

# Memo

**To:** Goulden House  
**From:** **Stephanie Pascal, Project Controller**  
**CC:**  
**Date:** 18<sup>th</sup> March 2024  
**Re:** Goulden House Co-op – Intrusive Survey

---

The results and report for the above contract were returned on Thursday 8<sup>th</sup> February 2024 performed by Can UK and the structural report prepared by Capital Property & Construction Consultants Ltd.

The purpose of the survey/ investigation was to identify structural defects throughout the external fabric of the building and more specifically to determine the extent of defective/ spalling concrete.

Sampling and testing of exposed concrete members (ie. primarily faces of the floor and balcony slabs)

included the following:

- hammer testing of exposed concrete to identify areas of loose, or potentially loose materials,
- concrete cover meter survey,
- carbonation testing,
- chloride and cement content testing.

The overall condition of the building was considered to be in reasonably good condition with no obvious indications of structural distress caused by movement of the foundations or supporting ground.

CAN’s Survey Report has confirmed that exposed concrete is in a poor condition to varying degrees throughout, with many areas of cracked and spalling concrete with reinforcement exposed and rusting at the surface. The likely cause is possible or ineffective joint/head restraint. (see attached drawings within document labelled J3L5946-GOUL-RP01)



Photo 99 – Defect EED02, Area of concrete spalls, 4 no. spalls, <100mm wide, area of previous repair, material removed during survey



Photo 100 – Defect EED02, Area of concrete spalls, 4 no. spalls, <100mm wide, area of previous repair, material removed during survey

A large quantity of recorded 797 samples taken demonstrated a depth of 2mm–10mm carbonation from the surface of the concrete.

**Extract from Concrete testing**

Concrete Testing					
Ref. No.	Level	Sample Depth Range (mm)	Type of Test	Covermeter Readings (mm)	Depth of Carbonation (mm)
781	5	–	–	42	3
782	3	–	–	28	8
783	4	–	–	26	2
784	1	–	–	71	4
785	2	–	–	66	6
786	1	–	–	37	3
787	3	–	–	24	4
788	4	–	–	44	4
789	2	–	–	38	8
790	4	–	–	23	4
791	3	–	–	36	2
792	1	–	–	44	2
793	3	–	–	62	6
794	5	–	–	41	9
795	3	–	–	77	4
796	3	–	–	84	2
797	4	–	–	63	2

Failure of previous concrete repairs was also evident and that loose and bulging brickwork in brickwork panels mainly below and adjacent to windows were also noted which could have occurred during window replacement and carries potential damage

pending any future window replacement.



Photo 133 – Defect EEE19, Bulging brickwork, mortar surface degraded, and area of vertical cracks in mortar, 3 no. cracks, <2mm wide



Photo 134 – Defect EEE19, Bulging brickwork, mortar surface degraded, and area of vertical cracks in mortar, 3 no. cracks, <2mm wide

Potential risk of falling materials revealed during the survey has been removed and been left un-repaired which will accelerate deterioration of condition. (see attached drawings within document labelled J3L5946-GOUL-RP01)



Photo 671 – Defect EWU01, Spalled concrete, material removed during survey



Photo 503 – Defect EWE01, Spalled concrete, material removed during survey



Photo 504 – Defect EWE01, Spalled concrete, material removed during survey

## Recommendations


It is recommended that full concrete repairs are undertaken at least within the next three years to include the application of anti-carbonation coatings to all exposed concrete members.

It is also recommended that the Goulden House Co-op continue their weekly walk-around safety inspections undertaken at ground level. In addition, considerations of

Short-term risk mitigation measures, comprising of cleaning, and priming of exposed rebars and infilling of spalled concrete with a proprietary repair material, can all be facilitated by roped access. The recommended permanent repairs should be undertaken within two years of any holding repairs.

**Below are extracts from Appendix B – Schedule of defects 7 recommended repairs from within Capital's report.**

## Masonry

Item	Location	Apparent Defect/Extent	Photograph	Action/ Recommended Repair
<b>1.0 MASONRY</b>				
1.1	Brickwork at i) junction with concrete and ii) under window panels.	Loose brickwork i) below concrete due to differential/ thermal between dissimilar materials. Possibility of ineffective joint/ head -restraint, ii) below window due to possible disturbance during installation of replacement windows and/ or inadequate wall restraint.  (Widespread – mostly at north and east blocks at lower levels, 41No. locations)		Further investigation to reveal underlying construction/ condition and dependant on findings:  i) consider renewal of horizontal joint, re-bedding any loose brickwork and re-pointing ii) as i) + possible installation of remedial wall ties

## Concrete

<b>2.0 CONCRETE</b>				
2.1	Corners of RC floor and balcony slabs	Diagonal and transverse crack in concrete (and area of previous repair). Possibly caused by corrosion of reinforcement and/or shrinkage.  (Widespread, 92No. locations)		Break-out defective concrete back to sound material, suitably prepare area and carry out concrete repair.
2.2	Corners of RC floor and balcony slabs	Failing concrete repairs, possibly caused by poor standards of work/ inadequate preparation.  (Isolated - most levels, 24No. locations)		Break-out defective concrete back to sound material, suitably prepare area and carry out concrete repair.

## **CONCLUSION**

I therefore concur with the consultants findings and recommendation to be conducted within the next 3 years.

Stephanie Pascal