



Part J of the Building Regulations: Changes for 2010

Tuesday 28th September 2010

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The Building Regulations

- The England & Wales Building Regulations are legal requirements that apply whenever building work is carried out – they are not retrospective
- They contain **Functional Requirements** such as:
 - “Combustion appliances shall have adequate provision for the discharge of products of combustion to the outside air”*
- Requirements are generally contained in parts A to P of schedule 1 of the Building Regulations
- These requirements are supported by guidance in 18 **Approved Documents** published by the Department for Communities and Local Government (CLG)

The Approved Documents

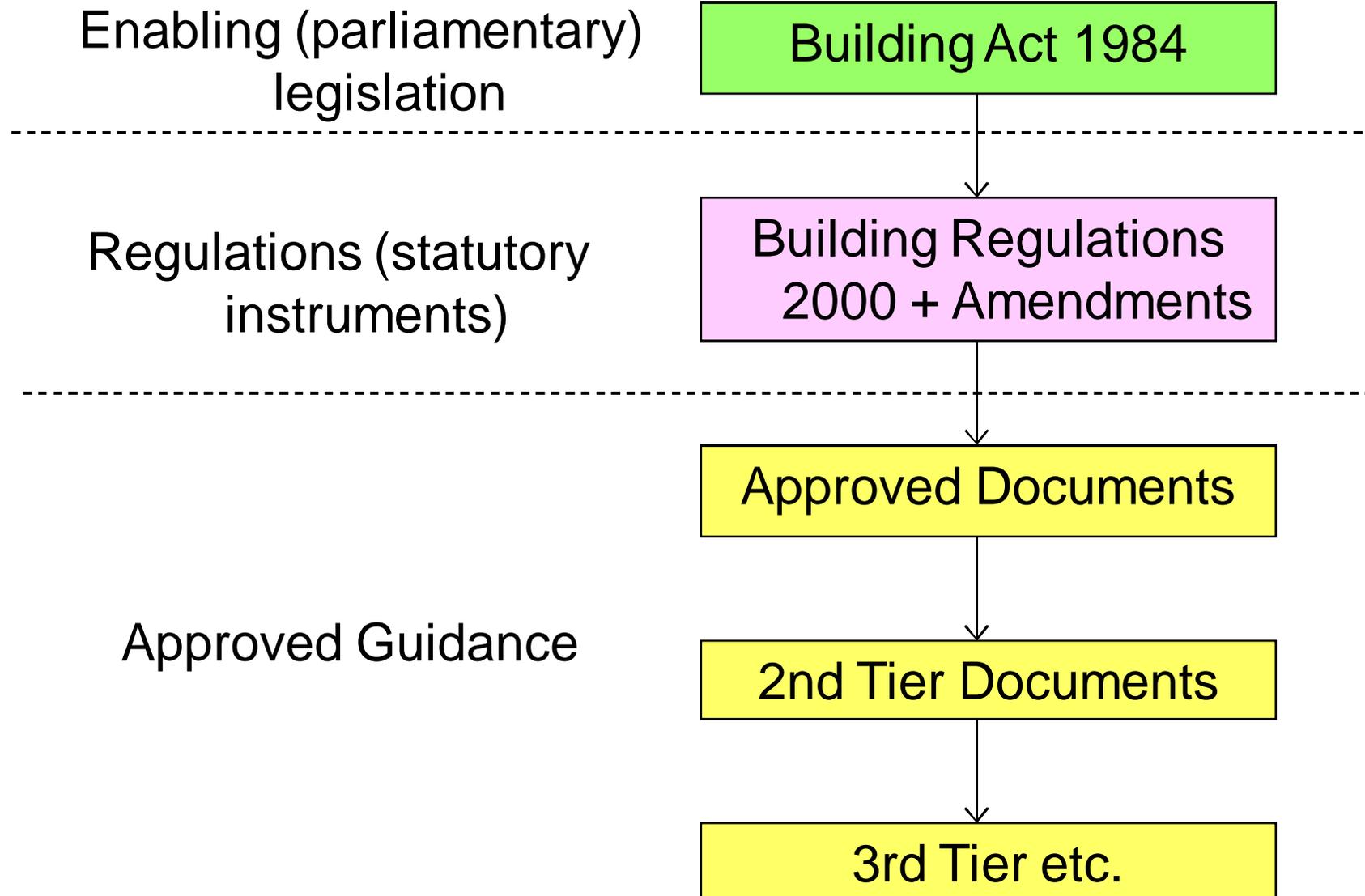
- The Approved Documents provide practical guidance on meeting the functional requirements of the Building Regulations
- They are not the only acceptable way of meeting the Functional Requirements
- They only provide guidance on common types of building work
- Relevant requirements are reproduced in the Approved Documents.
- Building Regulations and Approved Documents can be downloaded from www.planningportal.gov.uk



Approved Documents
can't possibly apply to
every type of building!

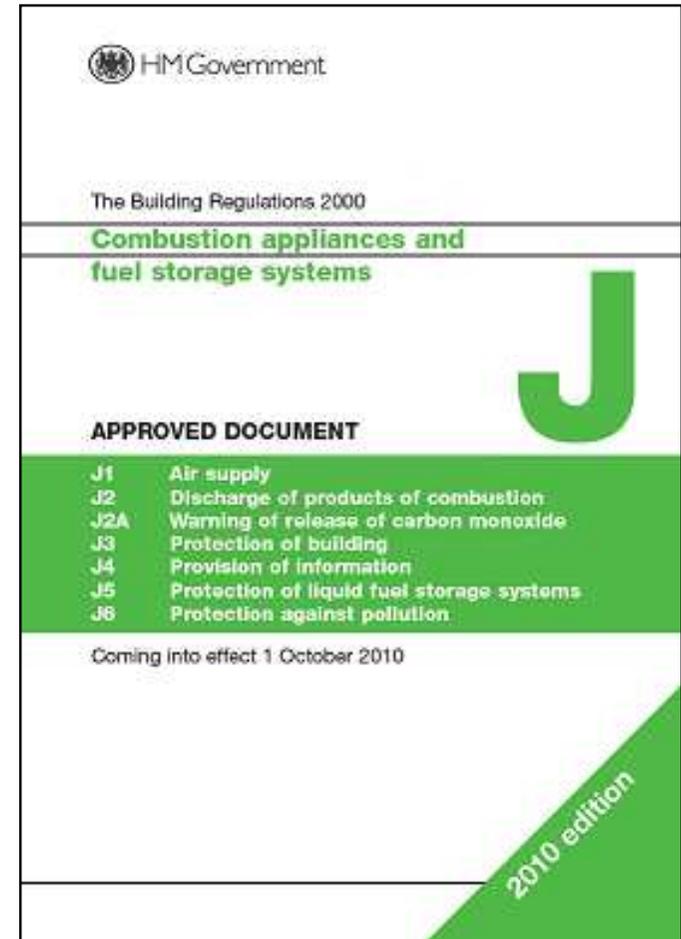


Legal Structure



Approved Document J: Combustion Appliances and Fuel Storage Systems

- Approved Document J applies to things like boilers, fires and oil tanks
- There are a number of health and safety hazards associated with these if not correctly installed, including fire, explosion, carbon monoxide poisoning and pollution of drinking water
- Part J, and the guidance supporting it, needs to be periodically reviewed in the light of changes in technology and standards as well as operational experience and new research.



Changes to Part J

- The “Old” Approved Document J dates from 2002
- During 2009, an industry working group met to discuss changes to Part J
- A draft Approved Document J was produced and this went out to consultation from June to September 2009
- This was separate from the Parts F and L consultation that ran around the same time
- Changes to Parts F, J and L of the Building Regulations were published in March 2010, followed by revised Approved Documents in April 2010
- These come into effect on 1st October 2010

Transitional Arrangements

The changes don't take effect all at once...

- If work is started before 1st October 2010, the old regulations will still apply
- If the work is considered “minor works” or is carried out by a member of a competent persons scheme and is started before 6th April 2011, the old regulations will still apply
- If an application is made before 1st October 2010 and work is started before 1st October 2011, the old regulations will still apply
- Otherwise, the new regulations will apply from 1st October 2010

The Requirements of Part J

Requirement J1: Air Supply

Requirement J2: Discharge of products of combustion

Requirement J2A: Warning of release of carbon monoxide (new requirement for 2010)

Requirement J3: Protection of building

Requirement J4: Provision of information

Requirement J5: Protection of liquid fuel storage systems

Requirement J6: Protection against pollution

All of these requirements exist purely for health and safety purposes (not energy efficiency etc.)

Carbon Monoxide Alarms

There is only one change to the Building Regulations:

J2A: Where a fixed combustion appliance is provided, appropriate provision shall be made to detect and give warning of the release of carbon monoxide

Requirement J2A only applies to fixed combustion appliances in dwellings

Note that this requirement applies to all fixed combustion appliances in dwellings, regardless of fuel type or appliance output. ADJ 2010 states what appropriate provision is for solid fuel appliances up to 50kW (more about this on later slides). Carbon monoxide alarms can still reduce the risk of poisoning from other types of appliance.

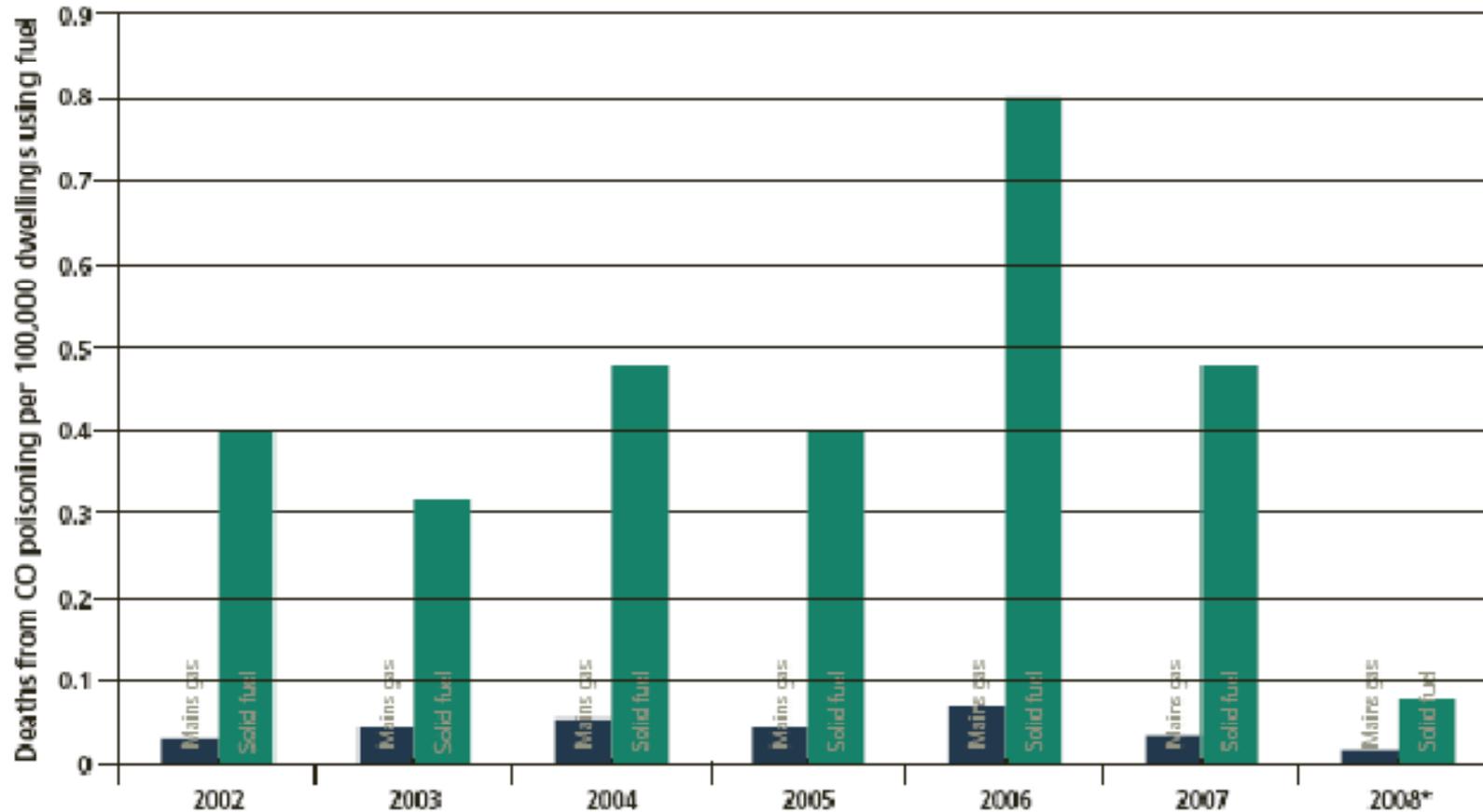


Approved Document J 2010: Combustion Appliances and Fuel Storage Systems

- Section 1 deals with combustion appliances in general
- In addition to section 1...
- Section 2 deals with solid fuel **(from 2010 specifically including solid biofuel)** burning appliances with a rated output up to 50kW
- Section 3 deals with gas burning appliances with a rated input up to 70kW (net)
- Section 4 deals with oil **(from 2010 specifically including liquid biofuel and blends)** burning appliances with a rated output up to 45kW
- No specific guidance is provided for larger appliances
- Section 5 deals with liquid fuel storage and supply

Carbon Monoxide Alarms

Figure 2: Number of deaths from CO poisoning from mains gas and solid fuel per 100,000 dwellings using the relevant fuel, 2002-2008*



* 2008 only includes data for January through August

Source: London Economics' analysis of Carbon Monoxide and Gas Safety Society data.

Carbon Monoxide Alarms

- Carbon monoxide poisoning is more likely for solid fuel installations than for natural gas though overall numbers of deaths are low
- Reasons for difference in CO risk between gas and solid fuel appliances:
 - Most gas appliances are room sealed so flue gases should not enter the living space even under fault conditions
 - Gas appliances are subject to stringent testing and certification
 - Installation of gas appliances is more tightly regulated than solid fuel
 - Gas appliance are less subject to fuelling variations than solid fuel.

In support of the new requirement J2A, guidance has been added to section 2:

- New or replacement solid fuel appliances in dwellings require carbon monoxide alarms
- Alarms should have a lifetime battery or be mains powered as a fixed installation (not plug-in)
- Alarms should comply with BS EN 50291:2001
- Alarms may be on the ceiling or high up on the wall
- Alarms should be in the same room, and between 1m and 3m horizontally from the appliance
- It should be noted that this applies to all solid fuel appliances up to 50kW, irrespective of the fuel, even if they are room sealed – this is because there is no standard for room-sealing of these appliances

- Concealed flues are increasingly common for gas boiler installations
 - Extended flue kits are available for many boilers
 - Provides more flexible boiler location (does not need to be located on an outside wall)
- If flues are badly installed then faults can develop in use leading to leakage of flue gases



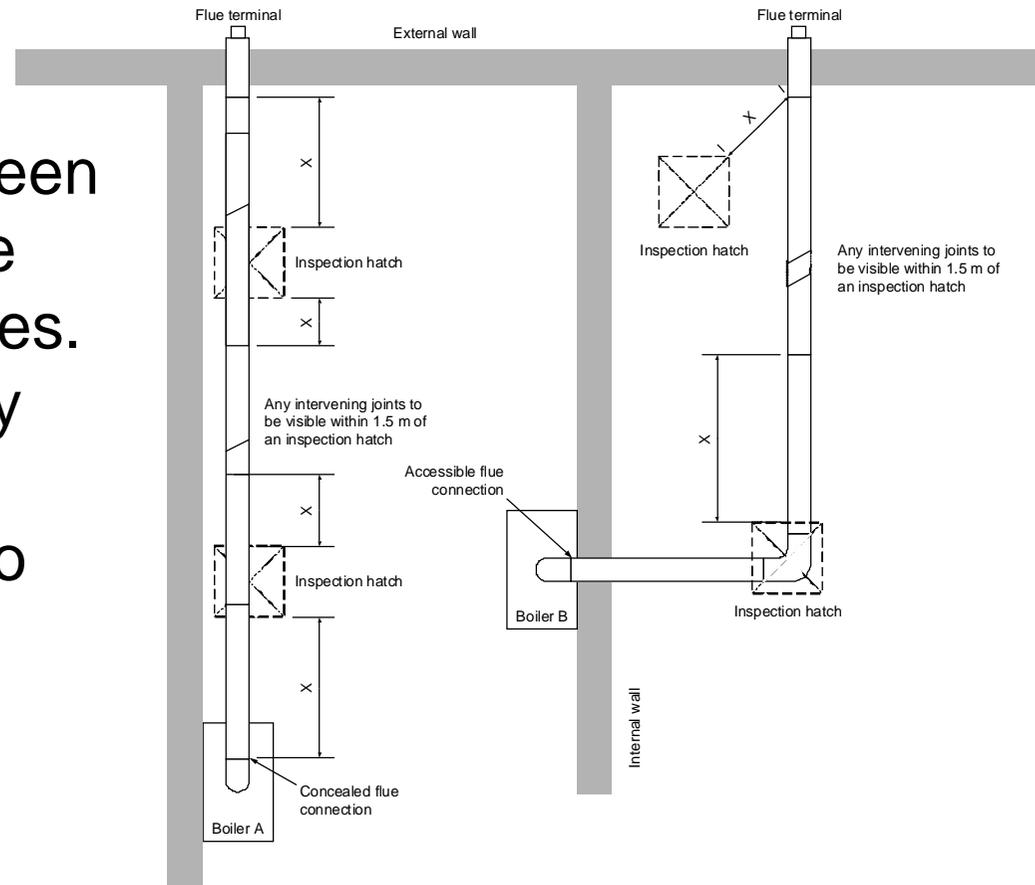
Access to Concealed Flues

New guidance has been added to section 1 for 2010.

- Concealed flues should be provided with access to check that:
 - The flue is continuous throughout its length
 - Joints are correctly assembled and sealed
 - There is adequate support
 - Correct gradients and drain points are provided
- This is for visual inspection, not full physical access
- Access for inspection is already a requirement Regulation 27 of the Gas Safety Installation and Use Regulations 1998

Access to Concealed Flues

A new diagram (14) has been provided showing example locations for access hatches. Note that this diagram only covers horizontal flues, although the guidance also covers vertical flues.



All voids containing concealed flues should have at least one inspection hatch measuring at least 300 mm square.

No flue joint within the void should be more than 1.5 m distant from the edge of the nearest inspection hatch i.e. dimension X in the diagram should be less than 1.5 m.

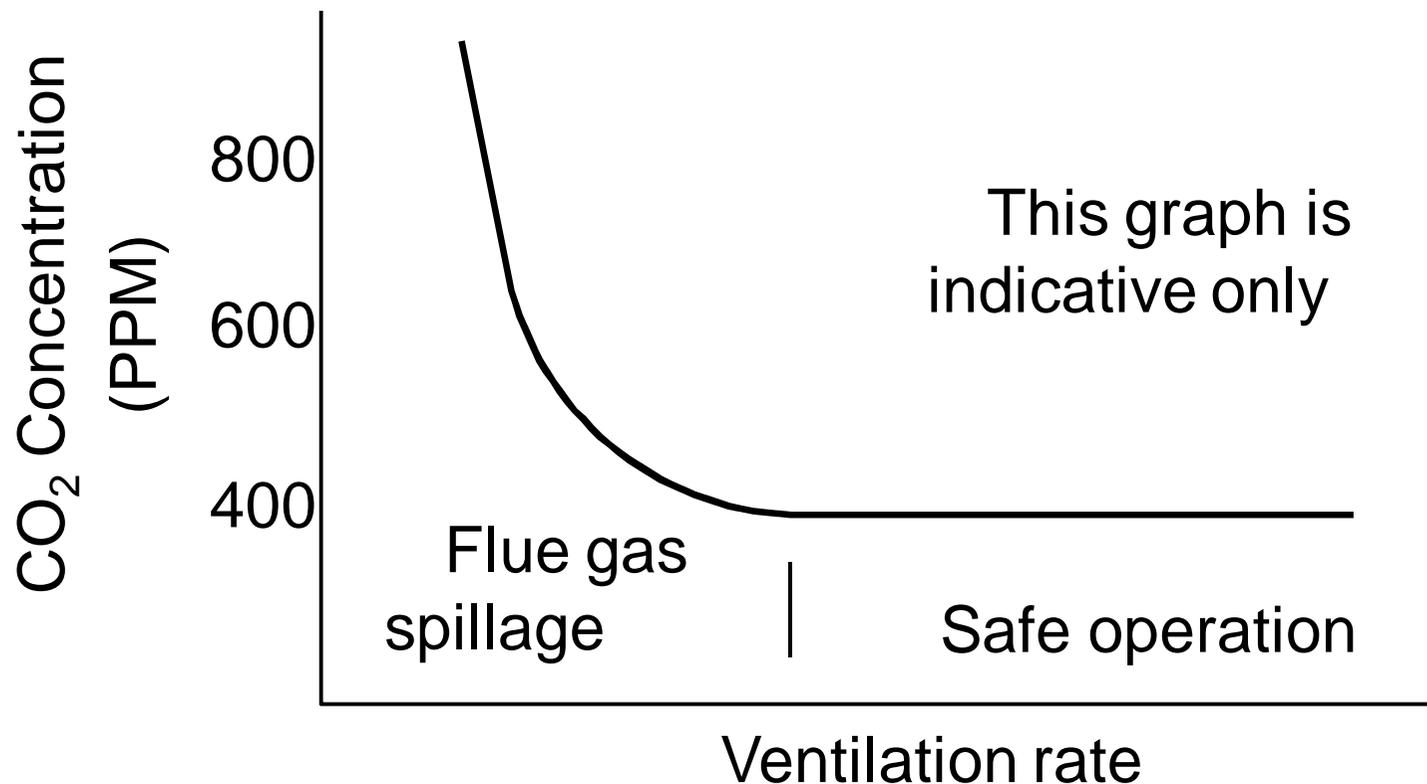
Where possible inspection hatches should be located at changes of direction. Where this is not possible then bends should be viewable from both directions.

Access to Concealed Flues

- Flues should not pass through another dwelling, but may pass through accessible common areas
- Hatches should be at least 300mm x 300mm
- Voids containing horizontal flues should have at least one access hatch
- Hatches for horizontal flues should be within 1.5m of each joint
- Hatches for horizontal flues should be provided at each bend, or bends should be visible from both directions
- This access should not impair fire, acoustic or energy performance (Parts B, E and L of the Building Regulations)
- Note that this guidance applies regardless of the building type, fuel type or appliance output

Permanent Ventilation Openings

- Open-flued appliances require sufficient ventilation to avoid spillage of flue gases
- Previous guidance assumed a certain level of “adventitious ventilation” through gaps and cracks



Permanent Ventilation Openings

- These days, we design and construct houses with:
 - Low rates of air leakage (Part L)
 - Adequate controllable ventilation (Part F)
 - Permanent ventilation openings for combustion air for open-flued appliances (note that room-sealed gas and oil appliances do not need combustion air openings)
- There was concern that provisions for permanent ventilation openings in AD J 2002 were not sufficient for more airtight dwellings
- An important change to the Approved Document is an increase in the free area of permanent ventilation openings required for open flued appliances in modern airtight properties

Permanent Ventilation Openings

New guidance has been added to sections 2, 3 & 4 for 2010:

- Air permeability is measured in $\text{m}^3/(\text{h}\cdot\text{m}^2)$ @50Pa
- The lower the air permeability, the more airtight
- Example below from section 3:

Gas appliance in a room or space	<p>Air permeability $<5.0\text{m}^3/(\text{h}\cdot\text{m}^2)$ @50Pa: permanent opening $500\text{mm}^2/\text{kW}$</p> <p>Air permeability $>5.0\text{m}^3/(\text{h}\cdot\text{m}^2)$ @50Pa: permanent opening $500\text{mm}^2/\text{kW}$ above 7 kW input (as in the old AD J)</p>
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- Ventilation opening free areas are now measured as “equivalent area”
- Similar changes have been made for oil and solid fuel appliances – refer to the AD for more detail

Air Permeability of Older Dwellings

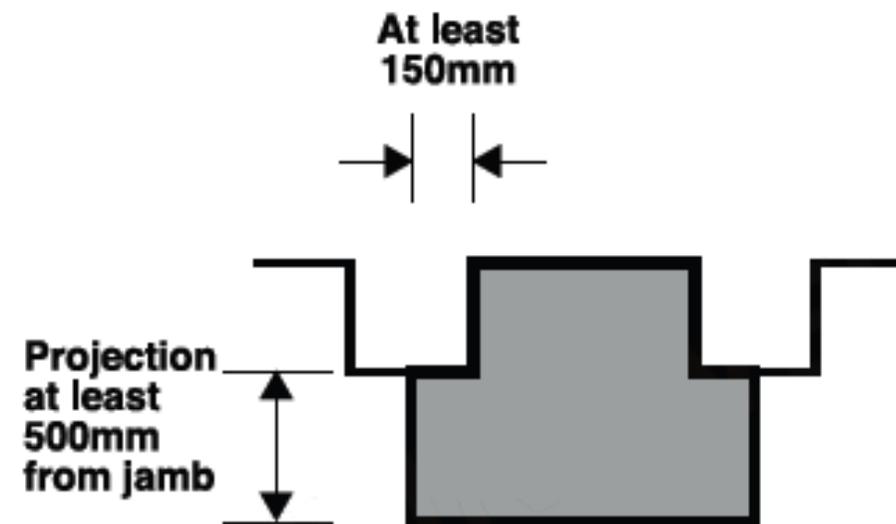
New Appendix F for 2010 helps installers to assess whether the building is airtight

- Dwellings built after 2008 are likely to have documentary evidence of air permeability
- Older dwellings are unlikely to have an air permeability $<5.0\text{m}^3/(\text{h}\cdot\text{m}^2)\text{ @ }50\text{Pa}$ unless they have all or most of the following:
 - Full double or triple glazing
 - Draught seals on doors and windows
 - Filled cavity or solid walls
 - Careful sealing around loft hatch
 - Etc.
- If in doubt, assume $<5.0\text{m}^3/(\text{h}\cdot\text{m}^2)\text{ @ }50\text{Pa}$
- Further information in GPG 224 *Improving Airtightness in Dwellings* (free download from www.carbontrust.co.uk)

Hearths and Adjacent Walls

New guidance has been added to section 2 for 2010

- A hearth isolates an appliance from people, combustible parts of the building fabric and soft furnishings
- Hearths and adjacent walls should be made of non-combustible material
- Clearances are shown in diagrams such as these, which remain unchanged



Hearths and Adjacent Walls

- However the 2010 document allows clearances to be reduced to manufacturers' recommendations for appliances with surface temperatures below 85°C where there is no risk of fuel or ash spillage
- This allows greater flexibility for modern appliances



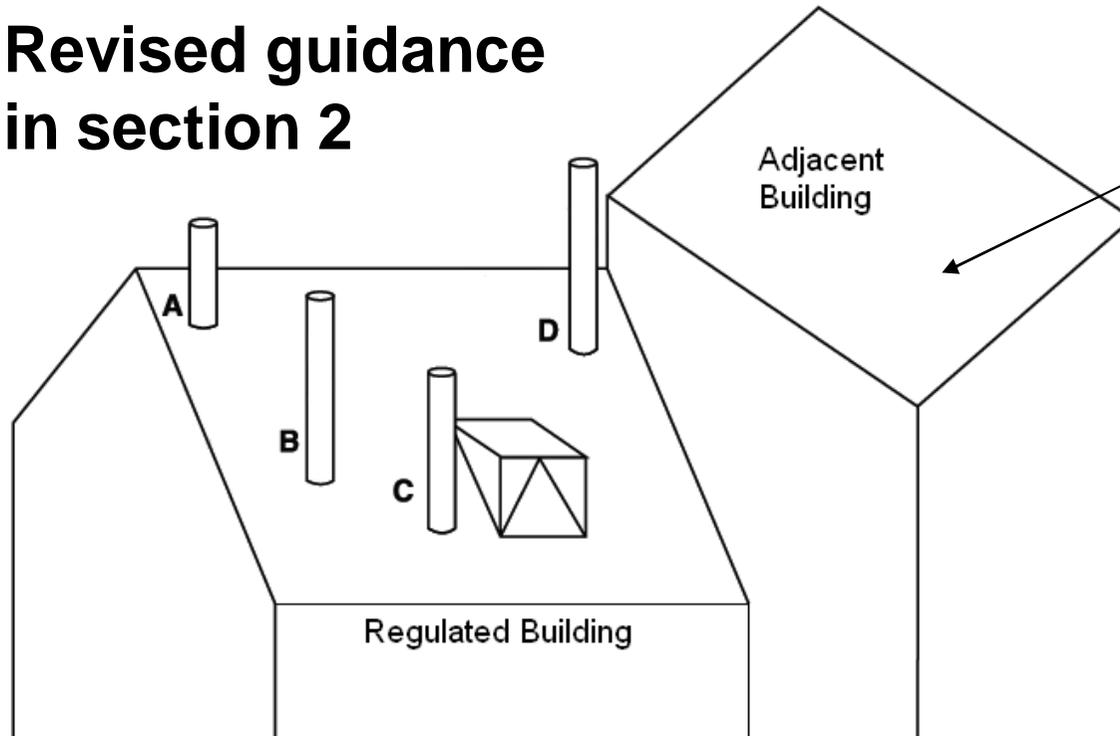
A note has been added to section 2 for 2010 :

- Rigid twin-walled insulated metal flue liners in top-and-bottom ventilated masonry chimneys are recommended
- Other types can be used, subject to risk assessment
- Spark arrestors are generally not recommended
- Further guidance in HETAS Information Paper 1/007 *Chimneys in Thatched Properties*



Clarification of Outlet Clearances

Revised guidance in section 2



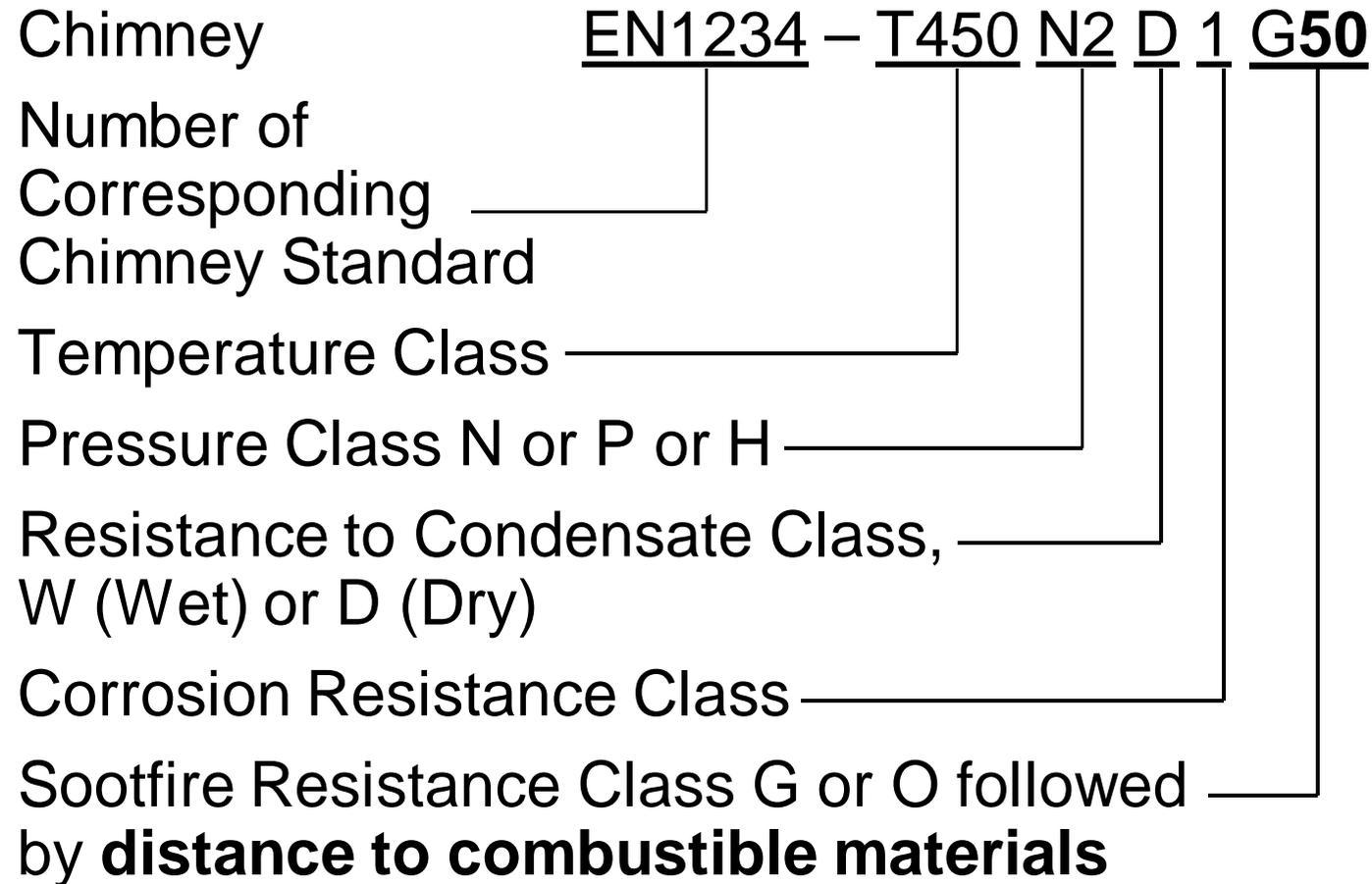
This was shown
as a flat roof in
the 2002 edition

Where a flue serving a solid fuel appliance passes through the weather surface within 2300mm of an adjacent or adjoining building, it should be at least 600mm above any part of the building **within 2300mm**

European Chimney Designations

- Various locations in sections 1-4 refer to chimney designations
- In ADJ 2002, a brief description of chimney designations was given in paragraph 0.4(9)
- **A supplement was issued in 2004 when the designation system changed from British to European standards**
- For 2010, the key information from the supplement appears in a new Appendix G
- In addition, some of the temperature classes have changed (refer to the Approved Document for detail)

European Chimney Designations



Requirement J6 states that:

Oil storage tanks and the pipes connecting them to combustion appliances shall be constructed so as to reduce to a reasonable level of risk of the oil escaping and causing pollution

Requirement J6 applies only to fixed oil storage tanks with capacities of 3500 litres or less, and connecting pipes, which (a) are located outside the building; and (b) serve fixed combustion appliances (including incinerators) in a building used wholly or mainly as a private dwelling, but does not apply to buried systems.

Secondary Containment for Oil Tanks

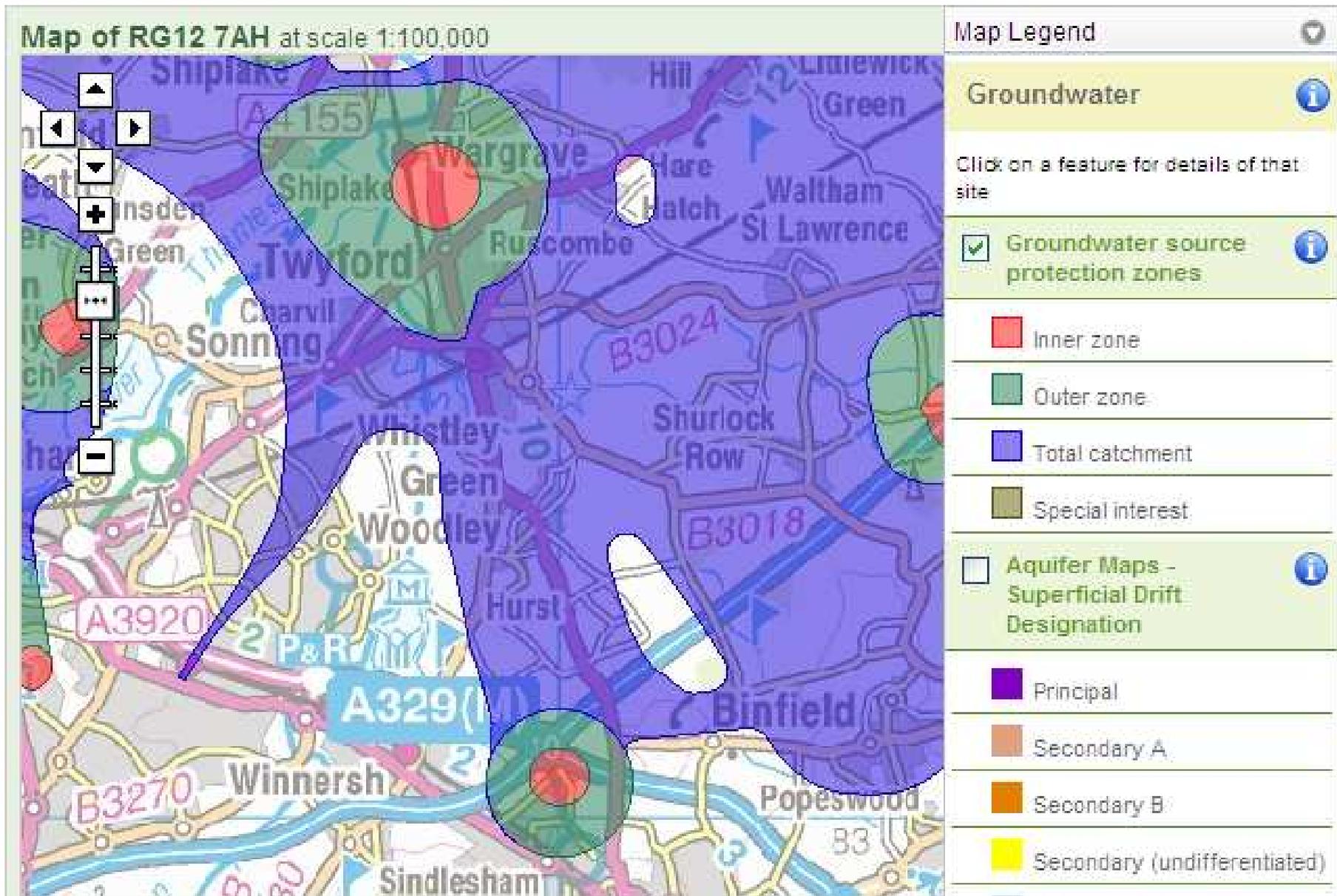
- The normal means of providing secondary containment for domestic-scale oil tanks is double-walled tanks.
- CLG considered requiring secondary containment for all oil tanks, however this was rejected on cost grounds



Secondary Containment for Oil Tanks

- Where there is a significant risk of oil pollution, secondary containment should be provided.
- Section 5 lists locations where this is the case, including installations larger than 2500 litres, and installations within 50m of a source of potable water.
- For 2010, another has been added: **Installations located within Zone 1 (inner protection zone) of an Environment Agency Groundwater Source Protection Zone (SPZ). The location of SPZs is shown on the Environment Agency's Groundwater Sources map available online at www.environment-agency.gov.uk/research/library/maps**

Groundwater Source Protection Zones



Condensing Boilers

- CLG considered additional guidance on plumbing from condensing boilers
- This was rejected as it is considered to be a potential nuisance issue rather than a health and safety issue
- Part J has always been strictly focused on health & safety
- However, notes have been added to sections 3 and 4 referencing the *Guide to the Condensing Boiler Installation Assessment Procedure for dwellings* (download from the Part L section of www.planningportal.gov.uk)



Conclusions

- The most significant changes are:
 - Carbon Monoxide alarms for domestic solid fuel appliances
 - Increased area of permanent ventilation openings for open flued appliances in airtight properties
 - Access to concealed flues
- The old (2002) and new (2010) Approved Document J can both be downloaded from www.planningportal.gov.uk
- A presentation with audio can be viewed online at www.bsria.co.uk/news/partj-2010