

Acknowledgements

K1.1 Overview of Codes of Practice and their role in industry
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K1.7 Plumbing and heating systems - Backflow prevention (non-mechanical)
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K1.7 Plumbing and heating systems and K1.8 Components used in plumbing and heating systems - Below ground drainage systems: Principles & combined systems
Image description and acknowledgement
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Stack of PVC canalization pipes
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K1.7 Plumbing and heating systems and K1.8 Components used in plumbing and heating systems - Circulating pumps

Image description and acknowledgement

Circulation pumps
Amixstudio / iStock / Getty Images

K1.7 Plumbing and heating systems, K1.8 Components used in plumbing and heating systems, K1.10 Types of control systems required for plumbing systems and K1.14 Safety devices applicable to heating systems - Control components (Part 1)

Image description and acknowledgement

Radiator regulator
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Radiator thermostat valve
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Central Heating Controller
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Central Heating thermostat control adjustment
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Digital programmable thermostat
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Man turning off thermostat
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Plastic junction box
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K1.7 Plumbing and heating systems, K1.8 Components used in plumbing and heating systems, K1.10 Types of control systems required for plumbing systems and K1.14 Safety devices applicable to heating systems - Control components (Part 2)

Image description and acknowledgement

Phone and digital thermostat
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Solenoid valve
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Circulation pumps
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A Smart Meter display
Patrickistock / iStock / Getty Images

K1.7 Plumbing and heating systems, K1.8 Components used in plumbing and heating systems and K1.11 Appliances supported by plumbing and heating systems - Air source heat pumps & electric boilers

Image description and acknowledgement

Heat pump. Cooling System
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Air to air heat pump for cooling or heating the home
NANCY PAUWELS / iStock / Getty Images

Interior of a building under construction with underfloor heating
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Heating system equipment in a boiler room of modern private house Tetiana Garkusha / iStock / Getty Images
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K1.7 Plumbing and heating systems, K1.8 Components used in plumbing and heating systems and K1.11 Appliances supported by plumbing and heating systems - Boilers

Image description and acknowledgement

Controls of a British Combi Gas Boiler steved_np3 / iStock / Getty Images
Side view of a combi gas boiler control panel Sviatlana Barysevich / iStock / Getty Images
Air to air heat pump for cooling or heating the home NANCY PAUWELS / iStock / Getty Images

K1.16 Scientific principles and concepts to plumbing engineering - Application and properties of liquids

Image description and acknowledgement

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Heat pump outside home
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Illustration of a cooking pot
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Difference between thermometers and conversion chart
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Diagram showing the changing states of matter
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State of matter science experiment solid liquid gas
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Charles's law
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The ph scale
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Limescale on tap
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Burst water pipe
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Researcher holds a test tube with water
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[Water](#) purification
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Mans pours salt into a water softener
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Refractometer
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K1.16 Scientific principles and concepts to plumbing engineering - Corrosion and reasons for breakdown

Image description and acknowledgement

Close-up of rusty metal surface
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Copper background
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Rusty metal pipes
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upvc and cpvc pipe and fittings
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Set of steel or aluminum pipes
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Plumber repairs water supply
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Brown house on a sandy seashore
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K1.16 Scientific principles and concepts to plumbing engineering - Gases and their properties

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K1.20 Electrolyte qualities of materials and the periodic table - Electrolytic corrosion and the electromotive series
Image description and acknowledgement
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New and worn magnesium anode of a water heater or boiler Aleksandr Uglov / iStock / Getty Images
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K1.21 Scientific principles and concepts of heating engineering - Force, pressure, and flow characteristics
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Hands of Plumber with a wrench – wip-studiolublin / iStock / Getty Images
Site engineer on a construction site Image by rawpixel.com / Freepik.com

K1.22 Heating systems and the combustion process - Combustion and incomplete combustion in fuels

Image description and acknowledgement

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K1.24 Ventilation in relation to gas and the combustion process - Gas combustion and ventilation requirements	
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K1.25 Pipework, Fittings and Fixings - Characteristics of different types of pipework

Image description and acknowledgement

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Copper pipes
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Overhead shot of Copper pipes
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Blue pvc pipes
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Red pipe cutter
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Drain pipe
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Sanitary equipment
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K1.19 Types of insulation materials - Install thermal insulation materials

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Thermal bridging
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Person insulating floor
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K1.32 Bending techniques - **Bending techniques: 90° bends in copper pipe to length using machine and spring**

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K1.32 Bending techniques - **Copper pipe bending, offsets and passovers**

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K1.34 Potential impact of installation activities - Potential impacts of installation activities on customer essential services

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Electrician works in a switchboard
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Electrician with a tool in his hands
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Male plumber working with client 1
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Male plumber working with client 2
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Portable toilet
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Male plumber working with client 3
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Electric engine chair
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Male plumber working with client 4
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K1.42 Documentation required for maintenance and verification of maintenance activities - Planned maintenance of non-potable water systems

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Guttering in the rain
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Recycle triangle arrows with water droplet
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K1.42 Documentation required for maintenance and verification of maintenance activities - Planned maintenance of plumbing & heating systems

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Toilet cistern
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Central heating system
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Repairman conducting maintenance check on gas boiler
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