Identify and record any surviving original finish to the face of joints so that this may be replicated in new work, where appropriate.
c. Extract a sample of the original mortar, disregarding material associated with any previous repair or repoint. Submit for analysis to establish the mix so that this may be reproduced.
d. Weathered and friable pointing to be carefully raked out by hand avoiding damage to the arisses of the brick to a depth of between 25mm and 40mm, or at least to twice the width of the joint. Mechanical cutting discs/angle grinders will not be used.

Stonework where relevant:

e. Collect any small pinning stones displaced during raking for reuse.

f. The joints to be thoroughly brushed clean of dust and flushed with clean water, avoiding saturation.
g. Joints to be wetted prior to packing with mortar using a pointing iron or a wooden spatula.

For brickwork:
h. If brickwork is well weathered, pointing to be finished slightly recessed to avoid spreading the apparent width of the joint. Joints otherwise generally to be finished flush.

For Stonework:
i. Pointing to be finished flush between, but not smeared over the faces of adjacent stones.

Then either:
j. [For general stonework and weathered brick] When mortar is semi-hard, joint to be rubbed with hessian sacking to lightly raise the grain. Where a coarse brush to be used in lieu of sacking, this to be done without leaving brush marks on the face of the joint.
or
k. [For otherwise well preserved masonry where a historic joint finish has been identified] Finish the face of the joint in accordance with (b) above.

Where soft lime mortars employed:
l. No work to be undertaken where risk of frost. In hot weather drying to be carefully controlled through use of shading and dampening as necessary.

NB. The above method statement is not intended to cover repointing of finely jointed ashlar stone or rubbed brick gauged arches. As this work entails an extremely high risk of damage it should only ever be undertaken by specialist contractors, and where absolutely necessary.