

Natural Finishes Limited



Lime plastering report 28/11/2022

Grosvenor Building MMU

The Manchester Municipal School of Art was built in Cavendish Street in 1880-1881 to the designs of G.T. Redmayne. On a rectangular plan it was constructed in sandstone ashlar with buff terracotta dressings. It is two storeys high above a basement and has slate roofs with glazed skylights. Its symmetrical facade, built in the Neo-Gothic style, has large gabled wings with pinnacles at either side of its buttressed and blind arcaded main range.

The 1897 extension designed by Joseph Gibbon Sankey, at the rear of the building, was built in red brick and terracotta with Modern Style (British Art Nouveau style). The building is Grade II listed. (source Wikipedia)

An inspection of the interior wall and ceiling surfaces of the building was made at floor level by observation, lightly pressing back and tapping the surfaces to help identify voids. Inspection was also carried out where access was available to higher levels of the building. A brief inspection of the exterior from ground level was also carried out for the purpose of assessing water ingress.

Discounting newer internal alterations, the plasterwork contained within the original building and subsequent extension, would have almost exclusively consisted of just 4 main constituent parts: sand, lime, timber (laths) and class A plaster. The majority of the plasterwork to walls and ceiling being lime plaster reinforced with natural fibres and timber reinforcements, applied in several layers. Gypsum being used almost exclusively to form the ornate

plaster mouldings and to “sweeten up” lime plaster mixes in areas requiring additional strength. It is therefore of benefit to the building that any repairs carried out should follow this traditional method of plastering.

It is noted that lime mortars and plasters have many advantages when compared with their modern gypsum and cement based contemporaries. The main factor is its ability to work sympathetically with the building by allowing diffusion of moisture vapour into and through wall structures additionally offering greater resistance to soluble salts, deterioration and/or decay in mildly damp environments and fungal growth due to its mild antiseptic properties.

A number of interior surfaces indicated for repair and their opposite exterior faces display high levels of moisture, this requires further investigation. Any underlying issues should be addressed prior to the application of any new lime plaster. Failure to address this key issue would likely result in excessively long carbonation times between coats at best and more likely negated or overwhelm the advantages of using lime based plasters as outlined above. G.01,G02,G.20,G.15

Hydroscopic salts and bossed plaster are a result of moisture movement through the stone and brick walls of the building, manifesting itself as efflorescence (white powdery deposits on the surface of stone or plaster). It is particularly evident at higher levels and concentrations in rooms F110, F104, G14,G02,G15,G20,30/GD _GF-038C, G.Corridor, Corridor F1.1& F1.2 due to water ingress. (Ref-appendix for additional images)



Mould growth and flaking paint is evident in some areas, this is likely due to condensation and/or water ingress. Some lime plaster has been replaced with gypsum plaster in a number of locations within the building, most notably in F110. Visual inspection and experience would indicate that the base coats are a mixture of cementitious mortars, premixed gypsum backing and finishing plaster. Often moisture in the walls is forced up the wall and efflorescence becomes visible at the boundary between the old and new plaster, in places there is evidence to demonstrate this point.



Ceilings

A notable number of ceilings exhibit cracking, both new and historic and in areas the plaster appears to have become detached from the laths. Interestingly in places, both on the ceilings and walls the finish plaster has delaminated from the backing coat. One likely cause is that numerous layers of paint and textured coatings applied over the years started peeling off the old plaster, curling it away from an initial crack. Another observable cause is poor workmanship, due to insufficient key and poorly applied and consolidated finishing plaster, to both walls and ceilings.

Other contributing factors:

- structural movement
- rusted fixings
- water ingress
- weaken support structure
- rotting laths

In all instances action should be taken to remove, secure back or renew all loose, perished or delaminated plaster on ceilings, including beams, cornicing and decorative mouldings.

Walls

Internally, the plaster at low level on several of the walls has started to delaminate and in places becoming loose and pulling away from the substrate. Delamination is also observable at higher levels. Again there are a number of contributory factors adding to the problem:

- water ingress
- hygroscopic salts
- age of the plaster/building
- high levels of moisture in the building

- structural movement/stress cracking
- recent electrical and other repair work

Decaying Plaster (Damp/Efflorescence)

Plaster in these areas needs to be cut back at least 1m beyond the extent of the affected area and needs to be removed to enable the structure to start drying out before any re-plastering with traditional lime/sand plaster. The length of time before re-plastering will depend on the drying out period of the walls and this can be identified using a moisture meter.

Cementitious and gypsum plasters

Replastered areas containing any cement, gypsum or waterproofing materials should be removed and replastered in a traditional lime based plaster. Gypsum plasters are not vapour permeable and can create a damaging build-up of water within the structure.

Image references

















