

# Recommendations by the Quality Task Group (61): Requirements for Construction or Conversion of a Hospital Central Sterile Supply Department Part 4 – Room Ventilation Systems in the CSSD

In Part 4 of the recommendations on the topic of "Requirements for Construction or Conversion of a Hospital Central Sterile Supply Department" we will discuss the room ventilations system in a CSSD.

In Germany, this is regulated by the following:

- DIN 1946-4 Room ventilation systems in buildings and premises of the healthcare sector (December 2008)
- VDI 2167 Technical Equipment of Hospital Buildings, Heating and Air Conditioning Systems (VDI ventilation regulations) (August 2007)
- VDI 6022 Hygiene requirements for room ventilation systems and equipment (April 2006)
- Workplace Regulation (ArbStättV) (status: 18.12.2008)

As already pointed out in Part 3 of this series of recommendations on the requirements for construction and conversion of a hospital CSSD, → **COOPERATION** between all parties is of paramount importance. An agreement must be reached between proprietor/operator, CSSD management, infection control team, engineering department architect/medical engineering specialists and the competent authorities

An explanation must be given to explain any failure to observe the pertinent standards and directives.

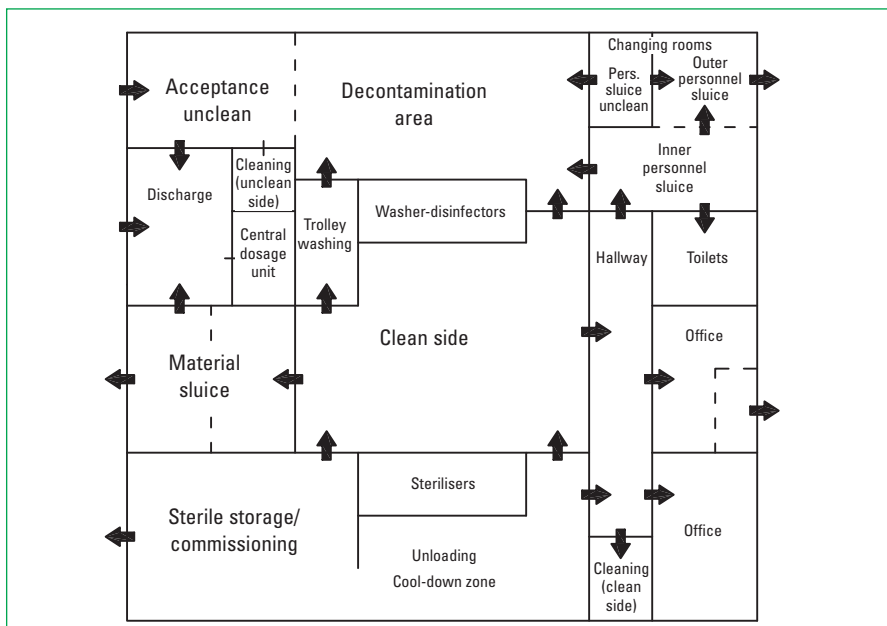
The following ventilation pressure-stages schema (Figure 1) must be observed when formulating a ventilation concept.

A mechanically operated → **AIR-SUPPLY AND AIR-REMOVAL SYSTEM** is needed for the CSSD (DIN 1946-4; 5.4). This standard classifies the CSSD as Class 2 premises. For Class 2 premises, a two-stage filtering system is specified. In VDI 2167, Table 1 of Section 5.5. specifies protective measures for the sterile supplies warehouse, while Annex A gives information on how thermal loads are to be eliminated as well as on the filter stages.

**Legal basis**

→ **COOPERATION** between all parties is of paramount importance.

→ **AN AIR-SUPPLY AND AIR-REMOVAL SYSTEM** is needed for the CSSD.



**Figure 1:** Ventilation pressure stages schema of a CSSD

An air conditioning system is one particular type of room ventilation system where the air undergoes a special type of treatment (control of humidity and temperature), this can also be used in the CSSD instead of the air-supply and air-removal system.

The → **PROCESS EXHAUST** air emitted by equipment must be eliminated using a special method so as to comply with the physiological conditions prescribed in the workplace and to prevent humidity-associated microbial propagation, for example:

- Steam purification equipment
- Manual reprocessing
- Ultrasonic equipment
- Washer-disinfectors
- Drying cabinet
- Sterilisers (FO/EO)

An exhaust must be fitted at the top of large equipment, see VDI 2167 Annex A, A 11

- To reduce heat-mediated environmental pollution
- And assure operating safety of all equipment.

**Objectives:**

- Assurance of process quality (pressure stages)
- Assurance of workplace physiological conditions
  - Removal of thermal loads
  - Removal of moisture
  - Removal of hazardous substances
  - Consideration of number of persons present
  - Consideration of heat sources
  - Consideration of emission sources
  - Fresh air supply
- Reduction of microbiological contamination

**Planning:**

- Observance of all pertinent regulations
- List of standards regulating planning
- The room air ventilation system, taking account of:
  - Space needed
  - Working procedures
  - Number of employees
  - Fittings/equipment
- Contractually binding assignment of responsibilities for all stages of planning, installation, acceptance, operation, commissioning, inspection, maintenance, see. VDI 6022 4.6
- Acceptance test as per DIN 1946-4
  - Technical acceptance test
  - Hygiene acceptance tests

**Production/Installation:**

- Taking account of the provisions of VDI 6022, Section 4 (hygiene-related aspects of delivery, installation and the environment)

**Operation of air-supply and air-removal system**

- As specified by QM, cleaning, maintenance and repeat technical and hygiene-related → **TESTS** and their documentation, see VDI 6022 Section 5.
- The ventilation system must be operated as prescribed in the standard.
- Its operation must be documented see VDI 6022 5.1
- Cleaning intervals and methods for the inlet and outlet grids must be specified.

**Elevator:**

- If elevators (lifts) are to be installed, they must be included in the pressure-stages concept.
- Inspection taking account of fire-protection must be conducted
- The external surfaces of elevators must be amendable to disinfection.

**Gas sterilisers using ethylene oxide gas or formaldehyde gas:**

- Pursuant to the regulations governing hazardous substances (TRGS 513), air-exchange requirements must be observed. ◆

→ **THE PROCESS EXHAUST** emitted by equipment must be eliminated..

**Objectives of room ventilation system**

**Observe room ventilation concept at planning stage**

**Operation of room ventilation system**

→ **INSPECTIONS AND TESTS** must be specified by the operator.

**Elevator**

**Gas sterilisers**