

## Overview

This standard is for people who install industrial and commercial heating and ventilating ductwork systems.

The person performing this work must be able to comply with the correct procedures and practices for installing industrial and commercial heating and ventilating ductwork systems. This work must be in accordance with the current versions of the appropriate industry standards and regulations; the specification; industry recognised working practices; the working environment and the natural environment. They must know and understand the methods, procedures and techniques for fitting, fixing, hanging and connecting components and accessories, and the ductwork requirements of the following systems:

- supply, extract and re-circulation
- local exhaust ventilation
- low, medium and high-pressure air
- kitchen extract
- fire protection

## Performance criteria

### *You must be able to:*

1. verify that the job information and documentation are current and relevant and that the plant, instruments, access equipment and tools are fit for purpose
2. confirm that the site services are compatible with the system's design
3. produce a risk assessment and method statement in accordance with organisational procedures for the work to be carried out, including the identification and use of personal protective equipment
4. confirm before work starts that the work location and work area can be accessed safely and has been checked for the risk to other personnel on the site, and take appropriate action if a risk is present
5. select the equipment, components and accessories to be installed ensuring they are:
  - of the right type and size
  - fit-for-purpose
  - in accordance with the system's design
  - suitable for the working environment in which they are to be installed
6. determine at the outset, that the plans for positioning and fixing the equipment, components and accessories are in accordance with:
  - the system's design
  - the working environment
  - manufacturer instructions
7. comply with industry practices and organisational procedures to ensure the co-ordination of site services and the activities of other trades
8. measure and mark out locations for fitting and fixing the selected equipment, components and accessories in accordance with:
  - the system's design
  - manufacturer instructions
9. prepare, fit, fix and connect the selected ductwork and equipment, components and accessories using suitable jointing methods in accordance with:
  - the system's design
  - the working environment

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- manufacturer instructions
10. adjust, as appropriate, safety and control features of the system
  11. carry out cleaning of the system
  12. confirm the integrity of the installed system using appropriate test procedures
  13. confirm with the relevant people:
    - those necessary variations to the planned programme of work
    - the actions to be taken to ensure that any variations to the planned programme of work will minimise the potential for hazard and risk
  14. implement organisational procedures for the safe transport and/or disposal of waste material, in accordance with supplier and manufacturer instructions

## Knowledge and understanding

*You need to know and understand:*

1. the operation, applications, advantages and limitations of different systems
2. the applications, advantages and limitations of system equipment, components and accessories in relation to the working environment
3. the appropriate industry standards and regulations relevant to installing and testing the systems
4. how to verify that job information and documentation is current and relevant and that the plant, instruments, access equipment and tools are fit for purpose
5. how to produce a risk assessment and method statement for the work to be carried out, including the identification and use of personal protective equipment, in accordance with:
  - the system's design
  - the conditions of the working environment
  - organisational procedures
  - activities of other personnel on site
6. the methods for determining the type and size of equipment, components and accessories for the system
7. how to interpret diagrams and drawings of the system to:
  - locate site services
  - identify the planned location of the system's, equipment, components and accessories
8. the organisational procedures for confirming, before work starts, that the work location and work area can be accessed safely and has been checked for the risk to other personnel on the site, and for taking appropriate action if a risk is present
9. the methods, techniques and jointing methods for fitting, fixing and connecting the selected components and accessories in accordance with:
  - the system's design
  - the working environment
  - manufacturer instructions

10. the appropriate test procedures for confirming the system's integrity
11. the methods and techniques for adjusting safety and control features
12. the methods and techniques for cleaning the system
13. the organisational procedures for confirming with the relevant people the appropriate actions to be taken to ensure that any variations to the planned programme of work will not introduce a hazard and have minimum negative impact on the installation work to be undertaken
14. how to implement organisational procedures for the safe transport and/or disposal of any waste material, substances and liquids in accordance with suppliers' and manufacturers' instructions

**Scope/range related  
to performance  
criteria**

**Working Environment (Internal and/or External)**

- commercial
- industrial
  - agricultural
  - horticultural
  - leisure and entertainment
  - residential medical and care facilities
  - public services establishments
  - pre-1919 traditional/historic buildings

**Systems**

- supply, extract and re-circulation
- local exhaust ventilation
- low, medium and high-pressure air
- kitchen extract
- fire protection

**Equipment, components and accessories**

- air handling units
- fans
- dampers
- access doors
- terminal units
- laboratory fume cupboards
- storage cabinets
- ventilation hoods
- filters
- humidifiers
- metal and flexible ductwork
- measuring instruments
- support and fixings
- prefabricated modules

**Organisational Procedures**

- information management
- project management
- risk assessment management
- implementing and monitoring health & safety requirements and issues
- implementing and monitoring issues relating to the natural environment
- customer service
- accident reporting
- emergencies

- communication with relevant people\* \*

### **Plant**

- generators
- transformers for low voltage hand-tools
- lifting equipment
- access equipment\* \*

### **Site**

- new build construction – building or structure
- existing building or structure

### **Relevant people**

- customers/clients
- client representatives
- supervisors
- site/contract manager
- other contractors/trades
- members of the public
- work colleagues

### **Appropriate testing**

- pressure
- system hygiene
- performance

### **Jointing methods**

- flanges
- adhesives

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