IKT CONSULTING
STRUCTURAL ENGINEERS LIMITED

Client: Client Investments Ltd

Site Address: Silver Street, Leicester

Report: Structural Inspection – External Fire Escape

Job No.: IKT 0000

Date: 1 April 2024

Job No. IKT 0000
Structural Report

1 INTRODUCTION

1.1 This report has been prepared by IKT Consulting Engineers, on behalf of Client Investments Ltd under the instructions of Ms A. Client (property manager) to undertake a non-intrusive Structural inspection on an external fire escape following their concern about its condition and potential implications to health and safety. The staircase serves the ground to the first floor and flat roof within the rear of the building.

1.2 Our brief was to inspect the condition of the external fire escape and produce our findings and recommendations. Also, to carry out a visual appraisal of structural steelwork associated with the external staircase and landing, with particular attention to any signs of fatigue, damage, corrosion, and overload.

1.3 Our inspection was carried out on the morning of Wednesday 18th October 2023 and the weather at the time was overcast and dry.

1.4 LIMITATIONS

1.4.1 The inspection was visual only, carried out from ground level and undertaken by visual and optical sighting. The walkover non-intrusive staircase survey was conducted in principle from ground level and walking up the staircase to other floors served by it; specifically observing the visible defects.

1.4.2 Destructive or invasive testing was not carried out. No surface coverings were removed. Assessment of other defects has not been carried out nor commented upon other than those noted below. We cannot comment on unexposed or inaccessible parts of the structure and it is neither implied nor should it be construed that they are free from defect.

1.4.3 Photos were taken commencing from ground level, walking up the staircase serving all upper floors. A digital camera, electronic distance measure device and screwdriver were used to aid the survey.

1.4.4 Whilst we have used all reasonable skill and care in preparing this report, it should be appreciated that we cannot offer any guarantee that the structure will be free from future defects or that will not suffer from further deterioration.

1.5 PREVIOUS REPORTS

1.5.1 No previous reports

1.6 SIGNATORY

Report prepared by:

An Engineer

Structural Engineer
BEng (Hons), MSc, CEng, MIStructE

For and on behalf of: -
IKT Consulting Engineers Limited
Telephone: 0115 697 6006

STRUCTURAL INSPECTION REPORT

INSPECTION DETAILS

Area:	Fire escape staircase	*REPORT NO:*	IKT0000
LOCATION:	Silver Street, Leicester, LE1		
AREA/SITE MANAGER:	Ms A. Client	*PREVIOUS REPORT NO:*	N/A
INSPECTED BY:	Mr. S. Engineer	*INSPECTION DATE:*	18th October 2023
CDM FILES IN EXISTENCE:	None shown	*WEATHER:*	Dry and overcast
OTHER RECORDS INSPECTED	None		
SCOPE OF INSPECTION	This was a general visual inspection of structural steelwork and significant elements with no intrusive methods. No in situ testing was carried out.		
GENERAL DESCRIPTION OF STRUCTURE	Mild steel structure staircase and landings with steel plate. The staircase was operational at the time of our inspection.		
AGE OF STRUCTURE	Circa 25 years		
RISK TARGET AREAS	Moderate corrosion to steelwork. Corroded and missing parker/shims between the stringer and balustrade fixings. Loose tread bars. Perished grout under the baseplates. Corroded half-landing beams, distorted landing plates.		
ALTERATIONS SINCE PREVIOUS INSPECTION	Non		

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SUMMARY OF INSPECTION					
FINDINGS	Generally, the external staircase steelwork appeared to be in reasonable condition, although some steelwork is completely covered in prohibiting inspection. Isolated areas of heavy corrosion and damage require action, as noted.				
SUMMARY OF REQUIRED ACTIONS	**5**	**4**	**3**	**2**	**1**
	0	**1**	**12**	**4**	**0**
RECOMMENDATIONS	Carry out repairs as noted in the report using the defect categories to prioritise the work.				
FUTURE INSPECTION FREQUENCY	The next inspection is recommended in 12 months				

STRUCTURAL INSPECTION REPORT			
Site address	Silver Street, Leicester, LE1		
Site contact	Ms A. Client	**Tel:**	02070 318417
Inspector	Mr. S. Engineer	**Inspection:**	Periodic / Conditional

CONDITION CATEGORY EXPLANATION	
Cat. 1	**Definition:** No visual defect identified. **Action:** No action required.
Cat. 2	**Definition:** Deterioration identified, based on visual inspection – not to a level that is likely to become detrimental to the structure's integrity or to the safety of personnel before the next Inspection. **Action:** No immediate action required – may carry a timescale for longer-term preventative action, improvements in housekeeping or for monitoring any change in the structure's condition.
Cat. 3	**Definition:** Non-structural defect or increased level of deterioration to 'Critical Support Elements' identified, based on visual inspection – in a condition where further deterioration in the structure's fabric or integrity is likely to reach Category 4 prior to the next scheduled Inspection. Also any structure where visual assessment of the "Critical Support Elements" is neither physically possible nor safe to undertake on the day of inspection. **Action:** Remedial action required to correct non-structural defects or to arrest further deterioration in 'Critical Support Elements'.
Cat. 4	**Definition:** Structural defect identified, based on visual inspection – though 'Critical Support Elements' within a structure are affected, the structure as a whole presents no immediate danger. **Action:** Deterioration now at a level, which requires more extensive remedial action to that detailed in Category 3, to ensure the structure remains free of risk up to and beyond the next scheduled Inspection. **Or** **Definition:** Structure could not be inspected due to inadequate cleaning or lack of preparation **Action:** Arrangements for the structure to be inspected by a specified date

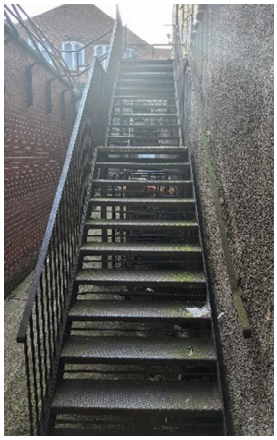
Cat. 5	**Definition:** Structural or other defect identified, based on visual inspection – represents an immediate danger to the structure's integrity or to personnel who require access in or around the structure. **Action:** **Notify Responsible Manager (or acting deputy) immediately of the defect** – with the recommendation that structure or section of structure be **taken out of use**. Where relevant, this refers to the prevention of any Pedestrian and Vehicular access in, around or under the structure and also the stopping of Production should it be detrimental.

Notes:

1. Items Not Inspected are counted as Category 3 defects and the total number should be added to the Cat 3 total.

2 OBSERVATIONS

Structural Item:	**External fire Escape Staircase**



General description of structure including operation, age if known, significant modifications and detail of other items of the staircase that affect integrity.	The staircase and landings are supported by steel flat stringers, which are in turn supported by parallel flange channel section (PFC) posts. The steel balustrades are fixed to the steel stringers. The overall stability of the staircase structure relies on the masonry party wall for support.

Defect ref.	Defect description and proposed remediation	Defect Photo	Category
1.1	There is slight corrosion and a loss of the protective coating on the columns, base plates and their fixings. Clean the steel with a wire brush or buff the affected area to remove rust and two coats of zinc-rich epoxy paint or similar anti-rust to the steel surfaces.		3
1.2	The cement grout applied to the baseplates exhibits signs of deterioration and weathering in places. Repair and apply cementitious grout to secure the baseplate to the concrete slab.		3
1.3	The steel beams that support the first floor and half-landings display		

	moderate corrosion and areas of structural deterioration. Clean the steel with a wire brush or buff the affected area to remove rust and two coats of zinc-rich epoxy paint or similar anti-rust to the steel surfaces.		3
1.4	The steel flat stringers and their fixings, which support the balustrade and treads, show signs of corrosion in specific areas. Clean the steel with a wire brush or buff the affected area to remove rust and two coats of zinc-rich epoxy paint or primer to the steel surfaces.		2
1.5	The balustrades running alongside the staircase exhibit moderate corrosion, and there is noticeable poor packing and weathered shims at the stringer fixing points. Provide shim to fill the gaps. Clean the steel with a wire brush or buff the affected area to remove rust and two coats of zinc-rich epoxy paint or similar anti-rust to the steel surfaces.		3
1.6	The treads and landing plates display moderate corrosion, with moss growth in some areas. Furthermore, there is a loose bar within the lower section of the		2

	staircase. Clean the steel with a wire brush or buff the affected area to remove rust and two coats of zinc-rich epoxy paint or similar anti-rust to the steel surfaces. Reinstate/weld all loose tread bars. Remove moss.		
1.7	The steel plate on the first-floor landing shows moderate distortion and showing signs of corrosion, with moss and vegetation present in certain areas. Additionally, there is a noticeable gap between the steel plate and the concrete structure of the staircase. Clean the steel with a wire brush or buff the affected area to remove rust and two coats of zinc-rich epoxy paint or similar anti-rust to the steel surfaces. Reinstate/replace the landing plate to adequately extend the concrete structure to level. Remove all vegetation and moss.		4

3 CONCLUSION

3.1 Our observations of the fire escape staircase confirmed that the structural elements are in fair condition, displaying typical weathering signs but remaining functional.

3.2 During our inspection, the staircase was stable. However, inadequate maintenance over the years, among other factors, has contributed to the current condition of the steel fire escape staircase and its visible structural defects.

3.3 We generally advise initiating mechanical cleaning for all elements and applying an anti-rust paint system that meets the initial 10-year maintenance cycle. This paint system may include products like Galvafroid, Zinga, zinc-rich epoxy paint, or an approved compatible paint system with a top-coat finish. Non-slip paint should be applied to all walking areas, including treads and landings.

3.4 To ensure user safety, risers, treads, and landings should be repaired and aligned to eliminate tripping hazards. Replace any loose or corroded bolts in these areas, using galvanized fixings where necessary. Similarly, replace any corroded fixings in the main body of the staircase. Introduce cementitious grout to secure the baseplate to the concrete slab.

3.5 This report provides an overview of the external staircase's condition at the time of inspection.

3.6 Estimates from contractors should be obtained for all the recommended work.

3.7 We strongly recommend that the repair work be carried out promptly by an experienced contractor to maintain the safety and integrity of the structure.