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Consultation Document

Implementing the Domestic Fire Safety (Wales) Measure 2011

Section 1 – The consultation proposals

Date of issue: **25 March 2013**

Action required: Responses by **17 June 2013**

Overview

The Building Regulations, and the associated guidance set out in Approved Documents, seek to ensure buildings meet certain standards for health, safety, welfare, convenience and sustainability.

The Domestic Fire Safety (Wales) Measure 2011 enables Welsh Ministers to introduce regulations which make automatic fire suppression systems compulsory in all new and converted domestic properties.

To implement the Domestic Fire Safety (Wales) Measure 2011, it is the Welsh Government's intention to introduce new Building Regulations and technical guidance relating to the installation of fire suppression systems. This consultation paper sets out the Welsh Government's proposed approach.

How to respond

Consultees are invited to email questionnaire responses to:

enquiries.brconstruction@wales.gsi.gov.uk

Those who prefer to submit a paper copy of their response should send these to:

Building Regulations Consultation
Construction Unit
Housing and Regeneration Directorate
Welsh Government
Rhyd y Car Offices
Merthyr Tydfil
CF48 1UZ

Further information and related documents

Large print, Braille and alternative language versions of this document are available on request.

Contact details

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Data protection

How the views and information you give us will be used

Any response you send us will be seen in full by Welsh Government staff dealing with the issues which this consultation is about. It may also be seen by other Welsh Government staff to help them plan future consultations.

The Welsh Government intends to publish a summary of the responses to this document. We may also publish responses in full. Normally, the name and address (or part of the address) of the person or organisation who sent the response are published with the response. This helps to show that the consultation was carried out properly. If you do not want your name or address published, please tell us this in writing when you send your response. We will then blank them out.

Names or addresses we blank out might still get published later, though we do not think this would happen very often. The Freedom of Information Act 2000 and the Environmental Information Regulations 2004 allow the public to ask to see information held by many public bodies, including the Welsh Government. This includes information which has not been published. However, the law also allows us to withhold information in some circumstances. If anyone asks to see information we have withheld, we will have to decide whether to release it or not. If someone has asked for their name and address not to be published, that is an important fact we would take into account. However, there might sometimes be important reasons why we would have to reveal someone's name and address, even though they have asked for them not to be published. We would get in touch with the person and ask their views before we finally decided to reveal the information.

Implementing the Domestic Fire Safety (Wales) Measure 2011

Ministerial foreword

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PART 3 - Regulatory Impact Assessment and Cost Benefit Analysis

Ministerial Foreword

I am pleased to be able to introduce this consultation outlining our proposals for new regulations to implement the Domestic Fire Safety (Wales) Measure 2011. This Measure was passed by the National Assembly for Wales in February 2011. It makes it compulsory for automatic fire suppression systems to be provided in certain new and converted residential premises and enables the Welsh Ministers to introduce regulations setting out the technical requirements for such systems.

To enable us to develop these proposals for these new regulations we have been advised by our Domestic Fire Safety Measure Working Group. This Group has included representatives of the Building Regulations Advisory Committee for Wales, as well representatives of the Fire and Rescue Service and the Fire Brigades Union, the Building Control profession, the fire protection sector, water companies, house builders, care home representatives and others who have an interest in these proposals. I would like to extend my gratitude to all the members of the Working Group for the careful consideration they have given to the development of the regulations and for the advice they have offered to me and my officials.

In this consultation I have set out our proposals to implement the Domestic Fire Safety (Wales) Measure 2011 through an approach that combines the commencement of the Measure with the introduction of additional Building Regulations and changes to guidance in relevant Approved Documents. I have also set out a revised Cost Benefit Analysis and a full Regulatory Impact Assessment.

I acknowledge that these proposals, whilst being very welcome by some, will cause additional costs to fall on others at a time when many are still feeling the effects of the tough economic conditions we are experiencing. I recognise that the current economic circumstances will make the introduction of the new regulations challenging for some.

I have balanced this with the recognition that the number of deaths and injuries from fire in homes still remains too high. Appropriately designed and maintained fire suppression systems undoubtedly save lives and prevent injuries to householders and firefighters, as well as reducing damage from fires.

These proposals are significant and important in taking forward fire safety. Wales will be at the forefront in reducing fire risk and cutting the number of avoidable deaths and injuries caused by fires in residential premises.

I very much hope you will give us your views on these proposals.

Carl Sargeant
Minister for Housing and Regeneration
April 2013

Chapter 1 – Introduction and background

1. On February 16th 2011 the National Assembly for Wales passed one of the first examples of Private Members' legislation, the Domestic Fire Safety (Wales) Measure 2011 ("the Measure") which was introduced by Ann Jones AM. The Measure requires the provision of automatic fire suppression systems compulsory in all new and converted domestic properties and enables Welsh Ministers to introduce regulations setting out the requirements for such systems.
2. The Welsh Government's intent to introduce, in the second half of 2013, regulations and technical guidance relating to fire suppression systems was announced in a written statement from the former Minister for Environment and Sustainable Development in May 2012. The statement confirmed that the regulations would be based on the introduction of automatic fire suppression systems in all new and converted residential accommodation, including new housing.
3. We also published in May 2012 a Cost Benefit Analysis of the requirement to install fire suppression systems in residential properties. This has been revised, and a revised Cost Benefit Analysis is attached as Part 3 of this consultation.
4. This consultation paper sets out the Welsh Government's proposed approach to introducing new regulations to implement the Domestic Fire Safety (Wales) Measure 2011.

The overall policy objective

5. When the May 2012 statement was published, available data from the last 10 years showed that on average 17 deaths and 503 injuries per year have resulted from fires in residential properties in Wales.
6. The Welsh Government's view at that time was that, notwithstanding the reduction in the number of deaths from fires in the home that had occurred over the previous last ten years, the number of deaths and injuries was still too high. This remains our view.
7. The overall policy outcome we are seeking to achieve is to reduce deaths and injuries from fire in new and converted residential premises in Wales.
8. The policy objective to achieve this is to introduce a requirement for fire suppression systems to be incorporated into the classes of new and converted residential accommodation, as set out in the Domestic Fire Safety (Wales) Measure 2011.

The role of the Domestic Fire Safety Measure Working Group

9. As we have developed our regulatory proposals, we have been advised by the wide ranging membership of our Domestic Fire Safety Measure Working Group. The Working Group contains representatives of key stakeholders who have an interest in the issue of domestic fire safety and the regulatory framework governing building control in Wales.

10. The Working Group consists of representatives from the following:

- Welsh Government;
- Members of the Building Regulations Advisory Committee for Wales (BRACW);
- Water companies;
- House building companies;
- Home Builders Federation;
- Local Authority Building Control Services;
- Approved Inspectors;
- Arup;
- BRE;
- Care Forum Wales;
- Community Housing Cymru;
- National Landlords Association;
- Cardiff Metropolitan University;
- British Automatic Fire Sprinkler Association;
- Fire and Rescue Service;
- Fire Protection Association;
- Fire Industry Association;
- Fire Brigades Union.

11. We would like to thank the members of the Working Group for the expert advice and guidance that they have provided as we developed these regulatory proposals.

Chapter 2 – proposed approach

12. This chapter sets out the proposed framework of regulation and guidance to implement the Domestic Fire Safety (Wales) Measure 2011.
13. It is important that the regulatory route to implement the Measure is the simplest and most cost-effective route to achieve the overall policy objective stated in Chapter 1.
14. It is important that new regulations avoid undue burden and additional, unnecessary administrative costs. It is also important that the regulatory route chosen is familiar to those who will administer and enforce it, is known to be effective, and enjoys the trust and confidence of all stakeholders.
15. The National Assembly passed the Measure in February 2011. At the start of January 2012 the system of building control was devolved to Welsh Ministers. We therefore need to consider an approach that makes full use of Welsh Ministers' powers, as set out in the Measure and as in the newly devolved system of building control. It is also important that the proposed regulations to implement the Measure have a very clear relationship with the existing system of building control.
16. In making new regulations, we wish to avoid introducing a new and separate application process for housebuilders. A new application process is very unlikely to add any value to the regulatory framework but risks introducing confusion whilst introducing duplication and unnecessary additional costs.
17. The existing regulatory framework of building control presents a tried and tested regulatory system that is familiar to builders, Approved Inspectors and local authorities.
18. Therefore, we are proposing that the requirement for the installation of fire suppression systems in all new and converted residential accommodation is met through combining Ministerial powers under the Domestic Fire Safety Measure and existing Building Act powers that have been devolved to Welsh Ministers.
19. We think that such a combined approach will reflect the purpose, intent and strengths of the Measure, together with the strengths of the existing system of building control. A combined approach will implement the Domestic Fire Safety Measure, avoid the risk of additional bureaucracy and duplication, and build on a strong, existing regulatory system that is well understood and effective.
20. The proposed approach is as follows:
 - To be clear about the purpose and intent of the Measure in driving forward our commitment to preventing fire-related death and injury in

the home, and to set Wales apart as a leader in this, we propose to commence Section 1 of the Measure. This will require that each residence (to which the Measure applies) must be provided with an automatic fire suppression system, that the system is operating effectively and that the fire suppression system complies with such requirements as may be prescribed by Welsh Ministers.

- To ensure that there is a clear and unambiguous relationship between the classes of residence covered by the regulations that implement the Measure and the classes of residence covered by the existing Building Regulations, we propose to make an order under section 6(2) of the Measure which amends the description of an existing class of “residence” under the Measure. An order made under section 6(2), can amend or add to the classes of residence that are covered by the Measure. We are not therefore proposing to remove a type of residence to which the requirement to install automatic fire suppression systems applies. The detail of these proposed changes is set out in paragraphs 28 to 36 below.
- To ensure that the necessary technical changes are in place to ensure that the purpose and intent of the Measure is implemented, we propose to exercise functions under the Building Act 1984 to make changes to Part B of the Building Regulations, and to set out technical guidance in a revision to Building Regulations Approved Document Part B Volumes 1 and 2. The proposed changes to the Approved Documents are set out in Part 2 of this consultation.

Structure of consultation paper

21. The remainder of this consultation deals with the key issues that have informed our proposed approach. In the chapters that follow we consider:

- Design, testing and installation of residential fire suppression systems.
- Maintenance of residential fire suppression systems.
- Commencement.
- Industry Competence and Training.

Cost Benefit Analysis

22. We published in May 2012 our original Cost Benefit Analysis (CBA) showing the estimated costs and benefits of introducing fire sprinklers into the classes of residence covered by the Measure.

23. This Cost Benefit Analysis has been revised, taking into account comments and views expressed by the Working Group. In particular, the Analysis has been adjusted to reflect a wider range of issues and parameters within the sensitivity analysis. The sensitivity analysis involved examining the following to see their influence on the Cost Benefit Analysis results:

- The effect of varying the value of lives saved/injuries prevented by \pm 25% of the value;
- The effect of varying the percentage of severe injuries;
- The effect of reducing sprinkler installation costs by 30% to reflect economies of scale in large developments, for houses;
- Various proportions of direct or boosted mains water supply costs to pump and tank water supply options, for houses, shared houses and sheltered housing;
- The effect of varying the proportions of new build accommodation units that are houses and flats to 90:10 (from 79:21);
- The options of: 'no maintenance with no decline in reliability' and 'no maintenance with consequential decline in reliability'. A third option assumes maintenance is carried out in all properties except for the single-occupancy houses where there is no maintenance with a consequential decline in reliability.
- The effect of an overall decrease in installation costs by 25% as installers gain experience and become more competitive, for all property types;
- The effect of increasing the provision of smoke alarms from the current levels of about 85% of households to include 100% of all new dwellings. The estimated effects of sprinkler provision for the baseline Cost Benefit Analysis and all other sensitivity analyses were based on existing levels of working smoke alarm provision;
- The effect of an external tank and pump for the water supply in houses, shared houses and sheltered housing. This external tank and pump may supply a single house or several houses.

24. The revised and updated Cost Benefit Analysis is included as part of the Regulatory Impact Assessment (RIA) that is attached as Part 3 of the consultation. This consultation includes questions on both the CBA and the RIA (see the Summary of questions and how to respond).

Regulatory Impact Assessment

25. The Regulatory Impact Assessment is attached as Part 3 of this consultation. It covers:

- The costs and benefits of different options considered;
- A summary of the evidence base;
- The rationale for Welsh Government intervention;
- Confirmation of the preferred option (i.e. the approach that we set out above);
- A small firms impact test;
- Impact on greenhouse gas emissions;

- A sustainable development test;
- Impact on human rights and on the rights of the child;
- Rural proofing test;
- Welsh language test; and .
- Statutory equalities duties test.

26. The full and revised Cost Benefit Analysis is included as an annex to the Regulatory Impact Assessment.

Definition of residence

27. As the passing of the Measure predated the devolution to the Welsh Ministers of the function of making Building Regulations, some additional work has been required to ensure that the scope of the Domestic Fire Safety (Wales) Measure is aligned with the purpose groups as set out in the current Approved Document Part B Volumes 1 and 2.

28. The Measure defines “residence” (“preswylfa”) as any of the following;

- (a) dwelling-house,
- (b) flat,
- (c) residential care home,
- (d) residential accommodation for pupils or students of a school, college, university or other educational institution, or
- (e) room or group of rooms within a building if that room or those rooms are intended to be used for living and sleeping by a person or persons other than as part of a single household which occupies the whole of that building, and
- (f) where a building contains one or more residences, includes any part of that building intended to be used by those occupying that residence or those residences for purposes ancillary to that occupation in common with one another or with other users of the building.

29. The requirements for residential automatic fire suppression systems are covered under various guidance documents depending on geographical location within the UK and Ireland:

- Approved Document B (2006) (England and Wales);
- Scottish Technical Handbook (2011) (Scotland);
- Technical Guidance Document B (2006) (Ireland); and
- Technical Booklet E (2012) (Northern Ireland).

30. The following is a summary of the compulsory and recommended provision of automatic suppression systems across all residential building types in the UK.

England and Wales:

- Buildings over 30m high require a BS 9251 system (or equivalent).
- Dwelling houses with several floors in excess of 4.5m high or any floor in excess of 7.5m where only 1 protected stair is provided require a BS 9251 system (or equivalent).

Isle of Man

Sprinklers are required in the following residential premises:

- Multiple occupancy dwellings
- Flats.
- Sheltered housing.
- Hospitals and nursing homes.
- Open plan dwellings

Scotland:

- Buildings over 18m require a BS 9251 system (or equivalent).
- Dwelling houses with a floor in excess of 4.5m or where open plan require a BS 9251 system (or equivalent).

Northern Ireland:

- No specific recommendations.

31. We have considered the application of the Measure to different categories of residence. Working from the definition of “residence” in the Measure, this has led us to propose that the Measure should also apply to the following categories of residence:

- children’s residential homes where these are organised as a single household;
- boarding houses;
- types of hostel which could be intended for long term “living” (such as hostels for homeless people).

32. As part of the work and the considerations of the Working Group, we have considered additional categories of residence, but we do not propose to extend the coverage of the Measure to any of the following:

- Residential or nursing homes which are not “care homes” within the meaning as in the Care Standards Act 2000, other than children’s residential homes as noted above;
- Hostels (such as Youth Hostels) used for short term accommodation for leisure purposes whilst a person is away from his or her main place of residence
- Hotels;
- Hospitals;
- Prisons;
- Residential caravans;
- Garages attached to, or which form an integral part of, a “residence” as defined within the Measure;
- Carports attached to, or form part of, a “residence” as defined within the Measure;
- Car parks underneath or attached to a block of flats.

33. Table 1 below sets out the current provision of suppression for residential buildings in England and Wales and highlights where the Measure extends these provisions.

	Purpose Group under Part B	Description	Currently required	Included within scope of the Measure as amended	Not within the scope of the Measure
Residential (dwellings)	1(a)	Flat (top floor under 30m)		✓	
	1(a)	Flat (top floor over 30m)	✓	✓	
	1(b)	Dwelling house (floor over 4.5m)	✓ (optional against additional stair)	✓	
	1(c)	Dwelling house (floor under NOT over 4.5m)		✓	
Residential Institutional	2(a)	Hospital			X
	2(a)	Care home as defined in Care Standards Act 2000		✓	
	2(a)	Children's residential home (that is not a care home within the above definition) but which might be organised as a single household		✓	
	2(a)	School (used for accommodation)			X
	2(a)	Prison			X
Other	2(b)	Hotel			X
	2(b)	Boarding house		✓	
	2(b)	Residential college		✓	
	2(b)	Hall of residence		✓	
	2(b)	Hostel intended for long-term occupation for living and sleeping		✓	
	2(b)	Hostel intended for temporary occupation for leisure purposes			X
	2(b)	House in multiple occupancy		✓	
	2(b)	Other residential purpose not described above			X

Table 1 Proposed scope of the Measure

34. As we describe in our proposed approach, above, we wish to ensure that the categories of residence included in the Measure align with the purpose groups in the Building Regulations.
35. We propose to make an order to amend the definition of an existing class of “residence” under the Measure. We are not proposing to reduce the scope of the types of residence to which the requirement to install automatic fire suppression systems applies.
36. **Question 1: Do you agree with the proposed approach (set out in paragraph 20) of implementing the intent of the Measure through a combination of commencing section 1 of the Measure and making changes to the Building Regulations?**
37. **Question 2: Do you agree with the proposed list of residences (set out in paragraphs 28 and 31) to which the regulations should apply?**

Chapter 3 – Design, testing and installation of residential fire suppression systems

38. This chapter briefly reviews the types of fire suppression system available (for life safety purposes), the relevant standards / status that these systems have, and then matches the scope of buildings covered in the proposed new regulations with the relevant standard of suppression system. The chapter also covers water supply issues.
39. The main types of suppression available in the marketplace are sprinklers, water-mist and gaseous suppression.

Gaseous fire suppression systems and water mist systems

40. Gaseous fire suppression systems use inert gases and chemical agents to extinguish fires. Water mist fire suppression systems, on the other hand, discharge a spray of small water droplets to control, suppress or extinguish fires.
41. Gaseous fire suppression systems are not considered to be appropriate for residential applications so will be discounted for the purposes of meeting the requirements of the Measure.
42. Water mist systems or components are not currently covered by a British Standard. Current guidance exists in draft for development format (DD: 8458). European and international standards are in preparation but do not include a domestic element. The technology for water-mist systems is relatively immature in relation to building applications.
43. The lack of a full British Standard for water mist systems suggested that there is a limited experience in practice of these systems in domestic premises and that this means that any potential weakness inherent to them is not currently well understood.
44. The Welsh Government considers that there is a need to base any changes in guidance on robustly understood systems. The lack of a British Standard for water mist systems is a serious impediment to prescribing the use of such systems through Regulations. It is difficult to demonstrate how the requirements of the regulation are being met if a system does not have a British Standard or other appropriate technical standard.
45. Therefore the Welsh Government does not propose to refer, in the Approved Document, to the use of standards relating to gaseous fire suppression systems or water mist systems, as a requirement for automatic fire suppression systems provided under the Measure.
46. We will keep this approach under review. This does not discount future consideration when more evidence has been gathered, or a full British Standard or other appropriate technical standard is available for

one or both systems, or where innovative new systems come on to the marketplace in the future.

Standards for fire sprinkler systems

47. The design and installation of sprinklers systems in the UK are covered by two sets of guidance, depending on the type of occupancy and fire risk. For the purposes of satisfying the requirements of the Measure; a life safety category of suppression systems is required:

- BS 9251 (Sprinkler systems for residential and domestic occupancies – Code of practice)
- BS EN 12845 (Fixed fire-fighting systems – Automatic sprinkler systems – Design, installation and maintenance)

Comparison of BS EN 12845 system and BS 9251 system

Design feature	BS 9251	BS EN 12845
Appropriate fire load density	Areas similar to residential bedrooms, kitchens and lounges	Majority of typical buildings. Subdivided into hazard categories dependent on fire load. E.g. Light hazard: LH, Ordinary Hazard: OH1, OH2, OH3. High Hazard HH1, HH2 etc.
Water supply	Town mains, town mains with booster pump or tank and pump.	Town mains infill to a reduced capacity tank or full capacity tank and pump
Water supply duration	Domestic: 10 minutes Residential: 30 minutes	LH or some property protection systems: 30 minutes. OH, HH and life safety systems: 60 minutes
Flow rates	60 litres / min through a single sprinkler head 42 litres / min for multiple heads.	LH: 27 litres / min per head. OH: 60 litres / min per head. HH: 90 to 150 litres / min per head
Tank size	1.5m ³ (domestic) 8.5m ³ (residential)	LH: 9 to 11m ³ OH: 55 to 200m ³ HH: 225 to 350m ³

Design feature	BS 9251	BS EN 12845
Backup pumps / power	No	Property protection: No Life safety: Yes.
Limit of applicability to 20m building height	Yes	Unlimited

Table 1 Residential and commercial sprinkler system comparison

48. As can be seen, BS 9251 suggests that buildings over 20m in height should not be covered by a system designed to BS 9251 or where a greater than normal residential fire load exists. It has been suggested that the 20m height limit in BS 9251 may be following on from the 18m height limit in NFPA 13R (Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies).
49. The scope of BS EN 12845 is more system focused. It covers all building types and any heights. However, Annex L indicates that the BS EN, in its current format, does not specifically cover residential risks.
50. BS EN 12845 introduces the concept of hazard rating. The classification of hazard rating dictates the amount of water to be applied over an assumed maximum area to achieve control of a fire and limit the fire size.
51. In general, the majority of BS EN 12845 residential applications would be covered by Ordinary Hazard 1 (OH1) however there may be exceptions where a higher OH class is required, such as commercial kitchens or buildings over 45m in height (which would be classified as OH3)..

Installation of fire sprinkler systems

52. While a system in compliance with BS EN 12845 would satisfy the requirements of the Measure, a system in compliance with BS 9251:2005 would also be acceptable.
53. The installation of sprinkler systems to BS 9251 would be significantly less onerous than a commercial system to BS EN 12845. In many instances tank and pumps would not be necessary and the water supply could be provided by the town mains. Town main connections are discussed further in the Water Supply Issues section of this chapter.
54. The pipework needed to comply with BS 9251 can be plastic, which may lead to a more cost and time efficient installation than metal piping.
55. The new Regulation will require that fire safety information shall be given to the responsible person at the completion of the project or when the building or extension is first occupied. This means that fire safety information relating to automatic fire suppression systems is now required

in buildings which fall under the scope of the Regulatory Reform Fire Safety Order 2005, and also building work to which the Measure applies.

56. Where an automatic fire suppression system is installed, an installation and commissioning certificate should be provided. Third party certification schemes for fire protection products and related services are an effective means of providing the fullest possible assurances, offering a level of quality, reliability and safety.
57. The 20m height limit stated in BS 9251 may be disregarded. This is in line with the current version of AD B and is being maintained. Installers may wish to consider recommendations for dual pump sets in buildings over 20m in height but this will not be a requirement unless introduced by the appropriate technical guidance document, such as a British Standard.
58. Where a mains system is to be used the designer should consult with the Water Authority to ascertain the typical operating pressure range and capacities available.. Where the mains water supply is established as being able to provide adequate pressure and flow for the system, then it will be acceptable to use a mains connection in line with the recommendations of the appropriate technical guidance document such, as a British Standard. This is discussed further in the Water Supply Issues section of this document.
59. Where a mains system is to be used, restrictions, such as water meters, will reduce the pressure and flow available. This can be addressed by installing an appropriate water meter for the system. This is discussed further in the Water Supply Issues section of this document. The water company will provide current pressure data on request from the developer as part of the pre-development enquiry.
60. The intention of the Measure is to improve the life safety of occupants within a residential building. Therefore, where ancillary areas are provided within a residential building but do not affect the means of escape from the building then there is little benefit in protecting those areas. In order for an ancillary area not to affect the means of escape from a building it must be i) fire separated from the remaining areas of the building and ii) it should not give direct access to the means of escape route from residential areas. The fire resistance should be in line with the appropriate technical guidance for that building such as AD B Volumes 1 and 2 (Tables A1 and A2) but in all cases there should be a minimum of 30 minutes fire resistant construction in terms of integrity, insulation and (where appropriate) stability.
61. Ancillary areas are areas of a building which are included within the main residential purpose group of the building. Where an area of the building is classified with a purpose group in its own right then the building is a mixed use building, e.g. a block of flats with ground / basement car park. Ancillary areas (such as car port, car park, garage etc.) which are i) normally unoccupied and ii) do not open directly into the (protected) escape route of

the residence do not require an automatic fire suppression system if they are suitably fire separated from the residential areas (See Tables A1 and A2). The minimum acceptable separation is 30 minutes integrity, insulation and (where appropriate) stability.

62. In a mixed use building, other purpose groups (other than residential) which are fire separated from the residential areas and each other do not require an automatic fire suppression system.
63. It is assumed that most buildings with more than one occupancy or with communal areas shared between tenancies will be appropriately managed. At this stage it is our view that in most cases an automatic fire suppression system need only be provided within the individual flats; they would not normally be required in the common areas such as stairs, corridors or landings. However, if there are concerns at the design stage related to fire safety management - or the level of fire safety management is unknown - the provision of automatic fire suppression may provide suitable risk reduction measures within those common areas, particularly where a single means of escape exists. At this stage it is our view this would need to be assessed on a case by case basis in consultation with the relevant approval authorities.
64. The Measure will require that an automatic fire suppression system shall be provided where:
- New building work creates a new residence or residences
 - A change of use occurs to convert an existing building into a new residence or residences.

Examples of buildings that will need Automatic Fire Suppression Systems (AFSS):

65. The examples provided below are provided for illustrative purposes only, to provide a general illustration of the types of building that might, or might not, require the installation of automatic fire suppression systems where the new regulations apply. The examples are not intended to be exhaustive, neither are they intended to provide definitive guidance.
66. AFSS protection would be required in ancillary areas – i.e. spaces included within the residential purpose group, where:
- a plant room, which is not fire separated from the residence or escape routes;
 - a storage area which is not fire separated from the building, accessed directly from the common corridor in a block of flats;
 - a lobby-protected boiler room which is not provided with fire resistant separation.

67. AFSS protection would be required for the following examples where a change of use would occur:

- Sub dividing a dwellinghouse into two dwellinghouses;
- converting a dwellinghouse into two flats;
- converting more than 1 flat into a lesser or greater number of flats e.g. 4 small flats into 3 larger flats, or vice versa;
- converting a building into a care home.

Examples of areas of buildings which will not need Automatic Fire Suppression Systems (AFSS):

68. At this stage it is our view that AFSS protection will not be required to ancillary areas – i.e. spaces included within the residential purpose group:

- a garage, fire separated from the building, with internal access either not via the hallway / stair / main escape route from the building, or access is separated by fire protected lobby.
- an attached plant / store room fire separated from the building.
- a riser, fire separated from the building, within the common area of a block of flats which is normally kept locked shut.

69. At this stage it is our view that AFSS protection will not be required to mixed use buildings in:

- a car park under a block of flats fire separated from the building;
- a shop underneath a flat which is fire separated and provided with fire separated access to the escape route from the flats;
- any other purpose group (other than residential) attached to the building with fire resistant separating walls and no shared escape routes from either purpose group.

70. At this stage it is our view that AFSS protection will not be required to a refurbishment / building works where there is not a sprinkler system currently installed where:

- converting a non-residential area of a block of flats to extend an existing flat or flats and does not create a new residence;
- changing the configuration of existing residences, e.g. converting 4 medium size bedrooms to 3 larger bedrooms;
- care home converting non-residential areas to bedrooms.

71. Question 3: Do you agree that the guidance should refer to BS 9251 as the main standard by which the regulatory requirement can be met?

72. Question 4: Do you agree that the guidance should retain the flexibility to refer to other fire suppression systems when such systems achieve a British Standard?

Water supply issues

73. There are three water companies supplying water to domestic customers in Wales: Dŵr Cymru Welsh Water (DCWW), Dee Valley Water and Severn Trent.

74. The legal position of the water companies is set out below:

75. The Water Industry Act 1991 (at s.218) defines “domestic purposes” in relation to water supply. The use of water for the purpose of fire-fighting is not a “domestic purpose” within the definition in the Act. Accordingly there are no statutory legislation or regulatory standards for flow and pressure relating to supplies for automatic fire suppression systems.

76. Section 55 of the Water Industry Act 1991 (Supplies for non-domestic purposes) applies where the owner or occupier of premises requests a supply of water for purposes other than domestic purposes (which the supply of water for an automatic fire suppression system will be). Where the section applies, it is the duty of the water undertaker to take any such steps as may be determined in order to enable the undertaker to provide the requested supply and then having taken those steps, to provide the supply. An undertaker is not obliged to incur unreasonable expenditure in carrying out works.

77. Section 55(3) of the Water Industry Act 1991 (Supplies for non-domestic purposes) states that the water undertaker is not under any duty to provide a supply (for non-domestic purposes) if it would put at risk the relevant company’s ability to meet its existing and probable future obligations to supply buildings and parts of buildings with water for domestic purposes.

78. Section 65 (duties of undertakers as respects constancy and pressure) applies to water supplies for domestic purposes. The pressure must be such as to “reach to the top of the top-most storey of every building within the undertaker’s area” or if lower the “height ...to which it will flow by gravitation through its water mains from the service reservoir or tank from which that supply is taken”. Section 65 does not apply to the supply of water for purposes other than domestic purposes.

The management of water pressure

79. A key issue is the management of water pressure. OFWAT requires a minimum guaranteed standard of a flow of 9l/minute at a pressure of 10m head on the domestic customer’s side of the mains stop tap.

80. Pressure and water flow are dependent on: the volume of demand at any time, ongoing work to the mains system, leakage and broader issues such

as the size of the network and its topography. The consequence of this is that there is normally great variation in water pressure and flow between different geographic areas, and for individual properties, between different times of the day.

81. The variability in pressure and flow mean that that the water companies are unable to guarantee pressures and flows above the minimum guaranteed standards for pressure (1 bar (10m/head)) and flow (9 litres/minute).
82. Water UK advises that fire sprinkler systems should be installed with consideration given to these regulations and levels of service, noting that local conditions or requirements may mean the preferred design option is not available.
83. Pressure reduction is a core element to enable water companies to meet their leakage targets. In general, this has led to a downward trend in water pressure.
84. Research undertaken for DCWW has indicated that there is a need for a pressure greater than 1 bar in order for fire suppression systems to operate to their optimum design efficiency. This is discussed further in the following section of this document.

Mains supply: water supply issues

85. The water companies' advice is that where a fire suppression system is supplied with water from mains supply, the system may need an enhanced pump to boost pressure and flow to the required level. There is concern that an enhanced pump would risk disturbing sediment when water is drawn from mains supply. It would also raise issues of ensuring the maintenance of the pump (although similar pump maintenance issues are raised in tank and pump systems)
86. For new developments (and where modern plastic pipes are installed) the problem of sediment is perhaps less than was previously the case and where old mains have yet to be replaced.
87. Booster pumps increase the pressure rather than the flow of a system. Pumps are able to create some suction and are typically rated with a pump specific head of suction. However, beyond this head, if there is insufficient flow / pressure in the system, the pumps will 'cavitate' (formation of a small vacuum formed bubble at the pump impellor) rather than draw more water through the system. While they will draw in water, they do not draw in more than the flow they are rated for and this should not be more than the existing flow capacity of the system.
88. The potential for silt stirring may occur if the 'normal' flows through the water system are less than the demand when the sprinkler system activates, i.e. normal flow + sprinkler = above normal flow through system

(but still within capacity of the network). However, the statistical probability is that most fire casualties occur between midnight and 05:59 when water demand would typically be low. The additional demand for a residential sprinkler system will be relatively low, with a maximum of approximately 2.8l/s (based on 4 heads at 42l/min per head). In many cases this would not significantly increase the peak flow through the network and therefore the risk of sediment being stirred up is low. The flow rate through a low pressure pipe can normally be increased by providing a larger diameter pipe, although there is an optimum ratio beyond which the flow improvement drops off and beyond which water quality drops due to lack of circulation.

89. Water UK¹ policy supports the use of residential sprinkler systems and notes that *“a fire controlled by a sprinkler will generally have a much lower demand on the water network than one controlled by water taken from a fire hydrant thus reducing the risk of quality or supply problems to other network users”* and that *“Sprinkler systems should be developed to meet the specific conditions at the property and the water network supplying it and should be determined locally.”*
90. The Measure is aimed at new residential properties and so the majority of sprinkler systems being installed will be for new buildings. Where new developments are built the water supplies are newly installed so the pressure and flow rates are normally improved over existing areas due to the new infrastructure that must be provided. New developments are often provided with pressures in excess of 2 bar and anecdotal evidence suggests that if typical houses were provided with 1 bar pressure it is unlikely that the water supply would meet consumer demands.
91. For one and two storey, new build domestic properties, town mains connection is reportedly the most common approach for fire sprinkler system installation. One of the earliest examples of such is the Studley Green estate in Wiltshire, developed between 1998 and 2002 and consisting of 212 properties, where mains fed sprinkler systems have performed satisfactorily.
92. The guidance of BS 9251 permits the installation of sprinkler systems with a town mains connection i.e. no tanks or booster pumps being required. However, this guidance states that it is only possible when the town mains pressure and flow rates are suitable. If they are not suitable then a booster pump or tank and pump will generally be required.
93. BS 9251 requires that *“When planning to use a mains water supply to feed a sprinkler system, prior to installation the minimum mains pressure and capacity should be ascertained in conjunction with the water undertaker”*. The system design calculations should then be based on 85% of the

¹ Water UK represents all major UK water and wastewater service suppliers at national and European level and provides a “positive framework for the water industry to engage with government, regulators, stakeholder organisations and the public”.

lowest pressure and flow rates anticipated with a minimum pressure of 0.5 bar to all heads.

94. Typical pressures required for a mains fed connection are approximately 2 bar to 3 bar at the inlet point and in terms of flow need to comply with BS 9251 which requires up to 84 litres per min (2 heads at 42 litres per minute per head) for a domestic occupancy and 168 litres per min (4 heads at 42 litres per minute per head) for a residential occupancy.
95. The BS 9251 pressure requirements are for 0.5 bar to each sprinkler head. This is based on each head serving an area of up to 15m² at a specific design density (at 42 litres per minute = 15/42 = 3.6mm per minute). For a BS EN 12845 system the pressure requirements for each head in an OH1 system (a risk group which residential would not be more onerous) are 0.35 bar to serve an area of up to 12m². The design density for this would be 5mm per minute for a flow of 60litres per minute. Thus it can be seen that there is a balance between pressure and flow and that flow can be independent of pressure. However the pressure of the system will dictate how far water is thrown from the head but not necessarily how much water flows from the head. Therefore if the design of the sprinkler system is based on a pressure, which at the time of operation is reduced, water will still flow from the system but will not be thrown so far from the head. This means that a sprinkler head will not be as efficient under reduced pressure but would likely remain effective at suppressing fire growth in many cases.
96. The preferred solution in terms of maintenance and, in the event of a fire - duration of operation, is for sprinkler systems connected directly to the mains supply. Where a boosted or 'pump and tank' supply is provided there is also a risk of system failure due to lack of maintenance. The main risk associated with a mains fed system is that there could be unexpected leaks, works or reduced pressures system wide at any given time. This being the case, there will need to be a balance between risks of a non-maintained tank / pump system against the risk of low pressure in a mains fed system at the time of a fire.
97. For most new developments the local water network is tested, and in most cases is considered sufficient, for fire fighting purposes. The water companies' position with regards to fire fighting water supply is the same as for sprinklers in that they cannot guarantee flow or pressure. However, it is accepted nationwide that pressure and flow tests, as well as data from the water companies, can provide a reasonable indication that water will probably be available if needed. It is accepted on a nationwide basis that there may be issues with water supply but that, on the whole, the risk of water loss simultaneous with fire occurrence is low and constitutes an acceptable risk. However it is noted that fire fighting water supply does not influence the design of building, whereas the provision of sprinklers (and the assumption that they will be working at the time of a fire) does impact on building design. Therefore the consequences of water supply failure might be greater for a mains-fed sprinkler system than for fire fighting operations.

98. In terms of future works or water network issues the Water UK policy states that “*Water companies will commit to inform the occupier of premises notified to have a sprinkler system installed of any material, permanent changes to the network status.*” This means that if the design of a sprinkler system is based on local conditions, which at the time of installation are favourable but due to significant water network issues or future strategies become unfavourable, the Water Companies would inform those properties that would be affected. The occupants would then be able to make the necessary amendments to their systems such as installing pumps or tanks as required.
99. There is also a risk of illegal cross connections being made between the suppression system and the wholesome water supply, especially in metered properties.
100. For Water Regulations requirements, customers would be required to install a single check valve on their supply pipework (as close as practically possible to the boundary). Water Regulations require the single check valve to be replaced within 5-year periods.
101. If the sprinkler supply is unmetered, two service pipes would be required per property. In metered properties, where the fire suppression supply and domestic water supply were fed through one pipe, a larger meter would be required in order to maximise flow through the meter and avoid pressure loss. The use of a priority demand valve may be required in the event that the fire suppression system operates, to ensure that the pipework feeding the domestic water supply will be shut down. Water companies have indicated that research is on going with regards to water meters that meet the needs of water companies and sprinkler systems.

Pump and tank supply: water supply issues

102. A small diameter branch connection will be required to be taken off the standard domestic metered supply as part of the customer’s private supply installation (i.e. – on the customer’s side of the boundary) to supply a storage tank (and pump where required) for the domestic fire suppression system. Depending upon the length of pipe from this connection to the storage cistern, a single check valve may be required close to the connection.
103. The water supply serving the fire suppression system from the storage cistern will need an appropriate backflow prevention arrangement (such as a suitable air gap as per the Water Supply (Water Fitting Regulations) 1999.

Water UK policy position

104. Water UK supports the provision of a water supply for fire fighting and in particular to well designed domestic fire sprinkler systems. It will engage with the interested parties to agree standards, good practice, guidelines

and frameworks for the water supplier, the system designer and installer, the system user and the system maintainer. In 2004 it published guidelines² for designers, installers and water companies on the supply of water-to-fire suppression systems.

Preferred approach of water companies

105. The preferred approach of DCWW and Dee Valley Water is for domestic fire suppression systems to be supplied with water through an indirect storage-fed system such as tank and pump.

Approach taken by developers

106. The obligation on those who are building or converting domestic residences which fall within the scope of the new regulation will be to install fire suppression systems. The Approved Documents will set out guidance on relevant standards to meet compliance – i.e. an appropriate, standard such as BS EN 12845 or BS 9251.

107. The choice of how to supply the fire suppression system with water will rest with the developers.

108. The policy approach taken by the water companies for different approaches to water supply is set out below:

109. **Mains supply** – as described above, for properties where fire suppression systems are installed, the two main water companies cannot guarantee pressures and flows above the minimum guaranteed standards for pressure (1 bar/ 10m head) and flow (9 litres/ minute) These flows and pressures apply to domestic supplies only.. This should always be taken into consideration by the designer/installer before proceeding with any installation.

110. In general, water companies will enable the installation of domestic fire suppression systems by:

- Responding to enquiries as soon as practicable. Although extensive work may not be practicable or necessary for every enquiry or application, there may be cases where such readily available information sources as computer network models, pressure logger data, and pressure readings adjacent to site would be beneficial.
- Responding to applications with quotations and supporting information within statutory and regulatory time periods.
- Providing new services and/or associated works within statutory timescales after payment of required charges and where appropriate, evidence of Water (Fittings) Regulations compliance has been confirmed.

² <http://www.water.org.uk/home/news/press-releases/fire-and-w-070604-1>

- Informing residences which are known to be fitted with sprinkler systems of significant changes to the network.
111. The procedures currently followed by Dee Valley Water in respect of applications from developers to supply mains water for domestic fire suppression systems are set out on their website³.
112. **Storage pump and tank systems** – The approach by the water companies in relation to tank-fed fire suppression systems is that there should be no impact on their supply network. Should there be a failure in the main water supply, the water within the storage tanks should be within the design requirements of BS 9251.

Review

113. The water companies will not be liable for pressure or flow deficiencies for fire fighting or non-domestic water supplies. System design responsibility lies with the designers and installers.
114. The water companies have stated that they will commit to inform residences of significant system changes. This will provide assurance that should the local network become insufficient in the future, then householders will be informed and could then take appropriate steps to maintain the operation of their protection systems.
115. Mains fed sprinkler systems are designed on the basis of 85% of the lowest anticipated pressure. Should there be natural variance in the pressure of the local network or unexpected falls in pressures then the sprinkler systems would not necessarily fail to operate. It may be that the sprinklers would operate, but that the design density of water coverage would be achieved in a smaller area or that water is provided at a reduced density per m². This would reduce the efficiency of the sprinkler but would still provide an increased level of protection against a non-sprinklered property.
116. The risk of failure due to low or no maintenance of a tank and pumps system is perceived to be greater than the risk of a reduced pressure to the local network, although this could potentially be offset with public education.
117. It is clear that the installation of fire suppression systems in new and converted residential premises, and the systems to support this, will be a developing area with future, technological advances probable. Non-technical developments, as well as an increasing body of experience and practical knowledge about installation issues in Wales, will also play their part. The water companies have undertaken to review, in due course, their policies and processes regarding the supply of water to fire

³ <http://www.deevalleywater.co.uk/>

suppression systems in the light of this experience and any other developments.

118. Water UK recognise that the 2004 guidelines are in need of revision to ensure that the guidance is appropriate and up to date, that disputes are resolved and that good practice is shared.

Microbial risk

119. We have sought to determine the degree of microbial risk associated with the requirement for automatic fire suppression systems. The key issues influencing the degree of risk are:

- Water temperatures would need to be between 25C and 45C with optimum being, 36C or 37C for the bacteria to thrive. Obviously this is possible in a residential setting.
- Legionella spreads via infected aerosolised water.
- To be aerosolised, droplet diameters need to be approximately 5µm while typical droplet sizes for a sprinkler are approximately 1mm.
- Water mist systems may have an increased risk. The Legionella risk from these systems would need to be considered if or when an appropriate design standard is released.
- Aerosolised water would only be likely if the sprinklers were operating, in which case exposure is unlikely as occupants would be leaving the area due to fire.
- A Technical Briefing Note from the Loss Prevention Council (May 1999), Legionella and Fire Fighting Systems, concludes that "*The risk of being infected during operation is very low: the triggering conditions for a sprinkler would tend to preclude any unprotected person being in the operational area*".

120. On this basis, we have concluded that, while there is a risk, that risk is low or negligible when considering fire sprinkler systems. Water mist systems may present an increased risk level but currently these are not being considered for use associated with the regulations.

Chapter 4 – Maintenance of residential fire suppression systems

121. The Welsh Government considers that sprinkler systems are currently the most appropriate fire suppression system for the purposes of meeting the Measure. This is because there are no implemented British Standards relating to alternative systems currently available for residential use

122. We focus below on maintenance, inspection and testing associated with the British Standards relevant to sprinklers:

- BS 9251 (Sprinkler systems for residential and domestic occupancies – Code of practice).
- BS EN12845 (Fixed fire-fighting systems – Automatic sprinkler systems – Design installation and maintenance).

BS 9251

123. BS 9251 suggests inspection and testing of the system should be carried out annually by a suitably qualified and experienced sprinkler contractor; to check and document:

- System integrity – leaks, bulbs, heads, valves etc.
- System interfaces – alarm, flow switches, valves etc.
- Water supply – flow rates, tank, valves etc.

BS EN 12845

124. BS EN 12845 suggests that the user is responsible for carrying out weekly inspections and arranging for further test, service and maintenance. These actions should be carried out by the installer or a party of similar qualification and experience. Record keeping is also the responsibility of the user.

125. BS EN 12845 describes a detailed inspection and testing regime which includes:

- Weekly inspection of gauges, valves, system integrity and pump testing.
- Monthly battery or other components as per supplier recommendations.
- Quarterly hazard and change review, cleaning of heads or other components, system integrity check, system interface check, and component testing.
- Half-yearly dry alarm valve exercise and remote monitoring check.
- Yearly flow test, storage valve checks, suction pump maintenance.

- Three-yearly system corrosion check with tank draining, stop / non-return valve maintenance.
- Ten-yearly tank maintenance.
- 25-year full system, inspection, testing and maintenance.

Discussion

126. The key differences between the recommendations of each standard are:

- The ownership of responsibility for maintenance in BS 9251 is not specifically described whereas BS EN 12845 places the onus of maintenance responsibility with the user (although the term user is not clearly defined as “user” could be different parties such as house owner, flat tenant, nursing home operator etc), and
- The rigour with which the maintenance routine is to be implemented.

127. Both standards address the issue of interference with the operation of the sprinkler system, which is considered an important factor in maintaining a reliable system. For example: painting over a sprinkler head may well render it unable to work correctly.

128. Anecdotal experience of BS 9251 systems in residential premises has suggested that the lack of regular testing has caused problems with pumps seizing. Some systems are able to “self test” and on this issue it has been suggested that auto start-up of pumps on at least a monthly basis may address the issue. System maintenance guidance may change from manufacturer to manufacturer.

129. Enforcement of the maintenance of these systems is likely to be difficult as the Regulatory Reform (Fire Safety) Order does not extend to domestic premises (i.e. dwelling houses or flats, although the common areas of blocks of flats are covered).

130. The Measure does not allow for inspection and maintenance of fire suppression systems. Section 2 Building Act 1984 (Continuing requirements) may prescribe obligations for the inspection maintenance of fire suppression systems upon owners and occupiers of residential premises to which the Measure applies. However, functions under this section have yet to be exercised.

131. There is a risk that residential sprinkler systems will not be maintained by the residential occupants. Other systems, such as gas boilers or heating systems, are often not maintained appropriately; when these systems fail there is a tangible problem for the occupants i.e. no heating or hot water. If a sprinkler system was not working due to lack of maintenance then there may be no immediately obvious problem that

needs fixing. Indeed the system may only be identified as faulty when a fire occurs and it does not operate.

132. The maintenance of a residential sprinkler system becomes less critical where there are no tanks and pumps, as the failure points would be the pipes, bulbs and valves. The bulbs are easily identified by an occupier and it is a matter of education to prevent tampering or painting over. The most common malfunction for a pipe would be a leak, which would generally be obvious to an occupant. However, there is a risk that occupants would close the main valves to prevent leaks rather than maintain the system; again this would be a matter of education to prevent. The non-return check valves currently in use need to be replaced / maintained at 5-year intervals and it is currently the duty of the water company to inspect these, although the cost must be borne by the occupants or property owners.
133. There is concern that a sprinkler system may not be appropriately maintained. The design of a property may have used the sprinkler system as an integral part of the fire safety strategy e.g. a single protected stair in a house with more than 1 level above 4.5m from ground level. In this case the level of fire safety within the premises with a non-functional sprinkler system would be inadequate. However, this is a similar situation to a property where the automatic fire detection system or fire resistant doors have not been adequately maintained. In the same example the sprinkler system could be functional but without the automatic fire detection or fire resistant doors, the level of fire safety would not be sufficient.
134. In either type of sprinkler system, i.e. tank with pumps or mains-fed system; it may be beneficial to encourage the building insurers to request evidence of sprinkler system maintenance in order to provide insurance.
135. Other systems such as self testing pumps could also be used to improve the level of maintenance, but it is not possible to introduce a mandatory requirement for such devices.
136. The Welsh Government does not propose to use regulations to require the maintenance of fire suppression systems.
137. The Welsh Government considers that the most practical solution to improve system maintenance is educating the public as to the benefits and requirements of the sprinkler systems. This would be implemented in a similar way to automatic fire detection systems. It is proposed to develop a household guide, using everyday language, to describe the system and necessary maintenance requirements.
138. The householder guide could comprise:
 - Sprinkler system summary and its benefits;
 - Maintenance requirements and how this can be done;
 - Common questions and 'myth busting';

- Sources of further information.

139. **Question 5: Do you agree with the proposal not to regulate to require the maintenance of fire suppression systems?**

140. **Question 6: Do you agree with the proposal to produce a householder's guide to encourage the maintenance of fire suppression systems?**

Chapter 5 – Commencement

141. We have set out in the previous chapters our proposals to commence Section 1 of the Measure (setting out the requirement that each residence to which the Measure applies must be provided with an automatic fire suppression system, that the system is operating effectively and that the fire suppression system complies with such requirements as may be prescribed by Welsh Ministers), and to make changes to the Building Regulations (and associated guidance in changes to the relevant Approved Documents).

142. We recognise that it is important for housebuilders and other sectors that will be affected by the new regulations to have certainty and clarity about the proposed timetable for the introduction of the regulations. This will help them plan for the new regulations and will help ensure that all those potentially affected are aware of the revised technical guidance and are able to consider how they can best meet the new requirement.

143. We therefore set out below our proposed timetable for commencing the new regulations.

New regulations made

144. The former Minister for Environment and Sustainable Development announced in May 2012 our intention that the new regulations should be made in September 2013. This continues to be our intention.

Commencement of regulations

145. Traditional practice for Building Regulation changes has been for them to come into force place 6 months after new regulations are made. We propose to follow this approach following the formal introduction of the new regulations requiring the installation of automatic fire suppression systems. This approach:

- Provides consistency with our approach to proposed changes to Part L of the Building Regulations.
- Recognises the practical impact on the industry, allowing it to prepare, and put in place training, develop specifications and supply chains.
- Allows time for the design implications to meet the new standards to be addressed.

146. The practical impact of this is that, if the new regulations are made by the Welsh Ministers in September 2013, then they are likely to come into force in Spring 2014.

Transitional arrangements

147. The regulations will contain appropriate transitional provisions in relation to building work planned or commenced before the regulations come into force.

148. **Question 7: Do you agree with the proposed approach to commencing the changes to the Building Regulations?**

Chapter 6 – Industry Competence and Training

Existing Training Structures

149. The design and installation of fire safety measures is not an uncommon practice for the construction industry. Existing qualifications, such as those supporting industrial and commercial heating and ventilation systems, incorporate competency criteria for designing and installing integrated fire sprinkler systems. BSI Standards are also used as a method of ensuring industry compliance against current legislation⁴.
150. Currently there are three United Kingdom Accreditation Service (UKAS) listed schemes for sprinkler installers covering systems installed to BS 9251:2005 which cover the residential and domestic market. These schemes already review the compliance of an installation company by assessing office management systems, the workmanship for all trade disciplines for which certification is being sought, as well as the overall competence of supervisory and installation employees.
151. Notwithstanding the importance placed upon third party accreditation by the industry, such schemes do not specifically cover the competence of individual operatives or technicians⁵. However, requirements as to the skills and capabilities of their workforces are imposed by the certification bodies when assessing individual companies.
152. There are already a number of organisations who provide training for new residential and domestic installers with some having been scrutinised and approved by the British Automatic Fire Sprinkler Association (BAFSA) or other organisations, such as the Institution of Fire Engineers & Continual Professional Development Service. It should also be recognised that a considerable amount of training is carried by the industry and targeted mainly on individual pieces of equipment and components. Much of this training is provided by individual manufacturers and suppliers.
153. Skills for Security, support by the British Automatic Fire Sprinkler Association, has already developed National Occupational Standards (NOS)⁶ for Mechanical Fire Protection which were approved in January 2012⁷. This action has led to stronger engagement with the

⁴ BS 9991:2011 – Fire safety in the design, management and use of residential buildings.

⁵ Unlike the BRE/LPCB scheme for industrial and commercial installers (LPS 1048) where individuals working as sprinkler designers are required to prove competence by passing a series of examinations.

⁶ National Occupational Standards (NOS) are statements of the standards of performance individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding. NOS, as nationally recognised standards, have a number of uses with the most common ones being to: inform the content of vocational and professional qualifications, inform the content of training programmes and form the basis of a range of vocational qualifications.

⁷ The suite of NOS for Mechanical Fire Protection is available at: <http://www.skillsforsecurity.org.uk/download.php?fileid=493> and covers the specification, design and installation of fire protection systems.

Further Education sector in Wales in working towards the establishment of new training provision for the principality. To date this has included the actions of the BAFSA, Neath Port Talbot College and the relevant Sector Skills Council.

Impact on training demand and supply

154. The expected requirement to review competency standards, build training capacity and deliver new skills to industry, poses a number of challenges which may need to be addressed prior to any new legislation being implemented. The main objective of this approach will be to ensure businesses are fully prepared to respond to any new requirements and to allow them to effectively compete for any increased demands for work.
155. Further considerations being explored include the relative high profile of small and medium sized businesses in Wales and the influence this brings on their ability to access training and act collectively to source training services. The geography of Wales may also create its own unique challenges. Whilst it is recognised any demand for training is likely to focus around major industrial areas, consideration is also being given to the potential requirement to offer support to more rural communities of Wales.
156. It is further recognised that a potential may exist for widened job opportunities across the construction sector as a result of the new legislative arrangements. This will require further exploration in understanding the exact dynamics for how such opportunities will evolve and how these can be capitalised upon.

Support for new training delivery

157. To support any potential skills and training requirements attributed to the new legislative arrangements, action will be taken in readiness for April 2014 to determine the scale of change required within the existing Welsh workforce. This will incorporate insight from businesses to fully understand where potential skills gaps exist and where there may be future skills shortages; quantifying these to build up a picture of industry demand across the whole of Wales.
158. The review process will also extend to the role of existing qualifications and accreditation structures and to acknowledge the relevance of these alongside any new legislative arrangements. The expertise of the Sector Skills Councils and industry will be utilised if the existing NOS suite requires revisions and, as a result, whether any available vocational qualifications remain fit for purpose.
159. Having determined the likely impact upon the demand for skills and training, the Welsh Government, working with industry and their representative bodies, will continue to review whether further training supply reforms need to take place. This action will consider what incentives may be needed to ensure training providers and employers

invest in new skills and training opportunities. A key feature will be on ensuring the training infrastructure on offer is affordable, accessible and sustainable.

160. **Question 8: Do you agree that the suite of National Occupational Standards covering Mechanical Fire Protection⁸ remain relevant given the proposals covered by the new legislation?**
161. **Question 9: Do you agree that existing sources of training will remain fit for purpose when the new legislation is implemented?**

⁸ The suite of NOS for Mechanical Fire Protection is available at:
<http://www.skillsforsecurity.org.uk/download.php?fileid=493>

Chapter 7 – Summary of questions and how to respond

Consultation Response Form

Your name:

Organisation (if applicable):

email / telephone number:

Your address:

Chapter 2 Proposed approach

Question 1: Do you agree with the proposed approach (set out in paragraph 20) of implementing the Measure through commencing section 1 of the Measure and through making required changes to the Building Regulations?

Yes
No

Comments:

Question 2: Do you agree with the proposed list of residences (set out in paragraphs 28 and 31) to which the regulations should apply?

Yes
No

Comments:

Chapter 3 Design, testing and installation of residential fire suppression systems

Question 3: Do you agree that the guidance should refer to BS 9251 as the main standard by which the regulatory requirement can be met?

Yes
No

Comments:

Question 4: Do you agree that the guidance should retain the flexibility to refer to other fire suppression systems when such systems achieve a British Standard?

Yes
No

Comments:

Chapter 4 Maintenance of residential fire suppression systems

Question 5: Do you agree with the proposal not to regulate to require the maintenance of fire suppression systems?

Yes
No

Comments:

Question 6: Do you agree with the proposal to produce a householder's guide to encourage the maintenance of fire suppression systems?

Yes
No

Comments:

Chapter 5 Commencement

Question 7: Do you agree with the proposed approach to commencing the changes to the Building Regulations?

Yes
No

Comments:

Chapter 6 Industry Competence and Training

Question 8: Do you agree that the suite of National Occupational Standards covering Mechanical Fire Protection⁹ remain relevant given the proposals covered by the new legislation?

Yes
No

Comments:

⁹ The suite of NOS for Mechanical Fire Protection is available at:
<http://www.skillsforsecurity.org.uk/download.php?fileid=493>

Question 9: Do you agree that existing sources of training will remain fit for purpose when the new legislation is implemented?

Yes
No

Comments:

Part 2 Proposed amendments to Approved Documents

Question 10: Do you agree with the proposed changes to the Approved Documents?

Yes
No

Comments:

Part 3 Regulatory Impact Analysis & Cost Benefit Analysis

Question 11: Do you agree that the cost benefit analysis is a reasonable estimation of the estimated costs and benefits of the proposed regulations?

Yes
No

Comments:

Question 12: Do you agree that the Regulatory Impact Assessment has correctly identified the main risks and issues associated with the proposed regulations?

Yes
No

Comments:

We have asked a number of specific questions. If you have any related issues which we have not specifically addressed, please use this space to report them:

Please enter here:

Responses to consultations may be made public – on the internet or in a report. If you would prefer your response to be kept confidential, please tick here: