

GAS CONTRACT SERVICES LIMITED TECHNICAL ADVICE - NOVEMBER 2018

CONDENSING BOILER CONDENSATE DISCHARGE PIPE INSTALLATION GUIDANCE

This guidance should be considered when completing a survey for any heating work for inclusion in a quotation and for upgrading installations to the latest requirements.

BACKGROUND

In 2010 and again in 2018 the UK experienced prolonged spells of sub-zero temperatures. This resulted in a significant increase in the number of calls to boilers where the condensate discharge pipe had frozen and become blocked with ice, causing the boiler to shut down. In the most cases such problems occur where the condensate drainage pipe is located externally to the building for some part or all its length.

British Standards, Building Regulations and various guidance currently advise on how condensate discharge pipes should be run either internally or externally, or a combination of both. This document gives guidance on how to install the pipes to reduce the possibility of freezing.

NOTE - This guidance may not be enough to prevent freezing in extreme conditions - with widespread and prolonged sub-zero temperatures.

In addition to this guidance all other technical requirements for condensate discharge installation given in British Standard BS 6798:2014, or in boiler manufacturers' installation instructions should still be followed.

BOILER MANUFACTURER'S WARRANTY INFORMATION

From the 1st January 2019 where a new boiler installation is not connected to an

internal discharge point but **should or could** have been, then the boiler warranty may be invalid for issues raised by a frozen condensate discharge pipe. It **should** also be noted that where the following guidance or manufacturer's instructions have not been followed then the boiler warranty may also not be valid.

NOTE - The Benchmark Commissioning checklist supplied with the boiler and detailed in the manufacturer's instructions requires the heating engineer to confirm that the condensate drain has been fitted correctly.

SUMMARY OF MAIN REQUIREMENTS

INTERNAL CONDENSATE CONNECTION AND CONDENSATE PUMPS

Where an installer is fitting a new or replacement boiler the condensate drain pipe or pumped condensate **should** be connected to an internal "gravity discharge point" such as an internal soil stack (vent), internal kitchen or bathroom waste pipe, washing machine waste pipe and washing machine outlet, sink, basin, bath or shower waste. The internal soil stack is the preferred method.

External pipes from sink wastes or washing machine outlets should be a minimum of 30mm internal diameter, insulated with waterproof UV resistant material, terminated below the grid but above the water line and a suitable drain/leaf guard fitted. The end of the waste pipe should be cut at 45 degrees where it terminates into the grid to help reduce the potential to freeze.

EXISTING INSTALLATIONS

When servicing or repairing a boiler the heating engineer should check any boiler installations especially those that have external condensate drains to see if they can be terminated internally or upgraded to the latest guidance. The responsible person (home owner) should be advised and it is recommended that this information is recorded as a suitable means for advising the work that is required is completed.

This guidance should be followed where work is carried out to "upgrade" the condensate drainage system to reduce the risk of freezing in extreme conditions and it is recommended that the condensate pipe is identified with a suitable label or marking even if the responsible person does not go ahead with the upgrade to allow easier identification in the future.

NOTE - A suitable permanent connection to the foul waste pipe should be used.

The possibility of waste pipes freezing **downstream** of the connection point should be considered when determining a suitable connection point - e.g. a slightly longer pipe run to an internal soil stack may be preferable to a shorter run connecting into a kitchen waste pipe discharging directly through the wall to an external drain.

NOTE - Where “gravity discharge” to an internal termination is not physically possible (e.g. the discharge point is above the appliance location, or access is obstructed by a doorway), or where very long internal pipe runs would be required to reach a suitable discharge point, then a condensate pump should be adopted.

EXTERNAL CONECTIONS

Only fit an external boiler condensate drain connection if an internal gravity or pumped connection is impossible to install.

ADDITIONAL MEASURES

At least one of the following measures should be fitted in addition to the latest guidance

- Insulate external pipe with a minimum thickness of insulation to be 19mm “O” class PVC coated material.
- Fit trace heating – with insulation as recommended by manufacturer.
- Fit internal auxiliary(additional) high volume syphon unit

Clients may wish to issue the following:

NOTE - The following details remedial actions for customers which can be taken if a condensate drainage pipe freezes. This may result in requests for alteration to condensate drainage pipework, in which case the guidance above should be followed.

BOILER THERMOSTAT SETTING CAN REDUCE FREEZING

If appropriate, it may be advisable to operate the boiler temperature at a higher flow temperature as this would decrease the amount of condensate generated and reduce the freezing potential during extreme cold weather conditions. This is achieved by turning the boiler thermostats to a high setting. The customer should be advised that during this situation the radiator surfaces will be hotter than normal, and the boiler efficiency will be slightly reduced.

The customer should return the boiler thermostat back to its normal position after the cold spell has ended.

THAWING FROZEN CONDENSATE PIPES

Below is an explanation of what you would need to do to resolve the problem if the pipe was to freeze:

1. LOCATE THE BLOCKAGE

The Condensate discharge pipe usually freezes at the most exposed points outside, such as the open end of the pipe, at a bend or elbow, or where there is a dip in the pipe where condensate can collect.

2. THAW THE FROZEN PIPE

The Condensate can be thawed in several ways. By applying a hot water bottle, a microwaveable heat pack around the blockage or by pouring warm water onto the pipe. It is important that you do not use boiling water.

Please take care if your condensate drainage pipe is not easily reached from ground level, and do not put yourself at any undue risk without seeking assistance or engaging a professional heating engineer—also be aware that if you are pouring water onto the pipe this can also quickly freeze on the ground, causing a slip hazard.

3. RESET/ RESTART THE BOILER

Once the frozen blockage has been cleared, the boiler will usually need to be reset, and advice on how to do this can be found in the user instructions manual for your boiler. Normally this will involve simply pressing a reset button on the front of the boiler.