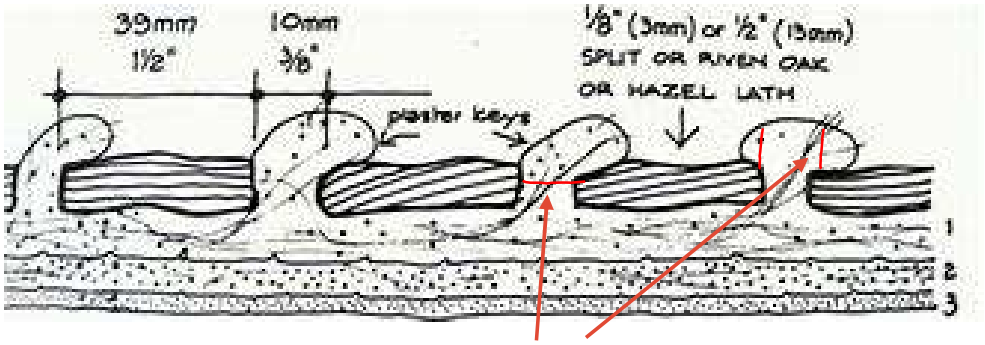
CLIVE THOROGOOD
BUILDING SURVEYING LIMITED

Technical Note 4: LATH AND PLASTER CEILINGS

Background

Whereas modern ceilings typically consist of a layer of plasterboard secured to the underside of upper floor joists and then having a plaster skim coat applied, ceilings within older properties were typically originally formed with lath and plaster.

This is a system whereby approximately 40 mm-wide timber slats (or laths) of split oak/hazel are secured to the underside of the floor joists above, with a circa 10 mm gap in between. The 1st coat of ceiling plaster is applied and some of this pushes up onto the laths and this oozes through the gaps to form a key behind the laths. It is this key which, ultimately, holds the ceiling in place. 2 further coats of finishing plaster are then applied. Therefore, much of the weight of the ceiling is held by the plaster pushed through these relatively thin gaps.



Section through typical lath and plaster ceiling showing points of weakness and common lines of fracture.

The Issues

Problems can arise whereby the plaster nibs can break, typically along either of the red line positions shown above. This can be due to impact from above e.g. moving/dropping furniture or nailing down floorboards above. If this fracture occurs, then that part of the ceiling can lose its fixing and sag. The weight of this sagging can cause the adjacent area of plaster to take additional load, which may cause these nibs to break and so on….and so on.. Failure can be widespread and sudden.

Failure can also occur because the plaster nibs may be weakened by water damage e.g. a leak from bathrooms above, or condensation to the underside of the ceiling in e.g. bathrooms or kitchens. This moisture-related weakening of the plaster limits the ability of the plaster to hold its own weight up onto the laths.

Therefore, any identification of an old lath and plaster ceiling needs to be treated with caution and any cracking seen in the underside of the plaster needs to be properly investigated. Ideally, this is done from above, with the top of the laths and the exuded plaster being visible within the floor by lifting of the floorboards above. Clearly, this is not always practical, where there are floor finishes such as bathroom tiles and an assessment then has to be made from below by feeling for any flexing of the cracked area in question. If in doubt, err on the side of caution.

The cracking pattern for lath and plaster failure is more likely to be spreading out from a defined point in a series of random fine cracks, rather than linear cracking, which is more typical along the board joint of a more modern plasterboard ceiling. Such cracks may extend across large areas of a ceiling and this should be a significant cause for concern.

Inspection from below is not the ideal means of testing the integrity of lath and plaster ceilings and a proper inspection should always be undertaken as part of any refurbishment by taking up floorboards wherever necessary.

It is also possible that the timber laths may have rotted, or that the nails fixing the laths to the underside of the joists may have corroded and snapped. If this 'framework' of laths becomes detached from the joists, then the plaster ceiling will also fail. This is not uncommon. In which case, then the ceiling needs to be locally replaced, along with the defective laths. A practical decision then needs to be made as to the likely condition of other lath/nails and whether any of the ceiling in this room can be salvaged. Unfortunately, locally-repairing can, itself, create disturbance to adjacent areas of plaster and contribute to further failure.

The decision as to the extent of replacement will be one based primarily on safety, but should also consider the conservation value of the ceiling and whether there is any secondary requirement to retain as much of the original fabric of the building as possible. Bear in mind that traditional ceilings often come with ornate plaster covings, which may also be detached and need re-securing or replacing.

Repair options are available and these necessitate accessing the ceiling from above in order to strengthen any broken plaster nibs with new plaster-soaked wadding and using a series of anchors to hold up the ceiling using the floor joists. If the laths are rotted, then this is more significant and retention of such ceilings become problematic. This is specialist repair and needs a specialist plaster conservation contractor to advise.

Always seek professional Building Surveyor advice for a complete assessment.