NEWTON HELP & ADVICE

DOMESTIC BASEMENT CONVERSIONS

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Your Guide to Successfully Converting Your Basement

Domestic Basement Conversions

Your Guide to Successfully Converting Your Basement

Contents

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

1. Introduction

What do you do if you want a larger home but either your garden or land is too small to extend outwards, your loft is already converted or is unsuitable to be converted, or your local planning rules won't allow you to extend upwards? For many, the automatic answer would be to move house, however this doesn't always need to be the case.

Instead, basements can be used in almost exactly the same way as an additional above-ground floor, and an increasing number of homeowners are now opting for basement conversions or extensions in order to gain more living space.

When done well, a properly converted basement can provide the homeowner with significant extra space and also increase the overall property value.

Converting a basement can be a savvy way of adding space and value to your property.

2. Why Invest in Your Basement?

In many parts of the UK, especially in densely populated cities and towns, basement conversions have become extremely popular as space is already at a premium, and moving house can be prohibitively expensive.

In addition, attitudes towards basement projects are improving in the construction industry as a whole, as the prospect of either including a basement in a new-build project, adding a basement extension to an existing house, or converting an existing basement are all now seen as far less risky by many builders.

This is partly thanks to advancements in building materials and techniques, but also thanks to an increased understanding of how to successfully waterproof basements to a standard where they can be guaranteed to be dry.

This newfound confidence has seen basement designs becoming more and more adventurous, and multi-storey domestic basements becoming more and more commonplace, as homeowners begin to appreciate that there are almost no limits to how a basement area can be used.

This article is your guide, as a homeowner, to the various factors that should be considered when converting a domestic basement.

3. What Will You Be Using Your Converted Basement For?

A basement is the ideal space to let your imagination roam free and enhance your family's lifestyle. Deciding on the end use is also a significant factor when it comes to how you will be able to answer many of the other considerations outlined in this article.

Because of their location close to ground floor amenities, basements in domestic properties are most often used for either additional family living areas, or for dry storage that will free up your valuable above-ground space.

Some of the most common and popular uses for basement conversions include:

- Gyms, swimming pools and wellness facilities such as a spa, hammam, sauna or steam room
- Games rooms
- Cinema and media rooms
- Playrooms for children
- Utility rooms
- Libraries
- Music and recital rooms
- Wine displays and stores
- Secure rooms for valuables
- Seasonal storage
- Vehicle storage
- Additional bedrooms

Gyms and home cinemas are common uses for basement conversions.

If the intention is to use the basement as a living space of some kind, then you need to ensure that:

1. you have safely created enough room for the intended use
2. the basement has good access/ egress routes, especially for bedrooms which may require more than one escape route
3. you are able to achieve a comfortable internal environment that takes into account factors such as damp, lighting, ventilation, and heating, amongst others.

Of course, if you intend to use your basement for storage then some of these factors may not be relevant, however it is always important to consider what you will be storing. For example, there's a big difference between the storage requirements for lawnmowers and bikes, and the requirements for important documents, a wedding dress, or a wine or car collection

4. Do You Need to Engage an Architect?

One of the most important people in your whole project, and therefore one of the people that you should seek to engage first is an architect who can guide you through the entire project process, including:

- assessing your budget
- developing a design that suits your needs and makes the best use of the space
- achieving the required planning permissions and consents
- selecting a specialist contractor to perform the work, and assisting during the construction phase
- advising on a suitable waterproofing solution

To assist with this process, Newton have set up a nationwide network of architects who are all certified as Newton Specification Partners – each member company has been carefully selected by us thanks to their cooperation with Newton on successful basement waterproofing projects in the past, and thanks to their understanding of the importance of good basement waterproofing.

To utilise the knowledge and experience of the Newton Specification Partners, simply contact us with your basement project information, and we will supply you with a bespoke list of specifiers who work in your area and are experienced in projects like yours.

5. Do You Need Planning Permission?

Unless your home is in a Conservation Area, a specially designated area, or it is Listed, then the process of converting an existing basement into living space will be classified as Permitted Development and will not require planning permission. However, if you need to lower the floor level in order to improve overall head height, then this is considered to be a basement extension and may require planning permission.

In circumstances where only modest extensions or structural alterations are being made to an existing basement then this can sometimes be undertaken without the need for planning permission. In most other situations, for example where a new basement extension is being made, you will need planning permission for your basement, and your architect will be able to advise you on your particular situation.

Overall, although planning policy on basements can vary depending on your local authority, in theory gaining planning consent for basement projects should be relatively straightforward. Because the alterations are largely below ground level and are therefore less visible than other types of extensions, it should be difficult for your local authority to find reasonable grounds for refusal.

The main challenges when it comes to basement planning consent are often:

- Light wells, which are designed to bring natural light into the basement and are often the most visible aspect above the ground
- If you live in an area where there have been high-profile cases of homeowners making multi-storey basement extensions, known as iceberg basements, and which have caused the local authority to review their planning policy on basements.

Provided there are no complications, the planning application process should take around 8 weeks from the point of submission to gaining a decision.

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6. Building Regulations and Basements

Building Regulations are a comprehensive set of simple legal requirements for any new living space, ensuring that any building is safe, hygienic and energy efficient.

Whether or not you require planning permission, your basement conversion will need building regulations approval. The only exceptions to this are if you are:

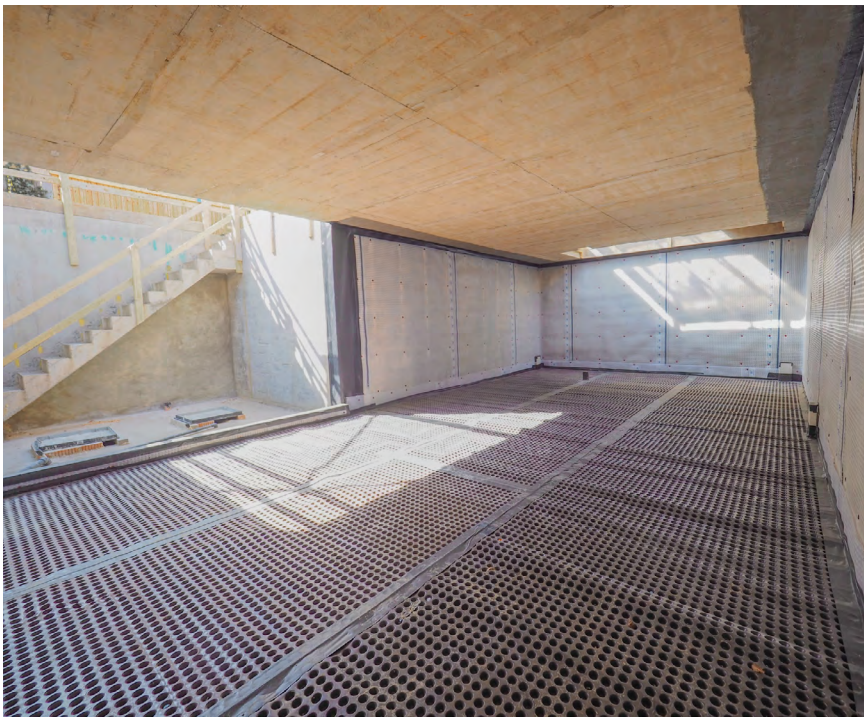
1. renovating an existing basement that is already habitable
2. repairing a basement or cellar that will not be changing use, i.e. it is already used for storage and will continue to be used as such.

Some of the most common issues to be aware of when converting a basement are:

- waterproofing/tanking
- ventilation
- safe access
- means of escape in case of fire
- smoke alarms
- electrical wiring

Because of the specialist nature of basement conversions, it is advisable to make a Full Plans Application rather than simply following the Building Notice procedure.

This way all affected design details should be resolved prior to work commencing.



Waterproofing is a crucial consideration in successful below-ground construction.

6.1. Ventilation and Heating in Basements

Good ventilation and heating in a basement conversion is fundamental to creating the desired internal environment and preventing unpleasant odours and condensation.

Natural ventilation via windows is one solution, however these are obviously less likely to be available in a basement than they would be above ground. In order to therefore deal with the levels of atmospheric moisture that are produced by everyday use, some form of mechanical ventilation or climate control may be required to achieve a specific relative humidity or temperature.

When mechanical units are required in a habitable situation ensure that low noise ventilation is specified and bear in mind that space may be needed to accommodate the ventilation and climate control systems.

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6.2. Lighting in Basements

If your basement conversion is to be a living space, the importance of getting natural light in cannot be overestimated. The only exceptions being if you are creating a specialist area like a cinema or wine cellar which may actually benefit from no natural light.

Generally speaking though, it is sensible to incorporate as much natural light as possible, and sophisticated solutions such as sun pipes, walk on roof lights, light wells or skylights will not only add to your overall comfort but also increase the value of your basement conversion.

In addition, use light colours inside the basement to increase light distribution and use an open-plan layout so as not to block the path of the natural light.

If your natural light options are limited, then getting your artificial lighting right is equally important. Thankfully, there are a multitude of options to create the environment that you are after and prevent your basement conversion from feeling small and oppressive. For example:

- dimmable and/or coloured lighting to create different moods
- highlighting pictures with dedicated lights
- getting light on the ceiling from indirect wall lights
- washing the walls with recessed ceiling downlights

Utilising natural light successfully can transform the ambience of your below-ground environment.

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7. Party Walls in Basements

Party Walls and Party Wall Agreements are something that you need to consider if you're planning a basement conversion that will affect an adjoining property. If you live in a terraced or semi-detached property, then this will almost certainly be the case.

If the proposed works do affect a Party Wall then you have a duty to inform the owners and leaseholders of the adjoining properties. If you are unsure of your situation, check with your architect first before drawing up any plans. It is also advisable to speak with your neighbours to discuss and head-off any concerns that they might have at an early stage.

The relevant legislation is the Party Wall etc. Act 1996, which is designed to help you undertake your proposed work while protecting the interests of your neighbours.

8. Creating the Space for Your Basement Living Area

If you are lucky enough to already have a basement area which is of a suitable size to convert then this is a big bonus, however many existing basements, especially in older properties, will need to undergo some structural adaptations before they can be converted.

8.1. The Basement Structure

In some cases, a basement might have walls and foundations already in place but will only have an earth floor and no concrete oversite (a layer of concrete used to seal the earth under the ground floor of a house).

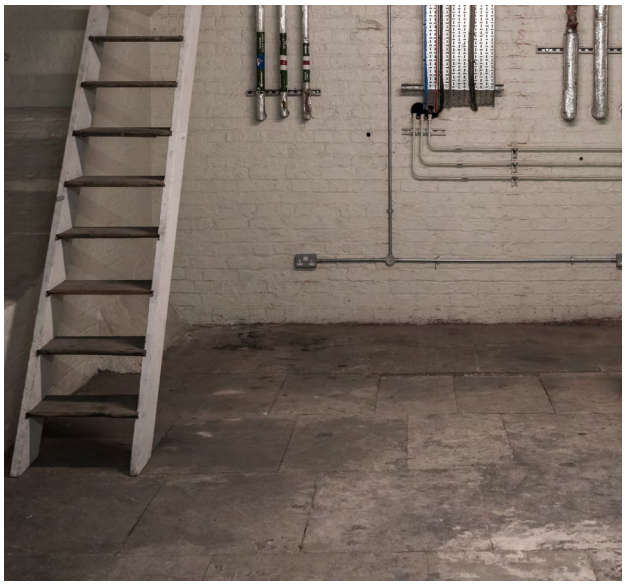
The structure is therefore incomplete, and the basement is not suitable for conversion as it will be at significant risk from substantial water ingress in the event of a rising water table.

In such cases, the first thing to do is consult with a specialist basement contractor and/or a structural engineer regarding the installation of a new concrete floor slab. Once complete, the new slab will provide a solid base for the conversion, as well as ensuring the continuity of the structure and providing a form of primary resistance to water ingress

8.2. Existing Floors

Many older existing basements will have flagstone floors, which can certainly add an appealing aesthetic to the room, despite not being structurally suitable for a basement conversion.

If you have such a feature and wish to keep the original floor – if your structure is Listed then you will probably be required to retain the flagstones regardless of your personal preference – then the stones will need to be meticulously lifted, numbered and stored, ready to be reinstated after a new concrete floor slab and any required waterproofing products are installed.



Original floors can be an important feature in existing basements.

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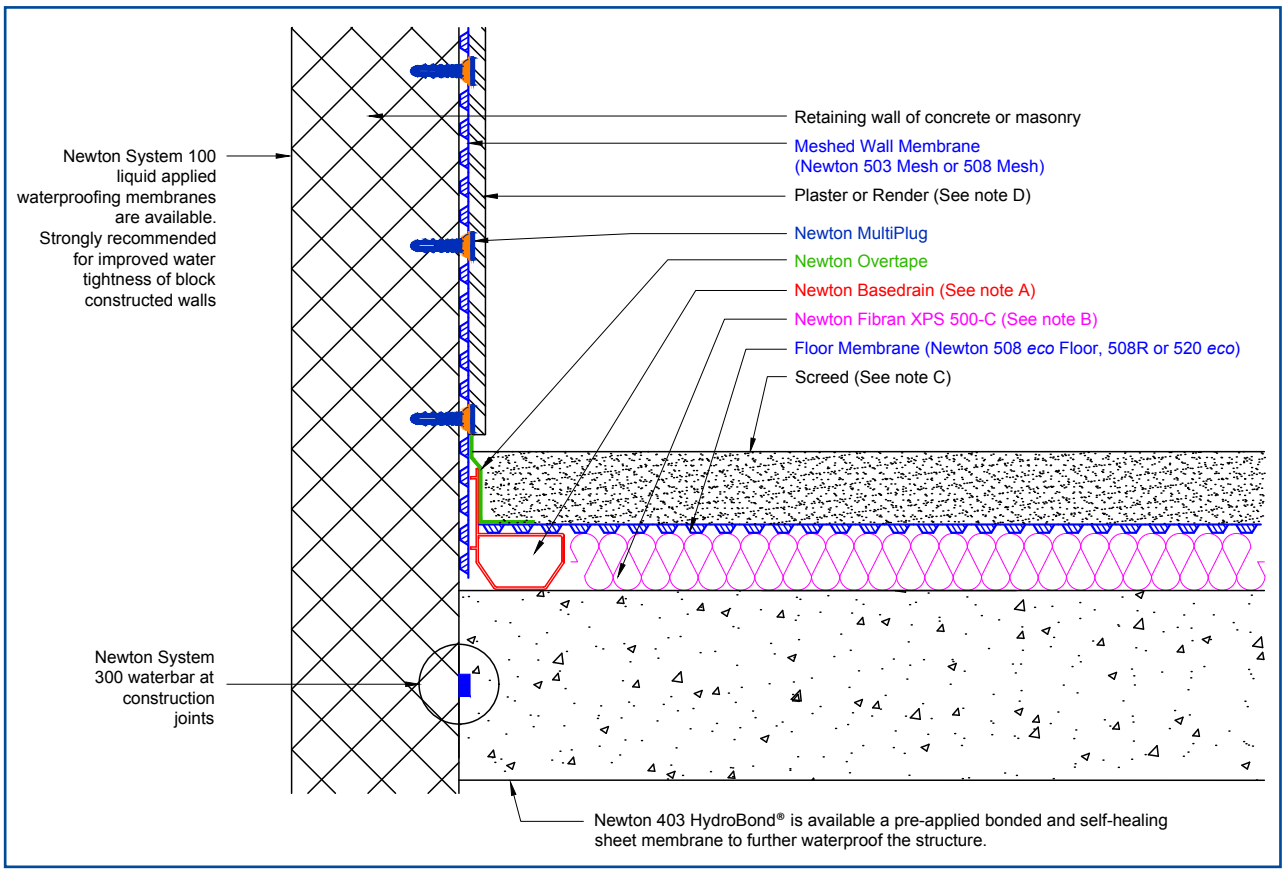
8.3. Ceiling Height

Whilst there is no minimum height for basement ceilings under the Building Regulations, a practical minimum height to work from is 2.4 metres, and generally speaking the higher the ceiling the better.

If you do need to create additional head height, it may be necessary to break out the existing concrete slab (if there is one) and excavate the earth underneath in order to create the additional space.

The feasibility of achieving this without the need for underpinning the existing structure will be completely dependent on the depth of the existing basement foundations and could have significant ramifications on your structural and waterproofing considerations. In both case, the continuity of the structure is vital, and a competent basement contractor should be able to advise you on what is required. If there is any doubt however, we would always recommend consulting a structural engineer.



This typical waterproofing detail illustrates the vertical height required to accommodate an internal waterproofing system.

8.4. Excavation and Underpinning

If it is necessary to dig down below the existing foundations, then this will result in the excavation of the soil that is currently supporting the foundations. If this is the case then it is highly likely that structural underpinning is going to be required in order to support the existing structure, and the advice of a structural engineer should definitely be sought.

Generally speaking, in a standard basement conversion project the basement contractor will use a traditional method of underpinning.

An example is mass concrete underpinning, which strengthens the existing structure by excavating boxes beneath the foundations and sequentially filling them with new concrete.

The result is a new concrete foundation built underneath the existing foundations, and which allows a new concrete slab to poured between the underpinned walls.

An underpinned structure with waterproofing to the concrete joints.

8.5. Basement Design

With all of these considerations in mind, it should come as no surprise that the detailed design and construction stages of converting a basement will generally take longer than if you were carrying out an above-ground extension.

This is especially the case if your project requires excavation, which also includes removing the spoil from site, underpinning the existing structure, and installing the waterproofing.

Throughout this entire process however, and in all instances where alterations to the basement structure are required, Newton can recommend both an appropriate and experienced approved architect, and an approved specialist basement contractor who will be able to offer you the best advice for your property.

9. Waterproofing a Basement Conversion

Other than the structure itself, the most important element of the basement conversion will be the design and installation of a waterproofing solution that is guaranteed to deliver the required level of dryness.

Waterproofing any below-ground structure is a specialist practice, so choosing a qualified contractor who will install the correct products in your property is essential.

On many occasions we have seen cases where unsuitable waterproofing products have been installed by unqualified companies trying to work to an unrealistic budget, and the cost of the consequential losses can be astronomical compared to the perceived initial saving.

Your waterproofing system is ultimately what protects every single internal fixture, fitting and feature that is installed or kept in your basement, so its importance in the basement conversion process cannot be underestimated.

Overall, your most important decision is who you engage to design and install the best waterproofing solution for your project. For complete peace of mind, Newton's approved architects and specialist basement contractors can manage the whole process.

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9.1. Basement Waterproofing Standards

The most relevant documents here are British Standard 8102:2009 the 'Code of practice for protection of below ground structures against water from the ground', and NHBC Chapter 5.4 'Waterproofing of basements and other below ground structures'.

The starting point for designing your waterproofing is to decide how much protection is required - both documents outline three 'Grades' of protection, depending on how you will use your basement:

- Grade 1 – Car parking/plant rooms. Some seepage and damp areas are tolerable.
- Grade 2 – Plant rooms, storage areas and workshops requiring a drier environment than Grade 1. No water penetration is acceptable, but damp areas are tolerable, and ventilation may be required
- Grade 3 – Ventilated residential and commercial areas. No water penetration is acceptable, and ventilation, dehumidification or air conditioning will be necessary appropriate to the intended use.

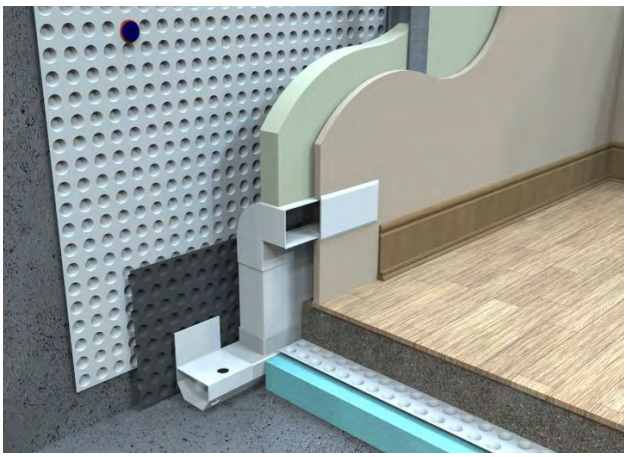
Once it has been decided which Grade you want to achieve with your basement conversion, your waterproofing designer has three types of waterproofing at their disposal to try and achieve this. Again, the standards outline these for us:

- Type A (barrier protection) either internally or externally
- Type B (structurally integral protection)
- Type C (drained protection)

Internal Type A (barrier) protection.

External Type A (barrier) protection.

Type B (structurally integral) protection.



Type C (drained) protection.

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Whilst all of these waterproofing 'Types' can all be used in isolation, the most effective designs, which provide the best protection, combine either 2 or all 3 types of waterproofing to create multiple layers of protection. This is particularly important in any situation where the likelihood of water ingress is high, and certainly where you are looking to create a Grade 3 living area, for example in a basement conversion.

This 3D drawing shows a basement conversion that has been underpinned and waterproofed with multiple products.

Based on all of this, it is always our recommendation that a combined system is utilised for dryer environments, especially Grade 3 habitable spaces that need to be completely dry.

When it comes to achieving this, we would always recommend that one of the methods of waterproofing is Type C, otherwise known as cavity drain waterproofing, and also the safest and most reliable form of waterproofing. The choice of the other system is largely dictated by the type of structure, and in the case of an existing basement conversion, we generally have a choice between:

- Internal Type A only
- Type C only
- A combination of internal Type A and Type C

Whilst we would generally not advise an internal Type A system on its own if you are looking to create a new living area, your architect and specialist waterproofing contractor will be able to advise you as to which options are best suited to your basement conversion.

10. Designing the Best Basement Waterproofing Solution

To help you, your architect and your contractor make an informed decision that considers both the overall cost of the waterproofing design and the level of risk, we created the unique Newton Waterproofing Index (NWI).

Put simply, the NWI is a scoring system for waterproofing designs which assesses the likelihood that they will achieve the required level of waterproofing protection.

To make the NWI as accessible as possible, we also created a library of Solution Sheets for all potential designs, that have already been assessed and scored, and a selection of which can be viewed here.

The scoring system is a simple scale from 1 to 3, based on the Grades of waterproofing in the British Standard, and provides the simplest way of assessing the suitability of your design – if the design is scored as a 3, then it should be able to deliver a Grade 3 internal environment.

However, the scoring system also accounts for the fact that the quality of the workmanship can play a significant role in the effectiveness of the waterproofing. It allows for this by attributing each design with a scoring range – the higher score is what is achievable by using a trained waterproofing specialist, whilst the lower end is what might occur if you use an unqualified company who are not trained in basement waterproofing.

For example, if you have excavated and underpinned your existing basement in order to convert it into a habitable living space, then Solution Sheet AC-28 shows that it is certainly possible for the waterproofing to deliver a Grade 3 internal environment. However, the scoring range indicates that if the design is not installed to a high standard, it would be at risk of only achieving a Grade 2 environment.

To avoid a situation where your waterproofing installation does not deliver the desired environment and might therefore incur significant remedial costs, the services of a trained, specialist waterproofing contractor can be invaluable.

10.1. Newton Specialist Basement Contractors

Newton Specialist Basement Contractors (NSBCs) work in partnership with Newton to provide the highest quality products, design and installation in all aspects of basement waterproofing, and provide insurance-backed guarantees for their installations.

All NSBCs adhere to strict membership criteria, including participating in regular training with Newton, and demonstrating quality workmanship on all waterproofing projects.

As a result, we would always recommend that you get an NSBC involved in your basement conversion project as early as possible. This way, they can work directly with your architect to develop a suitable waterproofing design, and take on the liability for both the design and the installation.

Finally, they will support their work with a meaningful insurance-backed guarantee that covers both the design and the installation of your waterproofing solution.

Our network of NSBCs covers the entirety of the UK and Ireland, so please contact us for a list of contractors in your area.

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11. Ensuring Your Basement Conversion is Guaranteed

By using Newton waterproofing products and an NSBC to waterproof your basement conversion, there are three types of cover that are available to you, and that you should be aware of:

11.1. Product Warranties

- Provides for a replacement product in the event of a product fault.
- Specifically excludes cover for defects as a result of the design, workmanship or installation.
- Available on all Newton waterproofing products.

11.2. Contractor Guarantees

- Guarantees the installation of the waterproofing under the contractor's own insurance.
- Available from all Newton Specialist Basement Contractors.
- If the NSBC is involved in the waterproofing design, they can also take liability for the design under their own Professional Indemnity insurance.

11.3. Bespoke Insurance Guarantees

- Available through Newton's independent, UK-based insurance broker.
- Provides cover for the design, the workmanship and the materials all under one comprehensive guarantee.
- Underwritten by an A-rated, Lloyds of London insurer.
- Only available when Newton waterproofing products are installed by an NSBC, and when the waterproofing design meets the minimum performance criteria to qualify for the insurance.

12. Sustainability in Waterproofing

As a result of the CO2 heavy products, such as concrete, that are often required in the construction or conversion of a basement, below-ground developments generally produce more embodied and construction CO2 emissions during a typical sixty-year lifecycle compared to a similar above-ground project.

However, the embodied CO2 of your basement can actually be partially mitigated over time, thanks to the reduced heat loss from below-ground structures. Because basements are below ground, they benefit from the natural insulation properties of the soil.

Furthermore, whilst Newton waterproofing products are not specifically made from CO2 heavy products like concrete, they are intrinsically linked to it in many instances via their application. As a result, at Newton we understand our obligation to reduce the devastating environmental impact of the UK the construction sector, and we are continually attempting to do so with our innovative sustainability initiatives.

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12.1. Waterproofing Recycling

The unique and award-winning Newton Membrane Recycling Service is the first and only closed-loop recycling scheme in the UK waterproofing industry, and was developed in 2017 as a direct solution to the huge quantities of plastic membrane that are sent to landfill by the industry each year.

The service actively collects and recycles leftover plastic product from across the UK for recycling into new construction products, and is only available when using a Newton Specialist Basement Contractor.

Between 2017 and 2019 we prevented 13.70 tonnes of HDPE membrane from going to landfill, which is equivalent to preventing 15.74 tonnes of CO2 emissions from being released into the atmosphere.

As well as the recycling service, we are continually seeking to expand our in-house sustainability initiatives, including increasing our range of 100% recycled eco-products and continuing our partnership with UK environmental charity Surfers Against Sewage.

13. Considering Converting Your Basement?

If you are considering basement conversion, extension or are constructing a new-build property with a basement, get in touch with Newton for a complete service including your design, installation and guarantee.

Our expert Technical Team will help you to get started with the right advice from the outset, including helping you get to grips with the design, costs and insurance on your basement waterproofing project.

Why not get in touch with Newton to explore the myriad of possibilities for converting your basement into new living area.

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Tonbridge, Kent TN9 1RH
United Kingdom

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