

Basements and Subterranean development: It's time for engineers to engage with duty of care and Party Wall matters



Simon Pole provides a personal view of the current Party Wall issues surrounding retrofit basements, and offers some suggestions for how both the Institution and industry might respond to the challenges.

The following is my personal opinion regarding retrofit basement designs to suburban houses and the associated Party Wall and neighbourly implications (Fig. 1). This article specifically raises concerns for those designs which support Party Walls on basement rafts and piled structures instead of independent underpinning which maintains the strip foundation system and a shared Party Wall status. Some basements are creating future redundancy in our building stock and seriously compromising the rights of neighbours. We are inadvertently creating a problem for future generations.

My opinions are based on studying hundreds of Party Wall engineering proposals each year on behalf of Adjoining Owners Surveyors, under the Party Wall Etc Act 1996. This article assumes the reader has some knowledge of the Act¹ (applicable to England and Wales) but I'm sure that the wider 'duty of care' issues will also resonate with international readers.

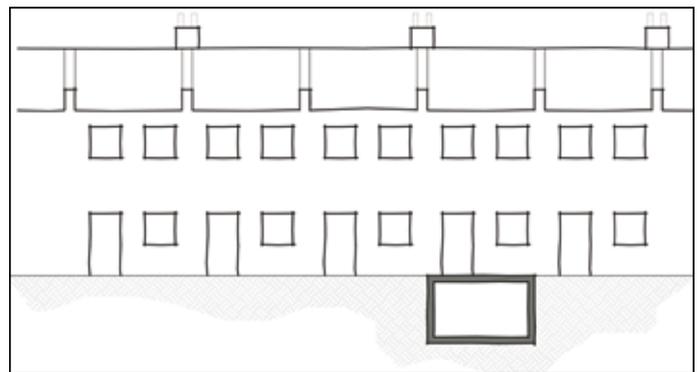


Figure 1 Typical terrace of houses with retrofit basement introduced beneath one house

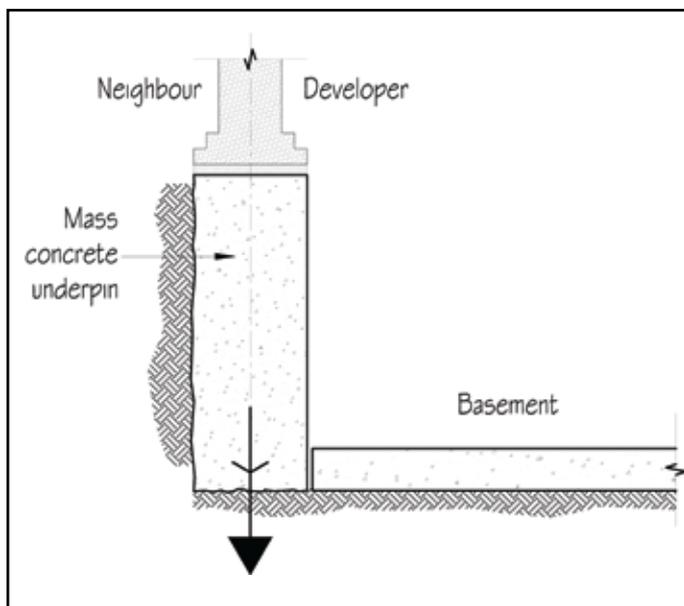


Figure 2 Traditional mass concrete underpinning

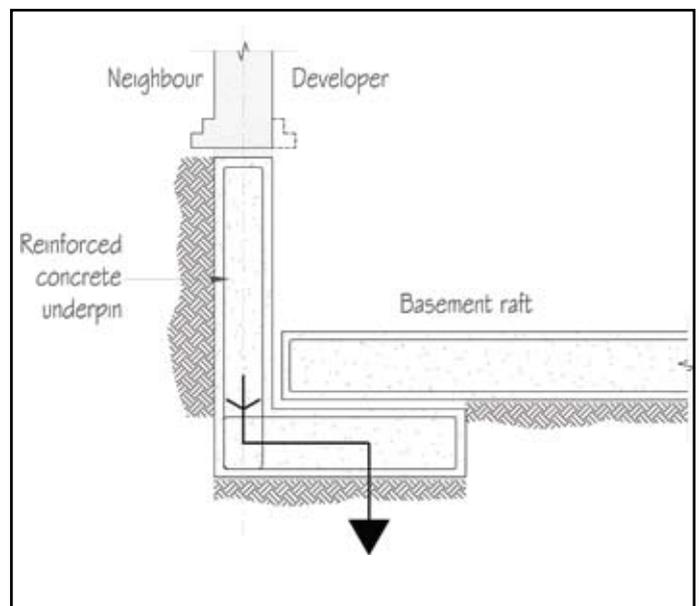


Figure 3 Reinforced underpinning (Special Foundation) but not integral with basement raft

With the proliferation of retrofit basements there are exciting opportunities ahead for structural engineers. The proposed Subterranean Development Bill² has had its first reading in the House of Lords. If it eventually becomes law, it would see the role of the engineer increase, both as designer and as neighbourly policeman.

However, engineers are already being marginalised in the family housing market, where yesterday's loft conversion builders are becoming today's basement builders, with little or no design input. Generic designs are already commonplace and are being used for multiple projects, with no consideration of specific ground conditions or the condition of neighbouring properties and nothing more than a "Building Notice" to meet the Building Regulations. The Arup recommendations for Basement Impact Assessments³ are largely ignored, unless there is a Local Authority Town Planning requirement.

There are wider social issues to consider. Many designs contain significant "Party Wall shortfalls" (in terms of building in future redundancy to the housing stock and prejudicing neighbours' future development rights). Yet the ubiquitous integral basement box is already such standard practice, that Party Wall Surveyors assume they are acceptable. The safety (engineering design and Building Regulations compliance) issues are fine but the social and neighbourly issues are not. The Party Wall profession is dependent on engineers to advise on the neighbourly limitations. This process is not working and needs to be addressed urgently before the basement tidal wave completely

engulfs our housing stock and creates problems for future generations. Figures 2 and 3 are examples of what, in my opinion, represent good practice. These independent formation systems were once commonplace. Figures 4 and 5 however, depict variations of an increasingly common solution; that of deploying an "integral" Party Wall foundation as part of the basement raft or substructure. This is not good practice in my opinion.

There are various public concerns, evident by changes to Town Planning Policy and press coverage of subterranean development. Most of these are related to engineering. We need to speak up on the subject, both to reassure the public and improve our associated standing in the community.

We need to show greater awareness of our wider social responsibility and to look beyond short term gains of clients and strive to avoid designing in future obsolescence to buildings and more specifically to be aware of the Party Wall legislation that places an onus on the designer not to cause foreseeable damage or to compromise the future rights of neighbouring properties. Currently too many schemes proceed on the basis of short term gain. I suspect developers would take a different approach to some short term designs if they were made aware of the longer term limitations.

Often no regard is given to the neighbour, who typically owns 50% of the Party Wall that is being resupported on a new type of foundation system. Regrettably the Party Wall process is currently not robust enough to deal with many of these complex technical

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issues as it only deals with dispute resolution between the parties. The engineering limitations are often not apparent to the neighbour or the Party Wall Surveyors without appropriate engineering advice linked to knowledge of the Party Wall Act.

As an employer, Chartered Membership Exam interviewer and Party Wall Surveyor, I meet a wide range of engineers who are not aware of the Party Wall legislation and how it affects their design work and advice to clients. As a Surveyor, I survey houses with, and adjacent to, a variety of retrofit basements during point of sale deliberations. Some of these transactions have faltered, and property values reduced, as a result of engineering design work to Party Wall foundations and the adjoining substructure. In my capacity of "Advising Engineer" to Adjoining Owners Surveyors, I continually appraise engineering designs from the developer that show little or no regard to the Adjoining Owner's property and their future rights are being prejudiced. This is almost always inadvertent, due to lack of awareness of the Party Wall Legislation and wider ethos of the Act.

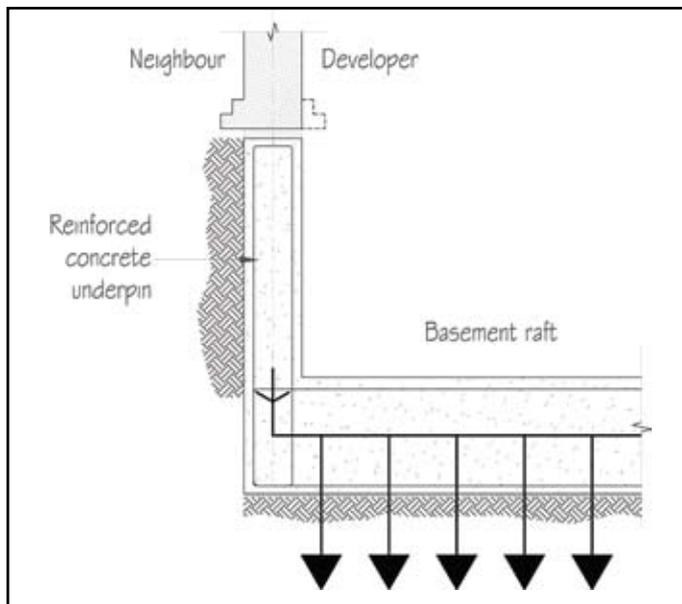


Figure 4 Party Wall supported on developer's raft foundation

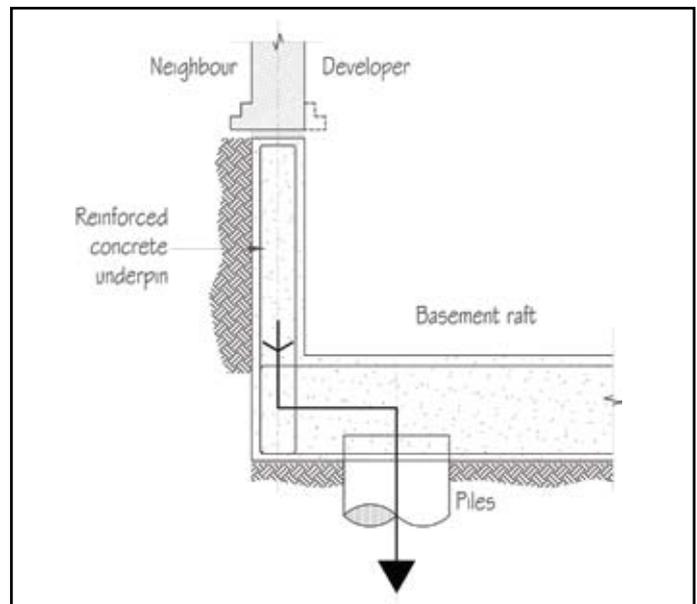


Figure 5 Party Wall supported on developer's piles

It is only a matter of time before a serious “loss” is experienced by an Adjoining Owner that requires legal intervention. The Judge in a recent moot in the Technology and Construction Court, advised that loss can include: loss of enjoyment, development potential, value/marketability of a property etc. and not simply refer to damage during the works. This has far reaching implications, which even Party Wall Surveyors are only just beginning to understand (if the appropriate engineering knowledge of the Party Wall legislation is available to them).

I sit in too many meetings where designers are embarrassed by delays to projects, resulting in extra design and building costs, generally as a result of lack of awareness of Party Wall matters. In particular the essential requirement that a neighbour (not the Surveyor) must grant express permission for “Special Foundations”⁴ (reinforced foundations) keeps getting overlooked. Almost all retrofit basements include these and they simply cannot proceed unless an early neighbourly approval is obtained. This requires early appointment of Party Wall Surveyors and the correct advice from the Advising Engineer.

I would stress that almost all of the design proposals I assess on behalf of Adjoining Owners and their Surveyors are safe and are Building Regulation compliant. These are minimum standards for health and safety of course and do not consider realistic serviceability expectations for neighbouring properties, who are entitled to enjoy their homes without a realistic prospect that damage will occur during building work or that future use will be limited. I always ask myself: Would I be happy to live next door to a generically designed basement? Short answer: No!

The designs of basements in suburban terraces of old properties persistently ignore the overall performance of the terrace, with matters of seasonal movement and differential settlement ignored in the quest to maximise space. Matters of uplift and heave in particular can create differential cracking on clay sites. The settlement and soil stress characteristics of a raft are of course completely different to a strip foundation.

We are reminded that the word “Party” here means “shared”. The broad principle of Party Walls is that they are effectively jointly owned and therefore should be jointly supported, so that either party can enjoy (raise, lower, repair, add weight etc). If the developer’s basement raft is “cantilevered” to support the Party Wall, the Adjoining Owner no longer has equal rights over the foundations of the Party Wall since it is effectively the developer’s substructure that supports the shared Party Wall.

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We spend years of training learning not to mix strip foundations and rafts on widely varying soil types and yet we appear to conveniently ignore this for retrofit basements.

Party Wall Surveyors are frustrated when Design Engineers do not appear to know the few parts of the Party Wall legislation that apply to our work. There are insufficient Party Wall “Advising Engineers” who are aware of the more detailed aspects of the Party Wall legislation to be able to advise the Surveyors on matters of future prejudice and potential “losses” to the neighbour. It is not sufficient to advise that a design is safe and meets with minimum Building Regulations requirements.

The Arup report, whilst excellent with regard to wider Town Planning matters was not commissioned to address specific neighbourly concerns and the more subtle aspects of the Party Wall legislation. It refers to conventional underpinning but not the recent trend for raft foundations. It highlights the need for site specific considerations of differential movement. The Building Regulations deal with minimum standards for health and safety and not serviceability expectations of neighbours. The Party Wall profession is struggling to deal with Special Foundations and the wider aspects of “losses” under the Party Wall Act. We

therefore do not have a single point of reference for all these issues yet.

I propose that;

We make the Party Wall engineering issues part of the graduate training for England and Wales. This must include the neighbourly issues - not just engineering.

We set up a task group within our Institution to address Subterranean and Party Wall matters and liaise with RICS and Party Wall organisations.

Design submissions should routinely address the Party Wall/neighbourly issues, to demonstrate due diligence in this area. The design should specifically demonstrate that reasonable care has been taken to avoid foreseeable damage to the neighbouring property and that future rights for neighbourly development are not compromised.

A site specific soil investigation should be essential for every project. If we ignore these fundamentals, builders will no longer require the help of Chartered engineers. Generic designs will be sufficient to meet Building Regulations but will not satisfy Party Wall Surveyors. It would help reassure the public if Local Authorities insisted on this.

Designs should not prejudice the future rights of neighbours and should not build in future redundancy to buildings and Party Walls. Cantilever piled foundations supporting Party Walls are an obvious example.

The duty of care and legal issues need to be more clearly understood. As Advising Engineers to Party Wall Surveyors we need to consider the risks of damage to the neighbouring property and whether the design proposed will compromise the future enjoyment (development potential) of the neighbouring property. The Party Wall Surveyors cannot assess these engineering implications without our advice. ■

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