

Page 58 - Underfloor heating

1. Which of these is not correct?
 - A. The maximum floor surface temperature of an underfloor heating system in an occupied area is 35 °C
 - B. The maximum floor surface temperature of an underfloor heating system in an occupied area is 29 °C**
 - C. There are no requirements for a maximum floor surface temperature
 - D. The floor surface temperature is OK as long as the floor heats the room evenly.

2. Which of these BS EN standard numbers is applicable to Underfloor Heating ?
 - A. BS EN 6700
 - B. BS EN 1264**
 - C. BS EN 806
 - D. BS EN 442

3. When laying a wood floor covering on top of an underfloor heating system, which of the following statements is correct?
 - A. The floor surface temperature is not heated to above 27 °C**
 - B. The wood floor must contain a moisture content of less than 20%
 - C. The underfloor heating system flow temperature is not greater than 50 °C
 - D. The pipes are laid at no greater than 300mm between each pipe.

4. Which type of underfloor heating system type out of the list below would you typically install on top of an existing floor?
 - A. Floating floor system.**
 - B. Suspended floor system between joists.
 - C. Traditional 75mm screed floor system
 - D. 50mm thick Anhydrite screed system

5. True or False?

Prior to laying the screed, the insulation layer shall be covered with a protective layer consisting of a polyethylene film of at least 0,15 mm thickness.

True

6. What 3 things from the list below increases the specific thermal output of a warm water underfloor heating system?

- A. UFH Pipes that are spaced closer together
- B. Increasing the flow rate of the UFH circuit.
- C. Increasing the flow temperature to the UFH circuit
- D. Increase the insulation values of the building.

7. True or false?

It is recommended to use pipes with an oxygen-barrier layer in conformity with annex A. Precautions shall be taken to protect the system against corrosion. BS EN 1264

True

8. Which of these statements are correct?

- A. For heating screeds intended for the application of stone or ceramic coverings, joint areas shall not exceed 40 m² with a maximum length of 8 m
- B. For heating screeds intended for the application of stone or ceramic coverings, joint areas shall not exceed 20 m² with a maximum length of 4m
- C. For heating screeds intended for the application of stone or ceramic coverings, joint areas shall not exceed 10 m² with a maximum length of 2 m
- D. For heating screeds intended for the application of stone or ceramic coverings, joint areas shall not exceed 60 m² with a maximum length of 10 m

9. When carrying out a leak test of a warm water underfloor heating system, BS EN1264-4 2009 states that:

- A. Prior to the laying of the screed, the heating circuits shall be checked for leaks by means of a pressure test. The test pressure must be not less than 4 bar, or not greater than 6 bar for standard systems.
- B. Prior to the laying of the screed, the heating circuits shall be checked for leaks by means of a pressure test. The test pressure must be not less than 3 bar, or not greater than 5 bar for standard systems.
- C. Prior to the laying of the screed, the heating circuits shall be checked for leaks by means of a pressure test. The test pressure must be not less than 2 bar, or not greater than 4 bar for standard systems.
- D. System working pressure

Can you find the hidden words?

R	A	D	I	A	T	O	R	X	H	E	R	O	E	S	H
C	H	A	S	C	O	N	V	E	C	T	O	R	D	K	H
O	E	N	U	O	W	F	B	G	N	A	B	Y	E	H	E
L	B	T	T	W	E	L	C	O	I	V	T	S	L	A	A
U	X	B	O	I	L	E	R	M	A	L	A	P	I	P	T
M	P	I	P	E	W	O	R	K	J	O	T	L	P	L	I
N	O	K	R	J	A	N	N	B	O	I	S	A	V	L	N
R	S	V	W	I	R	I	N	G	G	L	O	N	I	E	G
A	D	A	S	M	M	D	Z	O	D	L	M	O	O	N	S
D	I	U	N	D	E	R	F	L	O	O	R	F	L	S	Y
I	D	O	X	H	R	O	O	M	S	H	E	A	W	P	S
A	C	A	T	E	M	F	L	L	N	E	H	D	L	I	T
T	U	L	W	T	I	E	S	Q	U	R	T	A	B	E	E
O	Q	C	O	N	T	R	O	L	S	O	N	W	U	P	M
R	A	B	A	J	I	C	A	K	E	S	M	I	S	T	H
S	I	M	S	S	O	P	D	E	S	I	G	N	E	R	S

Page 62 - Radiators and towel warmer questions

- Before selecting the correct size and output of a radiator for a room, which one of the following is correct?
 - Ask the customer what size of radiator they would prefer.
 - Carry out a full heat loss of the room.
 - Ensure that the radiator size fits the exact width of the window.
 - Correctly size the pipework that will supply heat to the room.

- What answer from the list below is important to consider when designing a radiator system for a heat pump that ensures the heat pump operates at a greater efficiency or COP (Coefficient of Performance)
 - Increase or oversize the radiators to operate at a lower mean water temperature MWT.
 - Decrease the size of the radiator.
 - Only install radiators with an overall width greater than 2000mm.
 - Only install radiators with metallic based paint

3. When commissioning a heating system to ensure the system supplies even heat across all radiators, it is important to?
 - A. Starting with the index circuit radiator, balance each radiator individually by adjusting each radiator lock shield valve until the correct design temperature difference between the flow and return are achieved.
 - B. Adjust all lock shields and TRVs into the fully open position.
 - C. Balance each radiator individually by adjusting each TRV only (Thermostatic mixing valve).
 - D. Starting with the radiator closest to the boiler, balance each radiator individually by adjusting each radiator lock shield valve until the correct design temperature difference between the flow and return are achieved.

4. What could be a typical problem that would cause a radiator to not reach its design temperature?
 - A. Under sized pipework supplying the radiator
 - B. Oversized pipework supplying the radiator
 - C. The radiator is installed without a TRV
 - D. None of the above

5. True or false ?

According to the Domestic Building Services Design Guide, Dwellings with a total floor area of over 150m² should have at least two space heating zones with independent time and temperature control.

True

6. True or False?

All radiators installed in buildings such care homes, schools or hospitals should be low surface temperature radiators to prevent the risk of serious burns.

True

Page 64 - Renewable energy including heat pumps

1. True or False ?

The efficiency of a heat pump is measured by its COP (Coefficient of Performance)

True

2. True or false?

An Air Source heat pump takes its energy from the ground

False

3. Which statement is incorrect?
 - A. Minimising the temperature difference between source and sink, i.e. selecting the warmest possible source and using the lowest possible heat distribution temperatures.
 - B. Avoiding the over or under sizing of the heat pump package.
 - C. Ensuring correct flows of secondary fluid through the source and sink heat exchangers (evaporator and condenser)
 - D. Ensuring an appropriate control strategy and good control for space heating and hot water
 - E. Increase the size of the heat pump 25% greater than the peak heat load to allow for extreme weather conditions.

4. Which component of a heat pump is applicable to the following statement
“accepts heat from the source to boil liquid refrigerant at low temperature in the low pressure region created by suction from the compressor”
 - A. Evaporator
 - B. Compressor
 - C. Condenser
 - D. Expansion valve

5. Before replacing a boiler with a heat pump, from the available list below what must you check?
 - A. Ensure the existing radiators are sized correctly for the design heat load required to allow for lower mean water temperatures
 - B. Calculate the full heat loss of the building
 - C. Ensure that the heating flow and return pipework is sized sufficiently to deliver higher flow rates expected from a heat pump
 - D. All of the above

6. The minimum depth of a ground source heat pump ground loop at any point should not be less than?
 - A. 1m
 - B. 0.6m
 - C. 0.3m
 - D. 1.5m

7. Ground source heat pump ground loops should be laid at least ____m from foundations, the site boundary and other water supply or drainage pipes running parallel.
- A. 2m
 - B. 3m
 - C. 0.5m
 - D. 1m
8. The minimum average depth of the ground loop should not be less than ____ m
- A. 1.2m
 - B. 1.5m
 - C. 1m
 - D. 0.75m
9. What MCS standard applies to the following statement “Requirements for Contractors Undertaking the Supply, Design, Installation, Set to Work, Commissioning and Handover of Microgeneration Heat Pump Systems”
- A. MIS 3005
 - B. MIS 3004
 - C. MIS 3003
 - D. MIS 3002
10. Which part of the Building Regulation applies to the installation of the electrical supply to a heat pump within a domestic property?
- A. Part P
 - B. Part G
 - C. Part J
 - D. Part L

Page 66 - Anagrams

Can you work out what these renewable energy themed anagrams are?

Pale Sorrow

Solar Power

America hues support

Air source heat pumps

Mr Areal Sloth

Solar thermal

Autumn grouch oppressed

Ground source heat pumps

Aberdeen matchwood pin

Combined heat and power

Sit busy Italian

Sustainability

