

Fabric Recording in Churches and Cathedrals

**Association of Diocesan and Cathedral Archaeologists
Guidance Note 4**



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Front cover: Sometimes external features are revealed when a wall is cleaned or stripped of rendering. This is a detail of the tower of St Vedast Foster Lane, London, a medieval part retained by Wren in his rebuilding after the Great Fire of 1666. This doorway does not show on the inside (Museum of London Archaeology)

1 INTRODUCTION

1.1 Preface

- 1.1.1 The fabric of a church is an important source of information for its history and development, and can be interrogated by archaeological methods. In describing the investigation of Rivenhall church, Essex (Diocese of Chelmsford) in 1972, the archaeologist Warwick Rodwell commented:

The walls themselves were of several builds and periods, ranging from late Anglo-Saxon to late Medieval. One complete but blocked Anglo-Saxon window was revealed, together with part of another and traces of two Cl4 windows. In short, there was as much archaeological stratification in the north wall of the chancel as there was in the ground immediately below it.

- 1.1.2 This quotation would surprise many outside the archaeological profession, doubtless including many clergy, imbued by popular images of archaeology as a strictly heads-down discipline, performed with trowel, spade and brush, and believing that stratigraphy, or features of archaeological interest, can be found in the horizontal plane only. In truth the history and development of a church may be found in its above-ground fabric as much or more as its below-ground remains, while documentary research and scientific techniques can all be employed to elucidate this. In fact, the tradition of building investigation is one of the oldest strands of archaeological endeavour.

1.2 History of Building Investigation

- 1.2.1 Interest in the history of church buildings goes back as far as pilgrim's illustrated accounts of shrines and holy places (e.g. Adomnan's *De Locis Sanctis*, 698 AD), but it was only with the dissolution of the monasteries in the 16th century that antiquarian interest was stimulated with concern for what had been and what was rapidly disappearing. This bore fruit in the scientific era of the 17th century, with the works of Sir William Dugdale (illustrated by Hollar), and the pioneering work by John Aubrey on the development of Gothic architecture in his *Chronologia Architectonica*.
- 1.2.2 Antiquaries such as William Stukeley in the early 18th century appreciated that much of the history and structural sequence of an ancient building can be 'read' from a careful study of its fabric. Drawn records of buildings to elucidate their architectural character were produced in abundance, first of classical buildings in the mid-18th century (e.g. Palmyra, Athens, Split), and then of Gothic buildings from the last decade of the century (e.g. John Carter's series of cathedral publications), followed by the popularising phase of Gothic studies in the early 19th century (e.g. John Britton's cathedral series). It was Professor Robert Willis (1800-1875) who undertook a series of pioneering investigations into cathedral fabric, first at Canterbury in 1844, that were reported to the annual meetings of the national archaeological associations (BAA and RAI). His methods were archaeological (stratigraphic and deductive) in the era when archaeology (largely medieval) came of age, and some years before Prehistory (or indeed excavation) became associated with archaeology.

- 1.2.3 Willis had few immediate followers, though one whole strand of the 19th-century Gothic endeavour was the collections and classification of features, mouldings and details that allowed buildings to be analysed and dated (exemplified in the many publications by Parker of Oxford). The application of archaeology to buildings became more general with the work of General Pitt Rivers (1827-1900), and the monastic fieldwork of William St. John Hope (1854-1919), who from the 1870s set the standard for the analysis of buried and standing remains with a large-scale coloured phase plan that was followed by many in the 20th century. While neither the Royal Commission on Historical Monuments nor the Survey of London developed or advocated building archaeology beyond the phase plan, and W.A. Pantin called for the archaeological study of secular buildings in the 1930s, it was perhaps only in the 1970s that the archaeological investigation of buildings re-emerged, encouraged by the CBA, and by the early 1980s this had developed into the distinct discipline of “Buildings Archaeology”, with an IFA section and committee dedicated to this. Warwick Rodwell’s book on church archaeology has passed through several editions since 1981 and there is the *Journal of Church Archaeology* produced by the Society for Church Archaeology, and of course the ADCA’s suite of guidance which can be accessed at their web site.

1.3 Archaeological Potential of Building Fabric

- 1.3.1 Early fabric and/or traces of complex development often survive undetected until examined closely and methodically, and are often hidden behind plaster and below floors. Patterns of alterations and past repairs may hold critical information about the past and present behaviour of the structure, information which can be recovered and recorded. This information can be of equal use and interest to architects, builders, academics and, properly mediated, anyone who is interested in buildings and the past, including all those charged with the upkeep and curation of historic church buildings.
- 1.3.2 The **walls** of a church contain the primary evidence of the character and phasing of the building, through the breaks and changes in the masonry, whether in the footings or at the wall tops. Doors, windows and architectural features have always been recognised as determining the periods of construction, as seen in their style, choice of stone, tooling, and masons’ marks. Architectural fragments from former periods of the church (also sometimes called moulded stones) are often reused in walls as rubble, but hidden within the fabric so they are not visible until the wall is broken open.
- 1.3.3 The **floors** of churches may be the result of modern re-ordering but will nearly always contain older elements, and may retain precious areas of ‘original’ medieval flooring as well as monuments that may or may not lie above the vaults to which they belong. Wooden floors may preserve visible remains in the space beneath them, and may be formed of reused moulded, painted or decorated timber members.
- 1.3.4 The **roofs** of churches may be formed of structural carpentry dating back to the 12th century or any later period, and be subject to restoration and repair. Their age and interest has often not yet been established with certainty. They may have a complex relationship to ceilings or vaults beneath them, the walls on which they are based, and the outer covering above them. Historic carpentry is also encountered in tower floors and roofs, and in bellframes (perhaps here most likely to be threatened by a poorly informed wish for replacement).
- 1.3.5 The **furnishings** of a church, including seating, screens, fonts, chests, and monuments, may be in primary or secondary locations, and may have been subject to repair and restoration which makes it difficult to distinguish original and later work and thus determine their significance.

- 1.3.6 The **decoration** of a church, typically in the form of painted plaster or stone is one of the most fragile aspects of its history and archaeology, and as likely to be well known from visible areas as it is to be hidden below later layers of paint and whitewash. Some new works may necessitate careful prospection to determine the existence or not of painted decoration lest it be destroyed.
- 1.3.7 **Miscellaneous** items such as stained glass, tiles, bells (and items of stonework, etc. retained or recovered from earlier episodes of repair and restoration) are all part of the fabric history of a church, that may relate to current processes of investigation and discovery.

2 OCCASION AND OPPORTUNITIES

2.1 *Prior investigation*

- 2.1.1 The opportunities for fabric change in historic church buildings are limited by their character and use, but necessary changes are from time to time required that may have an impact on the fabric. Decisions regarding change will need to be informed by an understanding of the age and significance of the fabric.
- 2.1.2 Even a 'well-known' building may be imperfectly understood, with much uncertainty about the age and significance of its fabric. Even where analytical plans have been compiled depicting building events in major phases of activity, these will obscure numerous intervening phases and episodes that will not always be apparent when covered by plaster. Is a greater degree of certainty is required, this may be achieved by fabric investigation.
- 2.1.3 In some circumstances, where suggested by the initial appraisal of the impact of proposed works, it may be prudent to make opening in the fabric to understand what is there. While this information is needed by others (e.g. those organising routes for services), it is important that an archaeologist should be present to observe and record the fabric. Typically this opening up might consist of raising floor-boards, or removal of modest areas of paintwork or plaster. Where intervention is not practicable, then remote-sensing techniques may be considered.

2.2 *Opening-up*

- 2.2.1 Opening up of the fabric for conservation purposes, repairs, or service installations, may reveal areas of interest below floors or behind wall coverings. These may present an occasion for opportunity recording of fabric that is not being altered or destroyed, but will not easily be seen again under normal circumstances. It is a matter of judgement what level of response is called for, but an informed observation with even a minimum of record may prove to be of value.

2.3 *Fabric repairs*

- 2.3.1 Fabric repairs may include a wide variety of activities such as roof renewal, stone replacement, and timber treatment/repairs. Like-for like repairs may call for no more than the architect's as-built records of the work done. Extensive works, e.g. rebuilding a buttress or widespread refacing are likely to benefit from an archaeological input to investigate and record even minor aspects that may later prove to be significant. Roof renewals can be of great value in exposing the whole roof frame to daylight and allowing observations not otherwise possible.

2.4 Services repair

- 2.4.1 The opening up required for repairs and replacement services can provide important opportunities for discovery. In many old buildings services have in the past often been cut through important historic elements without regard to their significance. A prior investigation may therefore be especially important to guide the location of new runs of services where they may impact upon significant historic fabric.

2.5 Trenching/building works

- 2.5.1 Both inside and outside a church any occasion for ground disturbance may chance upon unexpected and important evidence for the use and phases of the existing building or former elements that are no longer extant (e.g. a lost chapel, porch, or tower). The location of such features cannot easily be predicted, and a large part of the ground may have been disturbed by burials (and by very many more than those for which monuments can be seen), and by burial vaults (especially inside a church).
- 2.5.2 While the examination of trenches and ground disturbance for building works have an archaeological potential of their own for buried deposits, it is important to remember that the base or foundations of standing elements may be visible in the sides of trenches and excavated works, and that important archaeological information can easily be ignored when such exposed masonry is not properly investigated.

3 THE BUILDING RECORD

3.1 A Building Record

- 3.1.1 Ideally all historic churches would have a full set of detailed analytical drawings (plans and sections/elevations of all areas) to inform future works, but this has only proved possible for a few churches, such as Rochester and Norwich cathedrals, where an ongoing recording programme of fabric survey is under way, creating measured plans of the entire building up to roof height which are held as a digital and paper record.
- 3.1.2 This approach means that works to any specific area can be recorded in detail on an 'inset', which can then be placed within the complete record. This is the 'gold standard' to which all might aspire. More typically, a record is built up incrementally as an integral part of various campaigns of work. There are such recording campaigns in progress at Christchurch Priory, Selby Abbey, and elsewhere. In the case of cathedrals, typically the west front, a transept or a spire may have benefited from such detailed recording as part of a repair or consolidation programme, such as at Salisbury and Truro, but rarely the whole building, although an extensive record has been built up at Chichester Cathedral.
- 3.1.3 Equally important is to form a record of works that have been undertaken (in graphic and written form), so that later episodes of intervention can benefit from knowledge of previous discoveries. This may be an appendage to a church log book, but the safekeeping of such an archive is an important consideration, and it is likely that only a Record Office or county Historic Environment Record can safely store records without loss or damage. Records kept in a church may be lost or damaged by fire and unsuitable environmental conditions. The new Church Heritage Record created by the Cathedral and Church Buildings Division will have the capacity to hold digital records on each church within a logical structure.

3.2 Building Investigation

- 3.2.1 The wealth of guidance on recording is not matched by any substantial literature on how to investigate buildings, which is a curious reflection of the circumstances of the profession. Two matters seem self-evident as primary considerations:
- The direct observation of a structure in order to record it demands thought and understanding of what is being investigated. Where hand methods are being used this may prove more fruitful in providing time and opportunity for thought.
 - No drawn or visual 'record' can convey anything without some explicit explanation in writing of what has been observed, or the inferences to be drawn from it.
- 3.2.2 The detailed subject matter of investigation, including general topics for consideration as well as the character and properties of building elements and materials have rarely been explicitly laid out. Some attempt to provide an outline is given in Appendix B.

3.3 Building Recording

- 3.3.1 The main aspects of building recording can be easily summarised:

Written account

- 3.3.2 A clear written account will often be the most important result of the record, stating clearly the nature of the observations, and especially areas of uncertainty and conjecture.

Photographic

- 3.3.3 Photographic records are of special value in being able to be interrogated in the future. It should be remembered that, to obtain the most information from a photograph, the subject may need to be prepared by cleaning or brushing to remove dust or rubbish. Sufficient general photographs should also be taken to locate any areas where details have been photographed.

Measured survey

- 3.3.4 A drawn record produced as a result of a single and determined engagement with the subject remains of the greatest importance, and it is not necessarily the case that the supposed accuracy of a digital record adds value to a careful hand drawing, while mechanical reproduction can even introduce a spurious regularity.
- 3.3.5 Spatial relations, in ensuring correct locations with vertical and horizontal datum points, are of prime importance, and it remains true that these can be obtained with sufficient accuracy using hand methods, while mechanical and digital methods will of course be of value in establishing an accurate framework.

Reporting

- 3.3.6 The results of an investigation will be promptly reported on in an illustrated report, that sets the discoveries in an informed context of the building as a whole.
- 3.3.7 The report will list the drawings and photographs undertaken, and thus provide a guide to the archive.
- 3.3.8 The investigation will be reported in appropriate channels, and where of significance will be reported in summary or at length in local or national journals.

Archive

- 3.3.9 An ordered archive of the investigation shall be deposited with the [local Heritage Record], and a copy of the report shall be made to the local Heritage Record, and agreed national places of the deposit.
- 3.3.10 The fragility and durability of records, especially photographs and electronic data, should be carefully considered prior to making a deposit, and it should not be assumed that current means of electronic retrieval will be available in the medium to long term.

3.4 *Levels of Building Recording*

- 3.4.1 Works which involve replacement of, or interference with, historic fabric may require recording before, during and after the work takes place. This recording can range from a basic, well annotated photographic record to a comprehensive programme of detailed recording using traditional and new techniques, such as hand-drawn stone-for-stone recording, electronic surveys including Stereo-photogrammetry and laser scanning and 3-dimensional CAD imaging techniques, and stone and mortar analysis. The recording of timbers may embrace such techniques as Dendrochronology (tree-ring dating) and Carbon-14 dating.
- 3.4.2 The most straightforward description of levels of building recording that provided by East Lothian Council: *Historic Building Recording. Guidance for Curators and Commercial Archaeological Contractors* (2006), which is based on experience of how these documents are used, and proposes a sensible ranking of types of recording (see Appendix C).¹ This may be found useful in providing clear specifications for work.
- 3.4.3 For general standards and recording techniques and equipment, English Heritage (EH) 2004 and 2006 and Institute for Archaeologists (IfA) Standards should be consulted, and the philosophy outlined therein underpins the case-specific advice given here. The CBC guidance on the Churchcare web site (www.churchcare.co.uk), its booklet *Revealing the past - Informing the Future*, and the ADCA Guidance Note 1 *Archaeological requirements for works on churches and churchyards* give general advice on church fabric recording, but recently a need has been identified for more detailed and specific guidance which expresses, through the medium of case studies, the commensurate level of recording before, during and after certain frequently encountered situations.
- 3.4.4 There are four basic levels of fabric recording, following EH 2006. In large-scale projects a combination of these levels may be required. It is essential and cannot be stressed strongly enough that all records, even the most basic, are suitably archived; again, for the technical aspects of this reference can be made to EH 2006 and IFA 2007. The Levels are:

Level 1	Basic visual record: Annotated, measured photographic record related in 3 dimensions by a sketch to plan and elevation of area affected.
Level 2	Descriptive record: Measured and drawn detailed record with description, supported with annotated photographs (where necessary rectified) of area affected. Photogrammetric recording will sometimes be necessary.
Level 3	Analytical record: As 2, but where necessary with mortar, stone and plaster (or timber) samples and comprehensive marking up and description of all aspects of the elevation and/or feature(s), often taking

¹ Currently available online as a pdf file:
<http://www.eastlothian.gov.uk/documents/contentmanage/BinderHBRGuidanceDocument-12775.PDF>

in a larger area than that directly affected. Photogrammetric recording and CAD modelling of 3-dimensional details and mouldings may often be necessary.

Level 4 **Comprehensive Analytical record:** As 3, but drawing on the full range of available techniques and resources and with a written assessment of the significance of the findings within their context. The range of drawings may be greater than at other levels. Such work will normally be published.

3.4.5 The following sections aim to help clarify which level will normally be appropriate in the five frequently recurring situations in churches, however the decision rests in each case with the appropriate curator, following appropriate assessment by a competent archaeologist versed in historic building recording.

4 CASE STUDIES OF BUILDING RECORDING

4.1 *Introduction*

4.1.1 This guidance aims to give case-specific guidance on the correct level of recording required for **four commonly occurring types of works** affecting churches, by which parish churches and cathedral churches alike are meant. This advice is therefore directed at Cathedral Archaeologists and Diocesan Archaeological Advisers and other professionals, and all involved in the curation and development of churches.

4.1.2 The four types of works are:

1. Re-pointing and/or stripping plaster
2. Like-for-like stone replacement
3. Doorways (new, re-opening, widening, lowering, converting windows)
4. Repair or replacement of roof, bell-frame and other structural timbers

4.1.3 A fifth type, restoring or reducing ruinous masonry, is addressed in the recent CBC guidance “Ruined Churches: Problem or Opportunity?”

Type 1: Repointing and/or stripping of areas of fabric

The problem and the approach

The modern approach is that it is necessary to record, analyse and understand historic fabric including the mortar, plaster and render adhering to it in order to identify and specify appropriate repairs, and to leave future repairers a record of what was found and what was done. Important information can easily be obscured or destroyed in the course of otherwise entirely beneficial repairs.

Decayed mortar is a common problem in historic churches, and repointing has too often been undertaken on a localised or large scale without prior analysis or recording. This can have the effect of masking or destroying original or earlier pointing schemes which contain structural or historical information, such as the 'lifts' in the construction of a wall, the position of earlier openings, or whether changes in masonry represent an alteration or a repaired failure. Interior surfaces that have been fully stripped as part of earlier 'restoration' are effectively the same as external wall faces as far as archaeological analysis and recording is concerned.

Analysis will allow for correct selection of mortar mixes and/or plaster to achieve authentic results. If rebuilding or indenting is necessary, bedding and pointing should be inspected, they would normally be the same mix. Relatively sophisticated mortar analysis techniques are available, and fairly simple quantitative analysis will give useful information on the proportions of the main constituent parts. The results are one factor that the architect or specifier will use to decide on the most appropriate mix.

Walls which are still partially or wholly plastered or rendered may require a different approach. Where ancient or modern plaster has to be removed for repairs or alterations, there is usually a preliminary phase of archaeological assessment or evaluation by a specialist conservator to determine the significance of the plaster and to check for any useful detail which may shed light on the development of the building such as gaps or repairs in the plaster which may hint at the previous presence of openings or monuments; and also, of course, to check for remnants of wall paintings and decoration, which in many cases may have been deliberately painted or plastered over.

The appropriate recording level

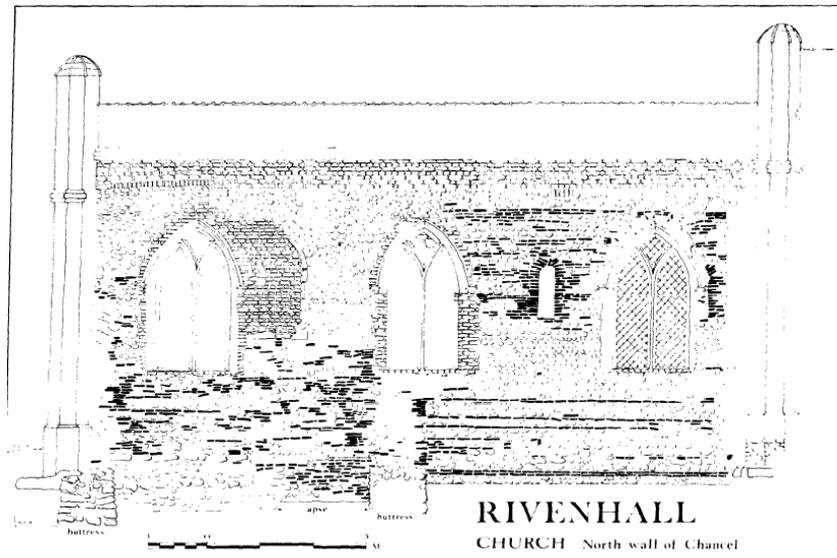
To avoid loss of such information, the significance of the area to be repointed and/or stripped needs to be assessed. If the area involved is not complex and/or significant – having been, perhaps, completely stripped and repointed in the relatively recent past – then Level 1 recording will usually suffice. If the area to be repointed is recognised at this stage as being of any significance and/or complexity, at least Level 2 recording will be required, more rarely 3 or even 4.

Where plaster or render is being removed there should be at least prior assessment followed by Level 1 recording, then as work proceeds a watching brief as plaster is removed, which in the event of a discovery will trigger reappraisal of the approach and level of recording.

Case Study

An example of the importance of prior assessment and subsequent recording is Rivenhall, already mentioned in the introduction. Several phases of construction could be identified with the help of mortar analysis and analysis of building breaks and "lifts", along with traces of

windows and other architectural features. The drawing below, almost 40 years old but still exemplary, shows what can be gained through the process of assessment and recording, and indeed what might be lost if it is not undertaken before repointing, in a church previously considered to be a complete Victorian rebuild.



The north wall of the chancel of Rivenhall church, drawn after the stripping of cement rendering in 1972. Drawn by Daryl Fowler and Mary Haynes, used with permission.

If as in this case an entire elevation of a complex historic wall is to be repointed, then Level 4 recording will be required, with appropriate publication of the results.

Type 2: Stonework repairs – like for like replacement

Stonework repairs fall into two basic categories, repairs to walling or repairs to architectural detail; a repair programme may of course embrace both. Understanding the development of the building and past changes and repairs may contribute towards identifying the solution to a current problem, as well as being interesting in their own right.

The problem and the approach

Stone types, mouldings and such fragile details as graffiti and mason's marks can be important sources of information, which can be easily damaged or lost during routine repair work. An analysis of the stone types used in a wall, as at Norwich, Salisbury and Truro cathedrals and Christchurch Priory, has resulted in a much better understanding of the buildings and their development, and the reasons for (and solutions to) deterioration and failure.

Moulded stonework may need to be patched or replaced, and recording is the key to this. As in the case study below moulded stones may not be immediately visible in the wall surface, and only come to light when stones are removed or revealed by removal of plaster or mortar, or by cleaning and/or detailed recording.

The appropriate level of recording

The date, significance and type of stone which is to be replaced should be identified through recording, as this is a powerful tool for successful repair. This will normally require Level 1

recording if repairs are very localised, or Level 2 if there are mouldings and/or large areas are involved.

Architects normally specify a full-size record of any moulded stone to ensure that the detail and profile are correct. Significant amounts of replacement, especially around openings, require stone-by-stone elevational drawings prior to work commencing, for marking up types, phasing and condition. This will be at least Level 2, often Level 3.

If no detailed analytical drawing of the whole elevation is available, then at the least the immediate area around the affected pieces should be recorded and analysed before replacement is undertaken. These insets should be located accurately on (at least) an outline elevation drawing of the wall or feature, ie Level 1.

Case study

It may be that re-used moulded stones survive unnoticed in walling. An extreme example of this was found at Brancepeth St Brandon (County and Diocese of Durham), where a hundred carved Medieval grave slabs were found built into the walls during consolidation and reconstruction after the devastating fire there in 1998, one of the largest collections ever recovered. Most were found reused in the clerestory, where it is thought they were hidden by the church's rector John Cosin who rebuilt and furnished the church in the 17th century, possibly to prevent their destruction at the hands of Puritans. This work was Level 2 before the walls were re-assembled, with a watching brief as this was done.



Fragment of cross slab from Brancepeth church. CBC

Type 3: Doorways old and new

This type of work is often the result of additions to church buildings, most commonly extensions to provide modern facilities, meeting rooms etc. Re-opening old blocked doorways or converting windows into doors is a particularly frequent course of action, making completely new openings less so. Enlarging or lowering entrances is something increasingly desired, partly as a result of DDA legislation.

The problem and approach

Changes to existing doorways are most often a direct result of compliance with DDA may also require level access, which often means lowering the threshold and/or removing steps, or also heightening the lintel. These features may preserve evidence of historic changes to floor levels, and may incorporate moulded stones, either deliberately or accidentally re-used in this way.

Conversion of windows into doorways is a more intrusive form of enlargement, which, unless the window is blocked, usually involves removal of tracery, and in all cases piercing of the wall below (see below). To deal with the impact on the window itself first, it is obvious that only relatively modern windows would be considered for such treatment; Victorian and later. Nevertheless, this is a major change which would require detailed justification, and assessment would need to be undertaken beforehand to assess the impact, especially if the wall underneath would be pierced for the first time.

Creating new entrances through “blank” sections of walling is obviously extremely invasive and potentially damaging. Prior assessment of the area of walling involved will always be necessary before a decision is made, as too often areas of walling are dismissed as “modern/Victorian rebuild”. Such late fabric may of course be interesting in its own right, but may also still contain earlier fabric, re-used moulded stones, etc (see above), or be older and/or more complex than has been thought. Conversely, assessment might show that the wall is less interesting than first thought. The possibility of the presence of wallpaintings beneath later paint layers must always be considered.

The appropriate level of recording

Making new openings, including converting windows into doors, will certainly require a full Level 1 record of the wall area in question within its immediate context, which would need to be made *before* such a decision is taken, and subsequent recording will be at Level 2 or 3 depending on the circumstances, accompanied by a watching brief during the work in case of unexpected moulded stones etc. Localised and controlled paint-scrapes can detect the presence of wallpaintings.

Similarly, lowering, heightening and widening entrances will usually require Level 2 recording, possibly Level 3. The re-use of a blocked doorway will only require Level 1 recording followed by a watching brief when the blocking is removed, unless the frame of the doorway is interfered with, see above.

More minor insertions, typically holes made for services such as cables, pipes, or sockets for structural beams (for example to a new bell-frame or ringing floor in towers), but also for new liturgical items such as aumbries, organs etc may have minimal impact when carefully placed, which would follow from appraisal of the fabric in the area affected; in these cases Level 1 recording will suffice. However, there may be occasions where a higher level of recording and supervision is necessary.

Case Study

At Langley Marish in Buckinghamshire (Diocese of Oxford) a proposal for a new door led to the discovery of a fine wallpainting of St Christopher following the stripping of plaster, which typically occupied much of the wall height, albeit in fragmentary state. This kind of work will certainly require initially a watching brief, followed by Level 3 recording, possibly Level 4. Through this procedure it proved possible to place and insert the doorway without damaging the wall painting, which was conserved.



Doorway at Langley Marish church with exposed wall paintings above, by Richard Shircore

Type 4. Repair or replacement of roof, bell-frame and other structural timbers

A programme of Dendrochronological analysis (tree-ring dating) funded by English Heritage has identified a number of wooden roofs, bell-frames and other structures and fittings far older than had previously been thought, for example at Kempey St Mary's (Diocese of Gloucester). Here a 14th-century oak porch and a west door and nave roof of the early 12th century have been identified, with the earliest known use of mortise-and-tenon jointing in England. Many more supposedly relatively modern structures may prove to have a long and complex development.

The problem and approach

Failing timber structures, particularly roofs and bell-frames, are among the most expensive and intractable problems affecting church buildings. Where complete or partial replacement of components of a timber structure are proposed, an initial assessment will be required from a professional versed in this type of material. Where dating is unclear, initial analysis using recording techniques including possibly Dendrochronological analysis or Carbon 14 dating may be necessary before the correct course of action and level of recording can be determined.

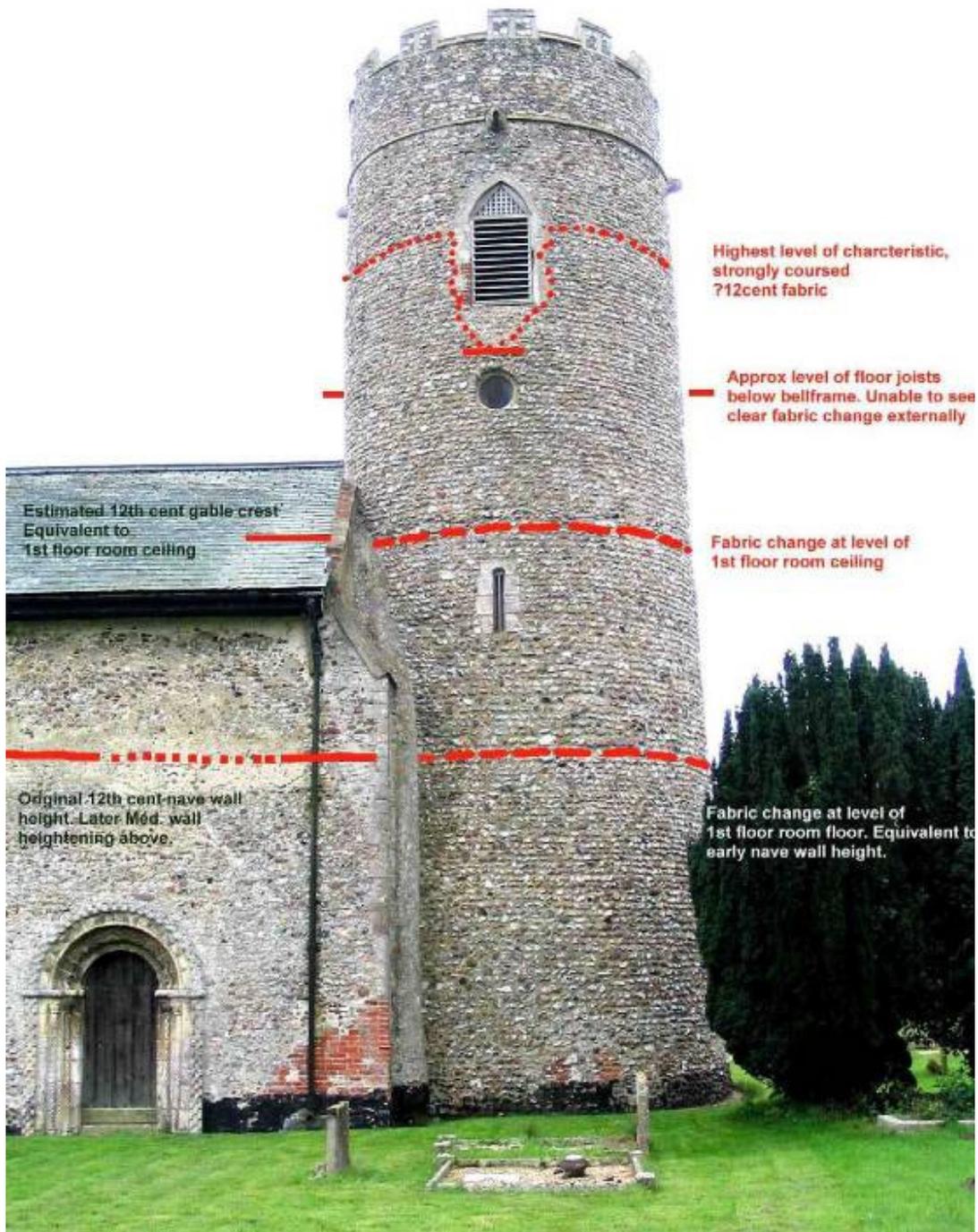
The appropriate level of recording

For all but the most routine replacement of the simplest structures, Level 1 recording will not suffice. Complex structures such as bell-frames or timber framing, which have often been subject to multiple phases of repair, strengthening and additions, will require at least Level 2 recording, more usually Level 3 or 4.

Case Study

An excellent example of the value of vigilance and a comprehensive approach is Wisset St Andrew (Diocese of St Edmundsbury & Ipswich). Here, Level 3 analysis of the fabric of the Norman round tower, part of work to investigate the tower's ability to take a new heavier ring of bells, showed building breaks which could apparently be related to timber floors within; the theory that these could also be 12th-century was confirmed by Carbon-14 dating when it became clear that Dendrochronology was not possible in this case.

This information allowed the significance of a 12th-century room with original floor and ceiling within the tower to be appreciated and taken into account in the works, as well as casting light on construction processes in medieval buildings and the historic development of this church in particular.



Annotated photo of Wisset church tower; Suffolk Archaeological Trust

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APPENDIX B - TOPICS AND MATERIALS

Introduction

Certain considerations with regard to different aspects of investigation and recording may be suggested, without implying that this is a comprehensive statement.

Stone

- The source and geology of stones used (especially different sources of ragstone)
- Evidence of setting out in marks and lines
- Masons' marks
- Mouldings
- Stone paving.

Brick and Tile

- Paving tiles, size, layout and decoration.
- Bricks, dimensions and type of bonding

Timber

General

- Species of timber used
- Evidence of conversion (cuts and sections used)
- Setting out marks
- Assembly numbering
- Carpentry jointing
- Decoration and mouldings.

Joinery

- Assembly marks
- Means of attachment
- Door construction types
- Decoration.

Flooring

- Size of floor joists; types of floor framing
- Carpentry jointing
- Size of boarding
- Evidence of previous boarding.

Walls

- Relation to floors and ceilings

- Size and spacing of framing posts
- Type of bracing
- Evidence of former attachments, and decoration.

Roofs

- Assembly numbering
- Carpentry jointing
- Evidence of nails holes, external and internal
- Evidence of changes in roof covering.

Iron

- Use of iron reinforcements in principal joists
- Use of iron in roof framing
- Window frames
- Hinge types
- Size and types of nails and tacks.

Lead

- Size and thickness of lead sheets
- Markings and graffiti; plumbers' marks
- Lead window cames (may contain maker's initials and date)

Windows

- Size and thickness of panes or quarries
- Lead cames (see above)
- Markings and graffiti
- Types of pulleys in sash windows (potentially datable)
- Types of frames.

Mortar

- Colour and inclusions in mortar
- Types of pointing
- Build-up a type series
- Technical mortar analysis if likely to have useful results in major works.

Plaster

- Colour and inclusions in plaster
- Mouldings and decorative elements of ceilings

- Means of attachment of cornices and decorative plaster
- Build-up a plaster type series for different phases at Knoke.

Decoration

- Evidence for wall-painting, stencilling on plaster surfaces
- Evidence for painting and attachment of painted cloths on timber
- Paint analysis of painted plaster and woodwork (including manual and visual assessment)
- Examination of wallpapers (especially for tax marks on reverse)
- Establishing decorative stratigraphy/chronology within rooms.

Below-ground investigations

- The nature of building foundations
- Undulations in 'natural' ground level
- Evidence of drains and services
- Evidence for paths
- Gardens and former land-use.

SPECIALIST SURVEY

Dendrochronology

- Use of dendro dating for structural timbers and joinery
- Retention (and marking) of offcut samples for potential future dating
- Retention and archiving of samples used by specialists.

Paint research

- Use of paint research to establish former decorative schemes
- Retention and archiving of samples used by specialists.

SAMPLE RETENTION

The retention of potentially useful samples can prove valuable. Larger samples of worked stone, renewed windows, and timber offcuts may provide material for future research, and the more instructive examples can be used for display and teaching.

Bricks, tiles and mortar may be selectively retained, within reasonable limits, for possible future comparison and study.

Samples collected for specialist examination (e.g. paint research or dendrochronology) should also be archived when returned by the specialist.

APPENDIX C – ELCAS RECORDING LEVELS

Survey Type	Record	Written	Drawings	Photographic
Appraisal⁴	Visual	Basic description Archive Assessment	Sketch and/or annotated ground plan	General (exterior)
Basic	Visual	Basic description Archive Assessment	Sketch and annotated ground plan	General (exterior)
Enhanced	Descriptive	Enhanced description Detailed Archive Research	Annotated/measured ground plan (phased), annotated significant elevations with main features and described	General (exterior and interior) and details of features
Detailed	Analytical	Fully enhanced description Detailed Archive Research	Annotated/measured ground/floor plans (phased), measured significant elevations with all features and fabric described	General (exterior and interior) and details of features
Comprehensive	Comprehensive	Comprehensive Comprehensive Archive Research	All measured and phased plans/ elevations/sections with all features and fabric/s described	Comprehensive coverage

Figure 2: A summary of the ELCAS Historic Building Recording survey types