

**Investigation of the ventilation and air conditioning system (VAC) –
Questionnaire S3**

Information regarding the ventilation and air conditioning (VAC) system		Questionnaire S3A
<p>Dear respondent,</p> <p>VAC systems can be contributing factors in problems in indoor workplaces. This questionnaire is intended to help narrow down the causes of any health complaints. If there are several VAC systems in the building, it is sufficient to assess the system to which the workrooms concerned are connected. Please provide as much detail as possible.</p>		
Place of work (name, address):		
Department:		
Questionnaire completed by:		Date completed:
1	In which year was the VAC system installed or expanded?	
2	Which company manufactured the system/the components concerned?	
3	Which rooms are connected to the VAC system?	
	<input type="checkbox"/> Entire building <input type="checkbox"/> Room name or number	
4	What desired values has the system manufacturer specified for the VAC system?	
	Air flow rate: m ³ /h	Supply air temperature: °C
	Relative humidity of the supply air: %	
5	Have the VAC system's values been measured?	
	<input type="checkbox"/> No <input type="checkbox"/> Yes, on (date)	
	Please give the results measured for each of the following:	
	<input type="checkbox"/> Air flow rate: m ³ /h	
	<input type="checkbox"/> Air replacement rate: /h	
	<input type="checkbox"/> Supply air temperature: °C	
	<input type="checkbox"/> Relative humidity of the supply air: %	
	<input type="checkbox"/> Other (please specify)	

6 Can the inner walls of the ventilation ducts be inspected through special openings for this purpose?

No

Yes

Partially

The inner walls of the ventilation ducts are

visually clean,

covered in a thin layer of dust or

covered in a thick layer of dust.

7 General information concerning the VAC system

7.1 Is the system an extract system, i.e. the supply air is not fed in mechanically?

No

Yes (Please continue to question 12)

7.2 How is the VAC system operated?

Using outdoor air (ODA), i.e. the supply air is 100% outdoor air.

Using mixed air (MIA), with % being recirculation air.

7.3 Which other functions does the VAC system have?

Heating (H)

Cooling (C)

Humidification (Hum) Dehumidification (DHum)

7.4 For air conditioning systems (H/C/Hum/DHum) only: what type of air conditioning system is it?

Single duct

Twin duct

Induction

Fan convector

Other (please specify)

8 Information concerning the air filters

8.1 How many filter stages does the system have?

- None One
 Two More than two

8.2 What class of filter is used?
(See Table 3 on page 25 in the "Recommended procedure" document for help).

- Coarse filter, class (G/EU 1-4)
 Fine filter, class (F/EU 5-9)
 Highly efficient particulate air (HEPA) filter, class (H/E 10-12)
 Other filter (please specify)

8.3 Where is the filter located inside the VAC system?

- In the outdoor air (ODA) intake
 In the central air conditioning facility
 In the extract duct
 Other (please specify)

8.4 Is the filter replaced regularly and a record kept?

- No Yes
 Regularly, every months
 Irregularly; last replaced on ...

9 Information concerning the supply air outlets

9.1 Where are the supply air outlets (e.g. in the form of louvre grills or swirl diffusers) located?

- On the wall, in the form of
 On the ceiling, in the form of
 In the form of a ventilated ceiling
 Other (please specify)

9.2 In purely visual terms, what condition are the supply air outlets in?

- Good
 Visible dust deposits

10 Information concerning humidification

10.1 Does the VAC system have a humidifier unit?

No

Yes

Please use questionnaire S3C to provide more detail.

10.2 Was it possible to look inside the humidifier unit?

No

Yes

10.3 In purely visual terms, what condition is the humidifier unit in?

OK

There is corrosion

There is biofilm and/or mould

There are other deposits

10.4 Is a mist eliminator installed behind the humidifier unit?

No

Yes

10.5 In purely visual terms, what condition is the mist eliminator in?

OK

There is corrosion

There is biofilm and/or mould

There are other deposits

11 Does the VAC system have any other special units (e.g. UV radiation)?

No

Yes (please specify)

12 Information concerning the operation and servicing of the VAC system

12.1 How is the system controlled?

- Centrally By area By room

12.2 Is the system operated and serviced in accordance with VDI 6022, Part 1, "Hygiene requirements for ventilation and air conditioning systems and units"?

- No Yes

12.3 Is the system regularly maintained?

- No Yes

12.4 Has an external service provider been awarded the maintenance contract?

- No Yes (please specify)

12.5 Have the employees responsible for maintaining and servicing the VAC system been given hygiene training as specified in VDI 6022, Part 4?

- No Yes (please specify)
- Category A
 - Category B
 - Category C
 - Category RLQ
 - Other (please specify)

13 Is the sound pressure level emitted by the VAC system lower than the guide values?
(Open-plan office: 45 dB(A), small office: 40 dB(A), conference room: 35 dB(A))

- No Yes

14 Is the supply air velocity at the specific workplace concerned lower than 0.15 m/s?

- No Yes

15 Who is the contact person at the workplace for questions concerning the VAC system?

Name:

Tel. no.:

Dear respondent,

Use of humidifiers can be a contributing factor in problems in indoor workplaces. If there are differences between the humidification in different workrooms, this questionnaire should be completed separately for each workroom. This questionnaire is intended to help narrow down the causes of any health complaints. Please provide as much detail as possible.

Place of work (name, address):

Department:

Specific workplace:

Questionnaire completed by:

Date completed:

1 Please specify the type of humidifier and its year of manufacture.

Type:

Year of manufacture:

2 Which company manufactured the humidifier?

3 Is the humidifier built into the VAC system or is it a separate unit?

Built into the VAC system

Separate unit(s)

Humidity is controlled: Centrally

Locally

Relative humidity:

Desired value:

Actual value:

4 What system does the humidifier use?

Open

Closed

Duct installation

Room installation

With recirculating water

Without recirculating water

Falling film humidifier or hybrid humidifier

Steam (secondary or pressurised steam)

High-pressure atomisation

Single-fluid nozzles

Dual-fluid nozzles

Mechanical atomisation

Ultrasonic atomisation

Evaporation

5 Is the humidifier operated in such a way that no condensate is created on the walls?

No

Yes

6 If air humidifiers are installed within the room: Have their position been chosen so that no disturbing cold cones (cold zones) are created (effect of adiabatic cooling)?

No

Yes

7 What other systems and methods are used?

- Mist eliminator
- Filter
 - Behind humidifier
 - In front of humidifier
- Water softener
- Purging (automatic)
- Blow-down (automatic)
- Disinfection methods
 - UV
 - Ozone decomposition catalyst
 - Biocide
 - Other (please specify)

8 For humidifiers with recirculating water: Can the water tank be completely emptied?

- Yes
- No

9 How hygienic does the humidifier look?

- No visible contamination
- Looks contaminated (cloudy water/biofilm)
- No corrosion
- Visible corrosion

10 Is the guide value of 1,000 CFU/ml for humidifier water adhered to?

- No
- Yes, last checked on

11 Is the humidifier maintained?

- No
- Yes (Please provide any documentation available)
 - Regularly, every
 - There is a maintenance contract
 - Irregularly, last performed before

12 Are hygiene inspections carried out by trained specialist staff?

- No
- Yes
 - Regularly, every
 - Irregularly, last performed before

Dear respondent,

Use of heating systems can be a contributing factor in problems in indoor workplaces. This questionnaire is intended to help narrow down the causes of any health complaints. If there are differences between the heating in different workrooms, this questionnaire should be completed separately for each workroom. Please provide as much detail as possible.

Place of work (name, address):

Department:

Specific workplace:

Questionnaire completed by:

Date completed:

1 In what year was the heating system built?

2 Which company manufactured the heating system?

3 Is the building equipped with central heating?

- No
- Yes, in the form of
 - Radiators
 - Ceiling heating
 - Wall heating
 - Underfloor heating
 - Combination of

4 Are there space heating systems in the workroom concerned?

- No
- Yes, in the form of
 - Electric fan heaters
 - Electric radiators
 - Electric radiant heaters
 - Gas-fired radiant heaters
 - Other, please specify

5 Have special types of heating system been used?

- No
- Yes, in the form of
 - Gas room heaters connected to a chimney
 - Gas room heaters connected to an outlet in an exterior wall

6 Are any other types of heating system used?

- No
- Yes (please specify)