SRDA HIGHLIGHTS OF THE UPDATES TO BS8490:2025

Members of the Siphonic Roof Drainage Association (SRDA) have been working with the British Standards Institute (BSI), assisting with the re-writing of British Standard BS8490, the "Guide to siphonic roof drainage systems".

This British Standard was first published in 2007 and discussions regarding its revision have been ongoing for several years. The revised British Standard, BS8490:2025 was published in February 2025.

With the publication of the revised version of BS8490, the SRDA thought it prudent to issue a statement highlighting some of the more important updates for siphonic drainage contractors to be aware of, along with changes that affect other trades, for example roofing and cladding contractors and underground drainage engineers.

The following is not an exhaustive list of the updates. The revised BS8490 can be purchased direct from the BSI website by clicking HERE

NEW GUIDANCE FOR SIPHONIC DRAINAGE CONTRACTORS

1. For systems designed for rainfall events with return periods of less than 100 years, an additional safety factor of not less than 10% should be added to the design flow rate, for example if the design rainfall intensity is 100mm/hr/m^2, then the design should be based on 110mm/hr/m^2 as a minimum.

2. The key components of a siphonic roof drainage system (outlets, pipes, and fittings) should have a design life of 25 years. Environmental factors should be considered if these are likely to affect the lifespan of the components.

3. Because of the potential for blockage of pipework smaller than 57mm internal diameter, pipework smaller than this size should make up no more than 10% of the tailpipes on a system and collector main pipework should not include pipes smaller than 57mm internal diameter.

4. Tailpipes should be formed from vertical and horizontal sections. Any sloping elements should only make up a maximum of 15% of the vertical drop length.

5. Where blockage of siphonic outlets and/or pipework in internal gutters would result in water ingress to the building(s), or for roof drainage systems designed for long return periods, separate Primary and Secondary siphonic systems should be provided as this can improve the operation and limit the consequences of blockages in the roof drainage.

6. Mesh type vermin guards should not be fitted to above-ground Secondary discharge pipes because of the risk of blockage by debris. If vermin guards are needed, then they should be flap type guards with low friction hinges.

7. The discharge rate of the siphonic system into a manhole chamber should not exceed 4.5 m/s. The discharge rate of a siphonic system discharging above ground should not exceed 4 m/s, and should ideally be at or below 3 m/s.

8. Design software should be capable of identifying and displaying the flow rate, pressure, head loss and velocity for each individual pipe section, bend, branch, reducer / increaser and outlet. The output from the software should be presented in such a format to allow direct comparison with construction drawings and allow independent calculations of isolated sections of the designed system.

9. The system should be tested, either in parts or as a whole, to check its integrity against nominal positive pressures. Internal rainwater pipes should be capable of withstanding a constant air pressure of 38 mm water gauge for a period of 3 min, after equilibrium has been established. Any drop in pressure should be investigated, remedial works undertaken and the system retested until no pressure drop is observed.

10. For Primary and Secondary systems, where the Secondary outlets are not spaced at the exact centre point between Primary outlets (which is the normal arrangement in most gutters), the gutters should drain a combination of both Primary and Secondary flows, and thus a more complex calculation is required, splitting the gutter up into two zones and evaluating each separately.

11. On site butt welding of HDPE pipes, DN63 and above on-site should follow the pipe manufacturer's recommendations regarding alignment and preparation of pipework. Butt welding should be carried out as a continuous process. The pipes should be clamped securely using rigid circular clamps. Machine butt joint welding apparatus should be capable of achieving on a test weld, strength values which, when tested using a bead diagnostic instrument (BDI) for tensile and pressures at 80 ±1 °C, are in accordance with BS EN 12201-2, -3 and -7. Tests should be carried out in a suitably accredited laboratory.

NEW GUIDANCE FOR SPECIFIERS OR DEVELOPERS

1. Specifiers should take in to account the suitability of the roof to be siphonically drained i.e. is the roof of sufficient size to collect an adequate amount of water to prime a siphonic system? Does it have a green or brown roof construction which would attenuate the water and may prevent the siphonic action priming?

2. Does the building need to be drained via Primary only drainage systems, or are both Primary and Secondary drainage systems required? Primary and Secondary systems offer more protection for internal gutters and where the contents of the building, or processes being carried out in the building, require more protection.

3. What “Storm Return Period” should the siphonic drainage systems be designed to, as defined in BSEN12056-3? Storm Return Periods more than 50 years do not experience regular operation at design flows and could be at an increased risk of blockages, therefore splitting the rainfall between separate Primary and Secondary would induce more regular operation

4. Has an adequate maintenance regime been implemented or specified?

5. Gutters, rainwater pipes, outlets and leafguards should be inspected and thoroughly cleaned not less than four times per year, or more often if the building is in or near an industrial area, coastal area, shopping centre, is near to trees or fast-food outlets or might be subjected to extremes of temperature. Any debris or granular material should be removed from the gutters and not pushed down the outlets as this could seriously compromise the operation of the roof drainage system.

NEW GUIDANCE FOR ROOFING / CLADDING CONTRACTORS

1. The roofing / cladding contractor should liaise with the siphonic contractor to define the size of the gutter, taking in to account the project specific rainfall intensity.

2. Gutters should be sized in accordance with BSEN12056-3. The minimum gutter depth should be 165 mm for Primary only or 180 mm if a Secondary system is also fitted. The minimum gutter width at the average design water depth should be determined, e.g. 450 mm on eaves gutters and 600 mm on valley gutters. If certain gutter widths cannot be achieved due to site constraints, the gutter depth needs to be increased to maintain the minimum gutter volume.

NEW GUIDANCE FOR STEELWORK CONTRACTORS

1. The steelwork contractor should liaise with the roofing / cladding contractor and the siphonic contractor to ensure there is sufficient room in the structure for the required gutter.

2. Steelwork beneath the gutters should allow sufficient space for the tailpipes and horizontal collection pipes.

NEW GUIDANCE FOR UNDERGROUND DRAINAGE ENGINEERS

1. When designing the interface between the siphonic and below-ground surface water drainage systems, any surcharging of the below-ground drainage should not reduce the required capacity of the siphonic roof drainage system.

2. The receiving manhole chamber should be fitted with a fully open grate instead of an inspection cover which should have a minimum free area of 0.19 m^2 for siphonic flows up to and including 285 l/s (a typical 600 × 600 gully grate) and a minimum free area of 0.39 m^2 for siphonic flows above 285 l/s and up to and including 585 l/s (a typical 1,200 × 600 gully grate). Flows above this should be discharged into separate chambers, with each meeting these criteria. If an open gully grate can't be installed, then a ventilation pipe from the receiving manhole should be provided. Vent pipe information is detailed in the new British Standard.