



Concrete Basement Gas Protection

Combining Waterproofing & Gas Protection in a New-Build Mansion, Surrey

The Project

Leafy Windlesham was the location for this 5-bedroom, £15,000,000 mansion by [Searchfield Homes](#), complete with 4-metre deep basement containing a swimming pool and spa. Considering the prestigious property and the risk from ground gases, Newton Specialist Contractor [Maclennan Waterproofing](#) provided a specification combining waterproofing and gas protection, as well as an insurance-backed installation guarantee.

The Solution

Maclennan recommended the patented [Newton PAC-500 System](#) to protect against both gas and water. The PAC-500 begins as a [Newton CDM System](#) fitted by Maclennan's NVQ Level 2 qualified installers.

[Newton 508](#) membrane was installed using [MultiPlugs](#) to secure it and [Waterseal Tape](#) to seal the joints. Water captured by the membrane is then directed via a series of [Basedrain and Floor drain](#) channels to a [Titan-Pro](#) sump and pump chamber.

During the installation process, specialist gas remediation contractor [Prestige Air](#) then converted the CDM System into a Positive Air Curtain (PAC) System. This was achieved by fitting an air duct behind the membrane at ceiling height around the basement, then using a high volume, low pressure fan to deliver a curtain of air behind the membrane, blocking gas from entering by creating a continual flow of pressurised air.

The Result

By utilising the specialist expertise of both Maclennan and Prestige Air from an early stage, the architect and client benefited from a combined system that protects against both water and gas.

Furthermore, the system is also compliant with all relevant British Standards and supported by Maclennan's insurance-backed installation guarantee.



The 4-metre deep new concrete basement



The large internal space of the new basement



"Newton Waterproofing System's products were a perfect fit for the specific requirements of this high-value project where there was no room for failure.

The specialist PAC system enabled us to comprehensively cover the gas protection requirements, whilst at the same time dealing with the waterproofing too, and all by using one product system from one supplier."

Ian Scoggins, Senior Surveyor
Maclennan Waterproofing
Newton Specialist Basement Contractor

The Products

CDM SYSTEM

A product of Newton Waterproofing's decades of basement waterproofing experience, the CDM System is a comprehensive and maintainable 'Type C' waterproofing solution, defined by British Standard 8102:2009 as "drained protection", whereby water leaking through the structure is accepted into cavities created by strategically installed drainage membranes, in order to depressurise the incoming water and then safely remove it from the property.

The Newton CDM System utilises the highest quality, BBA-approved cavity drain membranes from Newton System 500, coupled with bespoke sump and pump configurations, backup systems, telemetry and ancillary options, in order to provide the most reliable waterproofing solution for any habitable space below ground.

PAC-500 SYSTEM

A combined basement waterproofing and ground gas mitigation system which successfully controls both water and gas levels within below-ground and earth-retaining structures.

The patented system takes a Newton CDM System installation, performed by a Newton Specialist Basement Contractor, and combines it with an air pressure delivery system installed by gas mitigation specialists Prestige Air, in order to create a 'Positive Air Curtain'.

The System utilises a low-pressure fan to introduce air behind the sealed cavity drainage membranes, creating a pressurised air barrier to block ground gases from entering the retained space. Even if small amounts of gas manage to enter the space, the continual flow of low pressure air ensures that it is quickly expelled via an outlet from the sump chamber.



Maclennan's trained installers fitted the Newton cavity drain membrane



The duct was then fitted around the basement to deliver air pressure



The finished system undergoes extensive sealing and testing

Newton Specialist Basement Contractors

Newton recommends that our systems are installed by one of our nationwide network of Newton Specialist Basement Contractors (NSBCs). Trained by Newton, NSBCs offer a full guarantee on the design and installation, and can act as Waterproofing Design Specialists.



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