

The recognition and precautions of house settlement

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The building and its vicinity settlement is one of the most concerns of the home owner and investors. Unfortunately, it always happened to some extent, which is much related with the construction, the structure of the soil underneath and earth movement. What we can do is to discover the settlement as early as we can. Most important to confirm whether it has already caused negative effects to the building and how badly it is, which may be in serious condition and repair is necessary. Of course, this is a painful process both mentally and economically.

Usually it is not easy to diagnose the settlement. For example, I was almost misled when I inspected a house a couple of weeks ago. I found the gate can only open half because it stuck on the side walk slab of the house (figure 1). The owner told me the gate was supposed to get serviced. But after I looked into all the exterior components, I was sure it was the house settlement which caused the slab tilted on the side walk & then stopped the gate to open completely. Even though, due to the 15 years age and the whole condition of the building, I did not see the chance the settlement can get any worse. Therefore, the suggestion to the buyer is to fix the grade where could further damage the components of the house (figure 2 the negative grade caused the wet exterior wall). In addition, monitoring is essential that it may not be necessary to cost lots to do the lot repair if no more settlement developed.



Figure 1

Actually, it is pretty normal for the new buildings to have some settlement at the first several years after the construction has done due to the back fill when dig the foundation. It is understandable that the buildings cannot get away with the movement of earth underneath. The uniform settlement may not be necessary to cause too much concern. If we pay attention to some old buildings, for example, some condos in Vancouver or Burnaby, we could find the balconies on the first floor almost on/below the ground level. Also you might have heard the complaints of the tight or stuck of windows from the inhabitants. We can tell the culprit is the building settlement.

In that case, do we have anything to do to prevent or reduce the risk of settlement? Yes, we do. First, we should keep an eye on the water drainage around the building & avoid any source of water flowing towards the foundation wall especially ponding. In order to shed water away from the building, the slope of the grade is important and should be cared. Furthermore, the clear of the gutter and downspout, no blockage no leaking, are critical, which also need to drain the water away from the foundation.



Figure 2 wet wall caused by negative slope

Second, all the cracks should get plugged up as soon as you can no matter on the foundation or walk way or drive way. Otherwise, the water permanently intrudes

into the substrate, which will lead soil erosion and degrade and cause the paved or slab displaced even to the building. Third, any big trees close to the building may damage the drain tile with their roots. These roots can make the soil loose and hold the moisture under the foundation. All are negative to the buildings.

We may do an interesting experiment by ourselves. To take an ice cream bucket or a big yogurt cup and open several holes at one side of bottom rim, then put into $\frac{3}{4}$ volume soils and press it tightly. You can pour some water in the half side of pot with the holes every day. After a while, you will notice the change.

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