Date: 15 October 2008

Your Ref:

Our Ref: SLB/bjc/4025

Mr R Thomas
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Dear Mr Thomas

23 Chalcot Crescent

Further to your recent instruction to me via Mr Howett I inspected your property on Tuesday 14 October. The purpose of my inspection was to assess the problem of dampness noted to the party wall between your property and No.21. As there was no access to the neighbouring property I limited my inspection to the subject property only. You and Mr Howett have provided information regarding works that you believe to have been undertaken to the neighbouring and I base my advice on both my observations and this information provided.

Background

Your property is Grade II listed and you have owned it for approximately three years. During that period you have undertaken refurbishment and at basement level this included re-forming the floor and re-plastering the walls. You have adopted a conservation approach and used traditional materials and finishes to retain a breathable structure at basement level.

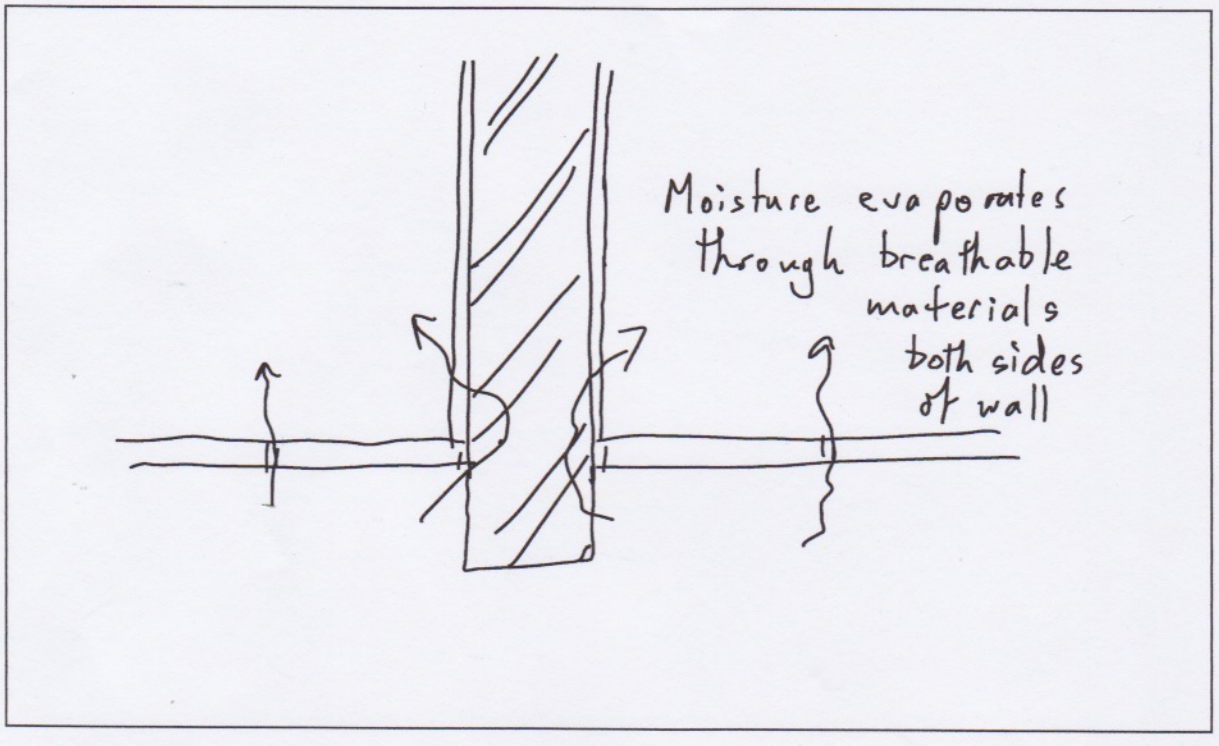
More recently your neighbour at No.21 has commenced refurbishment of that property. Although a party wall award was produced it did not refer to any damp proofing works at basement level. Subsequently you understand that chemically injected damp proof courses have been inserted at the bases of the walls within the basement of No.21 and the party wall (and perhaps others) have been tanked with a modern damp proofing render and modern plaster finishes.

Your concern is what effect this might have on your property particularly as you have recently noticed an increase in the damp staining and deterioration of some of the plaster along this party wall on your side of the party wall.

Technical Discussion and Assessment

Below is a sketch indicating how these buildings originally functioned. You will note that the traditional finishes allow for breathability. This does mean that evaporation of moisture in the

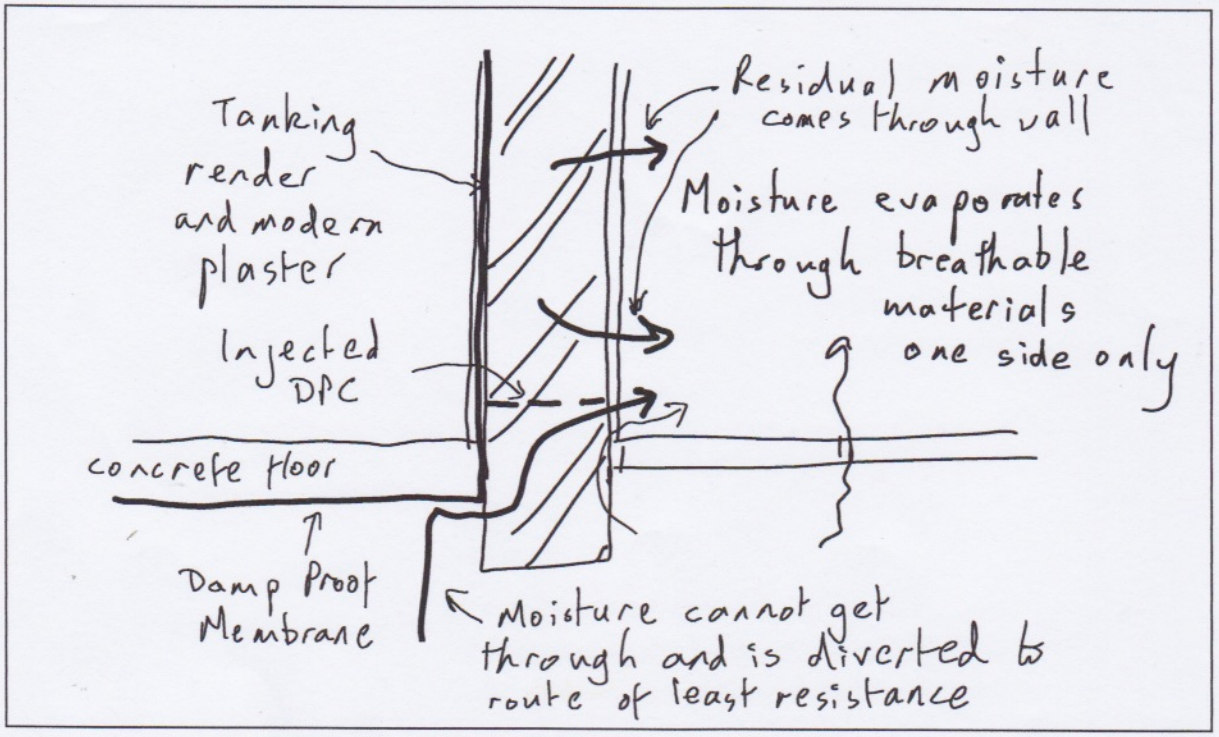
structure is to the exterior via the front and rear walls but also to the interior through floor and wall finishes. Good heating and ventilation usually means that this moisture evaporates and is taken away from the building quite rapidly without it causing any serious problem. This is how historic buildings function and it is a tried and tested method that has been perfectly acceptable for many centuries. In effect it means that the building manages moisture.



By contrast modern building technology is designed to exclude moisture by the use of damp proof barriers, materials and finishes. In modern buildings where such damp proofing can be formed at the outset and made continuous it is an acceptable and satisfactory method of ensuring that the fabric does not retain dampness.

The main problem is when the two technologies are combined in older buildings and modern damp proofing methods are attempted in old buildings that are meant to be breathable. The result is usually that the damp proofing is not entirely continuous and therefore dampness finds a route out. Sometimes the treatments and solutions used can drive dampness to other parts or indeed to other properties and quite often modern damp proofing systems in historic buildings can exacerbate problems if not for the subject property then certainly for any neighbouring property or adjoining structure.

From your description I understand that the neighbouring property has had a concrete floor laid and damp proofing renders etc. applied to the walls. On the next page is a sketch indicating how the wall is now thought to be functioning.



You can see from the above that moisture will find the easiest route out from the wall and in this instance the most obvious and easy route out will be from the surfaces of the wall on your side of the party wall. This means that whilst the neighbouring property is unlikely to suffer any visible signs of a problem the amount of moisture that your basement area will have to cope with will be increased and the problems associated with this could become visible. This is happening at present. There are not only stains and areas where the plaster surface is beginning to crumble but also efflorescence where salts are deposited as the moisture evaporates.

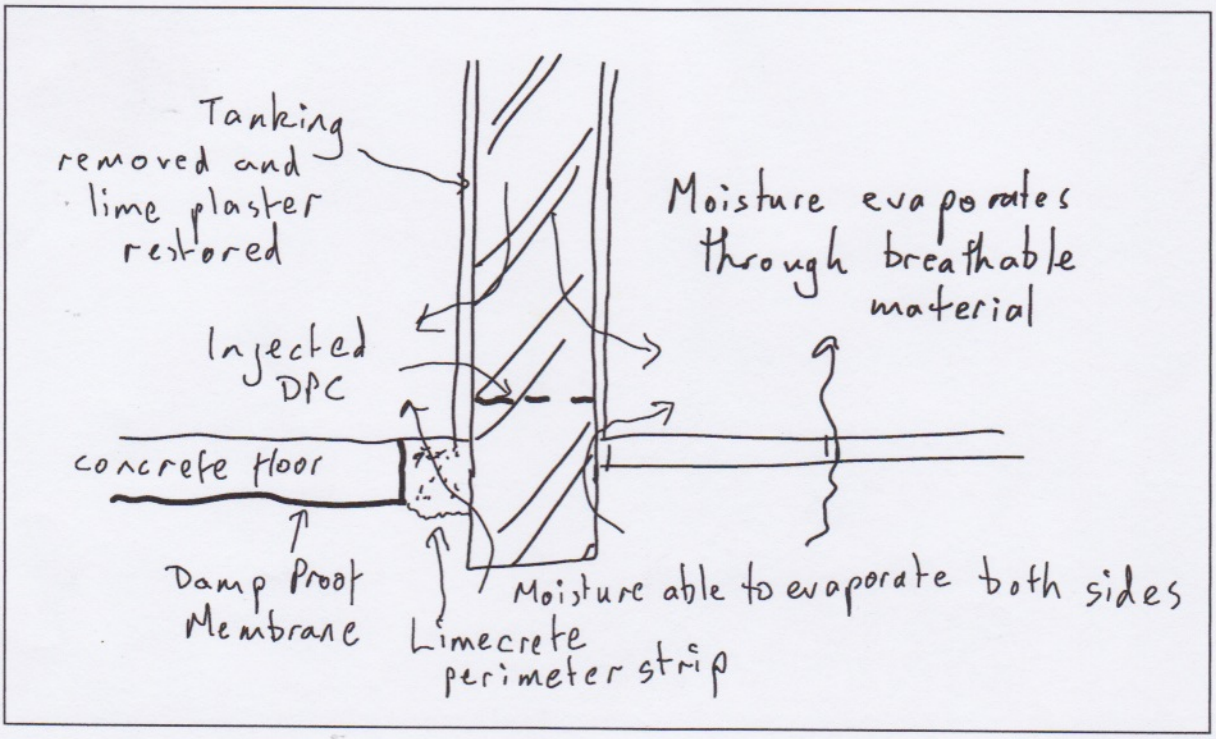
In my opinion matters will certainly not improve, they may remain as at present but there is every possibility that the situation will worsen. If we experience periods of high rainfall and the water table in the ground increases or the moisture levels in the wall increase there is every possibility that the problems will worsen. Of course it is difficult if not impossible to predict precisely what may happen but I can say, based on experience and knowledge of how these buildings function, that the situation will not improve.

Recommendations

In my opinion the following recommendations will resolve the problems for the subject property but also improve the situation for the neighbouring property and reduce the risk of future problems.

Ideally I would suggest that the concrete floor be taken up and a breathable floor structure formed. There are various modern uses of lime-based products that can create a perfectly acceptable breathable floor whilst at the same time complying with modern regulations in terms of control of damp and thermal requirements. This is often referred to as a limecrete floor.

If for any reason it is felt inappropriate or impractical to completely remove the concrete floor there are other possible solutions that would nonetheless retain a degree of breathability and go a long way to resolving problems that are presently apparent. I am thinking in particular of the creation of a breathable strip around the perimeter of the floor. This would mean taking out the concrete for a width of between 100 – 150mm around the perimeter of that floor down to earth or the substrate of the floor so that a breathable limecrete perimeter strip can be created. Of course the finish above this must also be breathable and must not be of any impermeable finish that would prevent the moisture from evaporating away. See sketch below.



In addition to this I have seen concrete floors where holes have been drilled through the concrete at regular intervals across the whole of the surface. The holes have then been filled with an impermeable material such as lime mortar and a breathable floor finish then laid above this. Although the concrete is not completely removed there is sufficient permeability through the holes and around the perimeter to allow a reasonable degree of breathability whilst retaining a large part of the concrete slab. With regard to the neighbouring property my main concern would be to ensure that the perimeter of the concrete floor abutting the party wall has a breathable strip where it abuts the wall.

Turning to the wall itself, the injection of a chemical damp proof course is of course irreversible. It is generally accepted that such injection is not necessarily 100% effective and this is why tanking is often undertaken to disguise any failure of the injection. An injected damp proof course does mean that the majority of dampness at the base of the wall will be trapped at the base and if it is not provided with some route out it will build up and find the path of least resistance, in this case through the base of the wall on your side. To relieve this problem the tanking must be removed at low level on the neighbouring side of the wall and

either left exposed or replaced with a breathable lime render so that any moisture at low level can escape. This should be undertaken in conjunction with the breathable perimeter strip to the floor.

Above the injected damp proof course there is every possibility that moisture that had entered the wall in the past is now trapped as residual moisture. There is of course also the possibility that moisture will enter the wall above the damp proof course at the front and rear or through any weak point in the system. As already indicated retrospective damp proofing of a historic building is rarely if ever 100% effective and wherever there is a weak point moisture will find a way through.

To prevent this becoming a long term problem I advise that the remainder of the tanking should be completely removed from the party wall on the neighbouring side up to and including ceiling level. The whole of the wall face can then be replastered in the traditional manner using lime plaster and lime finishes. This will ensure that both sides of the wall are equally breathable and moisture can escape properly without causing a problem.

I understand that the tanking system has been continued up through the whole of the building. The reason for this is not known and is totally unnecessary and excessive. I think it unlikely that the tanking will pose a problem at higher levels in the building and therefore do not believe it matters too much from a technical point of view that tanking remains to the neighbouring side of the party wall at higher levels.

Conservation

You will note that so far in this report I have only discussed technical issues. This is because in my opinion the issues are technical in nature. These are historic buildings constructed in a way that may look very similar to modern buildings but from a technical point of view are very different in terms of how they function. Regardless of their status (whether listed or not) it is important to understand the technical issues first and foremost before tackling such buildings. Whether a building is listed or not it is important that the repairs and refurbishment of the building respect the technical performance of that building to ensure that problems are resolved rather than exacerbated. With many historical buildings such as this the use of modern treatments and materials usually make matters worse rather than solve problems.

Of course in this instance because the buildings are listed there are the conservation aspects to consider and I understand that the conservation officer is looking into this.

It is my view that the use of modern materials etc. fundamentally changes the way that the building functions and is in effect an alteration to the character of the building if one accepts that the character is not merely the aesthetic appearance but also the technical functioning and performance of the building as well as authenticity of materials.

Summary

I believe that the work carried out to No.21 is inappropriate and damaging in both the short and long term for both the neighbouring property and, more importantly, to your property. For purely technical reasons I believe that work will be necessary to resolve the present problem and this will involve at the very least the creation of a breathable perimeter strip to

the floor and removing the tanking and modern plasters etc. to the party wall face replacing these with lime based mortars etc. to create breathable finishes.

I understand that a copy of this report may be released to the Conservation Officer and possibly to the owner of the neighbouring property. I hereby give my consent for it to be released to those parties. I would be happy to enter into any discussion regarding the technical issues and resolution of the problems.

I trust this report is sufficient for your purposes but if you have any queries please do not hesitate to contact me.

Yours sincerely,

Stephen Boniface FRICS
WCP - The Whitworth Co-Partnership LLP