Residential Building Services

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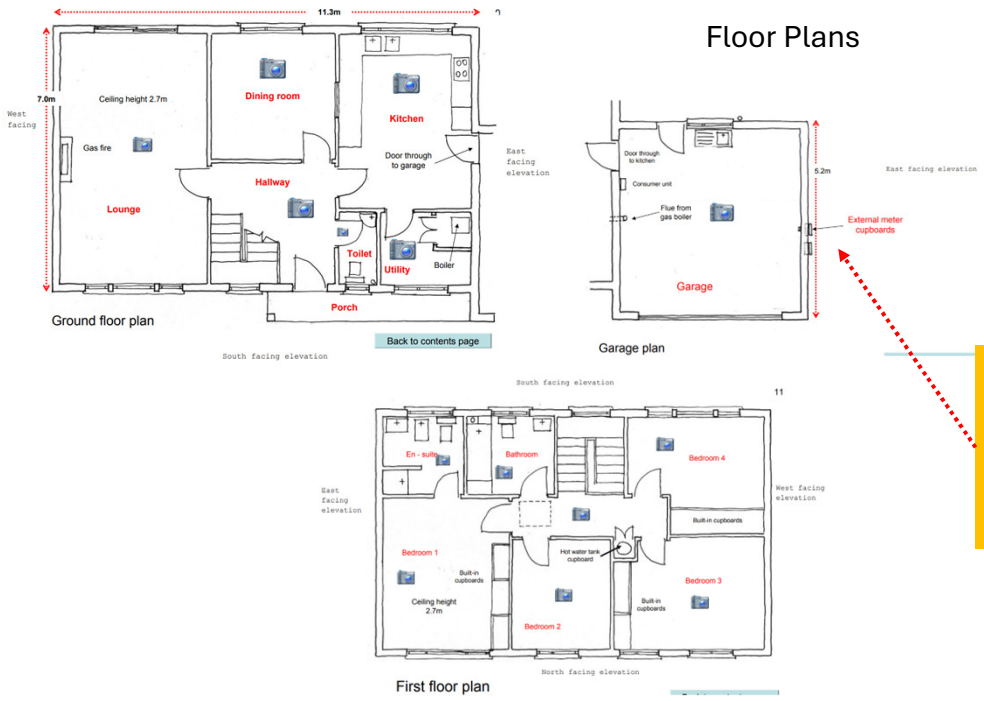
Chartered Building Surveyor

2024

What's our focus of attention for today?

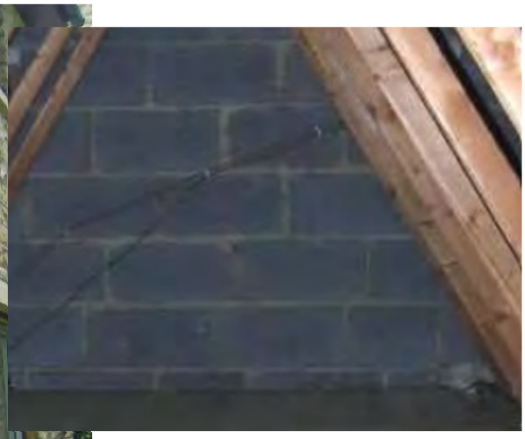
2 Riverside
Valley Bottom
Northern
Town

Floor Plans

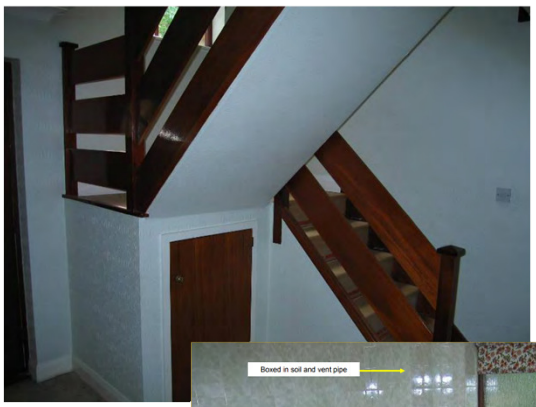


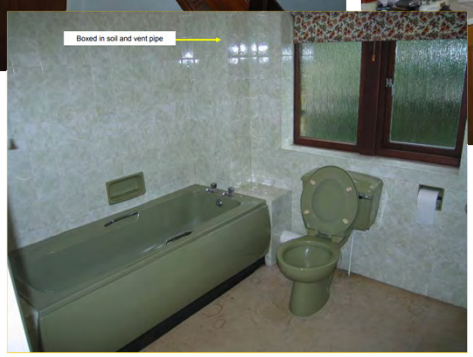
Electricity meter box, no earth bonding, ECU on inside of wall

Shared access to property



Cavity walls, stone faced with reconstituted stone dressings to openings, concrete block inner skin





Joinery and fittings appear original

Pre-fabricated trussed rafter roof with fixed ladder to hatch of landing

Services all appear largely original

Competent Persons Register

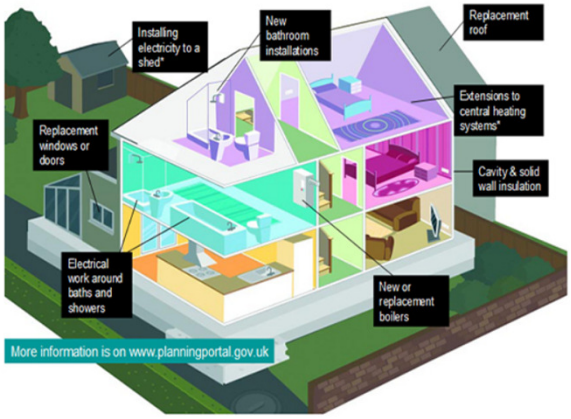
Welcome to the Competent Person Register

Competent Person Schemes (CPS) were introduced by the UK Government to allow individuals and enterprises to self-certify that their work complies with the Building Regulations as an alternative to submitting a building notice or using an approved inspector.

A Competent Person must be registered with a scheme that has been approved by MHCLG (Ministry of Housing, Communities & Local Government). Schemes authorised by the MHCLG are listed on its website at http://www.communities.gov.uk

To understand why you should use a Competent Person, Download the consumer booklet.

This website has been developed by a collaboration of all of the approved scheme providers to provide the consumer with the ability to search for a Competent Person registered with one of the schemes.



https://www.competentperson.co.uk/pdfs/buildingworkleaflet.pdf

Services that can kill


Image taken from Google street view
At 7.30am in the morning...


This was the same scene one minute later.

Sadly, the owner of the property was killed in this explosion.

The force of the explosion damaged the flank walls of the neighbouring properties (but the chimney is still standing)!

The cause of the explosion

A joint investigation by North Yorkshire Police, the Health and Safety Executive and Gas Safe Register, found no evidence of any criminality or breaches of health and safety law that require further investigation.

The cause was established as:

The fracture of a gas pipe buried in the property's concrete floor. This resulted in an uncontrolled gas escape which ignited, causing the explosion.

The copper pipe was installed in the 1970s property. Whilst it was not protected, it was installed in accordance with the standards of the day.

No evidence was found of recent gas work at the property or interference with the pipe that could have affected its integrity.

The pipe showed evidence of corrosion over a long period of time. The pipe fractured at the point where two different concrete floor slabs met.

There was evidence that the two slabs had moved, placing unsustainable forces on the pipe. Bad weather prior to the explosion had resulted in the ground surrounding the property becoming waterlogged. This could have led to ground movement causing the floor slabs to move.

In other words…

It was just '*one of those things*'

Lessons for residential practitioners:

- Make sure all parts of the gas installation and appliances (any other service that can kill) have been certified safe recently, i.e. in the last 12 months;
- The importance of this requirement increases with the age of the installation.

Electric systems and carbon-based fuel systems are...

...services that can kill

Services that can kill are mostly therefore either...

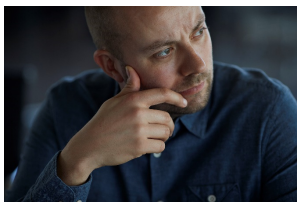
1 No repair is currently needed. The property must be maintained in the normal way.

...or

3 Defects which are serious and/or need to be repaired, replaced or investigated urgently.

Other services

Survey level	Description
General	Other services are taken to mean all piped and cabled services associated with the property including electrics and other cabled systems, hot and cold water systems, heating, above-ground drainage, ventilation services, renewable energy systems and so on. The RICS member does not perform or comment on design calculations or test the service installations or appliances in any way. In all cases, the RICS member will advise the client that further tests and inspections will be required if the occupier does not provide evidence of appropriate installation and/or maintenance, or the client requires assurance as to their condition, capability and safety.
Survey level one	The RICS member will visually inspect an identified sample of the parts of the different service systems that can be seen.
Survey level two	The RICS member will visually inspect all parts of the different service systems that can be seen within the normal course of the inspection.
Survey level three	In addition to those actions described under 'Inspection chambers and underground drains', the RICS member will observe the normal operation of the services in everyday use (where it is safe to do so and without causing damage) including operating an identified sample of lights and extractor fans and asking the occupier to operate the heating.



General approach to Services

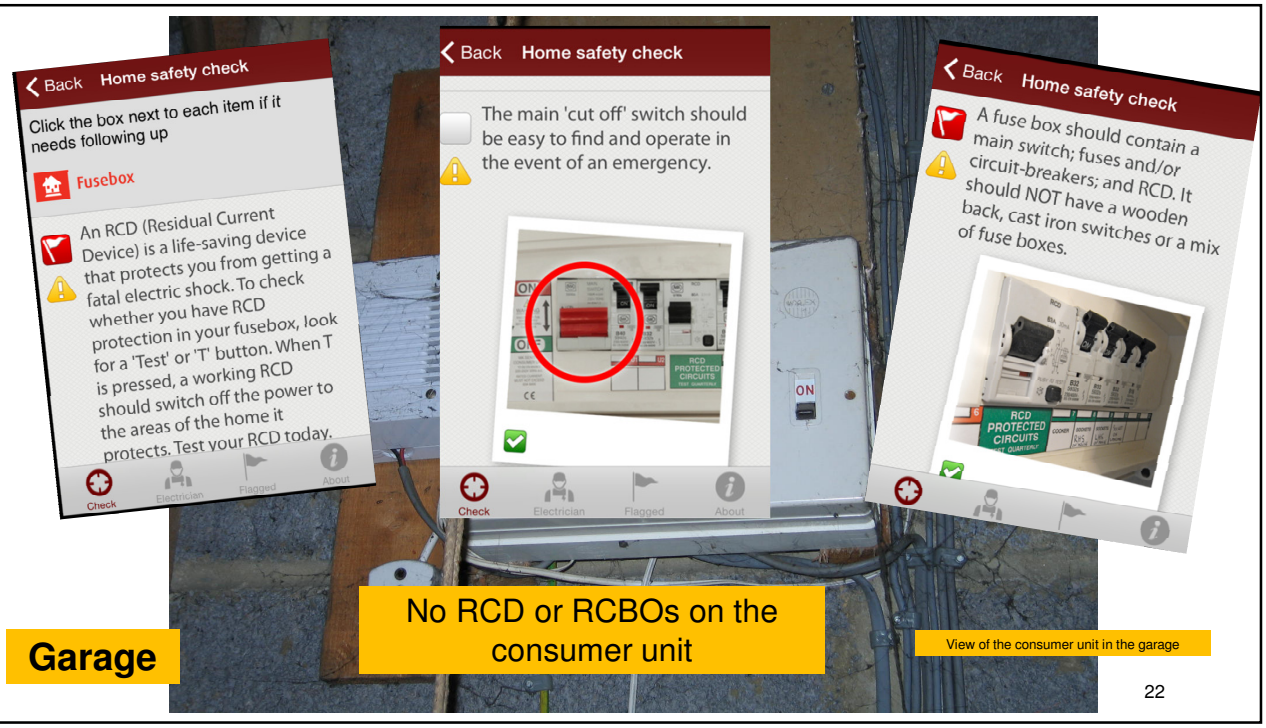
In our view we should distinguish between electricity systems, fossil-based fuel systems and pressurised hot water systems; those typically badged as "Services that can kill", and other installations. Other services can kill you, stored water and legionella for instance, but we shouldn't apply a blanket **CR3** just because up to date testing or certification isn't available. **CR3s** may however be appropriate depending on the circumstances. To comply with the HSS it would however seem that we need to advise that recent tests and inspections would be prudent as a minimum.


Avoid a blanket approach, as comfy as it might feel!

The service sections are open to interpretation. The fact that they say that in all cases buyers should be advised to obtain further tests and inspections where vendors haven't provided evidence of appropriate installation and or maintenance could be taken to suggest that all services, not just those that have a greater potential to kill should be included in this statement.

We have discussed this interpretation with several practitioners, and we believe that there is a difference between advising on services that don't have a heightened potential to kill – drainage for example - as opposed to advising on those that can (e.g. the gas installation). This approach is essential for the electrics, installations involving the combustion of fossil fuels and pressurised hot water systems. It is not essential, though may be appropriate, for other services.

The electricity installation



Garage

No RCD or RCBOs on the consumer unit

View of the consumer unit in the garage

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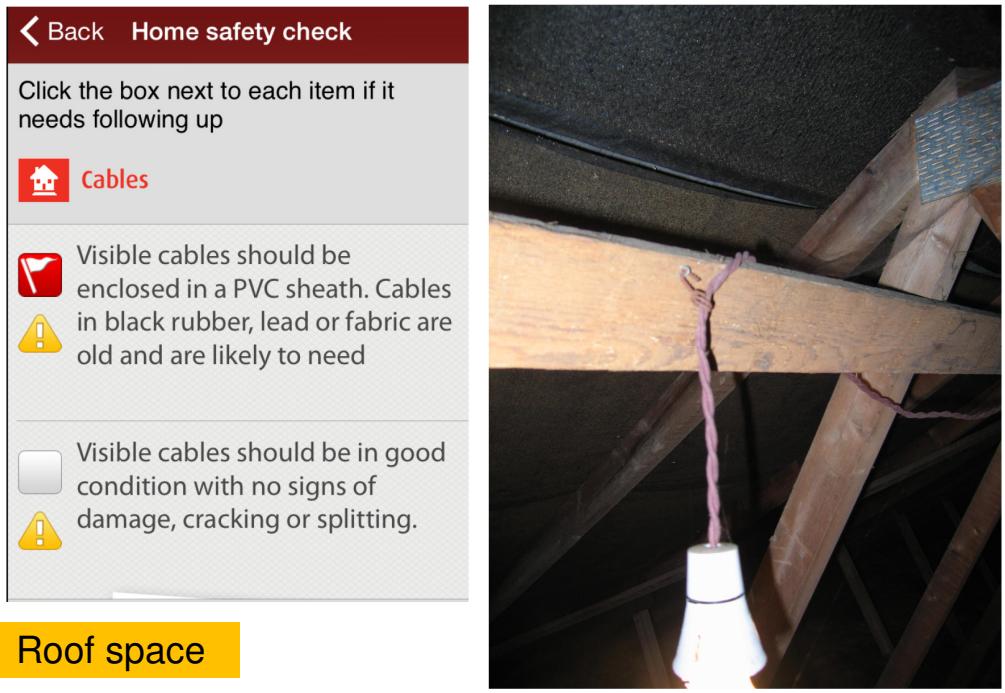

Roof space

Braided cables

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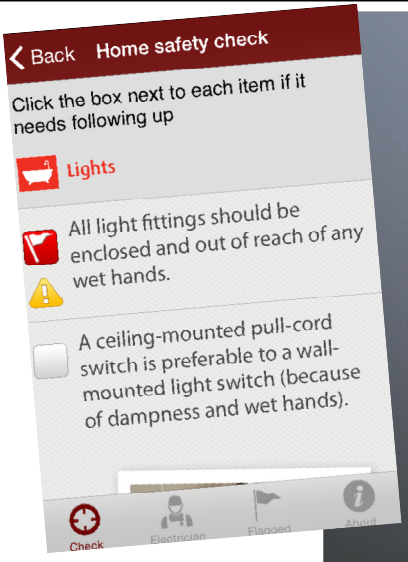
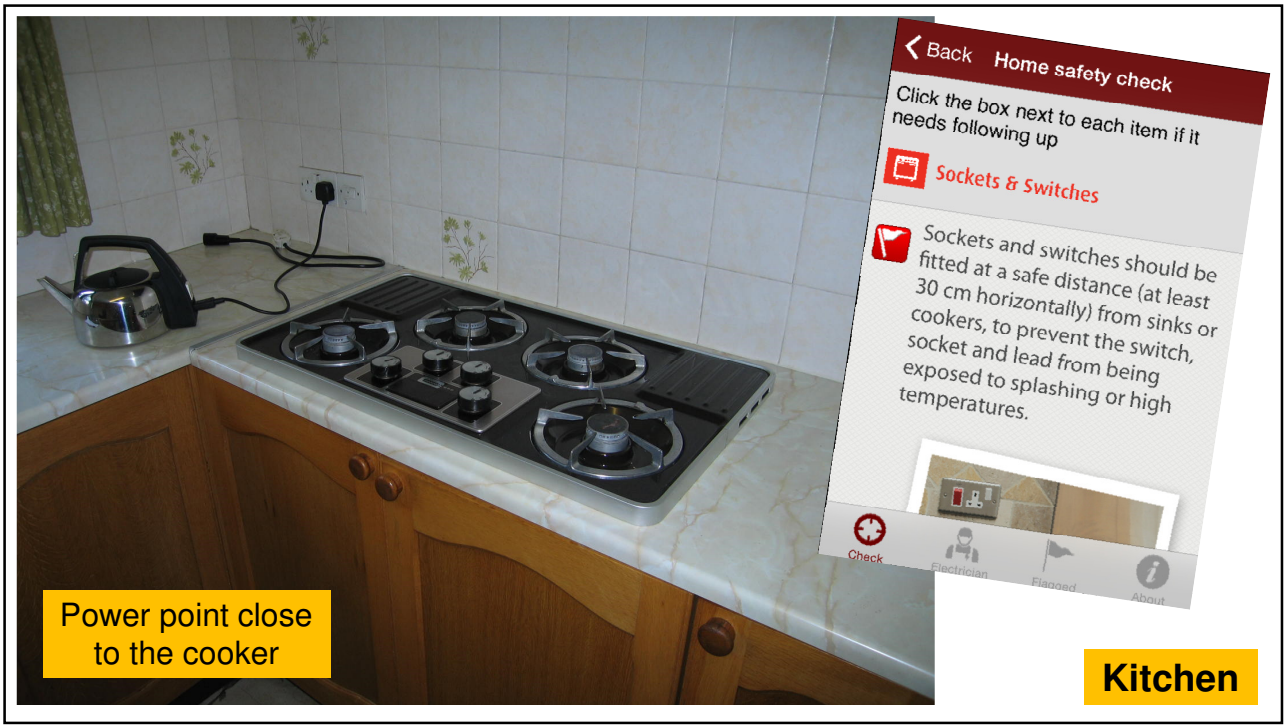


En-suite bathroom

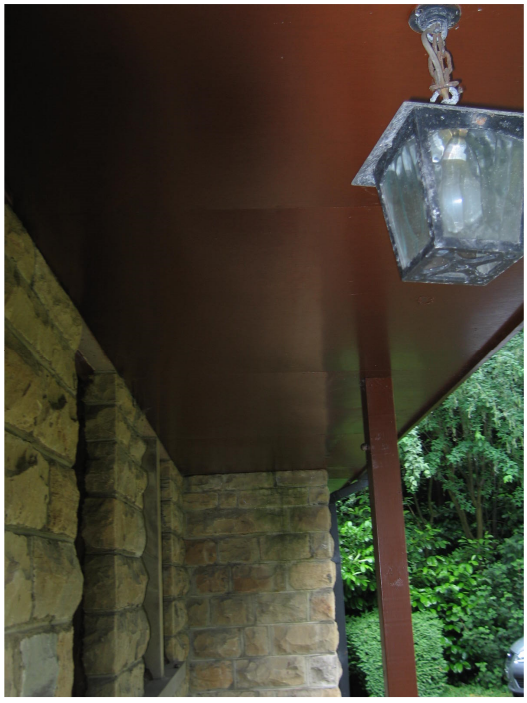
No enclosed light fitting in the bathroom

Light fitting to ceiling of en-suite



Underside of the porch roof

Outside fittings – require additional safety features – water!



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Enough sockets in the property?

Overloading and trip hazards from extension cables

Lounge

View of typical electrical socket in the lounge

What's wrong with this?

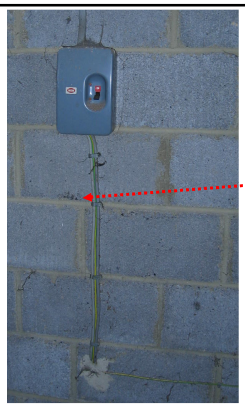
Kitchen

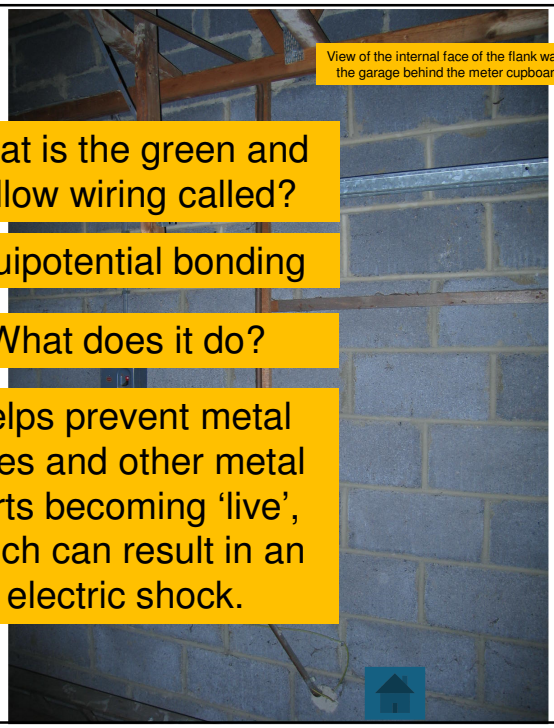
View of socket beneath kitchen sink

Untidy wiring – is it DIY?

Roof space

View of the rear of the ceiling adjacent to the loft hatch access





View of the internal face of the flank wall of the garage behind the meter cupboards

What is the green and yellow wiring called?

Equipotential bonding

What does it do?

Helps prevent metal pipes and other metal parts becoming ‘live’, which can result in an electric shock.

Garage

Some of these wires look thin

Garage

View of typical switches below the consumer unit

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First floor landing

Is this unprotected wire OK?

Closer view of the pipework and control valves in the hot water tank cupboard

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Hierarchy of inspection for the electricity installation

We should approach our electrical inspection in a hierarchical way and consider the following issues:

- *Confirm the electricity installation has been properly installed, periodically inspected, altered and maintained;*
- *The system appears to have appropriate protection against electrocution and fire;*
- *There are suitable installations in bathroom and shower areas;*
- *There are no other worrying visual signs (for example, signs of damage, dangerous DIY, older wiring, and so on).*

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This is the mandatory text included in the (old, now Level 2) HomeBuyer Report

G1 Electricity *Safety warning: The Electrical Safety Council recommends that you should get a registered electrician to check the property and its electrical fittings and that a periodic inspection and testing is carried out at the following times: for tenanted properties every 5 years or at each change of occupancy, whichever is sooner; at least every 10 years for an owner-occupied home. All electrical installation work undertaken after1 January 2005 should have appropriate certification. For more advice contact the Electrical Safety Council.*

However, the ESC actually say the following and seem to suggest electrical systems should be tested when people move into a property that is new to them:

It seems reasonable to recommend the electrical systems are inspected on change of occupancy to bring the owner-occupied sector in line with the private rented sector.

No matter how old your property and its electrical installations, they will suffer deterioration. You should get a registered electrician to check your wiring at least every 10 years, or if you move into a new property.

Do you know when your electrics were last checked?

Types of certification (a quick reminder)

Most certifying bodies issue a number of standard electrical report forms, these include:

- Domestic installation certificate;
- Electrical installation condition report (EICR);
- Minor works electrical certificate;
- Part P building regulation certificate.

The EICR is the one we can confidently accept. It is the most expensive for the owner (in the region of £200 – £350 plus VAT);

The *'Minor Works'* and *'Part P Certificates'* relate only to parts of the system and although useful, they fall short of a *'clean bill of health'* and so should be discounted;

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How recent does the certification have to be?

Although the interval between domestic installations is 5 – 10 years, the number of regulatory changes and the likelihood of damage within that period will both be high;

Therefore, the certificate should be relatively recent and, preferably commissioned to support the sale of the property (less than a year old);

Whatever the age of the certificate, it is still our responsibility to make sure the system has not been altered or damaged since the date of the last inspection.

So we still have to carry out a full visual inspection, even if the owner shoves a certificate under our nose.

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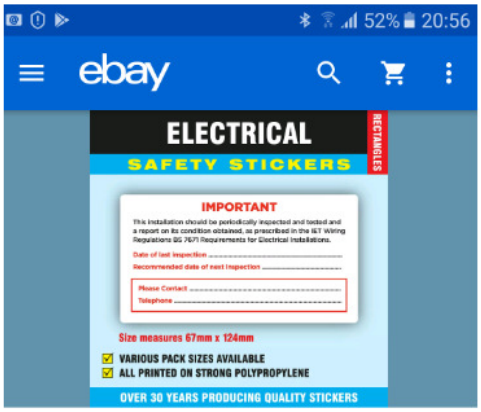
Other evidence of certification

This stick-on label is no substitute for the supporting certification. If there is no other evidence, then it will be a CR3.

Available on ebay!



Pack of 200 Inspect BS 7671 Strong Electrical Safety Stickers Labels 67 x 124mm

★★★★★ (1)

£10.95 + £0.99 postage

Est. delivery **Fri, 21 Feb - Sat, 22 Feb**

One of our associates came across this system during a HBR – date of inspection late 2016. What are your initial thoughts on the installation?

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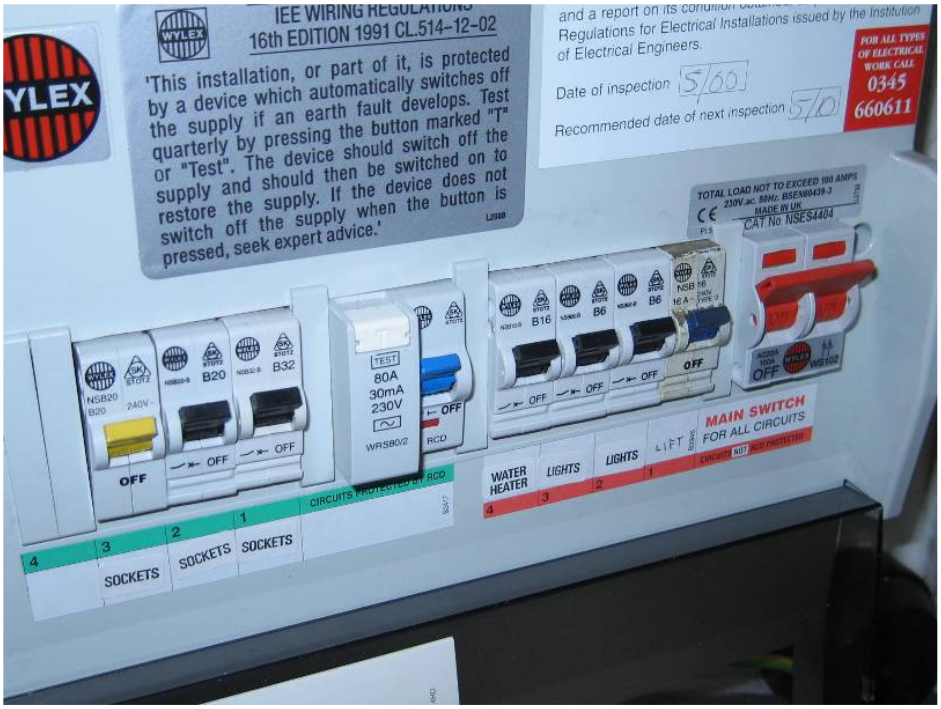
Do you trust this evidence? Even if this was backed up by a 'certificate', the lack of RCD and outdated fuses should result in a **CR3 (further investigation)**

This is more reassuring but not all the circuits have RCD protection. It looks like the lighting, water heater and stairlift don't? Anything else that worries you?

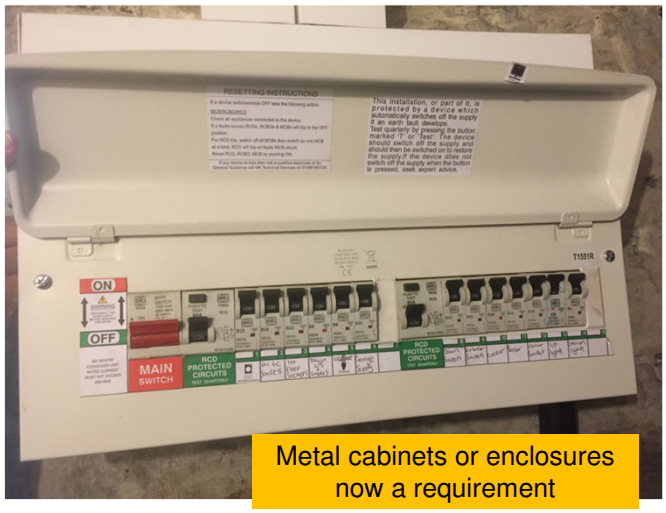


More recent regulations require nearly all circuits to be RCD or RCBO-protected

Additional protection by use of a 30mA RCD is now required for all lighting circuits in domestic household premises

Additional protection by use of a 30mA RCD is now required for all socket outlets with ratings up to and including 32A.

Exceptions are not permitted in dwellings



Metal cabinets or enclosures now a requirement

TOAST!

Just tickles!

Situation	Body Impedance	Current at 230 V
Dry with shoes	3000+ Ω	76 mA
Dry	1500 Ω	153 mA
Wet	500 Ω	460 mA
Body ½ immersed	250 Ω	920 mA

Why am I shaking so much?

Not nice!

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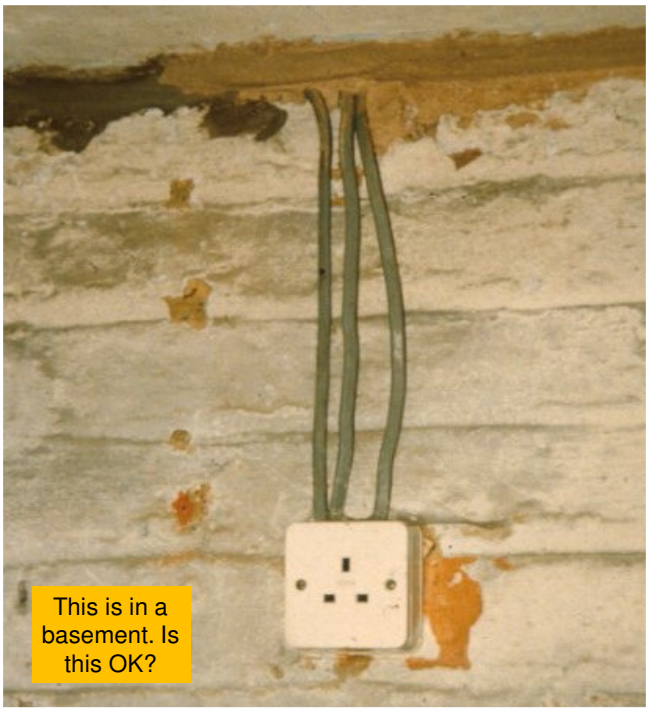
This could be a 'spur' legitimately supplying a socket above. However, the wiring is untidy and has a DIY 'feel'. We would want to see evidence of inspection/testing for reassurance.



This is in a basement. Is this OK?

This is in the living room. OK?

This looks poorly fixed, the cable is surface run in a place where it could be damaged. Even if the owner provided appropriate certification, we would still put a CR3 on this.

If you miss this you deserve all you get!

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Watch out for older round pin fittings

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Examples of older fittings

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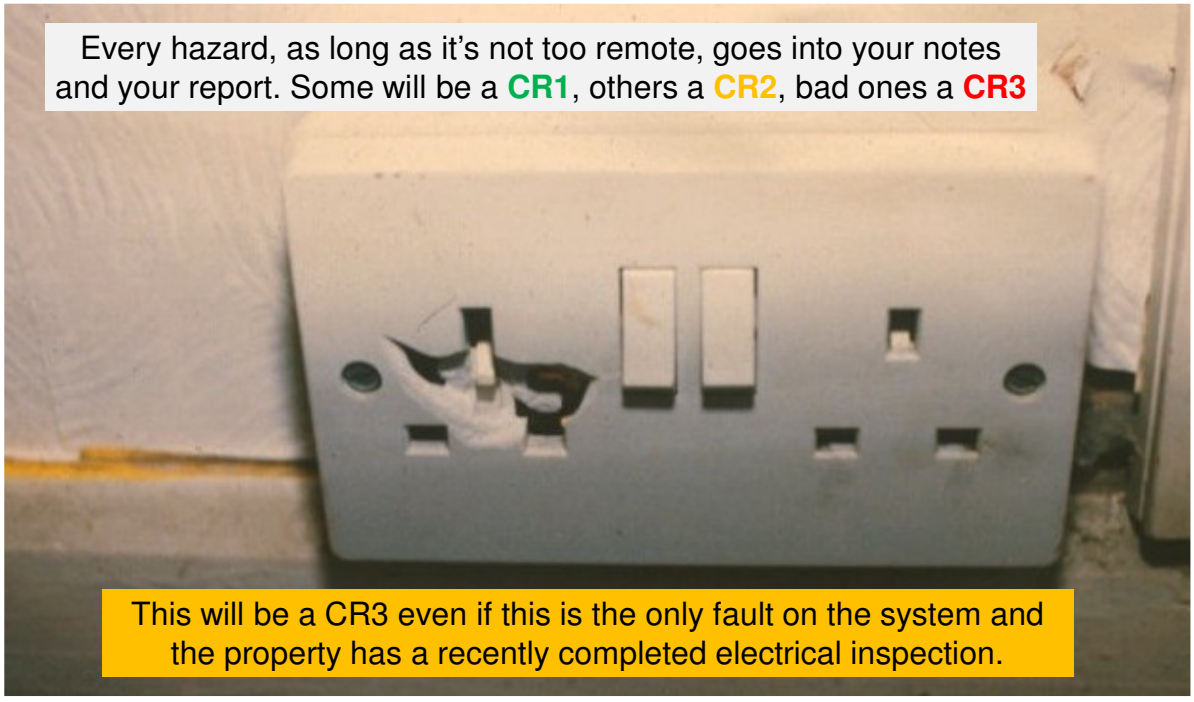
Every hazard, as long as it's not too remote, goes into your notes and your report. Some will be a **CR1**, others a **CR2**, bad ones a **CR3**



This will be a CR3 even if this is the only fault on the system and the property has a recently completed electrical inspection.

Making a reasonable judgement

Surveyors are not electricians. We have no competent person knowledge, and we do not carry out any tests. We base our opinions on our visual survey using the knowledge a 'reasonably competent surveyor' should possess;

We'll come back to this later.

We have only two options:

- Where appropriate certification is in place and our visual inspection raises no concerns, then we allocate a **CR1**;
- Where there is no certification or it is inappropriate, and or we notice defects and or hazards, then **CR3** is the only option.

However, we are still able to assist our clients in the report, e.g. by indicating (with caution) the likely level of expenditure.

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Plan for Consistent Reporting – one method

To give you a framework for setting out your comments on the various elements of a property, it is useful to follow a structured layout:

- **Description**: What is it? Where is it?
- **Observations**: What's not so good? What risks does this bring?
- **Rating**: What's the score? 🟢☹️🔴
- **Action**: What to do, by whom, by when?
- **Supplement (Advisories)**: What other information would be useful to ensure customer gets the right idea?

By keeping this layout in mind right from the beginning of the task, it will help you structure your research, inspections, record keeping and reflective thoughts.

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Plan for Consistent Reporting – another method

To give you a framework for setting out your comments on the various elements of a property, it is useful to follow a structured layout:

- **Description:** What and where is it (including any inspection restrictions)?
- **Condition with rating:**
- **Any other helpful advice:** such as 'it's likely to cost you an arm & leg'!
- **Personal hazards:** use the BRADs or similar as benchmarks of good practice
- **Risks to property:** does the element condition represent a risk to other parts?
- **Legal issues:** acting as the 'eyes and ears', what must the legal adviser be told?
- **Action:** what does the client need to do?

By keeping this layout in mind right from the beginning of the task, it will help you structure your research, inspections, record keeping and reflective thoughts.

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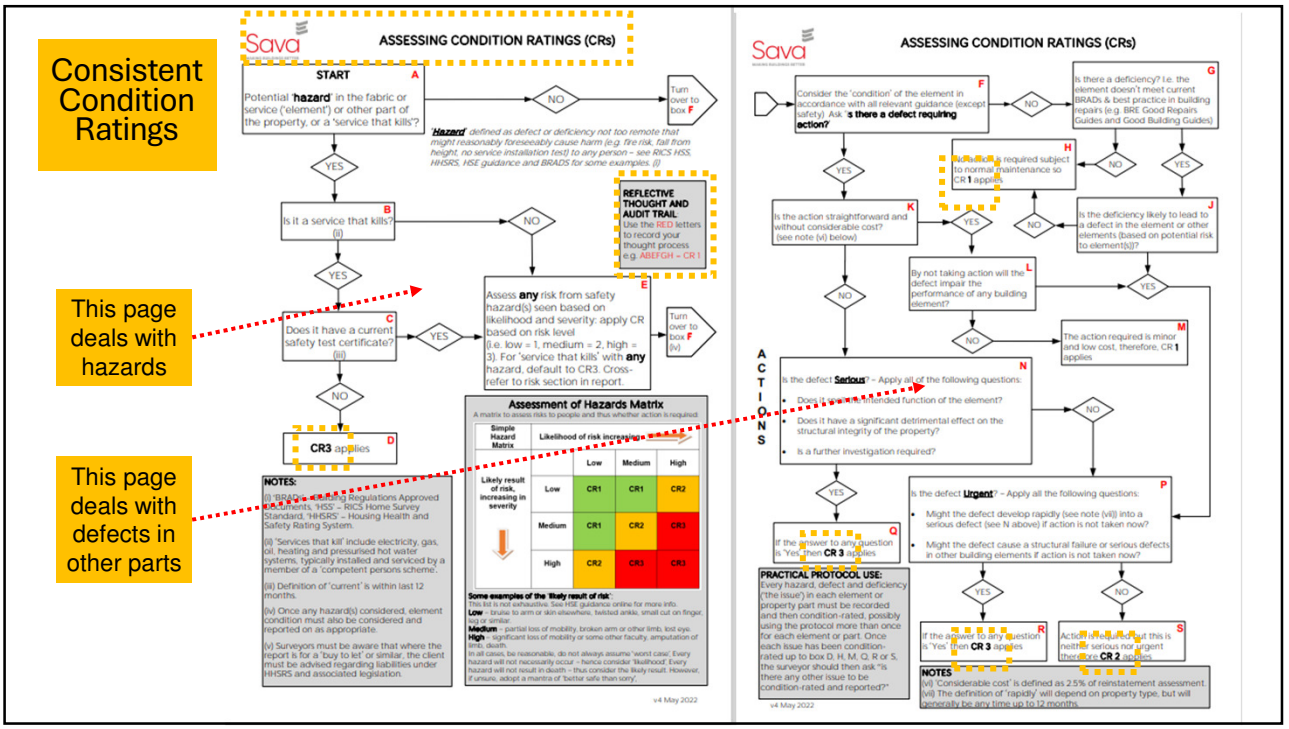
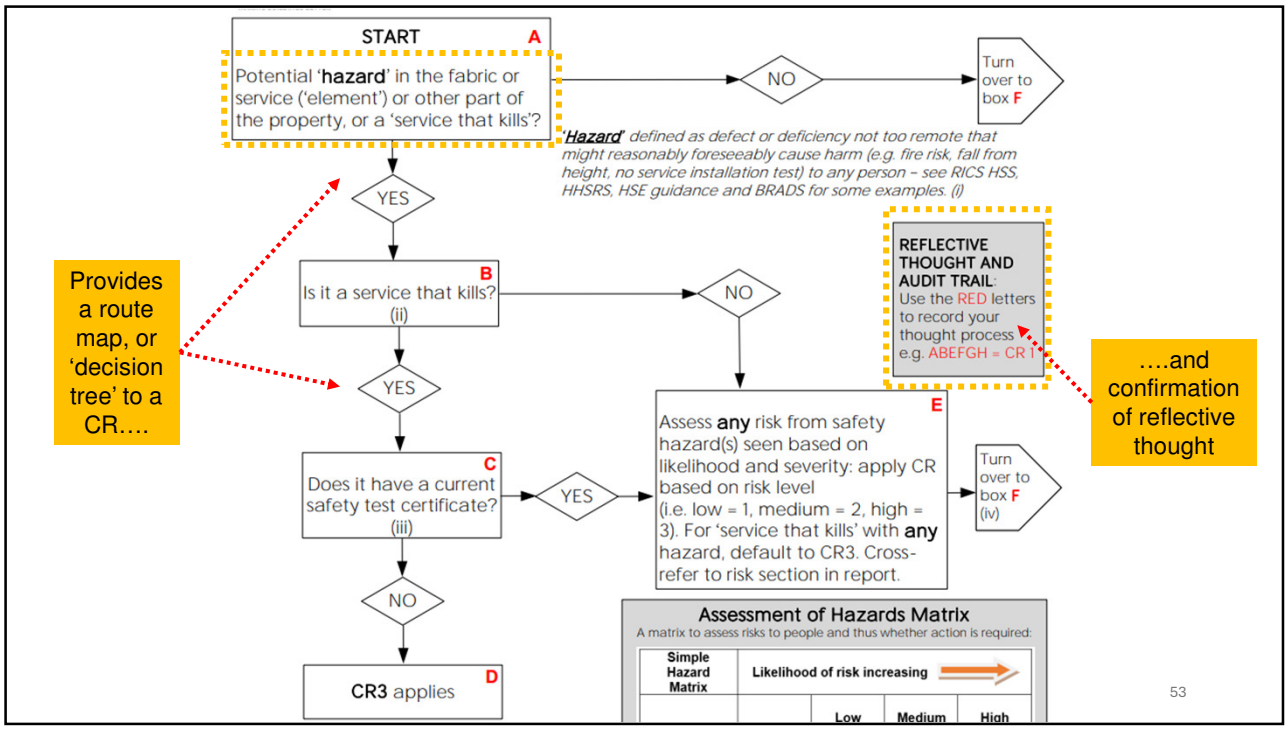
Consistent Condition Ratings

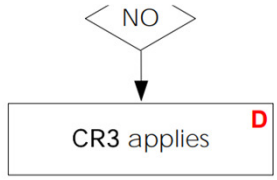
This page deals with hazards

This page deals with defects in other parts





Consistent Condition Ratings



NOTES:

(i) 'BRADs' – Building Regulations Approved Documents, 'HSS' – RICS Home Survey Standard, 'HHSRS' – Housing Health and Safety Rating System.

(ii) 'Services that kill' include electricity, gas, oil, heating and pressurised hot water systems, typically installed and serviced by a member of a 'competent persons scheme'.

(iii) Definition of 'current' is within last 12 months.

(iv) Once any hazard(s) considered, element condition must also be considered and reported on as appropriate.

(v) Surveyors must be aware that where the report is for a 'buy to let' or similar, the client must be advised regarding liabilities under HHSRS and associated legislation.

Assessment of Hazards Matrix

A matrix to assess risks to people and thus whether action is required:

Simple Hazard Matrix	Likelihood of risk increasing →			
		Low	Medium	High
Likely result of risk, increasing in severity ↓	Low	CR1	CR1	CR2
	Medium	CR1	CR2	CR3
	High	CR2	CR3	CR3

Some examples of the 'likely result of risk':
This list is not exhaustive. See HSE guidance online for more info.
Low – bruise to arm or skin elsewhere, twisted ankle, small cut on finger, leg or similar.
Medium – partial loss of mobility, broken arm or other limb, lost eye.
High – significant loss of mobility or some other faculty, amputation of limb, death.
In all cases, be reasonable, do not always assume 'worst case'. Every hazard will not necessarily occur – hence consider 'likelihood'. Every hazard will not result in death – thus consider the likely result. However, if unsure, adopt a mantra of 'better safe than sorry'.

G1 Electricity

Accessible parts of the wiring are visually inspected without removing or undoing fittings . No tests whatsoever are carried out to the system or appliances. The following statement is printed at the start of G1: Safety warning: The Electrical Safety Council recommends that you should get a registered electrician to check the property and its electrical fittings at least every ten years, or on change of occupancy. All electrical installation work undertaken after 1 January 2005 should have appropriate certification. For more advice contact the Electrical Safety Council. Subsequent reporting should not contradict this. The surveyor should describe the installation and its general condition including:

• mains supply
• residual current device (RCD) or miniature circuit breakers (MCB)
• on-peak/off-peak • location of the meter and consumer unit/fuse board
• supplementary bonding in the usual places • condition of visible wiring
• condition of a sample of the range of light fittings and switch gear
• fixed electrical appliances, including heaters, storage radiators, electric showers, instant water heaters, etc. (see also G5 Water heating)
• nature of electrical fittings bath and shower rooms
• external installations, such as garages, outbuildings, external sockets, garden lighting, water feature pumps, etc, and
• the surveyor should check if the following documentation is available:
  – Part P Building Regulation certification where rewiring and or alterations to the installation have been carried out post 1 January 2005.
  – A recent Periodic Inspection Report (EIR).

A possible suggestion – level 2

There is a main electricity supply. The meter is in an external cabinet, the consumer unit and main isolation switch are in the garage. The system is not to current standards and several safety concerns were noted including:

- No recent testing certification was provided.
- No residual current device (RCD) – these provide protection against electrocution.
- Untidy, exposed, and old braided cables (wires).
- There are inappropriate light fittings to the bathrooms (wet areas).
- Many of the power points are not switched and the provision is minimal by modern standards.
- A socket was noted beneath the kitchen sink, a potentially wet area and incorrectly installed.

The system presents a serious safety risk (see section J3)

Condition rating 3 (Further Investigation)

You should ask a qualified electrician, registered under a government “Competent Persons Scheme”, to inspect the whole system before you commit to purchase (exchange of contracts). Whilst the extent of work will not be known until this further advice is obtained, you should plan for substantial works that are likely to be disruptive and costly.

And another possible suggestion – level 3

Section	Report	Notes
Description: What and where is it (including any inspection restrictions)?	There is a main electricity supply. The supply is underground. The electricity meter box is situated outside on the wall of the garage. There is no electrical earth bonding to the meter installation. The electricity consumer unit (fuse-board) is situated inside the garage, on the outside wall. The unit has old-fashioned fuses. The electricity installation includes electricity cables, socket outlets (plug points), light switches and light fittings. The electricity installation was turned 'off' at the time of my inspection.	Begin your inspection at the property boundary and follow the trail. This report example assumes presence of general testing requirements is included elsewhere
Condition with rating: 	**Condition rating 3** – this is considered serious and in need of urgent repair or replacement. Further advice should be obtained. The electricity installation is in poor condition. There is evidence of significant defects and deficiencies including the issues listed below. These issues should be remedied now. In addition, there is no evidence to confirm the electricity installation has been tested recently, i.e. within the last 12 months. A test of the electricity installation should be carried out now.	This is the general basis of the opinion about the condition.

Section	Report	Notes
Any other helpful advice: such as 'it's likely to cost you an arm & leg'!	I cannot confirm the exact nature and extent of the remedial, repair and or improvement works until testing has been carried out. However, I believe it is likely the costs of the works are likely to be high; indeed, it is possible that complete replacement of the electricity installation will be necessary. In that case, other parts of the property close to the areas that requires repair would have to be disturbed to carry out the repair, e.g. plaster, joinery and decorations. This will increase the amount of work required and therefore the cost(s) of the work.	'Arm and a leg'!
Personal hazards: use the BRADs or similar as benchmarks of good practice	There is no evidence to confirm the electricity installation has been tested recently. This is usual in a property of this age and type. This is sometimes indicated by a sticker placed somewhere on the system (normally on the consumer unit) and a test report. There is no sticker and no report. I believe this is sufficient reason for a test to be carried out now and increases the risk of electrical shock, in extreme cases possibly death and or a fire. This is a hazard – see 'risks to people' in section ? for further details. I noted other safety hazards and issues to the electricity installation including the fact the electricity fuse-board (consumer unit) is not contained in a metal enclosure or box to help reduce the risk of a fire spreading in the property if a fault occurs in the fuse-board etc. This is usual in a property of this age and type. These issues are hazards – see 'risks to people' in section ? for further details.	I would also include some or all the other examples shown a few slides back.

Section	Report	Notes
Risks to property: does the element condition represent a risk to other parts?	Lack of recent and or regular satisfactory testing of an electricity installation by a 'competent person' can result in faults developing in the system. Furthermore, some of the defects and deficiencies I noted in the electricity installation could help cause a fire, e.g. the braided cables in the roof space. A fire can result in a partial or, in extreme circumstances, complete loss of the property. This is a risk to the property – see 'risks to property' in section ? for further details.	The paragraph is repeated in the 'catch-all' summary section elsewhere in the report.
Legal issues: acting as 'eyes and ears', what must the legal adviser be told?	There is no evidence of recent testing of the electricity installation. A test is required now. This has legal implications – see 'issues for Legal Advisers' in section ? for further information. The electricity supply is over land probably owned by others, beneath the shared drive. This has legal implications – see 'issues for Legal Advisers' in section ? for further information.	The legal adviser is reminded to tell the client to get a test. Any other legal issue is included.
Action: what does the client need to do?	You should arrange for a test of the electricity installation before you make a legal commitment to purchase the property by an appropriately qualified 'competent person' (as defined under the Building Regulations) to check the condition and safety of the installation. Before you make a legal commitment to buy, you should also obtain competitive quotations from competent contractors for work(s) to implement repairs and improvements and remove or reduce the identified hazard(s). You should arrange for the work(s) to be carried out immediately after purchase of the property.	"Get a test now and get prices for all the works now"!

Conclusions

- For all 'services that can kill', we try to find (ask for) a copy of a 'recent' certificate prepared by an apparently 'competent person';
- Check that the certificate covers the entire installation (e.g. there's a gas certificate, but does it cover pipework and the old gas fire in the lounge?);
- If you do not see a recent certificate for the entire installation, there is no confirmation a suitably qualified competent person has signed it off as safe, therefore **CR3** applies;
- if you're satisfied the certificate confirms safety of the entire system, you must still visually inspect the installation and if you see any evidence of a potential safety hazard, even though you have a certificate that confirms it's safe, **CR3** applies (BSTS);
- Thus, to allocate any 'service that can kill' a **CR1**, there must be:
  - A satisfactory recent certificate for the entire installation, and
  - Following your visual inspection, no evidence of any potential hazard.

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