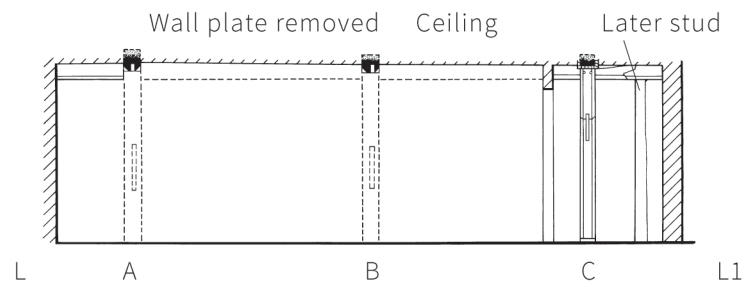
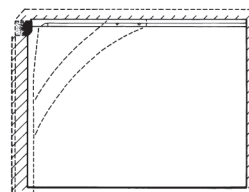


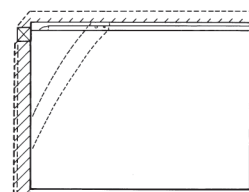
Partial long section L-L1



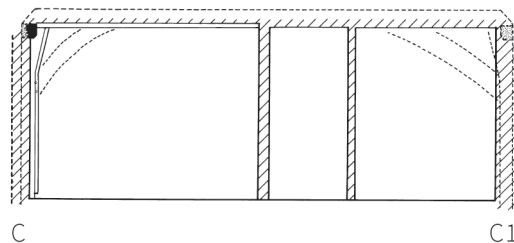
Partial cross sections at A, B cross section at C



A
Brace angle based
on tenon in tie beam



B
Brace angle based
on tenon in tie beam



C
Brace angle based
on height of mortice
in post



Figure 79 31 High Street, sketch sections through the rear range (Drawing Allan Adams © Historic England).

and clearly form constituent parts of a timber-framed building, of a late 16th century date or early 17th century date, although it is impossible to identify what form this building might have taken. This may represent remaining elements of the front block of this building, which appears to have been completely reconstructed, above cellar level in the late 18th or early 19th century.

To the rear is a range which projects northwards from the later block, running along the plot against the edge of High Street Passage (Figure 79). This appears to have originally formed a timber-framed range of more than four bays. At first-floor level there are a series of three residual tie beams. One of these has a supporting jowled post surviving in the eastern elevation, with part of the associated wall plate also extant. This indicates that originally the range was timber framed at first-floor level. Residual mortices for braces are visible on the undersides of the tie beams. The tie beams had plain chamfers with simple run out stops. The wall plate continues beyond the northernmost visible tie beam, indicating that the range ran further than the extant four bays.

The detailing of the mouldings is different from that in the residual timber in the cellar, although both have broadly late 16th or early 17th century dates. The differences may relate to a different status for the rear range – possibly it formed a service or storage area in relation to the higher-status front range. It is more likely however that it reflects slightly different dates for reconstruction – probably indicating a pattern of alternate rebuilding where rear and front ranges were replaced in separate phases.

33 High Street; New Look

On the other side of High Street Passage from No 31 is No 33 which contains evidence of another 16th century structure (Figure 80). This now comprises a single bay of a timber-framed ceiling structure, sitting some way back in the building (Figure 81). Although the evidence is slight, it can be interpreted as part of a substantial building of at least four bays, running back from its frontage on the High Street.

The surviving fabric comprises two transverse beams running from east to west through the building, with a central spine beam running between them, and a series of joists projecting from it. All the elements are heavily moulded. The northern transverse beam is elaborately moulded on its southern side, but only has only a plain chamfer on its northern side, with residual mortices underneath for a partition wall, and with a gap for a doorway on the western side. This suggests that there was a further bay to the north of the surviving bay but that it was considerably lower in status, possibly providing a service area. The southern transverse beam is moulded on both sides, but to the south there is no evidence for any residual mortice for a further central spine beam like that to the north. Instead the beam is largely plain on the southern side, apart from a high-level mortice towards the western side. This may relate to the position of a stair or gallery, although the precise form of this is uncertain. It does suggest however that this bay was open to the roof, possibly forming part of an open hall arrangement. There is also no indication of any partition between the surviving bay and the putative open hall bay to the south.



Figure 80 33 High Street from the southwest (DP173619).

In the surviving bay the joists which project out from the spine beam are also moulded. To the west these have notches on their undersides, beyond which they are unmoulded, suggesting that they formed part of a jetty which ran along the side of the building, towards High Street Passage. Some of these have later been relocated, with three of these appearing on the eastern side of the bay, but it is likely that they have simply been swapped from the west when the building has been substantially altered.

The overall proportions of the surviving bay suggest that there were two bays to the south of this. One of these is the putative open hall, as described above, possibly incorporating a gallery or stair (Figure 82 shows a suggested reconstruction). Further south again there was almost certainly a further bay, which would have brought the building up to its current street front position on what is now the High Street. The form of this front bay is completely unknown, but evidence from similar urban buildings identified elsewhere, for example Sandwich (Clarke *et al* 2004, 172), suggests that this may have formed a further storied range, possibly with shop units on the ground floor and chambers above. The putative gallery over the main hall would then have linked the two storied areas of the building. Alternatively they may both have been accessed via separate stairs from the open hall. Some of these features are speculative, but the sequence of (from north to south) service

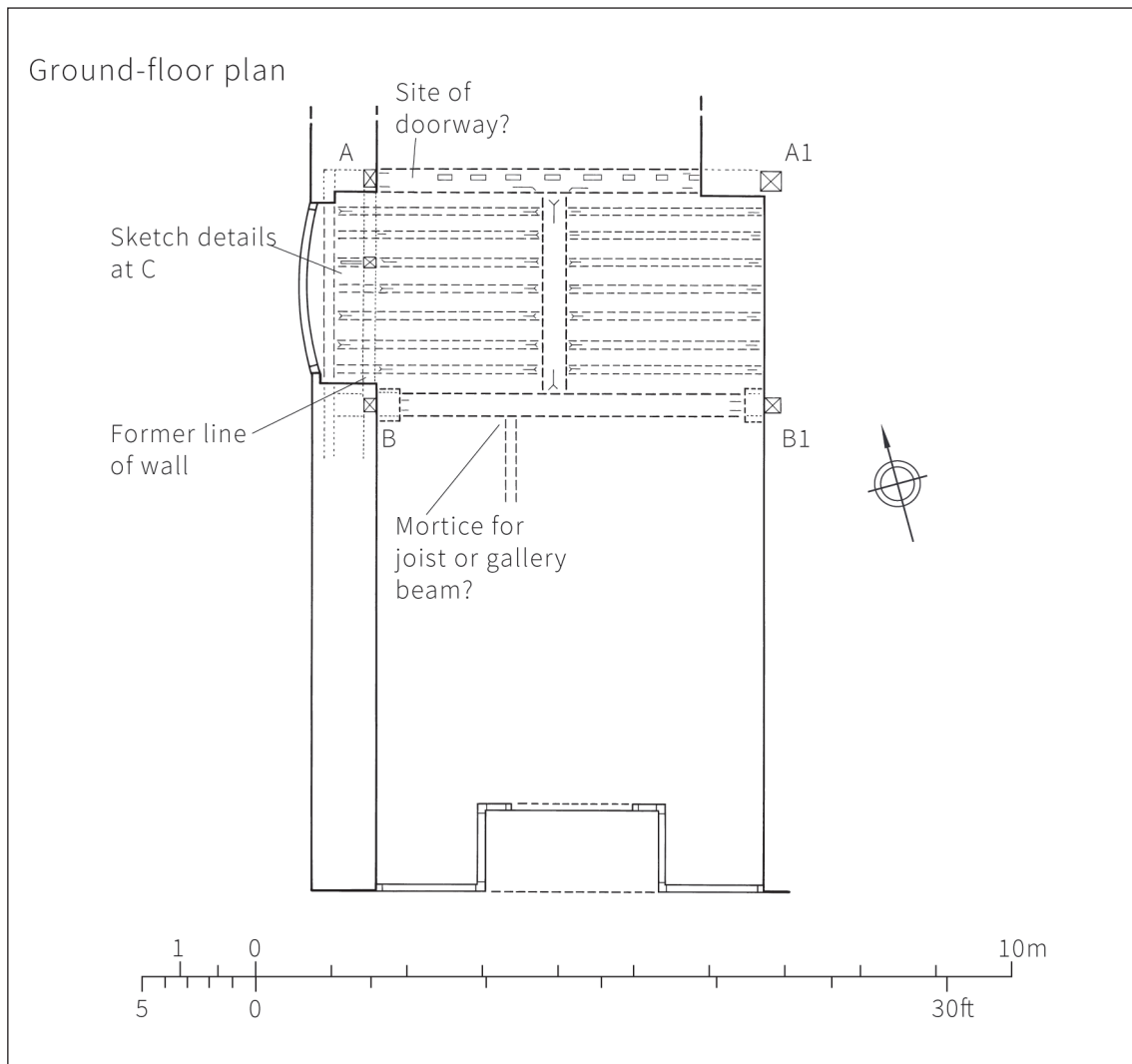
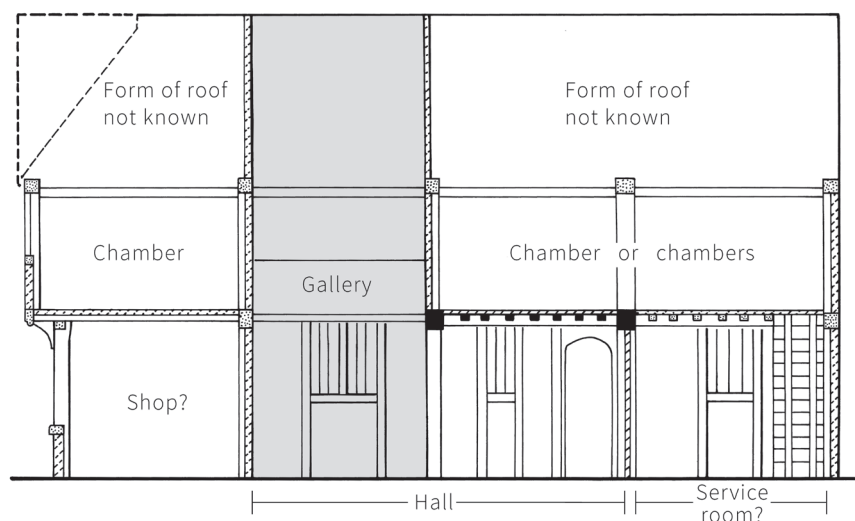


Figure 81 33 High Street, ground-floor plan (Drawing Allan Adams © Historic England).

area, parlour, open hall, and a further bay possibly containing a shop, is possible to extrapolate from the surviving evidence.

The principal dating evidence for the building is the form of the mouldings of the beams, which include distinctive foliate chamfer stops typical of the 16th century. Open halls were largely being replaced by fully storied buildings by this date, and this may represent a relatively archaic plan form, albeit using contemporary decorative detailing.

Conjectural reconstructed long section



Conjectural reconstruction of ground-floor plan

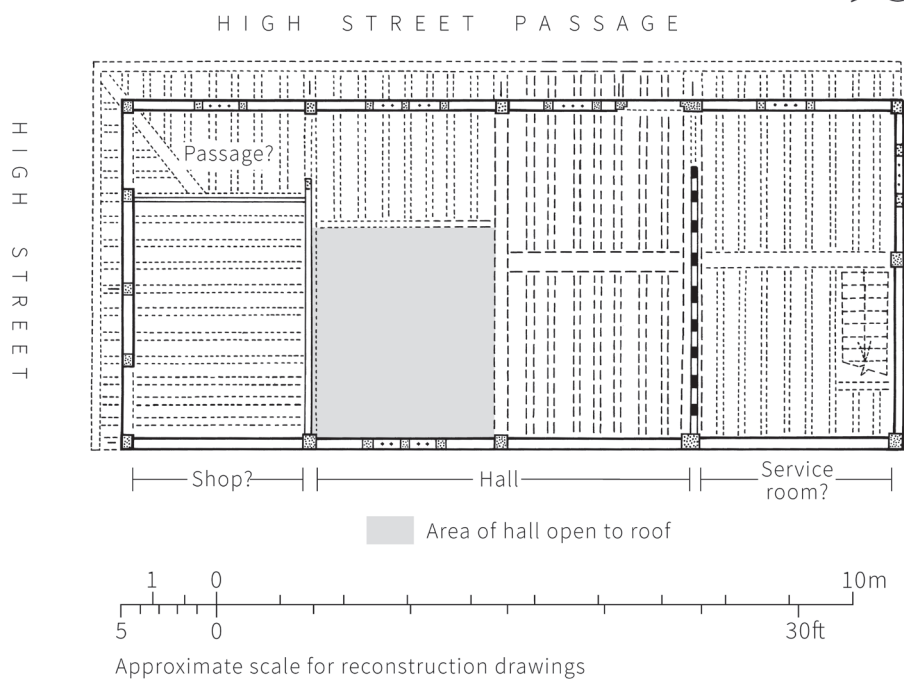


Figure 82 33 High Street, conjectural reconstruction based on the surviving evidence (Drawing Allan Adams © Historic England).



Figure 83 3a High Street Passage, detail of 16th century beam lapped onto the earlier cross beam (DP173792).

3a High Street Passage

The first phase of this building was described in a previous section, and comprised two bays of a potentially longer building, with the surviving two bays representing a double-jettied shop unit with chamber over, and an open hall to the north (see Figure 50 and 51). A significant phase of alteration to the building appears to have been undertaken in the 16th century. This saw a floor inserted into the open hall, and the creation of a chimney stack on the western side of the building. There is a surviving 16th century beam which has been affixed to the underside of the earlier transverse beam running east to west through the building (Figure 83). This is chamfered with scrolled stops. To the west is an extant fireplace with brick jambs and a timber bressumer. The bressumer is degraded, but there is some evidence of a chamfer to the underside.

The insertion of a chimney stack suggests that the rear area continued to provide domestic accommodation following the alterations undertaken.

5 Market Place: The Fish House

This building is part of a group of medieval structures situated in a prominent location on the edge of the open area of the marketplace (Figure 84). The earliest phase extant in this structure, however, is a two-bay timber-framed range running parallel to the street front, dating from the 16th century (Figure 85). It is likely that the front range was jettied on its west elevation, and probably also to its front (south), although much of the ground floor evidence has been removed or replaced. A large chimney stack projected from the northern side of this range. The front range roof



Figure 84 5 Market Place, from the south (DP173594).

structure is largely concealed, but cambered tie beams are visible in the floor of the attic, with a contemporary spine beam and joists indicating that the building was fully floored and the attic probably also in use, in the 16th century. The original western end of the building is now represented by the westernmost surviving tie beam, which has evidence for mortices in its upper edge that would have provided a closed partition. At some stage, possibly not long after the original construction of the range, the building was extended at first-floor level by taking in the small area over the top of the western passageway. That the passageway itself remained open is evidenced by later features to the rear of the property, but additional space was gained at first-floor and attic level by undertaking this alteration. There is little evidence to indicate the likely date of the alteration. The sequence of construction, particularly in relation to the rear range, is also unclear.

To the rear is a near-contemporary range running at right angles to the front range. This is of three bays, although one bay is occupied by the substantial chimney stack formed of the projecting stack of the front range with an additional stack built

First-floor plan

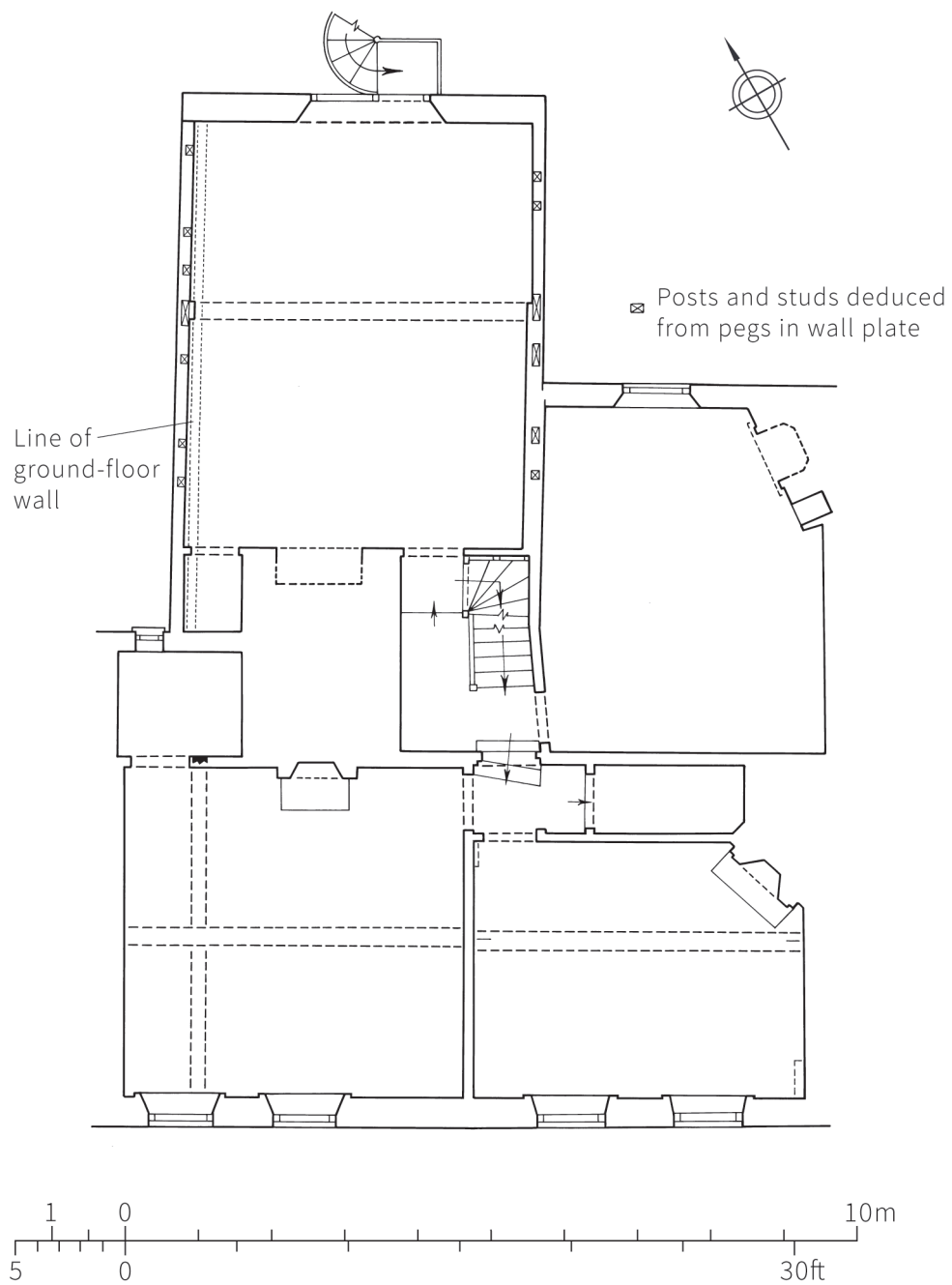


Figure 85 5 Market Place, plan of first floor (Drawing Allan Adams © Historic England).

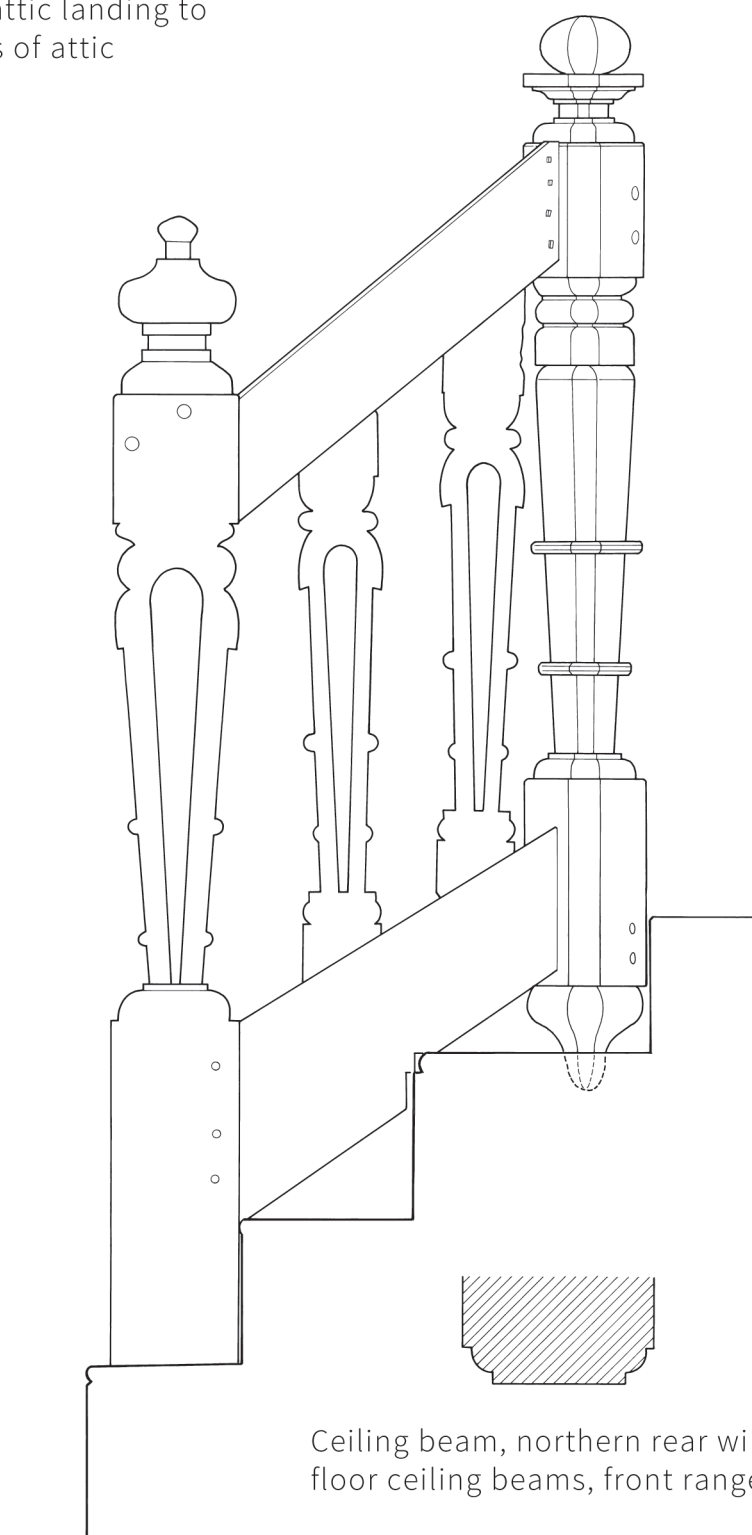


Figure 86 5 Market Place, view of jettied rear range from the northwest (Photograph Rebecca Lane © Historic England).

against it to the rear. A much modified stair sits on the eastern side of the stack, probably reflecting its original position. Although it still appears to be of late 16th-century date this was probably built slightly later than the front range as its framing is of a different, and slightly poorer-quality, form. It is jettied to the west, adjacent to a narrow cut through from the market place to land to the rear (Figure 86). The underside of the jetty has been rebuilt, but the joists survive with plain rounded ends and no indication of any decorative fascia board. The wall plates of this rear range sit at an intermediate height within the second-floor of the building, and there is no indication of tie beams having been removed. The truss instead is tied by a beam further down the posts. This is now encased in later boxing, but may represent an original feature and must have been thought sufficient to tie the walling together. This device has been seen in other town roof structures (Roberts 2016, 53), and may have been designed to create a more usable space at second-floor level, by effectively dropping the attic floor level down in the building.

The building also contains a number of high-quality 17th century fixtures and fittings, although these have most been relocated within the attic of the building. This includes reused elements of a 17th century splat baluster staircase (Figure 87), as well as a high quality door between the two attic rooms of the front range, with moulded planks and battens (Figure 88). Both of these features appear to have been

Stair from attic landing to
front rooms of attic



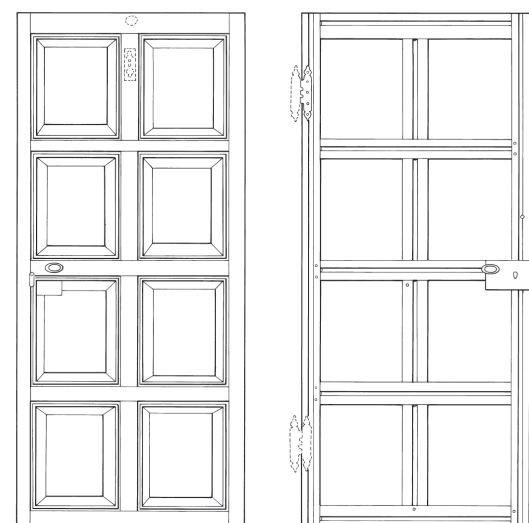
Ceiling beam, northern rear wing (first
floor ceiling beams, front range similar)

Scale for details of mouldings

0.1 0 0.5m
6 0 12ins

Figure 87 5 Market Place, detail of surviving section of 17th-century stair (Drawing Allan Adams © Historic England).

First-floor door eastern rear wing



Front face (to landing)

Rear face



Detail of mouldings

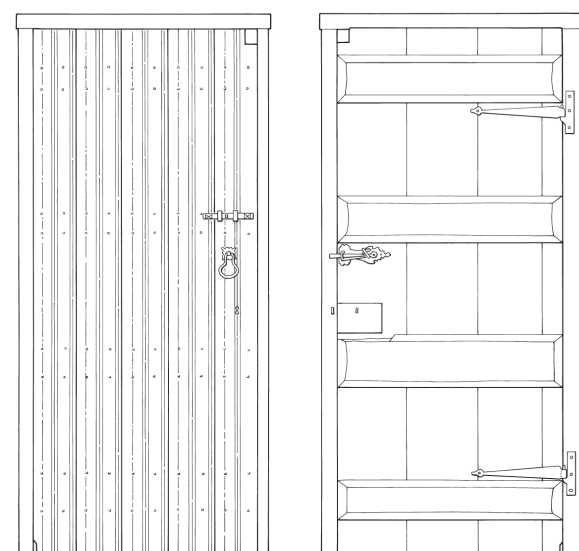
Scale for door elevations



Scale for details of mouldings



Door to east room of attic
(accessed from west room)



Front face (west room)

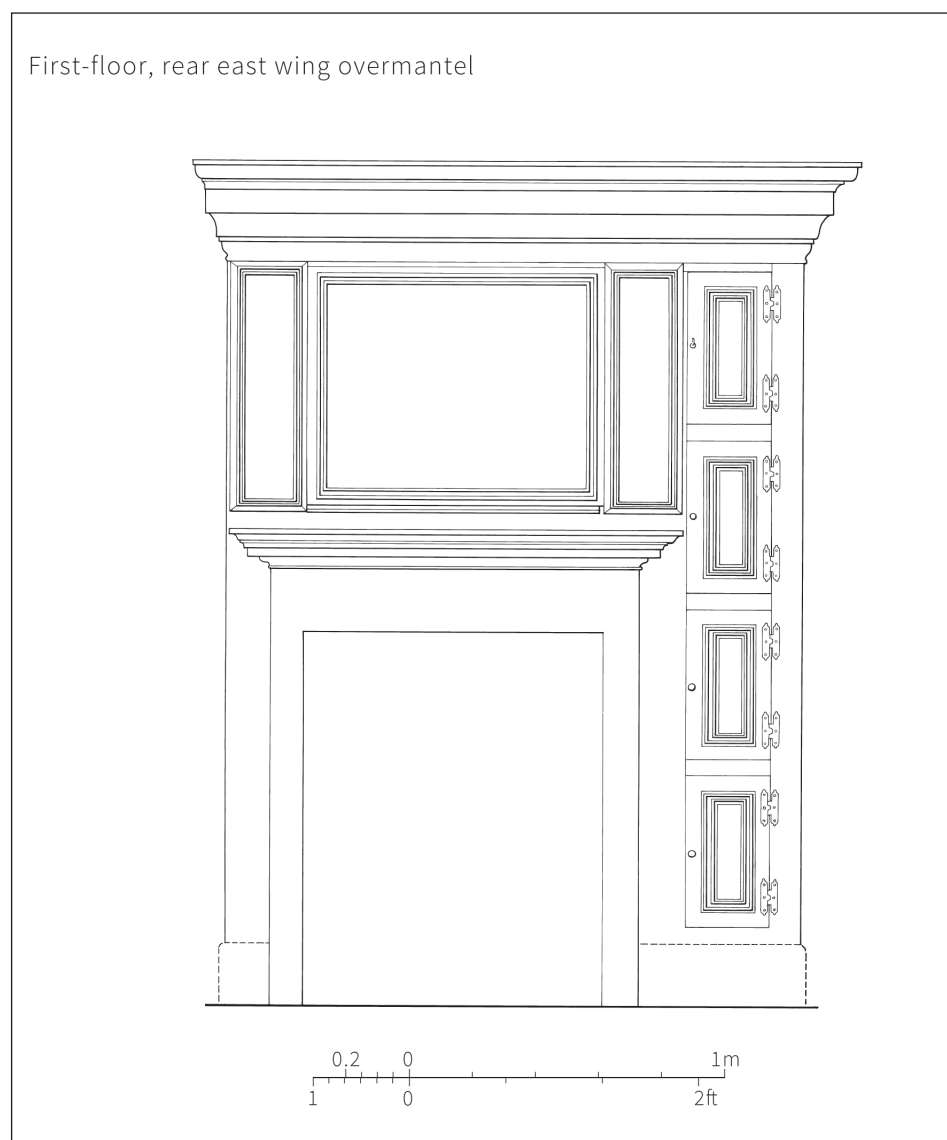
Rear face (east room)



Detail of mouldings

Figure 88 5 Market Place, detail of 17th-century doors (Drawing Allan Adams © Historic England).

Figure 89
5 Market
Place, detail
of rear wing
overmantel
(Drawing
Allan Adams
© Historic
England).



relocated, but given their reuse in such a piecemeal way, and in a relatively private part of the building, it seems likely that they have simply been moved from elsewhere within the building rather than brought in. They indicate that, notwithstanding the relatively poor quality of the timber framing of the rear range, the building underwent an expensive refit in the 17th century.

The building underwent further modifications, and updating, in the early 18th century. This included the addition of a further rear extension, east of the earlier rear range, which provided an additional room at ground- and first-floor level. At first-floor level a large corner fireplace survives, with associated fitted cupboards, and overmantel (Figure 89). This appears to be *in situ*. At ground-floor level the earlier rear range was also updated with new half-height panelling and a new fireplace. An associated cornice may also have been added at the same time. As with the evidence for 17th century fittings, this indicates a substantial investment in the property at the time, reflecting its prominent position in the market place of the town, and the status of its owners or tenants.



Figure 90 7-9 Market Place, view from south (DP187921).

7-9 Market Place: Former Club Hotel now Photo Expert and Allgoods Delicatessen

As with 5 Market Place, this plot occupies a prominent position on the north of the remaining open area of the market place. The two buildings that now form 7-9 Market Place were for some time used as a single hotel building, and were examined by the RCHME in the 1970s (Figure 90; HEA BF032089). They identified both as originally being timber-framed buildings of the 17th century. What is now No 7 was originally of two storeys plus cellar. In its original plan form it provided two rooms of equal size at ground-floor level, both heated by a central stack with a stair positioned close to the stack. A further, narrower, range to the rear provided two more rooms, again both heated by a stack. Although the building runs back from the street front, the front range appears to have been roofed parallel to the street.

What is now No 9 is also timber framed, and originally comprised a three-storey range parallel to the street front with a short two-storey rear wing. A brick chimney stack between the front and rear ranges heated both. It also had a stair, with wavy splat balusters (probably 18th-century), on the western side of the stack. The building was originally jettied on its south side, where it fronted onto the market place.

Together with No 5 these three buildings appear to suggest a comprehensive programme of redevelopment of the northern side of the market place in the 16th and 17th centuries. Although none share identical detailing, there is considerable similarity in plan form, particularly in the location of the stacks between the front and rear ranges, and in the positioning of the stair.



Figure 91 7-9 Newnham Street, view from southeast, taken during alteration works in the 1970s (AA107177).

7-9 Newnham Street

This is located just north of the market place, on the one of the roads into and out of the settlement towards the village of Newnham. The building was examined by the RCHME in the 1970s and interpreted as a pair of 17th century cottages (Figure 91; HEA BF029794). A re-examination of their evidence however suggests that it in fact represents a 17th century three-room cottage, with a later southern extension (Figure 92). This lies parallel to the street front. This is a one and a half storey brick building, with a dentilated eaves cornice. It has stack heating the larger central room and the room to the south of this, with a further unheated room beyond the central area. It was originally entered via a doorway opposite the stack, giving it a typical lobby-entry plan. At first floor level a timber-framed partition wall is visible, including a pair of cranked or curved principals rising to support the purlins, with spurs projecting to support the eaves.

13-15 Newnham Street

This is a further building lying parallel to Newnham Street. It was examined by the RCHME in the 1970s (Figure 93; HEA BF038883). It principally represents a later building, but a single ovolo moulded beam surviving in the front range suggests that the original plan form of the building may represent a 17th century building which has subsequently been heavily rebuilt. If this is the case then the 17th century plan form had a hall and cross-wing arrangement, although all other details have been altered or lost.

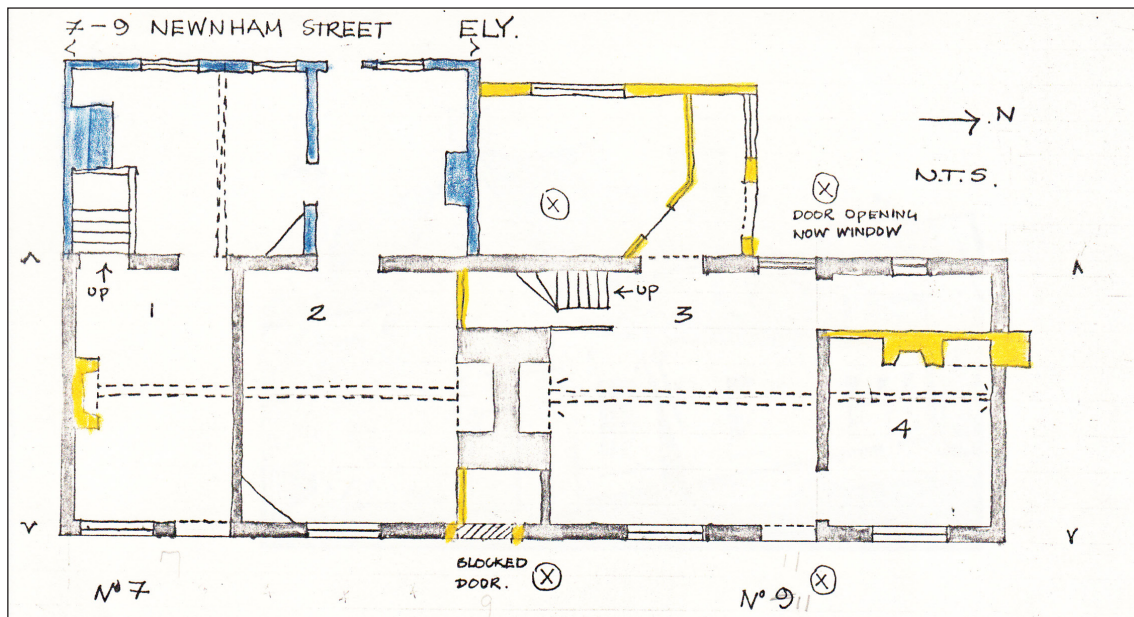


Figure 92 7-9 Newnham Street, plan as drawn by the RCHME investigators in the 1970s (HEA BF029794).



Figure 93 13-15 Newnham Street, view from west, taken during restoration work in the 1970s (AA107180).



Figure 94 2 Waterside and 58 Fore Hill, view from the north (DP173808).

The waterfront area

Evidence of the decline in the importance of the waterfront area, already present in the 15th century, appears to have continued in the late 16th and 17th century. By 1565 the waterfront area had only one wharf and three barges, with eight men employed, mainly transporting corn to King's Lynn (Cessford *et al* 2006, 72). Industrial uses for the area continued however, with the Ely's pottery industry continuing to use the central area around what is now Jubilee Gardens. This appears to have settled into an established pattern of use with a sustained, but never large, industry, enough to maintain one or two potters throughout the ensuing centuries (ibid, 69). This was sufficient to ensure the area continued as an industrial suburb, albeit with some continuing use of the waterfront. It perhaps did not have the mercantile significance of its earlier phases therefore, but maintained a population to serve the industrial uses of the area.

2 Waterside

2 Waterside sits on the southern side of what is now Waterside, facing the junction with Lisle Lane (Figure 94). Both of these roads are known to have been developed by the time of the 1417 survey; the earliest phase of this structure, however, appears to date from the 16th century. This originally comprised a two-bay timber-framed cottage running parallel to the street front (Figure 95). Although later refaced much of the internal timber-framing of this building survives, and includes evidence that it was a fully storied building, originally jettied along the street front (Figure 96). It was heated by a chimney stack in the east gable wall, and the stair probably rose

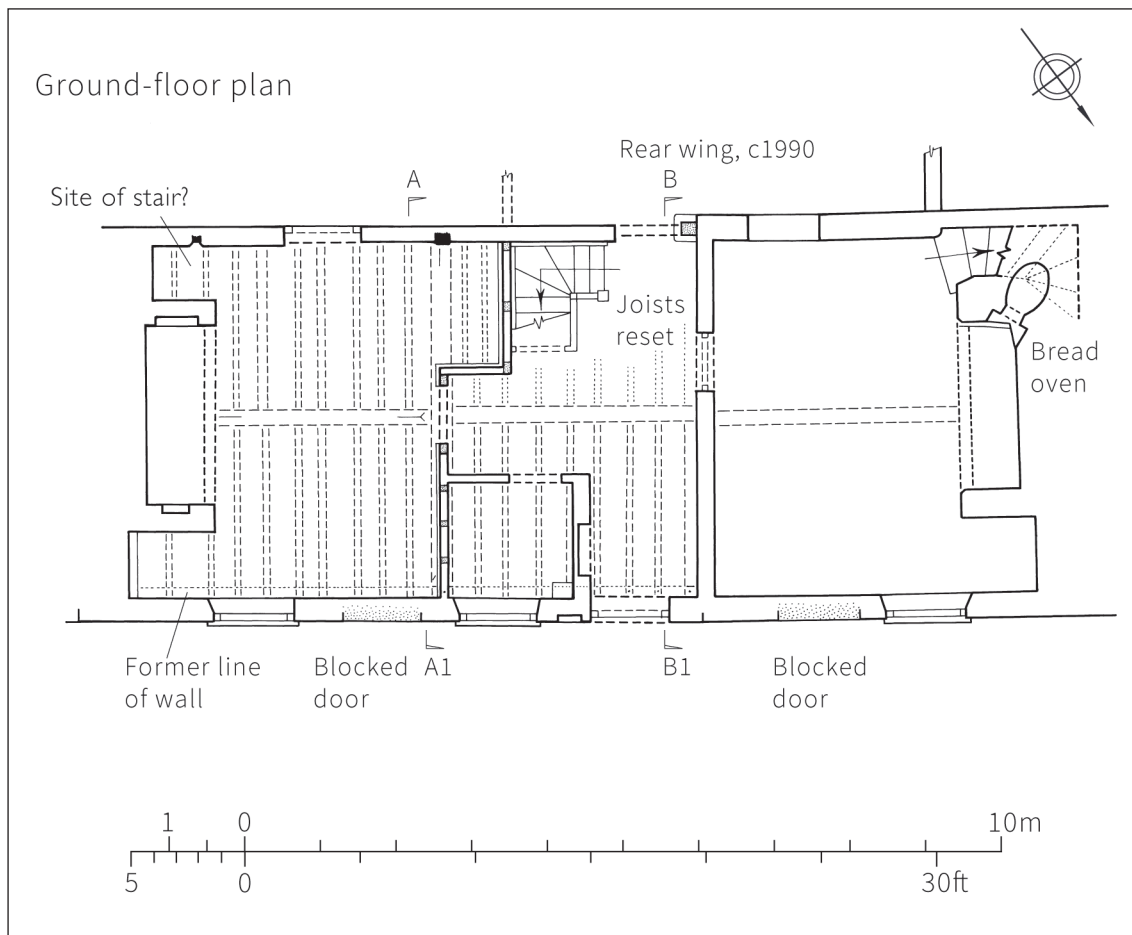


Figure 95 2 Waterside, ground-floor plan (Drawing Allan Adams © Historic England).

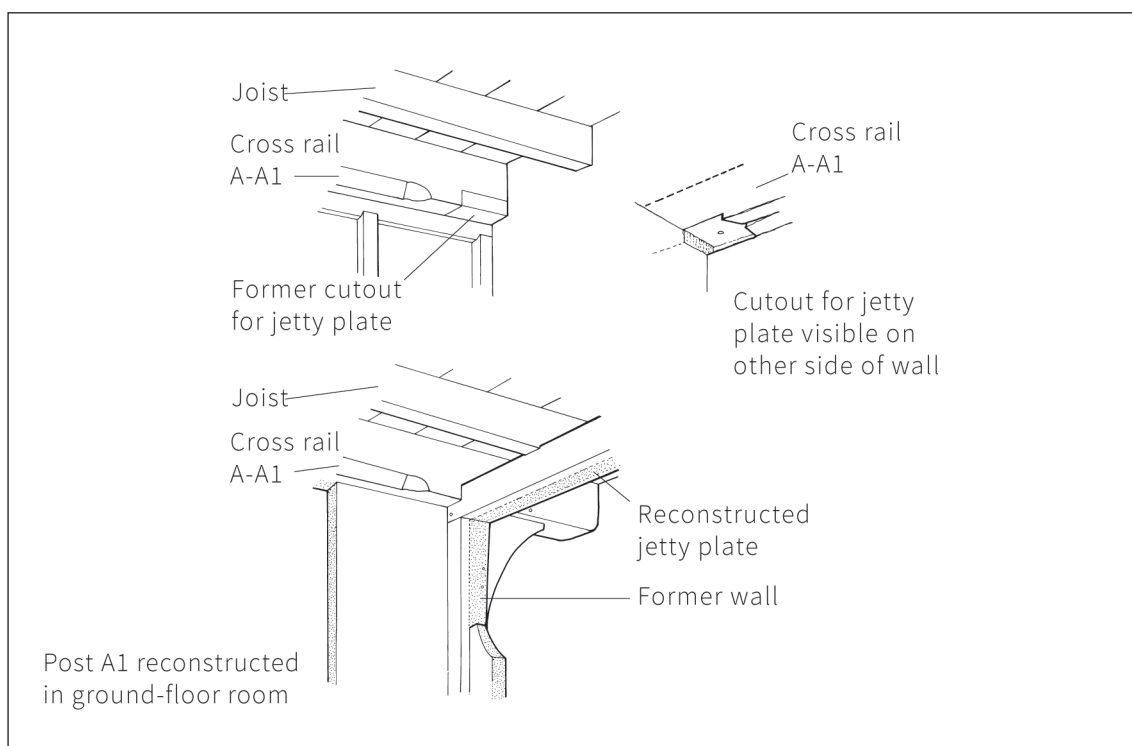


Figure 96 2 Waterside, detail of the ground-floor post (A1) showing cut out for jetty (Drawing Allan Adams © Historic England).



Figure 97 2 Waterside, detail of chamfer stop to fireplace bressumer in the west bay (DP173823).

next to this. Many of the principal framed elements have chamfer mouldings with simple run out stops. The roof structure has been largely replaced, but the tie beams survive, with mortices indicating that braces rose from the principal posts to the bases of the tie beams.

2 Waterside and 58 Fore Hill

The western bay of what is now part of 2 Waterside and the adjacent building 58 Fore Hill constitute a further, slightly later, two bay cottage (see Figure 94). There is less surviving evidence for the original form of the building than in the rest of 2 Waterside, but the building had a large central fireplace stack which heated both rooms. Both rooms have fireplaces with brick jambs with moulded brick chamfers to the edges of the jambs. They both also have timber bressumers with chamfered edges and a distinctive chamfer stop form of a raised run out stop (Figure 97). In the western portion of the cottage (now No 58) a surviving timber spine beam with a sunk ogee chamfer to the edges, suggests a late 16th or early 17th century date.

11 Waterside

This building was not examined in detail, but appears to represent a further 17th century two-bay fully storied house (Figure 98). It is possible that it was originally constructed in brick. The building contains a series of spine beams at both ground- and first-floor level with a distinctive pyramid and run out stop form which suggests a 17th century date. The beams also appear to be of pine, rather than oak, perhaps suggesting the use of imported timber.



Figure 98 11 Waterside, view from southwest (DP173795).



Figure 99 33 Waterside, view from southwest (DP187979).

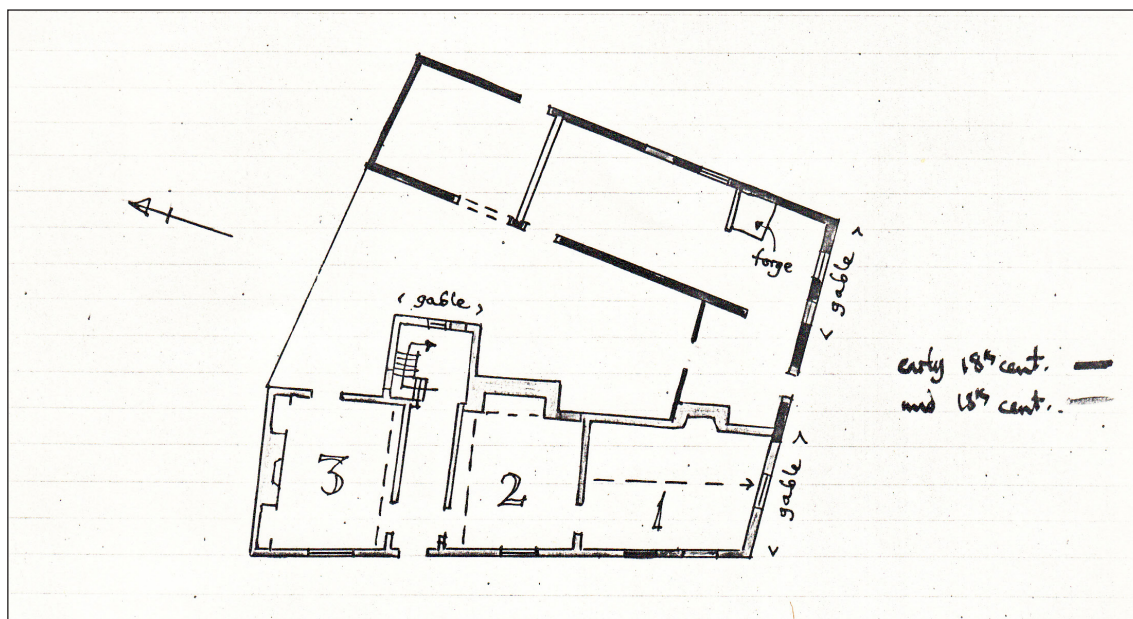


Figure 100 33 Waterside, plan as drawn by the RCHME (HEA BF029795).

33 Waterside

33 Waterside sits on the junction of Waterside with a back road running up to Lisle Lane and thus occupies a prominent site (Figure 99). It was examined by the RCHME in the 1970s (HEA BF029795). They concluded that it was of 18th century date, on the basis of most of the internal fittings including the stair. However, they noted that the stair was inserted against an earlier doorway, and the plan form of the building appears to suggest it is instead a 17th -century building with a three room plan running parallel with the street (Figure 100). It is entered via a cross passage, with one room to the west of this and two to the east, including a larger central room. This appears to have been heated via a projecting stack in the north wall with a further stack in the west gable end. Given the early 18th century date assigned to the (inserted) stair, the building may be of the late 17th century.

Taken together the buildings examined in Waterside appear to show that the area underwent extensive reconstruction in the 16th and 17th centuries, with little evidence for medieval fabric, although not all buildings were examined. This may reflect the changing use of the area in the post-medieval period. The 1417 survey suggests that the majority of this area was in use for commercial purposes relating to the broad hithe, and the influx of goods via the river. The reduction in river trade in the 16th century may have led to the area becoming less commercial and more residential, perhaps housing people associated with the industrial use of areas of the Waterside further south, including the pottery and lime kiln.

41 Broad Street; The Three Blackbirds – Fourth phase

The original open hall at 41 Broad Street was considerably upgraded and provided with a brick chimney stack in the early to mid-15th century (see above). However, the flooring in of the hall does not appear to have occurred until the 17th century

(Holton Krabenbuhl 2009, 18). The axial beam of the inserted floor was supported by cutting a corbel into the earlier fireplace opening. This is a late date for an inserted floor in what appears to have remained a high-status building.

St Mary's Green and the western area

The Dissolution had a considerable effect on this area, with many of the religious or quasi-religious institutions associated with it dissolved or reorganised. Although the Bishop and the Dean and College continued to hold their traditional land in the area, more of the directly held land was let, including that associated with the Sacrist's holding around St Mary's Church, and the Bishop's manor at Barton. The guilds were also suppressed in the 16th century, and any land held directly by them redistributed. In 1561 the Hospital of St John and St Mary was also dissolved, although it had ceased to perform its traditional role at least a century earlier. The former complex was granted to Clare Hall (now Clare College) and let. Thus many landholdings in the area were granted to new owners, and complexes consolidated to suit their new owners and occupants.

Some of the adaptations of these complexes spoke of considerable aspirations on the part of owners and tenants, most notably at the former hospital of St John and St Mary where the complex was reorganised into a large courtyard residence. In the later 16th and 17th centuries, however, the area appears to have capitalised on its position on the edge of the farmland of the parish, with many complexes becoming large farmsteads.



Figure 101 38a St Mary's Street, view from the southwest (DP173803).

38a St Mary's Street

This building occupied a prominent position on the corner of St Mary's Street and Lynn Road, and opposite St Mary's Green (Figure 101). The tenement appears to have been associated with a prominent 14th century resident, John Mepsale, the Cathedral carpenter who was involved in the design and construction of the Ely octagon. He appears to have occupied a building on this site, and it subsequently became referred to as Mepsale's Corner. However, the earliest identifiable phase of the current building dates to the 16th century. This comprises a substantial three bay range running parallel to St Mary's Street (Figure 102). Its eastern gable end incorporates some stonework, which may potentially be part of an earlier building,

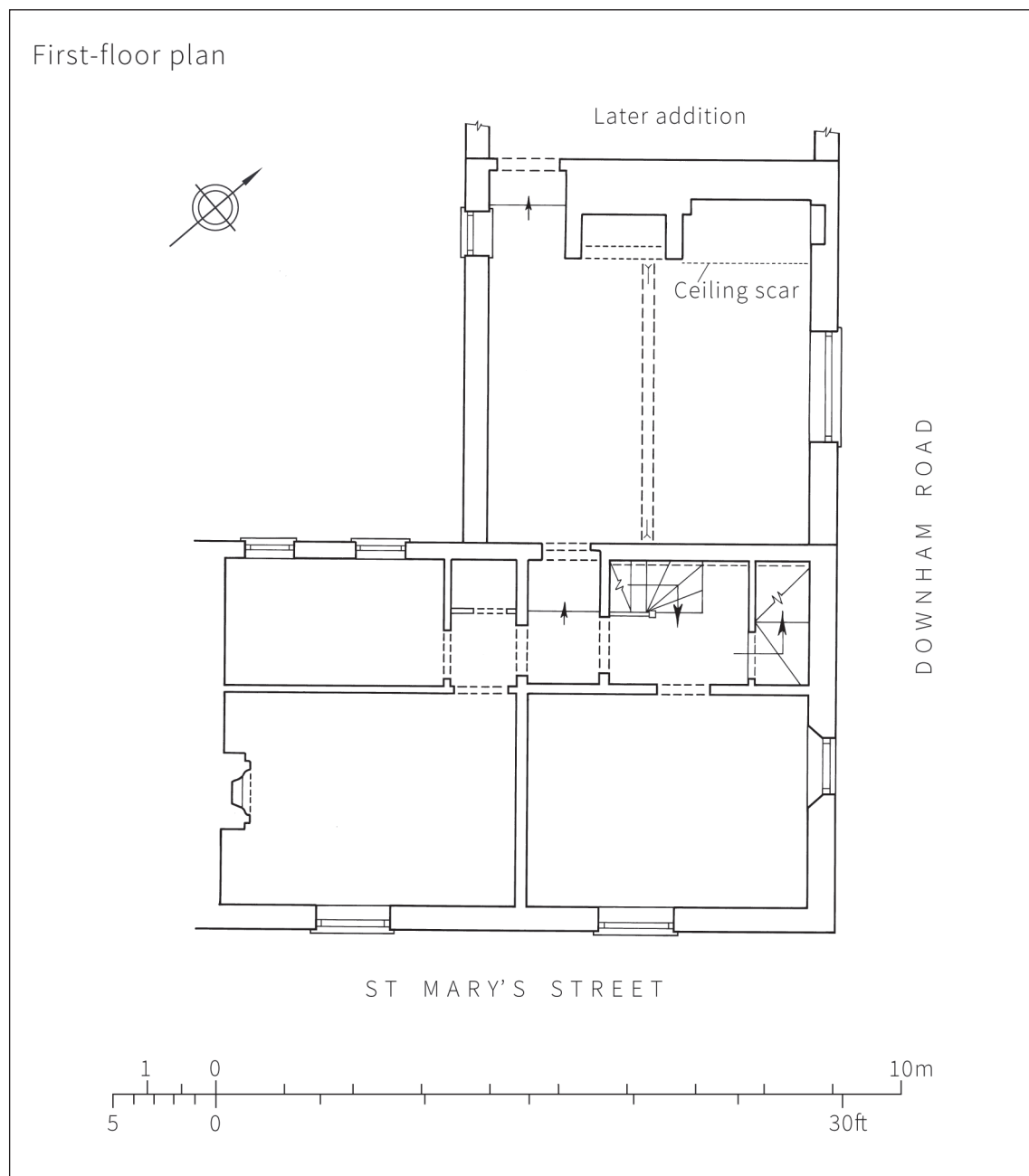


Figure 102 38a St Mary's Street, first-floor plan (Drawing Allan Adams © Historic England).



Figure 103 82 St Mary's Street, view from the south (DP173797).

although it is heavily rendered and little detail can be observed to confirm this. Much of the internal detail of this range has been altered, but it appears to have been a fully-storied building, and to predate the range to the north.

The second phase of the building is the northern range, which sits at right-angles to the earlier building, running against Lynn Road. This is brick and two storeys, and provided an additional room at ground- and first-floor level heated by a chimney stack in the northern gable end. The internal detailing of this wing is better preserved. Spine beams survive at both ground- and first-floor level with ovolo moulded edges and scrolled stops. Large fireplaces also survive at both levels, these have timber bressumers with chamfered lower edges and square-cut stops. At first-floor level there is evidence for a small window which appears to have lit a small closet on this side of the fireplace.

82 St Mary's Street

This building now sits on the corner of West End and Cambridge Road, although the latter is a later route, and thus originally it may not have held quite such a prominent position (Figure 103). This building originally comprised a two and a half bay building running parallel to the street, the half being formed of a smoke bay which sat at the western end of the building (Figure 104). The building was fully storied, and jettied towards the street front. The smoke bay has been much altered but the principal evidence for its original use is in the position of the west end truss and the next truss to the east. This truss indicates evidence of partitioning at all levels suggesting that the western bay was completely separated from the adjacent

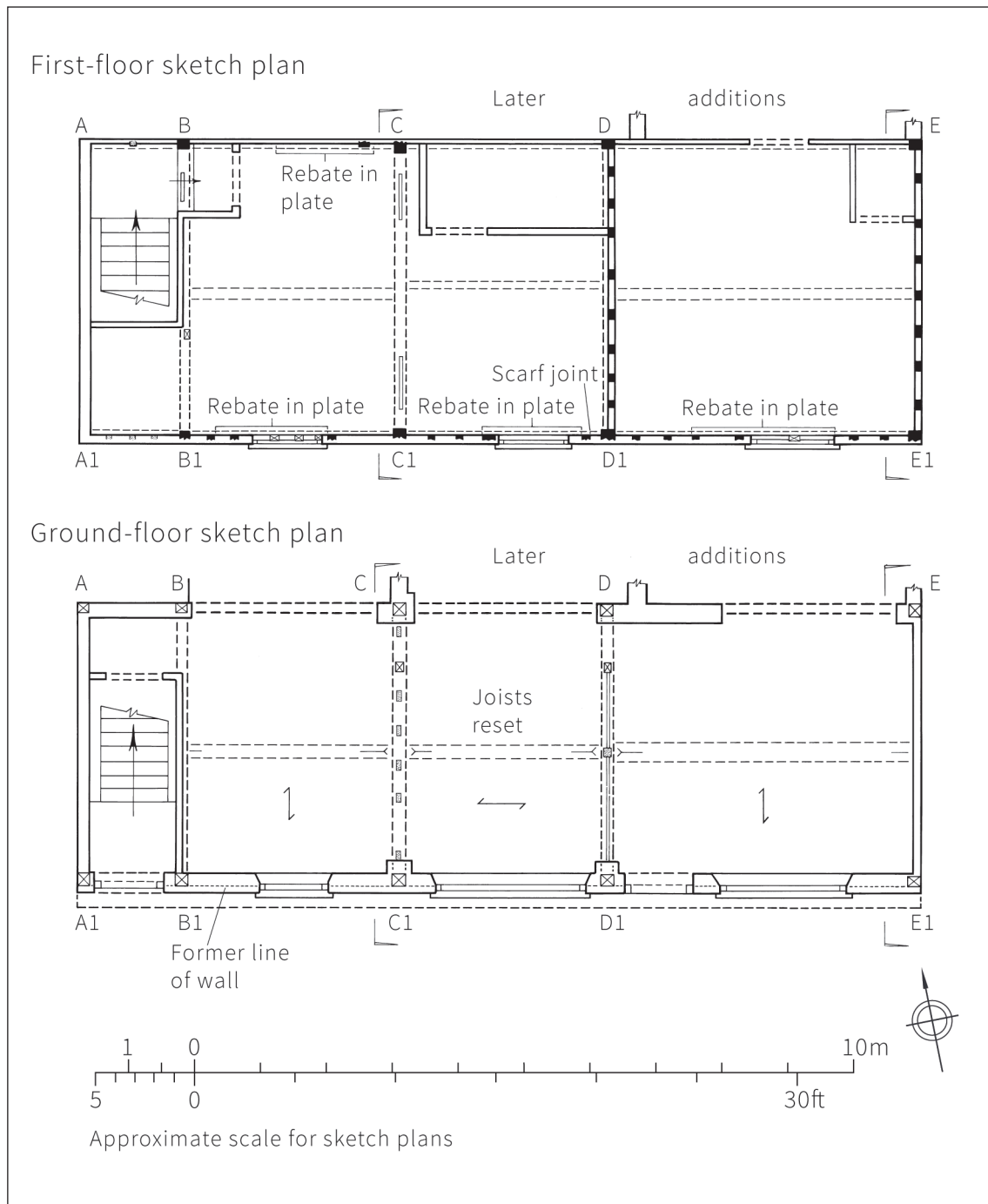


Figure 104 81 St Mary's Street, sketch plans of ground and first floor (Drawing Allan Adams © Historic England).

bay. A smoke bay is therefore the most likely interpretation although later alteration has removed any definitive evidence for this. The remaining two full bays have spine beams with simple straight chamfer mouldings and run out stops at ground floor level. There is also evidence of subdivision between the two ground-floor bays suggesting there were two separate rooms provided at this level. At first-floor level, other than the partitioned smoke bay much of the detailing has been lost, but surviving shutter grooves in the wall plate indicate that each bay was lit by a centrally-placed window opening.



Figure 105 Oliver Cromwell's House front range, view from northwest (DP195554).

A further eastern room may be contemporary with the same structure, or added soon afterwards. The bay is wider than the two full bays further west. It also has a different form of moulding on its spine beam at ground-floor level, with a hollow chamfer and ogee moulding as opposed to the straight chamfer seen in the bays further west. The transverse beam between this bay and the central bay moreover has no chamfer at all on its eastern edge, as though it represented part of the end of the building. On the other hand there is a large scarf joint in the original south wall plate just west of what would have been the west end of the original building. The evidence is therefore somewhat contradictory in terms of the date of this room, but it is suggested that it is more likely to be a slightly later addition.

At some stage in the 17th century the original roof of the building was heavily modified, although the original tie beams were left in place. The original form of the roof is therefore uncertain, as a close examination of the top of the tie beams could not be made. The later roof includes many reused timbers, including a section of wall plate reused as a spine beam, with further reused timbers used as raking struts to support the purlins. These changes therefore appear to be associated with the ceiling-in of the first-floor chambers, which must have originally been open to the roof.

Oliver Cromwell's House – front range

The rear range of Oliver Cromwell's House was described above (see 14th century section). The front range of Oliver Cromwell's House appears to have been added in

Figure 106 Oliver Cromwell's House, front range, detail of wall paintings in the eastern room, uncovered behind later panelling during restoration (DP195558).



the late 16th century, the date 1572 being frequently cited (see for example Blakeman 2008, 6), although it is not clear what definite evidence there is for this. The range added was of five bays and ran parallel to the street frontage of St Mary's Street, notwithstanding the fact that this meant it sat at an awkward angle to the earlier rear range (Figure 105).

Internally this retains some important decorative detail including some painted imitation panelling attributed to the 1570s (Figure 106). At first-floor level is a fireplace with sunk chamfer jambs and a timber bressumer.

The Hospital of St John and St Mary

The hospital was dissolved in 1561 and the hospital complex, and its estates, were granted to Clare Hall (later Clare College). Clare College appear to have let the main hospital complex to a local gentleman, John Orwell (Palmer 1936).

There is clear evidence that a significant consolidation of the buildings was undertaken at around this date, although whether this took place before or after the dissolution of the hospital is not clear. The main evidence for this is in the surviving stone service building. This however is supplemented by the documentary evidence,



Figure 107 St John's Farm, sketch plan showing the hospital complex as converted into a residential complex in the 16th century. (Reproduced courtesy of Clare College Archive, CCAD3/3/32/2/4/2.)

which includes a ground plan of the complex. The date of the plan is uncertain but it shows the complex prior to significant changes undertaken c 1700. This shows the stone service building in its extant form, but sitting in association with a series of other structures forming a courtyard arrangement (Figure 107). This gives the impression of a substantial and ambitious gentleman's holding, although clearly adapted from the hospital complex. It contained a hall with chambers over, parlour, cloister and an unroofed chapel to the south. There is evidence that by the time of the plan the building was not in use as originally intended, with rooms noted as 'not much used' or as a 'parlour now used as a service room'. This suggests that whatever the original intention of the adaption of this complex, it had ended up principally being used as a large farm complex.

The building fabric evidence from the stone service building shows the adaptation of the earlier structure to form two rooms at ground- and first-floor level. The gable ends of the building were completely reconstructed, with stone used to the east, and brick to the west, to create the distinctive stepped gable ends now one of its most prominent features. Internally the ground floor space is subdivided by a transverse timber-framed partition which appears to sit on top of fragments of a medieval tiled floor. This has a doorway with a depressed four-centre arched head at its northern end. Running from the partition to the gable ends are two large spine beams, with plain chamfers and run out stops. Both spine beams have large mortices towards

the gable walls, apparently intended to take large braces, with associated peg holes also visible. However, there is no evidence for any braces having risen from the end walls. The mortices and peg holes have been carefully filled with fillets of timber, and it may be that they relate to a change in design during the construction phase. The western room contains a large fireplace in its gable end wall, with a timber bressumer with chamfer stops matching those on the main beams. The rear of the fireplace has a pattern of herringbone brickwork. There is a notable lack of smoke blackening to the rear of the fireplace, and to the flue, suggesting that the fireplace was very little used. At first-floor level there has been significant alteration, with the floor, and the roof structure, entirely replaced. The early plan however shows this space as two separate rooms. In the western room was a further small fireplace towards the southern side of the gable end, although this has been later modified to form a doorway. This room also had a fine large three-light west window with stone mullions. There is a further, larger, fireplace in the centre of the east gable end. Adjacent to this is an early doorway, now blocked, formed of reused timbers. This appears to have communicated with a further section of this range shown on the early plan. The walls are rendered and there are faint traces of paintwork in the form of simple dark lines, running horizontally around both rooms.

The evidence suggests that this range was converted to form part of a high-status complex, working in conjunction with a hall range to the south shown on the early plan. The evidence of the fireplace however, suggests that the building may never have been used as intended, and this is supported by the documentary plan which indicates that it soon became used as a service building. Whether the conversion was undertaken by the Master prior to the dissolution of the hospital, and then never used as intended, or as part of an ambitious conversion by Clare Hall, or their tenants, is unclear.

Barn, 17-19 Cromwell Road

This building sits off the main thoroughfare on St Mary's Street, slightly to the north, on a street of mainly 19th and 20th century houses (Figure 108). The 1841 Tithe map shows that it originally sat in an area of open fields, accessed via a track off St Mary's Street which the later road has followed. The site has been linked to the Hospital of St John and St Mary, although it was not part of the descended land holding associated with the former hospital in the early 19th century. In 1841 it was owned by William Rayner, a farmer who also owned the farmland surrounding it.

The building was examined by the RCHME in the 1970s, prior to its conversion into housing (HEA BF032086). They found that, despite the notable use of ashlar stonework probably reused from a near-by medieval building, it was of one build and dates from the 17th century. It is of seven irregular bays, with a large wagon entrance in the centre of the eastern side of the building. Opposite this is a smaller single doorway. The other bays have narrow slit ventilators largely formed from ashlar masonry. Characteristic of this period is the tumbled brickwork of the gable ends. The roof structure appears to have been reconstructed in the 19th century, although reusing some earlier timber.



Figure 108 Barn at 17-19 Cromwell Road, view from southwest (DP195536).



Figure 109 29 Lynn Road, view from west (DP173836).

29 Lynn Road

This building sits at the corner of Lynn Road and Egremont Street, opposite the turning to Newnham Road, and must have formed a relatively prominent plot on a busy crossroads (Figure 109). The documentary sources suggest that the northern part of Lynn Road was subject to intense development in the 17th century, earning the sobriquet 'Little London', although much of this may have been relatively small, poor quality housing (VCH Cambridgeshire 4, 44).

29 Lynn Road represents a 17th century, one and a half storey brick building, with a stone gable end to the north (heavily rebuilt in the 1990s). Internally the upper portion including the roof has been completely replaced, though the ground-floor ceiling survives. This suggests that the building was originally of three bays, heated by a fireplace in the southern gable end, and possibly by a further fireplace in the northern gable end (removed). The entry and stair appear to have been in the central bay, although the precise plan form cannot be established as there has been significant later alteration. The fireplace is of brick with a timber bressumer, with a bread oven built into the side of the fireplace. It forms a relatively substantial, if modestly detailed, building which may have been used as a domestic space.. It later became a public house known as the King William IV, and it is possible that this reflects an earlier pattern of use.

3 Palace Green

This building sits on a prominent site overlooking the green at the west end of the cathedral, opposite the Bishop's Palace (Figure 110). Although often inhabited by members of the cathedral community, it appears to have been built by a private owner, and represent a high status residence of the early 18th century.

3 Palace Green is a large brick double-pile house, of five bays, symmetrically arranged with a central doorway. There had been some suggestion that the building incorporated earlier fabric, but internal timber-framing in the upper storey appears to relate only to partitioning contemporary with the main phase of the building, which must have been constructed c 1700. There has been some later modification, but many high quality internal fittings survive, including a stair with spiral balusters and panelling in both of the ground-floor rooms of the front range.

Conclusion

The significant increase in the survival of buildings from the 16th and 17th centuries in Ely reflects general trends of survival nationally, particularly given the rapid improvements in living standards during this period, and the associated changes to houses and other buildings often made (see for example Johnson 1993). The significant investment in Ely buildings at this time mostly represent reconstructions of earlier buildings on the same sites. This is similar to the position in other towns in the region (notably King's Lynn; Parker 1971, 4). However the reasons for such reconstruction are more nuanced than simply as a result of regional economic patterns.



Figure 110 3 Palace Green, view from southwest (DP173840).

In each of the areas of the city we have seen that the religious and economic changes of the 16th century, although not marking a watershed in terms of ownership of land, certainly saw changing patterns of use. In the Waterside area what had previously been a commercial area next to the river appears to have become more industrial (Cessford *et al* 2006, 69; 72) but also made more provision for domestic accommodation with the formerly commercial areas around the hithes apparently reconstructed, although some commerce may have continued. In the St Mary's Street area the demise of many of the religious institutions occupying land in the area appears to have led to some adaptation and reorganisation of building complexes, with its role in relation to the agricultural holdings of the town maintained and perhaps increased. The survival of a notable number of larger medieval properties in the area may be explained by their role at the centre of post-medieval complexes which become large farmsteads. The changes in the market area may also reflect the desire to improve the use of space, perhaps in part on sites which were previously restricted due to their proximity to parts of the precinct. It seems therefore that the shifts in the purpose and role of the settlement, necessitated by the lack of economic growth, generated shifts in the pattern of use in the town which led to the need for different types of buildings. This, coupled with a general drive for improved living standards, provided multiple pressures to redevelop which could explain the significant level of rebuilding visible in the settlement.

DISCUSSION AND CONCLUSION

The settlement and its buildings

Rates of survival of early buildings

Any analysis of the early fabric of a town, city or village is inevitably influenced by the rate of survival of early buildings. Such patterns obviously vary from settlement to settlement depending on factors such as later economic trends, population and destruction by fire or decay (Currie 1988, 6). Much consideration has also been given to the type of buildings that survive, which may skew an analysis of a settlement by disproportionately representing certain classes or types of buildings (ibid). Archaeological excavation can go some way to redress this balance, by giving representation to some of the buildings lost to the townscape. However, in urban environments where areas of loss are likely to have been immediately built upon, there is rarely an opportunity to examine areas systematically, and thus the surviving evidence still cannot be said to be fully representative.

While recent research has largely debunked the suggestion that housing for 'peasants' was less-durable or of significantly poorer quality than that of those further up the social scale (Grenville 1997, 123), it is nonetheless clear that in Ely the rate of survival amongst the smaller buildings or houses is lower than that of the larger. The 15th century survey identified a large number of smaller tenements or cottages built 'under one roof'; however, this investigation has shown that the majority of these structures have been demolished. In contrast, the majority of the surviving early buildings identified during the current project sit on the relatively small number of larger plots available in the city. These were principally located along St Mary's Street, the north side of the market place, and the east side of Broad Street. Larger plots developed with larger buildings proved more adaptable to later changes in domestic and commercial patterns of use. Factors such as materials, plan form and location within the townscape clearly all also played a role in the rate of survival. Reconstruction appears to have been particularly prevalent in certain parts of the town, for example Waterside, so certain locations would have seen buildings of any type or form more vulnerable to replacement. Archaeological evidence also emphasises the serendipity involved in the survival of buildings. For example, excavated houses of the 14th and 15th centuries on Broad Street (Cessford *et al* 2006, 37), were similar in size and form to those surviving elsewhere in the street.

A notable feature of Ely's surviving early fabric is the rate of reconstruction in the 16th and 17th centuries. The established history of Ely's development is that it reached its peak as an urban settlement in the medieval period, and thereafter it failed to expand further. It is clear from the documentary sources, most notably a survey of the town in 1417, that the city had achieved its extent as shown on Speed's 1607 map by the early 15th century (see Figures 46 and 47). One might anticipate therefore, that the buildings would reflect this story, with set piece buildings of the medieval period indicating Ely's period of greatest expansion. This is certainly the predominant pattern in other towns in the region which saw similar patterns of



Figure 111 Waterside, an area where most buildings were reconstructed in the 16th and 17th centuries (DP173809).

trading decline in the post-medieval period, such as King's Lynn and, perhaps most famously, Lavenham. These towns are noted for their surviving medieval buildings, reflecting their periods of greatest prosperity.

Any given settlement is in fact going to represent a more nuanced and complicated picture than this somewhat broad-brush interpretation, but it does seem that Ely's buildings present a contrasting story. While there are some notable survivals from the medieval period the buildings in Ely indicate that there was a substantial phase of new construction on previously occupied sites in the late 16th and 17th centuries. There are areas, for example on what is now Waterside and in the market place, where there was little in the way of adaptation of earlier buildings (Figure 111). In most cases what was being built was of two storeys and still associated with relatively compact plots.

It is possible that while Ely was relatively wealthy as a settlement in the 14th century, the scale and quality of its buildings was not sufficient to make them readily adaptable to changes in lifestyle in the 16th century. Archaeological work has identified some earlier buildings, particularly in the Waterfront area, which appear to show that the buildings were of relatively limited scale, and almost certainly single storey (Cessford *et al* 2006, 43). Height has been identified as a key factor in determining whether buildings could adapt to modern ways of living in the later medieval and post-medieval periods (Currie 1988, 5).

Form and evolution of the settlement

The documentary sources available on Ely provide a good sense of the extent of the settlement in the late medieval period, and the 16th and 17th centuries. The surviving buildings add considerably to our richness of understanding of what this settlement looked like, and how it functioned. The different areas of activity within the town are reflected in the different form and pattern of building.

Precinct

Although this study has not looked at the buildings of the precinct in detail, the form of the settlement is clearly dictated by this crucial focal point. The precinct forms a central point in the settlement around which the other areas of activity in the medieval city functioned. It is important to note however, that much of the precinct was not built upon, with the area defined by the precinct wall enclosing the monastic vineyard and the area of the medieval castle both of which appear to have remained relatively open areas.

The buildings within the precinct have been well studied in the past. In the context of the wider settlement it is important to note that the abbots, monks and, in his separate institutional base, the Bishop, represented the elite of Ely society, with their buildings therefore reflecting their social, as well as their religious status. The Prior, and later the Dean, maintained a large residence in what was the southern side of the cloister, this included buildings which were erected to host significant guests, including royalty (Figure 112). The mid-14th century Queen's Hall, for example, is traditionally connected with Queen Phillipa, wife of Edward III, who is said to have visited (Maddison 2000, 88). At other times such buildings allowed the Prior to entertain on a lavish scale, in keeping with his high social status. The Infirmary complex likewise evolved into a series of separate residences for the significant office holders within the abbey. These included high-quality decoration, and notable roof structures (Figure 113). Although outside the precinct, the Bishop's Palace similarly provided a further residence of the highest status. Although only one tower of the medieval palace now survives, it is clear that the scale and wealth of the post-medieval buildings reflects a long tradition on the site. Such investment is significant when we examine some of the patterns in the form of the buildings of the wider settlement.

Much of the architectural form of the precinct represents a distinct form from the rest of the city. Nonetheless there are parallels, and the form and date of some elements of the complex provide useful context for some buildings elsewhere in the city. Most notable in this context, are the parallels between the form of the undercroft at Steeplegate (16-18 High Street) and one of the early 14th century undercrofts within the precinct, part of the Queen's Hall. The form of the two vaults is very similar. Some analogies in timber framing will also be drawn later in this discussion, based on the extensive dendrochronological work on early roofs in the precinct, and the typology of roofs in Ely that these can help develop.



Figure 112 The Queen's Hall within the monastic precinct, used to host high-status visitors (BB92/24657).

Figure 113 The roof over the west range of Walsingham House, one of the separate complexes constructed in the monastic infirmary in the 14th and 15th centuries (BB92/04458).





Figure 114 The remaining open area of the market place, plots in the area were built on by the 13th century, although the remaining buildings date from the 14th century onwards (DP173586).

The market place

The market place was laid out as part of the 12th -century reorganisation of the town, although it may have been based on an earlier trading area (Figure 114; Owen 2003, 73). The plots ranged around the edges of the market area appear therefore to have been built on from this early date, although the earliest surviving structures date from the 14th century and later.

Where medieval buildings survive they are indicative of a process of market infill during the later medieval period. Evidence for 14th and 15th century buildings within the area of market infill indicates the piecemeal process of building on the market place area, and the compact nature of the development. Substantial stone cellars at 16-18 High Street and at 33 High Street indicate the significant investment in properties in this area, in keeping with their prominent position in the commercial townscape.

The majority of surviving structures in the area, however, date from the 16th century and later. Indeed the form and scale of some of the surviving 16th and 17th century buildings, and their fittings, indicates considerable investment. Properties such as 5 Market Place indicate that sites in prominent market positions received considerable investment over a significant period from the 16th, 17th and through into the 18th century, with high-status fittings surviving. The construction of the substantial building at 33 High Street, on an earlier cellar structure, also indicates significant investment, as does the range at 16-24 High Street. This may be indicative of the fact that the city's role as a market centre for trade, particularly agricultural trade with the rest of the Isle of Ely, continued in the 16th and 17th centuries.



Figure 115 The southern area of Waterside, which was dominated by river trade in the medieval period (Photograph Rebecca Lane © Historic England).

Waterside

In the late medieval period the Waterside area was characterised by its role in relation to trade on the river (Figure 115). The northern area was largely commercial, centred on the main public hithe. This area saw a comprehensive redevelopment in the 16th and 17th centuries, but the tenement pattern of the earlier development survives, indicating that it comprised a large number of small plots ranged along the routes between the market place and the waterfront. The timber-framed jettied building at 47 Forehill represents the earliest survival in this area, and its form is consistent with the buildings seen in the market place, perhaps indicating a common commercial purpose to the two areas and correspondingly similar building forms.

In the southern waterside area development appears to have been more restricted, with larger, longer plots remaining open near the waterfront. The surviving building at 23 Broad Street sits on the cusp of these two areas – reflecting the tenement of ‘Sedgewyk’ which was in the direct control of the monastic authorities. Further south the important early building at 41 Broad Street (The Three Blackbirds) indicates that there was further mercantile activity in the area.

Over the course of the 16th and 17th centuries much of this area was comprehensively redeveloped. This was largely achieved on a piecemeal basis.

Although creating continuous terraces of houses, the detail of the buildings indicates different construction forms, and different dates. By the end of the 17th century, this appears to have encompassed most, if not all, of what had been the commercial area around the broad hithe. Further south, important earlier buildings appear to have been retained, although adapted, perhaps representing important buildings within what became a largely industrial area of the city.

St Mary's Green area

The St Mary's Green area evolved around important land routes into and out of the city, to other settlements on the Isle of Ely and beyond. In the 12th century important secular religious institutions were established in the area; the Church of St Mary and the Hospitals of St John and St Mary (merged into one in the 13th century). The Sacrist of the monastery also had important sites in the area, including the Sextry Barn, to the south of the church. Around these other institutional and domestic buildings appear to have been built, predominantly on the north side of St Mary's Road which obviously formed the principal thoroughfare. This appears to have become continually built up, as in other more commercial areas of the city.

Apart from the northern side of St Mary's Street, larger houses appear to have characterised the area including the important early residential ranges at Oliver Cromwell's House and Waterloo House. Although there are not many medieval survivals, those that do, and their surviving post-medieval replacements, generally sit along the street front. This suggests that the area was not subject to much commercial pressure, although some shops appear to have existed fronting onto the main thoroughfare. This again illustrates the complexity of the factors that could influence the form of development within a town or city.

Ely's buildings in their wider context

Plot form and layout

Ely's overall city plan shares many characteristics with the standard borough lay out of the 12th century, with a focus on the market place, on other trading areas (in this case the Waterfront), and the provision of a church, hospital and other institutional amenities. Such provisions were made in settlements throughout England laid out around this date, including other settlements created under the auspices of the church (for example Coventry; Lilley 1998).

A further standard characteristic of early town development is the laying out of long narrow burgage plots along the prominent streets and market places in the settlement. That this had a significant influence on the form and development of towns, and the types of urban buildings that develop to sit upon them, is widely accepted. It is a commonly cited driver for the creation of distinctively urban building types (Pantin 1962-3; Pearson 2009). As an early urban settlement however, Ely has relatively few areas that made provision for the typical urban burgage plot layouts. This is largely due to the positions of large blocks of monastic and ecclesiastical land which remained fixed throughout the medieval period (Figure



Figure 116 Cherry Hill, within the monastic precinct, one of the many areas of land which remained fixed throughout the medieval period (Photograph Rebecca Lane © Historic England).

116). This did not just comprise the monastic precinct and Bishop's Palace, but also the Bishop's Vineyard, the storage yards of the Sacrist and Almoner within the town, and the positions of other secular religious institutions including the parish church of St Mary's and the Hospital of St John and St Mary's.

Around these fixed holdings therefore, the economic and commercial core of the city developed on relatively limited plots. Archaeological evidence suggests that these were principally laid out in the 12th century, and built on a piecemeal fashion over the ensuing century (Alexander 2003, 137). The precinct boundary, which was well established by the 13th century (Holton Krayenbuhl *et al* 1989, 67), provided the backdrop for a series of compact plots along the south side of the Market Place, the south side of Forehill, the west side of Broad Street, and the north side of Back Hill. The Bishop's Vineyard similarly restricted plots on the north side of Forehill, and the east side of the Market Place. The position of Barton Farm appears to have restricted development on the south side of Back Hill. Down by the river the position of the hithes also appears to have had an impact on the layout of the area, with at least the northern part of the riverfront developing small plots lying alongside the hithes and thoroughfares down to the river.

It is therefore only on the northern side of the Market Place, the northern side of St Mary's Street and the eastern side of Broad Lane that longer plots were formed. Many of these plots show indications of significant early buildings, suggesting that

they attracted tenants of considerable means, able and willing to build in a more expansive manner. Elsewhere small plots were built on in a form largely dictated by the size of the plot.

Areas near rivers and ports were naturally key sites in medieval urban environments. Such areas often developed with long, narrow plots like conventional burgage plots, but backing onto the river or sea allowing access for goods and other trade. Often these allowed for reclamation of the riverside in order to extend the plots and create more usable trading space (Palliser 2000, 170). These became the centres of mercantile activity within towns. King's Lynn, as a significant early port, has an important surviving series of such plots along the River Ouse (Parker 1971, 30). Some of these have notable complexes of buildings surviving, often including warehousing and other buildings associated with trade to the rear. Ely certainly had a waterfront area that was key to trade within the city. A significant proportion of the area was given over to smaller plots, but some longer plots, in the style of those available in towns like King's Lynn, were laid out on the eastern side of Broad Street.

Post-medieval consolidation of plots

Following the Dissolution of the monasteries, and notwithstanding the survival of much of the former monastic holding as the newly-established cathedral, there appears to have been a gradual process of accretion around the edges of the precinct, with the small units built outside the precinct wall slowly spreading into the area of the former precinct. This appears to have started in the 17th century, with most of the 16th century buildings apparently respecting the earlier boundary demarcations. In places this has seen the precinct wall itself enshrined within the larger unit, most notably on the southern side of the High Street at Steeplegate and the units to its east. In other cases the wall has been completely removed, additional ranges built and yards laid out, as seen along the western side of Broad Street.

In the formerly open market place area, which was largely built up by the 15th century, there was no scope for such accumulation of land, but a process of amalgamation appears to have been carried out, and the units along the northern side of the High Street in particular were consolidated to form longer plots. This heralded significant rebuilding of some buildings, such as 33 High Street which represents a large building of at least four bays running back from the High Street and apparently built as a single unit. Others appear to have retained and adapted earlier buildings, adding further ranges to the rear, as at 1a High Street. Thus, certainly by the 18th century, Ely had acquired a pattern of larger plots which survives today and which somewhat belies the restricted sites that many of the earliest surviving buildings originally operated within.

Plan form

Distinctive plan forms appear to have developed in urban settlements from a very early period (Pearson 2009, 1). Indeed one of the characteristics sometimes used to distinguish urban settlements from rural ones in the medieval period is the presence of such plan forms (Quiney 2003, 9) although, as Grenville has noted, this creates

a circular argument whereby ‘a town is a town because it looks like one’ (Grenville 1997, 157). Notwithstanding the debate over the exact definition of ‘urban’ types, some plan forms are widely accepted as being specific to such environments, particularly the provision of smaller units, often built in small terraces, now typically referred to as rows.

The examination of the evidence from Ely however emphasises an obvious point, which is that typologies and categories should not mask the extent to which plan forms and types of building were infinitely variable in response to their location, materials, function, and simply the preferences of the owner, tenant and other users. Recent research has also emphasised the extent to which internal plan form could be flexible, with timber framed walling relatively easy to add, remove or alter to suit individual tenants and owners (Rimmer 2007, 145-148). This should be borne in mind when plan forms are considered, as these were not necessarily fixed, but could be fluid, and could change frequently.

Larger houses, open hall houses

The plan form of larger houses in urban environments has been extensively analysed, most notably by Pantin (1962-3). His categorisation of such buildings was dependent on the position of the open hall within the building, this being the key element by which urban buildings could be identified as adaptations of rural ones (ibid). Later scholars have qualified his ideas of rural to urban transition (see for example Pearson 2009), and emphasised the importance of smaller urban buildings, many of which lacked an open hall and were therefore excluded from Pantin’s typology (Schofield 1987). However, the basic categorisation of larger urban buildings by the position of the hall remains widespread (see for example Martin and Martin 2004; Clarke *et al* 2010). The typology is principally based on whether the hall sits parallel or at right angles to the street. The former arrangement has been widely connected to the pressure for space in urban environments that produced a distinctive form, being more suited to narrow plots, while the latter is seen as a form which is more akin to contemporary rural plan forms.

Ely’s buildings are notable for the lack of evidence of larger open hall arrangements, particularly in the commercial centre. These types of properties, identified in surveys of cities such as Bristol (Leech 2014) and Oxford (Pantin 1947), are typically associated with the urban elite. In large part this is clearly a response to the restricted sites that were available to build on in the main commercial areas of Ely, and the relatively low rate of building survival overall. Two examples of open halls were identified in the market place area, both of a relatively small size. That at 3a High Street Passage comprised a storied shop and solar unit with an open hall to the rear, a compact plan clearly designed for a modest shop-keeper or tradesman (Figure 117). The larger building, which contains more tentative evidence for an open hall, is that at 33 High Street. This may have been formed from an amalgamation of smaller units, and appears to date from the 16th century. Again the open hall is limited in size, and it seems likely that it again reflects a unit designed for occupancy by someone of the artisanal class.



Figure 117 3a High Street Passage, a storied shop unit with open hall to the rear (DP173600).

The lack of large open hall ranges in the commercial core of the city must in part be due to survival, but it may also reflect the specific hierarchy of the town - one dominated by the ecclesiastical authorities in the medieval and post-medieval periods. The extent of control did lead to resentment; the town was instrumental in the Peasant's Revolt of 1381 for example, with monastic officials targeted and killed in the initial uprising. This is indicative of the extent to which the abbey exercised secular as well as religious authority in the town. The Bishop and the monastery effectively represented the elite or highest status strata of society within the town. It is their buildings therefore, which included the high-status residences developed in the precinct, which effectively represent what survives of this echelon of society. Such dominance may have restricted the development of a mercantile class which might have accumulated land and built the type of high status secular halls seen in other cities. What we have in the built environment of the secular parts of the town therefore are the buildings of a more middling sort, many of which probably reflect prosperity derived directly from the church. Thus it may be that the distinctive form of the landowning and politics of the town had a direct impact on the form of buildings in the settlement.

Away from the commercial centre of the town larger plots on St Mary's Street, Broad Street, and even some buildings on smaller plots, do show evidence for



Figure 118 41 Broad Street, The Three Blackbirds, built on one of the large plots to the east of Broad Street, with a hall range at right angles to the street (Photograph Rebecca Lane © Historic England).

open hall arrangements. These largely appear to reflect locations where there was less pressure for space. As with the plots to the north of the market place more conventional layouts could be fitted within the larger plots, but it may also be that, on the periphery of the town, buildings with a greater amount of purely domestic space could be accommodated.

On the eastern side of Broad Lane on the waterside, 41 Broad Street (The Three Blackbirds) is a notable example of a large plot where the hall ran at right angles to the street front (Figure 118). This linear arrangement down the plot also provided a front range which may have contained some form of commercial premises and a rear range which was probably used for storage and a solar above. Archaeological evidence suggests that not far to the south of No 41, in the area that is now Jubilee Gardens, sequences of construction and reconstruction over the 14th and 15th century focused on a building that also had a hall running at right-angles to the street front (Cessford *et al* 2006, 19). This had a cross wing running parallel to the street front, in a form similar to that suggested at 41 Broad Street. Both the hall and the cross wing were timber framed, and the hall was of an aisled form (*ibid*). The rear of the plot showed signs of industrial use, although this appears to have ceased over the course of the 14th century (*ibid*, 20). Both of these examples conform to Pantin's right-angled hall type and might be viewed as classic examples of the type of building produced to capitalise on the long narrow plots of the waterfront area.



Figure 119 7-11 Silver Street, one of the medieval peroperties in the St Mary's Green area where the main range ran parallel to the street (DP195533).

Not all early buildings on the east side of Broad Street conform to such a plan, however. The surviving range at 23 Broad Street also contains a range sitting at right-angles to the street, but if it did contain a hall it was probably along the street front. Whilst the resultant plan might be seen to make some acknowledgement of its narrow plot, in that the building was still relatively compact, it apparently did not make use of the space available within the long plot in the way anticipated by the traditional typologies. This may in part be due to the special nature of this plot, which was directly controlled by the monastery (Owen 1993, 26), and may have had a specialist function. However, it does illustrate the point that the form of a building does not always conform to the standard perceived 'drivers' for the form of the buildings in an area, but responds to a complex series of requirements.

Other buildings identified through archaeology confirm the varied arrangement of the streetscape to the east of Broad Street, with a stone building identified running parallel with the street front identified in the area of 55 to 57 Broad Street (Cessford *et al* 2006, 37). The section identified was approximately 5m long but was part of a building that was probably at least 9m long, and which was identified as an open hall house dating from the 15th century (*ibid*). This building was slightly later than the 14th century examples seen further north. It is possible that it reflects changes in the pattern of use of the area in the 15th century, with the waterfront perhaps becoming less significant, but nonetheless it is a further example of the complexity of riverfront development in the medieval period.

The plan form of the surviving early buildings in the St Mary's Green area, suggest a very different pattern of use than those on the waterfront. At Oliver Cromwell's

House, Waterloo House and 7-11 Silver Street we have a collection of substantial medieval ranges (Figure 119). Two of these, Oliver Cromwell's House and Waterloo House, may have had hall ranges which ran at right-angles to the street, but these were accompanied by substantial cross ranges and appear to exploit their position on substantial plots with layouts which typify larger domestic housing complexes in rural as well as urban settings. 7-11 Silver Street sits on what must have been a more restricted plot, but nonetheless its form running parallel to the street front and providing a substantial open hall, indicates a building of a very different character to those built in the market place area. The fragments at 48 St Mary's Street, although difficult to interpret, again suggest a substantial building running parallel to the street front. In St Mary's Street overall therefore the buildings speak to a significantly different character to the settlement in the medieval period. This appears to have continued into the 16th century, with construction (or reconstruction) at 38a St Mary's Street and 82 St Mary's Street similarly orientated to provide substantial street front ranges.

Open halls and fully-storied buildings

At the end of the medieval period and the start of the post-medieval period changes in living standards and in social hierarchies had a significant impact on the form of housing, as the old open hall form was superseded by a fully-storied domestic building type (Johnson 1993). This process took place over a long period from the late 15th to the late 16th centuries and vernacular studies have long acknowledged the existence of 'transitional' housing types in which elements of the old and new ideas were reconciled in different ways. Recent studies, often making use of systematic scientific dating evidence, have qualified the idea of a simple typological progression, by demonstrating that in individual settlements or areas saw the continued construction of the open hall alongside more innovative buildings, in a time span that could last up to 90 years (Roberts 2016, 148). In some cases the process of transition in individual buildings was also highly complex as traditional plan forms could be employed alongside more innovative features (Roberts 2016, 153-55). Similarly adaptation of earlier buildings could see multiple phases of change over a relatively short period of time as new innovations were adopted. Generally the date, and speed, of the transition is seen to have happened earlier and more quickly in urban environments, possibly reflecting the variety of urban plan forms that existed throughout the medieval period including many types that were typically storied from an earlier date (Pearson 2009, 7). Generally the flooring over of the open hall is perceived to be an innovation of the higher status, which slowly trickled down to more modest properties (Roberts 2016, 155).

The lack of precise dating evidence for Ely's buildings hampers the extent to which the buildings in the settlement can be used to consider this process of transition in housing form. It is of course clear that the progression from open hall to fully storied buildings was going on in the city as it was elsewhere. Fully storied buildings of the 16th century have been identified (for example at 2 Waterside), and the process of flooring earlier open halls has also been observed (at 3a High Street Passage). These phases can be identified on stylistic grounds, but without more accurate dating, it is hard to consider the date range of such process, either for the buildings in relation to each other, or in absolute terms.

One building which is interesting in relation to this process is 33 High Street (see Figures 80-83). This appears to have been a substantial timber-framed building of at least four bays, constructed in a prominent position in the market area of the town. In this building the position of an open hall is inferred by the survival of a floored bay which was apparently open to it. The fine detailing of the ceiling structure in the surviving bay confirms that this building was of high status, and also dates it, on stylistic grounds to the 1520s (Hall 2007, 159). This indicates that open-hall houses were being constructed in the early 16th century at a relatively high-status level within the city. It may have been that, as in Sandwich, the open hall effectively served as a smoke bay (Clarke et al 2004, 172).

The case of 41 Broad Street, The Three Blackbirds is also interesting in this context. A brick chimney stack and associated fireplace appear to have been inserted into the low end of the hall at some point in the early to mid-15th century (Holton Krayenbuhl 2009, 18). There was also considerable reconstruction of the walling of the hall at this time and the creation of a large finely-detailed window opening in the north elevation. This suggests that the building remained a high-status building at this date. However, only in the 17th century does it appear that the hall was floored-in, with the inserted ceiling resting on an axial beam that was cut in to and supported by the earlier chimney stack. This corbel too is finely carved, suggesting the owner was still someone of some means. The building seems to have retained an open hall throughout this period, despite the relative ease with which a floor could be inserted given the existence of the chimney stack. It is possible that this reflects a lack of investment in the late 15th and 16th centuries, but the building appears to have remained a single residence in this time, suggesting its owners were always relatively wealthy. It is therefore perhaps indicative of a conservatism on the part of the owners throughout this period, and certainly indicates that the open-hall form lingered on in Ely into a relatively late period.

In contrast at 2 Waterside and 58 Forehill we have lower-status houses that were certainly fully-floored from the outset. The stylistic evidence for their construction dates them only broadly to the 16th century (in the case of the earlier two-bay house) and late 16th or early 17th century (for the later one). It is nonetheless clear that by the time of the construction of the earlier building fully-floored buildings were being adopted by relatively modest property holders within the town.

While the relatively small sample of buildings examined for this study precludes too many general conclusions being drawn, Ely would seem to illustrate the same complexity of development as those settlements examined in other recent studies. The open hall tradition lingered on among certain elements in the town, whilst floored buildings were being adopted as standard amongst others. In contrast to the established idea of the form 'trickling down' relatively high-status buildings appear to have retained an open hall in some cases, while contemporary or near-contemporary smaller properties are of a fully-storied form. This is perhaps indicative of the blurring of the lines between different typological categories of buildings as they were originally laid out by Pantin and others (Pantin 1963; Schofield 1987; Pearson 2009). Fully storied blocks categorised as being 'without halls' existed in town buildings throughout the medieval period and the small, storied cottages of the 16th century

may reflect a development of this tradition rather than something which superseded the larger, open-hall form. Open hall houses may have remained a luxury which few could aspire to, while a general improvement in the standard of smaller dwellings may have been more achievable.

Smaller houses, tenements, rows

Perhaps the most widely accepted of the distinctive urban plan forms is the provision of smaller storied units often grouped together under one roof to form what can be referred to as rows, cottages, rents or renters (Rimmer 2007, 2-3; Meeson and Alcock 2016, 1). The precise form and arrangement of such units varied, but they are generally defined as multiple units built as a single development. One distinctive feature of the type is often the lack of the open hall around which medieval domestic accommodation was typically organised. Smaller houses have been studied in urban environments (see for example Rimmer 2007 on York and Norwich). Their form has been explicitly linked to conscious efforts on the part of urban land owners, particularly those connected to the church, to capitalise on the potential for rental income (Grenville 2008 citing Keene 1996 and Hilton 1990). Grenville (2008, 123) in fact postulates that through the systematic construction of such units 'it was the Church that acted to encourage the development of the truly urban housing culture'. While it is likely that the church's activities in this area had parallels in developments managed by secular institutions or private individuals (Rees Jones 2008, 88; Rutledge 1995, 14), Ely provides an example where the church was clearly at the fore when it came to development in the city.

Ely was clearly a city dominated by the twin ecclesiastical institutions of bishop and monastery, and, as noted above, certainly had a high proportion of smaller plots which might be seen to lend themselves to smaller units or tenements. The documentary evidence, particularly from the 1417 survey makes note of tenements where between two and seven households are housed 'under one roof' (Holton Krayenbuhl 2011). These include a unit on the south side of what is now Back Hill described as 'T Persouns' tenement with seven cottages under one roof' (ibid, 91); 'two tenements in which stand four cottages under one roof' on the west side of Broad Lane (ibid, 93), as well as frequent mention of tenements of two units. It is not clear whether the individually named tenant might have been responsible for the building, and subletting of such properties. However there are more explicit references, most notably on the west side of Lynn Road, where 'the archdeacon of Ely's new rents are built' which is further described as 'a tenement of Richard Webster and other tenants, being seven cottages under one roof pertaining to the archdeacon of Ely' (ibid, 125). This appears to show that the church was certainly directly responsible for some of the development of what we might assume to have been rows of smaller units.

The documentary evidence is tantalising in terms of the number of properties identified which may have formed sequences of smaller units, but the survival of any units on smaller plots is patchy, and none survive corresponding to the potential rows of units recorded in the documentary sources.



Figure 120 Undercroft under 16-18 High Street, Steeplegate, which has many features suggesting it might have had a commercial function (DP173850).

Plots of a smaller scale were typical in both the market place area and down on the waterfront. The priority in these areas, at least in the medieval period, appears to have been the provision of commercial space. Where we have evidence of the earliest surviving small buildings they appear to have been of this commercial type. The most notable 14th-century survival on one of these restricted sites is the vaulted cellar structure under Steeplegate, which has a number of features that suggest it was designed to provide commercial space (Figure 120). A further separate ground-floor unit above is likely, although whether this correspondingly occupied at least four bays (as the cellar did) or provided a series of separate units is not known. The surviving features of the precinct wall, as enshrined to the rear of 22-24 High Street, indicate that structures in this row were probably only a single storey in height however. This may have significantly limited domestic space. The other notable early survival from the market place area is the small unit at 3a High Street Passage. This again has good evidence for a commercial function with traces of shop windows on the corner where it fronted High Street Passage and the Shambles (Figure 121). It also had small scale provision of domestic accommodation in the form of a small open hall.

There is some evidence in the buildings of the market place area that construction was undertaken directly by the monastic authorities. The undercroft under 16-18



Figure 121 3a High Street Passage, corner post showing redundant mortice for head of shop window (DP173791).

High Street for example is very similar to one built within the precinct itself, both in its use of materials and in its sophisticated form of vaulting (Figure 122). This suggests that the two are likely to have a common sponsor for the work in the monastic authorities. The provision of an external entrance would have allowed the undercroft and the superstructure above it to be let separately, an arrangement which also suggests a design consciously intended to maximise the rental income from the land. Although more tentative, the large stone undercroft identified at 33 High Street may also have had a similar arrangement, again suggesting a construction deliberately intended to capitalise on the area.

Materials – stone, timber and brick

Ely's unusual landscape context, perched within the Fens, presented medieval and post-medieval builders in the city with both challenges and opportunities in terms of the materials available to construct buildings with. On the one hand some typical regional building materials were scarce in the area around the city, most notably timber and good quality building stone. Other materials were readily available however, including reed and sedge from the Fens themselves for thatching, willow for creating wattles, and clay which could be used as a building material in its own right or as the raw material for tile and brick. The good trade links the town



Figure 122 Vaulting under Queen's Hall, constructed in the 1320s (BB92/24687).

possessed with King's Lynn and other ports also gave them the opportunity to purchase a diverse range of products, not just better-quality stone and locally-grown timber, but also brick and Baltic softwoods such as pine.

Stone

There is no doubt that the ecclesiastical authorities, and their tenants, saw stone as the most prestigious of construction materials, and sought to use it on prominent buildings and structures in the city. Suitable building stone was in short supply in the Fens. Locally there were some types of greensand and clunch available, which appear generally to have been used in rough blocks, or for foundations or infill on higher-status buildings (Maddison 2005, 16). Clunch was also used for dressing stones in some buildings, although its softness meant it was vulnerable to erosion and wear (Figure 123). Higher quality stone, particularly that needed for the creation of ashlar stonework and dressings, was brought in to the city via the river. Indeed, the diversion of the River Great Ouse, almost certainly in the mid-12th century, may have been driven by the need to bring in stone for the construction of the new cathedral. The stone for the work on the cathedral and precinct was purchased from Peterborough Abbey and brought in from quarries at Barnack (Maddison 2000, 16). Imported stone was used widely within the precinct, not just



Figure 123 Detail of wall using clunch, Oliver Cromwell's House (DP195556).



Figure 124 Detail of imported, high quality, Barnack stone in the Lady Chapel of the Cathedral (DP19551).

in the construction of the church but also in the claustral buildings (Figure 124). Elsewhere in the city it appears to have been used occasionally for dressings such as quoins and window openings, set within walls of locally available rubble stone or brick.

Apart from the church and other religious or institutional buildings some early high-status secular buildings were also constructed in stone. These were clearly exceptional within the settlement. The 13th-century surveys of the town make specific mention of a 'stone solar' for example (Owen 1993, 26) suggesting that stone buildings were notable features in the townscape, easily distinguished in the use of the material. Surviving examples of secular stone buildings include the fragments of walling incorporated into the Old Gaol, on the corner of Market Street and Lynn Road, and the stone range to the rear of Oliver Cromwell's House. The walls of 41 Broad Street (The Three Blackbirds) were also originally constructed of stone, although this was replaced within a century of construction (Holton Krayenbuhl 2009, 15). Archaeological evidence has also uncovered evidence for further stone buildings, including a large stone building on the street front at 57 Broad Street, built of clunch with greensand dressings (Cessford *et al* 2006, 37). These clearly reflect buildings of the highest status within the early city. That they survive at a rate disproportionate to their probable frequency in the 13th and 14th century townscape attests to the quality of the buildings, which facilitated greater adaptation and reuse than their counterparts in less durable materials.

The scarcity of good building stone in the area around Ely is reflected in the widespread reuse of stonework in later buildings. This is a feature of several post-medieval structures, most notably the later buildings at the Hospital of St John and St Mary's, and the barn on Cromwell Road (Figure 125). The frequency of the reuse of stone makes the accurate dating of stone walls difficult in some cases. 20 St Mary's Street, 38a St Mary's Street, and 29 Lynn Road all incorporate stone within their gable end walls. Whether these reflect fragments of earlier buildings, or walls completely reconstructed using earlier material, is difficult to ascertain. In the case of 20 St Mary's Street the form of the stonework suggests that it does reflect a coherent early phase. Modern reconstruction at 29 Lynn Road makes it almost certain that the north gable end wall is a total replacement. 38a St Mary's Street remains uncertain. Other examples of this practice, not included within the detailed study, include a quantity of ashlar stonework visible in the side wall of 52 Waterside. Where such features relate to coherent early phases it attests to the process where the gable ends are often retained in subsequent phases of rebuilding. Often this relates to the wall representing a party wall between one house and its neighbour, which is therefore difficult to reconstruct without impacting upon other properties.

Another notable use of stonework around the city is in boundary walls, which provide a distinctive element of the surviving streetscapes (Figure 126). As with the use and reuse of stone within the buildings themselves, the precise dates of this stonework can be difficult to ascertain. In most cases the walling is of locally available greensand stone, although in some cases the use or reuse of worked stone, either clunch or in some cases imported Barnack stone, can also be observed. A survey of the surviving stone boundary walls within the city by the Ely and District



Figure 125 Detail of re-used stonework in the barn on Cromwell Road (DP195534).



Figure 126 Stone boundary walls survive around Ely, a legacy of earlier plot divisions. Section surviving on Downham Road (DP195544).

Archaeological Society (EDAS 2009) has recorded the frequency of survivals, but was not able to date the majority of the surviving walling. It did however illustrate the variety in the stone walling visible in the city. Some clearly represent important original boundaries, particularly those recorded to the north of Market Street, now lying between the rear of the Market Street properties and the modern supermarket area. In other cases walling could be identified as surviving sections of earlier buildings, as at the rear of 82-86 St Mary's Street. In some cases stone boundary walls may have been encapsulated within later buildings, possibly the case in the gable wall at 41 Waterside. Notwithstanding the lack of good quality stonework available in the area around Ely, the careful use and reuse of stone within the city means that it still an important feature of its historic buildings, and its wider historic environment.

Brick

The significant expense of importing good building stone meant that the city was early to adopt the use of brick. By the 14th century brick was being used in the buildings of the city, either made locally, or brought in from other centres in the region. The earliest documentary reference to the purchase of brick for the construction of monastic buildings dates from 1339 (Lucas 1993, 157). This reference indicates that bricks were being brought in from Wisbech, possibly left over from the construction of Wisbech Castle (*ibid*). Wisbech Castle was in fact a significant holding of the Bishop of Ely (VCH Cambridgeshire 4, 252), and thus the bricks were being brought in from an ecclesiastical holding with strong connections to the city. There is apparently evidence of brick also being imported from Lynn and Wiggenhall (RCHME 1988a, c), both notable early centres of brick making, and use, indicating that brick was also being purchased from outside the ecclesiastical estate.

Documentary sources indicate that Ely was certainly making its own brick by the late 15th century (Lucas 1993, 157), with the RCHME suggesting that this was taking place by *c* 1350 (RCHME 1988a, c). The presence of so many misshapen bricks in the reconstruction of the walls of the 41 Broad Street (The Three Blackbirds) in the mid-14th century, probably from a local kiln (Holton Krayenbuhl 2009, 15) also suggests that the local industry had begun by this date, albeit perhaps on a limited scale. This being the case it must have operated in parallel with the bringing in of brick, the latter perhaps reflecting phases of significant construction, which could not be met by local producers.

The use of brick in 14th -century Ely was not associated with prominent set-piece buildings, but with structural and hidden work, suggesting it was used on practical rather than aesthetic grounds. Within the monastic precinct it was used to form the ribs and webs of the early 14th -century vault under the Queen's Hall (Holton Krayenbuhl 1999, 317). This was subsequently rendered over, to disguise its composition. The very similar vaulting underneath 16-18 High Street employs brickwork in the same way, with stone used for most of the vaulting ribs, and brick used in areas where the vaulting ribs were engaged with other walls (Figure 127). Here there is no evidence that the brickwork was concealed by plaster, but this was a building of lower status than the Queen's Hall undercroft, notwithstanding the



Figure 127 Undercroft under 16-18 High Street, stone recess in the south wall showing the use of early moulded brick (DP173483).



Figure 128 41 Broad Street, The Three Blackbirds, detail of 15th century brickwork forming the hall window (Photograph Rebecca Lane © Historic England).

similar structural form. The final early use of the brick is that at 41 Broad Street (The Three Blackbirds) where it was used in the 14th-century reconstruction of the walls that were originally built of stone and in subsequent alterations in the 15th century (Figure 128). Again the 14th-century brickwork here was designed to be concealed (Holton Krayenbuhl 2009, 15), this time presumably partly because, formed of mis-shapen and over-fired bricks, it did not represent a desirable aesthetic feature. Thus Ely's early adoption of brick is not mirrored in the survival of early brick buildings of the type seen in other significant Fenland towns, for example the Guildhall in Boston, Lincolnshire, recently dated by dendrochronology and luminescence dating to the late 14th century (Giles and Clark 2011). King's Lynn and Norwich also both have significant late 14th - and early 15th -century brick buildings, incorporated into its defences, or in the form of municipal buildings such as guildhalls. The precise reasons for Ely's lack of such early set-piece buildings in brick is unclear. It perhaps indicates a conservatism on the part of the ecclesiastical authorities, preferring not to deviate from the well-established tradition of building high-status buildings in stone.

The first surviving structure to be visibly constructed of brick is what is now the east tower of the Bishop's Palace complex, constructed as a gatehouse by Bishop Alcock some time after his accession to the see in 1486 (Young 2012, 3). This structure reflects the prevailing trends in work sponsored by Alcock across his holdings at the time. The most notable similarities are with the gatehouse at Jesus College, Cambridge. Built between 1503 and 1507 after the death of Alcock (Bradley and Pevsner 2014, 120), it nonetheless shows important parallels to the earlier tower at Ely. Both structures are of brick with stone dressings, with the brick incorporating diaper work (Figure 129). Central stone niches at the upper level are also present in both. Alcock's work at Little Downham shares the same brickwork characteristics, as did alterations at Wisbech Castle which was similarly enlarged with brick buildings at around the same time, although these do not survive (VCH Cambridgeshire 4, 252). This makes Ely's brick tower part of a wider scheme associated with a specific patron. In the use of diaper work in particular it is associated with a polite rather than vernacular style, regional buildings of the time being notable for their lack of diaper work, possibly because of the poor suitability of Fenland clays for producing vitrified brick (Smith 1985, 36). The east tower stands in marked contrast to the lack of 15th -century brick buildings elsewhere in the city, including the monastic precinct.

Brick was more widely used in the city in the 16th century, and appears to be particularly associated with the adaptation of earlier buildings. At the Hospital of St John and St Mary's for example it was used to form the distinctive crow-step gable of the service building, apparently constructed initially as a relatively high status chamber block. A similar use is seen at 7-11 Silver Street, where the partial reconstruction of the east end of the building, resulted in a prominent brick gable profile rising above the building. Elsewhere in the city brick became widely used for gable ends and chimney stacks throughout the 16th century, although in facades it appears to have still been used only in conjunction with timber framed elements (see below).

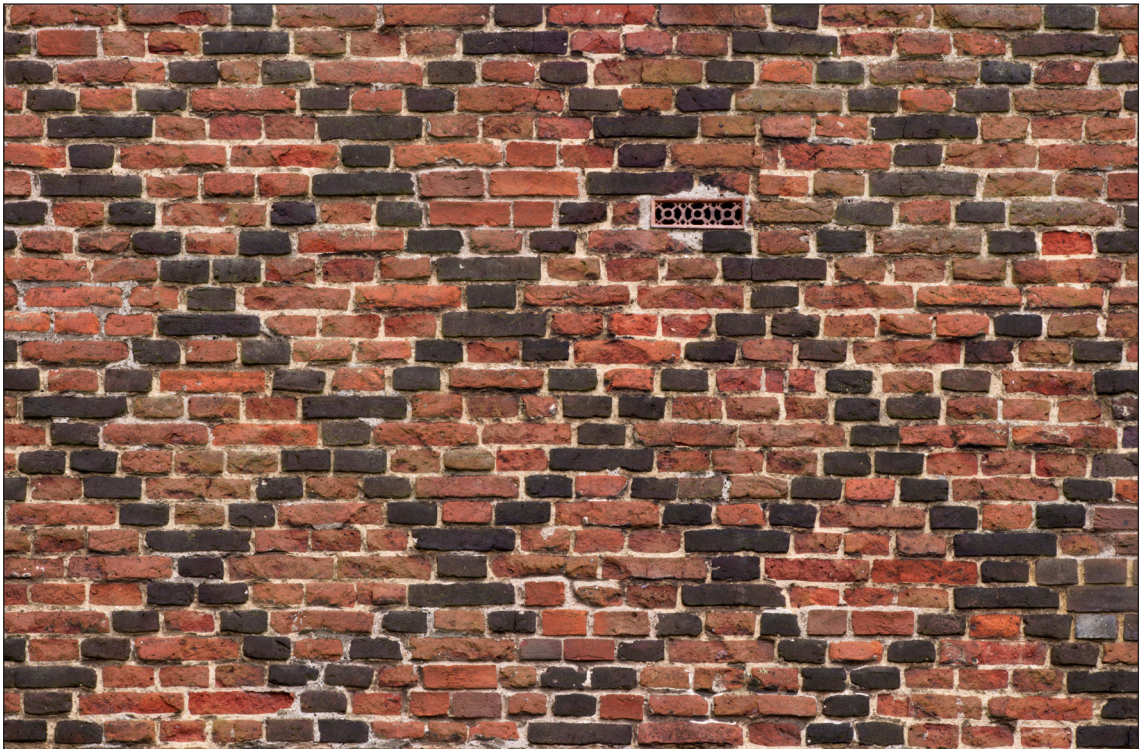


Figure 129 East tower (former gatehouse) of the Bishop's Palace. Detail showing the diaper brickwork of the 16th century (DP195543).



Figure 130 11 Waterside showing the use of brick in the 17th century (DP173795).

By the 17th century brick was in more widespread use, replacing timber throughout the city. The process of transition from timber-framing to brick is neatly illustrated on Waterside. Here a number of 16th century timber-framed fully-floored buildings were identified, which clearly illustrate the prevailing trend in the use of timber through to the latter part of the century. By the early 17th century however, buildings built fully of brick begin to appear, for example at 11 Waterside (Figure 130). These have chamfer stops indicative of a date broadly similar to some of the timber-framed examples, but clearly represent the transition from timber-framing to brick building. By 1700 the beginning of the process of refronting earlier timber buildings also began. On the Waterside in particular, this created relatively uniform streetscapes, with brickwork of seemingly similar dates fronting both contemporary building and those of a generation or two earlier.

By the early 18th century brick had become the standard building material. 3 Palace Green is a notable brick building of c 1705 which indicates the prevailing fashion of the time (Figure 131). Large brick buildings also began to replace some earlier elements of the streetscape, for example at 2 Forehill. This sits in a prominent position on the south-east corner of the market place and adjacent to the precinct. It indicates a significant investment in the brickwork, including the prominent brick diaper work, in the late 17th or early 18th century.

During the 18th century Ely became a high profile producer and exporter of brick, used throughout East Anglia (Lucas 1993, 160). This reflected a continuation of the industry which stretched back into the medieval period, but by this date Ely brick had become prized for its colour and its hardness which made it both a durable and highly fashionable product (ibid). The taste in paler brick is reflected in changes to Ely's own use of the product, with much of the streetscape of the late 18th century onwards characterised by the use of lighter-shaded brickwork (Figure 132). This remains a dominant characteristic of the townscape, with much 20th and 21st century development continuing to be characterised by the use of similar brickwork, clearly considered one of the prevailing 'traditional' materials of the area.

Timber

As with stone, the lack of locally available timber does not appear to have resulted in much deviation from regional building tradition, although the purchase and transport of the material must have posed significant challenges, and considerably increased cost. Timber was used not only for roof structures, but to form a significant proportion of the superstructures of buildings within the town. Outside of the precinct, the majority of early buildings examined in this study were built of timber. Whether this reflects a pattern of survival rather than the complete composition of the city is unclear (see discussion of clay below), but the quantity and quality of the timber used is indicative of early and well-established systems of bringing the material into the city.

As with the importation of stone and brick, the system undoubtedly centred around river trade, which must have enabled the ecclesiastical authorities and others to bring in significant amounts of timber. Reused timber within the roofs of the cathedral



Figure 131 3 Palace Green, a house of c 1705 built of brick in the prevailing fashion (DP173839).



Figure 132 St Mary's Street showing frontages of the 18th and 19th centuries in the pale-coloured brick which came to characterise Ely's buildings (Photograph Rebecca Lane © Historic England).

dating from the late 12th century probably contain Baltic timber, suggesting that imported timber was being used even at this early date (Arnold *et al* 2005, 11). The pattern is similar in later timber within the cathedral, with Baltic timber occurring, but in conjunction with timber from regional sources (ibid, 15). Documentary records indicate that two sources for timber for the cathedral in the 13th century were Alconbury in Huntingdonshire and Kingswood, Essex (ibid). These reflect two from a wider variety of locations identified through the programmes of dendrochronology (Arnold *et al* 2004; Arnold *et al* 2005). This suggests that timber was sourced from a variety of areas for the large-scale roofing works at the cathedral. Alconbury is around 50 miles from Ely and it may have been possible to transport wood from here to Ely via the river network. Kingswood Forest was part of what had been the Forest of Essex, and formed a large stretch of woodland near Colchester. Wood from here may have been brought to the area via King's Lynn. In the 14th century timber for the construction of the Octagon was being purchased at Chicksand in Bedfordshire, brought overland to Barnwell and then by water to Ely (Chapman 1907, 29). This included both sawn and prepared wood, and whole trees, both of oak and fir (ibid). The RCHME identified Essex, Suffolk and Huntingdonshire as the areas from which wood was brought in for the construction of the Cambridge college buildings (RCHME 1988a, *cii*). Ely appears to have made use of the same areas, suggesting that wood was being traded via standard commercial channels to supply the needs of the precinct.

It seems likely that a similar variety of sources were used for timber employed throughout the town. Early roofs within the town, including 41 Broad Street (The Three Blackbirds) and 23 Broad Street include timbers which have relatively low numbers of growth rings. Although hampering attempts to date the structures precisely, it indicates that they came from fast grown trees (Arnold and Howard 2015), possibly indicative of the type of managed woodland used for the commercial timber trade. As in West Cambridgeshire, some local wood may also have been used on an *ad hoc* basis (RCHME 1968, *xxxi*).

Supplementing the supply of hardwoods came the use of some softwoods from further afield. The early roof structure at 41 Broad Street included some pine rafters. The conclusion of the original study was that these may represent the reuse of timbers imported into the city for other purposes; their use as scaffold poles for construction in the precinct was suggested (Holton Krayenbuhl 2009, 15). The study of the roof at 23 Broad Street however has revealed that some pine rafters are similarly employed in this roof (Figure 133). Although still only representing two examples, it perhaps suggests that pine was deliberately employed for roofing, in conjunction with other types of wood. This would mirror the practice in King's Lynn (Parker 1971, 76), where the use of softwood, even in significant structural features such as tie beams and crown posts, is a notable feature of the early roofs in the town. Generally this is indicative of the wider trading links that were available to the city via ports such as King's Lynn and the necessity of exploiting those links to supply the needs of the settlement.

With the notable exception of the earliest phase of the roof structure at 41 Broad Street (The Three Blackbirds) the size and scantling of the timber used throughout



Figure 133 The 14th century roof at 23 Broad Street which incorporates some original pine rafters (DP173787).



Figure 134 The roof at 41 Broad Street (The Three Blackbirds) showing the use of timbers which are uncharacteristically large for surviving Ely roofs (Photo Rebecca Lane © Historic England).

the town is modest (Figure 134). This is particularly notable in the roof at 23 Broad Street where, although relatively fine carved, the crown post is diminutive, possibly suggesting that, even where there was significant investment in a building, large-scale timbers were either not available or beyond reasonable means. The scale of the roof at 41 Broad Street is a notable contrast to this. Its earlier date may have meant that more large timber was available, although here too the timber was relatively fast grown (Arnold and Howard 2016), suggesting origins in a managed woodland.

The use of timber to construct prominent buildings continued well into the 16th century, notwithstanding the increasing availability of, and fashion for, brick at a regional level. In the wider region the increased availability of timber in the 16th century has been linked to the Dissolution of the monasteries, and the release of timber from monastic reserves (RCHME 1968, xxxi). This is perhaps less likely to have had an impact in Ely, where the monastic institution was re-founded promptly, retaining most of its former holdings. Notwithstanding the continued challenge of supply, the widespread use of timber continued. Although precise dating is difficult, fully-floored buildings were certainly constructed using predominantly timber-framing, most notably in the market place area and down on Waterside in the former hithe area, suggesting that timber was still in widespread use in the late 16th century.

Alterations to earlier buildings were also made in timber, such as at 7-11 Silver Street, indicating that the material continued in fashion. At Silver Street the former open hall area was floored, and the upper section of the hall façade was pushed outwards to create a regular façade. This was timber studded, to match the form of the earlier storied ranges to either side. At the same time at least one of the brick stacks at the property may have been added, suggesting that brick was available, but timber preferred for some structural elements.

The 17th century appears to mark the turning point for the use of timber in the town, with brick buildings appearing with more frequency throughout the town, for example on Waterside, where buildings of a century earlier were certainly fully of timber. Nonetheless some very late uses of timber were noted, for example in the rear ranges of 5 Market Place, suggesting that the transition was a slow one.

It is notable however that as late as the early 18th century timber was still being used for framing elements internally within buildings, as evidenced by the visible framework in the attics of 3 Palace Green, a high-status brick building of c 1705. This persistence, despite the lack of locally-available timber, may suggest that the wide-spread adoption of brick during this century had more to do with prevailing fashion than with pragmatism. This contrasts with the original use of brick in the area in the 14th century, which seems to have been purely associated with the lack of other building materials.

Clay and mud

There has been some speculation that early buildings within the town, where they were not constructed of high-status stonework, may have been made of mud or

clay, which may have reflected regional vernacular practice (Owen 1993, 26). It is a notable feature in other cities in the Fenland landscape, for example Norwich (Rimmer 2007, 150). No definite examples of such practice were identified as part of this study, nor any documentary references to such a practice. Records of early buildings demolished within the last century similarly speak to the dominance of timber-framing within the early settlement, as does the archaeological evidence for structures, which has found evidence for stone and timber construction, although clay was identified as being used in early floors (Cessford 2006, 19). Whilst absence of evidence is not evidence of absence, the current pattern of early building in the city suggests that timber was far more widely used than any other material.

The possible reasons for this likely dominance are difficult to establish. There certainly appears to have been a prestige associated with building in stone and timber, perhaps particularly in an area where those materials were harder to come by. It is possible that the control and influence of the ecclesiastical authorities extended to ensuring that their well-planned city was built using better-quality materials. The evidence of piecemeal construction of buildings on plots that had been set out earlier (Alexander 2003, 138), might suggest that tenants rather than owners were responsible for construction, but the ready availability of timber may have been dependent on the trade links that the monastery and bishop made available.

Carpentry trends

As already noted in the consideration of materials, timber was the most commonly used construction material in medieval Ely, and continued in widespread use well into the 16th century. Even where buildings were constructed of brick or stone, timber was still used to form the roof structure of the building. This means that there is a considerable body of evidence for the nature of timber use in the city, from the 12th century onwards.

Much of the evidence of external timber framing has been removed or concealed by the later re-fronting of buildings in brick or plaster, with ground floor evidence particularly rare. Where evidence does survive however, it is clear that close studding of timber prevailed in the city, particularly on buildings dating from the 15th and 16th centuries (Figure 135). 23 Broad Street has one intact elevation of the late 14th century which shows the use of regular studding on an external elevation, although it did not yet take the form of the type of close studding seen later in the medieval period. It also has a series of curved braces running from the main posts down to the mid-rail forming a decorative pattern. This patterning is particularly notable as this wall forms a side elevation, rather than a façade, indicating that the building frame was decorative on most, if not all, elevations not simply its most visible facade. By the 15th century the use of a pattern of close studding appears to have become ubiquitous. It is a notable feature of some of the larger 15th and 16th century buildings that have survived with their framing visible, including Oliver Cromwell's House and Waterloo House (although both have been restored in the early 20th century). However it is clear that they were originally complemented by many of the surrounding buildings, including those of lower status. Buildings that



Figure 135 Waterloo House, West Fen Road showing the close studding that originally typified many of the 15th and 16th century buildings in Ely (DP173855).

retain evidence of their close studding pattern include 3a High Street Passage (south elevation), 5 Market Place (west elevation, fronting onto a narrow passageway), 82 St Mary's Street (front elevation, although not in the same pattern that has been painted onto the plaster façade). Waterloo House and 3a High Street Passage retain evidence for curved down braces from the posts which were intended only to be visible internally in the building, presumably so as not to disturb the pattern of close studding. The nature of the surviving fabric in the other buildings makes such a pattern difficult to identify elsewhere. These buildings represent some of the higher status areas of the town. But rebuilding on the Waterside in the 16th century also included examples of close studding, including that at 2 Waterside, and, on the opposite side of the street, a smaller property not examined as part of this study at 13 Waterside (Figure 136). This suggests that the use of close studding continued well into the 16th century, and was used in relatively modest buildings, until the use of brick became standard from the 17th century onwards.

Timber mouldings, chamfers and chamfer stops

The use of timber, both internally and externally, provided an opportunity for elaboration and decoration which can be an important indicator of the status of the building, and, by extension, its inhabitants. This is particularly true in fragmentary examples, where the overall size and form of the building may be unknown, but a relatively few surviving highly decorative timbers can nonetheless be indicative of



Figure 136 15 Waterside showing the use of close studding a building of the 16th century (DP187981).

Figure 137 The crenellated spine beam at 48 St Mary's Street (DP187930).



Figure 138 7-11 Silver Street, detail of the decorative treatment of the post supporting the central open truss (BB91/1887).



high status. In Ely the form of the moulded timber throughout the town includes a wide range of examples. These can also be used as evidence for the date of the building, on stylistic grounds, as well as an indicator of the original status of the building. Some simpler forms can be relatively undiagnostic, however; the simple chamfer profile for example is used throughout the medieval and post-medieval periods, and without additional evidence can be difficult to date precisely.

The surviving medieval examples of carpentry tend to have relatively simple chamfered profiles, with run out or plain chamfer stops. The exceptions are the highest-status roof structures, for example that at 48 St Mary's Street and 7-11 Silver Street. At 48 St Mary's Street an unusual crenelated form is used on the sides of the lateral beam, with a heavily moulded profile to the timber below (Figure 137). This is more typically seen on bressumers, in association with other heavily decorated timbers (see for example locally at Baldwin Manor, Swaffham Prior; RCHME 1972, Plate 78 or nationally in examples from Kent; Barnwell and Adams 1994, 117). Crenellation on tie beams is seen in the hall at Queen's College, Cambridge, dated to 1449 (RCHME 1988b, Plate 226), although here it sits at the top of the beam as it is part of the open truss. Although the single beam at 48 St Mary's Street is part of a fragmentary survival it is a strong indicator of the peculiar status of the building, which may be connected to its supposed origins as a guildhall. At 7-11



Figure 139 Waterloo House, West Fen Road, detail of the decoration on the beams in the southern ground-floor room (DP173858).

Figure 140 Waterloo House, West Fen Road, detail of the plainer chamfer form in the lower-status northern room (DP173864).





Figure 141 33 High Street, detail of the foliate design on the chamfer stops (DP187931).

Silver Street, a Wealden house of particularly high status, the heavy moulding of the decorative truss at the centre of the open hall is just one of the features that it is indicative of its high quality. The posts supporting the truss have attached shafts with moulded capitals with crenelated tops, which support the moulded timber of the tie beam (Figure 138). The same crenelated pattern appears on the top of the crown post. The building has been dated to c 1400 on the basis of the evidence of the wall paintings (Davies 2009, 2.6). Taken together these two patterns suggest a common thread in the decoration of high-status buildings in the 15th century.

The high-status late 15th-century range surviving at Waterloo House exhibits a good array of decorative detail, and is a good example of how variety in chamfers and other features could be used to suggest a hierarchy of space within a building. The higher-status ground floor room has heavily moulded beams terminating in a complicated run-out stop (Figure 139). The adjacent room has beams with plain chamfers, with angled straight chamfer stops used, a very distinctive and unusual form (Figure 140). Upstairs the higher-status room again has a heavily moulded tie beam, with a plain chamfered tie beam over the lower status room. Cumulatively these create a virtuoso display of carpentry skills, as well as providing a clear sense of the relative spaces of the various rooms.

More decorative chamfer stops were typically introduced in the 16th century, and Ely appears to have a good range corresponding to the 16th and 17th centuries. These are typically in ground-floor or public rooms, where they would be most on show. The most elaborate are the leaf-moulded chamfer stops seen in 33 High Street (Figure 141). Another example of this decorative form has been seen in the county,



Figure 142 11 Waterside, detail of jewel stop (Photograph Rebecca Lane © Historic England).

and was dated to the early 16th century (RCHME 1972, Plate 79). This represents a particularly high-status form, probably reflecting the prominent position of this building in the townscape. Elsewhere, particularly on Waterside, the extensive rebuilding of the 16th and 17th centuries saw a range of more simple, but still decorative, stops including those at 2 Waterside, at 58 Forehill and at 11 Waterside. At 58 Forehill these coincide with the use of an ovolo moulded beam which can be dated to the late 16th or early 17th century. The jewel stops at 11 Waterside are typical of the 17th century (Figure 142).

Development of roof structures in Ely

The nature of the fragmentary evidence for many early buildings in Ely means that a significant proportion of the buildings examined as part of this study contained very little evidence for the form of the roof structure. In conjunction with other previously studied buildings however, and with roof structures of the monastic precinct, it is possible to suggest a chronology of Ely roof structures, and make some comparison with regional trends. The monastic precinct roofs have been well studied previously (Atkinson 1933; Fletcher 1979; Holton Krayenbuhl 1997; 1999). This work has been supplemented by a more recent programme of dendrochronological sampling, which has produced results which qualify the conclusions of the earlier studies (Arnold *et al* 2004; 2005). These dated roofs have been used to provide context for the roofs seen in the wider settlement, along with observations on regional trends. It should

be noted, however, that the roofs of the precinct represent a large and various set of structures, and only the roofs that provide direct comparison with those in the wider settlement have been included here.

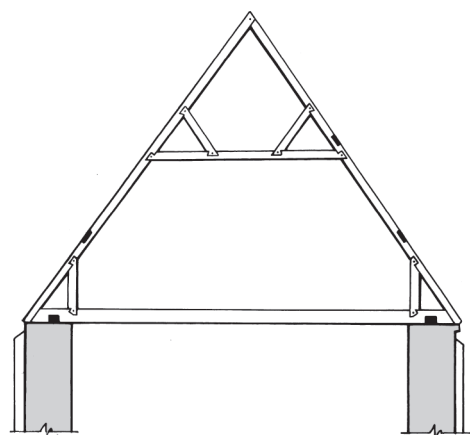
The description below aims to set out the roof structures observed in a roughly chronological order. Such a process must be undertaken with caution, as without evidence for absolute dates from dendrochronology some dates are reliant on stylistic evidence. This runs the risk of reinforcing existing typologies, rather than qualifying them, and the challenges of this approach are evident in the study of the monastic precinct where the results of scientific dating have in some cases significantly revised earlier conclusions (Arnold *et al* 2004, 219). Nonetheless, the process is one which helps place Ely in its national and regional context, and examine the traditions of building within the city.

Early roofs

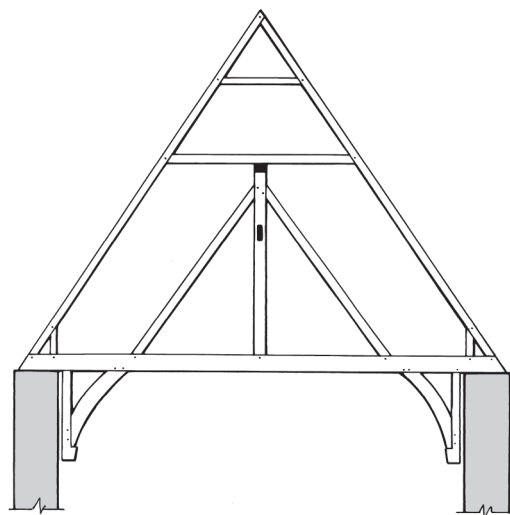
Ely is fortunate to have evidence for a number of early roofs, largely from extant structures, but also from records of demolished buildings. Efforts to date the most notable early roofs examined as part of this project were unfortunately hampered by the nature of the timber (Arnold and Howard 2015; 2016). In addition to the structures examined in this report there are also a range of roofs surviving in the cathedral and the wider monastic precinct. For analytical purposes these provide important material, particularly as a programme of dendrochronology on the church and the surviving early precinct buildings produced an important range of dates (Arnold *et al* 2004; 2005).

The earliest extant roof structure in the city dates to the late 12th century. This is a portion of the roof over the west range of the cathedral cloister, which includes a smoke blackened coupled-rafter roof, with collars and raking struts (or soulaces) rising from the collars to the rafters (Figure 143; Fletcher and Haslop 1969, 174). This has been dated by dendrochronology to the late 12th century, with a specific date of 1187 AD for nine of the timbers (Arnold *et al* 2004, 54). The survival of this roof is clearly exceptional within the context of the city. A further fragmentary survival from the precinct is the roof over the Prior's Hall. This roof has been cut down and reused to form the roof over a different structure, probably in the 16th century (ibid, 14). Originally however it appears to have represented a further couple rafter roof of the late 12th century (1165 -1200) the form of which could be reconstructed from the surviving elements (see Figure 143; ibid, 23). Originally this comprised coupled rafters with a tie beam and two collars, with raking struts (soulaces) rising from the rafters to the lower collar. It is notable that both these late 12th century roofs appear to have been of similar original proportions. Although both modified to a greater or lesser extent, they both appear to have originally spanned a range of approximately 9m. The form of the trusses is not identical, but they are clearly similar in their use of soulaces (either below or above the collar) and ashlar pieces rising from the tie beams to the rafters. The roof of the Prior's Hall has been linked to similar roofs at Waltham Abbey, Essex and at Wells Cathedral (Arnold *et al* 2004, 14). This suggests a national rather than regional context to the roof structures, commensurate with the exceptional status of the precinct. The

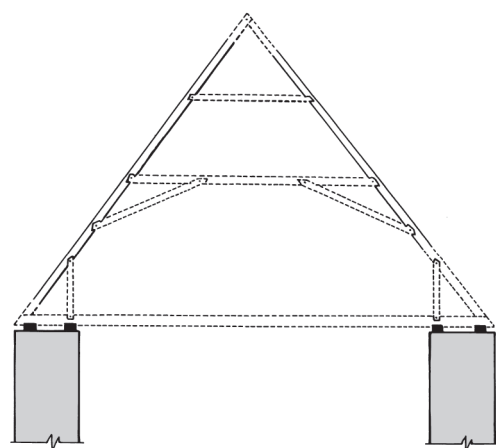
Early roof types in Ely



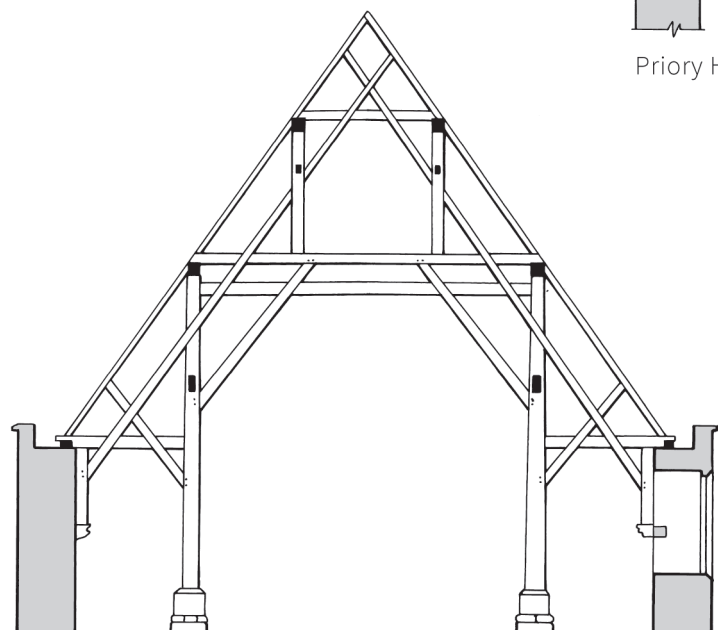
Cathedral Priory, west range



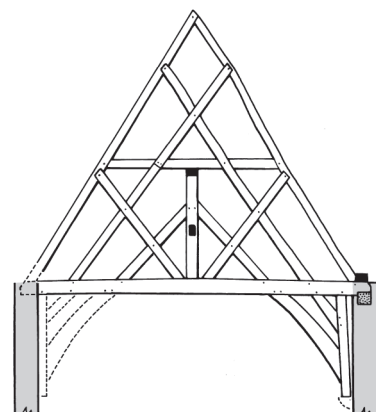
Cathedral Priory, barn



Priory House



Sextry Barn



The Three Blackbirds

Figure 143 Comparative drawing of some of the known early roofs in Ely (Drawing Allan Adams © Historic England).

extent to which the similarities are shared within the region as well as beyond it is not established, however, particularly as there are so few roofs of such an early date for comparison. It is therefore difficult to establish with any certainty the precise context for the carpentry trends seen here.

There is documentary evidence, however, for a roof which may have dated to the mid-13th century. The dating evidence lies in the documentary history of the area, with evidence for the construction of the Sextry Barn in this period, in conjunction with general activity by the Sacrist in the rebuilding of the parish church (Chapman 1907, 114; Holton Krayenbuhl 2011, 11). This roof structure was recorded by early architectural historian Robert Willis in 1843, prior to its demolition (see Figure 21). It was of aisled form, with passing braces rising from the side walls, past the arcade posts and tie beams before crossing under the roof apex. Secondary braces rose from the aisle posts to the tie beam, and from the aisle posts to the outer walls, creating an elaborate pattern in what was essentially a functional building. As recorded by Willis, each truss of the roof also had queen posts rising to support purlins and the collar. However later changes to the upper part of the roof are noted by Willis in his brief description, although unfortunately he does not specify the exact nature of the alteration (Willis 1843, 6). It is impossible therefore to be certain about the precise original form of the roof, although the similarity in the pattern of the queen posts with that of the arcade below certainly suggests they could be contemporary. If it is original then this very distinctive arrangement might be tentatively linked to the emergence of a distinct group of queen posts roofs in East Anglia from the late 14th century onwards (Aitkens 2011). Although this example would be considerably earlier than that grouping, it shares many of the same characteristics. There is also precedent for examples of this type of roof existing outside the principal region of north Suffolk and south Norfolk, as the earliest dated example is at Merton College, Oxford, dated by dendrochronology to 1299-1300 (Stenning 2011, 37). Obviously this roof also forms part of the monastic estate, although built outside of the precinct and for explicitly functional purposes. Nonetheless it is clear that it reflects the evolution of roofs within the city, as reflected in comparison with other early roofs.

A further early survival is the nave roof of the cathedral (Arnold *et al* 2005, 14). This is of coupled rafter form, with scissor braces rising from the side walls of the cathedral and crossing with a lap joint under the apex of the roof (Figure 144). These trusses have been dated by dendrochronology to c 1290 to 1310, although reusing significant amounts of timber from earlier roof structures (*ibid*, 13).

The final roof which forms part of this early group is of a notably different status to the early roofs of the monastic precinct, that at 41 Broad Street (The Three Blackbirds). This roof may be slightly later than the two monastic survivals, and is of a rare transitional form, combining elements of the earlier passing brace tradition, with the crown post form which began to come into use in the late 13th century (Barnwell and Adams 1994, 52). The main open decorative truss at the centre of the hall did have evidence of heavy smoke blackening (Holton Krayenbuhl 2009, 15), although unfortunately much of this was removed in the 1990s. Passing braces rise from posts supported in the side walls of the building to cross under the apex of the roof. Secondary braces rise from the lower on the wall post to the crown post,



Figure 144 Ely Cathedral, the roof over the nave (BB87/7303).

lapped onto the tie beam as they pass. Further braces rise outwards from the tie beam to the principal rafters, immediately below the collar. This creates a decorative effect, with the straight braces crossing each other, always lapped together as they pass. Further straight braces rise from the crown post to support the collar purlin. In its form it shares notable similarities with roofs in King's Lynn, most notably that at Hampton Court (Parker 1971, 196). At Hampton Court the hall had a decorative truss with passing braces of a similar form that at 41 Broad Street, albeit on a larger scale with a greater series of cross braces (ibid). The early range at Hampton Court is commonly attributed to the early 14th century (see for example Pevsner and Wilson 1999, 482). This clearly suggests a regional pattern of carpentry, which was certainly innovative in this period. It may be notable that 41 Broad Street sits on the waterfront in Ely, and has considerable evidence for mercantile use (Holton Krayenbuhl 2009, 18). Such trading connections may strengthen the likelihood that there is a shared heritage to the roofs of this form in King's Lynn and that in Ely. It is clear from the evidence of roofs from the precinct and cathedral however that this form also sits within the carpentry tradition of the city.

Crown post roofs

Moving on from the transitional roof of 41 Broad Street (The Three Blackbirds) there is ample evidence of the use of the crown post throughout the 14th and 15th centuries in the city (Figure 145). Some of this evidence is relatively undiagnostic

Crown post roofs in Ely

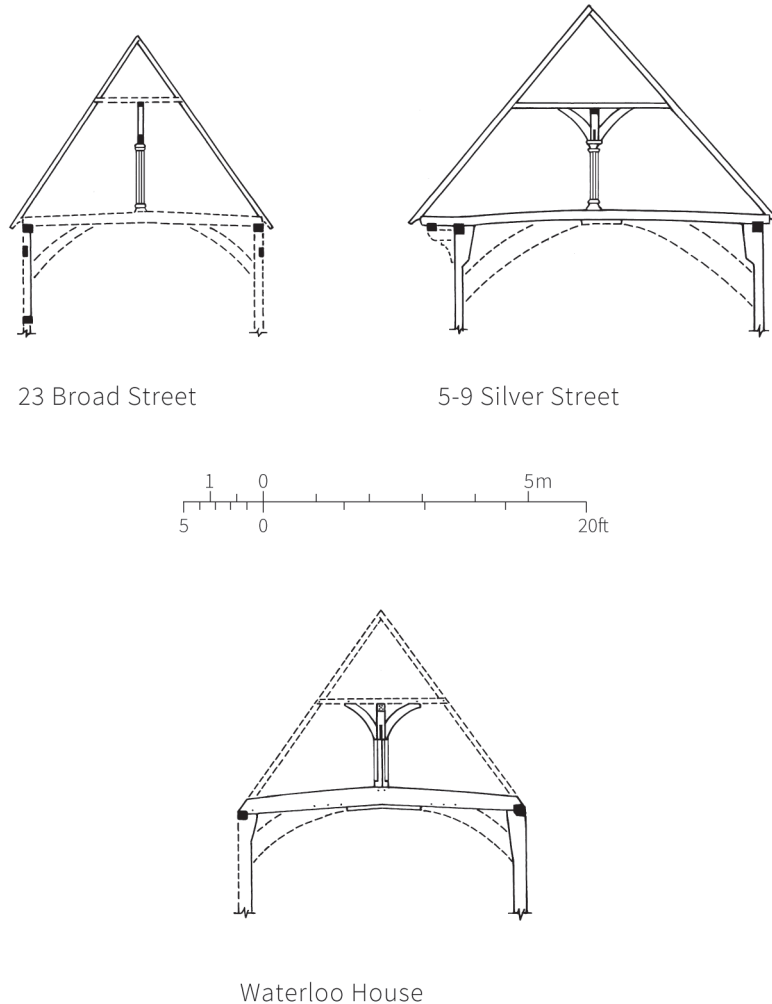


Figure 145 Comparative drawing of some of Ely's crown-post roofs (Drawing Allan Adams © Historic England).

in terms of date, particularly where it is confined to the existence of mortices on the upper sides of the tie beam, as at 1 Market Place, or the evidence of lap joints on the rafters as at 1 Market Street. Where the evidence is more indicative of dating the majority of surviving examples appear to date from the late 14th century, with others of the 15th century. The domestic roofs covered as part of this project have primarily been dated on stylistic grounds, but two dated crown-post roofs from the monastic precinct provide some firmer contextual detail for the dates ascribed.

The late 14th century crown post roofs in Ely appear to be principally characterised



Figure 146 The 14th-century crown-post roof at 23 Broad Street (DP173787).

by the use of hexagonal posts (see Figure 145). The decorative truss at 23 Broad Street appears to belong to the late 14th century, although its precise date is unclear (Figure 146). It has a hexagonal shaft and a moulded cap, which regionally is associated with roofs of this earlier date (Stenning 2011, 30). The decorative crown post at 47 Forehill appears to take a similar form to that at 23 Broad Street, with a hexagonal post supporting a moulded bell-shaped capital, with braces rising above the capital to support the collar and the collar purlin. The development of the bell-shaped capital is seen as a feature of the late 14th and early 15th centuries in East Anglia (Stenning 2011, 30). Holton Krayenbuhl (1991) suggests that the roof belongs to the early 14th century. Baggs (2003) however suggests that the Forehill example is of a 16th century date, on the basis of the height and scantling of the post. Chronologically there is little evidence of the crown post having continued in use into the 16th century in Ely, with side purlin roofs apparently more typical of this date (see below). That, and the stylistic similarities between the Forehill and 23 Broad Street examples, means that an earlier date appears the more likely here, although without any absolute dating for the roof this remains a tentative conclusion.

A highly decorative crown post roof was identified in the monastic precinct, in what is now referred to as the Black Hostelry, one of the suite of private apartments carved out of the earlier infirmary hall at this date (Holton Krayenbuhl 1997, 142). This is notable for the fact that the longitudinal braces which support the collar purlin rise from the base of the post, rather than at its head (Figure 147 and see Figure 145). Holton Krayenbuhl had suggests these are analogous with the passing braces of earlier roof forms (*ibid*). This roof has been typically dated to the late 13th or early 14th century on the basis of documentary evidence (Atkinson 1933; Fletcher 1979,



Figure 147 The crown-post roof of the Black Hostelry, within the monastic precinct (BB91/15528).

66) and Holton Krayenbuhl has also suggested that the form indicated an early date (1997, 142). The date has been significantly revised by dendrochronological work which dated the roof timbers to 1390-1410 (Arnold *et al* 2004, 158). It is notable that it bears a similarity to some later 14th century roofs from the region which used the lateral braces to create an arcade pattern (Stenning 2011, 34). None of these however use braces which are formed of the same timbers as the main post as in the Ely example. The date of this roof makes the roof roughly contemporary with the suggested date of the roof at 7-11 Silver Street (Figure 148 and see Figure 145). A date of c 1400 has been put forward for this, on the basis of the contemporary wall paintings surviving (Davies 2009, 2.6). The open truss of the hall includes a crown post of hexagonal form, with a moulded, crenelated cap. This crenelated pattern is also seen at the top of the main posts supporting the open truss. This shows some similarities in decorative detail with the cap of the decorative posts of the Black Hostelry, although other sections of the roof are quite different. The similarities in quality however indicate of the high status of 7-11 Silver Street in a secular context in the city at the time.

More functional crown post roofs of a plainer form are also found in the city. That of the monastic barn has been dendrochronologically dated to a construction date of 1387 or soon after (Arnold *et al* 2004, 100). It is formed of a plain square



Figure 148 The crown post at 7-11 Silver Street (BB91/1889).

crown post with straight down braces to the tie beam and curved braces up to the collar purlin (see Figure 145). There is also a secondary upper collar. A similarly functional crown-post roof is seen in the second phase of 41 Broad Street (The Three Blackbirds; Figure 149). This also has a plain square crown post, although the form of the braces is slightly more decorative with straight down braces from the crown post to the tie beam, and upward curving braces rising from the crown post to the collar. Longer upward braces rise from the crown post to the collar purlin. This creates an effect somewhat analogous to the arcading effect of the longer braces of the roof of the Black Hostelry, although far plainer in execution. Similarities to the two dated examples suggest that this roof is also of the late 14th century.

Later crown post roofs in the region tend to take a cruciform form, with braces of narrower scantling (Stenning 2011, 33). In Ely this is represented most notably by the roof at Waterloo House, where the more elaborate of two former open trusses retains its crown post, although unfortunately the rest of the roof has been lost (Figure 150). This is of a cruciform shape with narrow curved braces rising to support the former positions of the collar and collar purlin. The late 15th century date of the building is supported by other decorative details, including the form of the moulded beams at ground-floor level. Other plain crown post roofs which may belong to a similar period include that at 2-4 St Mary's Street. The form of the



Figure 149 The crown-post roof at 41 Broad Street; The Three Blackbirds (Photograph Rebecca Lane © Historic England).

surviving timbers of this roof are relatively undiagnostic, but it appears to have had straight braces rising from the crown post to the crown purlin, and curved down braces from the post to the tie beam in the closed truss at the end of the range.

Side purlin roofs

Side purlin roofs developed regionally from the late 15th century onwards (Stenning 2011, 39). In Ely two examples of side purlin roofs dated to the late 15th century have been identified in the monastic precinct, although these are of very different forms. The earlier of these is the roof over the southern section of the west range. This has been dendrochronologically dated to 1478 (Arnold *et al* 2004, 58). Prior to the programme of dendrochronology the building had been typically attributed to the 14th century (Fletcher and Haslop 1969, 174). The roof structure is of a distinctive form comprising two tiers of purlins supported on upper and lower collars, with queen posts or struts rising to support both collar levels. Curved braces also rise from the lower level of queen posts to the lower collar (Figure 151; Arnold *et al* 2004, 70). This distinctive roof structure may be linked to a trend for queen posts roofs observed in north Suffolk (Stenning 2011, 36), of which two-tier roofs formed a significant proportion. Identified examples outside of the main area have been noted, including those as far afield as Oxford. The use of this form in Ely may have been represented earlier by the roof of the Sacrist's Barn (see above), although if so it



Figure 150 The surviving crown post at Waterloo House, West Fen Road (DP196872).

is an early example. The form typically appears to have emerged in the 14th century continuing through to the 16th or even 17th century (*ibid*). The two examples from Ely appear too widely separated chronologically to be identified as part of a local carpentry tradition, but they may reflect a wider regional, or even national, use of such forms as an alternative to the crown post roof.

The second example of a side purlin roof in the precinct is that at Walsingham House, which has been dated by dendrochronology to the period 1496-1512 (Arnold *et al* 2004, 40), that is some 30 years later than that above (Figure 152). The form of the roof is notably different, with arch braces rising to support a collar, and butt purlins running to the side. The collar level is boarded in with a lateral moulded timber running between the collars. The purlins are supported by curved wind braces. The partial panelling in of the roof, albeit at collar level, appears to show that it represents something of a transition between the fully open trusses of the medieval period, and the closed ceilings of the subsequent era. Notwithstanding this progression it is clear that the two very different roofs indicate the use of the side purlin roof in the precinct by the late 15th century.

Elsewhere in Ely there is evidence that the side purlin roof form became standard from the 16th century, seen through the buildings examined for this project at 5 Market Place and 38a St Mary Street. The latter contains two examples of slightly

Figure 151 Part of the queen-post roof over the south section of the west range of the monastic precinct (BB98/20033).



Figure 152 Detail of the roof of Walsingham House, in the monastic precinct (BB92/04458).



different form and date; that over the front range containing purlins clasped to the collar possibly dating to the 16th century, and threaded purlins in the rear range which may date to the early 17th century (the latter date suggested by other detailing from the wing). It has been noted that nationally side purlin roofs are seen in conjunction with open halls in an early phase (Barnwell and Adams 1994, 51), but apart from the precinct, in Ely they were only noted in relation to fully-floored buildings. Similarly regional studies have identified side purlins in use with crown post roofs (Stenning 2011, 39), but again the evidence in Ely is of their use without such features. It is however always possible that this reflects the survival of side purlin roofs without these features, either through later adaptation or total replacement. This is particularly the case because the side purlin use particularly facilitated the greater use of attic spaces, by creating more space for circulation. This would therefore make the form more adaptable in later periods, whereas roof structures with crown posts and other such features might be vulnerable to alteration for greater use. It is worth noting in this context that some 16th century buildings, such as 2 Waterside, have roof structures which appear to be later reconstructions in a side purlin form. This may indicate that their original roof form did not facilitate easy use of the attic space, perhaps suggesting that they were not of this form originally.

Regional patterns of carpentry

As well as reflecting on the specific chronology of Ely roofs it is also important to consider the extent to which Ely's carpentry conforms, or differs, from that of the East Anglian region as a whole. This can be achieved by comparing Ely's buildings with those of the county, particularly through the use of the RCHME volumes on Cambridgeshire (RCHME 1988a and b; RCHME 1968; RCHME 1972) and more recent work by local researchers (Davis 2008). Although the county series was never completed it nonetheless provides a useful dataset from which to draw some comparisons. As well as this there have been important place based studies of individual towns in the wider region; most notably King's Lynn (Parker 1971), but also work covering Norwich (Smith and Carter 1983; Rimmer 2007) and some work covering smaller settlements in Norfolk (Longcroft 2005).

The evidence for the roof of the Sextry Barn combined with the extant roofs of 41 Broad Street (The Three Blackbirds) and the Black Hostelry, are indicative of Ely being at the forefront of carpentry innovation in the late 13th and into the early 14th century. This must reflect a wide range of influences, from the wealth and influence of the monastic officials, to the wide trade links that the city enjoyed. Similarities between the roof of 41 Broad Street and buildings such as Hampton Court in King's Lynn have already been noted. More tentative connections can be drawn between the roof of the Sextry Barn and a regional pattern of building, although its suggested mid-13th century date would mean that it considerably preceded other examples from East Anglia (Aitkens 2011). If the form was original then it might also connect it to other known early examples such as that at Merton College, Oxford. This would connect the city to trends at a national as well as regional level.

Later roofs within the city appear to conform more to regional trends, and show

less in the way of innovation, although without precise dating it is always difficult to establish this definitively. Nonetheless the carpentry of the 16th and 17th century buildings within the city appears to display typical regional traits. This may be indicative of the relative status of the settlement in this later period, as it established itself as a market settlement. There was undoubtedly significant investment in buildings of the city in this period, but this does not appear to have produced carpentry of equivalent quality to that from the 13th and 14th centuries. Whether this reflects a change in the type of investment in buildings is unclear, it is possible that the notable early roofs, even in a secular context, were funded directly or indirectly by the ecclesiastical authorities, but that changing patterns of tenancy saw more modest investment by tenants, for example. However without further documentary research such a conclusion can remain only speculative.

Rural versus urban

There has been considerable debate over the form and function of urban buildings in comparison to their rural counterparts. This was touched upon in the discussion of the lack of evidence for open halls within the town (see above), where some of the arguments put forward by Pantin (1962-3) and others were rehearsed. It is clear from this study, and others of more detail, that distinct urban building types existed by the early 13th century (Pearson 2005, 47). One of the key questions about these forms is whether they derived ultimately as an adaptation of rural building forms, altered by the constraints of urban plots, as propounded by Pantin, or whether they emerge from separate processes, driven by functional necessity, but also potentially reflecting different social constructs (Grenville 2008, 122). Pearson has gone as far to suggest that ultimately rural building forms, for example Wealden houses and other jettied building forms, could be derived from urban buildings types rather than the other way around (Pearson 2005, 59). Much of this debate is difficult to contribute to without a wider study; the survival of very early (ie 12th century) domestic buildings in both an urban and rural context is so rare as to make comparison very difficult. It is possible however to look at the form of later medieval buildings in an urban and rural context, and to identify differences, and similarities. This may inform the discussion about the transmission of design features and forms, at least on a local level.

Unfortunately there has been little study of the rural buildings in Ely's immediate hinterland to aid such a comparison for the city. Some Fen edge settlement in north-eastern Cambridgeshire has been studied however, as part of the RCHME volume on the area (1972). In this area there are some parishes surviving with a reasonable proportion of medieval buildings to aid such a comparison. One such village is Swaffham Bulbeck. This is a small settlement approximately seven miles north-east of Cambridge, and about 15 miles south of Ely. It sits on the edge of the Fen, and has a similar pattern of landholding as Ely, with access to the Fen itself, a lode for water-borne trade, and access to upland areas for agriculture (VCH Cambridgeshire 10, 247). It also had a small Benedictine priory, probably established in the early 12th century, which appears to have exerted some control on the pattern of the settlement in the late medieval period (RCHME 1972, 100). Swaffham Bulbeck has around seven or eight medieval buildings surviving, some of them clearly indicative of high-status ownership (Figure 153).

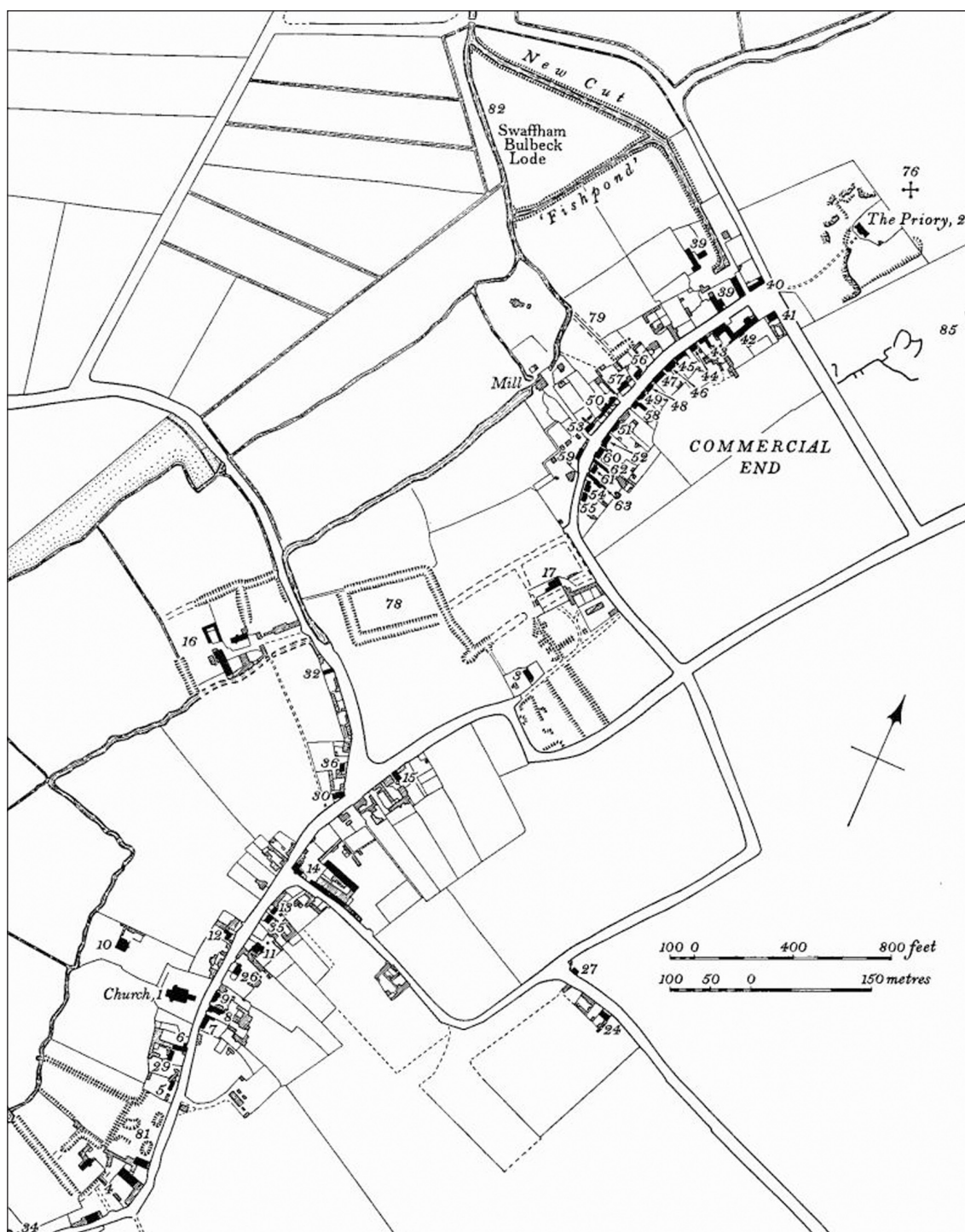


Figure 153 Plan of Swaffham Bulbeck from the RCHME survey (RCHME 1972, 100).

Plan form and layout

Of the surviving medieval buildings in Swaffham Bulbeck several show the location of former open halls, although all have subsequently had first-floors inserted into them. These provide a small body of comparative evidence for the position of the hall, and the overall plan form of the building, for comparison with the examples from Ely.

The surviving examples illustrate the variety of factors which could dictate the position of a building on its plot. The majority are located parallel with the street front, as one might expect from buildings on plots where there is little pressure for space. Typical in this context would be Appletrees, a 14th century hall house, with 15th and 16th century additions (RCHME 1972, 106 Inventory No 11; HEA BF14334). This is set back from the street front, but the original hall range runs parallel to it. Others similarly lie parallel either on the street front, or set back from it. The exception to this is the Priest's House which is located opposite the church in the southern part of the village. This has a hall range, probably of the late 15th century, which ran down the plot, at right angles to the street front (RCHME 1972, 105 Inventory No 8; HEA BF14330). This appears to have originally had the traditional tripartite arrangement with service end away from the street, a screens passage, hall and parlour end. The latter may have been rebuilt, although if so it appears that this was also undertaken in the 15th century (HEA BF14330 RCHME Inventory notes). As constructed, or reconstructed, it is a two-storied range jettied towards the street front. This building sits on a large plot, and its positioning along the side of the plot clearly did not relate to any restrictions in size or street frontage. Its arrangement, particularly with the potentially rebuilding front range, is similar to those of Oliver Cromwell's House, and (more tentatively) Waterloo House in Ely, although both front ranges were more substantial. These also sat on large plots, although still within the urban area but in a zone which had less pressure for space than others in the city. Although Priest's House is a single example, it is a notable reminder that the position and orientation of the hall, whilst useful to consider in identifying 'urban' building types responded to a complex series of drivers, in rural as well as urban environments. This means that we should be careful in attributing the form of some buildings simply to their rural or urban locations. In the most restricted sites it can be clear that form has followed location, however, where the site was less restricted, and more variety was possible, it is clear that right-angled and parallel halls were both found on similar plots in different contexts.

Burgh Hall and urban and rural Wealden houses

Swaffham Bulbeck is notable for having one of only five known Wealden houses in Cambridgeshire, one of the others being 7-11 Silver Street, Ely (Alcock 2010, 41; HEA BF014326). The form is clearly one that was in use across the county, but not one that was widely adopted. Two of the known examples are urban (the other in Kimbolton) and three rural, the latter including two buildings within villages and one that is more isolated. Swaffham Bulbeck's Wealden, known as Burgh Hall, is of the late 15th century, considerably later than the suggested date of 7-11 Silver Street and has a different roof form, a side purlin roof with ogee-shaped wind braces (Figure 154). One notable further difference is that it was built with a hipped roof – the form widely seen in the south-east of England, whereas that at Silver Street appears always to have had gabled ends – a noted difference between urban and rural buildings in general (Alcock 2010, 37). Nonetheless some of its other decorative detailing is similar to that at Silver Street, most notably the attached shafts on the principal posts of the open truss in the hall, which has the same crenelated pattern as that at Silver Street, although more elaborate.



Figure 154 Burgh Hall, Swaffham Bulbeck, a surviving Wealden house (BB68/5353).

Burgh Hall is significantly larger than the urban Silver Street. However, it is clear from an examination of the other Cambridgeshire Wealdens that there is no consistent pattern between size and rural or urban position. One of the rural examples The Royal Oak, Barrington and one of the more 'urban' 4,6,8 High Street, Kimbolton are apparently both considerably smaller than the Ely and Swaffham Bulbeck examples. Where they are on a street front, whether urban or rural (village) they are all aligned along the street.

Pearson (2005, 57) has suggested that Wealden houses represent one of the types of building that may have been urban in origin, notwithstanding the difference in form between many of the earliest urban Wealdens and their rural counterparts, with urban examples more typically having only one storied end, rather than two. In this argument the Cambridgeshire examples might seem notable as the c 1400 date of the Ely example makes it considerably earlier than its rural counterparts within the county. Nationally it also places it in the context of the earlier examples of Wealden houses, considerably before the peak of the mid-15th century (Alcock 2010, 39). The earliest dated example identified thus far is at 35 High Street, Winchester, dating to 1339/40 (Pearson 2005, 57). This and other early urban examples have led to the suggestion that it was originally an explicitly urban form, that later spread outwards to the countryside (ibid; Alcock 2010, 39). This argument is supported by the early example at Ely which appears to owe more to national rather than local building practice in the period. The relatively low number of Wealdens overall in the area however makes this conclusion one that must be treated with caution. With only five identified in the county it is clear that this distinctive form of building is atypical in



Figure 155 Bolbeck Cottage, Swaffham Bulbeck, a 16th century house with timbers of relatively thin scantling (BB67/6762).

whatever context it sits, and thus cannot be seen to represent an expressly urban or rural form in the county.

Carpentry traditions and innovation

Comparison between Ely and Swaffham Bulbeck also allows a greater consideration of local trends in carpentry conditions. The relative date of features is, unfortunately, very difficult to establish, as none of the buildings in Swaffham Bulbeck have been scientifically dated, and stylistic dating generally does not provide the degree of accuracy required to establish whether features were appearing earlier in rural or urban environments.

The small sample of surviving buildings in Swaffham Bulbeck does not provide much cumulative data, but individual examples do allow some comparison to be drawn.

Overall it is clear that medieval buildings were typically timber framed, with the only domestic stone building probably a 13th century chapel converted into a house in the 17th century (RCHME 1972, 102 Inventory No 3). As in Ely, many of these have been later encased or altered, so that their original framing pattern is not



Figure 156 Merchant's House, Swaffham Bulbeck, with its distinctive Dutch-style gable end (BB67/7872).

always known. Surviving examples include Burgh Hall, which is formed of a close studded timber framing as commonly seen in Ely. This is clearly an extremely high-status building in any context however. Other exposed timber-frames of the 16th century have a wider studding pattern, and timbers with relatively thin scantling, for example Bolebec Cottage and Linton House (Figure 155). Although the overall form is the same therefore, the poorer quality timber is perhaps suggestive of lower resources, including access to timber, than in the Ely itself. As in the city however, these examples make it clear that timber framing was preferred in the village until the late 16th century, with brick the predominant material from the 17th century onwards. In Swaffham Bulbeck a notable brick building of the 17th century is the Merchant's House (RCHME 1972, 109 Inventory No 39; HEA BF14359). This is built of a mixture of buff and red brick, and includes a prominent curved Dutch-style gable facing towards the road (Figure 156). There is a notable lack of such gable-ends in Ely, despite the fact that they are a characteristic part of many of the surrounding settlements. It is possible that this reflects a lack of survival, but also that the different economic circumstances of the 17th century meant that there was not the same investment in elaborate brickwork within the city.

The earliest surviving roof structure in the village is of the 14th century. The roof of Appletrees (RCHME 1972, 106 Inventory No 11; HEA BF14334), a 14th -century hall house, retains evidence for a crown post roof over the hall. This is of a type typical in the region, the inventory notes comparing in with Hinxton Old Manor, in South Cambridgeshire (HEA BF14334). With a hexagonal post and a bell-shaped

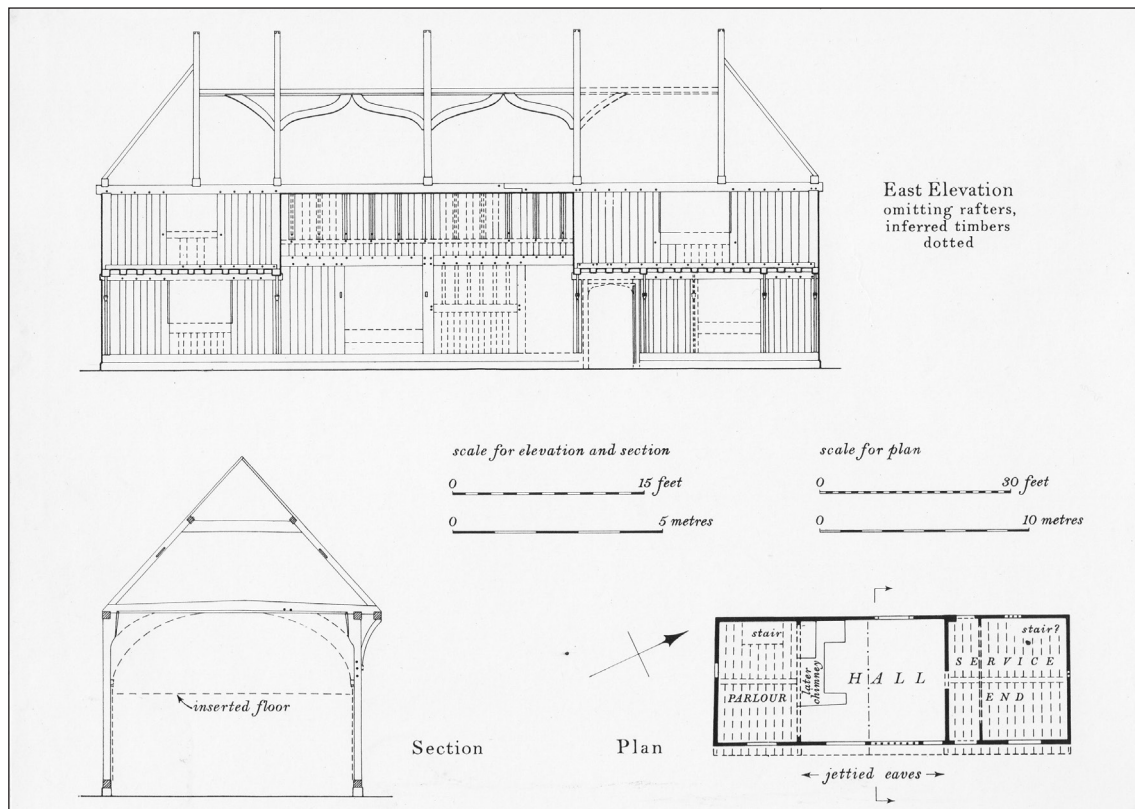


Figure 157 Burgh Hall, Swaffham Bulbeck, showing the 15th century roof structure (HEA BF014326).

capital it also compares to 14th-century posts in Ely, including those at 47 Forehill and 23 Broad Street. Although none of these have been scientifically dated, it is clear that these are part of a local and regional trend almost certainly of the late 14th century.

The roof of Burgh Hall is of the late 15th century (Figure 157). It has already been examined in the context of a Wealden above, but here it is worth noting that, notwithstanding the similarities in the form of the decorative posts supporting the truss, the roof form is otherwise unparalleled in Ely. It has a side purlin roof, with the purlins clasped between the collar and principal rafter, and ogee-curved windbraces. Although no roofs of such a type were identified in Ely, it is clear that in its general form, with clasped side purlins, was typically employed in the city in the 16th century. Examples include the roof at 38a St Mary's Street.

Buildings of the 16th century include similarly carpentry details to those in Ely. Particularly useful in this context is Bolebec Cottage, which includes a 16th century two-storey range probably originally constructed as the cross wing to a house to the north. This has an original overmantle which includes the date 1587, providing a likely date for the whole range. The range also has quarter-roll mouldings and a side-purlin roof, with the purlins clasped between the collar and the tie beam. It is impossible to determine whether these represent features contemporary with similar mouldings and details found in Ely, although the same general date is likely, as they are also found in fully-storied ranges.

Conclusion

Ely is a city which rewards close study, demonstrating both the form and nature of the medieval settlement, and its contribution to the wider study of vernacular urban building types.

In terms of wider study, it is clear that Ely's buildings largely reflect the local and regional trends in building form and materials. There are differences however, which illustrate the larger resources available either directly from the ecclesiastical authorities, or indirectly from the wealthier nature of the settlement. This is notable, for example, in the substantial number of surviving buildings which appear to have used high quality timber close studding. Although this may partly reflect the survival rate of better-quality buildings within the settlement, nonetheless the quantity which survives makes it clear that it was a characteristic of the town in significantly greater quantities than in the surrounding settlements. The typology of roof structures within the city appears to broadly reflect regional trends, with the notable exception of some of the outstanding roofs in the precinct which appear to reflect national trends. Moreover in the quantity of surviving roof structures within the precinct, complemented by the notable survivals in the wider town, there is a selection of roof structures which is notable in its breadth, particularly in roofs from the 14th and 15th centuries. The city is also notable for its early use of brick, particularly outside the precinct, with several buildings of the 14th century making use of the material, although it was clearly used due to expediency rather than as an aesthetic statement. Overall the buildings of the city show a mixture of regional and national influences, the latter perhaps heightened by its continued relationship with the monastery that founded it and oversaw much of its development.

Previous studies of the city have focussed on the buildings of the medieval monastic precinct, with some limited study of the archaeology and documentary history of the wider settlement. It is clear however that the settlement itself has much to tell us. The surviving medieval buildings in the city are illustrative of all phases of its development, from the initial laying out of the settlement in the 12th century, through to its evolution as a market centre in the 17th and 18th centuries. It is clear that individual buildings of high quality were being constructed at all phases in its history, notwithstanding the economic vagaries that affected its overall success. The settlement appears to have developed rapidly in the 14th and 15th centuries, under the auspices of the Prior and Bishop, with institutional and domestic buildings reflecting its prosperity. It is clear that economically the settlement failed to further develop in the post-medieval period, but this does not appear to have prevented investment in the infrastructure of the city. It did not expand outwards much further than its early 15th century extent, but many of the buildings, particularly in the market area and on the waterside, were reconstructed, reflecting substantial investment. Thereafter it appears to have consolidated its role as a market centre with some small-scale industry based on the riverside. This appears to have been sufficient to maintain the city's size and ensure that buildings were upgraded, often around earlier building cores. 19th and 20th century development has been significant, but has not overwhelmed the earlier core of the settlement, ensuring that the city that survives today reflects its long and fascinating history.

BIBLIOGRAPHY

Aitkens, P 2011 'Queenpost roofs in East Anglia' in Walker, J (ed) *The English Medieval Roof Crownpost to Kingpost Report of the Essex Historic Buildings Group Day School 2008* Needham Market: Gipping Press

Alcock, N 2010 'The distribution and dating of Wealden houses' in *Vernacular Architecture* 41 37-44

Alcock, N, Barley, M, Dixon, P and Meeson, R 1996 *Recording Timber-Framed Buildings: An Illustrated Glossary* Council for British Archaeology Practical Handbook in Archaeology 5 (revised edition)

Alexander, M 2003 'A medieval and post-medieval street frontage: Investigation in Forehill, Ely' in *Proceedings of the Cambridge Antiquarian Society* 92 135-182

Arnold, A, Howard, R, Laxton, R, Litton, C and Simpson, W 2004 *A Dendrochronological Study of the Monastic Buildings at Ely* English Heritage Centre for Archaeology Report Series 74/2004

Arnold, A, Howard, R, and Litton, C 2005 *Tree-Ring Analysis of Timbers from the High Roofs of the Cathedral of the Holy and Undivided Trinity, Ely, Cambridgeshire* English Heritage Centre for Archaeology Report Series 19/2005

Arnold, A and Howard, R 2015 *Dendrochronology Assessment 23 Broad Street, Ely* Unpublished technical report

Arnold, A and Howard, R 2016 *Dendrochronology Assessment The Three Blackbirds, Ely* Unpublished technical report

Atherton, I 2003 'The Dean and Chapter, Reformation to Restoration: 1541-1660' in Meadows, P and Ramsey, N (eds) *A History of Ely Cathedral* Woodbridge: The Boydell Press

Atkinson, T 1933 *The Architectural History of the Benedictine Monastery of St Etheldreda at Ely* Cambridge: The University Press

Baggs, A 2003 '47 Forehill' in Alexander 'A medieval and post-medieval street frontage: Investigations at Forehill, Ely' in *Proceedings of the Cambridge Antiquarian Society* XCII 135-182

Barnwell, P and Adams A 1994 *The House Within Interpreting Medieval Houses in Kent* London: HMSO

Bond, J 2007 'Canal Construction in the Early Middle Ages: An Introductory Review' in Blair, J (ed) *Waterways and Canal Building in Medieval England* Oxford: Oxford University Press 153-206

- Bradley, S and Pevsner N 2014 *The Buildings of England. Cambridgeshire* 3rd edtn
London: Yale University Press
- Cessford, C Alexander, M and Dickens, A 2006 *Between Broad Street and the Great Ouse: waterfront archaeology in Ely* East Anglian Archaeology Report No 114
- Chapman, F (ed) 1907 *Sacrist rolls of Ely Volume 1: Notes on Transcripts*
Cambridge: Cambridge University Press
- Clark, D 2000 'The Shop Within?: an Analysis of the Architectural Evidence for Medieval Shops' in *Architectural History* **43** 58-87
- Clarke, H, Pearson, S, Mate, M, and Parfitt, K 2010 *Sandwich: 'the completest medieval town in England': a study of the town and port from its origins to 1600*
Oxford: Oxbow
- Cobbett, L 1936 'The Hospitals of St John the Baptist and St Mary Magdalene at Ely, and the remains of the gothic buildings still to be seen there at St John's Farm' in *Proceedings of the Cambridge Antiquarian Society* **36** 57-75
- Coles, J and Hall, D 1998 *Changing Landscapes: The Ancient Fenland* WARP (Wetland Archaeology Research Project) Cambridge County Council Occasional Paper **13**
- Currie, C 1988 'Time and chance: modelling the attrition of old houses' in *Vernacular Architecture* **19** 1-9
- Darby, H 1983 *The Changing Fenland* Cambridge: Cambridge University Press
- Davis, B 2008 'Cambridgeshire: a cross roads for traditional building' in Stenning and Andrews (eds) *Regional variation in timber-framed building in England and Wales down to 1550 The proceedings of the 1994 Cressing Conference* Chelmsford: Essex County Council
- Davis, B 2009 *Vernacular Architecture Group Conference Notes: Cambridgeshire* (Unpublished conference proceedings)
- Dixon, P 2003 'The monastic buildings at Ely' in Meadows, P and Ramsey, N (eds) *A History of Ely Cathedral* Woodbridge: The Boydell Press
- Ely & District Archaeological Society 2009 *A Survey of Stone Walls in Ely* Ely: EDAS CD-ROM publication
- Fearn, K 2001 *Ely Museum at the Old Gaol A History of the Building* Ely: The Ely Society
- Fernie, E 2003 'The Architecture and Sculpture of Ely Cathedral in the Norman Period' in Meadows, P and Ramsey, N (eds) *A History of Ely Cathedral* Woodbridge:

The Boydell Press

Fletcher, J 1979 'Medieval Timberwork at Ely' in *The British Archaeological Association Conference Transactions for the year 1976 Volume II: Medieval Art and Architecture at Ely Cathedral* 58-70

Fletcher, J and Haslop F 1969 'The West range at Ely and its Romanesque Roof' in *Archaeological Journal* **126** 171-176

Gilchrist, R 1995 *Contemplation and Action The Other Monasticism* London: Leicester University Press

Giles, K and Clark, J 2011 'St Mary's Guildhall, Boston, Lincolnshire: the Archaeology of a Medieval 'Public' Building in *Medieval Archaeology* **55** 226-256

Grenville, J 1997 *Medieval Housing* London: Leicester University Press

Grenville, J 2008 'Urban and rural houses and households in the late Middle Ages' in Kowaleski, M and Goldberg, P (eds) *Medieval Domesticity Home, Housing and Household in Medieval England* Cambridge: Cambridge University Press

Hall, L 2007 *Period House Fixtures & Fittings 1300-1900* Newbury: Countryside Books

Hilton, R 1990 'Some problems of urban real property in the middle ages' in Hilton, R (ed) *Class conflict and the crisis of feudalism* London: Verso 92-101

Holton Krabenbuhl, A, Cocke, T and Malim T 1989 'Ely Cathedral Precincts: The North Range' in *Proceedings of the Cambridge Antiquarian Society* **78** 47-69

Holton Krabenbuhl, A 1991 *47 Forehill, Ely* Unpublished site notes, copy provided by Beth Davis

Holton Krabenbuhl, A 1997 'The Infirmary Complex at Ely' in *Archaeological Journal* **154** 118-172

Holton Krabenbuhl, A 1999 'The Prior's Lodgings at Ely' in *Archaeological Journal* **156** 294-341

Holton Krabenbuhl, A (ed) 2009 *The Three Blackbirds. A medieval house in Ely* 2nd edition Ely: The Ely Society

Holton Krabenbuhl, A (ed) 2011 *The Topography of Medieval Ely* Cambridge Record Society Vol 20

Johnson, M 1993 *Housing Culture: Traditional architecture in an English landscape* London: UCL Press

Keene, D 1990 'Shops and Shopping in Medieval London' in Grant, L (ed) *Medieval Art, Architecture and Archaeology in London* British Archaeological Association Conference Transactions **10** 29-46

Keene, D 1996 'Landlords, the property market and urban development in medieval England' in Eliassen, F and Ersland, G (eds) *Power, profit and urban land: land-ownership, medieval and early modern in European towns* Aldershot: Scholar Press

Kermode 2000 'The greater towns 1340-1500' in Palliser D, (ed) *The Cambridge urban history of Britain Volume 1: 600-1540* Cambridge: Cambridge University Press 441-464

Keynes, S 2003 'Ely Abbey 672-1109' in Meadows, P and Ramsey, N (eds) *A History of Ely Cathedral* Woodbridge: The Boydell Press

Knight, M 2016 'Must Farm Bronze Age timber platform' in *Historic England Research* **3** 33-37

Leech, R 2014 *The Town House in Medieval and Early Modern Bristol* Swindon: English Heritage

Lilley, K 1998 'Trading Places: Monastic Initiative and the Development of High-Medieval Coventry' in Slater, T and Rosser G (eds) *The Church in the Medieval Town* Aldershot: Ashgate

Longcroft, A (ed) 2005 *The Historic Buildings of New Buckenham* Journal of the Norfolk Historic Buildings Group Volume 2

Lucas, R 1993 'Ely Bricks and Roof-Tiles and their Distribution in Norfolk and Elsewhere in the Sixteenth to Eighteenth Centuries' in *Proceedings of the Cambridge Antiquarian Society* **82** 157-62

Maddison, J 2000 *Ely Cathedral Design and Meaning* Ely: Ely Cathedral Publications

Martin, B and Martin D 2004 *New Winchelsea Sussex. A medieval port town.* London: Field Archaeology Unit Monograph **2** Institute of Archaeology, University College London

Meeson, B and Alcock, N 2016 'Black Swan Terrace, Upper Spon Street, Coventry: a comparison of medieval renters' in *Vernacular Architecture* **47** 1-19

Mortimer, R Regan, R and Lucy, S 2005 *The Saxon and Medieval settlement at West Fen Road, Ely: The Ashwell Site* East Anglian Archaeology Report No 110

Oosthuizen, S 2012 'Cambridgeshire and the Peat Fen: Medieval Rural Settlement and Commerce, c. AD 900-1300' in Christie, N and Stamper, P (eds) *Medieval Rural Settlement Britain and Ireland AD 800 – 1300* Oxford: Windgather Press 206-224

- Owen, D 1993 *The medieval development of the town of Ely*: The Ely Society
- Owen, D 2003 'Ely 1109-1539' in Meadows, P and Ramsey, N (eds) *A History of Ely Cathedral* Woodbridge: The Boydell Press
- Palliser, D (ed) 2000 *The Cambridge urban history of Britain Volume 1: 600-1540* Cambridge: Cambridge University Press
- Palmer, W 1936 'The Hospitals of St John the Baptist and St Mary Magdalene at Ely' in *Proceedings of the Cambridge Antiquarian Society* **36** 76-108
- Pantin, W 1947 'The development of domestic architecture in Oxford' in *Antiquaries Journal* **27** 120-150
- Pantin, W 1962-3 'Medieval English town-house plans' in *Medieval Archaeology* **6-7** 202-239
- Parker, V 1971 *The Making of Kings Lynn. Secular Buildings from the 11th to the 17th century* London: Phillimore
- Pearson, S 2005 'Rural and Urban Houses 1100-1500: 'Urban adaptation' Reconsidered' in Giles, K and Dyer, C (eds) *Town and Country in the Middle Ages. Contrasts, Contacts and Interconnections, 1100-1500* The Society for Medieval Archaeology Monograph **22** Leeds: Maney 43-63
- Pearson, S 2009 'Medieval Houses in English Towns: form and location' in *Vernacular Architecture* **40** 1-22
- Pevsner, N and Bradley, S 2014 *Buildings of England Cambridgeshire* London: Yale University Press
- Pevsner, N and Wilson, B 1999 *Buildings of England Norfolk 2: north-west and south* London: Yale University Press
- Preston, J 1990 'Domestic wall paintings on plaster; 7 and 9 Silver Street, Ely in *Context* **28** 24-28
- Quiney, A 2003 *Town Houses of Medieval Britain* New Haven: Yale University Press
- RCHME 1968 *An Inventory of the Historical Monuments in the County of Cambridge Volume One West Cambridgeshire* London: HMSO
- RCHME 1972 *An Inventory of the Historical Monuments in the County of Cambridge Volume Two North-East Cambridgeshire* London: HMSO
- RCHME 1988a *An Inventory of the Historical Monuments of the City of Cambridge Part 1* 2nd edtn London: HMSO

RCHME 1988b *An Inventory of the Historical Monuments of the City of Cambridge Part 2* 2nd edtn London: HMSO

Rees Jones, S 2008 'Building domesticity in the city' in Kowaleski, M and Goldberg, P (eds) *Medieval Domesticity Home, Housing and Household in Medieval England* Cambridge: Cambridge University Press 66-91

Rimmer, J 2007 *Small Houses in Late Medieval York and Norwich* University of York: unpublished PhD thesis

Roberts, E 2016 *Hampshire Houses 1250-1700 Their Dating and Development* revised edition Southampton: Hampshire Buildings Preservation Trust

Rutledge, E 1995 'Landlords and tenants: housing and the rented property market in early fourteenth-century Norwich' in *Urban History* 22:1 7-24

Schofield, J 1987 *Medieval London Houses* London: Yale University Press

Smith, R and Carter, A 1983 'Function and site: Aspects of Norwich buildings before 1700' in *Vernacular Architecture* 14 5-18

Smith, T 1985 *The Medieval Brickmaking Industry in England 1400-1450* BAR British Series 138 Oxford: British Archaeological Reports

Spoerry, P 2008 *Ely Wares* East Anglian Archaeology Report No 122

Stenning, D 2011 'East Anglian roofs: an Essex-centric view' in Walker, J (ed) *The English Medieval Roof Crownpost to Kingpost Report of the Essex Historic Buildings Group Day School 2008* Needham Market: Gipping Press

Taylor, C 1973 *The Cambridgeshire Landscape. Cambridge and the southern Fens* London: Hodder and Stoughton

VCH Cambridgeshire 2 1948 *The Victoria History of the County of Cambridge and Isle of Ely Volume II* London: Oxford University Press

VCH Cambridgeshire 4 1953 *The Victoria History of the County of Cambridge and the Isle of Ely Vol IV* London: Oxford University Press

VCH Cambridgeshire 10 2002 *The Victoria History of the County of Cambridge and the Isle of Ely Vol X* London: Oxford University Press

Walker, J 1994 'Essex medieval houses: type and method of construction' in Stenning, D and Andrews D (eds) *Regional variation in timber-framed building in England and Wales down to 1550* Chelmsford: Essex County Council 5-15



Historic England Research and the Historic Environment

We are the public body that looks after England's historic environment. We champion historic places, helping people understand, value and care for them.

A good understanding of the historic environment is fundamental to ensuring people appreciate and enjoy their heritage and provides the essential first step towards its effective protection.

Historic England works to improve care, understanding and public enjoyment of the historic environment. We undertake and sponsor authoritative research. We develop new approaches to interpreting and protecting heritage and provide high quality expert advice and training.

We make the results of our work available through the Historic England Research Report Series, and through journal publications and monographs. Our online magazine Historic England Research which appears twice a year, aims to keep our partners within and outside Historic England up-to-date with our projects and activities.

A full list of Research Reports, with abstracts and information on how to obtain copies, may be found on www.HistoricEngland.org.uk/researchreports

Some of these reports are interim reports, making the results of specialist investigations available in advance of full publication. They are not usually subject to external refereeing, and their conclusions may sometimes have to be modified in the light of information not available at the time of the investigation.

Where no final project report is available, you should consult the author before citing these reports in any publication. Opinions expressed in these reports are those of the author(s) and are not necessarily those of Historic England.

The Research Report Series incorporates reports by the expert teams within the Research Group of Historic England, alongside contributions from other parts of the organisation. It replaces the former Centre for Archaeology Reports Series, the Archaeological Investigation Report Series, the Architectural Investigation Report Series, and the Research Department Report Series