

## AIVC & TightVent Webinar

### Inspection of ventilation systems in new regulation in Germany

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#### EPBD (2010/31/EU)

EnEV  
(Energieeinsparverordnung)

Nov. 1st, 2020



GEG  
(Gebäudeenergiegesetz,  
Building Energy Act)  
GEG: Part 4, Chapter 3  
§§ 74-78

§12 EnEV: Inspection of  
air conditioning systems

#### § 74: Responsibility of the operator - Which systems are affected?

- All air conditioning systems (e.g. split systems/multi-split/VRV-systems) & combined air conditioning and ventilation systems **with cooling capacity of > 12 kW and operation duration of more than 10 years** (in residential buildings and non-residential buildings)
- Periodic inspection every 10 years (exception if main components, e.g. fan, compressor or heat exchanger were replaced → **§ 76 (moment of inspection)**)
- **New in GEG:** Systems with **cooling capacity > 70 kW** must be inspected according to inspection standard **DIN SPEC 15240:2019-03 (part of German Annex of DIN EN 16798-17) !!**
- Random inspections are permitted for **> 10 similar systems with 10-70 kW cooling capacity in comparable buildings**

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## Inspection of ventilation systems in new regulation in Germany

### Exemptions from inspection obligation

- Air conditioning or combined air conditioning and ventilation systems which are installed in **non-residential** buildings with a multi-functional system for building automation and control systems for energy use (energy management systems) → no specific definition on a basis of technical standards (e.g. DIN EN 15232-1, VDI 3814, ISO 50001 etc.) in GEG, but guideline GEFMA 124-5 (07-2021) and Supplement 1 to DIN SPEC 15240 (09-2021) give advices
- Air conditioning or combined air conditioning and ventilation systems which are installed in **residential** buildings with a effective control and regulations system for the energy efficiency of all building systems with automatic information functions for the owner → no specific definition on a basis of technical standards (e.g. DIN EN 15232-1, VDI 3814, ISO 50001 etc.)
- Systems for process cooling only (industry, freezing rooms, server cooling)
- **GEG § 5 principle of profitability** (the invest for expenses must be achieved during expectable life time of components)

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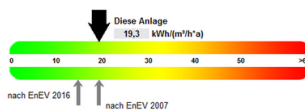


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## Inspection of ventilation systems in new regulation in Germany

### § 75: Procedure and range of the inspection

- Technical inspection of the systems on site (measurement of air volume flows, operating performance of the fans, evaluation of room air flows, insulation, defects, hygienic aspects, cold water hydraulics, end devices, etc.)
- Assessment of the control or BMS (actual and target values temperatures, air quality values, humidity, operating times, switching thresholds, etc., trend evaluations BMS)
- Evaluation of component efficiency with determination of efficiency parameters (ERLT, EKK, EER, energy efficiency classes A-F), cooling load calculation and comparison, Documentation and summary of the results + proposals for measures to increase plant efficiency in inspection report with evaluation of cost efficiency or profitability assessment



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## Inspection of ventilation systems in new regulation in Germany

### § 77: Knowledge of the inspection staff

- All inspection staff must have a specific technical knowledge
  - Persons with university degree in HVAC with at least 1 year experience of work
  - Persons with university degree in Mechanical-, building, electrical or other technical Engineering with major in HVAC with at least 3 years experience of work
  - Persons which own a HVAC company / master craftsman
  - Persons with technical degree in HVAC
  - Persons with an equal education from any member of the EU, contractual state of the European Economic Area or Switzerland
- 2-day-seminars for inspections staff available, organized by associations e.g. FGK e.V., BTGA e.V.

## Inspection of ventilation systems in new regulation in Germany

### § 78: Inspection report and registration

- The inspectors have to write an report about the results and have to give cost efficient advices to improve the energy efficiency of the inspected system.
- The inspection report has to be signed by the inspector and send out to the operator / customer.
- The inspection report must be registered at **Deutsches Institut für Bautechnik (DIBt)**, a technical authority. DIBt fulfils numerous public tasks in the field of construction on behalf of the 16 federal states and the Federation.
- The Inspector has to hand out the inspection report to one of the federal authorities, which is responsible for the execution of the GEG.

## Inspection of ventilation systems in new regulation in Germany

### Current situation / Problems



- 250.000 to 420.000 ventilation systems > 12 kW
- 150.000 chillers with 272 kW average cooling capacity in existing non-res.-buildings by 2018

according to study of Schiller engineering, ILK Dresden, 2013, CCI 2018

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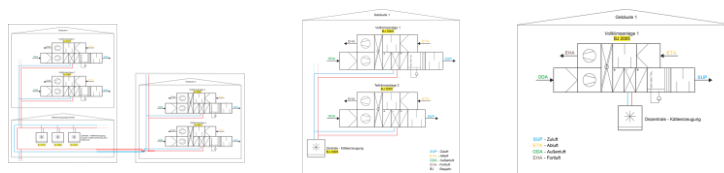
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## Inspection of ventilation systems in new regulation in Germany

### Current situation / Problems

- Only the inspection reports have to be registered, there's no register of air conditioning / ventilations systems which have to be inspected according GEG
- No communication of the results after checking of the quality of the inspection report by the federal authority to the inspector or operator – just for statistic purposes
- The implementation of inspection results is voluntary – no mandatory measure for the operator, but funding programs for EE are available for residential and non-residential buildings
- Sometimes problems with the correct identification & number of reports/registration numbers of systems due to different years of construction, renovation, type of ventilation etc. → GEFMA 124-5



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**Thank you for your attention!**

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