Certificate in Sale of Residential Property

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National Federation of Property Professionals Qualifications

MOL Sample Workbook

Introduction to the sample workbook

This sample workbook is a guide to the learning materials for the Certificate in the Sale of Residential Property, written and provided by MOL on behalf of the National Federation of Property Professionals (NFOPP).

The full range of property qualifications available from MOL/NFOPP is as follows.

Award in Introduction to Residential Property Management (Level 2)

This is an introductory qualification offering basic knowledge in the most important subject areas related to residential letting and property management.

Unit 1 General Law, Health, Safety and Security in Relation to Residential Letting and Property Management (Level 3)
Unit 2 Customer Service within the Property Sector
Unit 3 Introduction to Residential Property Letting Practice
Unit 4 Introduction to Residential Property Management Practice

Technical Award in Residential Letting and Property Management (Level 3)

This programme is designed as an introduction to the knowledge and understanding required by those working, or aspiring to work, in residential letting agency.

Unit 1 Health and Safety, Security and General Law
Unit 2 Legal Aspects of Letting and Management
Unit 3 Residential Property Letting Practice
Unit 4 Residential Property Management Practice

Technical Award in the Sale of Residential Property (Level 3)

The Technical Award in the Sale of Residential Property is designed as an introduction to the knowledge and understanding required by those working, or aspiring to work, in residential estate agency or new homes sales.

Unit 1 Health and Safety, Security and General Law
Unit 2 Law Relating to Residential Property Sales
Unit 3 Practice Relating to Residential Property Sales
Unit 4 Property Appraisal and Basic Building Construction/Defects

Unit 4 **Technical Award in Commercial Property Agency (Level 3)**

The Technical Award in Commercial Property Agency is designed as an introduction to the knowledge and understanding required by those working, or aspiring to work, in commercial property agency.

Unit 1 Health and Safety, Security and General Law Relating to Commercial Property Agency
Unit 2 Practice and Law Relating to Commercial Property Agency
Unit 3 Law Relating to Commercial Property
Unit 4 Commercial Property and Business Appraisal and Basic Building Construction

Technical Award in Real Property Auctioneering (Level 3)

This programme is designed as an introduction to the knowledge and understanding required by those working, or aspiring to work, in estate agency where auctioneering is an important part of the work of the agency.

Unit 1 Health and Safety, Security and General Law Relating to Real Property Auctioneering
Unit 2 Law Relating to Real Property Auctions
Unit 3 Real Property Auctioneering Practice and Procedures
Unit 4 Property Appraisal and the Auction Process

Technical Award in Chattels Auctioneering (Level 3)

This programme is designed as an introduction to the knowledge and understanding required by those working, or aspiring to work, in chattels auctioneering.

Unit 1 Health and Safety, Security and General Law Relating to Chattels Auctioneering
Unit 2 Law Relating to Chattels Auctions
Unit 3 Chattels Auctioneering Practice and Procedures
Unit 4 Chattels Appraisal and the Auctioneer's Duties and Liabilities

Technical Award in Residential Inventory Management and Practice (Level 3)

This programme covers the law and practice of letting agency and inventory management in England and Wales.

Unit 1 General Law, Health, Safety and Security in Relation to Residential Inventory Management and Practice
Unit 2 Legal Aspects of Residential Inventory Management and Practice
Unit 3 Residential Letting and Property Management
Unit 4 Residential Inventory Management and Practice

Certificate (Level 4)

The Level 4 Certificate programmes are designed for more experienced people working within agency such as senior negotiators, managers and principles. The full certificate has 8 units, but the first two are carried forward from the relevant technical award. There are four additional technical units specific to each pathway, and two common office/people management units.

The common management units are

Unit 7 Introduction to Office Management
Unit 8 Advanced Office Management (Level 5)

The three pathways and their technical units are as follows.

Certificate in Residential Letting and Property Management

Unit 3 Legal Aspects Relating to Residential Letting and Management
Unit 4 Practice Relating to Residential Property Management
Unit 5 Appraisal and Residential Property Letting Practice
Unit 6 Applied Law Relating to Residential Letting and Management (Level 5)

Certificate in Commercial Property Agency

Unit 3 Legal Aspects Relating to Commercial Property
Unit 4 Practice Relating to Commercial Property Agency
Unit 5 Market Appraisal, Value and Inspection Relating to Commercial Property Agency
Unit 6 Building Design and Defects for Commercial Property Agency (Level 5)

Certificate in the Sale of Residential Property

Unit 3 Legal Aspects Relating to Residential Estate Agency
Unit 4 Practice Relating to Residential Estate Agency
Unit 5 Market Appraisal, Value and Inspection Relating to Residential Estate Agency
Unit 6 Building Design and Defects for Residential Estate Agency (Level 5)

Certificate in

Sale of Residential Property

Building Design and Defects for Residential Estate Agency

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Contents

section **16**

Defects in common house types

Introduction

This unit on Building Design and Defects for Residential Estate Agency covers the initial construction of domestic property, the subsequent deterioration and need for repair, and various energy efficiency/sustainability, planning and environmental issues.

The unit starts with an introduction to the design requirements of domestic buildings and the broad styles and ages of property types. Further sections then follow the normal building sequence, from foundations, floors and walls up to roof construction, plus finishes and services.

There are sections covering a variety of regulations affecting residential property, including thermal performance and sound insulation, fire regulations, and environmental, planning and building regulation matters.

The unit ends with a look at the defects associated with common house types and ages.

Learning objectives

Having completed this unit you will know and understand how to

- ✓ *appreciate the functional requirements of domestic buildings*
- ✓ *recognise common house styles and ages*
- ✓ *describe the various foundation types and when they are used*
- ✓ *explain the basic function of floors and their construction*
- ✓ *describe how external walls perform and the construction requirements*
- ✓ *explain the need for internal walls creating compartments and habitable spaces*
- ✓ *explain the traditional forms of roof construction and coverings, along with rainwater goods and chimney stacks*
- ✓ *explain the different styles, basic function and materials of window construction*
- ✓ *explain the function and design of stairs, doors and other internal joinery*
- ✓ *list the variety of internal finishes, including plasterwork and decorations*
- ✓ *describe the supply and utilisation of gas and electric utility supplies*
- ✓ *explain the need for the provision of water supply, drainage and heating in dwellings*
- ✓ *explain why it is important to protect properties from damp and timber decay*
- ✓ *list the regulations related to thermal performance and environmental matters*
- ✓ *list the planning and building regulation controls, including fire regulations*
- ✓ *identify the main defects found in common house types*

section **16**

Defects in common house types

The construction process should produce residential accommodation that is fit for purpose, but a combination of numerous factors can lead to a position where defects occur. Defects may occur early in the life of a property or develop over a long period of time.

This section will consider the types of defects that are commonly found in residential property of various ages, building on the construction knowledge developed from the earlier sections of this unit.

The consideration of defects is always disproportionately interesting to individuals, due to the cost impact of repairs or replacements related to defects. For this reason, defects are studied here separately because of their relative importance.

Learning objectives

Having completed this section you will know and understand how to

- ✓ *identify defects*
- ✓ *understand the effects of defects on a building element*
- ✓ *explain defects associated with traditional building materials including brick, concrete, stone and timber*
- ✓ *explain defects associated with design*
- ✓ *explain defects associated with workmanship*
- ✓ *understand the process of deterioration causing defects*
- ✓ *understand the defects in common house types*

16.3 Defects associated with walls

The construction process of external and internal walls was covered in sections 4 and 5. The defects associated with walls are numerous and some will be dealt with later in this section. In this sub-section, we will discuss those defects associated with the wall itself and not due to other defects elsewhere, such as foundation movement (see later).

The defects in walls are generally shown as

- leans and bulges
- cracks

Leans and bulges

With poor workmanship, walls may be built with slight leans or bulges. Other than this, they may be due to a variety of causes. As a rule, slight leans and bulges can be left and, as long as they are not progressive, no remedial work will be required.

If the distortion due to the lean or bulge exceeds one sixth of the thickness of the wall, there is potential instability.

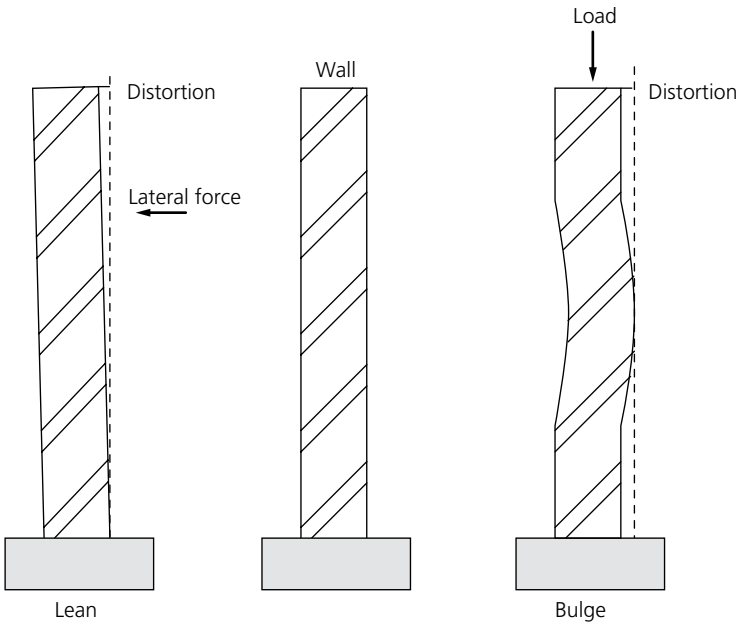

Figure 16.12 Leans and bulges

Leans are usually due to lateral forces, but can be caused by rotational movements such as those set up by foundation movement (see later). Slight leans can be left and monitored if within tolerances. If progression is apparent after monitoring, remedial work will be required.

Roof spread, as we have discussed, is one cause of lean to the upper parts of walls.

Bulges often occur due to inadequate restraint on walls (see Figure 4.13 in section 4), where the load from the roof and upper floors is considerable and the wall taking the load has no lateral restraint. This often occurs in gable walls at the end of terraces where floor joists run parallel to the gable wall and there is no tie between the wall and floor joists or internal walls. The gable wall is a slender structure not braced in any way. The vertical load can then cause bulging. This can be prevented by ensuring that the gable wall is tied to any internal walls and that the gable wall is strapped to the floor joists as shown in Figure 4.13 in section 4.

Bulges also occur in the outer leaf of cavity walls where there is an insufficient number of cavity ties. The inner leaf may well be tied to internal cross walls and strapped to floor joists, but if there are no cavity ties or an inadequate number of them, the outer leaf has no such restraint and can bulge (see Figure 16.13).

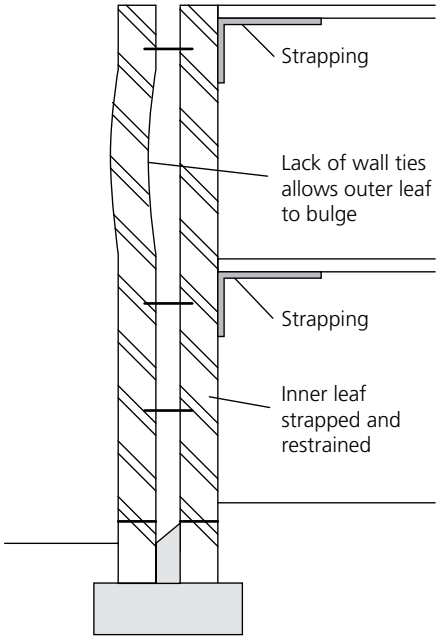

Figure 16.13 Bulges due to lack of cavity wall ties

The bulging due to a lack of cavity wall ties can be halted, if not too severe, by introducing new stainless steel wall ties. Bulging is quite common on rows of older terraced houses. The cavity walls often had an inadequate number of cavity ties where cavity walls existed. Where walls have bulged so badly that they have been rebuilt, this is often done on individual houses. The brickwork is rebuilt vertical but the adjoining house remains with bulged brickwork and this is then accentuated at the join. Sometimes, if the bulge is very severe, the join is masked by building a buttress 450 mm wide.

KEY POINT

> **Lack of lateral restraint may cause bulging in walls**

Cracks

Cracking in walls can result from a variety of factors. The cracks may be

- horizontal
- vertical
- diagonal

Wherever the cracks occur, as a rough rule, the crack will appear at right angles to the main movement causing the crack.

Horizontal cracks are usually associated with vertical movements of items, usually metal, embedded in the wall. Metals, particularly iron based metals, can corrode (rust). In the rusting process the metal expands, exerting pressure on the structure surrounding it.

This is most noticeable with horizontal cracking associated with

- rusting lintels over door and window openings
- rusting cavity wall ties
- rusting beams embedded in walls

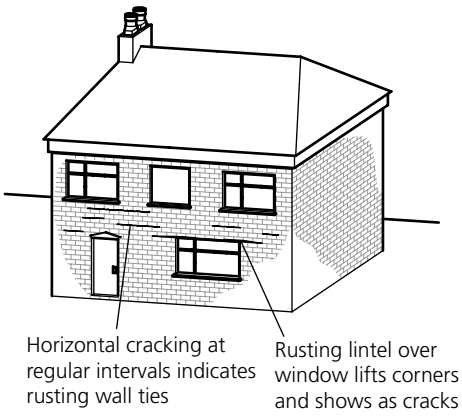

Figure 16.14 Horizontal cracking in walls

Rusting beams embedded in walls shows cracking of a more localised nature around the bearing of the beam in the wall.

Where cracks occur, they will usually need to be repaired. If the cracks are due to rusting beams or rusting lintels causing cracking over the bearing points at window and door openings, the rusting lintel may need to be taken out and replaced. This will require localised rebuilding around the head of the window.

Where rusting cavity ties are causing the problem, the old ties need to be isolated or removed and new ties inserted. These days new stainless steel ties will be used, and can be inserted from outside by drilling through the outer leaf into the inner leaf and inserting the new tie and resealing the hole. Where walls have had new cavity ties inserted this way, drill holes forming a regular pattern can be seen by careful observation.

KEY POINT

> **Horizontal cracks are usually caused by rusting lintels or cavity ties in a wall, causing vertical uplift of the brickwork**

self check

QUESTION **6**

You have inspected a semi-detached property that is built in brick with cavity walls. The end wall is bulged and has several horizontal cracks. What is likely to have caused the bulging and cracking and what remedial work will be required?

Compare your answer with the one given at the end of this section.

Vertical cracking is usually associated with horizontal movement caused by heating and cooling (or wetting and drying). Where there are long runs of brickwork, such as on rows of terraced houses, the movement starts to become significant over about six metres in length. More modern buildings will usually incorporate expansion joints for long walls of brickwork. This is a vertical joint incorporating a compressible material that can accommodate the anticipated movement. The cracking tends to be more pronounced and more common in blockwork rather than brickwork because blockwork expands and contracts more.

The vertical cracks will often form at points of weakness, such as where there are openings in walls. The cracks will often follow the jointing between bricks or blocks but may also break through individual bricks or blocks. They can also often form at points where short return sections of wall interrupt longer runs.

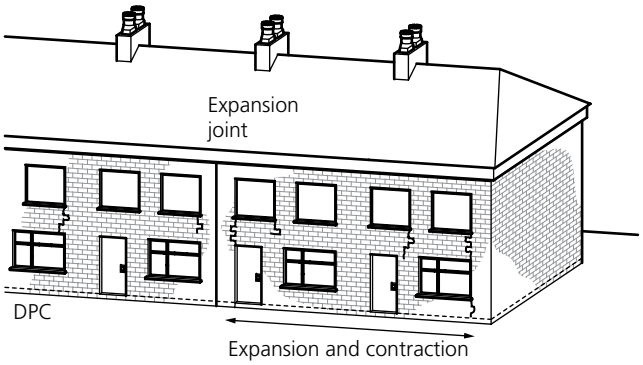

Figure 16.15 Vertical cracking in walls

You will notice in Figure 16.15 that the cracking stops at the DPC level. This is because the movement often takes places along the DPC because it acts as a slip plane for the movement.

Where walls are rendered over brickwork or blockwork, the cracking will show through the render.

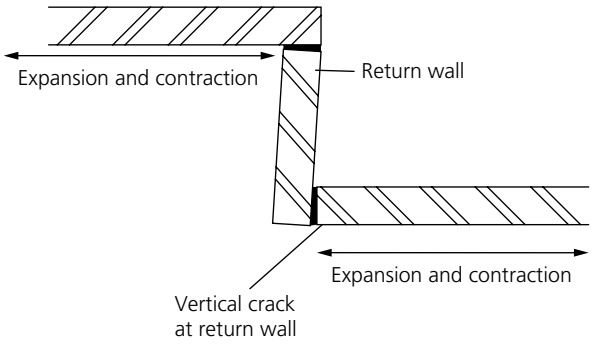

Figure 16.16 Cracking where return wall interrupts a longer run of wall

KEY POINT

> **Vertical cracking is associated with horizontal movement due to heating and cooling**

self check

QUESTION **7**

Look at Figure 16.17 below. Where is vertical cracking more likely to occur and why? The front, the back, the right-hand side or the left-hand side?

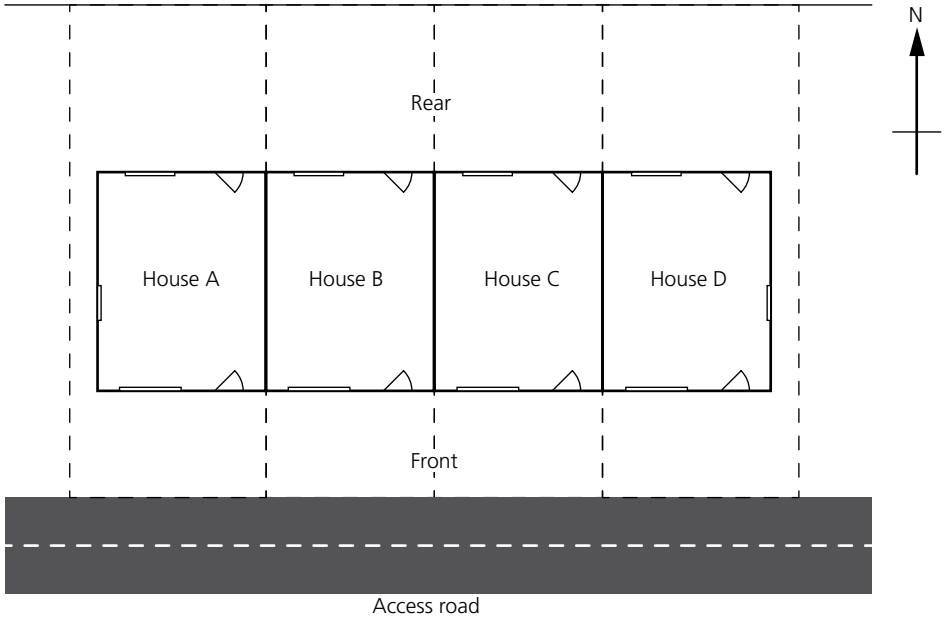

Figure 16.17

Compare your answer with the one given at the end of the section.

Diagonal cracking is associated with failures of discrete components within the wall (other than with foundation movement – see later). It is most often associated with door and window openings due to a number of defects with arches and lintels (or a lack of them).

In the past, the openings in walls to accommodate windows and doors could be carried by stone lintels (common on terraced houses) or by timber lintels on the inner leaf and some form of brick arch to the outer leaf. Openings filled with bay windows also often have a timber lintel supporting the brickwork above the opening.

Timber lintels and brick arches (whether flat arches or curved arches) are prone to failure with age. Timber lintels are affected by seasonal movements in the timber lintel and by deterioration of the timber lintel. Brick arches suffer from weakening of the mortar joints. Timber can compress if it starts to rot due to water penetration, which allows the brickwork above to settle. Brick arches can slip in part of the arch, affecting the brickwork above the slippage.

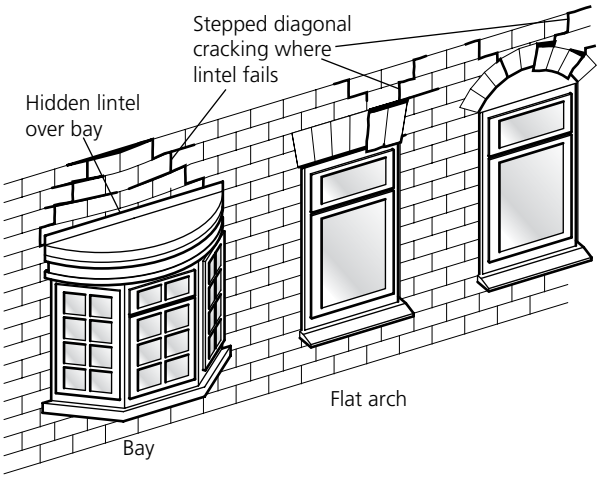

Figure 16.18 Diagonal cracking associated with lintel failure

There was a tendency with some cheaper houses from various time periods (eg the 1930s) to use angle iron for lintels or no lintel at all. The main weight of the brickwork over the opening was carried on the timber window frames. As the window frames deteriorate, and especially if they start to rot, the timber in the frame can compress. The angle iron, itself prone to rusting, is inadequate to support the brickwork and movement over the window opening shows as diagonal cracking.

A similar thing can happen when the window is disturbed during replacement – these days often with uPVC double glazed units. Modern uPVC window frames do not have the strength of older timber frames. Often the new uPVC window is made smaller than the opening and the gap is filled with flexible mastic. Some time after the new windows have been fitted, settlement and cracking of the brickwork over the window occurs and shows itself as diagonal cracking. Occasionally, unsupported brickwork has fallen out during the replacement process.

Where these problems occur, new lintels will need to be provided, and portions of brickwork affected may need to be rebuilt, or, at a minimum, the cracks repointed.

KEY POINT

> **Diagonal cracking over windows and door openings generally indicates a defective, inadequate or missing lintel**

self check

QUESTION **8**

You have been asked to advise a client about the likely cause of cracking in the following circumstances.

a) Horizontal cracking has been noted to the brickwork on the gable wall. Some is towards the front top of the wall with the third, ninth and 21st courses showing horizontal cracks running towards the middle of the wall and some cracking is lower down towards the rear, again separated by several courses. The gable wall faces west.

b) A prominent vertical crack has been found above and below the left hand side of the main lounge window on a long wall. It extends towards the DPC but stops above the DPC.

c) To the rear there is diagonal cracking over both sides of the kitchen window. This extends across several courses before disappearing.

Compare your answer with the one given at the end of this section.

Answers to self check questions

Question 6

The bulging is most likely to have been caused by a lack of lateral restraint, ie the side wall is not tied to the rest of the structure, probably because first floor joists run parallel to the wall. Bulging may also be caused or be enhanced by a lack of or inadequate number of cavity ties. The horizontal cracking also indicates a likely problem with cavity ties rusting. If the bulging is pronounced, ie more than one-sixth of the thickness of the wall, the wall will be potentially unstable and will probably need rebuilding. If it is much less than this, the wall can be tied to the rest of the structure, using straps fixed to the side wall and to the floor, and ceiling joists running parallel to the wall. The cracking indicating failing cavity ties requires new stainless steel cavity ties to be inserted.

Question 7

Vertical cracking is more likely to occur on the front as this faces south and so will suffer more heating and cooling and there is the longest span of brickwork on the front and back walls.

Question 8

a) This horizontal cracking is most likely to be associated with cavity wall tie failure. It occurs on the west facing gable wall, ie the wall facing the prevailing winds. Cavity tie failure is associated with rusting of cavity ties.

b) This is most likely to be due to the expansion and contraction of this wall using the DPC as a slip plane. The cracks tend to develop at points of weakness in the wall such as at windows and door openings.

c) This is most likely to be due to a defect with the lintel. If the lintel is failing, the support to the overlying brickwork is decreased and movement can occur leading to the diagonal cracking observed.

Glossary

Aga
a large kitchen stove providing hot water, heat for cooking, plus background heating. Agas were introduced in the late 19th century. Early versions used solid fuel (wood or coal), while later versions used gas

air test
a method of testing installed pipelines for airtightness, whereby air is pumped into the pipeline and the pressure of fluid in the pipe is checked with a manometer

anchors
heavy masonry fixings, used to secure door frames. The anchors are fixed to walls, floors and ceilings, into concrete or brickwork

approved inspector
a private individual who, under the Building Act 1984, can fulfil certain duties relating to the Building Regulations instead of the local authority

asbestos
a naturally occurring mineral which was commonly used in buildings, although its use is now banned. If inhaled, asbestos fibres can cause fatal diseases. The three types of asbestos used in the UK are blue (crocidolite), brown (amosite) and white (chrysotile)

asphalt
a material used for roofing or floor coverings, made from the distillation of crude oil, plus ground aggregates

back-boiler
a boiler providing hot water and limited central heating, popular from the late 19th century up to the 1960s. It was usually situated behind the living room fireplace and heated by the open fire in the hearth

balustrade
the upright pieces (spindles) in a staircase between the handrail and the string capping

barge board
a long section of timber used to face the edge of a pitched roof at the verges, ie the point where it meets the gable end. It extends from the eaves to the ridge running parallel to the gable wall

batten
a length of timber, usually 38 mm x 25 mm, to which roof tiles are fixed

Belfast sink
a deep sink, originally made of white, glazed stoneware, with a wooden drainer, dating from the Edwardian period

bitumen
a pitchy substance which, when heated, becomes liquid and hardens after cooling. It is used primarily to join the various layers of a flat mineral felt roof. Bitumen is no longer used in damp proof courses as it becomes brittle and may crack with movement of the structure. It is a key component in mastic asphalt

blockboard
a type of core plywood, from 7 mm to 30 mm wide, with one or two veneers (layers) on each side of a core of solid wood strips. The grain of the veneers is at right angles to the grain of the wooden strips. It is commonly known as core plywood

boarded door
an external door with a rustic appearance, normally made from tongued and grooved 'V' jointed redwood, suitable for use where there is a minimal temperature difference on opposite sides of the door. If a boarded door has braces, it must be 'handed' correctly

bond/bonding
the arrangement of units, eg bricks, used to create strength. If the units are bonded, the load is distributed across the structure (eg a wall), reducing stress on individual units

brick
the three main types used in house building are common bricks, facing bricks and engineering bricks

Buildmark
a warranty scheme for residential property provided by the National House-Building Council (NHBC), which can be assigned to subsequent owners of the property within the 10-year warranty period

bulkhead bathroom
in a terraced house, a bathroom situated above the stairwell, accessed from the rear bedroom. Such a room was created to overcome the difficulty of installing an inside toilet

Carlite plaster
the most widely used type of plaster in Britain

casement window
a window with hinged opening sections (casements). Casement windows can be side hung, projecting side hung, projecting top hung, or pivot hung

cesspit
a large, underground tank that collects foul water, which can then be emptied by bulk tanker. Cesspits are used in rural areas where mains drainage is not available

cladding
an external layer of weatherproof material attached to walls (eg timber boarding, hanging tiles, slates, etc). All types of cladding should include thermal insulation, a breather membrane and a vapour barrier to prevent condensation

close couple roof
a type of double pitched roof, similar to a couple roof, but with ties nailed to the base of pairs of rafters to stop them spreading under load

collar roof
a close couple roof with horizontal ties above the eaves. The ties give stability to the roof and provide a fixing for ceiling panels

combi boiler
a wall-mounted gas boiler combining a boiler, cold water storage tank and hot water cylinder, first introduced in the 1970s

combined drainage system
a domestic drainage system whereby both foul and surface water is discharged, via the same foul water drain, into a combined sewer. Combined systems are used in areas without a main surface water sewer

common brick
a hard brick with a dull appearance and colour, therefore not used in areas where appearance is important

competent person
a contractor registered with an approved self-certification scheme to undertake electrical work in property in accordance with the Part P Building Regulations (Electrical Safety in Dwellings)

concrete beam and infill block floor
a popular form of suspended floor construction using precast reinforced concrete beams and infill blocks, finished with a sand and cement screed

condensation
a form of dampness which tends to be shown by a black fungal growth on cold surfaces within the building. Increased heating and ventilation will cure many cases

couple roof
the simplest type of double pitched roof with each pair of rafters pinned at the top. Couple roofs tend to spread due to the weight of the rafters and the roof covering

course (of bricks)
a single horizontal line of bricks

curtilage
an area of land attached to a house, eg the garden or grounds. Under Section 55 of the Town and Country Planning Act 1990, householders can use land or existing buildings within their curtilage for any purpose that is incidental to the enjoyment of their house as a house, without needing to apply for planning permission

Reading list

For those of you who want to study further any sections of this unit, the following reading and reference list is suggested. This is not an exhaustive list and you will find other books, articles and references on the same topics.

When looking through books, articles and references, and when searching on the web, take care to check the date the material was created. This is particularly important for legal references where the law may change from time to time, but also applies to other areas.

If you are working in estate agency, you should always be aware of changes that take place in law or practice as these will affect the way in which you do your job. If you or your company belong to one of the professional bodies, they will usually keep their members up-to-date with changes that will affect their working practices.

Asbestos and Its Implications for Surveyors and Their Clients, RICS Guidance Note, 3rd edition, RICS, Coventry, 2011

Cracking in Buildings, R B Bonsher and L L Bonsher, Construction Research Communications Ltd, London, 1996

Recognising Wood Rot and Insect Damage in Buildings, A F Bravery, R Berry, J Carey and D Cooper, Building Research Establishment, Garston, 3rd edition, 2003

Diagnosing Damp, Ralph Burkinshaw and Mike Parrett, RICS Books, Coventry, 2003

Building Maintenance Management, Barrie Chanter and Peter Swallow, Blackwell Science, Oxford, 2001

Cracking and Building Movement, Peter R Dickinson and Nigel Thornton, RICS Business Services, Coventry, 2004

Building Surveys, Peter Glover, Butterworth-Heinemann Ltd, 5th Edition, 2003

Non-traditional Houses, H Harrison, S Mullin, B Reeves, A Stevens, BRE Press, Watford, 2004

A Guide to the Health and Safety at Work etc Act 1974, Health and Safety Executive, HMSO, London, 1994

Successful Health and Safety Management, Health and Safety Executive, HSE Books, Sudbury, 2000

The Technology of Building Defects, John Hinks and Geoff Cook, Taylor & Francis, London, 2005

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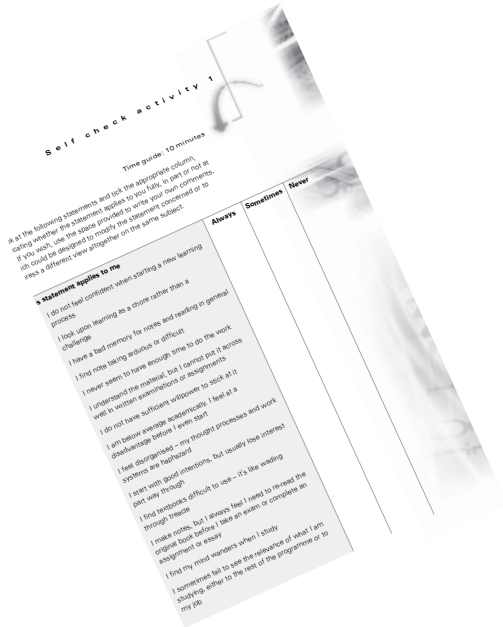

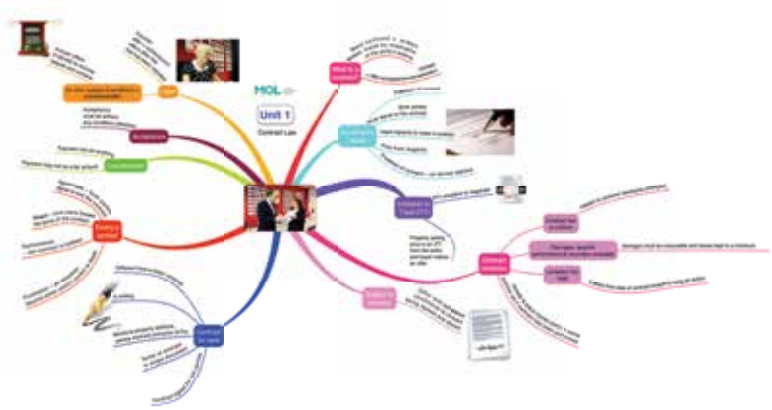

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- Level 3 Technical Award in Sale of Residential Property
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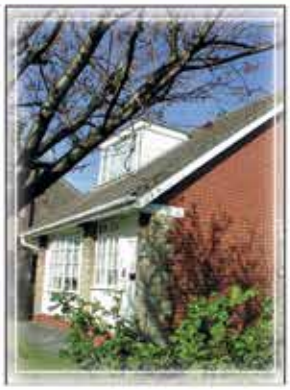


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