

Radon in the Swiss

S i a 180

standard

Claude-Alain Roulet

Chairman of the SIA 180 drafting committee

Content

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

What is **sia** ?

Société des **I**ngénieurs et **A**rchitectes suisses

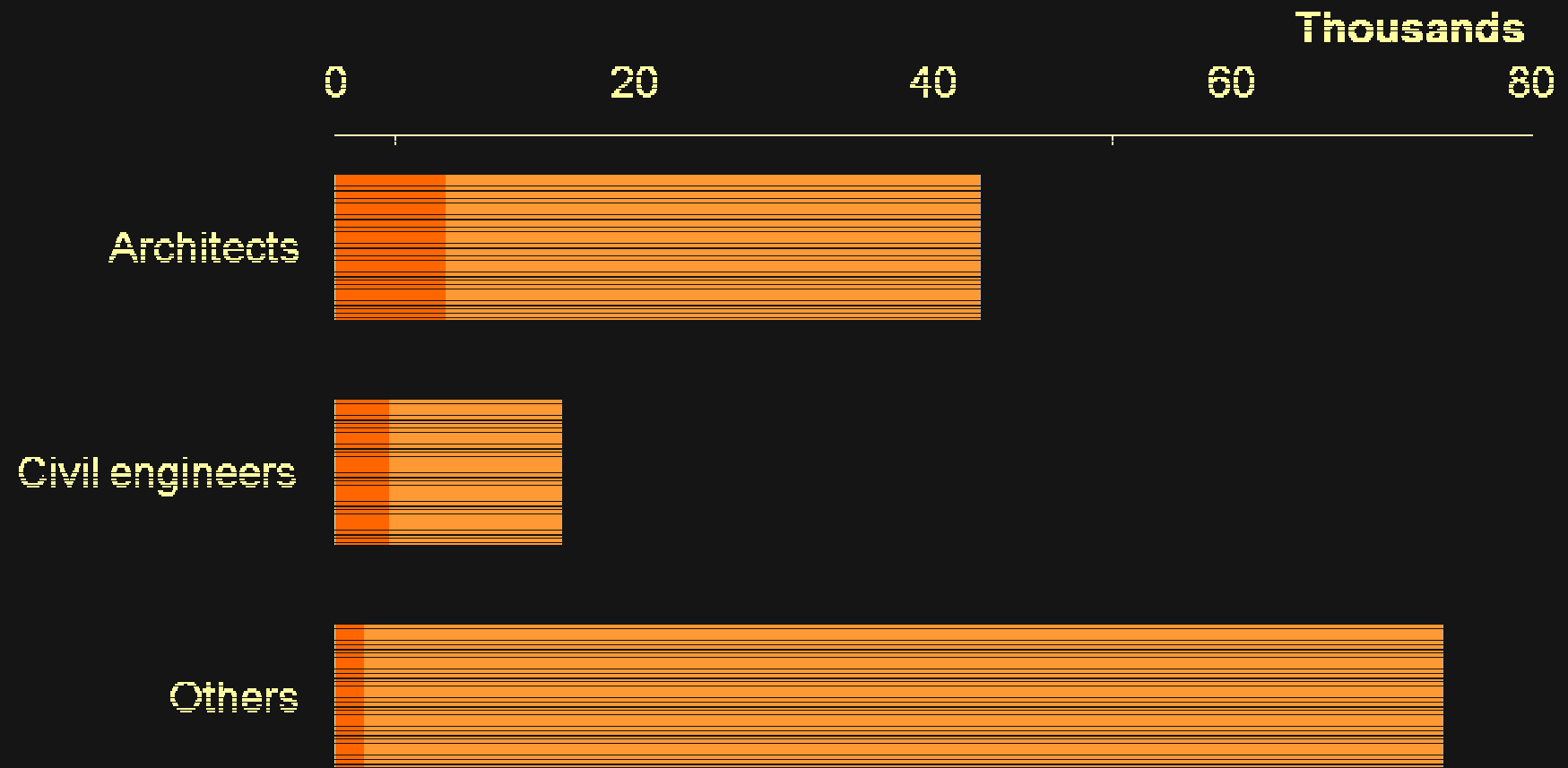
Swiss society of engineers and architects

- 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 standards

- 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, CO₂ and odours.
- The concentration shall be below legal limits
- Rn as low as possible but not more than 300 Bq/m³
- 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