



## Safe Hot Water Temperature

### Duty of Care

Legislation dictates recommendations and guidelines on health and safety, including safe hot water temperatures. The emphasis is on regulatory and design criteria, with responsibility for meeting such guidelines being that of a suitably appointed responsible person.

The purpose of the responsible person is to ensure safe goods, services and working practices, by carrying out risk assessment to maintain the safety of employees, residents, tenants and members of the public. If a user, employee, etc is injured, the owner/manager (responsible person) can be prosecuted for breach of statutory obligations and failing to fulfil their duty of care.

Two factors which are relevant to safe hot water temperatures are:

### Legionella and Scalding

These two, apparently conflicting factors need to be taken into consideration by designers and installers of hot water systems to be used by vulnerable people such as children and the elderly.

Firstly the temperature of the hot water system needs to be high enough to stop naturally occurring Legionella multiplying to a level that will cause health problems. Secondly, the NHS Estates specification recommends the

maximum outlet temperatures for appliances to prevent scalding. These two factors mean that temperature control must be exercised throughout the system and at point of use.

### How water temperatures affect Legionella

|              |                                    |
|--------------|------------------------------------|
| 70°C to 80°C | Disinfection range                 |
| 66°C         | Legionella die within 2 minutes    |
| 60°C         | Legionella die within 3 minutes    |
| 55°C         | Legionella die within 5 to 6 hours |
| 20°C to 45°C | Legionella multiply                |
| 20°C & below | Legionella are dormant             |

### How water temperatures affect the skin

|      |  |
|------|--|
| 65°C | a partial thickness burn in about 2 seconds  |
| 60°C | a partial thickness burn in about 5 seconds  |
| 55°C | a partial thickness burn in about 15 seconds |
| 50°C | a partial thickness burn in about 90 seconds |

As water must be stored hot enough to eliminate legionella, yet be cool enough to prevent scalding, point of use thermostatic mixing valves are one solution to the problem. (Please see previous databyte entitled *Preventing Domestic Hot Water Scalding*).

### Maximum outlet Temperature requirements

|                 |      |
|-----------------|------|
| Bidet           | 38°C |
| Shower          | 41°C |
| Washbasin       | 41°C |
| Bath            | 44°C |
| Supervised Bath | 46°C |

### Please Note

HSE Document L8 states that water supply to the outlet should be at least 50°C within 1 minute after fully opening the outlet. However, Water Regulations guidance states that the required flow of water should reach the terminal fittings to sanitary and other appliances at a temperature of not less than 50°C within 30 seconds after fully opening the tap. However, realistically this criteria may not be achievable where hot water is provided by instantaneous water heaters or combination boilers.

### Further sources of information include

HS (G) 70  
NHS: Estates Health Guidance Note  
NHS: Specification D 08  
NHS: Memorandum 2040

*The Institute of Plumbing & Heating Engineering cannot accept responsibility for any errors or omissions contained in this information.*

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