AIVC International Workshop

Quality of ventilation systems in residential buildings in France

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Ventilation systems in France

French market – existing buildings

- No system: 34.20%
- Local mechanical ventilation (room by room): 21.20%
- Centralised mechanical ventilation system: 7.20%
- Natural ventilation: 37.40%

Source: Arch association
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**Sales 2012 - Individual mechanical ventilation units**

- Self adjusting exhaust ventilation system: 37,000 units (5%)
- DCV based on humidity: 230,000 units (30%)
- Balanced ventilation system with heat recovery: 508,000 units (65%)

*Source: Uniclima*

Ventilation systems in France

**Sales 2012 – Collective and non residential mechanical ventilation units**

- Single flow mechanical systems (exhaust or supply): 11,000 units (10%)
- Balanced mechanical systems: 97,000 units (90%)

*Source: Uniclima*
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*French Regulation*

- **Ventilation for residential buildings:**
  - *Bylaw 24th of March 1982 modified in 1983*
    - Air inlets in bedrooms or livingrooms and air outlets in technical rooms
    - Minimum exhaust air volume flows for each technical room
    - For DCV with basic lower air flows: Technical Assessment
  - *Bylaw 22th of October 1969*
    - Ventilation system (natural or mechanical) : with air inlets in bedrooms and living rooms and air outlets connected to ducts in technical rooms
  - **Existing building before 1969 : no regulation**

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*French Regulation*

- **Specific installations for ventilation and combustion products extraction:**
  - Require: Commissioning and maintenance each year
  - **Acoustic : Bylaw 1999**
    - Defines acoustic level by room (35 dB(A))
    - Limits noise of ventilation systems
    - Limits noise transmitted from one dwelling to another
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French Regulation

• Energy Performance
  • New buildings
    • RT 2012: hourly calculation of energy consumption of building and its equipment; based on average electric power consumption, fresh air volume flows, heat recovery efficiency, envelope air tightness
    • Voluntary Labels: + commissioning and test of ductwork airtightness
  • Existing buildings
    • RT « existant »: high renovation program = energy consumption calculation
    • RT « élément par élément » = install air inlets when improving building envelope or windows

Unifed technical rules

• DTU 68.1 & 68.2
  • Under revision → NF DTU 68.3
  • Guidelines for design, installation, commissioning, maintenance
  • Residential mechanical ventilation system only

Certification programs

• NF VMC: self adjusting system, air inlets, air outlets, units - single and balanced flows
• CSTBat: for DCV units, air inlets, air outlets
• Eurovent certification: AHU, heat recovery
Ventilation systems in France

Who’s concerned?

- Designers
- Technical engineers
- Economists
- Government services
- Technical centers
- Standardization

Fonctional

- Systems
- Products
- Components

Consulting

- Maintenance
- Duct cleaning
- Diagnostics
- Inspections
- Trainings
- Energy producers
- Insurance

Operational

- Cooling
- Electricity
- Heating
- Openings
- Plasterers
- Masons
- Roofers

Distribution

- Specialists
- Electricians
- Heating
- Material

Decision

- Public or private promotion

End users
- Do It Yourself Stores

Client

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Voluntary measures to improve installation

- Technical program called «RAGE»
  - To improve competitiveness of installers for energy performance of existing buildings
  - Creates technical supports (training and commun rules) on construction products and HVAC equipments

- 6 recommendations on Ventilation Installation
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Voluntary measures to improve installation

• Products performances display recommendation by Uniclima:
  • For users to compare products
  • List of minimum characteristics and their definitions on communication media (website, package …)
  • 19 products covered for residential and non residential equipements

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Voluntary measures to improve installation

• Technical Guides
  • Ductwork airtightness, Air flowrates measurments, systems, design …
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**Voluntary measures to improve installation**

- Uniclima process in creating:
  - Specific training on ventilation
  - (1 day)
  - Technical guide: 14 technical recommendations to install mechanical ventilation systems

**Conclusion**

- Today:
  - Ventilation regulation for new buildings
  - Performance of equipments - Labelling
  - Voluntary process to improve the quality of installation
  - No inspection required
  - No specific training or qualification for installers
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**Conclusion**

- Tomorrow:
  - Higher performance of equipments with ERP and Labelling regulations
  - Opportunity with next EPBD recast to require inspection on ventilation installation

New trends: multifunctions systems, ventilation combined with heating, cooling, hot water, ... new responsabilities for installers

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**Quality of ventilation installation**

Thank you!

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