CORNWALL HOUSING

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RADON MANAGEMENT STANDARD

A CORNWALL COUNCIL COMPANY

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Standard Title	Radon Management Standard		
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1. INTRODUCTION

1.1 Radon is a naturally occurring radioactive gas that emanates from the ground particularly, but not exclusively, in areas overlying granite. Exposure to this gas can induce lung cancer.

1.2 Within Cornwall certain types of rock formations give rise to higher than normal concentrations of Radon. This means that much of CHL housing stock is within areas designated as a Radon Affected Area where at least 1% of the domestic properties have a Radon level at or above the action level of 200 Becquerels per cubic metre (Bq m^{-3})

1.3 Public Health England (PHE) recommends that action to reduce Radon levels is taken if the annual average Radon concentration in a dwelling is at or above the Action Level of 200 Bq m^{-3}.

1.4 The Ionising Radiation Regulations 1999 state for all work areas coming under Health and Safety at Work Etc. Act 1974 the Action Level is 400 Bq m^{-}

Where a property is found to be above the action level, PHE suggests that remedial work is undertaken to reduce the levels. The solution very much depends upon the Radon level and property construction. At some of the lower levels, the solutions can be very simple and cheap to install. This could be the replacement of old air bricks with the more efficient modern ones. At the higher levels, it is generally felt that some form of mechanical system would be necessary

2. MANAGEMENT STATEMENT

2.1 This standard is designed to provide a clear acknowledgement of the responsibility that Cornwall Housing Limited (CHL) has in relation to the management of Radon safety and its approach to the management of Radon safety within the properties it has responsibility for.

2.2 The aims and objectives of this standard are summarised as follows:

- Provide clear lines of responsibility within CHL for the monitoring and management of Radon
- Clarify the CHL approach to ensuring Radon safety through the strategy to minimise the risk from exposure to Radon and to ensure appropriate mitigation.

- Specify individual responsibilities in the management of Radon safety.
- Provide a commitment to communication with all interested parties regarding Radon safety.

2.3 CHL are responsible to their tenants under Duty of Care and the Housing Act 2004 to provide a safe home. Radon is identified as a potential hazard in dwellings in the Housing Act 2004

The need for action is defined by the Housing Health and Safety Rating System (England) Regulations 2005 (HHSRS) and to fully comply with the risk assessment requirements within, CHL will carry out a Radon test at all properties in a Radon Affected Area. If Radon levels, as a result of testing, are found to be in excess of the domestic Action Level CHL will arrange for remedial works to be carried out.

Where mitigation measures are deemed necessary to reduce levels, as a result of testing, they will be logged on the Radon Tracker and Life Span Housing Management System (HMS), monitored and maintained in accordance with recommendation. Properties with existing mitigation installed (as legacy of former Districts) will be treated, for test purposes, as if no mitigation is in place due to accuracy of maintenance records and lack of re-test results.

A program of re-test and monitoring will be instigated at intervals as indicated within this Standard. This standard applies to all properties managed or owned by CHL.

2.4 CHL acknowledges and accepts its responsibilities under the Health and Safety at Work Etc. Act 1974 and all regulations made thereunder. All CHL policies and guidance will, as a minimum, be compliant with relevant up to date health & safety legislation and, where applicable, adhere to guidance contained in HSE Approved Codes of Practice & Guidance and other industry best practice. All relevant legislation will be listed in the CHL Register of Legislation and monitored on a regular basis to ensure that it remains current.

3. RESPONSIBILITIES

3.1 All staff involved with the management of Radon will be appropriately trained to ensure their competency.

3.2 CHL have assigned the Asbestos Compliance Manager, as Duty Holder responsible for managing Radon.

They will ensure that the Radon management standard and procedures are kept up to date with any legislative or good practice changes. The manager will ensure that these are communicated to all staff involved with Radon safety management.

The Manager will ensure that all persons carrying out work in relation to Radon monitoring, installations and servicing are competent, with regular quality monitoring carried out to ensure that all records are maintained appropriately and are current and accurate.

The Radon Manager, will ensure that an auditable, accountable and compliant system and processes exist across all Radon operations, including the appropriate accreditation of all contractors and personnel engaged in the delivery of services.

They will ensure an appropriate level of auditing of all works repairs and documentation.

They will be responsible for auditing statutory compliance with regard to servicing by monitoring certification and the No-Access procedure.

3.3 Quality Control Coordinator (QCC)

A QCC will work closely with the Manager to ensure statutory compliance. In effect updating the Radon tracker and Lifespan HMS after each job.

They will ensure any certification created by the suppliers is attached to Lifespan HMS and is easily accessible.

They will contact tenants to assist with any no access issues the CHL supplier may be experiencing.

4. ISSUING WORK

4.1 A batch of sites are issued to our contractor from our tracker spreadsheet with detailed contact details.

4.2 The testing, install or servicing work is issued as a contract to our suppliers. An instruction cover sheet with a valuation is provided and at the end of each month the valuation is returned listing all of the completed work. The properties listed on the valuation are checked against the paperwork received and if all paperwork has been received then the valuation is processed for payment. Only when all paperwork is received will the valuation be processed for payment.

4.3 Regular progress meeting are organised with the suppliers to ensure that the work is being completed in a timely manner and to the address any issues that have been encountered regarding no access.

4.4 The suppliers installing Radon equipment can encounter non licensed asbestos materials such as asbestos artex. CHL ensures that all Radon suppliers are Category B asbestos trained or at the very least have work specific asbestos awareness training where they have been assessed working safely on or around asbestos materials. All of our Radon suppliers have this asbestos training as a minimum.

4.5 Below is a table listing the CHL contractors and the contact details: -

Contractor Contact Details – Testing, installs, servicing and repairs		
Asbestos Surveys	**Address**	**Contact Details**
Mouldex Ltd	Unit 1, Sycamore Business Park, Chedzoy Lane, Bridgwater, TA7 8QR	01278 428347
Kovia Group	23 Melville Building, Royal William Yard, Plymouth, PL1 3RP	0333 0058919

4.6 On completion of any work the contractor will drop all completion paperwork into the contractor / CHL SharePoint where each contractor has an individual folder. The requirement to issue completion paperwork is reiterated in regular contractor meetings.

5. TESTING & MONITORING

In the UK the highest levels of Radon are found in the Southwest. CHL have taken the decision to test the levels of Radon in all its properties. This programme of testing is ongoing and is currently being carried out by our Suppliers.

Where initial monitoring (three month test) has deemed mitigation a required long-term measure, additional Radon testing will be carried out to ensure its effectiveness. This validation will be carried out every 5 years at the time of servicing.

The measurements should also be repeated:

- Where it has been determined mitigation is not required – every 10 years
- After changes to the building such as adding an extension, installing new or replacement of double-glazing or upgraded insulation.

The frequency of testing adopted by CHL is summarised below:

Test Type	**Purpose**	**Protocol**
Initial	To identify buildings with Radon levels above 200 Bq m^{-3}	3 month passive test
Mitigation Check	Check that mitigation has reduced Radon below 200 Bq m^{-3}	Promptly after completion of installation of mitigation measures. 3 month passive test
Periodic	Check that mitigation remains effective over the long term.	5 years, during the servicing visit.
	Check levels on properties previously recorded as < 200 Bq m^{-3}	10 yearly. Three month passive test

6. MITIGATION

There are various types of mitigation available where a property is above the action level:

- Improved underfloor ventilation
- Increased natural ventilation
- Provided mechanical ventilation
- Positive house ventilation (PPU or PIV)
- Sump system
    - Active sump
    - Extract
    - Positive pressure
- Passive sump

Improved underfloor ventilation

If all or part of the properties ground floor is of suspended timber construction, improving underfloor ventilation may be an appropriate method of reducing indoor Radon levels.
Improved natural underfloor ventilation is generally effective for Radon levels up to 500 Bq m-3. It may be effective with higher levels but if not, an underfloor fan can be fitted later

Positive house ventilation
Positive ventilation systems blow fresh air into a property and should run continuously to reduce Radon concentrations. They work to reverse the pressure difference between the building and the underlying ground by increasing the indoor pressure and reducing the entry of Radon through the floor.

PPU systems are one of the least disruptive Radon mitigation measures to install and are likely to work best:
In average sized (250m3) 3-4 bedroom bungalows and houses
Where Radon levels are less than 500 Bq m-3
With any floor types, even mixed and suspended floors
In airtight properties

PPU systems are likely to work in a fairly airtight property which could be indicated by:
Signs of condensation or mould in the property
The householder uses a dehumidifier
Clothes and other items stored in cupboards are musty
Odours linger rather than disperse
The occupants are not aware of cold drafts

PPU systems, for Radon mitigation, are not recommended for properties without central heating

Sump system

A sump system is simply an underfloor space or cavity into which a pipe is inserted and used to extract Radon. Radon does not drain into the sump but is drawn through the underfloor to fill up the sump by the suction (pressure difference) created by a fan or by the stack effect.

Sump systems can be used on any building where:

- There is a capping over the ground, such as a concrete ground bearing slab
- There is concrete capping to the soil beneath a suspended timber floor
- A standby sump was provided during construction. In newer homes (built since the early 1990s) a standby sump may have been installed with a capped 100mm pipe visible on the exterior of the building

Active sump systems have an open space of around 10 litres excavated beneath the ground floor which is fitted with 100mm pipework and a fan.

These systems are the most effective at reducing indoor Radon concentrations and are particularly efficient in properties with the highest Radon levels.

Occasionally the extract sump system described above does not reduce the Radon concentration adequately. In such cases a simple remedy is to reverse the fan and blow air in, to pressurise the sump. Positive pressure sumps tend to work well where the ground is naturally permeable or where there has been past mining activity.

Passive sump systems rely on the natural stack effect and/or wind action to extract Radon from the ground instead of installing a fan. The absence of a fan makes the running cost attractive but can be less effective. These installs will be used on properties with an action level of between 200-500 Bq m-3.

6.1 CHL/our suppliers will use the chart below to determine the type of mitigation used depending upon recorded Radon levels and property construction. For properties with mixed floor types, a combination of the mitigation types can be used.

Floor type	Solid		Suspended	
Radon level* (Bq m³)	Under 500	Over 500	Under 500	Over 500
Recommended solutions, best first	Radon sump or Positive ventilation	Radon sump	Natural under-floor ventilation or Positive ventilation	Mechanical under-floor ventilation or Natural under-floor ventilation

*The level of 500 Bq m^3 is an approximate guide.

7. MITIGATION MAINTENANCE

Where mitigation systems are installed, they will be adequately maintained to ensure that they remain functional and effective. Function checks on installed extraction and ventilation systems will be carried out and a check made to ensure that vents are not blocked or obstructed.

Both sump fans and PPU fans are sealed for life so require no lubrication but a visual inspection of the fan is required every five years.

The frequency and level of inspection adopted by CHL is summarised below:

System Type	Frequency	Inspection
Sump Fan	5 years	Visual Inspection, including fan check manometer if fitted
PPU	5 years	Visual Inspection. Cleaning of ventilation grilles and diffusers. Replacement of filters.
Underfloor Ventilation	5 years	Underfloor ventilation grilles inspected and cleaned, preferably in the Spring.
Forced Underfloor Ventilation	5 years	As Underfloor Ventilation plus inspection of fans fitted

8. PERFORMANCE MONITORING

a. The HASAWA, places responsibilities upon the organisation to ensure that all appliances/installations are left in a safe condition. It would therefore follow that CHL exercise a legitimate interest in the manner that work is undertaken. This will be carried out in a meaningful and structured way

   i.e., the monitoring of new work and the visual inspection of all completed work documentation.

b. Measurement (other than visual quality control of documentation) will be carried out in two ways:

   i The physical monitoring of work and the competence of individuals.

   ii Management review of performance, feeding results back into the system for continual improvement via documentation.

c. There is a need to monitor work to ensure that it is being carried out correctly, efficiently and effectively. The approach which will be adopted is that initially quality control visits are carried out on 5% of works undertaken and then increased or decreased according to results. Any changes to the original will be documented and retained on file.

d. Performance monitoring for servicing shall provision for:-

i The contractor shall submit performance reports in accordance with the aims and provisions within the contract for the provision of inspection, servicing and installation works.

ii That provision should be at least the measurement and reporting of the successful completion of all inspections and the supply of all completion paperwork.

iii The performance reports shall be in sufficient detail to allow CHL to carry out secondary analysis and checks to validate the completion of the work.

e. The Radon Manager will monitor the programmes for testing, installation and servicing to ensure obligations are met.

f. An agreed percentage of installations, servicing and repairs work will be monitored for quality through an appropriately qualified person.

Designated normal audit levels are:

Servicing • Documentation 100% • Site Visual 5%	Installation • Documentation 100% • Post Inspection 5%

g. This Standard will generally be reviewed on an annual basis, but also whenever changes to legislation or guidelines deem it necessary.

h. Internal Audit – the provision and undertaking of internal audits of services will be as dictated by the corporate audit regime and forms part of the company risk management framework.

i External audit – Cornwall Housing has its own audit framework delivered independently by a separate audit provider as part of its corporate responsibilities and as for findings and conclusions are reviewed and actioned and incorporated within the company risk management framework.

9. DATABASE AND SYSTEMS MANGEMENT

a. Records of installation, servicing and repair work are included on the Lifespan Housing Management System (HMS). All records are stored and maintained on the system to ensure compliance, allow performance reporting and facilitate the programming and appoint of future works and servicing.

b. All CHL contractors will keep a record of all properties they have worked on in relation to Radon installations and appliances. All certificates and records must be provided to Cornwall Housing with a 30 day period following the work.

c. All certificates and records will be uploaded to Lifespan Housing Management System (HMS)

d. A database is to be maintained of all properties by address and reference number and hold information at a minimum including the current Radon mitigation measure details and latest maintenance dates.