

18. STRUCTURAL ISSUES

Structural issues with buildings may become apparent, for example if cracks appear in walls, however a crack may not in itself be indicative of a structural problem. Structural movement is serious when the safety-margins of strength, stability, or integrity have been significantly eroded, or the movement can be shown to be progressively leading to failure within a specified period. This guidance sets out the process for early identification, diagnosis and appropriate response to structural issues to maintain school buildings and facilities in safe use.

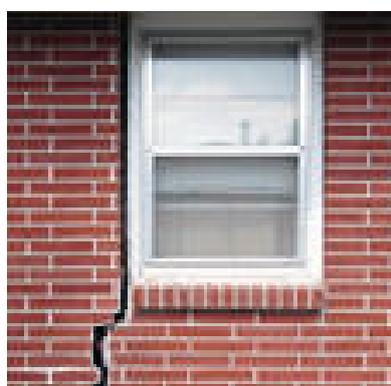
New Construction: Some settlement is not unusual in new construction and this may cause surface disturbances to plaster in the form of hairline cracks, for example where a plastered wall meets a plastered ceiling. Whilst these may be unsightly, they are usually harmless and generally settle over time, at which point it can be decorated over. Cracks in new construction should be reported to the project manager who will ensure they are included on a defects list to be monitored and rectified by the contractor.

Expansion & Contraction: may occur due to seasonal changes in temperature, or significant changes in the moisture content of the soil such as prolonged periods of very wet or very dry weather. As the surface soil dries out buildings may drop or “slip” only to lift or “heave” again when the moisture content of the surface soil returns to its former level. Slip and heave is a natural process of expansion and contraction, but it may also occur when dry soil swells due to increased moisture following removal of nearby mature trees.



Retaining walls: may over time exhibit signs of structural stress for example if the ground level changes, or due to the presence of trees. If retaining walls end up holding back a greater weight or volume of soil than they were originally designed to do, then this could cause them to collapse.

Older Buildings: which may have been designed and built before modern engineering methods and Building Regulations may be less robust and potentially more susceptible to structural issues.



Subsidence: Is a result of movement in a building's foundations that may occur for various reasons including significant or prolonged impact of slip and heave, tree roots growing under foundations, water leaks from rainwater goods, below ground pipes or drains, land slip (undermining due to tunnels, mining activity, hollows in chalk soils etc). Subsidence cracks may appear along the weaker joints in masonry walls such as at windows or doors, and are often but not always diagonal.

Damp or Decay: if left untreated can give rise to structural problems for example if exposure to water from a leaking roof can reduce the structural integrity of roof timbers.

Alterations or misuse: may create structural problems, for example removing chimney-breasts or overloading floors. Schools should be mindful of the impact on the building's structure when planning their own construction projects, and in the proposed use of their buildings and facilities.

Structural Issues can be identified in the following ways:

Via Condition Surveys: which are undertaken by qualified RICS Chartered surveyors and where structural issues are identified these are included in the condition survey for ongoing monitoring, further investigation or rectification.

Via Council staff: from Corporate Construction & Maintenance, CYPL Education Capital & Property, the Health & Safety Advisor and the managing partner Atkins Ltd who will flag up any possible structural issues identified in the course of their time spent on school sites.



Via Building Control: the Council's Building Control team monitors and controls all dangerous structures within the Borough under the Building Act 1984 to ensure a building or structure is safe to members of the public. Where structural problems are sufficiently severe or where structural damage occurs due to foreseen emergencies such as fires, floods or severe weather, Building Control will examine the level of danger and may have the structure demolished or made safe depending on the severity.

Via the School: school site teams should be aware of and vigilant in identifying and reporting possible structural issues. It is unlikely that you will discover significant structural problems whilst carrying out routine maintenance tasks, because diagnosis of structural issues requires professional expertise. However, because school site teams are entirely focused on their buildings and facilities, they may actually be the first to notice any unusual or progressive indications of possible issues. Signs to look for that may be indicative of structural issues include:

- Cracks in walls including in brickwork or plaster
- Widening of existing cracks
- 'Rippling' effects in wallpaper
- Doors beginning to stick and not open/close properly
- Bulging walls
- Sagging roofs
- Leaning chimneys or gable ends

For maintained schools if you notice any cracking larger than hairline cracks to the walls of the building, either internally or externally or if cracks appear to be getting wider contact CYP&L or Construction & Maintenance (C&M) immediately. Similarly contact CYP&L or C&M if you notice cracking to any boundary, retaining or other external walls deeper than just plaster finishes, if they continue to appear or get noticeably wider; it is worth investigating the cause. Voluntary Aided schools should report suspected structural issues to their Diocesan Surveyors.

The Council maintains a term contract for Structural Engineers with the managing partner, Atkins Ltd, and can bring to bear all of the specialist professional advice required to correctly diagnose and put in place appropriate monitoring, mitigation or remedial measures to deal with structural issues.

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