

## Overview

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

The person performing this work must be able to comply with the correct procedures and practices for commissioning industrial and commercial heating and ventilating 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 operation, types, and application of the following systems:

### Pipework

- hot water
- hot water heating
- cold water
- chilled water
- compressed air
- fire protection
- steam

and/or

### Ductwork

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

## 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 to be used are fit for purpose
2. 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
3. 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
4. confirm that the equipment, components and accessories installed 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 installed
5. confirm, as required, that the site services are compatible with the system's design
6. carry out checks prior to commissioning to ensure that the equipment, components and accessories have been fitted and connected 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. commission equipment, components and accessories, adjusting the controls to ensure the configuration, safety and effective performance of the system in accordance with:
  - the system's design
  - the working environment
  - manufacturer instructions
  - organisational procedures
9. apply the methods, techniques and procedures used to carry out, as required, appropriate testing to confirm the integrity of the system

---

and its associated equipment, accessories and components

10. 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

11. obtain customer/client acceptance of the commissioned system and its associated equipment, components and accessories in accordance with organisational procedures

12. complete relevant documentation in accordance with organisational procedures

## Knowledge and understanding

*You need to know and understand:*

1. the operation, applications, advantages and limitations of different systems and their associated equipment, components and accessories in relation to:
  - the system's design
  - the working environment
2. the appropriate industry standards and regulations relevant to commissioning industrial and commercial heating and ventilating systems
3. how to verify that job information and documentation is current and relevant and that the plant, instruments, access equipment and tools to be used are fit for purpose
4. 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 and operations on site
5. the checks required to confirm that the equipment, components and accessories have been fitted and connected in accordance with:
  - the system's design
  - the conditions of the working environment
  - manufacturer instructions
6. how to interpret diagrams and drawings of the system to locate site services
7. how to interpret diagrams and drawings of the system to identify the location of the system's associated equipment, components and accessories
8. the methods and techniques for commissioning the system and its associated equipment, components and accessories in accordance with:

- the system's design
- the working environment
- manufacturer instructions
- organisational procedures

9. the methods, techniques and procedures used to carry out, as required, appropriate testing to confirm the integrity of the system and its associated equipment, accessories and components

10. the methods and techniques for commissioning the system and its associated equipment, components and accessories, adjusting the controls to ensure the configuration, safety and effective performance of the system in accordance with:

- the system's design
- the working environment
- manufacturer instructions
- organisational procedures

11. the organisational procedures for:

- confirming with relevant people those necessary variations to the planned programme of work that may have the potential to introduce a hazard and/or impact
- confirming with relevant people the correct actions to be taken to ensure that any variations to the planned programme of work will not introduce a hazard and have minimum impact on the commissioning work to be undertaken
- obtaining customer/client acceptance of the commissioned system and its associated equipment, components and accessories
- completing all relevant documentation

**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

**Site services**

- electricity
- water
- gas
- oil

**Systems**

Industrial and commercial heating and ventilating ductwork

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

Industrial and commercial heating and ventilating pipework

- hot water – open vented/indirect/secondary circulation/instantaneous
- hot water heating (low, medium and high temperature)
- cold water – storage/none storage
- chilled water systems – air conditioning, refrigeration, heat rejection
- warm air
- compressed air
- fire protection
- steam

**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
- fuel-fired boilers (gas; oil; solid fuel)
- water storage vessels
- water heaters
- pumps
- heat emitters and exchangers
- burners
- flues
- cisterns
- refrigeration plant
- air conditioning plant
- calorifiers
- valves (including motorised)
- compressors
- receivers
- filters
- pressure vessels
- sprinkler heads
- traps and strainers
- measuring instruments
- environmental technology equipment
- prefabricated modules

### **Plant**

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

### **Site**

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

### **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

### **Relevant people**

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

### **Appropriate testing**

- pressure
- system hygiene and charging
- performance



---

<b>Developed by</b>	BSE Skills
---------------------	------------

---

<b>Version Number</b>	1
-----------------------	---

---

<b>Date Approved</b>	March 2019
----------------------	------------

---

<b>Indicative Review Date</b>	March 2024
-------------------------------	------------

---

<b>Validity</b>	Current
-----------------	---------

---

<b>Status</b>	Original
---------------	----------

---

<b>Originating Organisation</b>	SummitSkills
---------------------------------	--------------

---

<b>Original URN</b>	SUMHV07
---------------------	---------

---

<b>Relevant Occupations</b>	Heating and Ventilating Engineer
-----------------------------	----------------------------------

---

<b>Suite</b>	Heating and Ventilating
--------------	-------------------------

---

<b>Keywords</b>	Industrial and Commercial Heating and Ventilating Systems; Commission; Commissioning
-----------------	-----------------------------------------------------------------------------------------

---