



BASEMENTS

What you need to know

Above: Simply Basement added a new level to this mews house in West London. The covered lightwell, which is connected to the kitchen, provides an indoor garden and is flooded with sunshine thanks to the walk-on glazing positioned above

Right: Neil Dusheiko Architects masterminded the design of this sleek underground zone. Glazed folding doors open out onto a cosy dining area, which previously hosted a gloomy, unused lightwell

Rebecca Foster outlines the practical considerations to factor in when digging down, as well as showcasing a selection of inspiring subterranean spaces

Going underground to create a new basement is a smart solution for adding extra square footage to your home – especially if you've run out of options for gaining space at ground level and above. Excavating a subterranean zone is also worthwhile if your area has a high land value but you don't want to eat up precious garden space with a rear addition.

However, before getting carried away by fantasies of a light-filled basement, complete with an open-plan living area, cinema and home gym, it's important to assess whether your property is a suitable candidate for this kind of project and if it's worth the investment, since this type of renovation is among the most costly.

As a starting point, research whether any similar schemes have been carried out in your local area – this can be helpful from a planning perspective and in terms of construction logistics. "If so, this is a positive – speak to those neighbours about their experience," says Oliver Burgess, architect and studio manager at Resi.

Another key detail to investigate early on is what the ground conditions are like. "High groundwater levels can make it more difficult to avoid damp and water ingress. Even and stable soil conditions will provide a good footing for basement works," says Oliver. Having a thorough understanding of your home's building fabric



is also essential before any works begin. It's important to arm yourself with information and identify anything that'll create challenges or present knock-on costs further down the line, including changes to the upper floors.

Design basics

Given the investment associated with subterranean projects, where a hefty chunk of the budget will be allocated to excavation and underpinning, you'll want to create an inviting space that adds real value to your home. It's important to decide in advance exactly what role the basement will play – without careful planning, it could end up becoming a gloomy zone that feels disconnected from the rest of the house.

"Identify locations for lightwells and potential high-level windows," says Liam Dower, director at St Albans Basement. "A decent ceiling height is also key to give an airy feel – we recommend a minimum of 2.4m." If

opportunities for channelling sun and daylight into your basement are limited, it's possible that zones that don't need a lot of natural light, such as home gyms or cinema rooms, will maximise the space better.

A successful underground zone should feel as though it's beautifully integrated into the rest of the property's floorplan, rather than a gloomy space that's been dug out as an afterthought. "The connection from the house to the lower level must be carefully considered so the transition feels natural and welcoming," says Rosie Caley, design director at The Oxford & London Building Company. "Often, the new staircase is located under the existing one to save space. Opening the flight up with a matching stair balustrade will unify the area and let more light into the basement hallway."

Give careful thought to the layout of the new space, factoring in its size and the functions you'd most like it to perform. "Often the back area affords a full width space to include a broad, full-height lightwell and patio doors," says Rosie. "We refer to this as the primary zone and often design these spaces as media/family rooms – a flexible area that can be used by everyone." Incorporating some planting in this sunken lightwell also gives the feeling that the basement sits at ground level.

Storage is another key consideration for this kind of project – built-in solutions will allow you to make the most of every square inch, as well as providing a sleek, uncluttered feel. One design pitfall to avoid is failing to appoint space for your mechanical and electrical kit. "Don't forget to allow a suitable spot for essential equipment such as sump pump controls, alarms and other associated services," says Liam. "Consider a plant room for this, if space allows, and ensure that pumps and tools are accessible for maintenance."

Planning know-how

In the past, it was possible to create a new basement extension under permitted development. However, this is becoming less common, as councils have become more cautious of uncontrolled subterranean development – hence most projects now require full planning consent. Key considerations include the depth of the basement you wish to excavate, the layout and whether any changes are going to be made to the exterior of the property. For example, introducing a lightwell to help channel sunshine



CASE STUDY

This 1800s house in St Albans has undergone a complete transformation, encompassing a basement excavation, rear extension and whole-house renovation. The end-of-terrace property, which is situated in a conservation area, was expanded from 110m² to more than 160m².

The ceiling height of the existing cellar was increased to create a bright and airy feel, as well as extending the space out to the rear of the property. Two full-depth lightwells were added at either end of the zone, ensuring plenty of sunshine reaches the rooms below ground level. Large windows and glazed doors have been installed

in each of the lightwells to invite plenty of natural brightness inside.

The new basement features a bedroom, with its own access to the outside via stairs in the lightwell, plus an expansive living space and a bathroom. Sleek, built-in joinery provides storage space in the basement, while maintaining a clean, uncluttered feel. The project, by Dower, took one year to complete.

down to the subterranean level automatically requires consent. It's worth bringing an experienced architect on board at the conception of your project to help you navigate the challenges involved.

As part of your application, most local authorities want to see a Basement Impact Assessment and Construction Method Statement. "These will outline the engineering and construction methods used to build the extension," says Oliver. "Both documents can be costly, so it's important to factor this in with your initial fees when assessing whether you want to pursue architectural drawings." If you live close to a river or in an area that floods, a flood risk report may also be required. This can usually be carried out by your project architect.

For the best chance of success, it could be worth going for a pre-application meeting. "This is a service where you can discuss design feasibility with the council privately," says Oliver. "If a negative outcome is the result, you'll receive a report and it will not be on your council's website."

Project logistics

From a construction perspective, basement projects carry a lot more risk than straightforward above-ground extensions, so it's important to work with a skilled team of professionals with a proven track record. An architect or design and build company is usually the first port of call. They should either have or consult a waterproofing specialist, as well as commission surveys and engage a structural engineer. This phase will encompass desk-based studies, such as the flood risk assessment, as well as site investigations and digging trial pits to assess the foundations, soil conditions and water table.

Left: The Oxford & London Building Company are the design brains behind this lavish subterranean space. Adding a total of 75m² to the property, the project took nine months to complete



DARREN CHUNG

Above: This project by Gregory Phillips Architects involved the refurbishment and extension of a semi-detached Victorian house in South London. A new basement was added as part of the works, encompassing a playroom that overlooks the garden from the lower level

Below: Rather than tucking the new staircase beneath the existing access to the first floor, Mulroy Architects created a purpose-designed atrium for the new light-filled flight

In order to excavate, one option is for your construction team to take out the ground floor to remove the earth below. "A conveyor will then be set up either through the front door or, if this isn't a possibility, part of the front windows and wall can be removed for access," says Lewis Edwards, commercial director at Simply Basement. Alternatively, your builder might dig down at the front of the property to provide access underneath. "A combination of manpower and conveyor belts is then used to remove the soil. This will usually be fed directly into a skip or container at the roadside."

Unless there's an existing cellar with sufficient head height, underpinning will be required to create the new zone and support the property above. This is a process whereby new concrete foundation walls are inserted directly beneath the existing ones. It's typically carried out in metre-wide sections, to help hold back the weight of the surrounding earth. "In most cases, underpinning will be required along with lots of steelwork below ground floor level to support the existing structure," says Lewis. "A structural engineer will also determine what's required in terms of temporary propping and supports during the construction phase, to ensure that the existing house isn't compromised at any point during the build process."



DAN GLASSER

Technical details

Your project will need to meet various guidelines laid out by Building Regulations, including the approved documents regarding the basement structure, fire safety, ventilation, energy efficiency and drainage. Waterproofing is one key area to get right (governed by British Standard 8102:2022). Barrier systems are designed to keep water out, and act as the first line of protection, but most schemes include a backup in case moisture does penetrate. So, a plastic cavity drainage liner is fixed to the internal face of the basement's concrete wall. This catches any water that penetrates through, and directs it into sump collection system. The water is then pumped up to a drain at ground level. "We always use a cavity

MAXIMISE NATURAL & ARTIFICIAL LIGHT

LIGHTWELLS provide a waterproof channel from ground to basement level, opening the possibility for natural light and ventilation. Many basement schemes incorporate this feature to the front and rear of the space to ensure sunshine floods the entire zone.

WALK-ON GLAZING can be installed above the subterranean level, allowing sunlight to filter in from above. This type of overhead window can either be installed in the garden, or internal to the property. For instance, walk-on glazing situated within the ground floor structure of a glazed extension allows natural light to penetrate through multiple storeys.

INCORPORATING A DOUBLE-HEIGHT VOID within the floorplan is another way of channelling light through the centre of the property.

GLAZED FANLIGHTS can be positioned above internal doors to increase the flow of brightness throughout the basement zone.

WHEN PLANNING YOUR ARTIFICIAL LIGHTING SCHEME, incorporate a mix of overhead illumination for brightening the whole space, as well as spotlights, low-level panel fittings, up/down lights and wall lamps to create a layered scheme that can establish various moods. Combining this with a smart control setup will allow you to recreate the effect you want at the touch of a button.

drainage membrane system, such as the Delta Membrane solution," says Marc Stchedroff, construction director at The Oxford & London Building Company. "You need to ensure that you're using a properly registered installer."

Despite all the waterproofing techniques used in modern basements, the air in this area of the home tends to contain more moisture than spaces above ground. An efficient ventilation system is therefore essential. "Almost all methods can be broken down into either passive or mechanical ventilation," says Lewis. "Passive is natural ventilation, usually through windows, doors, lightwells and natural airflow through the property." Mechanical solutions include ducting, extractor fans and air filters, or possibly a mechanical ventilation and heat recovery (MVHR) system.

Costs

Due to the complex construction logistics, basement projects tend to cost more than above-ground extensions and loft conversions. Always liaise with an architect or specialist design and build company at the start of your scheme to obtain realistic costs. "As a guide, our projects typically start from £4,000 per m²," says Liam from St Albans Basement. "It's wise to build in a contingency of around 5-10%, depending on the size of the project."

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