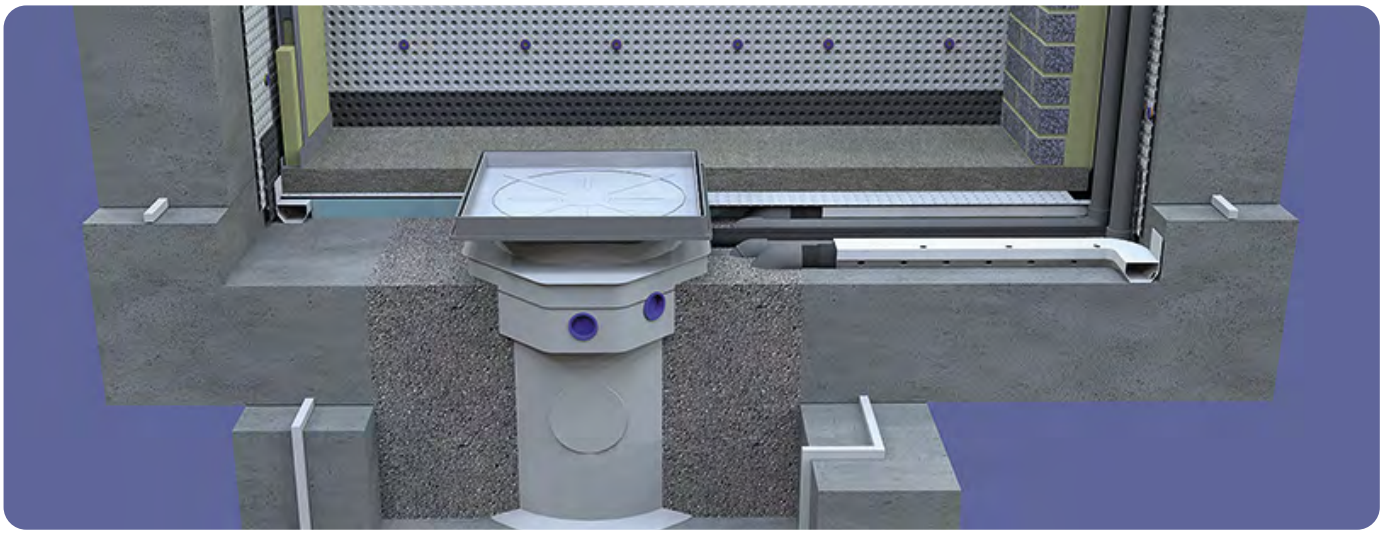
Maintaining Type C Systems

Practical Considerations & Servicing



1. Introduction

1.1. Newton Waterproofing Systems

Newton Waterproofing Systems was established in 1848 as John Newton & Co. Ltd. and has been involved in the remedial damp proofing and waterproofing industry since 1937 when the original ventilated damp proofing membrane 'Newtonite' was first introduced.

With our unique and long-standing experience in the industry, Newton has constantly sought to evolve both our products and our technical support over the years, resulting in the exceptionally high standards that we are able to offer today.

1.2. Cavity Drainage Systems

The Newton CDM System is a Type C waterproofing solution that comprises of BBA-certified cavity drain membranes, drainage channels, pumping systems and pumping ancillaries that are all specifically designed for waterproofing and protecting earth-retaining and below-ground structures against water from the ground.

Type C systems work via the installation of dimpled membranes to the internal surface of an earth-retaining structure, therefore creating a cavity between the wall and the membrane that depressurises any water penetrating through the fabric of the building. The captured water is directed via a series of drainage channels at the wall-floor junction and at points of weakness in the structure, and the system is installed using a range of tapes, fixing plugs and sealants.

Type C Systems differ from Type A and Type B waterproofing in that they do not seek to resist the water pressure, but instead allow it to enter before depressurising and controlling it in a safe fashion that will keep it away from the internal space.

With this in mind, the effective draining of the water away from the system is of vital importance, and if the system is designed correctly then Type C waterproofing is the safest method of waterproofing available.

Newton House, 17-20 Sovereign Way, Tonbridge, Kent, TN9 1RH
T: +44 (0)1732 360 095 **W:** www.newtonwaterproofing.co.uk **E:** tech@newtonwaterproofing.co.uk

The Newton CDM System also provides protection for earth-retaining structures where the substrate is contaminated by carbon deposits, salts, fertilisers, etc., as well as ground gases such as radon and methane.

A full list of the products used within a Type C System, along with a brief explanation of each, can be found in our Newton CDM System Installation Manual.

2. Type C System Maintenance

2.1. Key Considerations

Type C solutions such as the Newton CDM System actually require very little maintenance, however there are a number of points that you should be aware of, and indeed you should make your client aware of these same points in the content of your survey report and/or contract documents.

The Type C system should be designed and installed as a maintainable waterproofing management system, and as such the vital components should be accessible for both inspection and maintenance. This is highlighted as a key requirement within the British Standard for waterproofing, BS 8102:2009.

PLEASE NOTE that this guidance document does not provide detailed information on how the servicing visits should be scheduled or performed. The specific site conditions, waterproofing design, materials, and the machinery used will all play a part when deciding on the frequency and scope of your service visits.

Please therefore **DO NOT** use this document as a "how-to" guide for your servicing.

2.2. During Installation

Whilst installing the system, any repairs that are required should be carried out as and when they occur. This will save time later and reduce the risks of overlooking potential problems.

Once the system is installed, and before the finishes are applied, the membrane should always be checked for damaged areas and repaired where necessary. All joints and seals should also be checked to make sure that they are adequate, and any repairs should again be carried out in accordance with Section 11 of the Newton CDM System Installation Manual.

Cavities, drainage channels and sumps are all susceptible to build-ups of silt, fines and other particulate matter that may enter the building along with water from the ground. The deposit of calcium carbonate (free lime) can also occur in circumstances where new concrete is used in the construction, or chalky soils exist in the substrate. In both instances, severe deposits can result in the failure of a Type C System, as shown in Figure 1.

Figure 1: When free lime completely blocks a Type C system, leading to total system failure

Newton House, 17-20 Sovereign Way, Tonbridge, Kent, TN9 1RH
T: +44 (0)1732 360 095 **W:** www.newtonwaterproofing.co.uk **E:** tech@newtonwaterproofing.co.uk

2.3. Inspection Ports

To combat such occurrences, drainage channels should be fitted with accessible and structurally capable inspection ports that allow for the drainage channels to be inspected, jetted or washed as necessary (Figure 2).

It is important that these inspection ports are situated in practical and convenient locations in order to allow for periodic access, inspection and cleaning as and when required in future, and these locations should be detailed on the installers final floor plan.

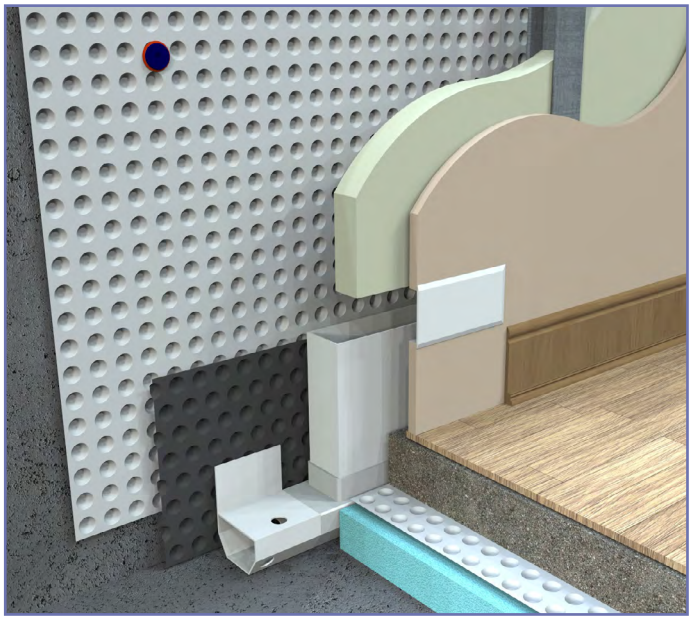


Figure 2: A Newton inspection port in a maintainable Type C system

As a minimum requirement, inspection ports should be large and accessible enough that:

- The water levels within the channels can be seen
- A cleaning nozzle can be inserted and directed in both directions as required
- A camera can also be inserted in order to allow for inspection in either direction

2.4. Sump & Pump Chambers

Sump chambers should also be installed in locations that allow for easy access during the periodic servicing schedule.

Pumps and the associated pipe work within the sump chamber should be accessible when the sump is open, and installed in such a way as to allow easy servicing and wherever necessary the easy replacement of elements of the pumping system.

2.5. Maintenance Inspections

The pumping system should have its first service within 3 months of being commissioned, and at this first visit a future service schedule should be agreed between the service engineer and the client. This schedule should be structured depending on the engineer's findings at each service, and in some circumstances it may be necessary or desirable to amend the time and scope of the service visits to be more or less frequent. However, any such changes to the planned maintenance must **ALWAYS** be agreed with the client so that service schedule is amended accordingly.

The servicing and maintenance of Type C systems should be carried out by trained, competent service engineers, with a good knowledge of Type C waterproofing and access to the specific details of the installed system. Copies of the original installation plans and specifications should be available for inspection, and the engineer should be fully equipped to effectively carry out the service operations.

Any accumulation of silt, fines or lime should be noted before cleaning commences, and pump units should be inspected for correct operation before any flushing commences.

Newton House, 17-20 Sovereign Way, Tonbridge, Kent, TN9 1RH
T: +44 (0)1732 360 095 **W:** www.newtonwaterproofing.co.uk **E:** tech@newtonwaterproofing.co.uk

The maintenance inspection should cover all of the following areas plus any additional requirements, as detailed by the specific pump manufacturer:

1. Cleaning and de-scaling of the pumping system as required
2. Checking for and ensuring free movement of the pump impeller
3. Checking pump seals for leakage and renewing as required
4. A pump impeller test ensuring free movement
5. Inspect pump discharge pipes for damage and leaks
6. Check non-return valves
7. Remove any debris from the base of the sump that may interfere with pumping
8. Check electrical connections and fuses
9. Flush through the Basedrain and Floordrain drainage system (if required)
10. Check the positioning of the battery
11. Record the internal environmental temperatures
12. Check battery terminal connections
13. Check battery Volts
14. Check the inverter and inverter settings
15. Check the battery in alarm and test
16. Check connections to panel systems (if installed) and test
17. Check pump Amps
18. Check pump cable resistance

All of the above should be carried out periodically at the agreed intervals confirmed by the service engineer, and performed by a competent person. In some cases, especially where the pumping system is rarely used, and at the discretion of the service engineer, periodic flushing and a less stringent inspection may be introduced between full service and inspection visits.

PLEASE NOTE: Sump pumps are electrically powered, so it is important to maintain a constant power source in order to achieve maximum drainage capacity. Newton Power Inverters are available for continuing the discharge of the sump during failure of the mains power supply.

Maintenance of the pump will vary according to the specific pump configuration installed. Please contact the Newton Technical Team or the installing contractor for information relating to the servicing of individual pumps and specific configurations.

It can be extremely difficult to predict how long an individual pump might last, so it is important to seek advice from the pump supplier when estimating the service life.

Newton cavity drain membranes should not be pierced in any way, and if works are proposed that are likely to penetrate or disturb the membrane, advice should be sought from the installing contractor or from Newton Waterproofing prior to such work being carried out.

Even if only minor modifications are proposed to the waterproofed areas, e.g. shelves or cupboards, the installing contractor should be contacted to advise on the correct fixing method.

3. Service Intervals

At first Type C systems should initially be inspected and serviced at least annually, however in some circumstances the period between services may be considerably shorter or longer. Site conditions, design, materials, the machinery used, and the severity of the implications of a system failure will all play a part when deciding on the frequency and scope of service visits.

It is advisable to schedule the first service visit within three months of the system being commissioned, as this will highlight any problems and allow for the removal of any debris that may have been deposited in the drainage channels during the construction phase that followed the waterproofing. At this service it will also be possible for the service engineer to assess the risk posed by free lime and silt that may be present in the system.

With settled systems that are rarely or never operating, a less thorough flushing and visual inspection may be suggested at the discretion of the service engineer.

It should also be remembered that the pumps housed within the sump chamber are mechanical devices and as such will fail eventually. It is therefore good practice to consider the service life of the pump and plan to replace the unit long before it fails.

Finally, it is important that the client or other persons responsible for the building instigates or implements a service plan as recommended by the installer, designer or supplier. This will ensure that it is less likely that any failure of the waterproofing system, as a result of a blockage of the drainage elements or the pumping system, will be the responsibility of anyone other than the client or controller of the building.

If you have any questions regarding any of the advice or guidance given in this document, please contact the Newton Technical Team directly.

Newton House, 17-20 Sovereign Way, Tonbridge, Kent, TN9 1RH
T: +44 (0)1732 360 095 **W:** www.newtonwaterproofing.co.uk **E:** tech@newtonwaterproofing.co.uk

JN®

NEWTON WATERPROOFING

Newton Waterproofing Systems
Newton House,
17-20 Sovereign Way,
Tonbridge, Kent TN9 1RH
United Kingdom

T: +44 (0)1732 360 095
F: +44 (0)1732 359 033
E: info@newtonwaterproofing.co.uk
tech@newtonwaterproofing.co.uk
W: www.newtonwaterproofing.co.uk