

DEANE HOUSE STUDIOS

**Large External Fire
Escape Staircase &
Landings**

**Inspection:
19/06/2024**

Scope:

To carry out a visual inspection of the existing fire escape staircases and landings to the rear of the property. Staircase comprises of seven sets of stairs, six landings and one top landing area. This runs from 3rd floor level to the lower ground level at the rear of the property. The ground floor landing extends out from the staircase with an additional landing length of approximately 3.5m running to a further fire exit door.

Looking at the structure at ground level it appears that the extension of the ground floor landing is an addition to the original staircase structure with different size supporting steelwork and finishes to steel showing considerably less deterioration than other areas.

List of areas inspected:

Inspections of:

- Welds visually inspected for fatigue and corrosion.
- Stair treads visually inspected to ensure they are secure and level.
- Stair stringer steelwork visually inspected to ensure no corrosion or cracking.
- All staircase fixings inspected for corrosion only.
- Handrail & posts visually inspected to ensure they are level and secure.
- Platform & Landing plates visually inspected for fixings points, corrosion and sturdiness.
- Supporting columns visually inspected for fatigue, corrosion, fixing points and line and level.
- Paint work to all areas of the staircase to be visually inspected for flaking or cracking paint work.

Findings:

General Welds

No fatigue, cracking or major corrosion found to any welds on the staircase or landings when visually inspected on 19/06/2024.

No further action required at this stage. Minor rusting occurring where paint finish as flaked away. Annual inspection of all welds is recommended, at point of inspection paintwork should be scabbled back, areas checked, photographed and findings logged. Any areas where paintwork is removed should be sanded down, primed and repainted to stop further corrosion.

Stair Treads

Stair treads from the bottom of the staircase at lower ground level to the ground floor level and again the stairs up to the next half landing appear to have been replaced or renovated in comparison to stair treads leading up from this level to the top landing. These lower level stair treads show considerably less signs of delamination, rusting and deterioration.

Stair treads to the upper levels show signs of rusting, corrosion and delamination of steel. Finishes to the steelwork are flaking, cracked and chipped which is allowing the exposure to the elements and intern will cause further deterioration of the stair treads.

It is noted that all stair treads are open back which doesn't comply with current building regulations for escape staircases. Stair treads on escape staircases should be enclosed to the staircase to remove the chance of users tripping.

Findings:

Stair Treads Continued

Proposed Repairs

We would suggest full replacement of all stair treads from the top landing to the middle landing between ground and first floor with new closed riser stair treads. It would be advised that stair treads are removed on a one out one in basis to remove the chance of the stringers moving out of position.

Removal of paintwork on all newer stair treads to the lower levels on the staircases and Installation of new back riser plates to all stair treads from the half landing between ground and first floor and lower ground floor to make these compliant to current building regulations.

Stair treads can then be red oxide primed ready for repainting by others.

Annual inspection of all stair treads is recommended with all findings recorded and logged.

Stair Tread Cleats

All stair treads to the staircases are held in place to the stringers using what appear to be 50 x 50 RSA sections approx 300mm long. Tread cleats are welded to the stair treads and bolted to the stringers. All fixings have been observed to be present, no checks have been carried out on tightness. Tread cleats appear from a visual inspection to be in fair condition, however, we have noted in places that there is bubbling of the paint work around the area of the cleats, we cannot confirm the condition of the steel underneath the paint finish at locations where steel finishes are in poor condition but would suggest that there will be rusting and delimitation of steelwork underneath due to the exposure to the elements.

Stair Tread Cleats Continued

Proposed Repairs

Remove paint finishes and scabble down steelwork to assess the state of the steelwork, if required replace tread cleats at required locations when refurbishing stair treads.

Stair Stringers

The stair stringers are made up of flat bar approx 300mm wide by 10mm thick. This is then bolted to the landing frames at each level. When inspecting it was observed that some of the stringers are missing fixings into these landing frames.

It appears that these fixings have never been installed and the staircase has been repainted at some point and these existing holes painted over. However this may not be the case and the fixings may have been removed following initial installation of the stringers.

There are many areas of localised bubbling of the finishes to the stringers and many areas of exposed rusting, delamination of the plates and corrosion. It doesn't appear to have currently caused any major loss of strength of the stringer plates, however, we cannot confirm that where paint finishes have only bubbled and steel is not visible the extent of corrosion is not worse and would require a suitably qualified engineer to confirm if the stringers are still suitable for purpose. No major movement was observed in the stringers when inspecting the staircases.

Proposed Repairs

Remove existing paintwork and expose all areas. Scabble back rusting and sand down steel. If any major corrosion becomes visible appoint a suitably qualified engineer to confirm suitability of section for purpose and required repair. If no major rusting or corrosion is found. Prime steelwork and repaint.

Findings:

Landing Plates

The staircases are joined at each level by a double width landing. These are composed of two number steel plates which are supported by the landing steel frame. Steel frame is made from PFC sections with a central T section to support the landing plates.

It appears that the landing plates have then been spot welded to the landing frames and it is noted that when we inspected, in some locations these welds have failed leaving the landings just seated in position. This has the potential for the landing plates to slip out of position opening up gaps in the flooring which could be a potential danger to any user of the escape staircase.

The landing plates are all in fair condition with surface rusting showing through worn paintwork. It is noted that the plates appear to also be galvanised under the paintwork which should give some further protection. No major corrosion or delamination has been visually observed, however without removal of all paint finishes this cannot be confirmed.

In some locations the T section appear to have been installed off centre to the landing. In these locations there is a clear gap between the landing plates and when used the plates deflect by up 30mm in level. This has the potential for trip hazards for people using the staircase and shows the plates are not currently be fully supported in their seated position.

Proposed Repairs

All landing plates to have paint finishes removed. All plates to then be checked for condition, once confirmed as fair, plates to be drilled and countersunk with fixings then installed to all landing plates to fix them down to the landing frames. Where required new landing plates to be install to ensure that these meet with T section supports.

Findings:

Staircase & Landing Handrails & Posts

All staircase handrails are made up of box section posts with a flat bar handrail. These have mesh frames screens then welded to the posts surrounding all staircases and landings.

The condition of all areas is fair. Some areas show small signs of paint flaking but no rusting major corrosion has been observed. All handrails appear visually to be level and aligned to the staircases and landings and all are firmly fixed into position with no adverse movement found at any levels.

Proposed Repairs

No steel repairs required. Suggestion that if all other areas of the staircase are repainted it would be sensible to also repaint these areas to give continued protection to the steelwork.

Supporting Steel Structure

The original part of the supporting steel structure to the staircases and landings appears to be made up of old section UC steels. These have been riveted together in some locations and in others we have found welded splices.

The columns run the height of the structure from ground level to Third floor. In most areas the columns appear to be in fair condition with the exception to ground floor level. At this level paintwork has bubbled and flaked away exposing the steelwork to the elements, there are areas of severe rusting, delamination and corrosion.

Findings:

Supporting Steel Structure Continued

Due to the thickness of steelwork this doesn't yet appear to be causing any the steel to be compromised however, it would be advisable that that these areas are all fully exposed, rust is scabbled and sanded back and a suitable repair carried out.

Proposed Repairs

Supporting steelwork should have all existing surface finishes removed. All areas of rusting and corrosion should be scabbled / sanded back. All steelwork should then be primed and where required suitable repairs carried out. Steel should then have paintwork reapplied to all areas.

Photos

The following photos have all be taken during the inspection and works on 19/06/2024.





































