

# Radon in the Swiss

**s i a 180**

**standard**

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# Content

- What is SIA ?
- SIA documents
- Role of the SIA standards
- Radon in the SIA 180 standard
- Consequences

# What is **sia** ?

**S**ociété des **I**ngénieurs et **A**rchitectes suisses

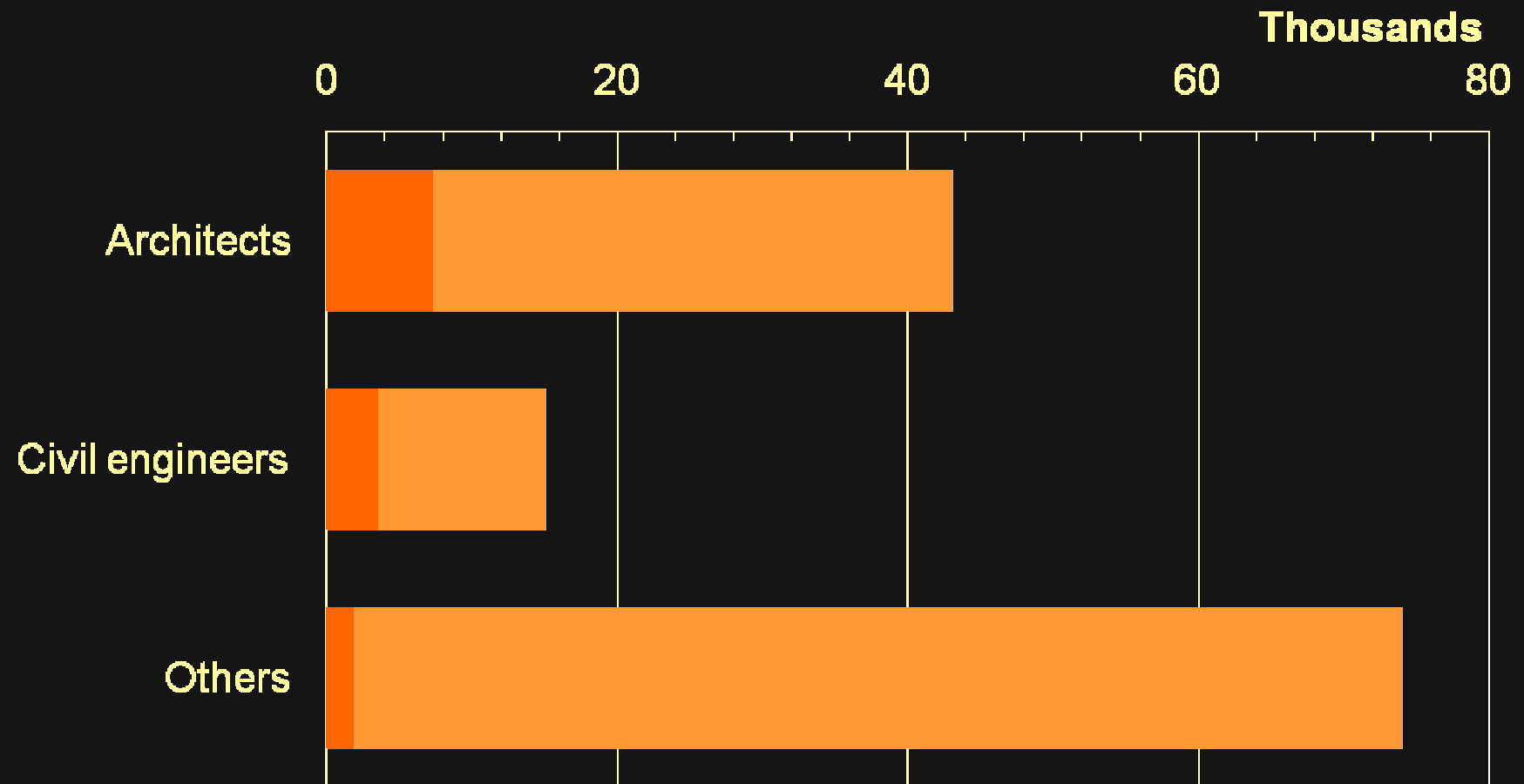
Swiss society of engineers and architects

- Funded in 1837
- Drafts and publish standards on buildings
- 15000 members
- 107 standardising committees
- 4 professional groups
- 18 local sections

# SIA publications

- 62 rules and directives
  - Contracting rules
- 136 standards
  - Design and building rules and methods, specifications, testing procedures, calculations methods, etc.
- 49 Technical reports
  - Pre-standards

# SIA members



# Role of SIA standardes

- Design and control tools
- Summary of the state of the art
- Used in court as reference

# The SIA 180 standard

Thermal protection, protection against moisture and indoor climate in buildings

1970, revised in 1988, 1999 et 2014

## Objectives

Thermal comfort in hot and cold seasons

Avoid health risks

Avoid damages to the building

# SIA 180 - Content

Application domain

Terminology

Thermal comfort

Indoor air quality

Thermal protection in winter

Thermal protection in summer

Protection against moisture



# Radon in SIA 180

- Considered contaminants are moisture, radon, CO<sub>2</sub> and odours.
- The concentration shall be below legal limits
- Rn as low as possible but not more than 300 Bq/m<sup>3</sup>
- The tightness of envelope parts against ground shall avoid Rn ingress in building
- Same for walls between occupied and underground spaces.
- Preventive measures in new buildings
- Rn concentration decrease obtained by reducing infiltration and pressure control

# Radon in SIA 180

## Required measures and controls

At design level

- Looking at measures against radon ingress .
- Tightness against the ground and possible under deck drainage
- Measurement of Rn concentration before renovation

When built

- Optional envelope air tightness measurement
- Mandatory Rn concentration measurement if the building is ventilated through underground ducts and in spaces in direct contact with the ground..

# Ventilation concept

- Defined at early design phase
- Choice between:
  - Natural ventilation (automatic or manual),
  - Simple mechanical extraction with inlet grilles
  - Double flow mechanical ventilation.
- Continuous airing by open windows is not allowed

# What should happen in the future?

- Air- and gas tightness of walls and decks against the ground and spaces in contact with the ground is reinforced
- Preventive drainage is recommended
- Rn measurement before renovation are part of the state of the art
- Ventilation of occupied spaces is part of the design