NORTH NORFOLK
Local Development Framework

Design Guide

Supplementary Planning Document

December 2008

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Cover Photo: Cley Marshes Visitor Centre, courtesy of Richard Osbourne

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1 Introduction

1.0.1 Since it was first published in 1974, the North Norfolk Design Guide has helped shape built development across the District. In its original form, the Guide sought to reverse the architectural trends of the 1950s, 60s and 70s - a period that saw numerous developments that were unrelated to the architectural traditions of the District, and which contributed little to local identity. Since which time, the Guide has been regularly updated to reflect the new and emerging themes of the time. This latest version is no exception in that it responds to the most recent Government guidance, and to the ever increasing pressures associated with 21st century development such as reducing carbon emissions and designing out crime.

Purpose of the Design Guide

1.0.2 This Supplementary Planning Document has two main purposes:

- to provide further guidance and background information on North Norfolk Core Strategy policies, in particular EN4 Design (including crime prevention) and EN6 Sustainable Construction and Energy Efficiency; and,
- to offer advice and support to everyone involved or interested in the design or alteration of the built environment in North Norfolk with the objective of raising the quality of design in the District.

1.0.3 The Guide covers a wide range of subject areas, from new housing estates to hanging signs, and from barn conversions to large retail supermarkets. It also recognises the huge contribution heritage makes in defining our District and the need to conserve the best of this past.

1.0.4 At the same time, and in accordance with what Government now expects from good planning, the Guide promotes sustainable construction as a means of tackling climate change. Hence, minimising energy and resource consumption, maximising energy efficiency and reducing carbon emissions are all central themes of the Guide. It also seeks to ensure that new development incorporates renewable energy technologies where appropriate and that it is able to respond to the longer term impacts of climate change.

1.0.5 In addition, under S17 of The Crime and Disorder Act 1998, the Council has a statutory duty to do all that it reasonably can to prevent crime and disorder in its area. Promoting good design through the planning system is one of the acknowledged ways of achieving this. The Guide therefore also now offers advice in this important area.

1.0.6 The Council considers that the objectives of high quality design, sustainable construction and safe environments are complementary. As stated in Planning Policy Statement 1, "*Good design ensures attractive, usable, durable and adaptable places and is a key element in achieving sustainable development*". This guide therefore seeks to achieve the most appropriate design solution for each development. There will, however, always be occasions where the requirements of one goal may not easily be reconciled with another; for example:

- Continuous building lines to improve natural surveillance and prevent crime may not necessarily produce visually interesting layouts;
- Renewable energy technologies may not necessarily sit comfortably within conservation areas;
- Zero carbon construction will make it increasingly challenging to design locally distinctive buildings due to the materials and techniques required.

1.0.7 The Guide does not provide a definitive pattern book for new development. Rather it is intended

to stimulate thought on a range of issues which should be considered during the development process. High quality contemporary design which respects its setting and which addresses the challenge of climate change is the key imperative.

1.0.8 North Norfolk District Council therefore actively encourages architects and designers to respond to this challenging call for the evolution of design in the District. To this end, it welcomes positive dialogue prior to the submission of formal planning applications, so that we may, as a generation, leave a worthy contribution to the architectural legacy of North Norfolk whilst not compromising its enjoyment by future generations.

1.0.9 When submitting planning applications, applicants will be required to demonstrate how they have taken account of the Design Guide through the submission of the following supporting documents:

- A Design and Access Statement;
- A Sustainable Construction Checklist (for all new buildings, conversions and non-domestic extensions); and
- An Energy Consumption Statement (for developments of more than 10 dwellings or 1000m^2 floor space; see Chapter 11 'Sustainable Construction').

1.0.10 There is a wide source of design advice available at a national level, particularly through the work of CABE, the Government's adviser on architecture, urban design and public space. This Guide is intended to supplement this advice with particular reference to the unique characteristics of North Norfolk.

Policy Context

1.0.11 The North Norfolk Local Development Framework (LDF) Core Strategy provides the policy context for this Design Guide. The Core Strategy identifies where, when and how much new development will take place in North Norfolk up to 2021. It includes a suite of Development Control policies against which individual planning applications will be assessed. The aim of the Design Guide Supplementary Planning Document is to expand upon and strengthen the effectiveness of a number of these policies by providing detailed design advice. The two key policies covered by this guide are: EN4 Design and EN6 Sustainable Construction and Energy Efficiency, but other related policies include:

- SS 4: Environment;
- HO 1: Dwelling Mix and Type;
- HO 7: Making the Most Efficient Use of Land (Housing Density);
- HO 9: Reuse of Rural Buildings as Dwellings;
- EC 2: The Reuse of Buildings in the Countryside;
- EN 2: Protection and Enhancement of Landscape and Settlement Character;
- EN 5: Public Realm;
- EN 8: Protecting and Enhancing the Historic Environment; and
- EN10: Flood Risk.

1.0.12 The Design Guide Supplementary Planning Document (SPD) forms part of the North Norfolk LDF and is a material consideration for the Local Planning Authority (LPA) when determining planning applications. It is being prepared in accordance with the requirements for community involvement and sustainability appraisal. Supplementary Planning Documents are not subject

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to independent examination, but must be consistent with national, regional and LDF policy. They must also be reviewed on a regular basis and be subject to community consultation. The Consultation Statement and Sustainability Appraisal are available as separate documents.

Structure of the Design Guide

1.0.13 The Guide starts with a brief geological and architectural history of the District in order to promote a better understanding of the richness of the area in heritage terms. It then establishes a context for developing a new approach to locally distinctive contemporary design. Following this, each of the main development types are covered in separate chapters. At the start of each of these, key objectives are identified, with advice following in support of these objectives.

1.0.14 Detailed advice on sustainable construction is provided in Chapter 11 ‘Sustainable Construction’. This area of technological development is fast-changing, but the basic principles outlined here are unlikely to change in the short term. Reference to further information in Appendix B will be regularly updated by the Council.

Local Design Context

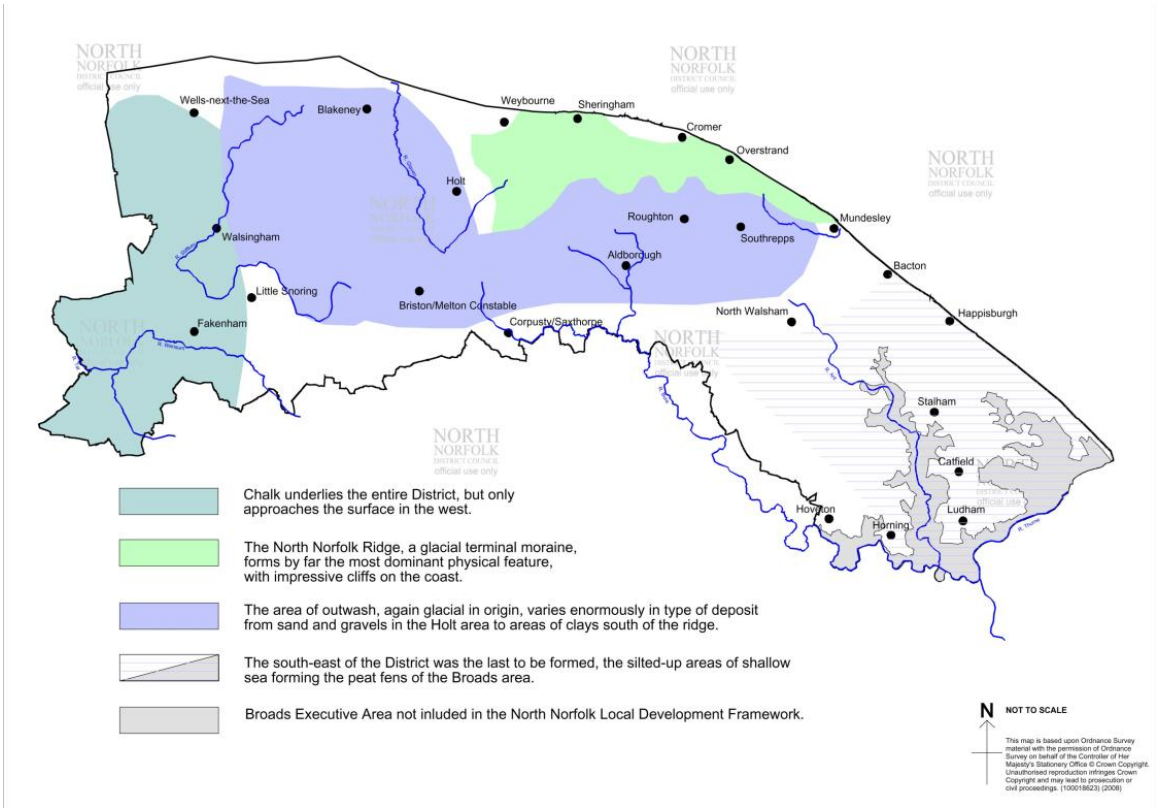
1.0.15 As stated in the supporting text to policy EN4, Conservation Area Appraisals, the Landscape Character Assessment and Town and Village Design Statements, “provide a more detailed local context for the consideration of development and should also be taken into account where they have been produced”. This statement confirms the status of such documents in supporting the Council's design objectives and should be taken into account when considering applications for development. However, as a result of the community participation requirements which must conform to the Statement of Community Involvement and other Government regulations controlling the adoption of LDF documents, Conservation Area Appraisals and Village Design Statements cannot be adopted by the District Council as Supplementary Planning Documents.

The Architectural Context 2

2 The Architectural Context

2.1 Geological Overview

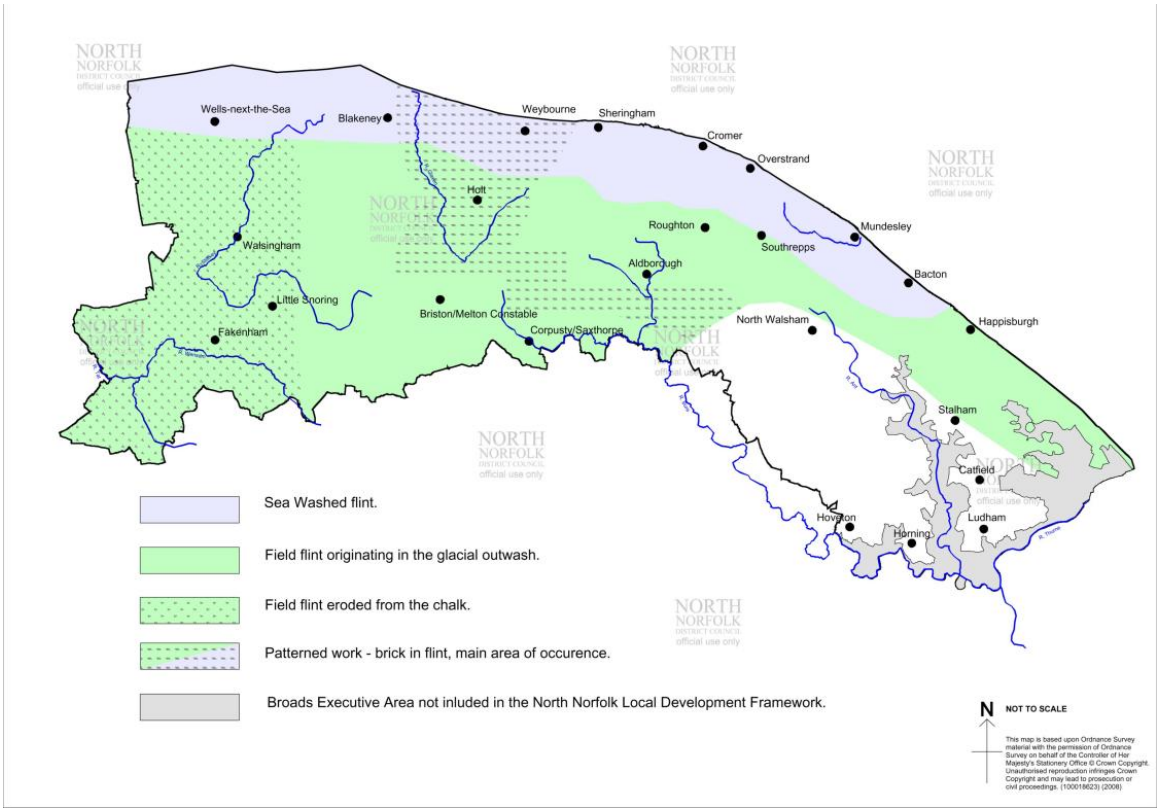
2.1.1 The settlements that we have inherited are the product of a thousand years of architectural development. To therefore appreciate their present character, one must have a working knowledge of their past. One of the most important influences on this development is the District's underlying geology as detailed in the map below.



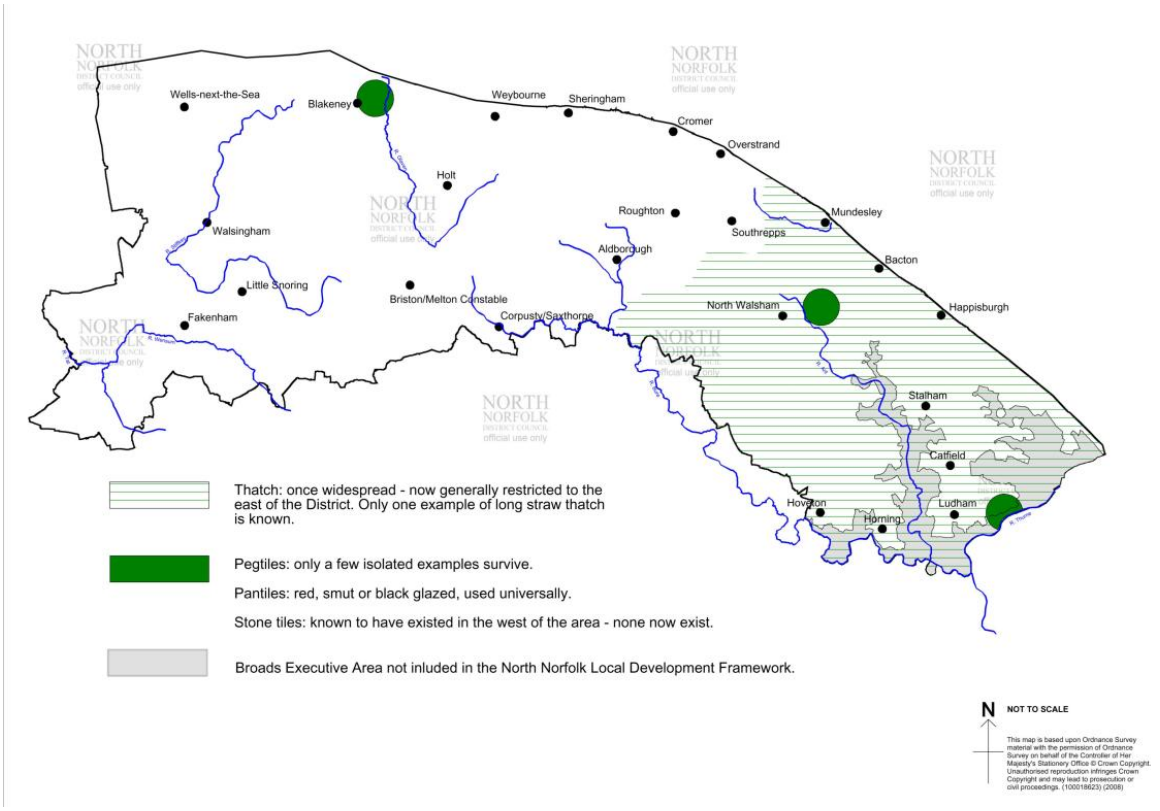
Map 1 Geophysical Map

2.1.2 With transport prohibitively difficult and expensive before the coming of the railways, it was local materials that largely dictated the construction and style of buildings. As the geology of North Norfolk is fairly complex, marked variations therefore exist in architectural character across the District (see following maps). By demonstrating this link between local geology, local materials and the development of architectural styles, the Design Guide establishes a clear and logical rationale in support of the advice it offers.

The Architectural Context 2

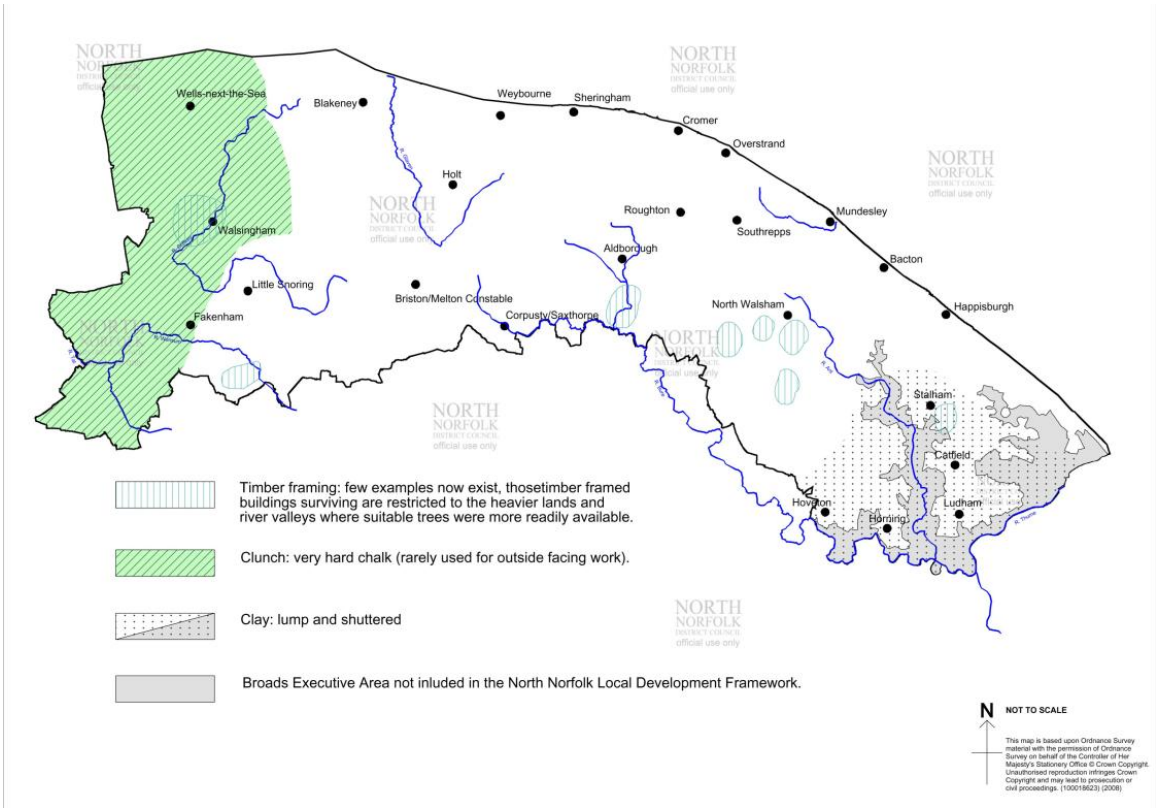


Map 2 Flint Distribution



Map 3 Roofing Materials

2 The Architectural Context



Map 4 Wall Construction

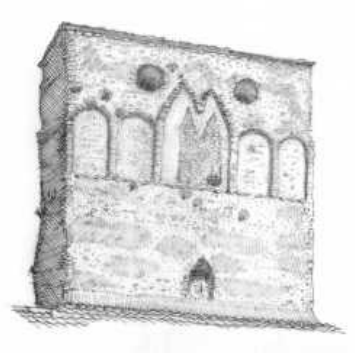
2.2 Architectural Overview

2.2.1 North Norfolk has an exceptionally rich and diverse built heritage stretching back over many centuries. The key elements in this chronology are as follows: -

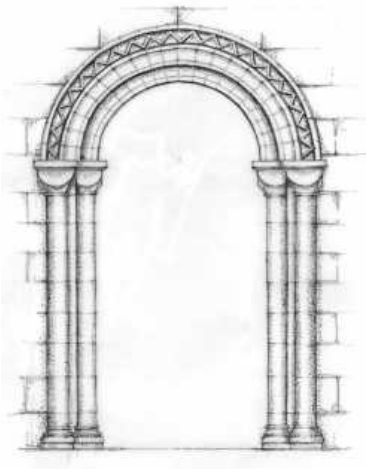
Anglo-Saxon and Norman (up to late 12th Century)

2.2.2 Only churches and monastic buildings survive from these early periods. Particularly striking are the round tower churches of the 11th and 12th Centuries – those at Roughton and Bessingham being particularly fine examples. A few early examples of square towers are also known, for example at Weybourne Priory.

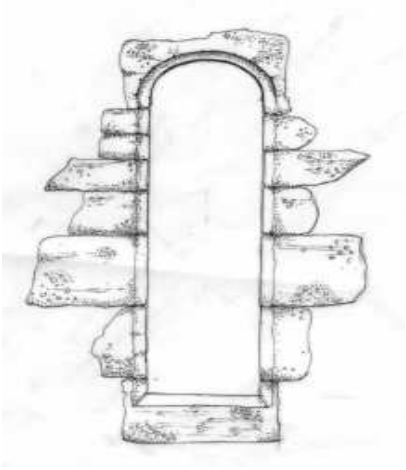
2.2.3 The coming of the Normans heralded a great phase of church rebuilding. Their workmanship was generally much finer than the Saxon, and is typified by carefully cut imported stonework and decorative mouldings. Binham Priory is the finest accessible building of this period, although the nave of Little Snoring Church contains details more typical of the small churches of the area.



Weybourne Priory Church - Arcading and round windows to belfry



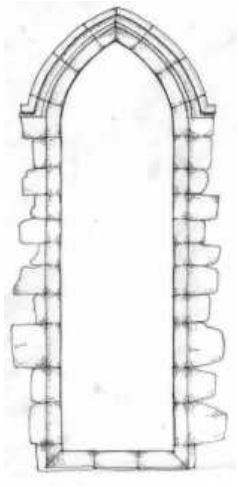
Binham Priory - founded in 1091



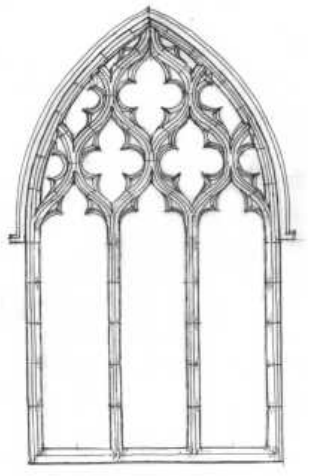
Little Snoring Church - Nave window

The Gothic Period (13th Century - middle of 16th Century)

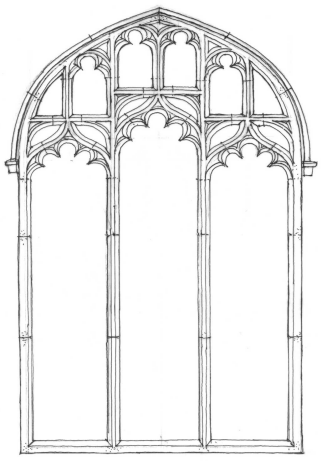
2.2.4 Again, this period is mainly represented by ecclesiastical buildings. Indeed, North Norfolk is justifiably famed for the number and quality of its medieval churches. Most parishes boast at least one monument to this era, with the various styles of Gothic architecture all well represented; most notably the 13th Century Blakeney Church (*Early English* style), the 14th Century Cley Church (*Decorated* style) and the 15th Century Worstead Church (*Perpendicular* Style).



Early English Style - Lancet window 13th century



Decorated Style - Traceried window 14th century



Perpendicular Style - Traceried window 15th century

2.2.5 There are also a number of great houses (e.g. Mannington Hall) and castles (e.g. Baconsthorpe) that date from this period. However, very few examples of lesser domestic buildings survive – the one exception being Little Walsingham where virtually an entire village of medieval timber-framed buildings has survived intact (albeit behind later brick facades in some cases).

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Tudor and Jacobean (16th Century – early 17th Century)

2.2.6 A considerable number of houses survive from this period which represents the golden age of domestic building in North Norfolk. Conversely, only one 17th Century church, St. Peter at Hoveton, is known to have been built.

Hoveton, Church of St Peter, 1624

2.2.7 At the upper end of the social scale, the great houses of Felbrigg Hall and East Barsham Manor, the Great Barn at Paston, and the manorial complex at Waxham provide testimony to the prosperity of the age. However, even more modest farmhouses had delusions of grandeur, with render being used to imitate stone, and timbers being carved and moulded in increasingly elaborate ways.

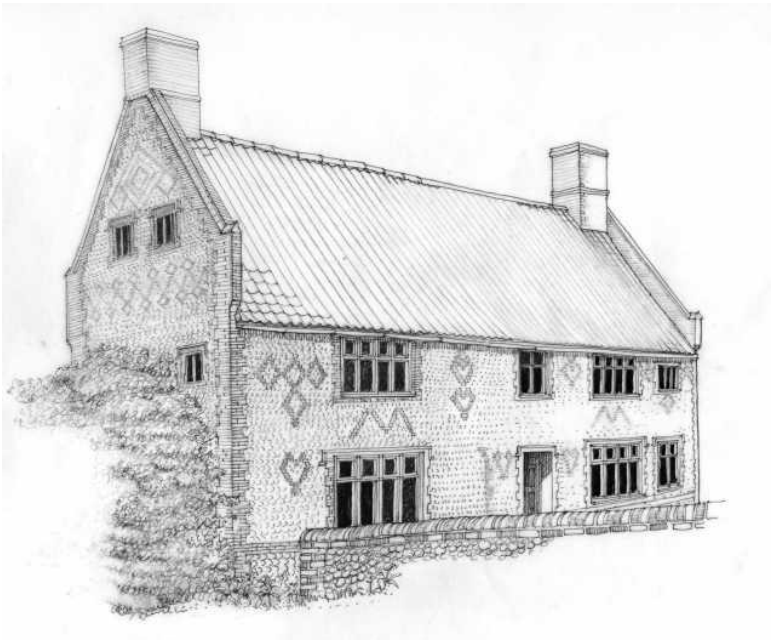
East Barsham Manor, 1520-1530

2.2.8 Houses were of single room depth; i.e. approximately 5m internal width. This width, combined with the necessarily high pitch of the usually thatched roofs, produced the superb gable proportions so often seen – proportions which lasted through the 17th Century and well into the 18th Century.

Westwick, Old Hall Farmhouse, 16th century

The 17th Century

2.2.9 As the 17th century developed, great changes were seen in architecture. Most notably, the wealthy began adopting the classical traditions championed by Inigo Jones. It was Raynham Hall (1622) which first introduced this style to North Norfolk. It then developed at Melton Constable Hall (1664), and at the west range at Felbrigg Hall (1674).



Edgefield, mid 17th century, patterned brickwork in flint

2.2.10 Meanwhile, it is the survival of many modest farms, houses and cottages from this time which has so firmly established the vernacular character of most of our villages. As the availability of timber became restricted, walls were almost universally raised in local flint and brick, often with elaborate patterns for effect. At the same time, imported pantiles began rapidly replacing thatch as the principal roofing material. Some of the more common vernacular details are illustrated in Appendix A: 'Traditional Details'.

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Georgian and Victorian (18th & 19th Centuries)

2.2.11 By the 18th and 19th Centuries, formal classical architecture had spread to all forms of building design. From the grandest example at Holkham Hall (1734), through to more humble working class cottages and terraces, proportion and symmetry became increasingly familiar themes.

2.2.12 Even by this time, however, Norfolk was still comparatively remote. Indeed, it was only with the coming of the railways that outside influences were truly felt. An array of "polite" architectural revival styles (e.g. Classical, Gothic, Queen Anne, etc) began to dominate our town centres. New imported materials were also available for the first time and these too had a profound effect on the appearance of our buildings, particularly in Cromer.

Typical 19th century rural cottages

The 20th Century

2.2.13 The 20th century saw the most rapid increase in building construction in North Norfolk. With an extensive palette of materials readily available, new estates and ribbon developments regularly sprang up on the outskirts of our towns and villages. Traditional buildings were also swept away within town centres to make way for modern redevelopments.

2.2.14 Whilst there are certainly examples of early-mid 20th century Arts & Crafts and neo-Georgian properties which make a positive contribution architecturally, all too often post-war developments ignored their context and were lacking in real design quality. As a result, they have tended to spoil the District's built environment.

The 21st Century

2.2.15 As we enter a new century, there is a growing recognition of the important role good design plays in the built environment. Hence, a number of award winning buildings are now being constructed across the District which successfully mix contemporary architecture, sustainable design and local distinctiveness; e.g. the Church of the Annunciation, Little Walsingham. It is this positive trend which the Guide must now build upon.

2.2.16 New buildings do not have to copy their older neighbours in detail. Some of the most interesting streets include a variety of building styles, materials and forms of construction, of many different periods, but which together form a harmonious group. All too often, however, people shy away from creating contemporary buildings for fear of them not being accepted locally. This results in pastiche buildings which simply revisit traditional architectural forms and motifs. Whilst there will always be a place for such unobtrusive buildings within North Norfolk, there is a risk that overuse will deprive the District of real innovation and visual interest. Their submission therefore needs to be a conscious design decision, and not simply a 'safe' means of gaining approval.

Church Street, Northrepps - new housing which echoes the vernacular cottages found locally.

2.2.17 Conversely, crisp contemporary architecture can be created which ignores local context. This can be equally damaging in that it fails to perpetuate local distinctiveness and can lead to the loss of local identity. The skill therefore comes in reconciling both issues if we as a generation are to leave a positive contribution to the architectural heritage described above.

2.3 Towards a New Vernacular

2.3.1 It is neither possible nor desirable to create an all-embracing checklist for producing contemporary, locally distinctive buildings. This is because each site is unique and requires its own tailored solution based upon a freedom of expression. However, there are a number of guiding principles which can be applied to assist in the process: -

- Successful architecture is less to do with a particular style and more to do with the successful co-ordination of proportions, materials, colour and detail. It also creates its own sense of place and character and involves imaginative responses to particular constraints.
- Successful schemes reinforce local development patterns and the form and character of the surrounding area. They also relate well to their context by making the most of existing landscape features and topography.
- Successful developments respond to the scale and massing of their neighbours and to the overall rhythm of the street scene. They should be harmonious rather than weak or overpowering.
- Successful buildings have detailing and forms which show signs of careful thought and originality in the way they have been put together. They should also involve innovative

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technologies and embrace the principles of sustainable construction (see Chapter 11 'Sustainable Construction').

- Successful elevations respond to the materials seen on surrounding buildings. Note that this does not imply slavishly copying existing materials, rather it can involve creating interesting contrasts and textures between complementary materials.

Salthouse Yard, Wells-next-the-Sea - a distinctive approach which is compatible with the height and scale of the surrounding buildings.

2.3.3 Whilst reflecting upon these principles, it is worth remembering that local distinctiveness is not about sameness and uniformity. Rather it involves richness and variety in making a place special. Hence, it is perfectly possible for things to be compatible and yet very different. Recognising this should enable us collectively to develop and evolve a contemporary interpretation of local vernacular styles for the 21st Century.

New Residential Development 3

3 New Residential Development

KEY DESIGN GUIDE OBJECTIVES:

EN 4:

- To promote high quality modern architecture which is both genuinely innovative and locally distinctive, and which makes a positive contribution to the District.
- To integrate new residential developments successfully into established settlements without harming their character or setting.
- To ensure that new developments make the most efficient use of land while respecting the form and character of the area.
- To ensure that new residential developments provide safe environments for their residents and assist in crime prevention and community safety.
- To ensure that all new dwellings achieve a satisfactory standard of amenity for their residents without compromising the amenities of neighbouring properties.
- To ensure that all new extensions have regard to the appearance and character of their host building.

EN 6:

- To ensure that all new residential developments minimise energy and resource consumption and are designed to withstand the long term impacts of climate change.
- To ensure all new dwellings achieve at least a 2* Code for Sustainable Homes rating, rising to a 3* by 2010 and a 4* by 2013.
- To ensure that developments of more than 10 dwellings incorporate 10% of their predicted energy requirements from onsite renewable energy technologies.

3.1 Introduction

3.1.1 Over the lifespan of the Local Development Framework (2001 – 2021), over 8,000 new homes will be built in North Norfolk to satisfy housing need. This, allied to the constant demand for domestic extensions, will ensure that residential building continues to be the greatest development pressure in our District. These new dwellings, whether provided singularly or in a group, will do much to shape the future of our built environment. It is therefore vital that concerted effort goes into their conception and design.

3.1.2 The above key objectives illustrate the variety of challenges facing today's designer. Combining these interests successfully is certainly no easy task and will often require appropriately qualified professional involvement. The guidance is therefore offered in the spirit of creating visually stimulating developments which are both innovative and respectful of their setting, and which are energy efficient and safely accessible to all. It has been laid out to reflect the main stages in devising a scheme – site analysis, layout, building design and curtilage treatment. Extensions are then covered separately at the end of the chapter.

3.2 Site Analysis

3.2.1 Having first determined that a site lies within an appropriate location for development, a thorough and accurate site analysis is the first essential step in determining what form the development should take. This analysis should always begin by checking with the LPA whether there are any constraints affecting the site; e.g. are there any heritage, landscape or nature designations? From this, a more detailed physical/spatial survey can then be prepared covering the following key questions: -

3.2.2 Pertaining to the site surroundings:

- What is the form and character of the immediate area? *This can have a huge bearing on density, layout and dwelling numbers if a scheme is to fit in with its surrounds.*
- Are there any adjoining buildings or structures which impact upon the site? *These can cause overlooking and/or overshadowing, or can establish a particular architectural style locally.*
- Are there any important views into, through or out of the site which need to be protected, or are their any unsightly buildings which could be screened?
- How will the development take its place within the landscape and how will it relate to the wider countryside?
- What are the prevailing wind directions and average wind speeds across the site? *This will not only be important in providing shelter, but will also be one of the factors which will determine whether the site is suitable for supporting a wind turbine.* [1]
- Are there any public transport options available locally to reduce dependency on the car?

3.2.3 Pertaining to the site itself:

- How is the site orientated? *The path of sun is becoming an increasingly important determinant in layout design* [2].
- Where is the access located and is it adequate for the proposed development? *Highway safety may dictate that the access needs to be upgraded or moved.*
- Are there any routes across the site such as footpaths or rights of way?
- Where are the services located on the site (if any)?
- What are the ground levels and contours across the site? *These can determine the position of buildings and the overall accessibility of the site.*
- What is the predominant soil type and how is the site drained? *This could influence the nature and location of Sustainable Urban Drainage features* [3]
- Are there any important natural features on the site which can be incorporated in the layout? *E.g. hedges, trees, streams, ponds or banks, etc.*
- Are there any existing buildings, walls or fences on the site which can be reused in the development? Alternatively, can the materials from any of these structures be salvaged and reused in the construction process? [4]

3.3 Site Layout

3.3.1 Having completed a full site analysis, thoughts can then turn to creating an acceptable layout. Whether the scheme involves a large housing estate on one of the new LDF land allocations, or simply a one-off dwelling, a number of factors should shape and influence the overall arrangement of buildings on site. In the case of the former, it is likely that these factors will be built into more detailed development briefs.

Form & Character

3.3.2 The site analysis will have revealed the defining characteristics of the surrounding area. Whether it consists of a close-knit, informal mix of vernacular cottages, or a more regimented arrangement of classically proportioned terraces, the established form and character should provide a strong

1 *See Chapter 11: 11.5 'Renewable and Low Carbon Technologies'*
2 *see Chapter 11: 11.1 'Minimising Energy Consumption'*
3 *See Chapter 11: 11.3 'Adaptation to Future Climate Change'*
4 *See Chapter 11:11.2 'Minimising Resource Consumption'*

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steer to any new development. For example, a cul-de-sac development of semi-detached bungalows is unlikely to sit comfortably within an area comprised predominantly of three-storey town houses set within their own large grounds.

Density

3.3.3 In order to avoid the inefficient use of land, the Local Development Framework looks for developments to achieve minimum densities (see Core Strategy Policy HO7). However, this must be done in a manner which does not detract from the character of the area. Questions of density therefore have to be balanced against the immediate context and any local constraints; e.g. the presence of mature trees. Otherwise, the parallel objectives of preserving local identity and integrating new development into existing settlements could be compromised.

Siting, Grouping & Enclosure

3.3.4 The way buildings are grouped and relate to each other is one of the most powerful influences on how we react to the built environment. Whether they are arranged formally or informally, in a courtyard or linearly either side of a road, the manner in which they are laid out creates identifiable spaces each with their own character. It is the way these spaces are sequenced which can provide the surprise, uncertainty and variety that create a street scene full of visual interest.

3.3.5 There are numerous factors which influence site layout. Buildings should be grouped to create spaces which are well defined and have a clear purpose and function. Layouts which are not logical and coherent create uncertainties over the ownership and management of space. There should therefore be clear visual links between buildings to create a disciplined variety of spaces which relate to one another in a readily identifiable way.

3.3.6 Key to the success of any layout will be the way it responds to its surroundings. Too many post-war layouts involved regimented geometric arrangements of repetitive house types. These tended to create very sterile layouts which bore no relation to their locality. They also often featured dwellings with narrow frontages and ungainly deep plan forms which were out of proportion with their surroundings. Such developments illustrate the need for buildings to be sited and grouped in a way that reinforces local identity; e.g. if an area consists of small terraces positioned hard up to the edge of a road, this grouping and strong enclosure should be reflected in the proposed development.

3.3.7 In a rural area like North Norfolk, informal groups of houses tend to be more compatible than any geometrical configuration. By varying siting, orientation and ridge heights, buildings have the flexibility to enhance the effect of an unfolding street scene. Visual enclosure also helps in achieving this by temporarily obscuring views of the next section of road or housing group. The resultant anticipation gives added depth to developments. Enclosure also gives a feeling of shelter and helps to create places in which people are comfortable. Conversely, spaces which lack enclosure can feel unwelcoming and daunting, whilst extremely confined spaces can feel oppressive.

Neil Avenue, Holt - an informal mews court development

Orientation

3.3.8 Where possible, buildings should be orientated to make maximum use of passive solar gain in order to reduce the need for space heating. It should be noted, however, that the form and character of the area may dictate a particular arrangement of buildings which is at odds with this objective. In such cases, it will be for the designer to creatively combine both constraints. [5]

Amenity Criteria

3.3.9 Core Strategy Policy EN4: Design states that new dwellings should provide acceptable residential amenity and this relates both to external amenity and internal living space dimensions. The latter can be a particular issue in relation to flat conversions. Dwellings should include, for example, refuse disposal and recycling storage facilities, drying areas and access to outdoor amenity space. In terms of internal space, there should be no less than 20 square metres of habitable floor area (i.e. the internal measurement of all living and kitchen areas, excluding toilets, bathrooms and circulation areas).

3.3.10 Policy EN4: Design also advises that proposals should not have a significantly detrimental effect on the residential amenity of nearby occupiers. Residents have the right to adequate privacy levels and to be kept free from excessive noise and unwanted social contact. The Council will therefore look for layouts to take account of the following criteria in order to achieve satisfactory standards of amenity: -

- The position of dwellings, and the arrangement of their rooms and windows, should not create significant overlooking of other dwelling windows or private garden areas, nor should they lead to any overbearing impacts upon existing dwellings. Hence, designers should have regard to the following recommended distances in the case of conventional single and two-storey dwellings (assuming a level site situation) to ensure a degree of privacy between adjacent properties:

Primary to	Primary	21.0m
	Secondary	18.0m
	Tertiary	12.0m
	Blank	11.0m
Secondary to	Secondary	15.0m
	Tertiary	9.0m
	Blank	8.5m
Tertiary to	Tertiary	3.0m
	Blank	2.5m

  - *Primary: having main windows to living rooms.*
  - *Secondary: having windows to bedrooms, kitchens, dining rooms and secondary windows to living rooms.*
  - *Tertiary: having windows to bathrooms, utility rooms, staircases and landings.*
  - *Blank: elevations with no windows.*

5 *Further detailed advice on this area is provided in Chapter 11: 11.1 'Minimising Energy Consumption'* .

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Where there are differences in site levels, or in the case of larger buildings such as blocks of flats, these distances should be increased by 3m for each additional storey (or equivalent).

- Private garden areas should be of adequate size and shape to serve their intended purpose. They therefore need to reflect the likely number of occupants within each dwelling and have an aspect which is substantially free from shading from trees and buildings during the year. It is therefore recommended that the area of a plot given over to private amenity space should normally be no less than the footprint of the dwelling on that site.

3.3.11 Where it can be clearly demonstrated that strict observance of these criteria would be harmful to design quality, or to the form and character of an area, reductions in these guide distances may be permissible. Without such flexibility, layouts may become uniform and lacking in visual interest and local distinctiveness. They may also fail to make the most efficient use of land and therefore not achieve the densities now sought under Core Strategy Policy HO7.

Design Standards

3.3.12 Core Strategy policy HO1: Dwelling Mix and Type requires that at least 20% of dwellings on schemes over five should be suitable or easily adaptable for occupation by the elderly, infirm or disabled. This relates to the Lifetime Homes Standard.

3.3.13 Lifetime Homes is a standard set out to help ensure dwellings are designed is such a way as to make life for the inhabitants as easy as possible, for as long as possible. They provide accessible and adaptable accommodation for everyone, from young families to older people as well as individuals with a temporary or permanent physical impairment. All public sector funded housing in England will be built to the Lifetime Homes standard from 2011 with a target of 2013 for all private sector dwellings. The 16 standards cover issues such as car parking, approach and entrances, communal stairs, doors and hallways, wheelchair accessibility, living rooms at entrance level, bathroom layout and WC, lift capability, etc. It is important that buildings are designed for use by the elderly and infirm, given the existing and projected increase in the numbers of older people in North Norfolk. (See http://www.lifetimehomes.org.uk/)

3.3.14 This chapter is all about securing well-designed housing and neighbourhoods at a local level. Good advice also exists nationally through the Commission for Architecture and the Built Environment's "Building For Life" guide. This establishes a benchmark against which the quality of new schemes can be assessed. Developers are therefore encouraged to become acquainted with the 20 Building for Life criteria contained within CABE's publication, particularly as they are increasingly being used as a consistent measure of design excellence. (See http://www.cabe.org.uk)

3.3.15 The criteria have been adopted by several public agencies to assess proposed schemes at planning stage. They are also the measure by which local authorities report to government on the design quality of the housing they deliver.

Roads, Footpaths & Cyclepaths

3.3.16 Housing layouts have tended to be dominated by the car in recent times. This has created unattractive layouts based upon standard road types and led to the marginalisation of the pedestrian. It is therefore unsurprising that many of these schemes do not relate well to existing development patterns or to local character.

3.3.17 This Guide therefore advocates that the layout of buildings and spaces should be determined in accordance with good design practice, with roads and service areas pieced in afterwards so that the building layout takes priority over the roads and car parking and the highways do

not dominate. Such an approach should not compromise highway safety as urban design and traffic safety objectives are often compatible; e.g. arranging buildings to create a pinch point not only helps to create distinct areas with a sense of place, but it also restricts forward vision and limits traffic speeds.

3.3.18 The position of a site access is often pre-determined by highway visibility requirements. From there into the site, however, circulation patterns for vehicular and pedestrian movement can be organised more inventively. Hence, straight roads with formal hammerheads will be discouraged in favour of serpentine roads within formally shaped turning areas. Generally, it is free-form road patterns which follow the contours or natural features of a site which best integrate developments into their surroundings.

3.3.19 Rather than ubiquitous tarmac, greater variety in surfacing and footpath definition will also be sought to create more attractive floorscapes. This can blur the separation between the car and pedestrian, often reducing traffic speeds in the process. Keeping speeds down should in fact be one of the main aims of any residential layout to create environments which are safe and accessible for all.

3.3.20 Layouts also need to maximise the opportunities for walking, cycling and using public transport. Hence, footpaths and cycle paths should be designed into a development from the outset. By linking these through to key services such as shops and schools, significant energy savings can be made.

3.3.21 The needs of people with disabilities should also always be borne in mind in layout design. Hence, proper consideration should be given to the access into and through a development, specifically with any changes of level and with the design and detailing of hard landscaping. The Building Regulations deal with these matters in far more detail.

3.3.22 Layout can also have a huge influence on resultant crime levels. Hence, the following measures can be incorporated into layouts to aid crime prevention:-

- The entrance to a development can be clearly marked with a change of surface and/or brick piers or gateposts. This gives the impression that the area beyond the symbolic barrier is private.
- The number of access roads can be minimised to control vehicle movements and reduce unnecessary through traffic.
- The site can be kept as open as possible to create good natural surveillance, particularly of communal parking areas, footpaths and play areas.
- Footpaths and alleyways should be designed to specifically serve a purpose rather than allow for casual public intrusion. They should be wide, clear of hiding places, well lit and follow a direct route. Otherwise, nuisance and vandalism can result from unwanted congregation.
- In-curtilage parking is recommended where possible to take advantage of personal surveillance and defensible space.

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Hall Staithe, Fakenham - a serpentine access road with paved surfacing

Ramms Court, Wells-next-the-Sea - a shared access surfaced in setts.

3.4 Building Design

3.4.1 With an indicative layout taking shape, attention can turn to the appearance of the individual units. Here, the development process will differ depending upon the size and nature of the scheme. Hence, volume house builders may rely on a range of house types which provide cost effective living spaces to meet their needs. A self builder, meanwhile, will generally opt for a bespoke design to reflect their own particular tastes or requirements. In either case, the same design expectations must apply if we as a generation are to leave a legacy of buildings which are innovative, locally distinctive and energy efficient.

3.4.2 The standard of design in new developments has a huge impact on the overall quality of our environment. Not only does good design enhance the appearance of places and our enjoyment of them, but it also makes good practical and financial sense. Good buildings function well, are cost effective to maintain and provide flexibility that can be easily adapted to meet changing circumstances. They also reinforce civic pride and help foster a sense of local identity.

3.4.3 There are a number of key components in securing good design. These are outlined below. Rather than focusing unduly on architectural style, the text concentrates more on the main qualities that buildings need to possess. Although vernacular forms are mentioned (and later illustrated in Appendix A: ‘Traditional Details’), this is purely to offer an insight into the ingredients

that have created such distinctive buildings across parts of the District. It is not to provide a checklist against which to design new buildings. Schemes which attempt this will fail to provide the necessary innovation, energy efficiency or interest now sought. They are also less likely to respect the particular character of the area; e.g. a flint cottage may be wholly inappropriate within some of our town centres where 'polite' styles of architecture dominate.

Scale

3.4.4 What matters most when considering the scale of new development is not so much the absolute size of buildings, but their size relative to their surroundings. Particularly with infill sites in sensitive areas, extreme care needs to be taken to ensure that ridge heights and overall proportions are compatible with adjoining buildings. Otherwise, attention taken over detailing and materials will be negated by a design which is out of scale.

3.4.5 Eaves height and gable widths are big determinants of building scale. In rural villages especially, both factors strongly influence how well new developments respect their setting. Care is therefore needed to ensure that today's room size expectations do not create buildings which are out of scale with neighbouring properties; i.e. compatible eaves levels can often only be achieved by having coved ceilings at first floor level. Gable widths, meanwhile, rarely exceed 7m in rural North Norfolk. Similar dimensions should therefore generally be observed to keep ridge heights down.

3.4.6 Where accommodation requirements cannot be contained within this confined envelope, buildings may have to be divided into visually distinct elements in order to reduce their overall scale. Wings and bays can be used to add floorspace without significantly affecting the overall bulk of a building. For this to be successful, however, there must be clear visual breaks between the main body of the building and the subsidiary elements. This is best done through changes in roofline and pitch and by stepping forward or backward of the principal elevations.

Bakers Yard, Wells-next-the-Sea - a new gateway development which frames one of the main approaches into the town.

3.4.7 New buildings can sometimes afford to be higher than their neighbours. Particularly on important corners or gateway sites, taller ridge heights can be used to provide a strong focal point and enclosure within a street scene. Lower wings can then be added at either end to step down to adjacent smaller buildings.

Form

3.4.8 The overall shape and massing of a building does much to influence how it is perceived by the public. Indeed, it is the external envelope which determines whether a building is judged as graceful and elegant, or bulky and ungainly. The main contributors to building form are as follows: -

- **Footprint** - i.e. the two dimensional outline of a building on the ground. A simple square footprint will tend to create a 'boxy' form, whereas a long rectangular footprint will produce a more linear form.

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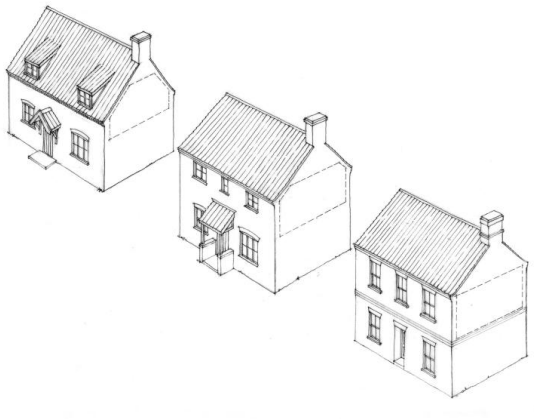
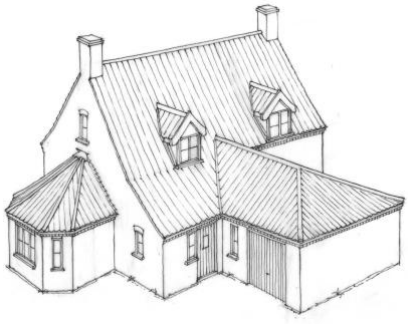
- **Gable Widths** - narrow gables normally create tall, vertically proportioned flank elevations. Deeper gables, meanwhile, tend to produce 'heavier' elevations visually.
- **Roof Pitch** - in tandem with narrow gables, steep roof pitches normally produce elegantly proportioned buildings. They can, however, also cast longer shadows affecting the ability of other dwellings to benefit from passive solar gain. Shallow or flat roof pitches are better in this respect but can create squat and inelegant proportions. Hence, balances may need to be struck depending on local circumstances.
- **Elevations** - long elevations without relief or additions create monolithic built forms. Conversely, elevations which are punctuated or broken into a number of elements (e.g. porches, lean-tos, etc) produce more additive buildings. Be mindful, however, that the greater the exposed surface area, the higher a building's energy demands will be. It can therefore be advantageous to join dwellings together in semis, terraces or flats to reduce heat loss through exposed walls and roofs.

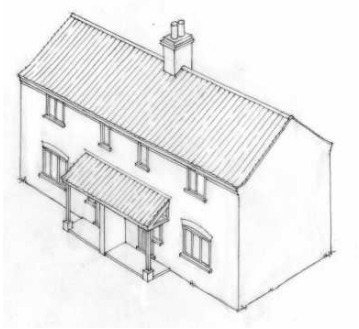
3.4.9 Ultimately, it should be left to local context (in the form of the surrounding landscape, adjacent buildings, local materials, etc) to determine what form a building takes.



An illustration of how designs based on the same floor plan can be adapted in scale and style to suit a rural or urban setting



Imaginative uses of vernacular form and detailing in the design of cottage-style dwellings. (above and below)



A simple vernacular style that can be used for detached, semi-detached or terraced properties

Detailing

3.4.10 With the external envelope of a building established, the elevations can be dressed in numerous ways. Irrespective of the design approach chosen, however, the aim should be to create locally distinctive buildings which relate well to their site and are clearly rooted in North Norfolk. This

does not automatically mean pastiche design, as the detailing described in the following paragraphs can be interpreted afresh in numerous ways - it need not be a slavish vernacular copy. It should, however, always reflect the variations found across the District.

Roofs

3.4.11 Roof slopes can either finish flush or overhang eaves and verges. In the latter case, soffits should follow the underside of rafter feet to avoid the heavy appearance which can result from boxing them in horizontally. Elsewhere, verges can be capped with parapets. Not only do these frame roofslopes, but they also help define elevations and improve gable proportions.

3.4.12 For buildings of more traditional appearance, the use of bargeboards and fascia boards is generally discouraged at eaves and verge level. There is a wide range of designs for dentil courses and corbelled brickwork which can be used to create maintenance free solutions. Where they are a definite requirement, they are best painted in dark colours to make them more recessive.

Cley Marshes Visitor Centre - a curved sedum roof allows this contemporary building to respond to its sloping site.

3.4.13 On more contemporary designs, curved or profiled roofs have begun to appear across the District. Whilst such solutions can successfully blend buildings into sloping sites and rural landscapes, their use may not be so appropriate in sensitive urban locations with an established form and character.

Chimneys

3.4.14 Even though they are only occasionally needed today to fulfil their proper function, chimneys are nonetheless useful in topping off buildings. By breaking through ridge lines they help 'lift' an elevation and create visually interesting roofscapes. By comparison, buildings without chimneys can appear unfinished. Their use, albeit in adapted new forms (e.g. as mechanical ventilation terminals), will therefore continue to be encouraged.

Dormer Windows

3.4.15 Dormers can enliven otherwise bland roofslopes. However, care needs to be taken with their design, proportions and position. The mono-pitch or wedge dormer and the gabled dormer are the two most common types in North Norfolk. However, on more formal buildings, there is also a range of vaulted or flat roof attic dormers. These usually have heavy mouldings under lead roofs and should not be confused with the larger box dormers seen on post-war chalet bungalows.

3.4.16 In a traditional context, dormers should be used with restraint and sit comfortably within roofslopes. They should generally be close to the eaves but stop well short of the main ridge

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or verges. They should also be restricted in width and pay due reference to the windows below. Large dormers which sit too high in a roof will create cluttered, top heavy, ill-proportioned elevations. Dormers which cut through eaves can lead to an unsightly proliferation of downpipes.

3.4.17 When designing in a more contemporary idiom, a greater variety of approaches and forms should be possible. Always be mindful, however, that the more complicated the roof construction, the greater the exposed surface area and potential for heat loss.

Rooflights

3.4.18 As with dormer windows, rooflights should generally be used with restraint. Whilst often at home in contemporary buildings, more traditional designs can be blighted by cluttered roofslopes of over-sized rooflights. In such buildings, rooflights should be kept as small as possible and fitted flush in the tiles to make them as recessive as possible. Their insertion into historic buildings should generally be reserved only for elevations which are not visible from public vantage points.

Bay Windows

3.4.19 Bays are a regular feature of buildings in some parts of North Norfolk, especially the coastal settlements. Their use can therefore be encouraged in these locations as a means of enlivening otherwise flat elevations. They come in a variety of splayed and square forms and tend to be topped with lead flat roofs hidden behind parapets or tiled hipped roofs. They can also prove useful in improving natural surveillance across a site, particularly on otherwise blank gables.

Windows

3.4.20 Windows are one of the most important components in any house design. All too often, however, their consideration is left to the end of the design process after the internal layout has been created. Experience has shown that this can undermine the design as a whole. Therefore, issues of style, size, proportion and position need to be balanced alongside the provision of daylight and ventilation.

3.4.21 The window style chosen will be determined by the overall design approach. Hence, formal buildings may well suit a sash window whilst casement windows will probably be more appropriate for more humble cottages. Irrespective of the style chosen, however, windows should be of a size and proportion which sits comfortably within the elevation as a whole. If too wide or deep, or too narrow or shallow, they will upset the balance of an elevation. Also harmful can be horizontally proportioned night vents, an unbalanced configuration of openings, overly wide glazing bars and plastic glazing strips within sealed units. Within historic buildings, storm-proof opening casements and trickle vents should also generally be avoided in the interests of creating an authentic end result. [6]

3.4.22 Where infill development is proposed, the position of windows will be crucial in determining whether the new building fits in with its surrounds. Hence, window sill and arch levels need careful consideration to ensure the scheme is compatible with the rhythm of the street scene. More generally, the position of windows within their reveals is also important. Windows that finish flush with the front face of a building can lack depth, whilst windows that are set back within their reveals tend to create shadow lines and added visual interest.

3.4.23 The use of timber remains the preferred option for window frames on visual and sustainability grounds. However, other materials may occasionally be considered where they successfully

6 *More advice on window design can be found in the Conservation & Design-produced leaflet, 'Replacement Windows'.*

simulate local window sections, divisions and opening lights, or where a contemporary design approach justifies it. In choosing such materials, however, the environmental impacts associated with their production and disposal should always be borne in mind.

3.4.24 With dwellings of traditional appearance, windows should normally receive a paint finish in order to create a sufficient contrast with the masonry. Dark stained finishes create windows which are less well defined and should normally be reserved for barn conversions where a more recessive treatment is required.

3.4.25 In terms of thermal efficiency, windows with high energy ratings should normally be chosen to ensure that all new developments comply under the Building Regulations. An exception might be where an authentic appearance is required when extending an important listed building. [7]

Doors

3.4.26 As with windows, the style of a door should follow from the rest of the building. Hence, formal buildings may well suit a properly moulded panelled door whilst ledge and braced doors will be more appropriate for cottages. Off-the-peg doors which inaccurately simulate traditional detailing are unlikely to be acceptable.

Porches & Canopies

3.4.27 On most new dwellings, porches are best kept relatively simple. Either in open or enclosed forms, they generally warrant only a modest lean-to or pitched roof to help define the main entrance. On buildings that are classically detailed, properly moulded, lead flat roof canopies will generally be most appropriate provided they are designed as a continuation of the doorcase below. When enclosed, porches can act as draught lobbies to help reduce heat loss from the dwelling.

Rainwater Goods & Soil Vent Pipes

3.4.28 Even the most effective design can be undermined by inappropriate or unduly prominent pipework. For example, plastic guttering, downpipes and soil vent pipes are susceptible to sunlight and temperature changes and can soon discolour, fade and become brittle requiring earlier repair or replacement than many other more suitable alternatives. Plastic guttering is also less capable of resisting the load forces of a ladder when carrying out routine maintenance.

3.4.29 It is therefore recommended that, in most cases, painted metal drainage and soil vent products should be used instead. These should be located as unobtrusively as possible and painted in dark, recessive colours to reduce visual impact. Depending on local context, they should also be sited carefully or even fitted flush with walls to reduce the risk of high-level egress or escape.

Gas/Electricity Meter Boxes

3.4.30 The appearance of new buildings can be spoilt by having white plastic meter boxes fixed to their front elevations. Where practical, these should be sited on less prominent elevations or even underground. Alternatively, they can be recessed behind boarded doors as an integral part of a façade, or painted an appropriate colour to lessen their impact. They should, however, always be fitted in publicly accessible places to avoid unnecessary trespass.

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7 *For more information in this area, please refer to Building Control-produced leaflet "Replacement Windows".Web address: http://www.northnorfolk.org/planning/5449_5769.asp*

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Zero and Low Carbon Energy Sources

3.4.31 Incorporating zero/low carbon energy sources into developments should be explored at the earliest possible opportunity. Further advice on the potential technologies available can be found in Chapter 11.

3.4.32 The use of some of these technologies requires particular care within sensitive heritage or landscape designations. For example, within conservation areas or the Area of Outstanding Natural Beauty, only those proposals that would not adversely affect the designation, or which offer environmental benefits that outweigh any harm, will be likely to gain planning permission. In practice, this will normally mean choosing locations where the inherently modern-looking additions would not detract from the traditional or natural scene. Early talks with the Local Planning Authority are therefore recommended to try and identify whether mutually acceptable solutions exist.

3.5 Curtilage Treatment

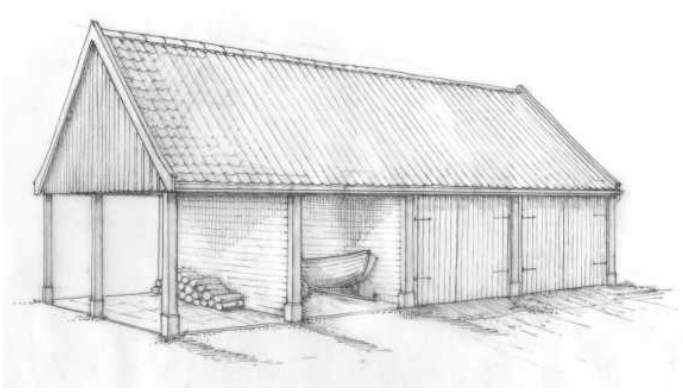
Garages and Outbuildings

3.5.1 The design and siting of domestic garages tends to be given far less importance than it deserves. With their attendant driveways and turning areas, garages can often dictate the general appearance and layout of an entire site.

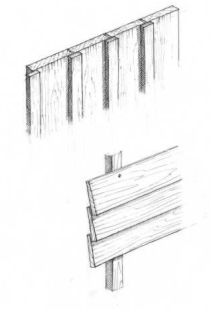
3.5.2 Whether single or double, garages are usually best attached to a dwelling rather than integrated into it. Where free standing, they should still bear some relation to the main building in terms of style and materials, preferably linked to it by means of a wall. If skillfully positioned, they can help create interesting configurations of buildings on a site.

3.5.3 In order to ensure that garage doors are properly proportioned and not obtrusive, they should never be more than 2.4m in width. Ideally, they should also be positioned to face away from main views and be constructed in timber. Dark painted metal doors can also be acceptable where they have a vertical emphasis.

3.5.4 Garages can be grouped together or attached to workshops and stores to create outbuildings with more satisfactory proportions. Particularly in rural areas, this can be an effective way of overcoming the suburban appearance inherent in individual garages. The use of dark stained boarding can also help in this respect.



Double garage, boat shed and wood store combined to give traditional cart shed proportions.



Vertical boarding with cover splines or feather edge boarding are usually most appropriate

3.5.5 To help minimise energy consumption across a site, secure, weather proof cycle storage should be provided in accordance with the LDF Core Strategy parking standards (see also Sustainable Construction). Sufficient covered external space should also be provided to house containers provided under the Council refuse and recycling scheme. Such structures need to be large enough for the containers without stacking, and conveniently located for collection. They also need to be designed as an integral part of a scheme and built in compatible materials (see also Materials).

Appleyard, Holt - a bespoke solution to refuse storage.

Means of Enclosure

3.5.6 Walls, fences and gates not only demarcate boundaries and provide privacy and defensible space, but they also help to knit a development together and set it properly within its context.

Walls

3.5.7 Site location should determine which materials are chosen to construct a wall. In areas with strong flint traditions (see Chapter 2: 2.1 'Geological Overview'), flint will be the natural choice backed up with red brick quoins. It is vital that flints of the right size, colour and shape are used to reinforce local identity, and that these are laid to reflect local patterns; e.g. coursed. They should also be placed into a contrasting mortar for maximum effect - grey cement mortars with grey cobbles produce lifeless end results.

3.5.8 Elsewhere, particularly in towns, plain brick walls can also be acceptable subject to the choice of brick and the design detailing. Tall walls without relief will appear oppressive and featureless and will need to be enlivened with features like plinths, expressed piers, inset panels, etc. Care is needed, however, to ensure that these features can not be used as footholds by intruders.

3.5.9 On all walls, the coping is a crucial detail. In recent times, the use of brick-on-edge capping on plain tiles has created a rash of harsh looking angular walls. These are seldom appropriate on sensitive sites unless a clear precedent exists. Walls should normally be capped in accordance with local practice, whether that involves using half-round or saddleback copings or canted flintwork. Half-round copings are also preferred for crime prevention purposes as they are more difficult to climb over than their more angular equivalents.

A traditional canted brick and half round coping.

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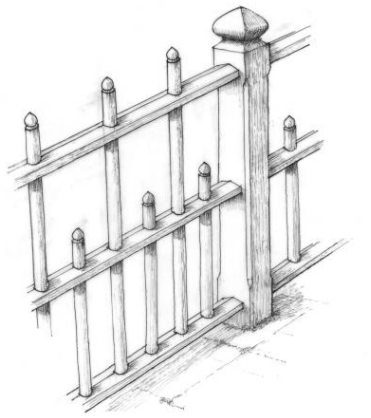
Fencing

3.5.10 Fencing styles depend heavily on their setting. Hence, dark stained post and rail fences tend to suit rural contexts whereas boarded, panelled fences dominate in suburban locations. For more sensitive street frontages, palisade or picket fences which allow light through usually offer the best solutions. If over 900mm high, these also deter misuse and abuse of front gardens. Taller 1.8m high fences and lockable gates, meanwhile, are better for protecting secluded rear gardens subject to the form and character of the area.



Painted Victorian cottage fencing

3.5.11 Elsewhere, willow hurdles and reed panels are finding increasing favour in the District as they provide natural, local alternatives. Chain link fencing is rarely appropriate for residential developments. However, where it is to be used, black tends to be the most recessive colour, especially if set into maturing hedges.

Railings

3.5.12 Railings still have relevance to today's residential developments, particularly in urban or sensitive village locations. They provide meaningful enclosure without cutting off views, and therefore provide attractive alternatives to fencing. Where they are proposed, they should be iron and generally painted in dark muted colours. Designs should be in keeping with the character of the local area and should not be unduly ornate or elaborate. Tubular steel railings will be acceptable in only the least sensitive locations. When an opportunity arises, railings which have been removed in the past should be authentically reinstated.

Landscaping

3.5.13 The soft landscaped elements of a housing scheme should be considered as an integral part of the layout design. Full details of species and the density of planting should therefore be clearly shown on submitted plans. Where necessary, a qualified landscape architect should be engaged to produce a comprehensive landscaping scheme. Three principal types of planting can be identified:

- That which visually screens the development from surrounding areas and which provides shelter belts from strong winds,
- That which makes a significant contribution to enclosure within the layout together with the groupings of buildings, and
- That which provides colour and texture such as small-scale ground cover and climbing plants.

3.5.14 Maintenance of this landscaping can be onerous and should be recognised as a design constraint. Agreement therefore needs to be reached at an early stage over the responsibility for this maintenance, particularly in the case of communal areas where a defined use is crucial in avoiding 'confused' space; e.g. play areas, shelter belts. Otherwise, an attractive layout can very quickly be undermined.

3.5.15 Landscape design also has a role in preventing crime. For instance, shrubs and hedges can be kept to a maximum growth height of 1m to maintain visibility and surveillance across a site. Similarly, trees can be single stem with a clear field of vision of 2m between the ground and

lower branches. To deter potential offenders, meanwhile, planting adjacent to parking bays and perimeter fences can have a high thorn content. To what extent such measures are adopted will depend on local circumstances and the desire to create an attractive, individual scheme.

3.5.16 The choice of vegetation will also need to be appropriate for the changing climate and contribute to local biodiversity. The debate over which species may be more suitable in future climate scenarios is only just beginning. However, it is likely that the use of lawns may well need to be reduced due to their high water demands.

3.6 Extensions to Dwellings

Extensions

3.6.1 Regardless of whether an extension requires planning permission, the additional space requirements should not be the only consideration. Of equal importance is the effect the extension will have on the character and appearance of the host property and on the amenities of any neighbouring properties. The following points should therefore be considered when planning an addition to your house: -

- The scale of an extension should ensure that the architectural character of the original building is not harmed and remains dominant.
- Extensions should use forms, detailing and materials which are compatible with the original building.
- The continuation of elevations on the same plane as existing is normally to be avoided as it leads to the merger of existing and proposed elements, and thus prevents an extension being subordinate to the main building. A ‘break’ or ‘set back’ in each elevation is therefore preferable aesthetically.
- Single-storey extensions are usually more acceptable visually than two-storeys as they have far less impact upon the original building. Unfortunately, they also tend to be the least energy efficient. This is due to the high ratio of heat loss area (through exposed walls, roofs, etc) to new floor space. Compromises may therefore be needed where conflicts occur.
- Excessive heat loss also affects elongated or elaborately shaped extensions, and loft extensions which incorporate dormer windows. Where such forms are necessary, extra insulation should be used to compensate for the higher heat loss area and thus the greater energy demands.
- Extensions are generally best sited at the rear of the property where ‘competition’ with the original building is less likely.
- Extensions should be sited and designed to avoid any loss of light or privacy to adjoining properties. They should also not result in any overshadowing, tunneling or overbearing effects.
- Extensions should be positioned on an elevation in such a way so that they do not relate awkwardly to existing window and door openings, or with any other architecturally important features.

3.6.2 Flat roof forms are not normally acceptable. However, in the case of small link or alcove extensions, they may be the only option. In such cases, the flat roof form can be disguised behind a parapet with a proper coping detail. Where there is already a strong precedent for flat roof construction in an area, flat roofs can be considered provided the building to be extended is of no real architectural merit.

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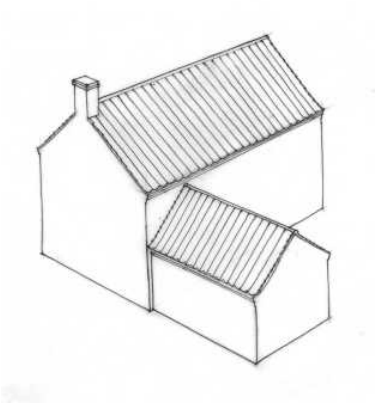
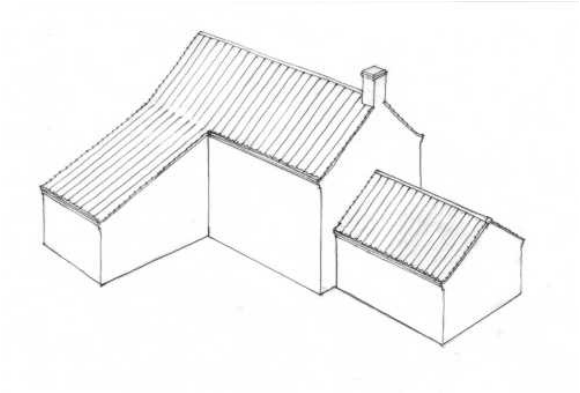
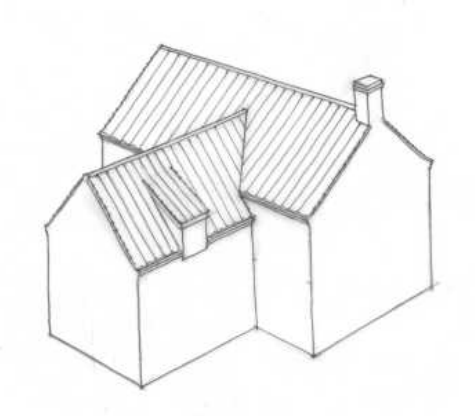


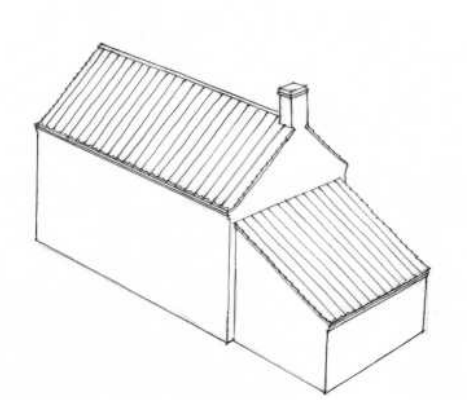
Gabled extension to main wall



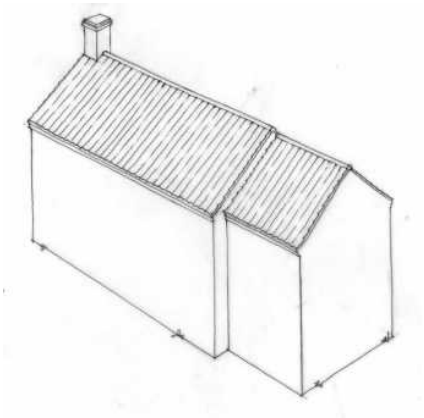
Catslide and gable ended extensions



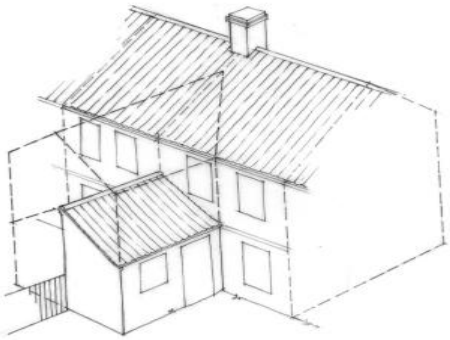
Gabled one and half storey extension to rear of property



Catslide extension to gable



When there is no other option a two-storey end extension can sometimes be considered for less sensitive properties. In such cases, breaks in alignment of the roof and walls should be incorporated so that the form of the original property remains clearly defined.



Extensions to the rear of terraced properties almost always cut off light to the neighbouring properties. Problems can often be avoided if the agreement of the affected neighbour is sought at an early stage. The best results of all can be achieved if the neighbour can be persuaded to construct a similar back to back extension.

Conservatories

3.6.3 The siting and design of this popular form of extension can have a marked effect upon the character of a property. Such designs should be carefully considered particularly if the conservatory is of a standardised or prefabricated type. Simple lean-to forms are usually most appropriate whilst very shallow pitched roofs are best avoided. Siting is normally on rear elevations whilst the preferred construction is a painted timber and glass superstructure on a brick base.

3.6.4 Conservatories seem to offer inexpensive bright and airy accommodation. However, solar heat gains are more than offset by the high rate of heat loss through glazing, especially if the conservatory does not have a southerly orientation. Although they provide comfortable accommodation during spring and autumn, and on a few sunny days in winter, at other times conservatories will either be too hot or too cold. Comfortable periods can be extended by using shading, blinds and ventilation, but conservatories which are heated increase energy demands and thus carbon dioxide emissions. For these reasons, adding a conservatory should be approached with great care.

3.6.5 A ‘sun’ or ‘garden’ room with partly-glazed walls and an opaque, well-insulated roof (perhaps incorporating rooflights) will often provide similar but more usable accommodation than a conservatory. Such additions, particularly if they have tiled roofs, will also tend to achieve more sympathetic results visually.

3 New Residential Development

New Non-Residential Development 4

4 New Non-Residential Development

KEY DESIGN GUIDE OBJECTIVES:

EN 4:

- To ensure that new non-residential developments are compatible with their surroundings and provide, where applicable, innovative design which is locally distinctive.
- To integrate new non-residential buildings successfully into existing settlements and the countryside without harming any heritage or landscape interests.

EN 6:

- To ensure that commercial buildings minimise energy and resource consumption and are designed to withstand the long term impacts of climate change.
- To ensure that all new developments over 1,000 square metres incorporate 10% of their predicted energy requirements from on site renewable energy technologies.

4.1 Introduction

4.1.1 Whether they are factories, large retail units, or new agricultural barns, there is a broad range of non-residential buildings which help shape our built environment. Whilst all of these make a definite contribution to the economic prosperity of our District, they all present their own distinct design challenges.

4.2 Commercial Buildings

4.2.1 Due to the rich array of industrial and office building types that fall under this heading, there are numerous design solutions. Ultimately, however, it will be the nature of the business and its location which will determine the approach chosen.

4.2.2 In Employment Areas in towns, buildings tend to create an environment of their own where function usually triumphs over aesthetics. In these industrial settings, buildings will normally be expected to observe basic rules rather than strive for design excellence. Hence, they should be in scale with their environs and avoid unduly strident or obtrusive facing materials or cladding. In new Employment Areas, however, and in one-off town centre locations, there is no reason why designers should not aim higher and seek to create attractive and motivating environments for employees. Higher design standards will therefore be sought in these circumstances.

4.2.3 In Employment Areas in villages, greater care is needed to successfully integrate new buildings into their surroundings. Particularly where a site lies within a designated conservation area, the expectation will be that the building is compatible with the character of the village in terms of its scale, form, siting and general appearance. Therefore, smaller groupings of commercial units or workshops will be the norm, with these being constructed out of a more limited palette of local materials. With careful attention then being given over to surfacing, lighting and signs, a proper sense of place can be created.

4.2.4 In the Countryside, commercial users should look to adapt and occupy existing buildings for the reasons outlined in Chapter 7 ‘Conversions’ of this guide. Where special environmental or operational justification exists, however, new buildings will be considered if their design is attuned to their rural setting. In practice, this will involve creating buildings that sit comfortably within the landscape, use natural materials and take advantage of any established screening. The North Norfolk Landscape Character Assessment can provide guidance on this matter.

Bayfield Brecks, Letheringsett - a former traditional estate farm yard now converted to workshops.

4.2.5 As with residential layouts, commercial sites benefit from having only one entrance. Particularly if supplemented with a gatehouse and barrier, this can aid security and give the impression that the area beyond the barrier is reserved for commerce only. Crime can also be prevented by maintaining a clear field of vision around the site and by securing its perimeter. Landscaping and means of enclosure are therefore integral to the design and layout of each site. As for the building itself, composite panels and profile cladding can be vulnerable to forced entry. Hence, the first 2m of walls should be raised in masonry with any shutters protected with retractable bollards. Oil tanks and waste disposal areas should then be placed away from the building to prevent unwanted high level access. For further advice on designing out crime, reference can be made to the national crime prevention initiative 'Secured by Design'.

4.2.6 Chapter 11 provides information regarding Sustainable Construction in commercial buildings. The Council strongly encourages all commercial developments to achieve a BREEAM rating of ‘very good’ as a minimum standard.

4.3 Large Retail Buildings

4.3.1 Buildings such as supermarkets, DIY stores and garden centres have no traditional counterparts. With their deep plan forms, they can be difficult buildings to assimilate into their surroundings. Whilst all attempts should be made to try and respect the scale and proportions of adjacent buildings, in practice these ‘big box’ buildings have the tendency to transcend rather than complement their setting.

4.3.2 Previous versions of this guide have advocated that such buildings should reflect vernacular forms, detailing and materials. In practice, this has produced mixed results due to the non-traditional nature of these buildings. Solutions have tended to be apologetic rather than qualitative, and have contributed little to the District’s architectural legacy. As a result, there is a definite need to shift the focus away from aping the past to creating innovative and honest solutions which reflect the true use of these buildings.

4.3.3 What this does not mean, however, is that there will be support for bland corporate styles of architecture based upon standard floor plans. Instead, designers will need to show that they have taken account of the particulars of a site and tailored their scheme accordingly. One of the main challenges in this will be dealing with the large blank walls which seem to follow retail

4 New Non-Residential Development

need but which can be so damaging. Orientating the building to make maximum use of the main entrance is one way of mitigating this, as can setting the building back in the street scene. The careful use of materials, detailing and landscaping can then give the building a more human scale.

4.3.4 Car parking and lighting are also important in recognising local context. The former, whilst being visible to patrons, should not be unduly prominent or create an open scar within a street scene. It should be appropriately screened across its frontage and enlivened with hard and soft landscaping to avoid unbroken seas of tarmac. Lighting meanwhile should be designed to make the site as attractive and welcoming as possible. It should also be properly targeted to avoid light pollution and to assist in car park security. In this latter respect, lighting levels should be consistent across a site and should avoid casting deep shadows, particularly where the site lies within a CCTV catchment area. Where low-level lighting is to be used, it should be vandal-resistant.

4.4 Agricultural Buildings

4.4.1 Since World War II the pressure to maximise efficiency has changed the appearance of our farm buildings, and thus the District's rural landscape. Traditional brick and tile buildings have gradually fallen into subsidiary uses or even redundancy as new methods of livestock management and modern machinery have led farmers to look for larger floor areas and more economic forms of construction.

4.4.2 As with commercial buildings, whilst it is possible for these structures to have some intrinsic architectural quality, function usually wins over appearance. As a result, the scale, form and proportions of these steel framed structures seldom offer real design quality. Whilst there is little that can be done about scale if a building is to fulfil its function, there are various ways in which the visual impact of a building can be reduced to enable it to take its place more comfortably within a farm complex or in the landscape: -

- **Form** - The broad spans and shallow pitched roofs can sometimes be improved by dividing the building into several bays and spanning each bay with a double pitched roof. Similarly, an area can often be partially spanned by a double pitched roof with the remainder covered by continuing the main roof from eaves level in a lean-to form at a reduced pitch.
- **Materials** - Coloured corrugated sheets and boarding offer the best cladding solutions. Of the colours available for the profile sheets, the darker tones work best for roofs to reduce the apparent scale of a building – brown where the building is seen in the landscape and grey when it is viewed against the sky. The walls, meanwhile, should be a shade or two lighter to break up its mass. Timber cladding or 'Yorkshire Boarding' is most appropriate here, particularly when used with a red brick or painted blockwork base.
- **Siting** –This is perhaps the most important factor when considering a new farm building. Usually a position at the rear of a farmyard works best as this should not harm the relationship between the farmhouse and any traditional farm buildings. It should also not compromise any future alternative uses being found for these buildings if they become redundant. Low-lying sites are also recommended as the natural contours should afford some concealment when viewed from public vantage points. This, allied to some native tree planting, should provide effective screening in the long term.

Historic Buildings 5

5 Historic Buildings

KEY DESIGN GUIDE OBJECTIVES:

EN8:

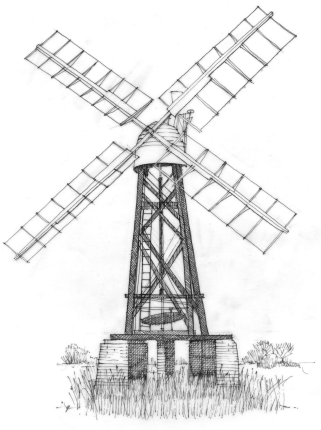
- To promote an understanding of the importance of our diverse range of historic buildings and how they function and operate.
- To preserve the character of our historic buildings by halting the progressive erosion of their character and by protecting their setting.
- To enhance the character of our historic buildings by encouraging the reinstatement of lost architectural features and detailing.
- To outline the circumstances in which energy efficiency measures and renewable technologies can be successfully incorporated into our historic buildings.

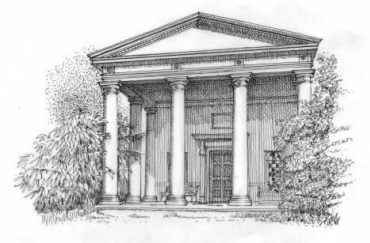
5.1 Introduction

5.1.1 North Norfolk is very fortunate to have a rich collection of historic buildings. Each one stands as a lasting record of the social and architectural influences of the time. Collectively, they preserve a sense of local distinctiveness and help to shape and define the District's built environment. More than this, however, they make an important contribution to the economy by supporting local businesses and by attracting people to the area. As such, they are a valuable resource that must be protected.

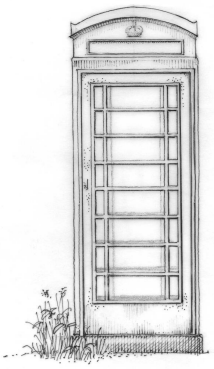
5.1.2 The Council is very conscious of this resource, and is committed to safeguarding it for future generations to enjoy. This does not mean that all historic buildings will be preserved as museum exhibits. Instead, scope must exist to permit their sympathetic alteration and adaptation to prevent possible stagnation and decay. Core Strategy Policies SS4 and EN8 provide the mechanisms to protect and enhance the historic environment.

5.1.3 Out of our stock of historic buildings, over 2200 are listed. Listed buildings are defined as "*buildings of special architectural or historic interest*" and represent some of the rarest and finest buildings in the District. There is no limit to the type of 'building' which can be listed, as the examples below illustrate.





There is no limit to the type of 'building' that can be Listed



5.2 Restorations and Renovations

5.2.1 Historic buildings, whether listed or not, are often taken on with the best of intentions - for instance to restore them back "to their former glory". Sadly, in the name of restoration, the very interest that makes a building special can be swept away with over-zealous stripping of historic fabric. It is therefore vital that time is taken to get to know the building first, and understand how it functions, before work is proposed.

5.2.2 As part of the familiarisation process, the questions below should be considered:-

- What actually gives the building its interest and character?
  i.e. Does it have a distinctive plan form or internal layout? Does it have any individual or even eccentric architectural features? Are the materials particularly noteworthy, or the design detailing of especially high quality? Or is it simply that the building has mellowed over many hundreds of years and now displays an attractive patina of age which comes from past alterations and weathering?

- How does the building work?
  i.e. In a functional sense, which are the principal rooms and most important spaces, and how does the layout piece together as a whole? In a physical sense, how is the building constructed, and how do its materials perform against the elements?

  Only with this kind of informed understanding can sympathetic work programmes be prepared.

  Note: Historic buildings with solid wall construction do not perform in the same way as modern buildings with cavity wall construction. Rather than trying to keep moisture out at all costs, they are designed to absorb and evaporate it through their porous materials. It is therefore vital that the two building types are not treated the same, and that repair solutions are tailored accordingly; e.g. inserting a damp proof course is rarely an appropriate option in an historic building - far better is to get to the route cause of the damp and cut it off accordingly. Lowering ground levels and removing impermeable materials are common ways of achieving this.

5.2.3 Having taken time getting to know a building, any subsequent works need to be fully justified in accordance with Central Government guidance. Often architectural features are removed and replaced in the mistaken belief that they cannot be repaired or upgraded. Therefore, where works are likely to have an effect upon the character of an historic building, they need to be sufficiently desirable and necessary. In cases where lost architectural features are to be reinstated, or where inappropriate modern additions are to be removed, the justification will be easier to provide.

5.2.4 Where works can be justified, adherence to the following general principles should ensure that the special character of the building will remain intact: -

- **Minimum Intervention** - Buildings that have stood for several hundred years have an intrinsic value which can not be replaced by modern work. Hence, historic fabric should always be repaired rather than replaced. Only where it is beyond repair will replacement be considered on a like-for-like basis. In the case of timber, it may actually prove more economic in the longer term to retain the historic fabric as it is often of better quality than modern equivalent materials.
- **Compatibility**- Traditional, well proven materials and methods of construction are generally the most compatible solution for old buildings as they do not impose new stresses and loadings. Only where structural failure may have resulted from inherent defects will modern

5 Historic Buildings

methods of repair be considered. This said, it is rarely successful to retrofit buildings with things like damp proof courses and concrete floors as these can restrict moisture movement and lead to the premature decay of fabric. Old buildings need to be able to 'breathe' to survive.

- **Reversibility**– Where practical, works should be reversible so that the building can be returned back to its original state if required.
- **Conjectural Restoration** - Restoration which is not based upon real evidence can result in valuable historical layers being unnecessarily stripped away; e.g. many good quality Georgian / Victorian fireplaces have been lost to open up earlier inglenooks. Such alterations should only be considered where real proof exists to inform the process, and where the feature to be removed is not itself of value. Retaining a good insert is far better than creating an inferior modern pastiche.

5.2.5 Most importantly, old buildings should be appreciated for what they are, not forced to become something else. Whilst there is usually scope for adaptation and change, it is not always possible to provide the expected amenity levels without damaging / destroying the very things that make an old building special.

5.2.6 Where the building is listed, consent is required for all external and internal alterations. This prevents the unnecessary loss of fabric or the carrying out of inappropriate works. For more information on these controls, please refer to the Council-produced leaflet, "Listed Buildings in North Norfolk – A Guide for Owners and Occupiers" [8] .

5.2.7 Whilst all proposals are considered on their merits, certain works to listed buildings are unlikely to be acceptable in principle. Examples include installing plastic windows, re-pointing in mortars containing cement rather than lime, subdividing classical-proportioned rooms, cutting through principal timbers, removing original staircases, painting exteriors in garish colours, installing a satellite dish on a prominent elevation, and unsympathetically designed extensions.

Please do not try to turn the historic building on the left into the building on the right!

8 *See website address: http://www.northnorfolk.org/council/5467_289.asp*

5.3 Extensions

5.3.1 The advice offered at 3.6 of this Guide is equally applicable here. Indeed, with historic buildings being extremely sensitive to change, it is even more important to justify and consider your proposals carefully. Some properties will simply be unable to support any new build; e.g. small lodges. Others, meanwhile, may have reached their limit already having been added to successively over time. The remaining buildings, however, may be able to support some form of extension provided there is no adverse impact upon their special character.

5.3.2 Conservatories are one area that requires particular attention. Although some historic buildings traditionally supported such features, historically they were always architecturally independent additions intended for housing plants. Certainly they were never used as now to provide additional accommodation directly off an existing layout. This lack of authenticity therefore always makes it difficult to arrive at an acceptable design solution, particularly if an off-the-peg 'period' conservatory is selected. Often, a stylistically neutral garden room under a tiled roof will offer a more sympathetic alternative.

5.4 Setting

5.4.1 In the case of listed buildings, setting can be every bit as important as the building itself. For example, it may be one element of a park or garden, or it may share particular architectural forms or details with other buildings nearby. In such situations, individual decisions can have wider repercussions; e.g. erecting wood panelled fences in open courtyards may separate properties that were always meant to have a visual link. It is therefore vital to consider not only the building in question, but also its wider context. New buildings or structures that would block important views of listed buildings, or would have a harmful affect upon their setting, are unlikely to be acceptable.

5.5 Maintenance

5.5.1 In terms of managing historic buildings, the best way of securing their future is through a programme of regular monitoring and maintenance. In so doing, more fundamental and expensive repairs can be avoided. Although the Council can not insist upon regular maintenance, there is an expectation that owners of historic buildings will keep their properties in a good state of repair. Failure to do so where the building is listed can, in extreme cases, lead to the Council serving a Repairs Notice requiring the owner to carry out necessary repairs. However, this is seen very much as a last resort to be used only where the very future of the building is under threat. It is far better for these matters to be dealt with in the spirit of co-operation in consultation with the Council.

5.6 Energy Efficiency

5.6.1 With new build unrelenting in its consumption of energy and resources, the preservation and continued use of our historic buildings must remain a priority in North Norfolk. Given the number of such buildings, and the fact that some are relatively inefficient environmentally, they must be allowed to adapt to meet modern requirements for energy efficiency. The secret is making sure that this adaptation process does not compromise their special character. The following case study, which focuses on a notional Grade II Listed Georgian town house, shows how this can be achieved:

5 Historic Buildings

***Issue 1:* How to minimise energy consumption within the building by reducing draughts and how to retain the natural ventilation and warmth which is essential for its survival.**

Inappropriate Solutions :

- *Remove the original single-glazed sash windows and replace them with double-glazed sealed units. This not only leads to the loss of historic fabric but it will also affect the special character and appearance of the building. Completely sealing up all draughts can also increase moisture levels within the building leading to premature fabric decay.*
- *Seal up roof spaces with mineral wool and oil based insulation products. Not only are these unpleasant to use, but they are also non-renewable, have high embodied energy and are difficult to dispose of.*

Appropriate Solutions:

- *Retain and repair the existing sashes. This is inherently more sustainable than complete replacement. They can then be upgraded by introducing secondary glazing, draught stripping, shutters or even thick insulated curtains. The right balance can then be struck between minimising energy consumption and preserving historic fabric.*
- *Introduce organic insulation products such as wool and hemp which absorb and release moisture in equal measure. This 'breathability' prevents the build up of condensation in roofspaces and therefore protects historic fabric.*

***Issue 2:* How to maximise the use of zero and low carbon energy sources in the building without harming its special character and interest.**

Inappropriate Solutions:

- *Place solar panels and PV cells on the building's important or prominent elevations. These modern-looking additions tend to look out of place against the mellowed, traditional facing materials and can therefore detract from the special character of the host building.*
- *Fix turbines prominently on chimneys or ridgelines where they can command undue attention. They may also cause structural damage in certain circumstances.*

Appropriate Solutions:

- *Where feasible, locate panels and cells on less visible rear elevations, on new extensions or outbuildings, within internal valleys, or behind parapets where they will not compete visually with the host building.*
- *Have freestanding turbines which are sufficiently separated from the building so as not to impinge upon any important views of it or adversely affect its setting.*

5.6.2 Historic buildings and energy conservation need not be at odds with each other. Indeed, many traditional materials and techniques have environmental advantages over their modern counterparts. For example, lime uses far less energy in its production than cement. It also absorbs carbon dioxide back from the atmosphere and allows masonry units to be reclaimed when a building reaches the end of its natural life. Similarly, linseed oil paints not only protect historic surfaces for longer by allowing them to 'breathe', but they also lack the toxic chemicals found in many synthetic paints. There is therefore no underlying reason why historic buildings can not play their part in tackling climate change, either individually or collectively as part of a designated conservation area. Further advice can be found in Chapter 11 'Sustainable Construction'.

Conservation Areas 6

6 Conservation Areas

KEY DESIGN GUIDE OBJECTIVES:

EN8:

- To promote an understanding of what conservation areas are and what makes them special.
- To preserve the special interest of our conservation areas by seeking to halt the progressive erosion of their character.
- To enhance the special interest of our conservation areas by encouraging the reinstatement of lost architectural features and detailing.
- To outline the circumstances in which renewable technologies can be successfully incorporated in Conservation Areas.

6.1 Introduction

6.1.1 Within North Norfolk there are currently some 82 locations that have been designated as Conservation Areas. Defined in planning legislation as "*areas of special architectural or historic interest, the character or appearance of which it is desirable to preserve or enhance"*, these cover everything from our towns and villages, through to rural estates and landscapes.

6.1.2 More complete details on conservation areas can be found in the separate Council produced leaflet "Conservation Areas – A General Guide". In short, however, they were first introduced in the late 1960s as a way of promoting traditional and cherished local scenes. They were also seen as a way of stemming the spate of comprehensive post-war redevelopment schemes that had led to the needless loss of many important buildings.

6.1.3 Conservation Areas derive their special interest from the collective character of the area, rather than from any individual features or structures. Although commonly centred round groups of old buildings, the interest can also come from open spaces, trees, and historic street patterns. Fundamentally, however, conservation area designation has more relevance to the built environment rather than to the natural one (for which there are a number of separate landscape and wildlife designations).

6.1.4 Conservation Area status does give added protection against unsympathetic development which might otherwise spoil an area's special character. Hence there are additional controls over the demolition of certain buildings and structures, and over certain extensions and alterations. Permission can also be required to cut down, lop or top trees within a designated area.

6.1.5 Despite these extra controls, living in a Conservation Area does not mean you are in a museum where all change is prohibited. On the contrary, areas must be able to adapt to avoid stagnation; e.g. finding new uses for decaying buildings. What it does mean, however, is that proposals will be carefully scrutinised to ensure that they either preserve or enhance the character and appearance of the area.

6.2 New Development

6.2.1 Proposals for new buildings or extensions within Conservation Areas will generally only be permitted if they: -

- Achieve a high standard of design which is compatible with the character and appearance of the area;
- Are compatible with the scale, mass, form and siting of existing buildings and their settings;

- Use appropriate materials (see Chapter 10 ‘Materials’);
- Include native landscaping that compliments the area (see Chapter 9 ‘Landscape Design’);
- Do not result in the loss of important open spaces or features of interest;
- Do not impinge upon important views in to, out of, and within a Conservation Area,
- Incorporate Sustainable Construction principles in a way that is compatible with the character and appearance of the area (see Chapter 11 ‘Sustainable Construction’); and
- Provide detailed plans and drawings of the development; Note: Outline planning applications are seldom appropriate in conservation areas as detail is normally an integral part of determination.

The Shrine of Our Lady of Walsingham - a new refectory building which achieves a high standard of design in a sensitive location.

Holt Road, Cley-next-the-Sea - a large new house which has easily assimilated into its traditional setting. The retention of the boundary wall helps in this respect.

6 Conservation Areas

6.3 Alterations

6.3.1 Whether or not they require formal approval, alterations to existing buildings should aim to:-

- Respect their character and appearance and their wider setting. This especially applies to things like replacement windows, doors and shopfronts which should follow original proportions and glazing patterns, and to renewable energy technologies.
- Use materials that are compatible with the existing property. This not only applies to facing materials, but also to things like mortar mixes and external finishes such as paint and render.
- Retain traditional architectural features such as chimneys, doorcases and parapets, as well as boundary walls, fences and railings which often contribute important enclosure.

6.4 Demolition

6.4.1 Planning and Conservation Area Consent applications involving demolition within a conservation area will normally only be approved if: -

- The building or structure to be demolished does not make a positive contribution to the area.
- There is evidence that every effort has been made to try and save those buildings or structures which do make a positive contribution.
- There would be a community benefit outweighing the loss of those buildings or structures which make a positive contribution.

6.4.2 From the above, the main theme to emphasise is that everyone needs to work together to secure the best future for the District's Conservation Areas. Hence, owners need to consider the impacts of their alterations on the wider area, whilst developers need to ensure their proposals pay due regard to the established form and character of the area. For its part, the District Council is currently producing appraisals and management plans for its Conservation Areas. It is also under a statutory duty to make sure that all works within a Conservation Area either preserve or enhance that area. As a result, there is an expectation that all proposals should display a high standard of design and be sympathetic with their surroundings. Only in this way, will our designated areas continue to be enjoyed by future generations.

Conversions 7

7 Conversions

KEY DESIGN GUIDE OBJECTIVES:

EN8:

- To secure the sympathetic retention / reuse of our stock of redundant historic buildings.
- To demonstrate the need for conversion solutions to be tailored to particular buildings.

EN6:

- To ensure that all new residential developments minimise energy and resource consumption and are designed to withstand the long term impacts of climate change.
- To ensure all new dwellings achieve at least a 2* Code for Sustainable Homes rating, rising to a 3* by 2010 and a 4* by 2013.
- To ensure that developments of 1000 square meters of floorspace or more than 10 dwellings incorporate 10% of their predicted energy requirements from onsite renewable energy technologies.

7.1 Introduction

7.1.1 The best and most sympathetic use for buildings is usually their original one. However, when this is no longer viable, thoughts need to turn to finding new uses. Especially where buildings positively contribute to their environs, it is in no one's interests for them to become redundant and fall into disrepair. Not only might they have social and historic significance, but they also represent huge investments in terms of materials and energy. To simply demolish and rebuild them is therefore the least preferred option in heritage and environmental terms.

7.1.2 Generally, it is historic buildings such as barns, chapels and mills that are most worthy of retention and re-use. As these buildings also tend to present the biggest design challenges, this section focuses on achieving successful conversion results.

7.2 Agricultural Buildings

Initial considerations

7.2.1 There are several preparatory steps to pairing uses and buildings successfully: -

- First the policy context needs to be considered - *certain uses will be ruled out in principle because they do not accord with the strategic planning policy objectives in the LDF Core Strategy; e.g. permanent residential uses in the open countryside are normally ruled out on sustainability grounds.*
- Once the range of possible uses has been narrowed down, assess whether the building is soundly built and capable of conversion without substantial rebuilding and/or alteration – *a true conversion will not be possible if the building is structurally unsound and in need of extensive reconstruction, or if it is too small and in need of extension*.
- If physically capable of conversion, identify those features and defining characteristics that set the building apart and give it its visual interest - *if these essential ingredients are not considered during the conversion process, the character and appearance of the building will be compromised. In which case, there will be little point in the building being retained/converted in the first place (see Case Studies below) .*

Only by going through this process, in parallel with an economic appraisal, will an optimum viable use be arrived at, and an acceptable and sympathetic conversion achieved.

7.2.2 Unsurprisingly, in our rural District, the most prevalent conversions involve the change of use of redundant agricultural buildings. Whether they are large threshing barns or small cart sheds, these buildings become surplus to requirements as a result of changing agricultural practices. This is unfortunate as they not only represent one of the most distinctive features in the landscape, but they also stand as lasting records of the agricultural practices of times past.

7.2.3 Generally, the older the farm building, the fewer of its type remain. Age is therefore one of the first considerations in assessing status and significance. From this, architectural form, scale and layout are then important in shaping character, as are matters of detailed design such as patterned brickwork, arrow slit windows, ventilation panels and buttresses. Even where a building may not have any apparent intrinsic quality, it may still make a positive contribution to the setting of a farmhouse, or to a wider complex of farm buildings.

7.2.4 Of the alternative uses, a conversion to habitable accommodation, be it for residential or holiday purposes, is potentially the most damaging in terms of its effect on the character of an agricultural building. Not only does it place more pressure on the fabric of the building itself, but it can also compromise its setting by adding things like sheds, greenhouses, patios and play equipment.

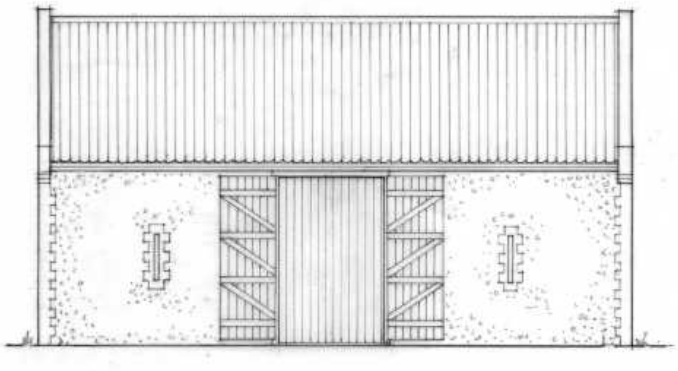
7.2.5 Landscaping also needs very careful attention and should be left as simple as possible. Whether hard or soft, it should be kept relatively informal and should avoid things like ornamental borders, water features, kerbing, brick weave surfacing and any other features alien to a functional farm setting. Those therefore wishing to occupy an agricultural building may have to compromise their domestic ideal in favour of solutions which preserve the character and appearance of the building.

7.2.6 In terms of other uses, studios, games rooms, workshops and community facilities often produce the best results in design terms. Not only can they be achieved with little or no external alterations or internal subdivisions, but they also tend to better safeguard the relationship between the building and its setting.

Case Study 1: *Threshing barns*

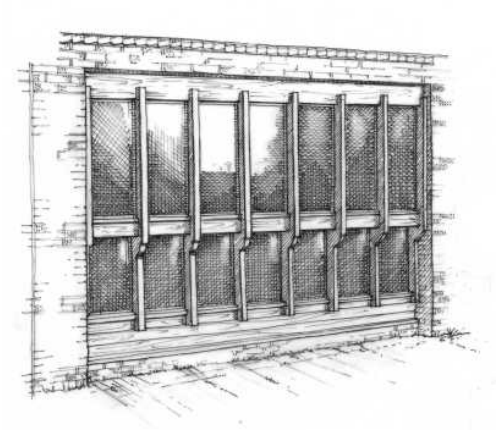
7.2.7 The defining characteristics:

- *Long uninterrupted roofslopes and ridgelines.*
- *Imposing masonry walls with large cart doors but otherwise few openings.*
- *Large internal spaces usually open to full height with exposed roof timbers.*
- *Brick patterning, buttresses, plinths, roof parapets, slit windows, and ventilation panels.*
- *An informal farmyard or field setting.*

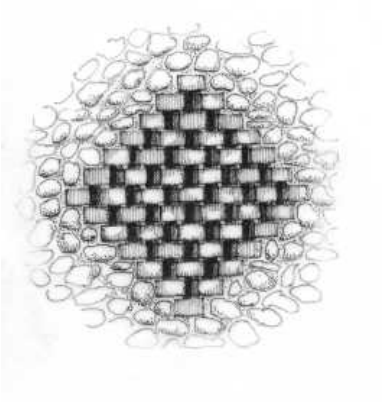


Typical threshing barn

7 Conversions



Cart door openings need careful treatment if glazed. Robust timber detailing is most successful for such a large simple opening



Honeycomb ventilation panel - can be fitted internally with inward opening casement window. Gives superb patterns of light and shade.

7.2.8 A successful conversion would therefore:

- *Avoid alterations such as dormers, rooflights and chimneys which compromise the simple and uncluttered lines of the building and introduce unwanted residential character.*
- *Minimise the number of new openings in walls, whilst utilising the existing openings to full affect; e.g. glazing cart door openings to "borrow" light into adjacent rooms. The doors themselves can then be fixed back to the walls to preserve a proper legacy of the opening.*
- *Keep internal subdivision to an absolute minimum; i.e. by minimising the number of new floors and partitions and opting for an open plan layout .*
- *Avoid any works which rob the building of its architectural features and interest.*
- *Avoid formal planting schemes and suburban means of enclosure and surfacing which would be visually at odds with the character of the barn, or which would separate it off from its farmyard context.*

Lower Farm Barns, Barsham - a conversion scheme which reuses existing openings and which mixes historic fabric with contemporary detailing.

Case Study 2: ***Cartsheds***

7.2.9 The defining characteristics:

- *Smaller uninterrupted roofslopes and ridgelines.*
- *Generally solid masonry on three sides with open bays on the fourth side.*
- *Expressed posts supporting open, timber framed bays.*
- *An informal farmyard or field setting.*

7.2.10 A successful conversion would therefore:

- *Avoid alterations such as dormers, rooflights and chimneys which would complicate the simple roofscape and introduce unwanted domestication.*
- *Minimise the number of new openings in the masonry, and avoid any solid masonry infill within the open bays.*
- *Retain the prominence of the supporting posts by setting any infill in behind them. This creates a shadow line at eaves level and makes the infill more recessive. Less permanent materials such as glazing / boarding also help in this respect.*
- *Avoid formal planting schemes, surfacing and means of enclosure .*

Cart sheds are best converted with visually lightweight infill walls set behind the original posts

7.3 Community and Commercial Buildings

7.3.1 Although less prevalent than agricultural buildings, there are a range of community and commercial buildings which play a major role in defining our social and industrial history. Whether they are formal architectural compositions, or simple vernacular structures, buildings like chapels, halls, schools and mills formerly played pivotal roles in serving and supporting local communities. Given they also help in defining our social history, it is imperative that attempts are made to find sympathetic uses when these buildings become redundant.

7.3.2 Unfortunately, due to the distinctive nature of many of these structures, re-use can present its own design problems. Consequently, instead of looking to provide standard accommodation in these buildings, conversion solutions often need to be creatively tailored to ensure sensitive results. As with agricultural buildings, this involves utilising existing openings and features where practical, whilst avoiding incompatible additions.

Case Study 3: ***Chapels***

7.3.3 The defining characteristics:

- *Formal architectural compositions usually based on classical proportions and a simple rectangular footprint.*
- *Large, full height sash windows sometimes with stained / etched glass under rubbed brick voussoir arches.*

7 Conversions

- *Uninterrupted pitched or hipped roofs sometimes finished in black glazed pantiles.*
- *Open interiors sometimes with mezzanine floors, ecclesiastical screens and fixed memorials present.*

7.3.4 A successful conversion would therefore:

- *Avoid extensions and vernacular detailing which would complicate the clean lines of the building.*
- *Re-use the existing windows taking care to disguise any internal floor levels behind.*
- *Avoid alterations such as dormers and chimneys which would complicate the simple roofscape and introduce unwanted domestication.*
- *Keep internal subdivision to an absolute minimum; i.e. by avoiding new floors and partitions and by retaining the existing ecclesiastical fixtures and fittings.*

New Road, Holt - a sensitive conversion of a Grade II listed former chapel.
(above and below)

7.3.5 For further advice on incorporating the principles of sustainable construction in conversions, please refer to Chapter 11 ‘Sustainable Construction’.

Shopfronts and Advertisements 8

8 Shopfronts and Advertisements

KEY DESIGN GUIDE OBJECTIVES:

EN5:

- To ensure that all shopfronts and advertisements preserve or enhance the appearance and character of their host building and the wider street scene.
- To ensure businesses are able to brand themselves successfully in a way that does not harm the character and appearance of our historic town centres.
- To ensure that all proposals in areas designated as Public Realm enhance the overall appearance and usability of the area.

8.1 Introduction

8.1.1 Each town centre is unique and made up of a rich variety of buildings that have developed in an apparently haphazard way over the years. These buildings not only indicate the relative prosperity of settlements over time, but also contain much of their architectural heritage and interest.

8.1.2 Within these centres, the design of shopfronts and advertisements has a significant effect on the appearance of individual buildings and their setting. It is therefore vital that businesses, as well as considering their own individual needs, also pay due regard to the wider effects of any proposed design.

8.2 Shopfronts

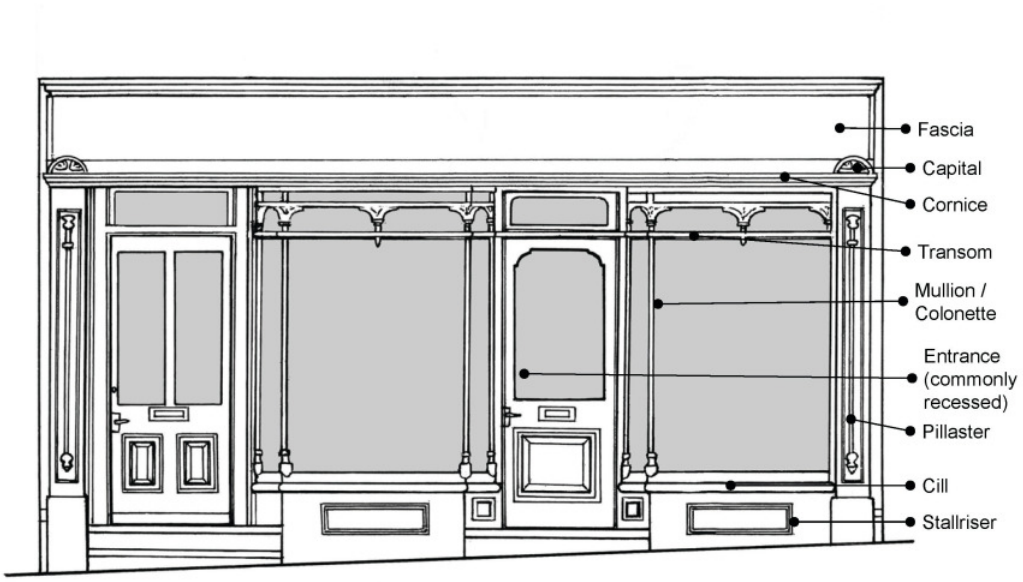
8.2.1 A successful shopfront should not only enable a business to effectively display its wares, but it should also provide a welcoming entrance to pull in customers. At the same time, however, it should also set the scene for the building above, and take its place comfortably within the rest of the street scene.

8.2.2 Unfortunately, during the second half of the 20th Century, this was seldom the case. Shopfronts with large plate glass windows tended to be superimposed onto buildings without any apparent thought being given to their relationship with the rest of the building. Important architectural features were often lost or concealed behind over-deep fascias, whilst shopkeepers owning adjoining properties often created continuous frontages thus ignoring the vertical divisions of the properties at higher level and the overall rhythm of the street.

8.2.3 In order to ensure that such misjudgments are not repeated, the following steps should be particularly helpful:

- **Repair rather than replace** - Where an attractive historic shopfront survives, the basic presumption should be to repair and retain it in situ; e.g. a Victorian shopfront in a Victorian building is rarely bettered. The Local Planning Authority will therefore only consider replacement where the original is beyond practical refurbishment.
- **Design** - Where replacement is acceptable in principle, the general design approach is the next consideration. A design based on the traditional English shopfront is usually the preferred option for historic buildings. However, more contemporary solutions may occasionally be acceptable if they successfully respect the character and appearance of the host building. On more recent buildings, the approach will normally be modern and of its time.

- **Detailing** - The best shopfronts usually have a number of basic components; i.e. a paneled or rendered stall-riser to provide a visual base for the shopfront, pilasters to frame the shopfront, a well-proportioned fascia to announce and cap the shopfront, properly moulded, vertical glazing bars to break up the areas of glazing, and a recessed lobby to give the shopfront added depth and interest. It is therefore recommended that these elements should normally be incorporated into the design of replacement shopfronts.



- **Materials** - The traditional material for shopfronts is painted timber and this remains the most suitable choice in historic contexts. Not only does it enable the accurate replication of mouldings and details, but it is also a renewable resource free from the harmful dioxins and chemicals found in many plastic and metal equivalents. These modern materials are also resisted on visual grounds where the end result would look flat and featureless.
- **Colour** - The careful use of colour can greatly heighten the overall design through the emphasis of detail and by creating a unity through the façade. Generally dark colours work best in association with creams and whites. Strident and garish colours will be resisted as they are not appropriate in rural North Norfolk.

8.3 Advertisements

8.3.1 In order to help guarantee the viability of our commercial premises, and thus the vitality of our town centres, all businesses should be able to advertise themselves successfully. At the same time, however, their advertisements need to pay due regard to their surroundings and be part of the overall design of the host building. Scale, form, detailing, lettering style and colour are the key determinants in achieving this and in ensuring that a new advertisement does not appear as an unsympathetic appendage. The following sections offer practical advice on the main sign types.

Fascia Boards

8.3.2 Wherever possible, fascia boards should be an integral part of a shopfront. Where this is not possible, the board should be edged with a properly moulded timber frame. Hand painted

8 Shopfronts and Advertisements

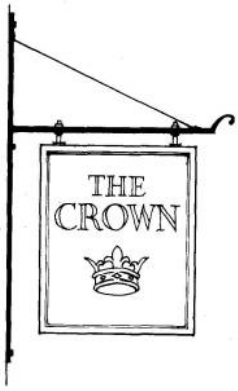
finishes are preferred particularly for historic buildings and conservation areas. However, other surface materials can be considered providing they have non-reflective finishes and restrained colours. The board itself should be sized to fit comfortably between window openings without obscuring arches and sills.

Sign Boards

8.3.3 Where a fascia is undesirable, small sign boards fixed alongside an entrance door, or on an end gable, can often be adequate. Again, hand painted signs are the preference in historic contexts but they are not the only solution. Often metal plaques can provide an attractive alternative, particularly when advertising professional practices. Such signs should be restricted in number and size to prevent visual clutter.

Hanging Signs

8.3.4 Hanging signs are a traditional method of drawing attention to business premises when viewed along a street. As such, their use is normally encouraged subject to their size, design and position on a building. Hanging signs should be restrained in size and not more than 0.9m x 0.6m. They are probably most effective as a simple framed rectangle with its shortest side attached to an iron bracket. However, individually-shaped trade symbols can also be successfully hung in this way. They are best sited between first floor windows taking care not to overhang the highway.

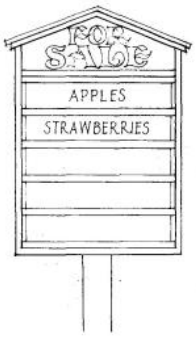


Petrol Stations & Garages

8.3.5 The Local Planning Authority accepts that the travelling public need to be able to readily identify the presence of a garage in daylight and in darkness. Consequently, the need to display obvious advertisements is recognised. However, it is expected that all constraints regarding height and numbers of advertisements will be observed and that signs will be designed and presented in an orderly way. Lettering and decorative strips attached to the fascia of a canopy are particularly intrusive and should be avoided.

Parish Notice Boards

8.3.6 The provision of small, well-designed notice boards at appropriate points in a village will be encouraged as an alternative to unsightly fly-posting.



Sale of Produce Signs

8.3.7 These signs frequently appear in rural areas advertising the sale of farm produce, flowers, etc. Often home made, these signs can remain in place for long periods to cover the seasonal availability of produce. The LPA will make every effort to encourage the display of properly designed signboards that have inter-changeable slats allowing details to be varied as required.

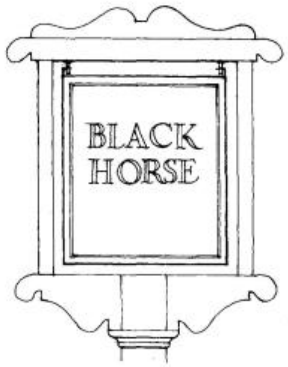
Advance Warning or Directional Signs

8.3.8 The Local Planning Authority rarely allows advance warning signs on the basis that they can

create inappropriate visual clutter, particularly in rural areas. Moreover, they are likely to be a distraction to drivers and could prejudice highway safety. On the rare occasions that they are necessary, such signs should be limited to a 'finger post' style, similar to those drawing attention to public footpaths. Where signs are required for tourist attractions, they should be 'brown signs' as erected by the Highway Authority.

Lettering

8.3.9 In any advertisement, the choice of lettering can hugely influence appearance. Therefore, care should be taken in selecting a font which reflects the character of the building rather than the nature of the business. The size of letter should have a comfortable relationship with the depth of the fascia or the overall size of the sign, whilst clarity and impact should rely on well chosen colours rather than excessive size. Light coloured lettering on a dark background is usually most effective. Individual letters in a classical style fixed directly to the wall can be acceptable where a fascia board is not appropriate.



Illumination

8.3.10 Illumination has a role to play in energising our settlements and making them attractive places, particularly in the winter months. However, care needs to be taken to ensure that the mode of illumination is appropriate for its surroundings. Within North Norfolk, the low-key nature of our market and coastal towns is in contrast with some of the bigger seaside resorts where high impact advertising is the norm. Hence, the emphasis will continue to be on the discreet use of trough lighting rather than internally illuminated box signs and fascias. However, the latter may occasionally be accepted where the illumination levels are restrained and restricted to the lettering or logo only. Internally-illuminated, individually-applied letters may also be considered where only the outline of the letter is illuminated (known as halo illumination).

As the Advertisement Regulations are a particularly complicated part of planning legislation, you are advised to contact the Council's Development Control Team to see whether your particular sign needs Advertisement Consent.

8 Shopfronts and Advertisements

Landscape Design 9

9 Landscape Design

KEY DESIGN GUIDE OBJECTIVES:

EN2:

- To protect and/or enhance sensitive landscapes and to ensure that all new developments are compatible with the District's Integrated Landscape Character Assessment.
- To protect and/or enhance the landscape setting of all settlements, conservation areas and historic parks and gardens, including any important views into and out of these locations.
- To protect and/or enhance our urban areas with appropriate hard and soft landscaping.

9.1 Introduction

9.1.1 North Norfolk has a rich diversity of landscape types ranging from the salt-marshes in the north, through the farmland and great estates of the centre, to The Broads in the south east (under separate planning control). Core Strategy Policy EN1 protects the Norfolk Coast Area of Outstanding Natural Beauty and the Broads, while EN2 outlines the criteria against which development proposals will be assessed in terms of landscape impact. The North Norfolk Landscape Character Assessment provides a full account of the main character areas. Of note, however, is the coastal strip which is designated as an Area of Outstanding Natural Beauty and the 'designed' Historic Parks and Gardens which cover vast swathes of the North Norfolk heartland.

9.1.2 Providing contrast to these soft rural landscapes are the harder urban environments of our larger settlements. Here, the treatment of surfaces between the buildings helps provide a calming backdrop to the normal hustle and bustle of daily life. Therefore, in its various soft and hard forms, the design of landscaping can have a major influence on our natural and built environments.

9.2 Rural Areas

Existing Planting

9.2.1 The careful use of existing planting can be the difference between buildings being successfully integrated into their landscape or not. Indeed, where established hedges and mature trees already exist, they should be retained to provide buildings with a natural link to their surroundings. By preserving a sense of continuity in this way, new developments are also more likely to be accepted locally. The Local Planning Authority will therefore always seek to resist the removal of these features, particularly where they have high amenity value or where they lie within a Conservation Area.

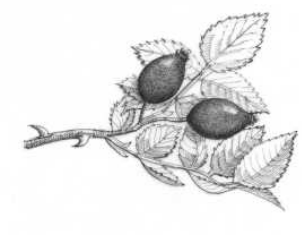
Note: Should you wish to carry out work to a protected tree (i.e. a tree that is subject to a Tree Preservation Order or a tree within a Conservation Area with a trunk greater than 75mm in diameter) you will need to make an Application for Tree Works to the District Council.

New Planting

9.2.2 Where there is the need to supplement existing planting or to start afresh, a choice should be made from native hedge and tree species in order to reinforce traditional rural landscapes. The temptation of planting quick growing species such as Leylandii should therefore be resisted. Where native trees are to be used, a check of which species are prevalent in the immediate

locality will help assimilate a new building into its setting. However, new planting should be used only as a means to soften or ameliorate acceptable developments. It should not be used to screen buildings which are either poorly designed or which are sited in sensitive locations; e.g. the AONB. At the same time, new planting should have a defined purpose and should not inadvertently create opportunities or hiding places for the criminal. Reference to the Secured by Design advice will assist in this regard.

Typical hedgerow plants: Hazel



Dog rose

Hawthorn

Blackthorn

Landscape Setting

9.2.3 A close examination of North Norfolk's rural villages and hamlets generally reveals loose-knit, multi-layered developments where buildings and gardens have developed incrementally. This creates a unique pattern of spaces in each settlement which over time become an intrinsic part of their character. As they also contribute so much to the appreciation and landscape setting of villages, they need to be protected against infill developments which would block important views into and out of the settlement in question.

9.2.4 Setting is even more important to more formal landscapes. Hence, Historic Parks and Gardens were often conceived either to exploit the views out into the wider landscape, or to restrict views into the parkland through contiguous tree belts. Proposals which compromise either designed intention must be avoided. Conversely, schemes which restore this identity will be supported.

9.2.5 Also important in defining our rural areas is darkness at night. To maintain this position, however, we have to collectively guard against unwanted light pollution which continues to encroach into our countryside. Therefore, when planning developments in rural locations, thought needs to be given to the type and position of lighting sources. Whether they are external or internal, lights should be angled or directed to avoid spill up into the sky or out of the site. Minimum wattage bulbs should also be used and hoods or shields fitted where practical. Buildings with large areas of glazing require particular attention as these can be especially damaging in rural areas.

9.3 Urban Areas

Trees & Hedges

9.3.1 Within the busiest of urban streets, trees can bring a sense of tranquillity. If carefully selected and located, they can also contribute much to a feeling of maturity and place. Where there are strong local precedents for planting certain tree species, these should be perpetuated. For example in Cromer, Corsican Pine and Evergreen Oak have long withstood the cold winds

9 Landscape Design

and salt air to complement the town's Victorian architecture. Similarly in Wells-next-the-Sea, the historic Georgian houses of The Buttlands are complemented by a number of established Lime trees.

9.3.2 Away from town centres, hedges too have a vital role to play in softening our suburban areas. By offering a natural alternative to the ubiquitous panelled fence, they not only provide attractive enclosures to gardens but they can also become havens for wildlife.

Street Furniture

9.3.3 Street furniture fulfills a variety of valuable public roles and is a familiar part of our urban areas. At the same time, however, it can also add to the visual clutter in a street scene especially when associated with traffic control and highway signs. Great care should therefore be taken in locating litter bins, lighting standards, finger posts and benches. They should also be carefully coordinated in design and colour. Cast iron, or cast iron effect fittings, finished in black are usually the most effective and afford the best background for lettering in a light colour. Consideration should also be given to selecting litter bins that will minimise opportunities for vandalism. Each town should, nevertheless, be considered in the light of its individual character and it may well be that if a town has a strong rural flavour, hand painted timber signposts would be more appropriate. Standardised 'civic' street furniture should be avoided as this can often be out of scale and perhaps too formal for North Norfolk's towns.

Paving

9.3.4 The Council has recently undertaken a range of environmental improvement schemes within Cromer, Fakenham and North Walsham. These have sought to introduce a consistent palette of paving materials into these town centres to increase their attractiveness. The expectation will be that developments which impact upon the public realm in these areas will use similar materials to promote a consistency of approach. Elsewhere, particularly in conservation areas, compatible natural materials such as stone slabs and granite setts should be selected to create appealing and welcoming floorscapes.

Market Place, Fakenham - this area was resurfaced in traditional materials as part of the Fakenham Conservation Area Partnership. It also incorporates public art which reflects the towns printing past.

Materials 10

10 Materials

KEY DESIGN GUIDE OBJECTIVES:

EN4:

- To ensure that all building materials are appropriate for their site and immediate setting.
- To ensure that all building materials are compatible within the District of North Norfolk.

EN6:

- To maximise the use of locally sourced / re-used / renewable / low embodied energy materials in the development, and minimise waste generated during construction

10.1 Introduction

10.1.1 Before the railways, North Norfolk had a limited palette of buildings materials. With its lack of natural stone, local builders had to be content with brick and flint as their principal materials. This forced them to be ever more creative with their buildings leading to the very strong vernacular styles illustrated in Appendix A: 'Traditional Details'. The railways then opened the area up by making many more mass produced materials available. This led to the closure of many local brickyards and brought an effective end to vernacular architecture in the true sense of the term.

10.1.2 Although this influx of non-local materials developed apace through the 20th Century, North Norfolk still remains predominantly a red brick and flint area. This said, many other materials can be specified and used where a clear local precedent exists or where a particular design justifies it.

10.2 Principles of Selection

10.2.1 The production, use and disposal of materials consumes significant energy and resources. Therefore, when planning a development, it is recommended that the principles outlined in Chapter 11 'Sustainable Construction' are taken into account when specifying materials.

10.3 Choosing Materials

10.3.1 The following table shows the suitability of materials in a variety of contexts. Rather than providing hard and fast rules, it is intended only to illustrate general principles about material choice.

10.3.2 Although the table generally favours the use of flint, there will be specific locations where its use will not be appropriate; i.e. in some urban areas and inland villages. Moreover, the use of flint should not be regarded as a means of injecting local character into an otherwise unsuitable design. It must be used prudently in accordance with local circumstances and good design practice.

Material		Explanatory Notes	Listed Buildings	Conservation Areas	Employment Areas	Other Areas
Brick:	Reclaimed local bricks	Normally red bricks but can be white or cream gault bricks.				
	New bricks with local characteristics	Normally smooth soft red bricks but can be cream gault bricks.				
	Other new or reclaimed bricks	E.g. Wirecut bricks, rustic textures, buff, brown and heather colour bricks.				
Flint:	Reclaimed flint	Normally round grey cobbles & nodules.				
	New small grey cobbles	Usually with a diameter of less than 125mm.				
	New large brown nodules	Usually with a diameter greater than 125mm.				
	Knapped or squared flint	Generally reserved for high status buildings.				
Render:	Smooth soft render	Normally lime-based with a float finish & rounded edges				
	Roughcast or hard render	Normally cement-based with sharp angles & drips.				
Weather Boarding:	Stained, tarred or natural	Normally horizontal on farm buildings & vertical on domestic work.				
Hanging Tiles:	Clay tiles	Found mainly on post 1870 revival buildings.				
	Concrete tiles	A C20th alternative to clay.				
Pantiles:	Reclaimed clay pantiles	Displaying the traditional gentle curved profile.				
	New clay handmade pantiles	With the correct profile and surface texture; i.e. without a hard engineered finish.				
	Other new clay pantiles	E.g. Interlocking, double or machine-made pantiles.				
	Concrete pantiles	A C20th alternative to clay.				
Plain tiles:	Clay tiles	Found mainly on post 1870 revival buildings.				
	Concrete tiles	A C20th alternative to clay.				
	Wooden shingles	Usually reserved for small public buildings & shelters.				
Slates:	Natural slates	Traditionally Welsh but also Spanish & Chinese.				
	Man-made slates	Reconstituted cement-based slates.				
Thatch:	Reed	The native option if sourced locally.				
	Wheat and straw	Without any real precedent in the District.				
Profiled sheets:		Metal / asbestos cladding, either coloured or natural				
PV Cells:	On prominent elevations	On elevations readily visible from public vantage points.				
	On secluded elevations	On rear elevations or behind parapets, etc.				

Generally appropriate Occasionally appropriate Generally inappropriate

10.3.3 The list of materials above is by no means exhaustive and does not preclude others being chosen. Indeed, with the move towards low carbon forms of construction, many more materials will undoubtedly come forward. Some of these could be re-inventions of traditional techniques such as rammed earth or clay lump, whilst others could be relatively new such as straw bale and hemp construction. Whichever material is chosen, however, the expectation is that the

10 Materials

resultant building should pay due regard to its immediate setting. Whilst this may sometimes involve a new design aesthetic, the end result should still have local identity and be firmly rooted in North Norfolk.

Saxlingham Road, Blakeney - a new dwelling partly constructed in rammed earth.

Union Road, Smallburgh - a new low carbon dwelling which has been rendered in lime and finished in limewash.

Sustainable Construction 11

11 Sustainable Construction

KEY DESIGN GUIDE OBJECTIVES:

EN6:

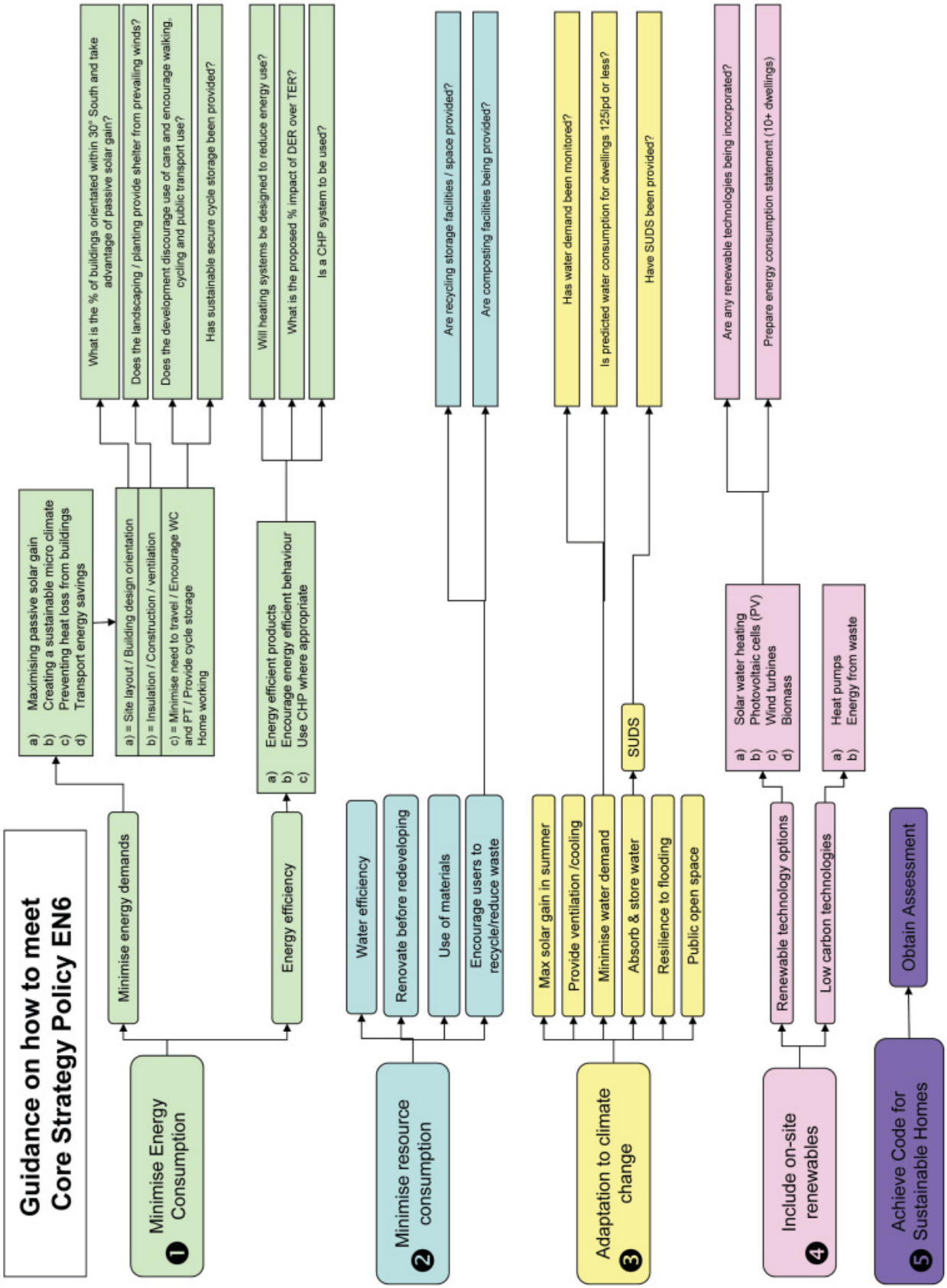
- To ensure that all new development demonstrates how it minimises energy consumption compared to the current minimum required under part L of the Building Regulations.
- To ensure that all new development demonstrates how it minimises resource consumption.
- To ensure that all new development is located and designed to withstand the longer term impacts of climate change.
- To ensure that all new dwellings achieve at least a 2 star rating under the Code for Sustainable Homes. This requirement will rise, so that by 2010 new dwellings will achieve at least a 3 star rating and by 2013 at least a 4 star rating will be achieved.
- To encourage all new developments to incorporate on site renewable and/or decentralised renewable or low carbon energy sources. Development proposals over 1000 square metres or 10 dwellings will be required to include on site renewable energy technology to provide for at least 10% of predicted total energy usage. By 2013 this requirement will rise to at least 20%. These proposals will be supported by an energy consumption statement.

Introduction

11.0.1 This chapter provides more technical information on aspects of sustainable construction. The information provided here should be considered together with the design advice in the previous chapters and should not be seen as separate from the design process. However, as these issues are generic to most types of development they have been provided in a separate chapter. The chapter considers each policy objective in turn and provides information on how to minimise energy and resource consumption, how to build in ways that can adapt to climate change and how to introduce renewable and low carbon technologies into developments. The diagram opposite provides a summary of what measures can be used to implement the policy objectives within Core Strategy Policy EN6. Further information sources can be found in Appendix B: 'Sustainable Construction - Further Information' which will be updated on a regular basis.

11.0.2 The five main themes of Core Strategy Policy EN6; energy consumption, resource consumption, adaptation to climate change, renewable technologies and the Code for Sustainable Homes are further explained in the sections below.

Sustainable Construction 11



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11.1 Minimising Energy Consumption

In order to minimise energy consumption developers should firstly minimise the demand for energy (through maximising passive solar gain, preventing heat losses and reducing transport needs). They then need to consider how the development can use the energy that is required as efficiently as possible. This can be achieved through installation of energy efficient appliances and heat and power sources, and by encouraging energy efficient behaviour in the future users of the building. These techniques are covered in more detail below.

Minimising the Demand For Energy

Maximise passive solar gain

11.1.1 Sunlight through windows is a useful source of heat and it can help to reduce the need for conventional space heating. The layout and design of new development should maximise the potential for this passive solar gain:

SITE LAYOUT

- Buildings should generally be orientated with the longest face within 30 degrees of due south.
- Tallest buildings should be located to the north of the site to minimise over-shading.
- Parking and garages should be located to the north of housing.
- Bungalows and detached houses should be located to the south of the site.
- Trees and shelter belts should be located at 3-4 times their mature height from south facing elevations to minimise over-shading.

BUILDING DESIGN

- The main glazed elements should be located on the south elevation.
- The internal layout should be designed to ensure the main living rooms and other frequently used rooms are on the south side, and rooms that benefit less from sunlight (e.g. bathrooms, bedrooms and utility rooms) are on the north side, kitchens may also be better positioned on the north side to avoid excessive heat gain.
- The use of high pitched roofs which overshadow neighbouring buildings should be avoided.

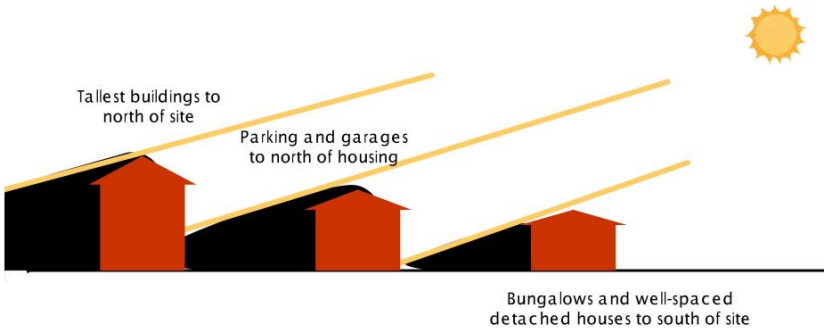

Figure 1 Planning to minimise overshadowing

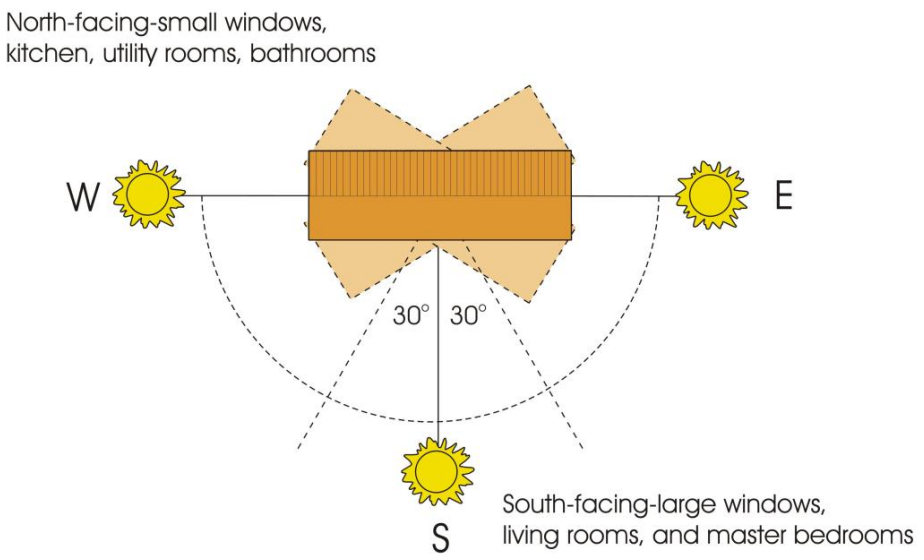

Figure 2 Principles of passive solar design

11.1.2 It is important to balance the benefits of reduced energy consumption in winter, with the risk of excessive solar gain in summer which may increase the demand for energy for cooling [9] Passive solar designed houses do not need over-sized south facing windows; if windows are too large heat losses may outweigh solar gains, and a desire for privacy may lead to the installation of net curtains / blinds which will reduce any heat gains. Measures such as shutters and brise-soleil are effective in preventing excessive solar gain in summer [10] In order to avoid the unnecessary use of internal lighting on the north facing elevation windows should be approximately 15% of the room's floor area.

COMMERCIAL BUILDINGS

11.1.3 The objectives and use of passive solar design in commercial buildings differ from those of domestic dwellings: As offices generate substantial amounts of heat from their occupants, lights and machinery it is more important to control solar gain with shading to prevent overheating, than to attempt to use solar gain for winter heating. This is in order to avoid the need for air conditioning. There should be a stronger emphasis on the exploitation of daylight and natural ventilation as up to 40% of energy costs can be accounted for by lighting. In commercial buildings passive solar design should seek to optimise the entry and dispersal of daylight in a building through the careful placing and sizing of windows, the avoidance of deep-plan buildings and the use of atria and roof lights to bring light into the heart of the building.

Create a Suitable Microclimate

11.1.4 Sheltered sites lead to less heat loss from buildings than exposed sites; creating shelter belts can help achieve this. They need to be carefully positioned so they do not reduce solar gain

9 *see 11.3 'Adaptation to Future Climate Change'.*
10 *see 11.3 'Adaptation to Future Climate Change'.*

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by overshadowing. Shelter belts should be orientated in the direction of the prevailing winds (mainly from the south west in the UK) and coldest winds (from the north) and distanced 3 - 4 times their mature height from south facing elevations.

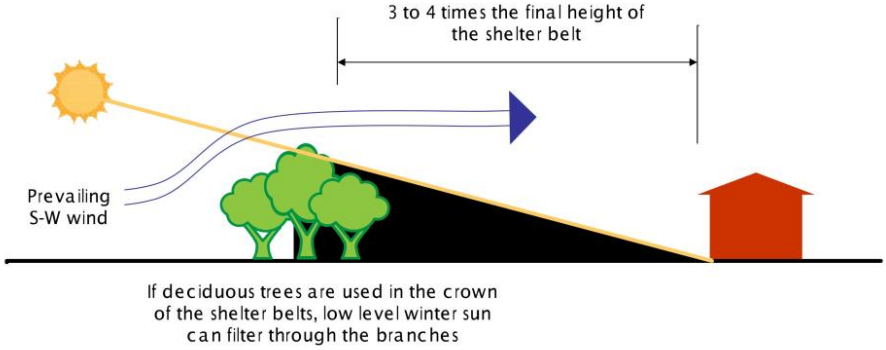

Figure 3 Distance of houses from shelter belts

Prevent Heat Losses From Buildings

INSULATION

11.1.5 Insulation of walls, roofs and floors, doors, windows and window frames can be improved above the standards specified by current Building Regulations, to reduce the need for space heating. Further information on the insulating properties of various materials can be found in the Energy Saving Trust publications referenced in Appendix B: 'Sustainable Construction - Further Information'. The British Fenestration Rating Council (BFRC) has developed a window energy rating label using an A-G scale. The Council strongly encourages windows in new developments meet band C as a minimum.

Building Design and Construction:

11.1.6 Minimise external wall areas: Joining buildings together in terraces and designing the form of the building to lower the ratio of heat loss area (as illustrated in figure 4), reduces heat losses through exposed walls.

11.1.7 Draught lobbies (an additional door and unheated space between the main entrance and hallway) can also help to reduce heat losses.

11.1.8 Accredited construction detailing techniques should be followed to minimise heat losses through thermal bridges and to ensure the building is as air-tight as possible.

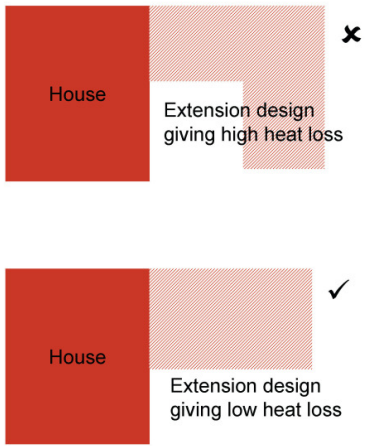

Figure 4 The influence of the form on heat loss.

Ventilation:

11.1.9 The traditional use of air infiltration to provide ventilation has often resulted in excessive ventilation rates that lead to increased use of space heating by occupants. With increased insulation reducing air infiltration it is important that adequate energy efficient controlled ventilation is provided by other means.

11.1.10 Passive Stack Ventilation (PSV): The use of PSV should be maximised as it does not require energy to operate. It employs the principle that warm air rises, removing stale air, and the use of trickle vents which allow replacement air into the building.

11.1.11 Intermittent extract fans: If these are required, low energy fans should be used with carefully placed humidity sensors that will help to reduce the energy demand.

11.1.12 Mechanical ventilation: If PSV is not sufficient to provide the fresh air requirements of a dwelling then mechanical ventilation with heat recovery (where the heat exchanger is more than 65% efficient), should be used.

Transport Energy Saving

Access and Movement:

11.1.13 Developments which minimise the need to travel and encourage cycling, walking and public transport use can lead to significant energy savings. Cycle ways and walkways should be provided to link the development to key services such as shops, schools and doctors.

Provision of Suitable Cycle Storage:

11.1.14 Adequately sized, secure and weather proof cycle storage is required according to the amount specified in Core Strategy Appendix 3 parking standards.

11.1.15 The space provided should be 2m long x 0.75m wide per cycle. If this space is going to be provided in a shed or garage there should be sufficient space for other uses e.g. tools and a car. If a solid structure is to be provided then there should be a secure entrance lock. If a shed or non-solid structure is proposed then secure fixings to lock bicycles to, should be provided.

Home Working:

11.1.16 Provision of sufficient space and services to allow the occupant to set up a home office in a

suitable room should be provided. Sufficient space should be provided to allow a desk and filing cabinet to be installed, and services should include; 2 double power sockets, 2 telephone points (one where there is a broadband / cable connection), a window and adequate ventilation.

Using Energy Efficiently

Install energy efficient appliances and products

Lighting:

11.1.17 Compact Fluorescent Lamps (CFLs) and Light Emitting Diodes (LEDs) use at least one fifth of the energy of conventional tungsten bulbs and can last up to eight times longer. Developers should demonstrate how they have exceeded the percentage of dedicated CFL fittings required under current Building Regulations, and should prioritise their installation in the most used rooms of the dwelling; living and dining rooms, kitchens and hallways.

11.1.18 In commercial buildings maximum use of daylight should be made [11]. The use of energy efficient lighting will reduce both energy use and heating loads to the building, and should be maximized. Task lighting should be used to reduce the use of background lighting and a lighting control system should be installed to avoid lights being left on unnecessarily.

White Goods:

11.1.19 Any white goods provided should be as energy efficient as possible. Provision of secure drying space should be considered as an alternative to tumbler dryers.

Commercial Developments - Office Equipment:

11.1.20 The increased use of electrical equipment has led to an increased need for air conditioning, sometimes resulting in an increased energy demand of up to 50%. Equipment with reduced power demands should therefore be used where possible. Equipment with a high heat load e.g. mainframe computers and large photocopiers should be separated from the main office accommodation.

Heating System:

- **Fuel choice:** Carbon Dioxide emissions per unit of energy delivered to a building are far greater for electricity than gas, so electric heating systems should be avoided unless served by heat pumps or renewable energy.
- **Boiler:** These should be A rated by SEBUK or carry an energy saving recommended logo. Heating systems should have the following controls: A programmer; a room thermostat; or a combined programmable room thermostat (instead of separate programmer and room thermostat); a cylinder thermostat (if there is a hot water cylinder); and thermostatic radiator valves (TRVs) in all rooms without a room thermostat. The programmer should be easily accessible and the thermostat located in the main living area of the dwelling. The hot water tank and pipe work should be well insulated and radiator panels should be fitted behind radiators on external walls.

11 *see 11.1 'Minimising Energy Consumption' (11.1.4)*

- **Under floor heating:** These systems use water passing through coiled pipes running under or in the floor, producing a large gently radiating floor area which only needs to be a few degrees warmer than the air in the room to provide a suitable level of thermal comfort. These systems are more efficient as they use less fuel as the water needs to be heated to a lower temperature (45-50°C). They can be operated using a variety of fuel sources including solar panels, a heat recovery system, ground source heat pump or biomass. The pipes can either be laid within the structural floor slab or directly beneath floor systems and many kinds of flooring can be used with tiles, stone and slate being particularly effective as they transmit heat effectively.

Encourage Energy Efficient Behaviour

A home user guide should be provided in each dwelling covering the following areas:

- Details of any renewable energy systems and how they operate, including any routine maintenance required.
- General information on energy efficiency.
- Details of water saving measures and how they operate, including any routine maintenance required.
- Details of any SUDS scheme.
- Location of recycling bins.
- Location and use of composting bins.
- Information on the Local Authority waste and recycling collection scheme.
- Details of local public transport facilities.
- Details of cycle storage and cycle paths.
- Details of park and ride / car sharing / car pools in the area.

In commercial developments the following should also be considered;

- Provision of effective central, zone and room controls.
- Incorporation of a Building Energy Management System.
- Provision of metering systems that encourage future effective monitoring and management of energy use.

Use Combined Heat and Power (CHP) and District / Community Heating Where Appropriate

11.1.21 Combined Heat and Power (CHP) plants provide both electricity and heat to a site and can reach efficiencies of 85% compared to that of around 30% from traditional electricity generation, where the heat generated is wasted. Plants generally run on gas, although biofuels can be used. In its simplest form, it employs a gas turbine, an engine or a steam turbine to drive an alternator, and the resulting electricity can be used either wholly or partially on-site. The heat produced during power generation is recovered, usually in a heat recovery boiler and can be used to raise steam to provide hot water for space heating. CHP systems can, with the addition of a chiller, also supply cooling for air conditioning systems as well as heating - such an arrangement is often called a ‘trigeneration’ system. CHP is a form of a decentralised energy technology. CHP systems are typically installed on site, supplying customers with heat and power directly at the point of use, and therefore also help avoid the significant losses which occur in transmitting electricity from large centralised plants to the customer. As less fuel is burnt this means reduced emissions of carbon dioxide and the other products of combustion.

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11.1.22 Heat is usually supplied through a district / community heating system which comprises a grid of insulated hot water pipes that carry heat to a range of buildings which then do not need their own boilers. The main difference the end users will notice is an 'hydraulic interface unit' which replaces the gas boiler. This contains the incoming and outgoing heat mains, control valves and metering.

11.1.23 CHP and district heating schemes are generally best employed where there is a large (4000 hours per year) and constant supply for heat e.g. leisure centres, hospitals and in mixed use developments, and their use in such developments should be fully explored through a feasibility study. Developers of buildings with a floorspace over 1000sqm must show they have considered CHP, renewables and connection to a heat network to comply with the EU Energy Performance in Buildings Directive.

11.1.24 If CHP is to be used the developer will need to identify or set up a company (such as an Energy Services Company or ESCo) to install, manage and operate the scheme. The Council strongly encourages developers to examine the viability of district / community heating schemes through an options appraisal, undertaken by a suitably experienced consultant. Pre-application discussions with the Council should also be held regarding the management and use of such systems, especially in areas with sub-station capacity issues outlined in Section 4 of the Core Strategy.

Micro CHP

11.1.25 These can replace domestic heating boilers for space and hot water heating, whilst at the same time generating electricity for use in the dwelling or exporting to the grid. As they use gas as the main fuel they cannot be considered renewable, but they do have a significantly reduced environmental impact compared to conventional heating systems.

Demonstrating the Energy Efficiency of New Development

11.1.26 Part L1A and L2A of the Building Regulations require a minimum standard of energy efficiency in new buildings. Developers are expected to achieve standards beyond these minimum levels so that the significant environmental benefits of reducing energy consumption are maximised. The Council encourage the following standards to be met:

% improvement of Dwelling Emission Rate over Target Emission Rate	Date	Code for Sustainable Homes equivalent (dwellings only)
18%	Up to 2010	2
25%	From 2010	3
44%	From 2013	4

11.2 Minimising Resource Consumption

11.2.1 Reducing the use of resources should be achieved through both reducing the resources used during the construction process (such as building materials) and through enabling the future occupiers of buildings to reduce their use of resources during the lifetime of the building, particularly in terms of water use.

Water efficiency

11.2.2 Dwellings should be designed to use no more than 125 litres of potable water per person per day, in line with the recommendation in the Government Consultation 'Water efficiency in new buildings'. See 11.3 'Adaptation to Future Climate Change' (Minimise water demand) for further details on measures that could be used to achieve this target.

Choice and use of building materials

11.2.3 The production, use and disposal of building materials consumes significant quantities of both energy and resources. Developers should follow the following hierarchy of principles when planning and designing their development:

Renovate before redeveloping

11.2.4 Existing buildings on the site should be renovated rather than demolished where possible since the initial embodied energy expended in construction is largely retained, less waste is produced and less energy is consumed overall.

Maximise the use of local materials

11.2.5 This reduces transport requirements and also helps to maintain local character. Clay, flint, carstone, timber, reed and straw are the main building materials available in Norfolk. Chapter 10 outlines where the use of a range of materials may and may not be appropriate in the District.

Maximise the use of reclaimed or recycled materials

11.2.6 This approach is inherently sustainable and normally offers visual advantages. Over-specification of reclaimed materials can, however, lead to the unnecessary stripping of traditional buildings and so a cautionary approach is recommended when sourcing such materials. Examples of such materials include:

Reclaimed	Recycled
Re-used timber sections or floorboards	Panel products with chipped recycled timber
Bricks cleaned up and reused	Crushed concrete or bricks for hardcore
Re-used glass panels or windows	Crushed glass recycled as sand or cement replacement

11.2.7 Some methods of building use a high proportion of both reclaimed and recycled materials e.g. earthship building methods use waste tyres and glass bottles and the main building materials.

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Maximise the use of renewable materials from sustainably managed sources

11.2.8 For example the Forest Stewardship Council's Trademark is a label on timber and wood products which indicates that the wood comes from a sustainably managed forest.

Maximise the use of materials with a low embodied energy

11.2.9 This is the amount of energy required to extract, make and transport a product. For example, products which have long manufacturing processes, such as plastics, have high-embodied energy because they use up fuel and other resources. Timber, which in some cases only needs sawing before it is ready for use, has low embodied energy. Timber window frames would therefore be strongly encouraged over uPVC and aluminium. Section 7 of the Green Building Bible (see Appendix B: 'Sustainable Construction - Further Information') suggests some alternatives to other high embodied energy materials such as cement.

Use materials efficiently

11.2.10 Developers should seek to minimise the volume of materials used and avoid a wasteful specification through a design that utilises whole units of construction materials. Materials should be stored on site in a way that minimises losses to damage caused by rain and damp.

Audit the materials on-site

11.2.11 The extent to which materials could be put to use in the development or elsewhere (e.g. concrete and brickwork as crushed aggregate / hardcore) should be assessed.

Composting

11.2.12 Home composting facilities should be provided in houses with gardens, to enable a reduction in the amount of food waste that is sent to landfill. In other situations the potential for communal composting provision should be fully explored.

Recycling

11.2.13 Sufficient covered external space should be provided to house all containers provided under the Local Authority refuse and recycling scheme. Containers should not be stacked to ensure ease of use.

11.3 Adaptation to Future Climate Change

11.3.1 A consideration of the potential impacts of climate change is particularly relevant to the design of new developments if they are to be considered truly sustainable in the long term. Possible future climate change scenarios in North Norfolk include: warmer wetter winters, hotter drier summers, more frequent and extreme rainfall events, and higher wind speeds as well as rising sea levels.

11.3.2 The possible effects of these changes that developers should consider are:

- Increased likelihood of flooding (fluvial, flash and coastal);
- Higher temperatures;
- Increased demand for water but reduced supply;

- Increased coastal erosion; and
- Increased demand for public open space.

Key Adaptation Measures for Developers

Minimise solar heat gains in summer

11.3.3 It is important that energy efficiency measures such as passive solar design do not exacerbate summer heat risks. This can be achieved through use of the following techniques:

- **Shading:** The use of blinds / shutters / external fixed shading devices such as brise-solail and shade from landscape features such as deciduous trees should all be considered as methods of minimizing summer solar gains. Specialist glazing (solar reflecting and absorbing glass) can also be used although this requires careful consideration, as the reduction in daylight transmission may be acceptable on bright sunny days but unacceptable on overcast days.

- **Materials:** Well insulated buildings prevent the penetration of heat into the building, and green roofs have also been used to successfully reduce internal heat gains. Reflective surfaces, especially on roofs can also reduce heat gains. The use of materials with a high thermal mass can minimise heat gains to the building interior during the day, but need to be coupled with the use of night time ventilation to remove the heat that is absorbed during the day, otherwise overheating may occur in prolonged periods of hot weather.

Provide adequate & secure ventilation and/or cooling

11.3.4 The following ventilation / cooling hierarchy should be followed during the design of new developments:

- Reduce internal heat gains from lighting, appliances and hot water production, through the use of energy efficient appliances and lighting, and by insulating hot water cylinders and primary pipe work.

- Reduce cooling demand as far as possible using the principles of passive stack ventilation. Night-time ventilation is particularly important in removing heat built up in the day, especially where high thermal mass is used, and so it is increasingly important to provide secure ventilation systems.

- Manual cooling and ventilation technologies, where necessary, should be designed to use as little carbon based energy as possible by utilising renewable energies and being as energy efficient as possible.

Minimise water demand

11.3.5 In accordance with the Government Policy Statement: 'Water efficiency in new buildings' all new dwellings should use no more than 125 litres of potable water per person per day. Achieving this target could involve the use of one or more of the following techniques:

- **Rainwater harvesting :** This is the collection of water that would otherwise have gone down the drain, into the ground or been lost through evaporation. Large surfaces such as roofs and driveways are ideal for rainwater harvesting. Generally green roofs do not provide as much harvesting potential as traditional roofing materials, so the use of rainwater harvesting and green roofs on the same building requires careful consideration. This water is not suitable for drinking but can be used for flushing toilets, watering gardens and even

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supplying the washing machine. Rainwater harvesting has the potential to save a large volume of mains water and therefore help reduce the pressure on water resources. Water butts to supply garden watering requirements are the simplest form of rainwater harvesting system, their installation is encouraged in all new dwellings.

- **Greywater recycling :** Wastewater from all sources in a property other than toilets is known as greywater. Most greywater recycling systems collect and treat wastewater from showers, baths and wash basins, excluding the more contaminated water from washing machines, kitchen sinks and dishwashers. Greywater recycling systems collect this water, treat it and re-use it for purposes that do not require drinking water quality. This recycled water can be used to flush toilets, water gardens and sometimes supply washing machines.

Installing water efficient fixtures and fittings

- **Taps:** Install flow reducing / aerating taps.
- **Shower:** Install 6-9 litre per minute showers.
- **WC:** Install 6/4 litre dual flush WCs and waterless urinals in commercial buildings.
- **Bath :** Tapered or peanut-shaped baths that are still long enough to lie down in require less water to fill up. Insulate the bath to minimise the need for regular topping up with hot water when taking long soaks.
- **Washing machines:** Energy efficiency labels also contain information on water use; it is possible to buy washing machines that use less than 50 litres of water per wash and these should be installed in new developments where white good are provided by the developer.
- **Dishwashers:** It is possible to buy dishwashers that use less than 12 litres of water per cycle and these should be installed in new developments where white goods are provided by the developer.

Provide features to absorb and store floodwater and attenuate run-off rates

11.3.6 This can be achieved by considering the use of a number of techniques that are collectively know as Sustainable Drainage Systems or SUDS. The concept behind SUDS is to copy the natural environment as far as possible and to smooth the flow of surface water run-off by reducing the peaks and troughs caused by rainfall events. As a general rule, the rate of surface water run-off after development should be the same as if the site had not been developed.

Choosing the right SUDS system

11.3.7 A feasibility study should be undertaken early in the planning of the development as the choice of SUDS techniques will depend on a number of factors such as:

- the pollutants present in the run-off;
- the size of and drainage strategy for the catchment area;
- the hydrology of the area and infiltration rate of the soil (North Norfolk's Strategic Flood Risk Assessment provides some information and recommendations regarding the suitability of SUDS in a numbers of areas of the District);
- the location of Groundwater Source Protection Zones or contaminated land.

Adoption and Future Maintenance

11.3.8 In the early stages of design, consideration should be given to the arrangements for adoption and future maintenance of the system. This is likely to influence the design just as much as technical considerations. It is recommended that maintenance should be the responsibility of

a publicly accountable body, which will often necessitate the payment of a commuted sum or a legal agreement, possibly backed up by the deposit of a financial bond. The adopting organisation should approve the design before construction commences.

Potential Techniques

- **Green roofs or rainwater harvesting:** These can reduce flow rates and improve water quality: Green roofs can reduce the peak flow and the total volume discharged, and improve water quality. In addition, they can improve insulation and increase the lifespan of the roof. Rainwater harvesting involves the collection of the rainwater on site and its use as a substitute for mains water, for example in watering a garden or for flushing toilets.

- **Permeable pavements :** The need for surface water drains and off-site sewers can be reduced or eliminated where run-off is encouraged to permeate through a porous pavement, such as permeable concrete blocks, crushed stone or porous asphalt.

- **Swales and basins :** These features provide temporary storage for storm water, reduce peak flows to receiving waters, facilitate the filtration of pollutants (deposited and incorporated into the substrate) and encourage microbial decomposition, as well as allowing water infiltration directly into the ground.

- **Infiltration trenches and filter drains:** Infiltration trenches comprise stone-filled reservoirs to which storm water run-off is diverted, and from which the water gradually infiltrates into the ground. Their longevity is enhanced by incorporating a filter strip, gully or sump pit to remove excessive solids at the inflow.

- **Ponds and wetlands :** Although these can be designed as wet or dry ponds, or wetlands, they are most likely to also contribute to visual amenity and biodiversity where they include a permanent water body. Ponds or wetlands can be designed to accommodate considerable variations in water levels during storms, thereby enhancing flood-storage capacity. As well as contributing to biodiversity, with careful design such areas can also provide public open space.

Ensure buildings are sited outside potential flood risk zones but, where this is not possible, that they are designed to be resilient to future flood events

11.3.9 Compliance with Core Strategy policy EN10 will ensure that development does not occur in flood risk locations. The North Norfolk Strategic Flood Risk Assessment includes predictions based on future climate change scenarios. Where the sequential test permits buildings to be located in a flood risk zone the following design hierarchy should be followed:

- **Flood avoidance:** Constructing a building and its surrounds (at site level) in such a way to avoid it being flooded (e.g. by raising it above flood level)

- **Flood resistance:** Constructing a building in such a way to prevent floodwater entering the building and damaging its fabric.

- **Flood resilience:** Constructing a building in such a way that although flood water may enter the building its impact is reduced (i.e. no permanent damage is caused, structural integrity is maintained and drying and cleaning are facilitated).

- **Flood repairable:** Constructing a building in such a way that although flood water enters a building, elements that are damaged by flood water can be easily repaired or replaced. This is also a form of flood resilience.

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Increased demand for public open space

11.3.10 With generally warmer weather there is likely to be more demand for outdoor spaces, both public and private. It will be important for these spaces to provide natural shade (for both people and buildings), which will also increase evaporative cooling. The choice of vegetation will need to ensure that it is appropriate to the changing climate and contributes to local biodiversity. The use of lawns may need to be reduced due to their high water demands. The Royal Horticultural Society has more information on which garden plants may be most suitable for our future climate (see Appendix B: 'Sustainable Construction - Further Information').

11.4 The Code for Sustainable Homes

11.4.1 The Code for Sustainable Homes was launched by the Department for Communities and Local Government in December 2006. The Code measures the sustainability of a new home against nine categories of sustainable design;

- Energy and carbon dioxide emissions
- Water
- Materials
- Surface water run-off
- Waste
- Pollution
- Health and well-being
- Management
- Ecology

11.4.2 It rates the whole home as a complete package using a system of stars, with one star being the entry level which is just above the level of current Building Regulations, and six stars being the highest level reflecting an exemplar development in sustainability terms.

11.4.3 Minimum standards exist for a number of categories but after that the Code is completely flexible and developers can choose which categories they meet standards in, to achieve the required level of the Code.

11.4.4 An assessment to determine which Code level has been achieved must be undertaken by an accredited Code Assessor. A list of assessors can be found on the websites of those organisations licensed to train and accredit Code assessors, currently;

http://www.breeam.org/assessors/csh.jsp

11.4.5 Code assessors can conduct an initial design stage assessment and issue an interim code certificate. A final code certificate of compliance is issued after a post-completion check, to verify the rating that has actually been achieved.

11.4.6 From May 2008 the Government has made it mandatory for all new homes to be rated against the Code. At this stage, it does not mean that every new home has to be assessed against the Code, but that everyone interested in buying a new home will be able to see whether the property had been assessed, and if so, what star rating it had achieved. This information will be required as part of the Home Information Pack. See Appendix B: 'Sustainable Construction - Further Information' for further sources of information regarding the Code.

11.5 Renewable and Low Carbon Technologies

11.5.1 Core Strategy Policy EN6 requires that on larger developments, a proportion of the predicted energy use should be provided from on-site renewable energy. In order to assess this requirement, an energy consumption statement will need to be submitted with relevant planning applications. The opportunity for developments to incorporate renewable and low carbon energy sources will differ, as the viability of these technologies will be affected by the physical nature of the development such as aspect, building height and the amount of open space. Early discussions with the planning authority are recommended, and a feasibility study should be undertaken by an energy specialist in order to establish the most appropriate energy source(s) for the new development. Even if it is not planned to incorporate these technologies into the initial build, buildings should be 'future proofed' to ensure that these technologies can be successfully added at a later date.

Technologies that have the most potential to be exploited in the District include:

Renewable Technologies

Solar Water Heating

11.5.2 These use a heat collector, usually mounted on a roof, which contains a fluid that is heated by the sun. The heated fluid is then passed through a coil in a hot water storage cylinder and this water can then be used immediately or raised to a higher temperature (if required) by a boiler. A well designed system can contribute between 40-50% of a household's yearly hot water requirements, but they perform best in summer, which can avoid the need to run boilers at low loads when they are not as efficient. Careful consideration should be given to their siting to ensure maximum solar exposure and minimum overshadowing.

Developer considerations include:

- Larger than average hot water cylinders are required to maximise the efficiency of the system, which will need to be reflected in airing cupboard design.
- Between 2-5m^3 of south facing roof space will be required, which should not be shaded by trees or other buildings.
- Future proofing to enable solar hot water collectors to be added at a later date should include dual coil, appropriate sized hot water tanks, and a compatible boiler.

Photovoltaic Cells (PVs)

11.5.3 These cells convert the sun's heat directly in to electricity and can be incorporated on most buildings as tiling or cladding.

11.5.4 Again, careful consideration should be given to their siting to ensure maximum solar exposure and minimum overshadowing, as this can reduce the efficiency of the cells markedly. They are well suited to use in large offices as the energy supply is at a maximum during the period of maximum building operation, whereas generally domestic dwellings have a maximum demand between 6pm and 10pm when the sun is low in the sky or set. PVs have a longer payback period than both solar hot water heating and wind turbines as they are less efficient, and as they are particularly affected by overshadowing, careful site survey and feasibility studies should be undertaken before considering them as part of the renewable energy solution for a building.

Developer considerations include:

11 Sustainable Construction

- PVs should be mounted on facades facing SE-SW and at an elevation of between 30-40° (this angle also helps keep them clear of debris).
- They should only be used where they will be completely un-shaded.
- Future proofing to enable PV cells to be added at a later date would need to ensure the roof structure could support the weight of the cells.

Wind Turbines

11.5.5 These can either be building mounted (micro scale) or free-standing, grid-connected or stand alone. Reliable estimates of windspeed at the proposed site should be obtained as part of the feasibility study. The Department of Business Enterprise and Regulatory Reform wind speed database contains estimates of the annual mean wind speed throughout the UK. However it is very unlikely to give an accurate idea of wind speed at a proposed site for a small wind system, particularly in urban or built up areas, and if wind speed at the site is not in the range at which the small wind system capacity is rated then the system may deliver less electricity than expected. This data can only be used as a guide and should be followed by on-site measurements for a proper assessment. Generally, sites need an average windspeed greater than 4.5m/s although roof mounted turbines can work at speeds as low as 3.5m/s. With the exception of micro building-mounted turbines, wind turbines need to be sited away from buildings to ensure that the airflow is as undisturbed as possible.

Developer considerations include:

- Determine the average windspeed onsite as part of the feasibility study.

Biomass

11.5.6 Biomass boilers burn the chipped or pelleted products of forestry operations or short rotation coppice. They can be used to provide both space and hot water heating and range in scale from simple manual fed domestic stoves to boilers to suit any development, whatever its size. Both the woodchip and pelleted forms can be automated, requiring no day-to-day attention and maintenance is of a low level, routine nature.

Developer consideration include:

- Dry storage space is required for the fuel.
- These systems are likely to require more frequent maintenance so provision needs to be made for an auxiliary heating when maintenance is required and for removing and disposing of ash.
- Future proofing for use of this technology should include ensuring buildings already have a flue fitted, especially now that most new developments do not have chimneys. Developers should also ensure there is sufficient space for biomass storage.

Low Carbon Technologies

Heat Pumps

11.5.7 These work on the same principle as refrigeration units, by generating heating or cooling through exploiting naturally occurring heat differences in different mediums: Heat pumps then increase the temperature to provide a more useful output temperature of around 40-50°c which are best used with low temperature heating systems such as under-floor heating. Whilst heat pumps can provide 100% of a dwellings heat requirements, they will usually only pre-heat

domestic hot water so another form of hot water heating will be required. Heat pumps do require some power to operate so they can only be considered 100% renewable if the power to operate the pump comes from a renewable source.

Ground source heat pumps

11.5.8 These use the natural heat in soil to provide heating and cooling. The temperature in the soil is just about constant at 12°c all year round in the UK. Water, sometimes containing a refrigerant, is pumped through a series of underground pipes absorbing the ground's heat.

Air source heat pumps

11.5.9 They derive their heat from the ambient air or sometimes from exhaust air in a controlled ventilation system. Those deriving heat from exhaust air will generally produce higher efficiencies as the heat pump will need to do less work to upgrade the temperature.

Developer considerations include:

- They are best used where high levels of energy efficiency have been incorporated into the building design and where under floor heating is to be used.
- Future proofing for ground source heat pumps should ensure that the foundations are stable enough for the ground loop to be fed down.

Energy from Waste

11.5.10 Some industrial developments may produce sufficient waste for the generation of on-site energy. Processes producing large amounts of organic waste and where waste can be removed from the municipal waste stream, can operate either aerobic or anaerobic digesters. Biogas produced by either process can be used in a Combined Heat and Power plant, thus reducing the use of fossil fuels.

11.5.11 Combined Heat and Power - please see 11.1 ‘Minimising Energy Consumption’.

11.6 Sustainable Construction Checklist

11.6.1 In order to demonstrate how the requirements of Policy EN6 have been met, applicants for all new developments must complete the Council's Sustainable Construction Checklist and submit this with their planning application. The checklist has been designed as an aid to developers to ensure that all sustainable construction issues have been considered in the design of the development and will provide the planning authority with the necessary information to adequately assess the application against Core Strategy policy EN6 (see the 'Sustainable Construction Statement' section at http://www.northnorfolk.org/planning/5448_6423.asp).

11.7 Energy Consumption Statement

11.7.1 Core Strategy policy EN6 requires that developments of more than 10 dwellings or 1,000m^2 of floor-space must include on site renewable energy technologies to provide for at least 10% (rising to 20% in 2013) of the predicted energy usage. An Energy Consumption Statement must be submitted with these planning applications. The purpose of the statement is to enable the applicant to demonstrate compliance with (and the planning authority to assess the application against) the requirements of the policy (see the 'Energy Consumption Statement' section at http://www.northnorfolk.org/planning/5448_6423.asp).

11 Sustainable Construction

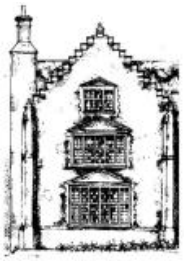
11.7.2 **Pre-application discussions:** In all cases pre-application discussions should be held with the Sustainability Coordinator on 01263 516271 to ensure suitable calculation methods are used. They will provided an opportunity for developers to agree with the Council the predicted energy demand and carbon emission of the proposed development. This will enable developers to be confident that they will be providing the correct amount of energy from renewable sources. Council Officers may also be able to provide further advice on the choice of renewable technologies suitable for the development.

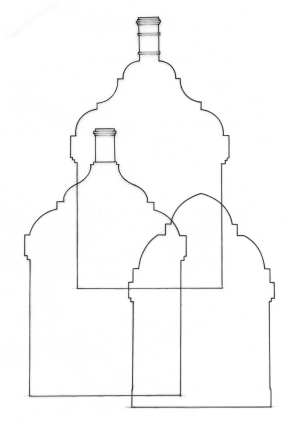
11.7.3 In the case of outline planning applications compliance with the policy will be required as a condition of the planning consent. Until this condition is signed off the development will not be legal.

Traditional Details A

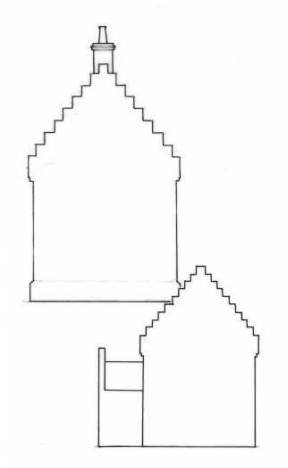
A Traditional Details

Gables

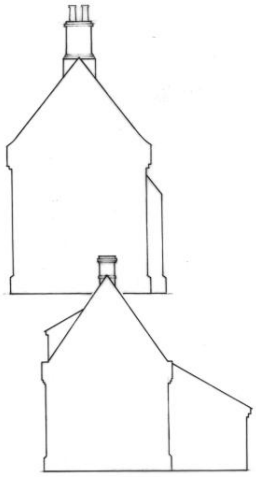




Shaped Gables, late 17th - 18th Century

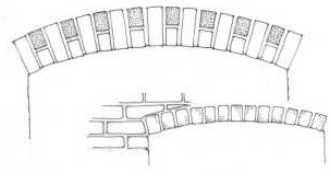


Crow step gables, 17th century

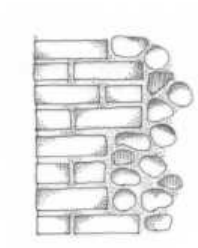


Typical cottage and farmhouse gables

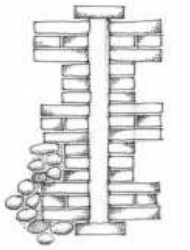
Brick Detailing



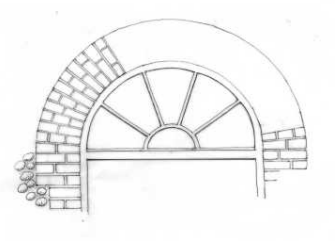
Typical brick segmental arches.



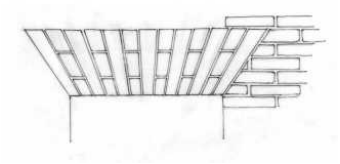
Typical dressing, brick to flint.



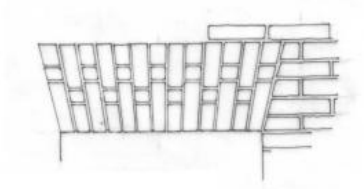
Typical dressing to barn ventilation slit.



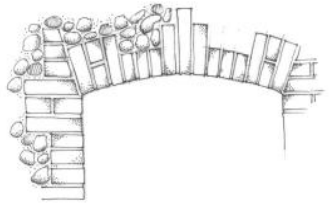
18th century semi-circular arch to fanlight over door.



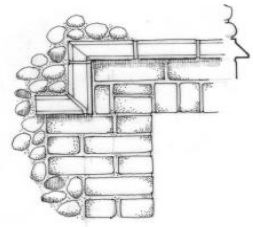
Rubbed gauged brick arch with very finely scribed joints, 17th-19th centuries.



Rubbed gauged brick arch with 'false' ruled joints.

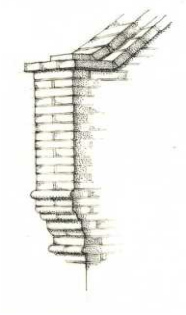


19th century decorative arch.

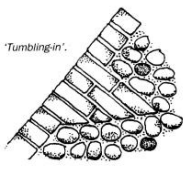


19th century drip mould using 'special' bricks.

Parapets

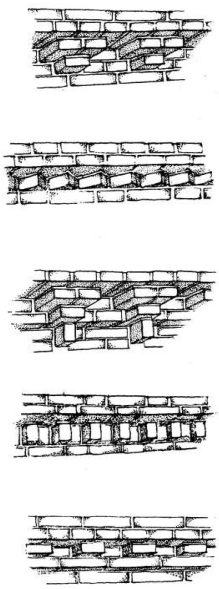


Fine parapet detail, 17th century.



'Tumbling in'.

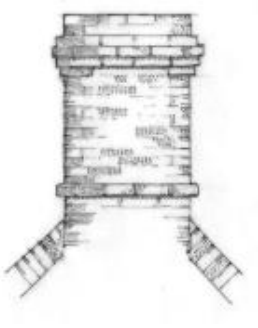
Eaves Details



A vast variety of decorative patterns can be found, of which a few typical examples only are illustrated.

A Traditional Details

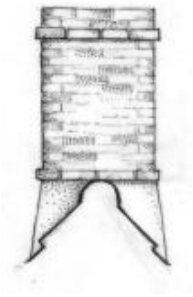
Chimneys



18th or 19th century gable chimney.

Unusual triple octagon chimneys - 17th century.

External chimney stacks are rare - where they do exist they are made a major visual feature as in this 17th century example at Cley-next-the-Sea.

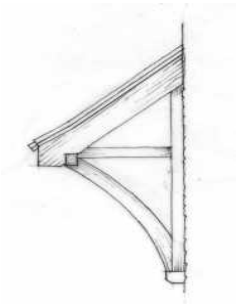


19th century chimney to modest cottage but still of substantial size.

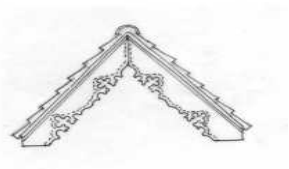
Typical gable end.

Porches and Canopies

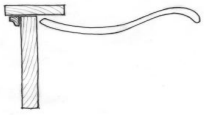
Lean-to canopy.



Detail of cantilever bracket which can be used with lean-to or gabled canopies.

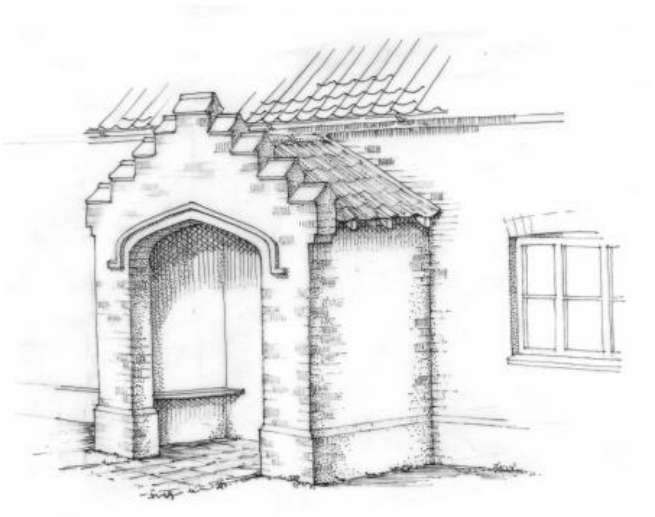


Ornate bargeboards in 17th century style.

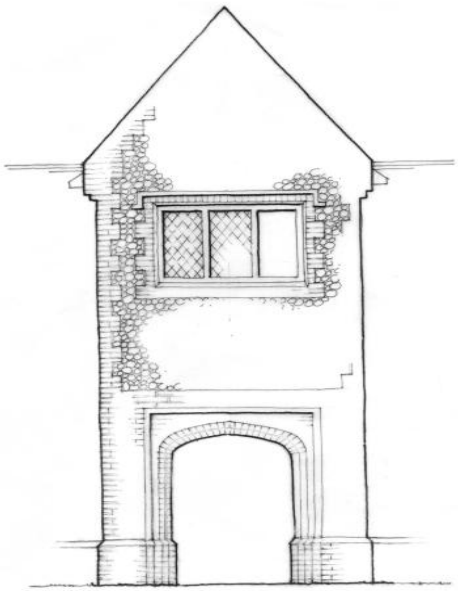


'Norfolk Capping' bargeboard.

Porches and Canopies (cont.)



Ingworth - 19th century porch in 17th century style.



Stody - typical two storey porch, a type often found on larger farmhouses.

Field Dalling - charming 17th century porch.

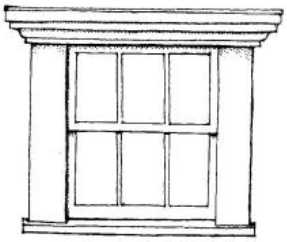
Gabled canopy.

A Traditional Details

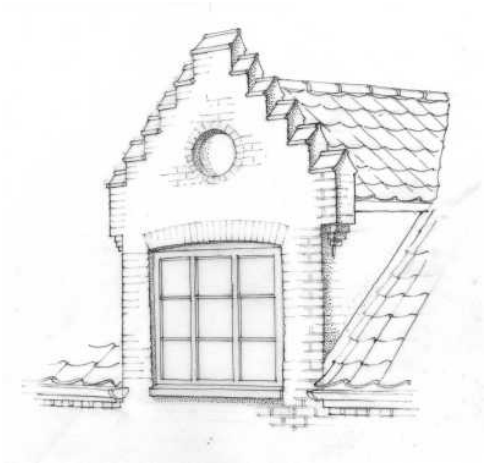
Dormer Windows

'Wedge' type - most typical for cottages of the 18th - 20th centuries.

Gabled type (usually with plain bargeboards) of 17th - 20th centuries.



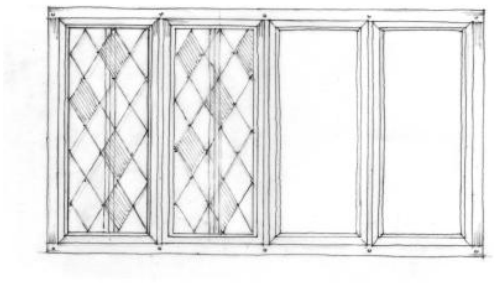
Flat roof attic dormer seen on classical and 'Polite' buildings.



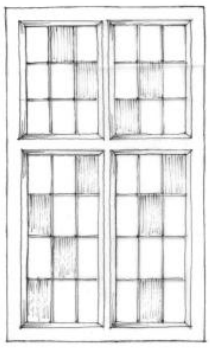
Unusual crow-stepped gable dormer in brick, 19th century.

Classical dormer of the 18th century - usually found on larger houses.

Windows

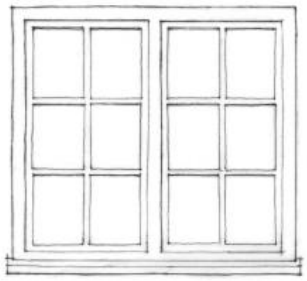


Heavy oak frame used until the late 17th century in domestic work and until the late 18th century in agricultural buildings. Windows of similar type sometimes of brick, rendered (16th - 17th centuries).

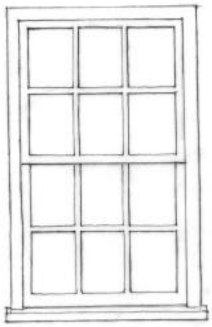


Late 17th century 'Cruciform' window with rectangular leaded lights.

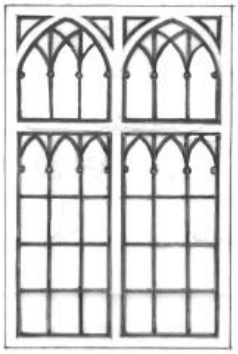
A Traditional Details



Casements, typical of cottages from 18th century on. Early examples have wrought iron opening lights and leaded glazing. Occasionally horizontal sliding sashes are found (Yorkshire sashes).

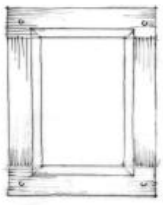


The twelve pane double hung sash window. Early examples often have heavy glazing bars. About 1690 - 1850 sash windows were produced without 'horns'.



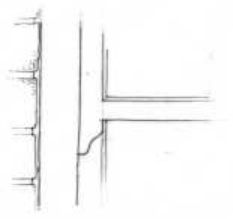
From the late 19th century. Many cast iron windows survive, often in wooden sub frames. With the exception of some early oak types, all domestic timber windows had painted finishes.

Medieval form - ocasionally in rendered brick.



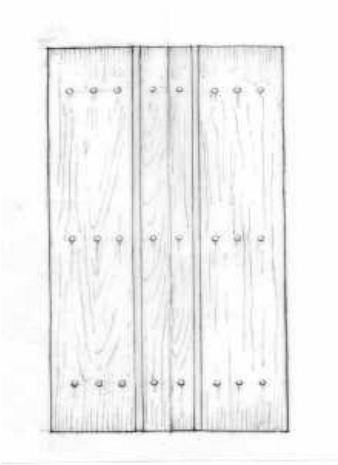
Tiny windows, at odd levels, indicate staircase positions.

Typical sections.

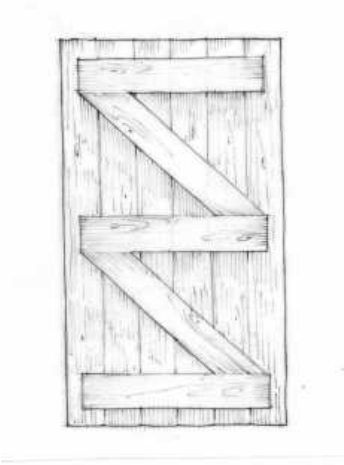


From about 1850, sash windows have 'horns'.

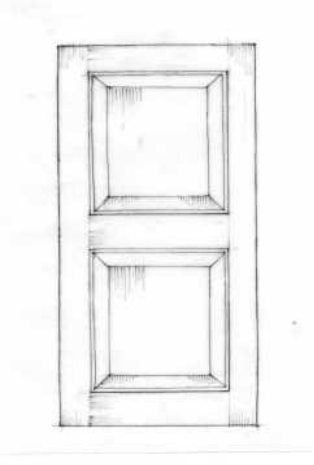
Doors



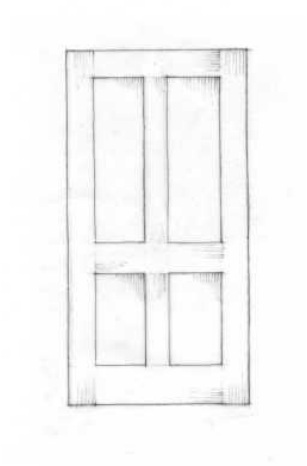
Early planked door, often in oak. Sometimes found with multiple verticle planking and mouldings.



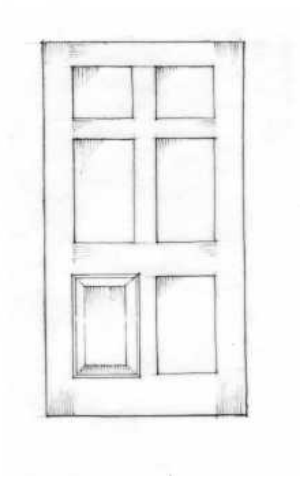
The ubiquitous ledged and braced door, still available and quite suitable for cottage use.



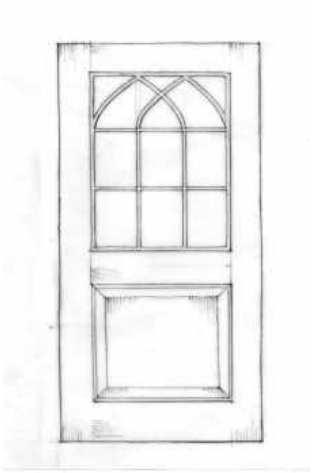
Late 17th and 18th century door with wide fielded panels.



4 Panel door.



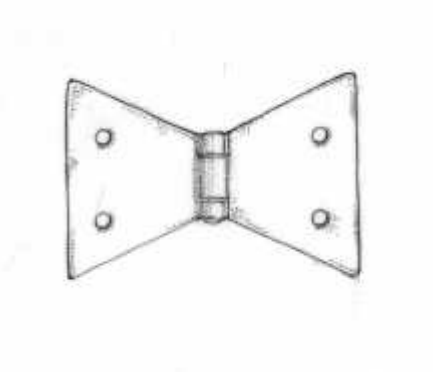
6 panel door. In better quality work with raised and fielded panels.



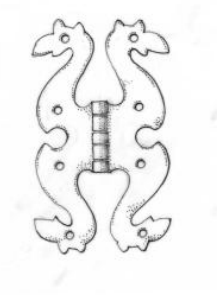
Charming late 18th and 19th centuries 'Gothick' door.

A Traditional Details

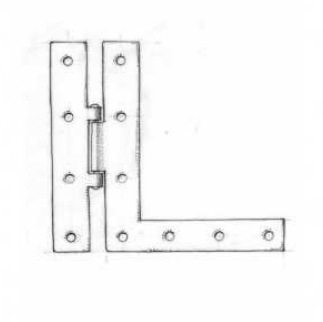
Door Furniture



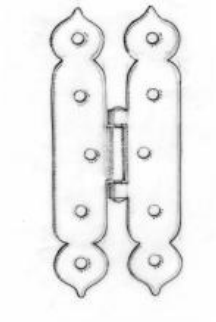
'Butterfly' hinge. Late 16th and 17th centuries.



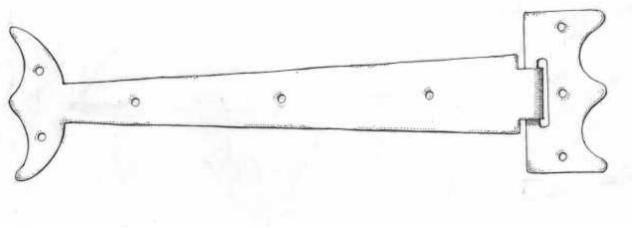
'Cocks Head' hinge. Late 16th and 17th centuries.



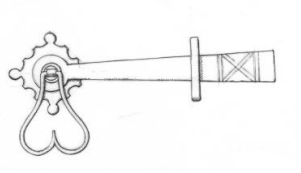
'HL' hinge of the late 17th - 18th centuries.



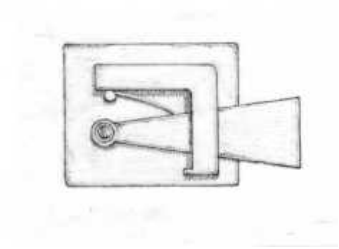
Picture 1 'H' hinge with decorative ends. 17th - early 18th centuries.



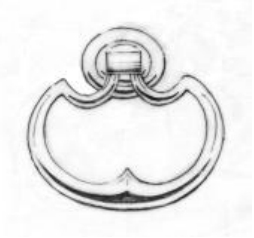
Decorative strap hinge



Early drop latch.

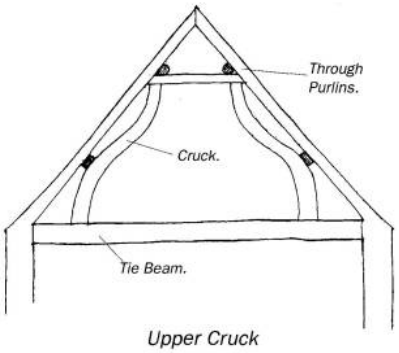


Typical country spring latch of the 18th and 19th centuries.

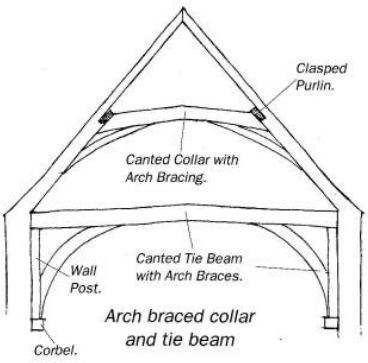


Typical 18th century brass drop handle.

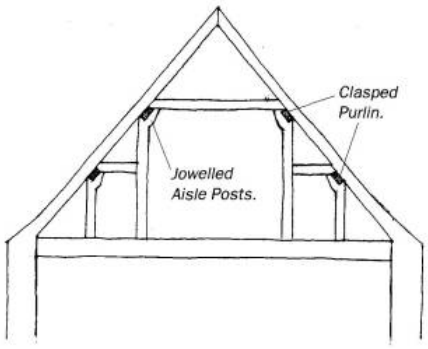
Roof Structures



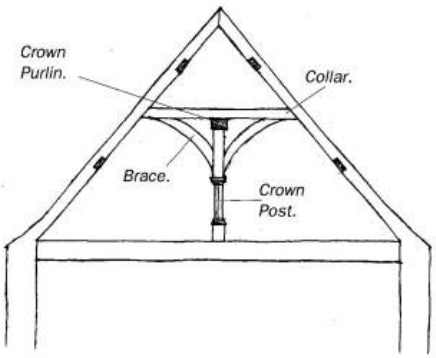
Upper Cruck



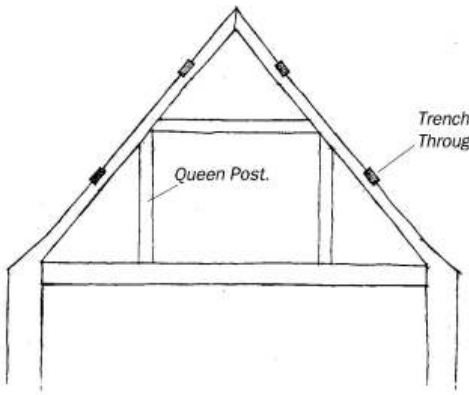
Arch braced collar and tie beam



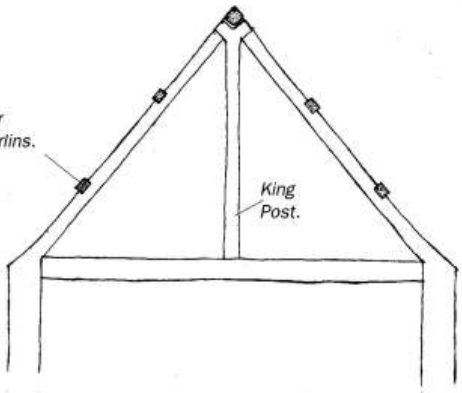
Raised Aisle



Crown Post



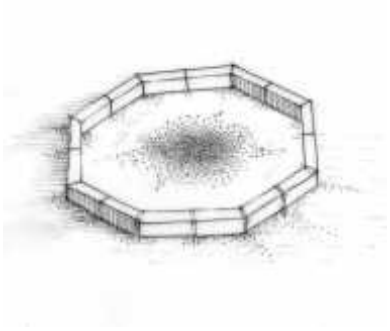
Queen Post



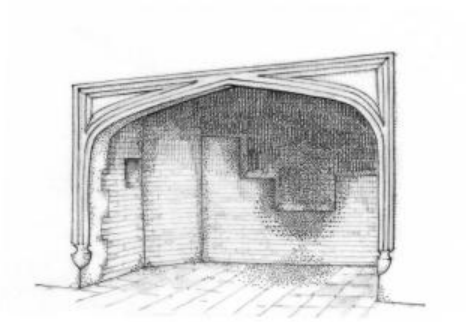
King Post

A Traditional Details

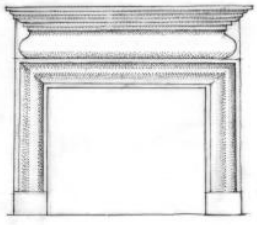
Fireplaces



The earliest fireplaces were in open room centres with smoke escaping through a hole in the roof.

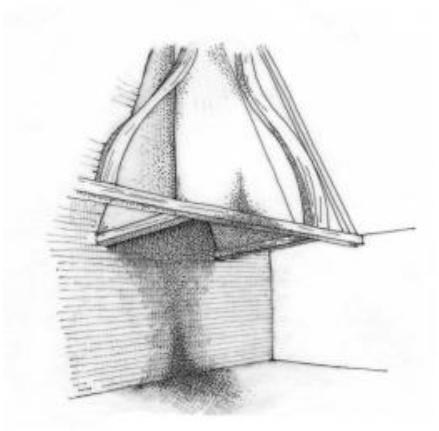


16th and 17th centuries. Many fireplaces of brick, moulded and with plaster finishes have been found, occasionally still with original colouring.

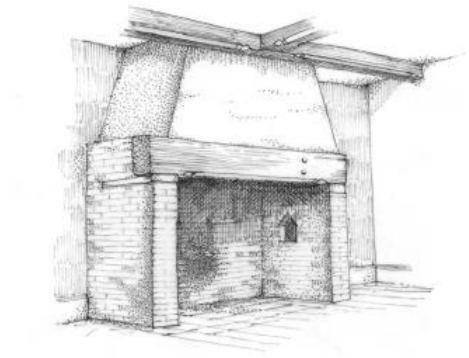


Late 17th century with bolection moulding.

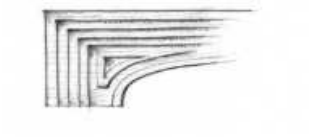
Roundel decoration.
Early 19th century.



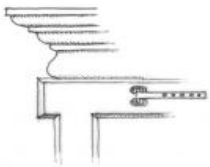
Earliest cottage chimneys were 'smoke hoods' - timber framed and plastered. Very rare but traces may be found.



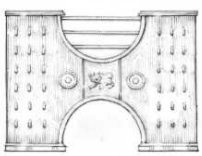
17th - 18th centuries. The so-called inglenook. There are infinite variations of detailing! Often combined with a domed bread oven, salt 'cupboards' and staircases to one side. Traces may still exist to tell their story.



Alternative to plaster - heavy moulded timber.



'Eared' surround, c.1740 (with hinged brass kettle arm).



Cast iron 'Duck's nest' grate.
Late 18th century.

Sustainable Construction - Further Information B

B Sustainable Construction - Further Information

Minimising energy consumption

Passive solar design

d. Energy Saving Trust www.est.org.uk publication GIR 27 Passive solar estate layout
e. Carbon Trust www.carbontrust.co.uk publication ADH010 Planning for passive solar design

Insulation

- Energy Saving Trust publications;
- CE71 Insulation materials chart – thermal properties and environmental ratings; and
- CE66 Windows for new and existing housing

Ventilation

- Energy Saving Trust publication GPG268 Energy efficient ventilation in housing
- Carbon Trust publication GPG 237 Natural ventilation in non-domestic buildings – a guide for designers; developers and owners.

CHP & community / district heating

- Energy Saving Trust publication CE55 Community heating – a guide.

Lighting

- Energy Saving Trust publication CE61 Energy efficient lighting – a guide for installers and specifiers

White Goods

- The Energy Saving Trust website has details of energy efficient products at http://www.energysavingtrust.org.uk/energy_saving_products

Heating system

- The boiler efficiency database can be found at http://www.boilers.org.uk/

Energy Conservation in Traditional Buildings

- English Heritage provides advice on how to achieve energy conservation measures in traditional buildings: http://www.helm.org.uk/upload/pdf/EnergyConservation.pdf

Commercial Buildings

- Energy Saving Trust publications CE138 Energy Efficiency in historic homes – case studies
- Carbon Trust publications;
  - GPG 287 The design team's guide to environmentally smart buildings – energy efficient options for new and refurbished offices

Sustainable Construction - Further Information B

- GPG 237 Natural ventilation in non-domestic buildings – a guide for designers; developers and owners
- GPG257 Energy efficient mechanical ventilation systems

Minimising resource consumption

Choice and use of building materials:

- Nicholls, R. 2006. Green Building Bible. Green Building Press. Volume 1, Section 7, p277 lists the primary embodied energy of different building materials
- Anderson, J. Shears, D.E. & Sinclair, M., 2002. Green Guide to Specification 3rd Ed. Oxford: Blackwell Publishing
- Provides guidance to the relative environmental impacts of over 250 elemental specifications for roofs, walls and floors etc.
- WRAP provides support and advice to the construction industry regarding site waste management and sourcing recycled / reclaimed materials: http://www.wrap.org.uk/construction/index.html
- There is an East of England materials exchange which can be used to source reclaimed materials: www.eastex.org.uk

Lifetime Homes and Building for Life:

- The 16 lifetime homes criteria can be found at http://www.lifetimehomes.org.uk/pages/16_lth_standards.html
- CABE provide further guidance on their 'Building For Life' criteria at http://www.cabe.org.uk/AssetLibrary/9350.pdf

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Adaptation to future Climate Change

Impacts of climate change

- UK Climate Impacts Programme (UKCIP) provides information and impact analysis of future scenarios that show how our climate might change and co-ordinates research on dealing with the future climate www.ukcip.org.uk

Minimising solar heat gain and providing adequate ventilation and cooling

- The Energy Saving Trust (EST) publications;
  - CE129 ‘Reducing overheating – a designers guide’
  - GPG 268 ‘Energy efficient ventilation in dwellings – a guide for specifiers’

Minimising water demand

- The Environment Agency (EA) website http://www.environment-agency.gov.uk/subjects/waterres/287169/ contains further information regarding options for reducing water use.
- UK Rainwater Harvesting Association http://www.ukrha.org/
- Water efficient fixtures and fittings http://www.waterwise.org.uk/reducing_water_wastage_in_the_uk/house_and_garden/water_saving_devices.html

B Sustainable Construction - Further Information

Provide features to absorb and store floodwater and attenuate run off rates

- The Environment Agency website also contains information regarding SUDS.
- The Construction Industry Research and Information Association (CIRIA) has a dedicated SUDS website http://www.ciria.org.uk/suds/index.html
- www.livingroofs.org contains information on green roofs.

Ensure buildings are sited outside potential flood risk zones

- The Environment Agency publishes flood risk zone maps on their website and the North Norfolk Strategic Flood Risk assessment can be found on North Norfolk District Council's website www.north-norfolk.org
- The Department for Communities and Local Government has recently published a report on improving the flood performance of new buildings which can be downloaded from http://www.planningportal.gov.uk/uploads/br/flood_performance.pdf

Increased demand for public open space

- The woodland for life website contains a report undertaken by the Forestry Commission into the impacts of climate change on woodlands and trees which can be downloaded from http://www.woodlandforlife.net/wfl-woodbank/displayarticle.asp?id=2347
- The Royal Horticultural Society (RHS) website contains some information regarding the choice of suitable garden plants in a changing climate http://www.rhs.org.uk/Learning/Research/Climate_Change

Further advice on all aspects of adaptation is available from:

- Climate change adaptation by design. Town & Country Planning Association http://www.tcpa.org.uk/downloads/20070523_CCA_lowres.pdf
- Adapting to Climate Change: a checklist for development. South East Climate Change Partnership http://www.climatesoutheast.org.uk/downloads/TRCCG%20Checklist%20for%20Development%20Nov%202005.pdf

The Code for Sustainable Homes

B.1 For further information go to the Department for Communities and Local Government website: http://www.communities.gov.uk/planningandbuilding/buildingregulations/legislation/englandwales/codesustainable/

B.2 In particular the following documents:

- The Code for Sustainable Homes Setting the standard in sustainability for new homes http://www.communities.gov.uk/publications/planningandbuilding/codesustainabilitystandards?version=1
- Code for Sustainable Homes: Technical guide http://www.communities.gov.uk/publications/planningandbuilding/codeguide

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Renewable and low carbon technologies

The Energy Saving Trust website has more information on renewable and low carbon technologies, including a range of technical guidance notes in the 'housing professionals' section. www.energysavingtrust.org.uk/generate_your_own_energy

Their leaflet 'CE190 Meeting the 10% target for renewable energy in housing – a guide for developers and planners' is a useful introduction for developers of schemes of 10 or more dwellings or 1000m^2 floorspace.

Sustainable Construction - Further Information B

Solar trade association

- Solar water heating installers / manufacturers association whose members subscribe to codes of ethical conduct. www.solartradeassociation.org.uk

British Wind energy association

- www.bwea.com
- BERR windspeed database http://www.berr.gov.uk/energy/sources/renewables/explained/wind/windspeed-database/page27708.Html

Ground Source Heat Pump Association

- www.gshp.org.uk

Renewable Energy Association

- http://www.r-p-a.org.uk/home.fcm?subsite=1

Lifetime Home Standards

- http://www.lifetimehomes.org.uk/

B Sustainable Construction - Further Information

Glossary C

C Glossary

Accessibility: The ability of people to move round an area and to reach places and facilities, including elderly and disabled people, those with young children and those encumbered with luggage or shopping.

Amenity: The pleasant or normally satisfactory aspects of a location which contribute to its overall character and to the enjoyment of residents or visitors.

AONB: Area of Outstanding Natural Beauty, a national designation to protect areas of landscape importance.

Bargeboard: An inclined projecting board placed on the gable of a building to protect its verge.

Biodiversity: The whole variety of life encompassing all genetics, species and ecosystem variations, including plants and animals.

Building Line: The line formed by the frontages of buildings along a street.

Context: The setting of a site or area, including factors such as roads, activities and land uses as well as landscape and built form.

Conservation Area: An area of special architectural and / or historic interest that deserves preservation or enhancement of its character or appearance.

Constraint: A limiting factor that affects development, such as an environmental designation.

Contaminated Land: Land that has been polluted or harmed in some way making it unfit for safe development and use unless cleaned.

Consultation: Informal engagement with the specific and general consultees.

Coping: The covering course of a wall, parapet or chimney designed to throw off water – also called a capping.

Corbel: A projecting cantilevered layer of brick or stone that protrudes out from the layers or courses below. The purpose of the corbelling is usually decorative although it is also commonly used to form a ledge to support something

Core Strategy: Sets out the long-term spatial vision and spatial objectives for the District and the strategic policies and proposals to deliver that vision.

DCLG: Department for Communities and Local Government. Successor to ODPM as of May 2006.

Development: Development is defined under the 1990 Town and Country Planning Act as "the carrying out of building, engineering, mining or other operation in, on, over or under land, or the making of any material change in the use of any building or other land." Most forms of development require planning permission.

Density: The number of buildings in relation to a given area of land. In this guide built density is expressed in terms of number of dwellings per hectare.

Eaves: The lower edge of a sloping roof which overhangs the face of a wall.

Elevation: The façade of a building, or the drawing of a façade.

Gable: The end wall of a building, the top of which conforms to the slope of the roof.

Implementation: Carrying out the proposed actions to required standards that are set out in the plan.

Infrastructure: Basic services necessary for development to take place, for example, roads, electricity, sewerage, water, education and health facilities.

Landmark: A building or structure that stands out from its background by virtue of height, size or some other aspect of design.

Landscape Character: A distinct pattern or a consistent combination of elements in the landscape of an area.

Layout: The way buildings, routes and open spaces are placed in relation to each other.

Legal Agreement: A legally binding contract, between a developer and the local planning authority that constitutes a planning obligation.

Listed Building: A building mentioned in statutory lists as being of special architectural or historic interest. There are different grades of listing to indicate relative interest.

Glossary C

Local Development Document (LDD): The collective term for DPDs, SPDs and the Statement of Community Involvement.

Local Development Framework (LDF): This includes a portfolio of Local Development Documents that provide a framework for delivering the spatial planning strategy for the area. It also contains a number of other documents, including the Annual Monitoring Report, and any 'saved' plans that affect the area.

Local Distinctiveness: The particular features of a locality that contribute to its character and sense of place and distinguishes it from any other area.

Local Planning Authority: The local authority or council that is empowered by law to exercise planning functions. The Broads Authority is also considered to be a local planning authority. County Councils are the authority for waste and minerals matters.

Mixed Use: A mix of, usually complementary, uses within a building, on a site or within a neighbourhood.

Natural Surveillance: The discouragement of wrongdoing by the presence of passers-by or the ability to be seen out of surrounding windows. Also known as passive surveillance (or supervision).

Objective: A statement that specifies the direction and amount of desired change in trends or in conditions.

Parapet: A low protective wall or upstand that extends above the edge of a roof or a balcony.

Quoins: The external angle or corner of a wall distinguished decoratively by either dressed stone or brick

Residential amenity: Living conditions in and around a dwelling.

Sense of Place: The essential character and spirit of an area derived through its local distinctiveness.

Soffit: The lower exposed surface of any part of a building. Most commonly used to refer to the underside of building eaves.

Storey: The part of a building between the surface of any floor and the surface of the floor or ceiling above it.

SUDS: Sustainable Urban Drainage Systems. Measures to increase permeable surfaces in an area therefore allowing a slow release of water rather than fast run-off.

Supplementary Planning Documents (SPDs): These cover a wide range of issues on which the plan making authority wishes to provide policies or guidance to supplement the policies and proposals in development plan documents. They do not form part of the development plan and they are not subject to independent examination.

Sustainability Appraisal (SA): A tool for appraising policies to ensure they reflect sustainable development objectives (i.e. social, environmental and economic factors). Required to be undertaken for all LDDs, and to include SEA.

Topography: The physical features of a geographic area, both natural and man-made, that characterize a particular landscape; e.g. the relief and contours of that land.

Verge: The edge where a pitched roof joins the gable or end wall of a building.

Vernacular: The way in which ordinary buildings were built in a particular place making use of local styles, techniques and materials and responding to local economic and social conditions.

C Glossary