HERCA
HEADS OF THE EUROPEAN RADIOLOGICAL PROTECTION COMPETENT AUTHORITIES

CSN CONSEJO DE SEGURIDAD NUCLEAR

Radiation protection measures at workplaces with Rn levels above the RL

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Outline

1. EU-BSS Directive framework on radon

2. RP measures under BSSD art. 35.2 in Spain

3. Challenges addressed at HERCA WG-NAT

1. EU-BSS Directive

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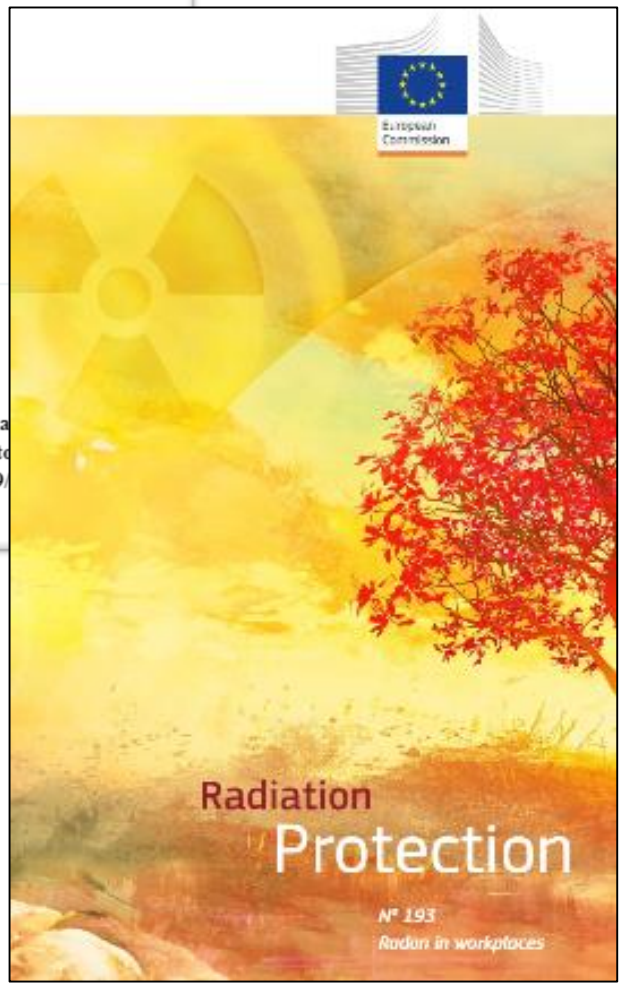
II Non-legislative acts

DIRECTIVES

* **Council Directive 2013/59/Euratom of 5 December 2013 laying down ba**
standards for protection against the dangers arising from exposure t
radiation, and repealing Directives 89/618/Euratom, 90/641/Euratom, 96/29/
97/43/Euratom and 2003/122/Euratom



1. EU BSS Directive

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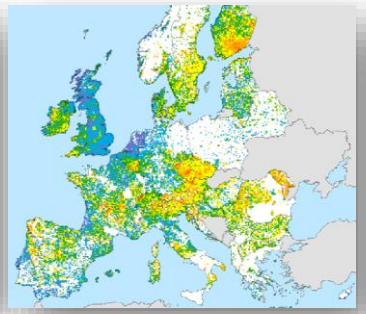
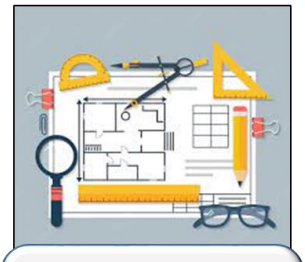
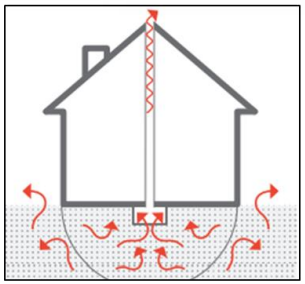


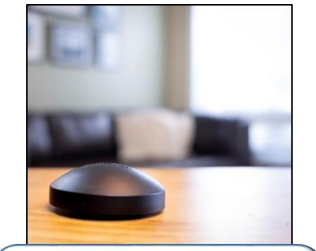


MEASURE RADON

$C > 300\ Bq/m^3$



CORRECTIVE ACTION



RE-EVALUATE

$C > 300\ Bq/m^3$

ASSESS WORKER DOSES

> 6 mSv/a

< 6 mSv/a

PLANNED EXPOSURE SITUATION

BSSD Art. 35.2. Member States shall determine which requirements […] are appropriate

2. Occupational Measures

LEGISLACIÓN CONSOLIDADA

Real Decreto 1029/2022, de 20 de diciembre, por el que se aprueba el Reglamento sobre protección de la salud contra los riesgos derivados de la exposición a las radiaciones ionizantes.

Ministerio de la Presidencia, Relaciones con las Cortes y Memoria Democrática
«BOE» núm. 305, de 21 de diciembre de 2022
Referencia: BOE-A-2022-21682

- Title VII. Chapter 3 on Radon Protection; Art. 19.2–3

Occupational Measures

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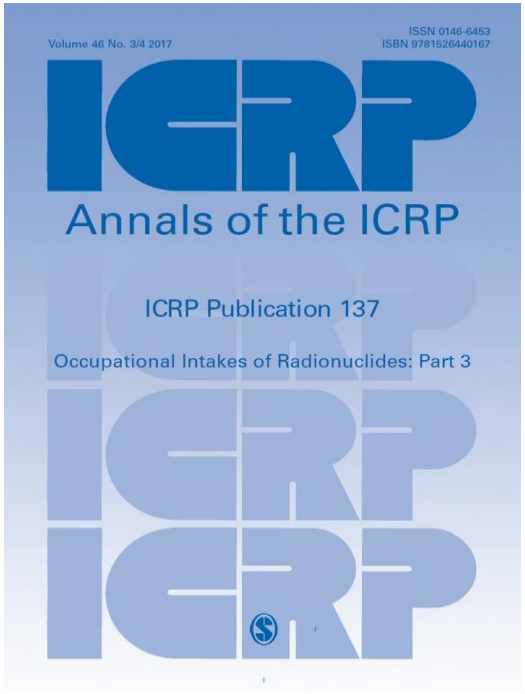
Dose coefficients

For inhaled Rn-222 + progeny:

- **3 mSv per mJ h m^{-3}** in most circumstances
- **6 mSv per mJ h m^{-3}** for tourist caves, work involving substantial physical activity



- CSN may approve site-specific dose coefficients

Approved by Resolution of CSN Plenary (April, 2024)
Entry into force: April, 2025

2. Occupational Measures

Entry into force: June, 2024

- RADON EXPOSED WORKERS
- DOSE LIMITATION
- RPE OVERSIGHT
- WORKPLACE MONITORING
- PERSONAL DOSE MONITORING
- AREA CLASSIFICATION AND SIGNAGE
- RECORD KEEPING
- INFORMATION & TRAINING

- Worker classification (cat. A/B) not applicable
- For other radiation workers, radon to be accounted for dose limits but not for classification

Radon Area
UNE 73001:2023

2. Occupational Measures

2. Occupational Measures

- CSN – Labour Inspectorate collaboration agreement
- Regional H&S Institutes

- Worker Unions
- Business Associations
- Professional Associations

- Technical Radiation Protection Units
- External Risk Prevention Services
- Universities

2.

Occupational Measures

UNDER NATIONAL RADON ACTION PLAN

- R&I Project (UPC, UAB; CSN funded)

Application of ICRP 137 Part 3 to radon dose assessments in workplaces with non-standard environmental conditions

Adequation of INTE-UPC radon chamber for calibration of radon progeny measuring equipment

2. Occupational Measures

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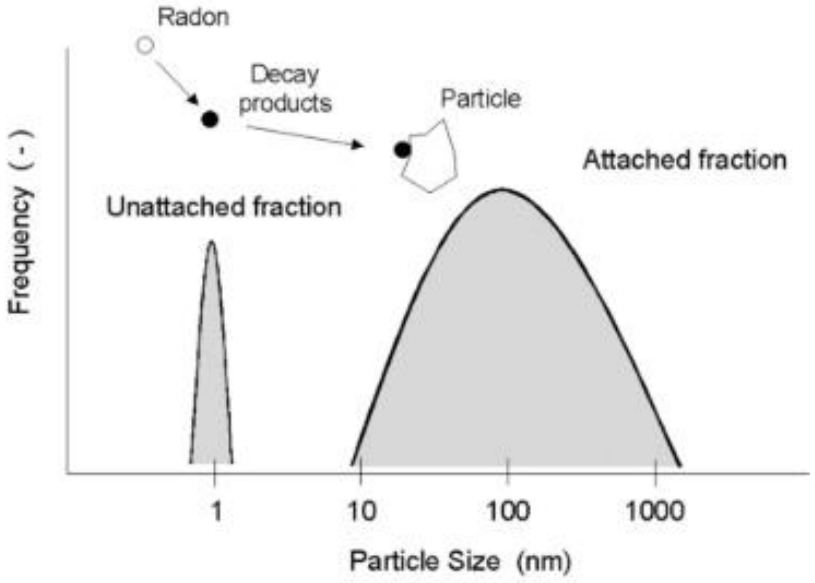
Respirator Mask				
	USA: NIOSH (42 CFR 84) China: GB2626	N95 / KN95	N99 / KN99	N100 / KN100
		0.3 Microns: ≥95%	0.3 Microns ≥99%	0.3 Microns ≥99.97%
	Europe: EN 149:2001	FFP1	FFP2	FFP3
		0.3 Microns: ≥80%	0.3 Microns: ≥94%	0.3 Microns: 99%



Filtration performance

FFP2/3: Filters on average more than 90% of the most difficult particles size to capture (0.3 microns) at relatively high airflow rates. This category of mask is considered to be one of the most effective on the market

3.

Personal radon doses

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6.2 Dosimetry Services

"In cases, where the exposure of workers is liable to exceed an effective dose of 6 mSv per year, the exposure of workers needs to be assessed individually, for example **through individual monitoring**. **Only recognized dosimetry services or recognized radiation protection experts shall carry out this individual dose assessment".**

3.

Personal radon doses

Short HERCA WG-NAT e-mail survey (2023)

Countries with authorized/recognized RPD Services:

- **UK**: One radon personal dosimetry service (UKHSA) approved by the regulator – passive dosimeters
- **France:** Article R.4451-65 of the Labour Code: *"Individual dosimetric monitoring related to [...] exposure to radon is carried out by means of suitable delayed-reading dosimeters [...] The supply of dosimeters, their operation and digital modelling are ensured by an accredited dosimetry body".* One organization accredited for personal radon dosimetry – active dosimeters (Algade Instrumentation).
- **Czech Republic:** SÚJCHBO has authorized their own personal dosimeter (Radonis) as well as Algade personal dosimeter OD-88.

Thank you for your attention!

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