

RADON IN OUR HOMES



3.1

Design: ASN and IRSN Communications Departments - October 2021
Graphic design and production: www.kazoar.fr - Pictograms: Freepik, Kazoar - Photos: Ilio/istock, paulprescott72/istock
Reproduction prohibited without the agreement of ASN/IRSN. For further information: contact@irsn.fr



RADON IN OUR HOMES

NATURAL RADIOACTIVITY: THE EXAMPLE OF RADON



Uranium is present in all soils and more particularly in the granitic and volcanic rocks of certain regions of France. This uranium is transformed into a series of radioactive elements, including radon, a gas that can migrate to the surface of the soil. **Radon is potentially dangerous** to human health if it accumulates in living spaces.



RADON IN MY HOME?

Inhabitants' exposure differs from one household to another: **radon penetrates by various routes** (cracks, pipe penetrations, etc.) and **accumulates in confined spaces** such as cellars, basements or inadequately ventilated rooms.

It can also dissolve in groundwater and be found in tap water and thermal waters.

Finally, **radon decays into other radioactive elements, notably polonium.**

RADON IDENTITY CARD

Radon is odourless, colourless and radioactive.

It decays, emitting alpha particles and solid progeny (polonium, lead, bismuth), which are also radioactive.

Its most common and stable isotope, radon-222, has a half-life of 3.8 days.

WHAT DANGER DOES RADON REPRESENT?

Radon can be dangerous to health if it accumulates in living spaces.

It is estimated to be the second most common cause of lung cancer in France. It is particularly prevalent in granitic and volcanic regions.

THE RADON AND RADIOACTIVITY APP

Estimate your individual level of exposure to naturally-occurring radioactivity in France in just a few clicks, and calculate the radon potential of your locality by installing the application on your smartphone.



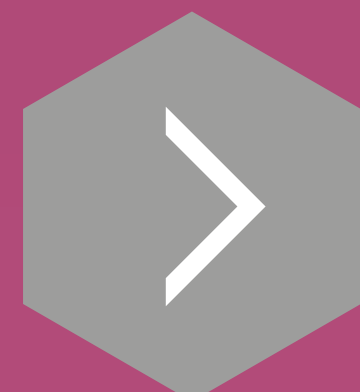
3.2

Design: ASN and IRSN Communications Departments - October 2021
Graphic design and production: www.kazoar.fr - Pictograms: Freepik, Kazoar - Illustration: La-fabrique-creative/Bruno Bourgeois
Reproduction prohibited without the agreement of ASN/IRSN. For further information: contact@irsn.fr

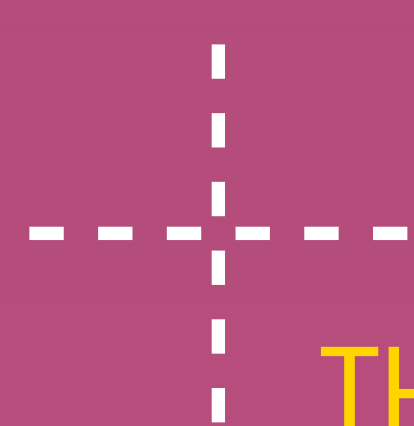


RADON IN OUR HOMES

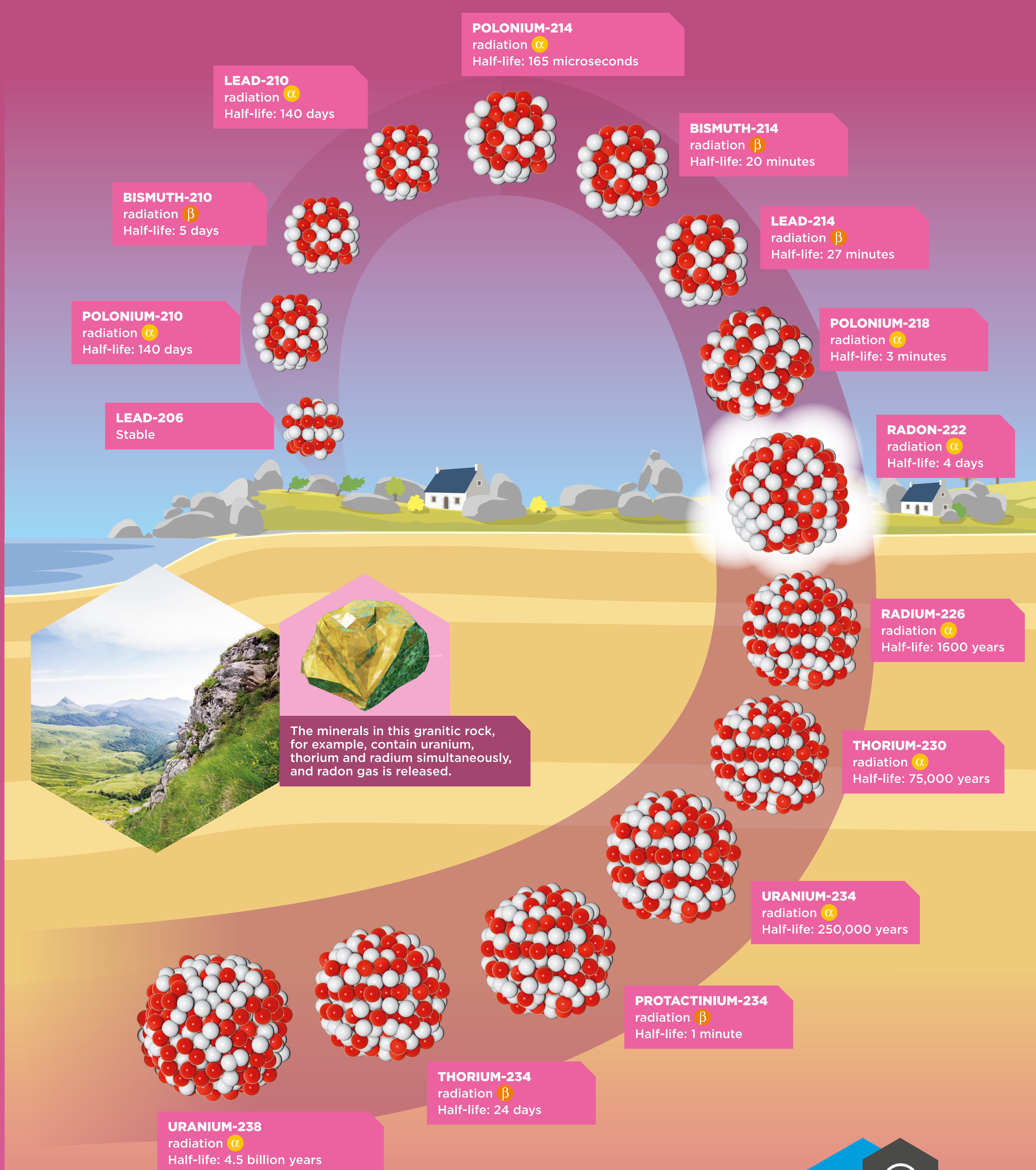
WHAT IS THE ORIGIN OF RADON?



A radioactive element, such as uranium, can be transformed into another radioactive element, which will in turn be transformed, and so on. This is known as a **decay chain**. Radon comes from the uranium-238 decay chain.



THE URANIUM DECAY CHAIN



Most of these decays are also accompanied by gamma rays of varying energy.

+

Some radioactive elements are very short-lived: as soon as they appear, they disappear, like lightning. Others are as old as the Earth.

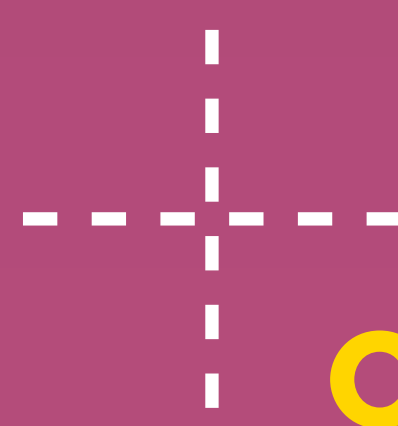


RADON IN OUR HOMES

RADON IN FRANCE



The radon potential map shows the **potential radon concentration** in buildings for each French municipality. This can be explained by the geological nature of the soil.

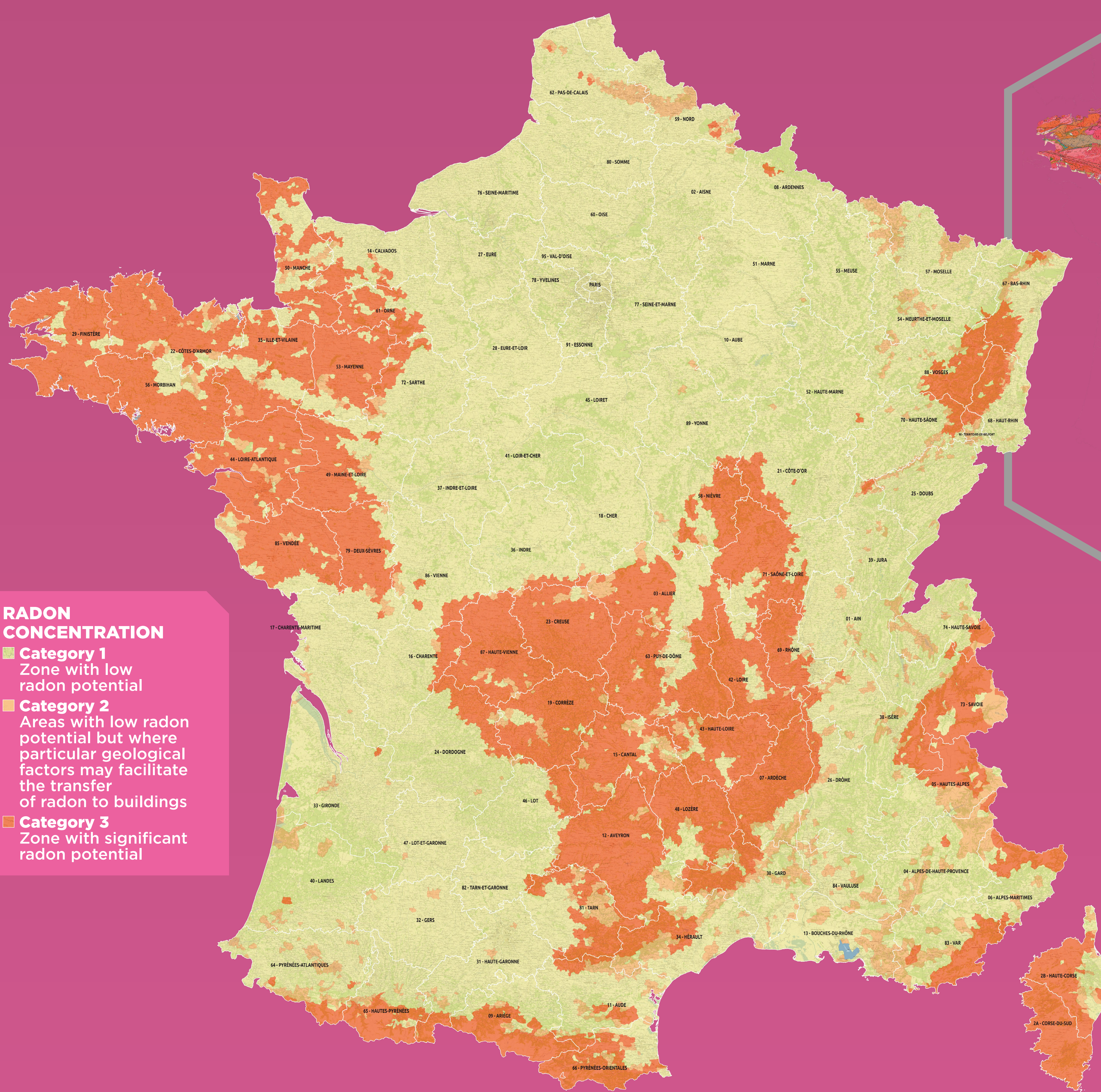
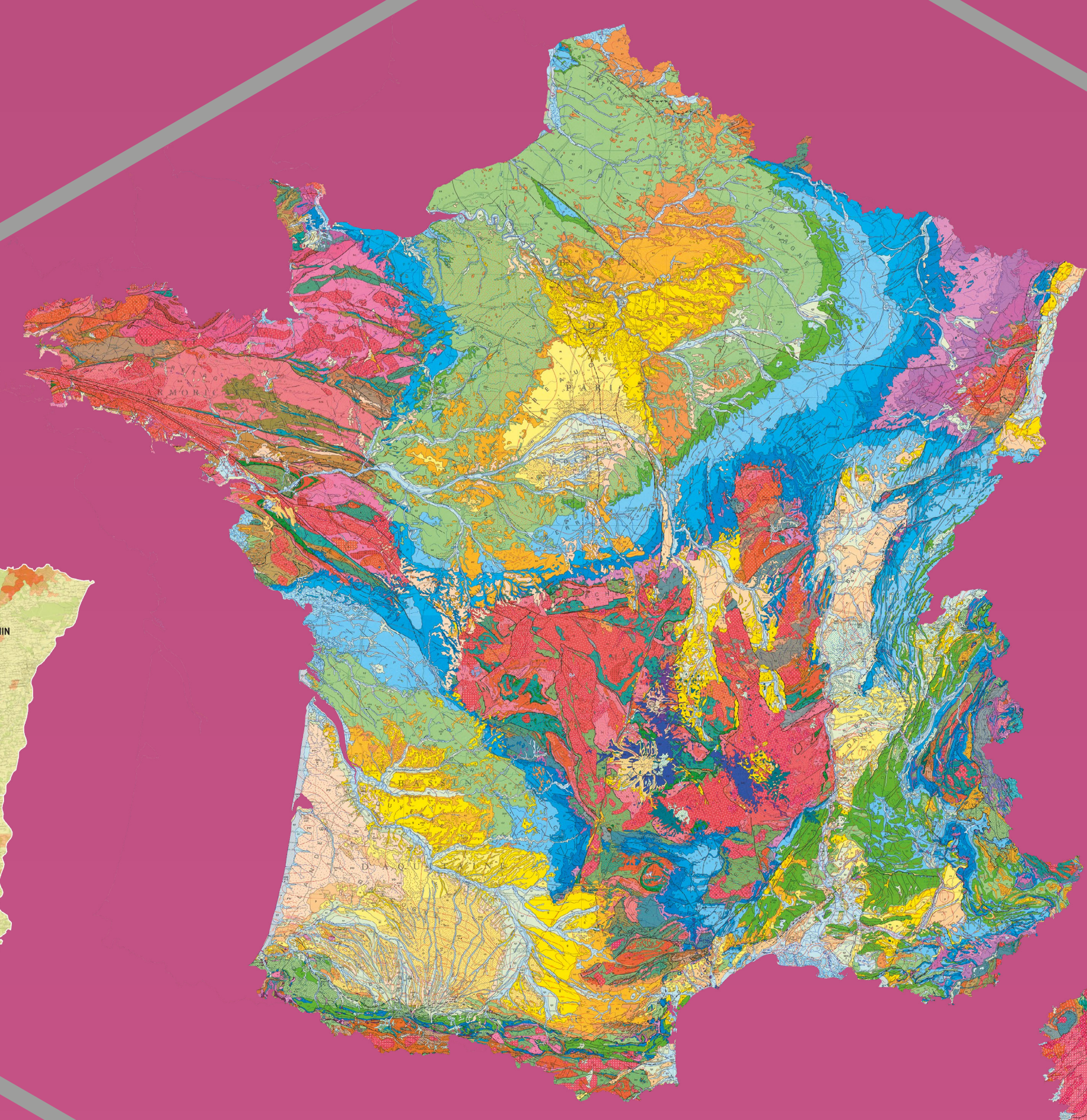


CONSIDERABLE VARIABILITY ACROSS THE COUNTRY

The geology of France is highly varied. The diverse nature of rocks means that radon concentration levels vary widely.

What's more, in the same area, depending on the structure of the soil, the architecture of the dwellings and the time of year, the radon concentration in the air can vary greatly: from **10 to over 10,000 becquerels per m³ of air**.

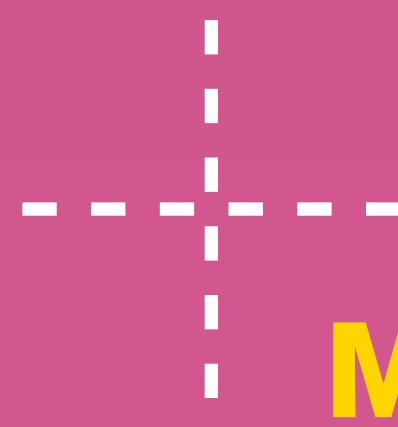
Geological map of France: red areas represent granitic soils



RADON CONCENTRATION
■ **Category 1**
Zone with low radon potential
■ **Category 2**
Areas with low radon potential but where particular geological factors may facilitate the transfer of radon to buildings
■ **Category 3**
Zone with significant radon potential



These two maps show the relationship between the **nature of the soil** and the **potential presence of radon** in the home. There is a greater risk of radon where there is granite, which is a uranium-rich rock.



MAPPING AT LOCAL LEVEL

Created by IRSN, the map identifies the municipalities in which the presence of radon at high concentrations is most likely in buildings, in order to better manage the risk for the public and workers.



WHAT DOES THE LAW SAY?

Find out more about the Order of 22 July 2004 at <http://www.legifrance.gouv.fr>



RADON IN YOUR HOMES?

Find out more by scanning the following QR Code or visiting <http://www.irsn.fr/carte-radon>





RADON IN OUR HOMES

RADON IN MY HOME? WHAT TO DO?

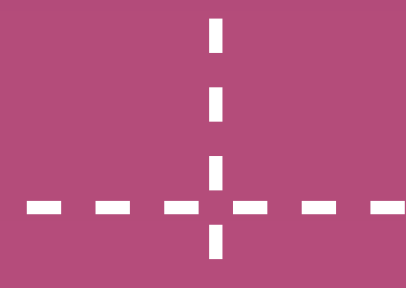


Effective protective measures are available to reduce radon levels in indoor air.



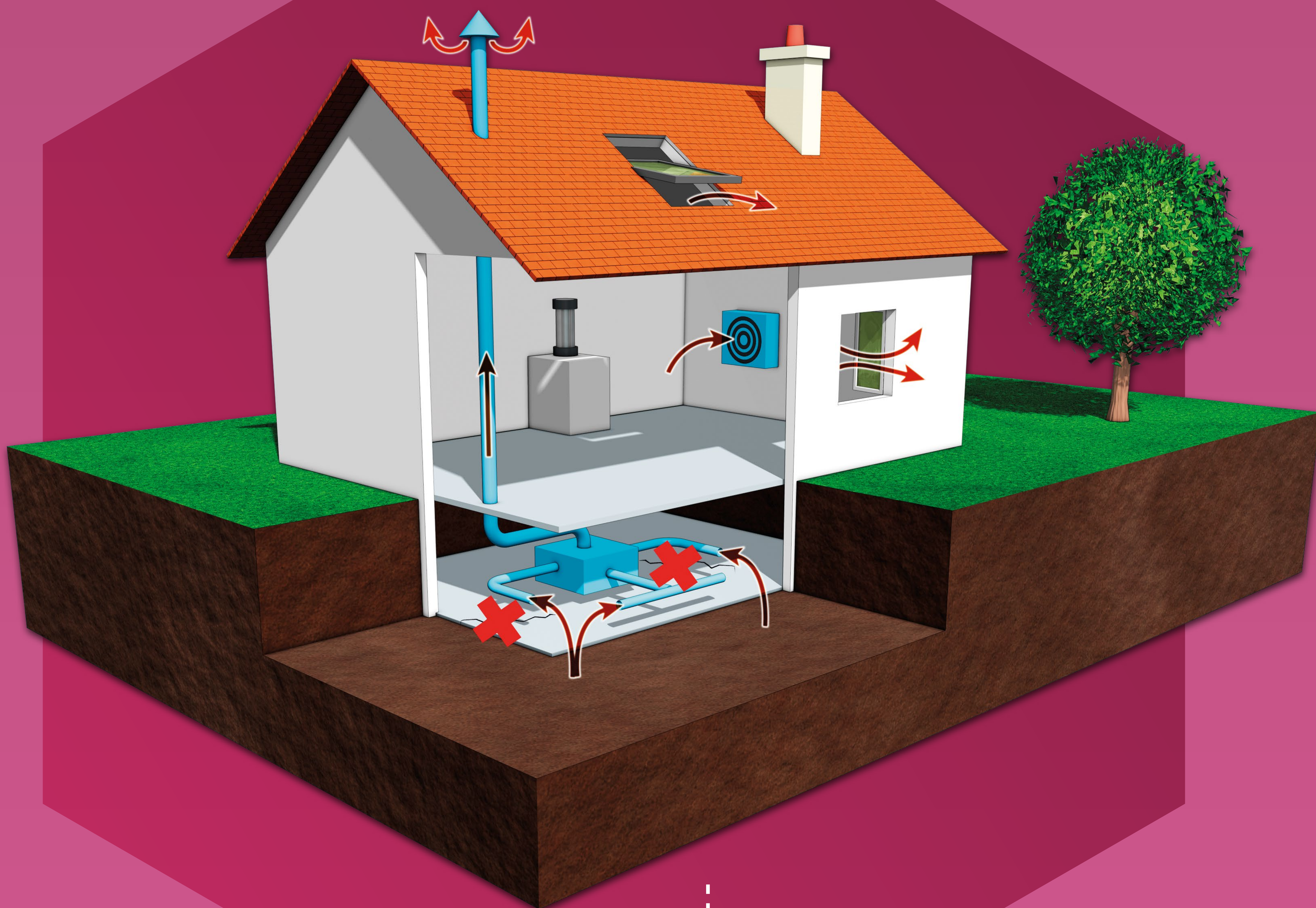
VENTILATE

Radon levels can be reduced through good ventilation practices and by improving ventilation in the home.



SCREENING

To protect yourself from radon, the first thing to do is to measure its presence in your home. The presence of radon is measured using a detector. The radiation emitted leaves measurable traces in the detector. It is recommended that these detectors be installed in the main living areas for at least two months during the winter months. Equipment can be used to make a more accurate diagnosis and guide the search for radon entry and passage routes.



PLUG / DRAIN

In addition to evacuating the radon, you need to limit its penetration into the building by, for example, improving the leaktightness of floors (sealing cracks and pipe penetrations) or diverting radon flows by installing an air exhaust system (to the outside).

NEW BUILDINGS WITHOUT RADON

To protect yourself from radon, it may be a good idea to think about installing systems to limit radon penetration (crawl spaces, geotextile membranes, soil depressurisation systems, etc.) and promote adequate air renewal (ventilation, etc.) right from the initial construction plans.

WHO SHOULD YOU CONTACT TO BUY A DETECTOR?

<p>• ALGADE</p>  <p>1, avenue de Brugeaud 87250 Bessines-sur-Gartempe, France Tel: +33 (0)5 55 60 50 00 algade@algade.com www.algade.com/2017/08/04/radon/</p>	<p>• SANTÉ-RADON - PE@RL</p>  <p>20, rue Atlantis 87068 Limoges Cedex France Tel: +33 (0)5 55 43 69 95 contact@sante-radon.com www.sante-radon.com</p>
<p>• EUROFINS</p>  <p>Campus de Ker Lann - Parc de Lormandière 35170 Bruz, France Tel.: +33 (0)2 23 50 13 80 nucleaire@eurofins.com www.eurofins.fr/nucleaire/</p>	<p>• RADONOVA</p>  <p>82 rue du Guéméné 56770 Plouray, France Tel: +33 (0)7 55 53 91 81 www.radonova.fr</p>