

# **Public consultation on the draft National Radon Control Strategy**

**January 2013**

**Department of the Environment, Community  
and Local Government  
Newtown Road  
Wexford  
Co. Wexford**



**Comhshaol, Pobal agus Rialtas Áitiúil**  
Environment, Community and Local Government

## 1. Introduction and background

Radon gas is the greatest source of exposure to ionising radiation for the general public and is the second greatest cause of lung cancer in Ireland. Recognising the serious health risk presented by radon, the Minister for the Environment, Community and Local Government in November 2011 established an inter-agency group to develop a National Radon Control Strategy (NRCS). It is intended that this strategy will set out a framework for a coordinated approach to the radon problem across all Government departments and agencies. This approach is in line with the recommendations of the 2010 Radiological Protection Institute of Ireland (RPII)/ Health Service Executive (HSE) Joint Position Statement on Radon and the World Health Organisation (WHO) Radon Handbook published in 2009.

During 2012 the inter-agency group developed a draft NRCS based on wide stakeholder consultation and a health economics evaluation of different radon intervention strategies. The stakeholder consultation involved a range of individuals and bodies involved in: health care, construction, radon services, Government and academia. The health economics evaluation was undertaken by the RPII and HSE with the assistance of the Health Economics Unit at the University of Oxford. This draft strategy sets out a range of measures to reduce the risk from radon to people living in Ireland. As the final stage in the stakeholder consultation process the inter-agency group is now seeking feedback from all stakeholders on this draft NRCS as set out in section 2 of this document.

### 1.1 Public consultation

#### *The purpose of this consultation*

The draft NRCS has been developed taking into account stakeholder views as gathered through questionnaires, focus groups and face to face meetings with a broad range of interested parties. This public consultation is the final phase in the planned stakeholder engagement on the development of the NRCS. The purpose of this phase is to further broaden the consultation ensuring feedback from as wide a range of stakeholders as possible.

#### *Consultation on the draft text of the NRCS*

Stakeholders are invited to read the text of the draft NRCS and return comments to the Department of the Environment, Community and Local Government before the 1st of March 2013. In order to assist the Department in the compilation of comments, respondents are kindly requested to use the electronic template provided.

Completed templates should be returned by post or email before **1st March 2013** to:

Barry Bolger,  
Environmental Radiation Policy and Departmental Strategy Section,  
Department of the Environment, Heritage and Local Government,  
Newtown Road,  
Wexford.

Email: RadiationPolicy@environ.ie

Any queries regarding this consultation should be sent to: Barry.Bolger@environ.ie.

### ***What happens when you submit your comments?***

When you have submitted your comment you will receive acknowledgement that we have received it by email or post. When the consultation period is finished all comments will be grouped by section heading and reviewed by the interagency group and the response to each comment agreed.

Please note that all submissions and comments submitted to the Department of the Environment, Community and Local Government for this purpose may be subject to release under the Freedom of Information Acts 1997 to 2003, the Access to Information on the Environment Regulations (2007) and may be placed on the Department's website.

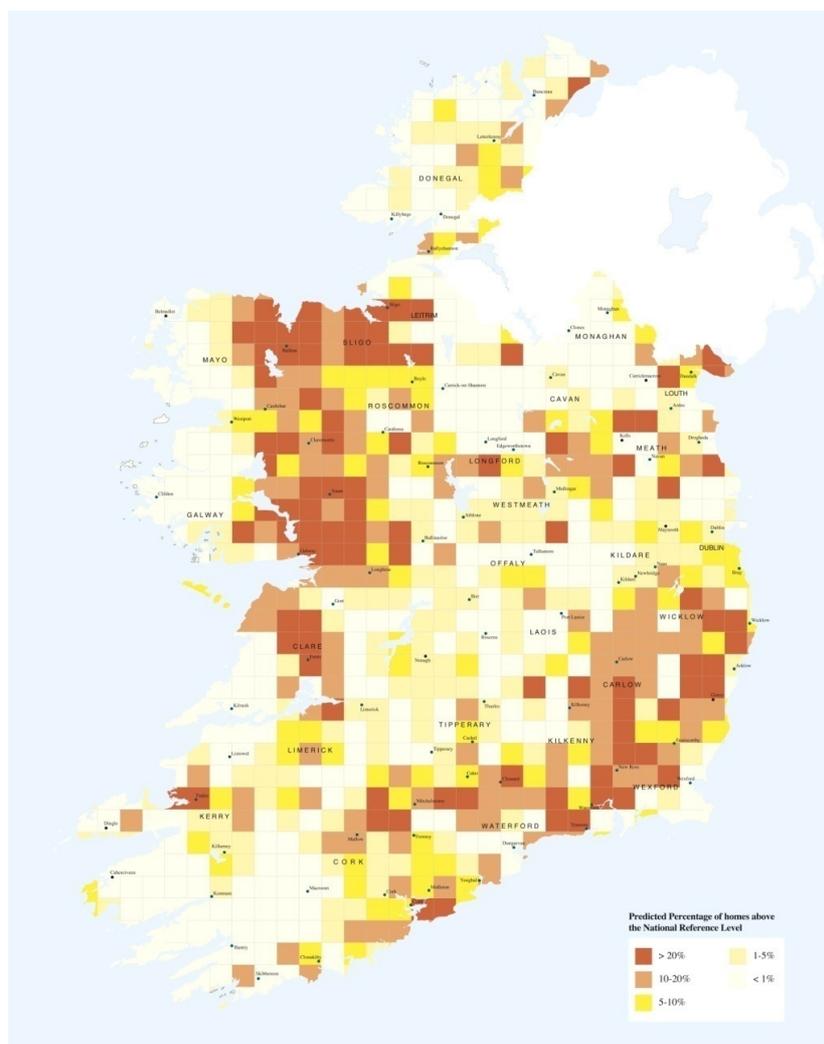
In parallel with the consultation process, a technical working group has been established to look at a range of practical implementation issues including: costs, responsibilities and prioritisation. It is noted that this group will need to take into account the prevailing economic situation in proposing the scope and timescale of the measures to be implemented. Following the consultation process a revised draft strategy will be prepared for submission to Government later in 2013 taking into account the outcomes from the public consultation and the technical working group.

## **1.2 The radon problem in Ireland**

Radon is a naturally occurring radioactive gas formed in the ground by the radioactive decay of uranium which is present in varying quantities in all rocks and soils. Because it is a gas, radon can seep from the ground into buildings where it can sometimes accumulate to high concentrations. Indoor radon is linked to between 150 to 200 lung cancer deaths each year in Ireland, which equates to approximately 13% of all lung cancer deaths.

In 1990 a National Reference Level for long term exposure to radon in homes was set at 200 becquerels per cubic metre (Bq/m<sup>3</sup>) by the Government. This Reference Level is in line with those in other European countries and with the recommendations of international bodies such as the WHO and the International Commission on Radiological Protection (ICRP). Householders with radon concentrations above this level are advised to have their homes remediated in order to reduce radon levels.

A National Radon Survey carried out by the RPII during the 1990s established the scale of the radon problem in Ireland. This survey, which was based on measurements in over 11,000 Irish homes, predicted that 7% of the national housing stock in existence at the time had radon concentrations above the National Reference Level. Based on the results of the survey, a map of Radon in Irish Dwellings was published (Figure 1), identifying High Radon Areas. A High Radon Area is defined as an area where more than 10% of houses are predicted to have concentrations of radon above the Reference Level. Approximately one third of the country, mainly in the west and south-east, is classified as a High Radon Area. Due primarily to geological factors the radon problem in Ireland is greater than for many of our European neighbours. The average indoor radon concentration in Ireland is 89 Bq/m<sup>3</sup>, which is the eighth highest among 29 OECD countries surveyed by the World Health Organisation in 2009. Some of the highest indoor radon concentrations, found anywhere in Europe, are in Ireland.



**Figure 1. Radon in Irish Dwellings.**

### 1.3 Measures already taken in Ireland to reduce the risk from radon

It is important to point out that, while much remains to be done to fully address the radon problem in Ireland, a number of important measures to reduce the radon risk to people in Ireland have been taken since the completion of the National Radon Survey. Some of these are summarised below:

- Between 1998 and 2004 every school in Ireland was tested for radon and all schools with high radon levels have been remediated by the Department of Education and Skills (DES). The DES continues to fund on-going measurements and remedial work as required in schools.
- Most local authorities in High Radon Areas have made very significant progress in testing their social housing stock. To date, almost 20,000 local authority homes have been measured and, where necessary, remediated. This work has significantly reduced the radiation exposure of local authority tenants.
- A number of State Agencies have taken action on radon. For example, the Health and Safety Authority [HSA] have integrated radon into their workplace inspection programme in High Radon Areas. Since 2009, the HSA have included radon in over 1,000 workplace inspections. In 2004, the State Claims Agency recommended that all state employers begin a programme of radon measurement in their premises. This has resulted in radon testing programmes in over 500 state workplaces. Those workplaces that exceeded the statutory reference level of 400 Bq/m<sup>3</sup> have been remediated.
- Since 2004, a programme of public awareness campaigns has been carried out in High Radon Areas. These have included public meetings, local radio and print advertising and press releases. As a result of this work, there is now a high level of awareness of the radon issue among the Irish public. A 2010 survey of members of the public showed that 77% of those surveyed have heard of radon gas and, of those, 43% are concerned about it.
- A National Radon Forum has been held annually since 2003. This brings together people who have a role to play in helping to reduce the risk from radon in Ireland. This includes measurement companies, remediation companies, scientists, government representatives, local authorities, representatives of national agencies with responsibility for building standards, health and safety experts and the public.
- Since 1998 Building Regulations require the implementation of radon preventative measures into new buildings at the time of construction. Research has shown that, on average, the requirement to install a radon barrier in High Radon Areas has resulted in a reduction of 50% in radon levels in those homes.
- Providers of radon measurement and radon remediation services are now well established in Ireland. There are currently 10 radon measurement services and 28

companies offering radon remediation services to members of the public and workplaces.

#### **1.4 Why a National Radon Control Strategy is needed**

While radon is the greatest source of exposure to the general population a range of cost effective measures exist both to prevent the problem in new buildings and to remediate existing buildings. It is therefore an area where significant public health gains can be achieved through suitable policy interventions.

Experience in Ireland and abroad has shown that an effective response to the radon problem involves a wide range of interventions including: effective prevention in new buildings, identification of existing homes and workplaces with high radon levels, remediation of existing buildings, awareness raising, training, supports and enforcement. It is clear, therefore, that such a response will require action from a wide range of public bodies and other stakeholders.

Despite the significant progress already made in Ireland in some areas such as schools and social housing, significant challenges remain. The rate of testing in private homes, for example, remains poor; it is estimated that to date less than 5% of the national housing stock has actually been tested for radon. Recent research undertaken by the RPII on the effectiveness of radon prevention in new buildings has shown that, while the measures themselves are potentially very effective, the implementation of such measures in practice is often inconsistent.

It is clear from focus group and other recent research that if householders and other stakeholders are to be persuaded of the need to take action on radon, then a more coordinated approach needs to be taken across the relevant government departments and agencies.

Recognising these issues, the HSE and the RPII published a joint position statement on radon in 2010 calling for a more coordinated national response on radon to be set out in a National Radon Control Strategy.

## 2 Draft National Radon Control Strategy

The aim of the NRCS is to reduce the risk to people in Ireland from exposure to radon gas. The strategy aims to reduce both the overall population risk and the individual risk for people living with high radon concentrations. The strategy recognises that an effective response to the radon problem will involve a range of measures to reduce high radon levels in existing buildings and to prevent high radon levels occurring in new buildings. Furthermore, it recognises that such a response will require input from a range of public bodies and other stakeholders and can be best achieved within the framework of a coordinated Government led strategy.

In accordance with the Government Decision, the strategy has been developed using health economics tools to ensure the measures proposed are cost effective and stakeholder engagement to ensure that the measures proposed are practicable. While the economic analysis demonstrates that in general the radon intervention measures proposed are cost effective, it also shows that dealing with radon through prevention in new buildings is significantly the most cost effective approach. However, the strategy also takes into account the need to address radon in the existing housing stock of approximately 1.5 million dwellings. Consequently, the strategy sets out a broad range of measures aimed at reducing the risk from radon to people living in Ireland. These are set out in six thematic areas as follows:

- Radon prevention in new buildings;
- Use of property transactions (sales and rental) to drive action on radon;
- Raising radon awareness and encouraging individual action on radon;
- Supporting individual householders and employers with high radon results;
- Promoting confidence in radon services and
- Addressing radon in workplaces and public buildings.

### 2.1 Radon prevention in new buildings

#### ***Need for Action***

There is strong evidence from studies undertaken in Ireland and elsewhere indicating that the correct installation of passive preventive measures in new buildings is the most cost effective way of protecting the population against radon. This finding is supported by an economic analysis undertaken for Ireland of different radon intervention options, which

demonstrates that the incorporation of such measures in new buildings is cost effective in all parts of the country.

Since 1998, Irish Building Regulations have required the incorporation of radon preventive measures in new buildings at the time of construction. Surveys of radon levels in Irish houses have consistently shown that on average radon concentrations in houses built after 1998 are lower than in those built before 1998. However, such surveys also suggest significant variability in the reduction achieved in individual houses, indicating that the implementation of such measures may not always be successful in practice. This is not unexpected considering the strong findings from the stakeholder consultation, which demonstrates poor understanding of radon preventive measures among many stakeholders including building professionals and trades people.

Ensuring that building trades' people and professionals have a good understanding of radon preventive techniques is crucial to ensuring the successful implementation of such measures in new buildings. Given the findings of the stakeholder consultation it is clear, therefore, that the establishment of an appropriate framework for training of building trades and professionals is necessary. Given the nature of radon preventive techniques it is not considered necessary or practicable in most buildings to confine this work to specialist installers. It is necessary, therefore, for a wide range of building site and design staff to have an understanding of the necessary preventive measures and of how such measures can be compromised by other works on the site. Consequently the training framework should target a wide range of building staff and should take into account the practical needs of different site and building design staff.

The stakeholder engagement also points to some practical difficulties associated with the implementation of the current technical guidance on radon prevention. These difficulties relate to the correct installation of radon barriers under site conditions, protection of the integrity of radon barriers once installed and identification of radon preventive measures on site. The stakeholder engagement also indicated the system of building control in place prior to 2012 did not provide adequate assurance that radon preventive measures had been correctly installed.

## ***Measures***

### Training:

M.1 Short targeted training courses should be provided for site staff on the correct installation of radon preventive measures and on maintaining the integrity of those measures once installed. It is noted that the suite of training modules currently being developed by the Construction Industry Federation (CIF) for its members on the

forthcoming Building Control (Amendment) Regulations 2012 may be a useful vehicle for delivery of such training in radon prevention.

- M.2 Basic information on radon should be included on undergraduate courses related to the construction industry. It is important that new graduates should have an awareness of radon as a significant public health issue and a basic understanding of preventive and remedial measures.
- M.3 In cooperation with the relevant professional bodies, education on radon should be integrated into the existing system of continuous professional development (CPD) for building professionals. It is noted that the professional bodies already have well developed systems for CPD including webcasts, on-line training, seminars and event notifications. The learning objectives should include: radon as a public health issue, legal requirements, designing buildings “radon free”, remedial options and new developments in construction practice or technology relevant to radon.
- M.4 A web based knowledge resource on radon should be developed for the building industry. This should include: background information, technical guidance, case studies, etc.

Technical guidance:

- M.5 The relevant Technical Guidance should be amended to require that a passive sump be installed in all new dwellings. This would replace the current requirement for a standby sump in all new dwellings. It is noted that a standby sump is a potential means of mitigation and so only provides a health benefit when activated. A passive sump on the other hand provides a basic level of protection in all new dwellings in a very cost effective way and, as is the case for a standby sump, can be converted to an active sump if high radon levels are subsequently found.
- M.6 The relevant Technical Guidance should be amended to include provisions, which would allow radon preventive measures to be more easily identified on site. Such measures are likely to include both marking of pipe work associated with passive sumps and appropriate certification of radon barrier systems.
- M.7 The current requirement that barriers are required in High Radon Areas should stand. Research should be carried out to assess the combined effectiveness of passive sumps and barriers compared to the effectiveness of barriers alone. The results of this research should guide future policy on the need to fit radon barriers in addition to passive sumps in all parts of the country. This should be further considered by the research needs working group.

M.8 Research on better barrier systems and the appropriate placing of barriers to improve barrier success rate and decrease post-installation damage should be undertaken. This recommendation should be further developed by the future research needs working group.

Building control:

M.9 The building control process should be amended to require specific “sign off” by a competent person regarding the installation of radon preventive measures. It is noted that the proposed Building Control (Amendment) Regulations 2012, will result in new building certification procedures requiring sign off by competent persons on a wide range of measures.

## 2.2 Use of property transactions (sales & rental) to drive action on radon

### ***Need for Action***

To date some 5% of private homes in Ireland have been tested for radon. This means that there are very many householders living in homes with high radon levels, who are completely unaware of the problem in their own home. At the current rate of testing it would take hundreds of years for all houses in Ireland to be tested. Increasing this rate of testing is crucial, therefore, to effectively address the problem of radon in existing dwellings. One approach, which has been applied successfully in other jurisdictions, is to require the exchange of information on radon when houses are bought or sold. In England and Wales, for example, the Law Society has included simple questions on radon in its standard form used to make enquiries about the property during conveyancing. It is noted that these measures have been in place in England and Wales now for more than 10 years and have been found to be successful in increasing the rate of testing. In general these measures have been found not to result in any significant delay in closing sales.

It is recognised that any significant measures to encourage exchange of information on radon when selling houses would need to be accompanied by a comprehensive education programme aimed at raising awareness and understanding of the new measures among key stakeholders (solicitors, auctioneers, surveyors, radon measurement companies, etc).

The 2011 census shows that at present approximately 24% of all housing stock is currently rented either privately or through social housing programmes. It is clearly important, therefore, to address this sector in any comprehensive radon control strategy. General standards for rented houses are set out in the Housing (Standards for Rented Houses) Regulations, which were most recently updated in 2009. Currently these standards do not address radon.

There is currently no data regarding the number of privately rented properties that have been measured for radon and there are no legal requirements on landlords concerning either testing or reduction of radon levels in rental properties. It is noted that the Private Rental Tenancies Board (PRTB) have in place a comprehensive stakeholder consultation framework and conduct quarterly stakeholder meetings with a large cohort of landlords and tenants. It is recognised that this framework would be a useful vehicle for raising awareness within the rental sector of the radon issue.

It is noted that with respect to social housing the State itself acts as a landlord and that local authorities have already carried out significant work in addressing radon in social housing. To date, more than 20,000 local authority homes have been tested and, where necessary, remediated. It is important that this work is continued into the future.

### ***Measures***

#### Sale of private housing:

- M.10 Measures should be introduced, which would require that information on radon testing of a house is passed on from the vendor to the purchaser when a house is sold. It is noted that further work is required to determine how such measures would work in practice in Ireland. However, it is also noted that raising questions on radon during the conveyancing process has been found in other jurisdictions to be both practical and effective in raising the rate of radon testing of existing houses.
- M.11 In conjunction with the measures set out in M.10 above a targeted information programme should be undertaken to raise awareness and understanding of the need for and the implications of the new measures among key stakeholders. The key stakeholders are likely to include individual solicitors, estate agents, surveyors and home buyers.
- M.12 The advisory report, which accompanies the Building Energy Rating (BER) certificate, should be amended during its next review to include: generic advice that the home be tested for radon and a link to the RPII website. The SEAI Contractors Code of Practice should be amended accordingly.

#### The private rental sector:

- M.13 Radon should be addressed by DECLG in the next revision of the Housing (Standards for Rented Houses) Regulations.
- M.14 Awareness of radon should be raised with the rental sector using the PRTB stakeholder consultation framework.

- M.15 A targeted survey of landlords, tenants and other relevant stakeholders should be carried out during the first year of the strategy to assess the levels of awareness on radon. A follow-up survey should be carried out at appropriate intervals to monitor the effectiveness of the above recommendations in raising awareness.
- M.16 It is noted that local authorities inspect thousands of privately rented houses each year for compliance with the Housing (Standards for Rented Houses) (Amendment) Regulations 2009. In advance of any amendment to the Housing Regulations, therefore, questions should be included on the checklist used by local authorities for these inspections regarding the rate of radon testing and the levels found. It is noted that the national compilation of this information would both contribute to awareness and provide important information in the context of the proposed amendment to the Housing Regulations.

#### Social housing:

- M.17 The programme of testing and remediation of social housing should be continued.
- M.18 All inspections by local authorities of privately owned accommodation used for social housing should address radon. Specifically this would include: homes receiving rent supplement, privately owned homes for which local authorities have taken out long-term leases for provision as social housing and privately owned homes taken on by local authorities under the Rental Accommodation Scheme for provision as social housing.

#### Workplaces and other commercial premises

- M.19 Guidance material aimed at employers and those responsible for commercial buildings should include advice on addressing radon in building rental/ lease/ insurance agreements.

## **2.3 Raising awareness and encouraging action on radon**

### ***Need for Action***

The spectrum of parties concerned with the management of the radon problem is broad and includes householders, employers, local authorities, builders, architects and health care professionals. The decision to test or to take remedial action lies primarily with the individual householder or building manager. Decisions in relation to smoking cessation lie with individual smokers (smoking greatly increases one's risk from radon). Many of the decisions relating to radon proofing of new houses are taken primarily by building designers

and builders. Decisions in relation to funding, regulations and education programmes lie primarily with Government and public bodies. The aim of the radon communications strategy, therefore, must be to encourage this broad range of “decision makers” to take action to reduce the health risk from radon.

In addition to the “radon decision makers” there is a range of individuals or groups who through their role in society are in a position to influence the general public to take action on radon. These “influencers” typically include health care professionals, solicitors, local authorities, etc. Many individuals or groups act at different times as both decision makers and influencers. The communications strategy should also aim to encourage action on radon indirectly through key influencers.

Research into attitudes to radon and other health hazards indicates that the public are unlikely to consider radon as a serious issue unless the Government is seen to be clearly behind the message. This will only happen if a clear and consistent message is presented by all of the relevant departments and agencies so that the message from across Government is seen to be coordinated and coherent.

Research into public attitudes to radon also indicates that a mixture of national and local publicity is likely to be most effective in persuading the public to take action. In general this research shows that the public are unlikely to be persuaded that radon is a serious risk unless they hear about it nationally but are more likely to take action in their own home if they hear about it locally.

It is recognised that for many people the issues involved in addressing a radon problem in an existing building are outside of their day to day experience and so are often difficult to understand. It is essential, therefore, that the public are provided with clear and understandable information and that each stage of the process (testing, remediation, retesting, etc) is made as easy and as accessible as possible so that in line with recognised health promotion principles, the “healthy choice becomes the easy choice”.

Surveys undertaken by RPII show of those householders, who have tested their houses and found them to be high, less than 25% actually go on to remediate. This low remediation rate clearly undermines the cost effectiveness of any radon awareness campaign as there is absolutely no health benefit associated with radon testing unless it leads to remediation. It is clear from stakeholder research that many individuals are reluctant to test their houses because they falsely believe that remediation is very costly or disruptive. A comprehensive radon communications strategy should address both testing and remediation in a coherent way.

Current smokers, past smokers and those exposed to passive smoke are all at a greater risk from radon than non-smokers. For an average smoker, for example, the radon risk is 25 times greater than for a never smoker. A smoker living in a house with high radon levels can reduce their cancer risk by quitting smoking. It is essential, therefore, that information given to householders with high radon levels in their houses includes clear advice on the risks associated with smoking and points towards smoking cessation programmes as appropriate.

## ***Measures***

### Delivering a coherent message on radon across Government:

- M.20 A clear branding strategy should be developed for the NRCS, which aims to support public awareness of the strategy and to demonstrate that the strategy is supported and driven by a number of Government departments and other public bodies. The branding should include a clear identifiable logo. All publicity material associated with the NRCS should make use of this branding.
- M.21 A dedicated NRCS website should be established as a comprehensive source of impartial information and advice on radon for stakeholders including: householders, employers, the building industry and radon service providers. The design, branding and content of the website should reinforce the message that the NRCS is supported by all of the relevant public bodies from across Government. The websites of relevant public bodies together with all NRCS publicity/ educational material (leaflets, booklets, websites, etc) should link to the NRCS website.
- M.22 It is essential that a clear and consistent message on radon be communicated by all public authorities. The NRCS should articulate a simple core message and to the extent practical and appropriate all public bodies should seek to support and reinforce this message. While the radon message communicated by different public bodies needs to be consistent with their own sectoral responsibilities, it should be complementary and linked with the information provided by other public bodies. For example, while the message communicated by health authorities is likely to focus on health issues, it should include clear links to sources of information on prevention, remediation, legal responsibilities, etc. Furthermore, the strategy should aim to maximise coherency with other related public health programmes such as: smoking cessation, cancer prevention and general environmental hazards. Where practicable a joined-up approach with other programmes should be adopted.
- M.23 The degree of coordination and coherence between the different public bodies should be reviewed periodically by the group established to coordinate implementation of the NRCS. In undertaking such reviews every effort should be

made to: promote synergies between different public health/ health and safety campaigns, exploit every opportunity to demonstrate to the public that Government is fully behind the message and ensure that publicity initiatives of different public bodies are effectively coordinated.

Influencing radon decision makers:

M.24 A multi-annual awareness raising programme should be adopted based on a two stranded communications strategy. The information should be targeted and delivered primarily through a programme of locally based communication initiatives aimed primarily at high radon areas. This should be supported by a national communications programme aimed at underpinning and supporting local public communications. The sender of the message should be known, credible and respected. It is important, for example, that when the message is seen to be coming from a public body, the body is well known and respected by the target audience. Where appropriate, consideration should be given to using an individual, who is well known to the public, to “champion” the message.

M.25 Local communications campaigns should address the broad range of actions necessary to effectively protect the population from radon including: radon prevention in new build, radon testing, remediation and smoking cessation. The local information campaigns should include the following elements:

- Broad and inclusive coverage of the target area with clear and comprehensive information;
- Joint branding with local authorities, public health authorities and other Government departments and agencies, as appropriate;
- Information sessions on good radon prevention practice targeted at local builders;
- Information sessions on remediation aimed at householders/ employers with high radon measurements;
- Linkage with smoking cessation campaigns. This might include making smoking cessation counsellors available during the radon campaign;
- Where practicable, local authority premises should be used to host radon information sessions as this would reinforce the perception of local authority support for the radon message.

M.26 It is noted that local authorities are in a unique position to influence householder/ employer behaviour in their areas. Local authorities should have arrangements in place to provide basic information in response to public enquiries and to refer more detailed radon enquiries to the appropriate authority. In addition, local authority

websites should include basic information on testing and remediation as well as referral contacts. Clear guidelines should be prepared for local authorities to help them to deal with requests for information on radon.

- M.27 Consideration should be given to the introduction of tax based financial incentives to encourage radon testing and remediation. In addition to providing direct assistance such measures would send out a strong message that the Government views radon as a serious public health issue. Given the current low rates of testing and remediation, the impact of such measures on the public finances is likely to be negligible. In fact, if such measures were to increase the rate of testing, then the overall tax take may even increase as a result.
- M.28 It is recognised that for some individuals cost may be a genuine disincentive or even barrier to remediating high radon levels. Consideration should be given, therefore, to the introduction of a scheme to provide some form of means-tested financial assistance covering remediation. Consideration should also be given to the targeted and strategic use of free radon measurement campaigns as a means of boosting the response rate to local public awareness campaigns.

Raising awareness among influencers:

- M.29 A multi-annual programme should be implemented aimed at increasing awareness among different groups of “influencers”. It is considered that a targeted campaign with clear objectives, which focuses on a finite set of groups or professions with the most influence, is likely to be more cost effective than trying to address many groups at the same time, some of which may have only very limited real influence on the public. For each group the programme should set clear goals regarding the nature of the influence the NRCS expects them to exert.
- M.30 The school curriculum is an important means of influencing the general public on health matters. Consideration should be given to including basic information on radon on the curriculum of relevant subjects. It is noted that relevant subjects may not be limited to science and might, for example, include more general subjects such as home economics or geography.

## 2.4 Supporting individual householders and employers with high radon results

### ***Need for Action***

Customer surveys, focus group research and RPII experience over many years of responding to householder queries, all point to a number of “barriers to action”, which contribute to the current low remediation rate. These “barriers to action” include: fear of being taken advantage of by unscrupulous contractors and not knowing where to turn for knowledgeable, impartial and independent advice. A comprehensive and effective radon strategy should include arrangements to provide impartial and authoritative information and support to individuals (householder or employers) with high radon results covering both radon remediation and smoking cessation. The information provided should encourage action on radon and should empower the receiver to take the necessary measures to protect themselves and their family or employees. These arrangements should cover both the provision of generic information through information packs, websites, etc and reasonable facilities to answer specific queries from individuals.

### ***Measures***

- M.31 A protocol for dealing with individuals with high radon measurements should be agreed between: RPII, DECLG, HSE, local authorities and HSA (in the case of workplaces), which sets out the relevant roles of the various public bodies. The protocol should include provisions for householder/ employer with high results to speak directly with an impartial expert and should ensure that individuals are dealt with in a coordinated and coherent fashion by the different public bodies. The protocol should include specific follow-up measures concerning individuals with extremely high radon levels to ensure that every reasonable effort is made to help them understand the significance of their results.
- M.32 All measurement services should provide consistent, clear and accurate information on remedial options to their clients with high radon result reports. It is likely that the quality and content of the information provided by measurement services could be standardised through some form of validation or registration of measurement services.
- M.33 Local radon awareness campaigns should include information sessions on remediation aimed specifically at householders/ employers who have already tested for radon and found high radon levels. In advance of the campaign all individuals who had previously had a high result could be invited to attend a session with an impartial expert on radon remediation. This might be done through a public meeting

or through scheduled one to one appointments with a remediation expert. These information sessions should be seen to be endorsed by the local authority and so should preferably be based at the offices of the local authority.

- M.34 Health care professionals have a key role to play both with regard to smoking cessation advice and the provision of targeted medical advice where an individual has health concerns arising from their radon exposure. The NRCS should include a programme of measures to ensure health care professionals are kept aware of radon and have access to specialised information as appropriate.

## 2.5 Promoting confidence in radon services

### ***Need for Action***

There is currently no objective assessment of the suitability of radon remediation contractors operating in Ireland. This is not a sustainable situation as it fails to promote high standards of radon remediation and undermines public confidence, which ultimately acts as a disincentive to householders undertaking remedial work.

Successful remediation of high radon levels in existing buildings is required if the risk from radon is to be reduced. It is important when remediating to match the radon reduction system to the unique characteristics of the individual building being remediated. It is important, therefore, that radon remediation contractors have a sound knowledge of building construction techniques and practices.

Long-term measurement (greater than 3 months) of average radon concentrations using passive radon detectors, such as track-etch detectors, is the preferred technique for carrying out radon measurements used for comparison with the Reference Levels for radon in dwellings and workplaces in Ireland. Radon measurements are straightforward to perform but need to be based on standardised protocols that ensure accurate and consistent results. It is clear, therefore, that a framework is needed to develop quality and expertise in radon measurement techniques in order to ensure the consistency and quality of radon measurements and to underpin public confidence in the results produced by Irish services.

### ***Measures***

#### Training in radon remediation:

- M.35 A targeted training course on radon remediation should be developed. A steering group should be set up to establish the course syllabus, entry level requirements and pass criteria. This group should also be responsible for monitoring and overseeing

delivery of the training. It is envisaged that delivery of the training would be outsourced either directly by the steering group or by a designated public body to a private training provider and that the outsourcing contract would cover: design of course material, delivery of set number of courses at agreed locations, assessment of applicants to ensure they meet both the entry level and pass requirements. .

M.36 Once the syllabus has been established the guide “Radon in existing buildings corrective options” published by the Department of Environment, Community and Local Government should be updated.

M.37 A web based knowledge resource on radon remediation should be maintained. It is envisaged that this would include technical guidance and case studies on complex or difficult remediation cases. Other channels such as the National Radon Forum or contractor meetings should also be used to promote good practice in remediation.

#### Listing of radon remediation contractors:

M.38 A steering group should be established to develop a set of transparent criteria, which remediation contractors must meet in order to be included on any Government list or website or to be considered for any Government funded remediation work. It is envisaged that such criteria would include: completion of appropriate training, appropriate trade or professional qualification, adherence to a code of practice, tax compliance, appropriate insurance, etc. The steering group should also set out the type of evidence to be provided by contractors to demonstrate compliance, transitional arrangements for existing contractors and procedures for removing contractors from Government lists who no longer meet the criteria. Consideration should be given to including in the contractor criteria a requirement to provide statistical information to a designated public body on the buildings remediated. It is envisaged that a list of contractors who have provided satisfactory evidence of compliance with the criteria would be maintained by a designated public body.

#### Registration of radon measurement services (RMS):

M.39 A validation or registration scheme should be established in Ireland for radon measurement services meeting set criteria. Successful participation in such a scheme should be a pre-requisite for inclusion on any Government funded website listing or for applying for any Government funded work. The cost of running the scheme should be met by the participating RMS. The registration scheme should apply equally to measurement laboratories based in Ireland and suppliers of radon detectors sourced from elsewhere. The registration scheme should set out clear and transparent criteria for measurement services wishing to participate together with a process by which

applicant services should demonstrate their compliance with those criteria. These criteria should address: adherence to national measurement protocols, technical standards, quality standards, successful participation in inter-comparison/performance tests, provision of statistical information, standard of information provided to their clients and legal compliance issues (tax, insurance, etc).

M.40 The public body operating the registration scheme should seek to maximise cooperation with similar services operating in other EU Member States so as to avoid duplication where it is appropriate and useful to do so. Consideration should be given, for example, to acceptance of services validated in the UK by the Health Protection Agency as evidence of compliance with the Irish registration criteria where these criteria are common to both schemes.

M.41 It is essential that the public have a high degree of confidence in the work of both measurement and remediation services. It is important, for example, where a company provides both measurement and remediation services, that any perception of conflict of interest is avoided. In particular, such a perception could arise were the remediation company also undertakes the post remediation measurement. The advice given to householders/ employers with high radon levels, therefore, should refer to the importance of having independent post remediation measurements.

## 2.6 Radon in workplaces and public buildings

### ***Need for Action***

An effective strategy for dealing with radon in workplaces will include both regulatory or enforcement type actions and awareness raising or educational measures. In line with best practice both in radiation protection and occupational health and safety, the strategy for dealing with radon in workplaces should involve a graded approach to risk and a careful targeting of resources.

The principal regulations governing radon in workplaces are set out in the Radiological Protection Act 1991 (Ionising Radiation) Order, 2000. (S.I. No. 125 of 2000), which implements the 1996 EU Basic Safety Standards (BSS) Directive. Based on the experience gained since 2000, it is clear that there is now a need to update and modernise these regulations. A new BSS Directive is expected to be adopted in 2013 and it is likely that any modernising of radon regulations could be done in tandem with the implementation of this new Directive into Irish legislation.

It is noted that while there has been significant success in addressing radon in the state and multinational employment sectors, the number of radon measurements made in small businesses has remained relatively low.

It is noted also that to date a multi-agency approach in addressing radon in workplaces has been very successful. This approach has included targeting multiple risks in a single inspection (e.g. raising awareness of radon as a workplace hazard by HSA in general workplace health and safety inspections) and collaboration in relation to promotion and awareness activities.

In general public buildings are also workplaces and in most cases the measures for the protection of workers are likely to provide adequate protection for the public also. However, in certain types of public building, where the public occupancy is high such as schools, specific measures may also be required to protect the public. It is noted that the Department of Education and Skills has already tested radon levels in Irish schools.

## ***Measures***

### Legislation:

M.42 Current regulations covering radon in workplaces should be reviewed and updated following publication of the revised BSS Directive. This review should take into account, inter alia, the NRCS, the lessons and experience gained in implementing the current Ionising Radiation Order (S.I. 125 of 2000), experience in implementing health and safety and other relevant regulations and current international guidance on radon. The new/ amended regulations should incorporate the graded approach. Such an approach might, for example, include mandatory testing in high radon areas and a risk based approach elsewhere. It is anticipated that new specific provisions will be necessary in relation to the duties of employers, issuing directions, enforcement, penalties and underground workplaces. It is noted that the new BSS, which is expected to be adopted in 2013, will in any event necessitate major amendment to the current Ionising Radiation Order.

### Enforcement:

M.43 RPII and HSA should continue to address radon during all relevant general inspections of above ground workplaces. Consideration should be given to extending this type of cooperation to other inspectorates and that this cooperation be formalised in memoranda of understanding between the relevant organisations. Furthermore, the implementation group should continue to monitor developments in relation to the Risk Based Enforcement Group, an informal Department of Jobs Enterprise and

Innovation (DJEI) led group, which encourages cooperation among inspection and enforcement agencies to reduce the administrative burden on business.

M.44 A targeted and risk based inspection programme should be implemented to specifically address radon in underground workplaces, which are particularly vulnerable to high levels of radon.

Awareness:

M.45 Specific objectives should be included in memoranda of understanding between RPII, HSA, HSE and other relevant public bodies in relation to:

- raising radon awareness;
- inter-agency cooperation on health and safety promotion activities for workplaces;
- monitoring the progress on radon interventions in workplaces.

M.46 Further online guidance tools and materials should be developed for employers. Consideration should be given to the use of new delivery methods such as YouTube or social media. This information should be accessible both through the new business regulation portal website and the proposed NRCS website. Opportunities to make use of cross-sectoral initiatives such as the HSA's BeSmart online risk assessment tool for SMEs (which includes radon as a workplace risk) should continue to be exploited.

M.47 Public bodies should ensure that awareness/ educational material or activities reinforce a joined-up Government message on radon and should promote an integrated approach to indoor air quality. Cross departmental guidance for employers on management of indoor air quality should be considered. The use of annual regional events co-hosted by relevant public bodies and other stakeholders to address implementation of workplace regulations covering a range of workplace hazards should be explored.

M.48 A targeted multi-annual programme should be implemented aimed at working with employer and employee representative bodies to promote radon awareness in workplaces.

Public Buildings:

M.49 The Department of Education and Skills (DES) should continue to measure radon in new or renovated schools and to fund remediation where high radon levels are found.