

The Assessor shall determine the business's commitment and support to good and safe working practices; also that it has a positive culture in all aspects of its work. In particular, the assessor shall check that the business's health, safety and environmental arrangements are followed while the work is carried. The details that the assessor will expect to find in use, are given in the BESCA standard BS.5 and BS.6. The level of assessment will be appropriate for, the size and the complexity of the business.

<b>Heating and hot water appliances, plant and equipment technical standards</b>			
BECA standard	Scheme Requirement	Typical evidence required	
		Work done in domestic premises	Work done in non-domestic premises
TS.6.1	<p><b>Gas, oil fired &amp; biomass LTHW &amp; MTHW boilers and direct gas fired water heaters</b></p> <p><i>Only businesses or individuals which are GAS SAFE Registered shall undertake the work on gas systems.</i></p> <p><b>Technical standards that apply to this work:</b></p> <p><i>The Building Regulations</i></p> <p><i>Approved Documents</i></p> <p><i>Compliance guides</i></p> <p><i>The Water Regulations</i></p> <p><i>BS 7671- Requirements for electrical installations</i></p> <p><i>British Standards</i></p> <p><i>BESA standards</i></p> <p><i>Manufacturers instructions</i></p>	<ul style="list-style-type: none"> <li>• Only Competent individuals, who have the necessary skills, knowledge and experience, as set out in BESCA standard BS.9, shall undertake the work so that it meets the standards set by BESCA. The business's training and/or subcontract records shall identify these people, as set out in BESCA standards BS.9 and/or BS.10.</li> <li>• The appliance shall comply with the requirements set out in Part J of the Building Regulations, including the applicable Approved Documents and General Guidance; and be sited on a base in accordance with the manufacturer's and the designer's instructions, and have adequate clearances around it for maintenance and servicing. The appliance shall be properly assembled and the flue securely fixed to the flue spigot on the unit, with any access doors on the unit adequately sealed. The flue shall meet the requirements set out in BESCA standard TS.6.4. Where the appliance needs assembling, it shall be hydraulically pressure tested to prove its integrity.</li> <li>• Where a new appliance is to be installed to serve an existing installation, then the complete system shall be flushed sufficiently to remove all contamination from the system. Where appropriate, the primary circuit shall be chemically dosed to prevent corrosion, sludge and scale, particularly in hard water areas, so as to reduce the water hardness.</li> <li>• Controls shall comply with the requirements set out in Part L of the Building Regulations, including the applicable Approved Documents, General Guidance and Compliance Guides; and shall meet the requirements set out in BESCA standard TS.14.1.</li> <li>• Where a safety valve is required, it shall be fitted directly to the appliance, or to a piece of pipe, which shall be as short as possible, that rises vertically from it. No valve or cock shall be fitted between the safety valve and the appliance. Each bank of boilers in a modular boiler installation shall be fitted with a common safety valve. The discharge pipe from the safety valve shall be the same size or larger than the outlet of the safety valve.</li> <li>• The flow and return connections shall be correctly piped and valves shall be fitted to isolate the appliance. The pipework shall be installed to BESCA standards TS.5.1 and/or TS.5.3. A drain point shall be provided to allow the unit to be drained. Where control valves operated from the building control system are fitted, there shall be adequate space around them for maintenance and servicing. Gas pipework shall be installed as set out in BESCA standard TS.5.6. Fuel oil pipework shall be installed as set out in BESCA standard TS.5.7.</li> <li>• Where required, a condensate drain shall be run from the appliance using proprietary plastic drain pipe material, with as few bends and fittings as possible; and supported by clips to prevent sagging. If in an unheated location, or if external, the condensate discharge pipe shall be insulated.</li> <li>• There shall be an adequate air supply for combustion and ventilation into the area where the unit is fitted, provided by low and high level openings; or for balanced flue compartments, a purpose designed flue ventilation system and a tightly fitting self closing door; or mechanical low level supply and natural discharge at high level; or by mechanical high and low level ventilation.</li> <li>• All ventilation openings shall be free of obstructions</li> <li>• Domestic appliances shall be wired from a fused switch spur (3 amp) and as required by BS 7671- 'Requirements for electrical installations'. If carried out as part of the installation, the electrical isolation, wiring, controls, etc, shall be installed and tested as set out in BESCA standard TS.13. The energy supplies to the unit shall be installed so that there is sufficient space between and around them to allow the energy that it uses to be monitored.</li> <li>• Leakage checks, and where required pressure tests, shall be carried out when the installation of the boiler or water heater and the associated plant and pipework is completed. This shall be done as set out in BESCA standard TS.5.8.</li> <li>• Pipework services around the appliance shall be insulated, as specified by the designer and as set out in BESCA standard TS.5.9. The appliance control and high-limit thermostats shall be set at the correct temperature and function.</li> <li>• The appliance shall be set to work and shall be commissioned, and a combustion test shall be carried out as part of the overall system. This shall be done in accordance with the manufacturer's instructions and the requirements set out in BESCA standard TS.3.</li> <li>• On completion, notes shall be made or a drawing of the installation marked to show any deviations from the original specification or envisaged layout. This information shall be passed back to the office to use when the final record drawings are produced.</li> </ul>	

<p>TS.6.2</p>	<p><b>Electric boilers and water heaters</b></p> <p><b>Technical standards that apply to this work:</b>  <i>Electricity at Work Regulations 1989 as amended.</i>  <i>Electricity Safety, Quality and Continuity Regulations 2002 as amended.</i>  <i>BS 7671- Requirements for electrical installations</i>  <i>IET Guidance Notes No's 1 to 7 and "On-Site Guide"</i>  <i>The Building Regulations Approved Documents Compliance guides</i>  <i>The Water Regulations British standards</i>  <i>BESA Standards</i>  <i>Manufacturers instructions</i></p>	<ul style="list-style-type: none"> <li>• Only Competent individuals, who have the necessary skills, knowledge and experience, as set out in BESCA standard BS.9, shall undertake the work so that it meets the standards set by BESCA. The business's training and/or subcontract records must identify these people, as set out in BESCA standards BS.9 and/or BS.10.</li> <li>• Where a new boiler or water heater is to be installed to serve an existing installation, then the complete system shall be flushed sufficiently to remove all debris and contamination from the system, then the primary circuit shall be chemically dosed to prevent corrosion, sludge and scale, particularly in hard water areas so as to reduce the water hardness.</li> <li>• The electric boiler or water heater shall comply with the requirements set out in Part J of the Building Regulations, including the applicable Approved Documents and General Guidance; and shall be installed as required by the manufacturer and designer, and have adequate clearances around it for maintenance and servicing.</li> <li>• Controls including boiler temperature control, boiler interlock, zoning, temperature control of the space heating and time control of the space heating shall comply with the requirements set out in Part L of the Building Regulations, including the applicable Approved Documents, General Guidance and Compliance Guides; and shall meet the requirements set out in BESCA standard TS.14.1. On storage heater systems these shall include automatic control of the input charge.</li> <li>• Where required, a pre-set safety valve shall be fitted close to the electric boiler or water heater, with a discharge pipe that is run to a safe outlet position.</li> <li>• Confirm that the existing or new electrical supply is compatible with the planned installation / works in accordance with laid down procedures. Account of the types, application, strengths and limitations of circuits and electrical supply for identified electrical control systems.</li> <li>• If carried out as part of the installation, the electrical isolation, wiring, controls, etc, shall be installed and tested as set out in BESCA standard TS.13. The energy supplies to the unit shall be installed so that there is sufficient space between and around them to allow the energy that it uses to be monitored.</li> <li>• The pipework to the inlets and outlets shall be connected correctly, and shall be fitted with valves so that it can be isolated. A drain point shall be provided to allow the boiler, or heater, to be drained for maintenance. The pipework shall be installed to BESCA standard TS.5.1, or TS.5.3.</li> <li>• Where the designer has specified it, the boiler or heater shall be insulated to prevent the loss of heat. The pipework around it shall be insulated as set out in BESCA standard TS.5.9.</li> <li>• The unit shall be set to work and shall be commissioned as part of the overall system. This shall be done in accordance with the manufacturer's instructions, and as set out in BESCA standard TS.3. The control and high-limit thermostats on the unit shall be correctly set and function.</li> <li>• On completion, notes shall be made or a drawing of the installation marked to show any deviations from the original specification or envisaged layout. This information shall be passed back to the office to use when the final record drawings are produced.</li> </ul>
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<p>TS.6.3</p>	<p><b>Micro-combined heat and power (CHP)</b>  <i>Only businesses or individuals which are GAS SAFE Registered shall undertake the work on gas systems.</i></p> <p><b>Technical standards that apply to this work:</b>  <i>The Building Regulations                  Approved Documents                  Compliance guides                  The Water Regulations                  BS 7671- Requirements for electrical installations                  British Standards                  BESA standards                  Manufacturer's instructions.</i></p>	<ul style="list-style-type: none"> <li>• Only Competent individuals, who have the necessary skills, knowledge and experience, as set out in BESCA standard BS.9, shall undertake the work so that it meets the standards set by BESCA. The business's training and/or subcontract records shall identify these people, as set out in BESCA standards BS.9 and/or BS.10.</li> <li>• The micro-combined heat and power unit, shall comply with the requirements set out in Part J of the Building Regulations, including the applicable Approved Documents and General Guidance; and be sited on a flat load bearing wall, or where required a suitable base, in accordance with the manufacturer's and the designer's instructions, and have adequate clearances around it for maintenance and servicing. The flue shall be securely fixed to the flue spigot on the unit and shall be adequately sealed. The flue shall meet the requirements set out in BESCA standard TS.6.4.</li> <li>• Where the CHP unit is to be installed to serve an existing installation, then the complete system shall be flushed sufficiently to remove all debris and contamination from the system. Where appropriate, the primary circuit shall be chemically dosed to prevent corrosion, sludge and scale, particularly in hard water areas so as to reduce the water hardness. A magnetic cleaner shall be fitted on the return pipe to the unit, and as close as possible to the unit.</li> <li>• Controls shall comply with the requirements set out in Part L of the Building Regulations, including the applicable Approved Documents, General Guidance and Compliance Guides; and shall meet the requirements set out in BESCA standard TS.14.1.</li> <li>• Where serving a sealed system, a pre-set safety valve shall be fitted close to the appliance, with a discharge pipe that is run to a safe outlet position.</li> <li>• The flow and return connections shall be correctly piped and valves shall be fitted to isolate the CHP unit. The pipework shall be installed to BESCA standards TS.5.1 and/or TS.5.3. A drain point shall be provided to allow the unit to be drained for maintenance, along with an air vent at high level. Where control valves operated from the building control system are fitted, there shall be adequate space around them for maintenance and servicing. Gas pipework shall be installed as set out in BESCA standard TS.5.6.</li> <li>• The condensate drain from the CHP unit shall be run using a proprietary plastic drain pipe material, with as few bends and fittings as possible; and supported by clips to prevent sagging, so as to aid the disposal of the condensate. 32mm waste pipe shall be used on external runs greater than 3 metres, or runs in cold areas. If in an unheated location, or external, the condensate discharge pipe shall be insulated.</li> <li>• There shall be an adequate air supply for combustion and ventilation into the area where the unit is fitted and all ventilation openings shall be free of obstructions</li> <li>• The CHP unit shall be wired from a 13A fused spur in accordance with BS 7671- 'Requirements for electrical installations' and shall allow for complete isolation of the electricity supply by a double pole switch, serving only the unit and system controls. This switch shall be capable of being secured in the off (isolation) position; and shall be located in an accessible position.</li> <li>• If carried out as part of the installation, the electrical isolation, wiring, controls, etc, shall be installed and tested as set out in BESCA standard TS.13. The connection to the mains shall be made in accordance with the latest addition of the Engineering Recommendation G83 - "Recommendations for the connection of Small - Scale Embedded Generators (SSEG)"</li> <li>• The energy supplies to the unit shall be installed so that there is sufficient space between and around them to allow the energy that it uses to be monitored. Meters shall be installed into the electricity supply to enable the electricity generated for export to be monitored.</li> <li>• Leakage checks, and where required pressure tests, shall be carried out when the installation of the CHP unit and the associated pipework is completed. This is shall be done as set out in BESCA standard TS.5.8.</li> <li>• Pipework services around the CHP unit shall be insulated, as specified by the designer and as set out in BESCA standard TS.5.9. The controls on the CHP unit shall be set at the correct temperature and function.</li> <li>• The unit shall be set to work and shall be commissioned, and a combustion test shall be carried out as part of the overall system. This shall be done in accordance with the manufacturer's instructions and the requirements set out in BESCA standard TS.3. The Distribution Network Operator (DNO) shall be provided with information and a notification sheet confirming the installation of the CHP unit.</li> <li>• On completion, notes shall be made or a drawing of the installation marked to show any deviations from the original specification or envisaged layout. This information shall be is passed back to the office to use when the final record drawings are produced.</li> </ul>
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<p>TS.6.4</p>	<p><b>Flues</b></p> <p><b>Technical standards that apply to this work:</b>  <i>The Building Regulations</i>  <i>Approved Documents</i>  <i>Compliance guides</i>  <i>IGEM Guidance</i>  <i>British Standards</i>  <i>BESA Standards</i>  <i>Manufacturers' instructions</i></p>	<ul style="list-style-type: none"> <li>• Only Competent individuals, who have the necessary skills, knowledge and experience, as set out in BESCA standard BS.9, shall undertake the work so that it meets the standards set by BESCA. The business's training and/or subcontract records shall identify these people, as set out in BESCA standards BS.9 and/or BS.10.</li> <li>• The flue shall comply with the requirements set out in Part J of the Building Regulations, including the applicable Approved Documents and General Guidance. The flue materials, including the jointing materials shall be robust, durable, corrosion resistant and non-combustible. They shall be assembled and joined in accordance with the manufacturer's instructions.</li> <li>• The flue shall be securely connected to the appliance and shall be adequately and independent supported so that it does not put a load on the spigot of the appliance.</li> <li>• Multi-flued installations have dampers so that individual appliances can be shut off from the flue system to allow for inspection and maintenance.</li> <li>• Each appliance flue shall have a sampling point for combustion efficiency testing and commissioning.</li> <li>• Mechanically assisted flues shall have an automatic interlock that shuts the system down safety, and locks it out if the burner or the flue fan fails.</li> <li>• Sleeves shall be used where the flue passes through a wall, floor or ceiling and shall be sealed to prevent the spread of noise, fire and smoke, as set out in BESCA Standard TS.4.1.</li> <li>• The flue termination shall be at least 1 metre above the roof surface (with the exception of a fan diluted flue system). Where the flue is within 2.5 metres of a nearby structure, the discharge shall extend above the level of that structure.</li> <li>• Where a flue-gas heat recovery device is to be fitted into the flue, it shall be installed and set to work as set out in BESCA Standard TS.6.5.</li> <li>• A flue leakage test shall be conducted on the flue system. The results of the test shall be recorded and certified by the installer.</li> <li>• On completion, notes shall be made or a drawing of the installation marked to show any deviations from the original specification or envisaged layout. This information shall be is passed back to the office to use when the final record drawings are produced.</li> </ul>
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<p>TS.6.5</p>	<p><b>Flue-gas heat recovery devices</b></p> <p><b>Technical standards that apply to this work:</b>  <i>The Building Regulations</i>  <i>Approved Documents</i>  <i>Compliance guides</i>  <i>BS 7671- Requirements for electrical installations</i>  <i>British Standards</i>  <i>BESA standards</i>  <i>Manufacturer's instructions</i></p>	<ul style="list-style-type: none"> <li>• Only Competent individuals, who have the necessary skills, knowledge and experience, as set out in BESCA standard BS.9, shall undertake the work so that it meets the standards set by BESCA. The business's training and/or subcontract records must identify these people, as set out in BESCA standards BS.9 and/or BS.10. Where the installation involves the use of unvented hot water systems, the persons carrying out the work must hold a recognised qualification.</li> <li>• The flue-gas heat recovery device, shall be installed as required by the manufacturer and designer; and shall have adequate clearances for maintenance and servicing.</li> <li>• Where pipework is linked to the flue-gas heat recovery unit, it shall be connected to the correct ports; and shall, where required by the manufacturer, be fitted with control and isolating valves. Where a control valve is fitted, there shall be adequate space around it for maintenance and servicing. A drain point shall be provided to allow the unit to be drained for maintenance. The pipework shall be installed to BESCA standards TS.5.1, TS.5.3 and/or TS.5.4. Leakage checks, and where required pressure tests, shall be carried out when the installation is completed. This shall be done as set out in BESCA standard TS.5.8.</li> <li>• Where a new flue-gas heat recovery device is to be interconnected with an existing pipework installation, then the connecting pipework system shall be flushed sufficiently to remove all debris and contamination from the system. Where appropriate, this circuit shall be chemically dosed to prevent corrosion, sludge and scale, particularly in hard water areas so as to reduce the water hardness.</li> <li>• Controls where required, shall comply with the requirements set out in Part L of the Building Regulations, including the applicable Approved Documents, General Guidance and Compliance Guides; and shall meet the requirements set out in BESCA standard TS.14.1.</li> <li>• Flue-gas recovery devices and/or the associated controls that require an electrical supply shall be wired and fitted with fuses as required by BS 7671- 'Requirements for electrical installation'. If this is required to be carried out as part of the installation, then the electrical isolation, wiring, controls, etc, shall be installed and tested as set out in BESCA standard TS.13. The energy supplies to the unit shall be installed so that there is sufficient space between and around them to allow the energy that it uses to be monitored.</li> <li>• Where specified by the designer and/or the manufacturer, the flue-gas heat recovery device, shall be insulated so as to control the loss of heat. Any pipework that is installed in association with the heat recovery device shall be insulated as set out in BESCA standard TS.5.8.</li> <li>• The unit shall be set to work and shall be commissioned as part of the overall system. This is shall be done in accordance with the manufacturer instructions, and as set out in BESCA standard TS.3. Any control devices on the flue-gas heat recovery device/s shall be correctly set and function.</li> <li>• On completion, notes shall be made or a drawing of the installation marked to show any deviations from the original specification or envisaged layout. This information shall be is passed back to the office to use when the final record drawings are produced.</li> </ul>
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<p>TS.6.6</p>	<p><b>Plate heat exchangers and heating &amp; hot water calorifiers / cylinders</b></p> <p><b>Technical standards that apply to this work:</b></p> <p><i>The Building Regulations Approved Documents Compliance guides BS 7671- Requirements for electrical installations British Standards BESA standards Manufacturer's instructions</i></p>	<ul style="list-style-type: none"> <li>• Only Competent individuals, who have the necessary skills, knowledge and experience, as set out in BESCA standard BS.9, shall undertake the work so that it meets the standards set by BESCA. The business's training and/or subcontract records must identify these people, as set out in BESCA standards BS.9 and/or BS.10. Where the installation involves the use of unvented hot water systems, the persons carrying out the work must hold a recognised qualification.</li> <li>• Where a new heat exchanger, calorifier or cylinder is to be installed to serve an existing installation, then the complete system shall be flushed sufficiently to remove all debris and contamination from the system. Where appropriate, the primary circuit shall be chemically dosed to prevent corrosion, sludge and scale, particularly in hard water areas so as to reduce the water hardness.</li> <li>• The heat exchanger, or calorifier, shall be installed as required by the manufacturer and designer and shall have adequate clearances around it for maintenance and servicing.</li> <li>• Controls including temperature control, interlocks, zoning, temperature control of the space heating and time control of the space heating shall comply with the requirements set out in Part L of the Building Regulations, including the applicable Approved Documents, General Guidance and Compliance Guides; and shall meet the requirements set out in BESCA standard TS.14.1.</li> <li>• Controls shall comply with the requirements set out in Part L of the Building Regulations, including the applicable Approved Documents, General Guidance and Compliance Guides; and shall meet the requirements set out in BESCA standard TS.14.1.</li> <li>• The energy supplies to the heat exchanger, or calorifier, shall be installed so that there is sufficient space between and around them to allow the energy that it uses to be monitored.</li> <li>• The pipework to the primary and secondary inlets and outlets shall be connected to the correct ports on the heat exchanger or calorifier, and shall be fitted with valves so that it can be isolated. A drain point shall be provided to allow the unit to be drained for maintenance. The pipework shall be installed to BESCA standards TS.5.1, TS.5.3 and/or TS.5.4. Where a control valve operated from the building control system is fitted, there shall be adequate space around it for maintenance and servicing.</li> <li>• Where the designer has specified it, a safety valve shall be fitted directly to the unit, or to a piece of pipe that shall be as short as possible, which rises vertically from it. No valve or cock shall be fitted between the safety valve and the heat exchanger or calorifier. The discharge pipe from the safety valve shall be the same size or larger than the outlet of the safety valve.</li> <li>• Where an immersion heater is fitted to a calorifier, it shall be wired and fitted with a fuse, as required by BS 7671- 'Requirements for electrical installations'. The thermostat controlling the immersion heater shall be correctly set. If carried out as part of the installation, the electrical isolation, wiring, controls, etc, shall be installed and tested as set out in BESCA standard TS.13.</li> <li>• Leakage checks, and where required pressure tests, shall be carried out when the installation is completed. This shall be done as set out in BESCA standard TS.5.8.</li> <li>• The heat exchanger, or calorifier, shall be insulated as specified by the designer, to prevent the gain or loss of heat. The pipework around it shall be insulated as set out in BESCA standard TS.5.8.</li> <li>• The unit shall be set to work and shall be commissioned as part of the overall system. This shall be done in accordance with the manufacturer instructions, and as set out in BESCA standard TS.3. The heat exchanger or calorifier control and high-limit thermostats shall be correctly set and function.</li> <li>• On completion, notes shall be made or a drawing of the installation marked to show any deviations from the original specification or envisaged layout. This information shall be passed back to the office to use when the final record drawings are produced.</li> </ul>
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<p>TS.6.7</p>	<p><b>Circulating pumps</b></p> <p><b>Technical standards that apply to this work:</b>  <i>The Building Regulations</i>  <i>Approved Documents</i>  <i>Compliance guides</i>  <i>British Standards</i>  <i>BESA standards</i>  <i>Manufacturers instructions</i></p>	<ul style="list-style-type: none"> <li>• Only Competent individuals, who have the necessary skills, knowledge and experience, as set out in BESCA standard BS.9, shall undertake the work so that it meets the standards set by BESCA. The business's training and/or subcontract records must identify these people, as set out in BESCA standards BS.9 and/or BS.10.</li> <li>• The circulating pump shall be installed as required by the manufacturer and the designer, and has adequate clearances around it for maintenance and servicing.</li> <li>• The energy supplies to the pump shall be installed so that there shall be sufficient space between and around them to allow the energy that it uses to be monitored.</li> <li>• The pipework to the pump shall be installed as set out in BESCA standard TS.5.1, TS.5.3 or TS.5.4. The pump inlet and outlet shall be fitted with valves so that they can be isolated. A drain point shall be provided to allow the pump to be drained for maintenance.</li> <li>• Where flexible connections, or bellows, are used to reduce vibration from the pump, they shall be aligned correctly, not distorted and not too taut.</li> <li>• Pumps fitted with drive belts shall have a motor and drive guard to protect people from injury. The belts shall be aligned and tensioned.</li> <li>• When operating, the pump produces a positive pressure throughout the system but does not 'pump-over' into the feed and expansion tank on open vented systems.</li> <li>• Leakage checks, and where required pressure tests, shall be carried out when the installation is completed. This shall be done as set out in the BESCA standard TS.5.8.</li> <li>• If carried out as part of the installation, the electrical isolation, wiring, controls, etc, shall be installed and tested as set out in BESCA standard TS.13. The energy supplies to the unit shall be installed so that there is sufficient space between and around them to allow the energy that it uses to be monitored.</li> <li>• The pump shall be set to work and shall be commissioned as part of the overall system. This shall be done in accordance with the manufacturer's instructions, and as set out in BESCA standard TS.3.</li> <li>• On completion, notes shall be made or a drawing of the installation marked to show any deviations from the original specification or envisaged layout. This information shall be passed back to the office to use when the final record drawings are produced.</li> </ul>
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<p>TS.6.8</p>	<p><b>Expansion vessels and pressurisation sets</b></p> <p><b>Technical standards that apply to this work:</b>  <i>The Building Regulations</i>  <i>Approved Documents</i>  <i>Compliance guides</i>  <i>British Standards</i>  <i>BESA Standards</i>  <i>Manufacturers instructions</i></p>	<ul style="list-style-type: none"> <li>• Only Competent individuals, who have the necessary skills, knowledge and experience, as set out in BESCA standard BS.9, shall undertake the work so that it meets the standards set by BESCA. The business's training and/or subcontract records must identify these people, as set out in BESCA standards BS.9 and/or BS.10.</li> <li>• The expansion vessel and/or pressurisation set shall be installed as required by the manufacturer and the designer, and has adequate clearances around it for maintenance and servicing.</li> <li>• The expansion vessel shall be suitably sized to accommodate the increase in the system volume and shall be piped directly to the system i.e. there shall be no valve or other device that might prevent the safe operation of the system, other than one that can be locked open.</li> <li>• A pressure relief valve shall be fitted on a section pipe adjacent to the vessel. No valve or cock shall be fitted between the pressure relief valve and the expansion vessel. The discharge pipe from the pressure relief valve shall be the same size or larger than the outlet of the safety valve.</li> <li>• The energy supplies to the pressurisation set shall be installed so that there is sufficient space between and around them to allow the energy that it uses to be monitored.</li> <li>• The pipework to and from the expansion vessel and/or the pressurisation set shall be installed as set out in BESCA standard TS.5.1, TS.5.3 and/or TS.5.4.</li> <li>• Where a pressurisation set is used, it shall be fitted with valves so that the set can be isolated. A drain point shall be provided to allow the set to be drained for maintenance. The operating and high-limit pressure switches on the pressurisation set shall be correctly set and function.</li> <li>• Where flexible connections, or bellows, are used to reduce vibration from the pressurisation set, they shall be aligned correctly, not distorted and not too taut.</li> <li>• Leakage checks, and where required pressure tests, shall be carried out when the installation is completed. This shall be done as set out in the BESCA Technical Schedule TS.5.8. Where required, or specified by the designer, the pipework around the expansion vessel and/or pressurisation set shall be insulated as set out in BESCA standard TS.5.9.</li> <li>• If carried out as part of the installation, the electrical isolation, wiring, controls, etc, shall be installed and tested as set out in BESCA standard TS.13. The energy supplies to the unit shall be installed so that there is sufficient space between and around them to allow the energy that it uses to be monitored.</li> <li>• The expansion vessel and/or pressurisation set shall be set to work and shall be commissioned as part of the overall system. This shall be done in accordance with the manufacturer's instructions and as set out in BESCA standard TS.3.</li> <li>• On completion, notes shall be made or a drawing of the installation marked to show any deviations from the original specification or envisaged layout. This information shall be passed back to the office to use when the final record drawings are produced.</li> </ul>
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<p>TS.6.9</p>	<p><b>Feed and expansion tanks</b></p> <p><b>Technical standards that apply to this work:</b></p> <p><i>The Building Regulations</i></p> <p><i>Approved Documents</i></p> <p><i>Compliance guides</i></p> <p><i>BESA standards</i></p> <p><i>British Standards</i></p> <p><i>Manufacturers instructions</i></p>	<ul style="list-style-type: none"> <li>• Only Competent individuals, who have the necessary skills, knowledge and experience, as set out in BESCA standard BS.9, shall undertake the work so that it meets the standards set by BESCA. The business's training and/or subcontract records must identify these people, as set out in BESCA standards BS.9 and/or BS.10.</li> <li>• The feed and expansion tank shall be securely located, as required by the designer and the manufacturer. It shall be positioned so that it is accessible for future servicing and maintenance needs, and shall be provided with a loose but close fitting lid.</li> <li>• The tank has an isolating valve on the water inlet, a ball float valve and an overflow warning pipe, all of which comply with the Water Regulations. The pipework, fittings and other materials used around the tank meet the requirements of the Water Regulations.</li> <li>• The pipework to and from the tank shall be run as set out in BESCA standards TS.5.1, TS.5.3 and/or TS.5.4. Sleeves shall be used where the pipe passes through walls and shall be sealed to prevent the spread of fire and smoke.</li> <li>• Leakage checks, and where required pressure tests, shall be carried out when the system is completed. This shall be done as set out in the BESCA Technical Schedule TS.5.8. Tanks and the pipework associated with them used for hot or cold-water services shall be cleaned and sterilised in accordance with BS 6700 before being put into use.</li> <li>• Where required, or where specified by the designer, the pipework around the tank shall be insulated as set out in BESCA standard TS.5.9. In particular, the tank and the associated pipework shall be protected from freezing.</li> <li>• The tank shall be set to work and shall be commissioned part of the overall system. This shall be done as set out in BESCA standard TS.3.</li> <li>• On completion, notes shall be made or a drawing of the installation marked to show any deviations from the original specification or envisaged layout. This information shall be passed back to the office to use when the final record drawings are produced.</li> </ul>
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<p>TS.6.10</p>	<p><b>Heat emitters (water or steam supplied)</b></p> <p><b>Technical standards that apply to this work:</b>  <i>The Building Regulations Approved Documents Compliance guides</i>  <i>Electricity at Work Regulations 1989 as amended.</i>  <i>Electricity Safety, Quality and Continuity Regulations 2002 as amended.</i>  <i>BS 7671- Requirements for electrical installations</i>  <i>IEE Guidance Notes No's 1 to 7 and "On-Site Guide"</i>  <i>British Standards</i>  <i>BESA standards</i>  <i>Manufacturer's instructions</i></p>	<ul style="list-style-type: none"> <li>• Only Competent individuals, who have the necessary skills, knowledge and experience, as set out in BESCA standard BS.9, shall undertake the work so that it meets the standards set by BESCA. The business's training and/or subcontract records must identify these people, as set out in BESCA standards BS.9 and/or BS.10.</li> <li>• A heat emitter may be a radiator, a convector, a unit heater, a fan coil unit, a radiant panel or the manifold to an underfloor heating or similar system. It shall be installed as required by the manufacturer and the designer, and it shall be adequately supported. Where the emitter shall be mounted near the floor, the minimum height clearance that shall be required by the manufacturer or the designer shall be adhered to.</li> <li>• Controls shall comply with the requirements set out in Part L of the Building Regulations, including the applicable Approved Documents, General Guidance and Compliance Guides; and shall meet the requirements set out in BESCA standard TS.14.1.</li> <li>• Isolating and regulating valves shall be fitted to the pipework serving the inlet and outlet to the heat emitter. A drain point and air vent shall be provided to allow the heat emitter to be drained for maintenance. Where required, heat emitters have correctly orientated and set Thermostatic Radiator Valves (TRV), or some other kind of temperature, or remote control fitted.</li> <li>• The pipework to and from the heat emitter shall be installed as set out in BESCA standard TS.5.1, TS.5.3 or TS.5.4.</li> <li>• Electrically powered heat emitters, such as fan convectors, and locally mounted thermostats and/or programmers, shall be wired and fitted with fuses as required by BS 7671- 'Requirements for electrical installation'. If carried out as part of the installation, any electrical isolation, wiring, controls, etc, required for the heat emitter shall be installed and tested as set out in BESCA standard TS.13.</li> <li>• Locally mounted thermostats and/or programmers shall be correctly sited and set at the required temperature.</li> <li>• Leakage checks, and where required pressure tests, shall be carried out on underfloor systems when the system is completed, but before any screed or other coverings are laid. Leakage checks, and where required pressure tests on other emitters, shall be carried out when the installation is complete. This is shall be done as set out in BESCA standard TS.5.8.</li> <li>• The heat emitters shall be set to work and shall be commissioned as part of the overall system. This is shall be done as set out in BESCA standard TS.3.</li> <li>• On completion, notes shall be made or a drawing of the installation marked to show any deviations from the original specification or envisaged layout. This information shall be is passed back to the office to use when the final record drawings are produced.</li> </ul>
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<p>TS 6.11</p>	<p><b>Heat emitters (electrical)</b> [including trace heating]</p> <p><b>Technical standards that apply to this work:</b> <i>The Building Regulations Approved Documents Compliance guides</i> <i>Electricity at Work Regulations 1989 as amended.</i> <i>Electricity Safety, Quality and Continuity Regulations 2002 as amended.</i> <i>BS 7671- Requirements for electrical installations</i> <i>IET Guidance Notes No's 1 to 7 and "On-Site Guide"</i> <i>British Standards</i> <i>Manufacturer's instructions</i></p>	<ul style="list-style-type: none"> <li>• Only Competent individuals, who have the necessary skills, knowledge and experience, as set out in BESCA standard BS.9, shall undertake the work so that it meets the standards set by BESCA. The business's training and/or subcontract records must identify these people, as set out in BESCA standards BS.9 and/or BS.10.</li> <li>• A heat emitter may be an electric warm air systems, electric panel heaters, electric storage systems including integrated storage/direct systems, electric under-floor heating, or trace heating tape (portable, plug-in appliances are not covered by this scheme). The emitter shall be constructed, suitably enclosed and separated by appropriate distances to provide protection against electric shock, fire, burns, and the effects on the installation of overload current, fault current and under-voltage.</li> <li>• The installation of the equipment shall be fixed, using the correct fixings, and in accordance with relevant regulations and manufacturer's instructions. Where the emitter shall be mounted near the floor, the minimum height clearance that shall be required by the manufacturer or the designer shall be adhered to.</li> <li>• The fixed electrical installation serving the heat emitter shall comply with BS 7671- 'Requirements for electrical installation', and if carried out as part of the installation, BESCA standard TS.13. The emitter and electrical installation shall be capable of being controlled properly and be able to be operated safely, in order to protect persons operating, maintaining or altering the installation from injury.</li> <li>• Controls shall comply with the requirements set out in Part L of the Building Regulations, including the applicable Approved Documents, General Guidance and Compliance Guides; and shall meet the requirements set out in BESCA standard TS.14.1. Locally mounted thermostats and/or programmers shall be correctly sited and set at the required temperature.</li> <li>• The heat emitters shall be set to work and shall be commissioned as part of the overall system. This is shall be done as set out in BESCA standard TS.3.</li> <li>• Pipework that is trace heated shall be insulated to reduce heat loss, and have coloured bands (in accordance with BS 1710) applied to identify it. Thermal insulation is installed to BESCA standard TS.5.9.</li> <li>• On completion, notes shall be made or a drawing of the installation marked to show any deviations from the original specification or envisaged layout. This information shall be is passed back to the office to use when the final record drawings are produced.</li> </ul>
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