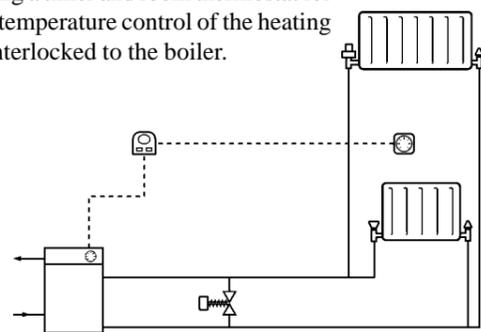
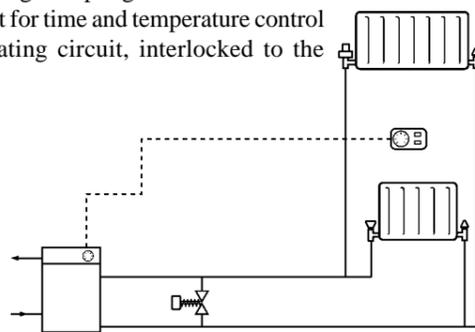


## Control systems for installations incorporating a Combination boiler

Comprising a timer and room thermostat for time and temperature control of the heating circuit, interlocked to the boiler.



Comprising a programmable room thermostat for time and temperature control of the heating circuit, interlocked to the boiler.



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### A Combination boiler with TRV's only does not comply

For further information on the revised Building Regulations contact TACMA on [www.heatingcontrols.org.uk](http://www.heatingcontrols.org.uk) or email: [BRegs@beama.org.uk](mailto:BRegs@beama.org.uk)



OFFICE OF THE  
DEPUTY PRIME MINISTER

### WARNING

The Building Regulations  
now apply every time  
you change a  
boiler or a  
hot water  
vessel



Energy Efficiency recommends the use of these controls when used in conjunction with the Government Good Practice Guide 302.

The control systems detailed in this guide meet the requirements of the Building Regulations in England, Wales and Scotland that came into effect in 2002 concerning the control of gas and oil fired hot water central heating installations. The guidance and example system designs provide the best advice on how to meet the Building Regulations for both new and existing dwellings with confidence. Other system designs could be used but designers and installers would need to show that these also meet the Building Regulations in full.

This guide has been prepared by the members of the Domestic Heating Controls Group of TACMA, that represents the interests of the manufacturers of timing controls, room & programmable room thermostats, thermostatic radiator valves and zone valves for the control of domestic central heating.



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## THE ASSOCIATION OF CONTROLS MANUFACTURERS

### HOW TO COMPLY WITH THE REVISED BUILDING REGULATIONS 2001/2002

#### THE GUIDE

This guide supports the official guidance covering the use of controls in boiler based, gas and oil fired, domestic central heating installations within the revised Building Regulations, Part L1 for England & Wales and Part J for Scotland, 2002.

If followed, the guidance and example systems shown will provide confidence that designs and installations fully comply with the relevant parts of the Building Regulations.

#### CONTROLS FOR NEW DWELLINGS Part L1, England and Wales: Part J, Scotland

- 1) Provide installations that are fully pumped.
- 2) Provide independent time & temperature control to both the heating and hot water circuits. *Part J, Scotland requires the installation of 7-day timing.*
- 3) Provide control systems with a boiler interlock. *See note 1.*
- 4) Install an automatic by-pass valve if a bypass is fitted. *See note 2.*
- 5) Split the heating circuit into zones using either:
  - a) room thermostats or programmable room thermostats in all zones.
  - b) a room thermostat or programmable room thermostat in the main zone and Thermostatic Radiator Valves (TRV's) on all radiators in the other zones.
- 6) Ensure installation of a cylinder thermostat & a zone valve to control stored hot water. *See note 3.*
- 7) Provide time control by the use of either:
  - a) a full programmer with separate timing to each circuit.
  - b) two or more separate timers providing timing control to each circuit
  - c) programmable room thermostat(s) to the heating circuit(s), with separate timing of the hot water.
- 8) For dwellings with a total usable floor space greater than 150m<sup>2</sup>, then:
  - a) the heating circuit should be split into a minimum of two zones plus a hot water service zone and:
  - b) each zone should be separately timed by the use of a multi-channel programmer or multiple heating programmers or programmable room thermostats
- 9) Any Boiler Management Control System that meets the specified zoning, timing & temperature requirements is a wholly acceptable alternative.

#### CONTROLS FOR EXISTING DWELLINGS Part L 1, England and Wales.

When a new installation is fitted, the controls should be as for a new dwelling.

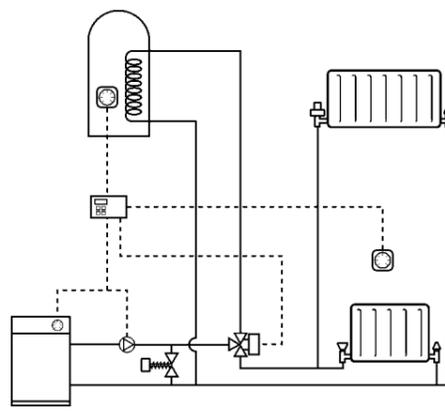
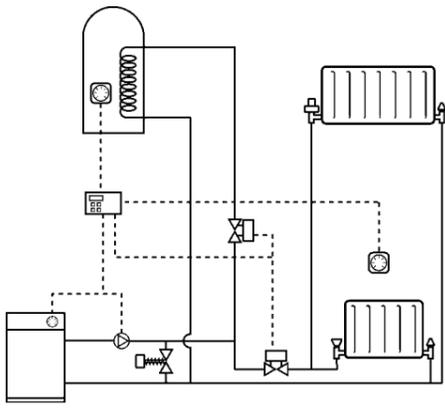
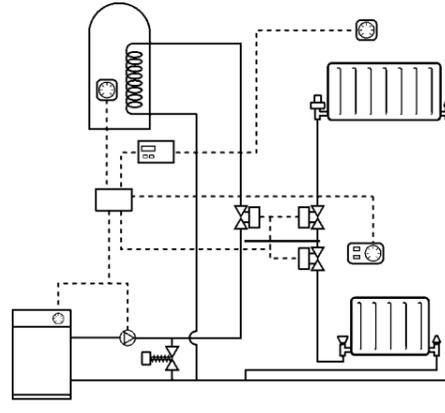
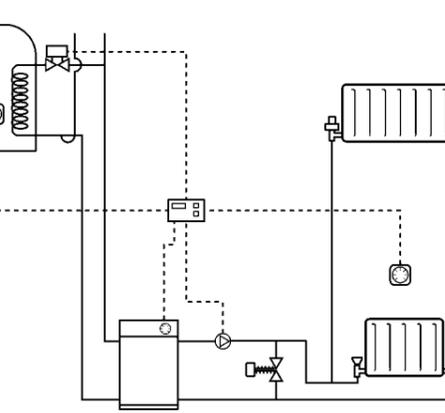
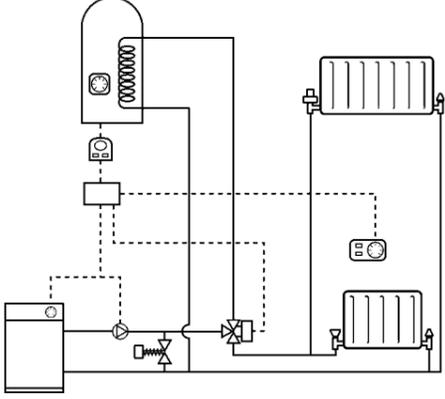
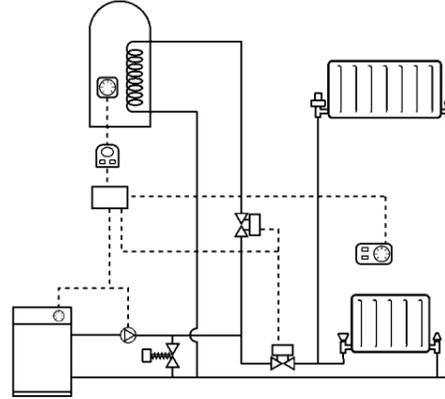
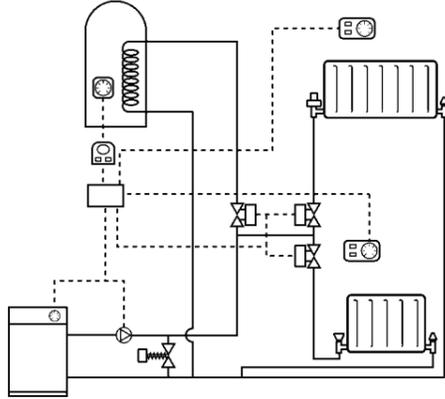
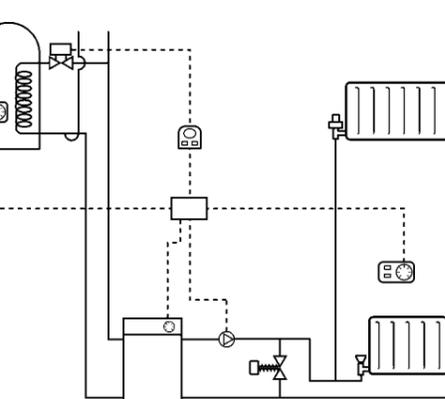
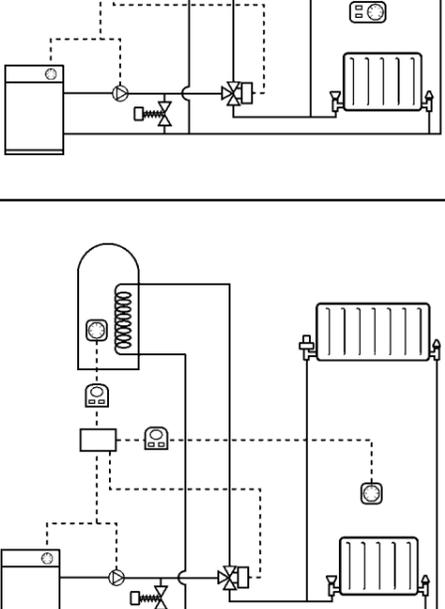
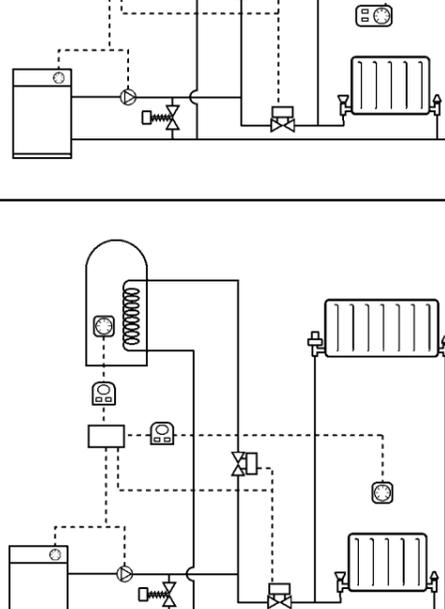
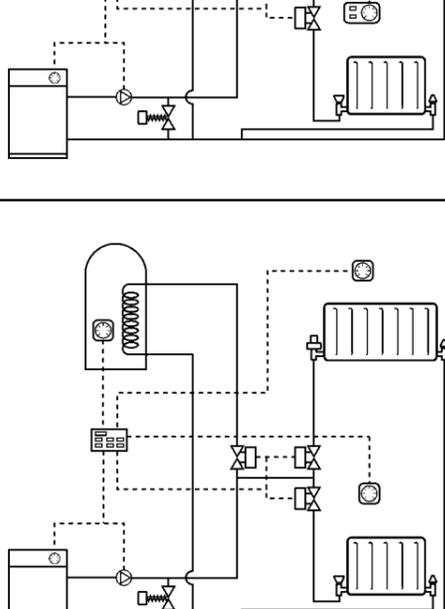
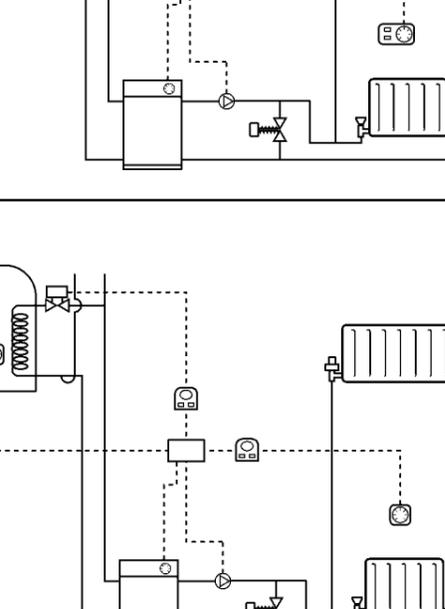
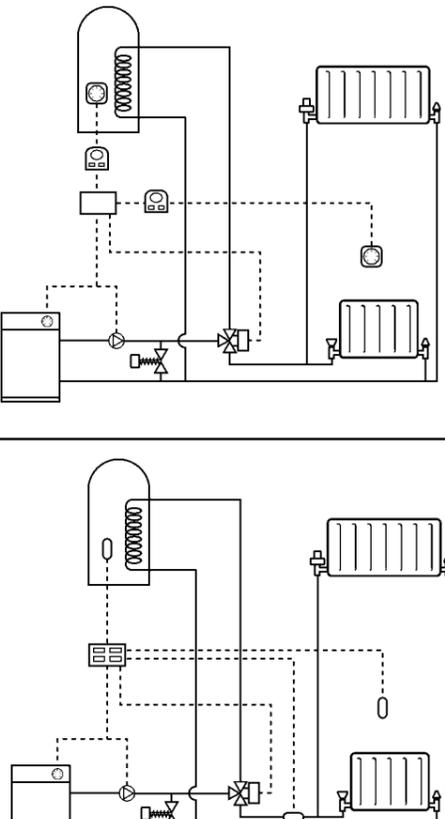
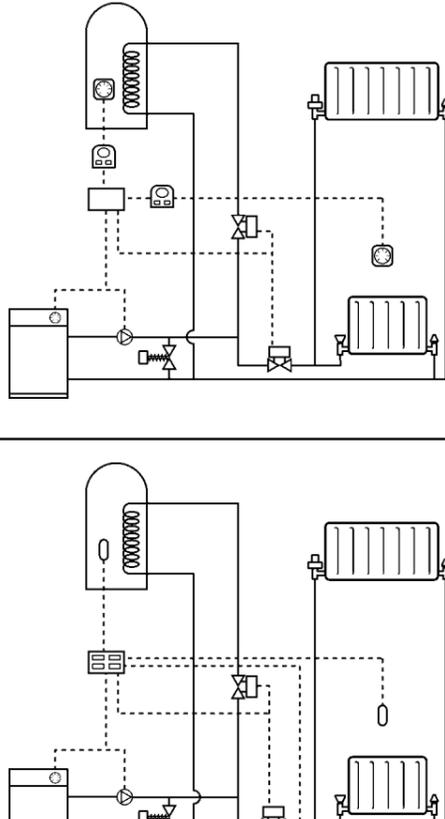
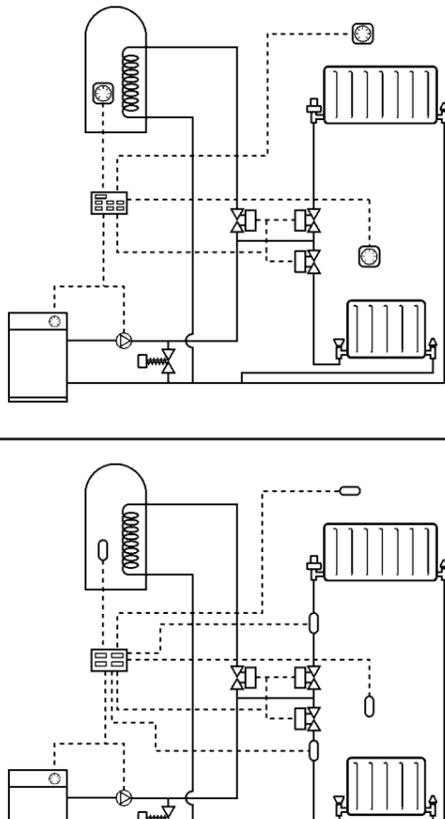
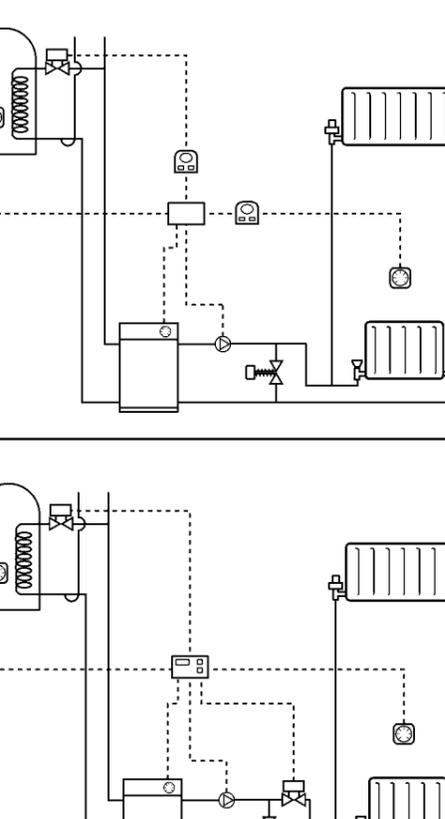
When replacing the boiler and/or the hot water vessel, the opportunity to improve the controls should be considered. To be confident that the requirements of the Building Regulations are met this would entail the following:

- 1) Provide fully pumped installations with a boiler interlock. *See note 1.*
- 2) Install an automatic by-pass valve, if a bypass is fitted. *See note 2.*
- 3) Provide time and temperature control to both the heating & hot water circuits, for fully pumped installations.
- 4.1) Separate the space heating system into zones and:
  - a) if a room thermostat is already fitted fit TRV's on at least all radiators in the sleeping areas and check if a new room thermostat or programmable room thermostat should be fitted.
  - b) if there is no room thermostat, install either a room thermostat or programmable room thermostat and fit TRV's on at least all radiators in the sleeping areas.
- 4.2) Provide time control by the use of either:
  - a) a full, standard or mini programmer, or
  - b) one or more separate time switches, or
  - c) programmable room thermostat(s).
- 5) For semi-gravity installations, the recommended option is to convert it to fully pumped. The controls should then be as detailed above.
- 5.1) If either the new boiler or hot water storage vessel can only be used on a pumped circuit, the installation must be converted to fully pumped. Install controls as detailed above.
- 5.2) If the new boiler or storage vessel is designed for gravity hot water, or it is impractical to convert to a fully pumped installation, provide the following controls:
  - a) a cylinder thermostat & zone valve to control the hot water and provide a boiler interlock. *See note 3.*
  - b) a room or programmable room thermostat.
  - c) a programmer or time switch.
  - d) TRV's on at least all radiators in the bedrooms.
- 6) Any Boiler Management Control System that meets the specified zoning, timing & temperature requirements, is a wholly acceptable alternative.

**Note 1:** Boiler interlock is achieved by the correct use of the room thermostat(s) or programmable room thermostat(s), the cylinder thermostat and zone valve(s) in conjunction with the timing device(s). These should be wired such that when there is no demand from the heating or hot water both the pump and boiler are switched off. The use of TRV's alone does not provide interlock.

**Note 2:** Although the regulations may not always require a bypass to be fitted, the performance of any installation with multi-zoning or TRV's is improved by the use of an automatic by-pass valve. (*See Good Practice Guide 302*)

**Note 3:** The use of non-electric hot water controllers does not meet this requirement.

To select a control system	Temperature & time control	3 port valve control set	2 port valve control set	Multizone control set	Semi-gravity control set
<p>a) Select time and temperature control requirements by reading down the adjacent column.</p> <p>b) Select the valve control set by reading across the column headings.</p> <p>c) For semi-gravity installations refer to the end column.</p> <p>d) For combination boilers see overleaf.</p>	<p>Programmer and standard room and cylinder thermostats to the heating and hot water circuits.</p>	 <p>1</p>	 <p>5</p>	 <p>9</p>	 <p>13</p>
<p>c) For semi-gravity installations refer to the end column.</p> <p>d) For combination boilers see overleaf.</p>	<p>Programmable room thermostat to the heating circuit(s), with timer and standard cylinder thermostat to the hot water circuit.</p>	 <p>2</p>	 <p>6</p>	 <p>10</p>	 <p>14</p>
<p><b>Control Symbols</b></p> <ul style="list-style-type: none"> <li> Room thermostat</li> <li> Programmable room thermostat</li> <li> Cylinder thermostat</li> <li> Basic timer</li> <li> Mini programmer</li> <li> Standard programmer</li> <li> Full Programmer</li> <li> Multi-channel programmer</li> <li> Boiler management controller</li> <li> Temperature sensor</li> <li> Two port valve</li> <li> Three port valve</li> <li> Auto by-pass valve</li> <li> Junction box</li> <li> Thermostatic radiator valve</li> <li> Wheel-head valve</li> <li> Lock shield valve</li> <li> Pump</li> <li> Boiler thermostat</li> </ul>	<p>Multi-channel programmer or multiple timers to the heating and hot water circuits, with standard room and cylinder thermostats.</p>	 <p>3</p>	 <p>7</p>	 <p>11</p>	 <p>15</p>
	<p>Boiler management control systems.</p>	 <p>4</p>	 <p>8</p>	 <p>12</p>	 <p>16</p>
<p><b>Use any of these control systems to ensure compliance</b></p>					
<p><b>Use only on existing installations</b></p>					