Corporation of the City of
NEW WESTMINSTER

Attachment F

City's Consulting Engineer Report Dated 20 June 2025

RA HERFST STRUCTURAL ENGINEERS RA Herfst Consultants Inc.
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FIELD REVIEW REPORT

EGBC Permit to Practice No. 1002521

Date of Report:	June 20, 2025
Project Name:	53 Fourth Street ("Carnarvon Court"), New Westminster
RAHC Project Number:	25124
Type of Review:	On-Site
Date and Time of Site Visit:	June 17, 2025. 9:15 AM.
Weather and Temperature:	Sunny.
Reviewer:	Richard Herfst, P.Eng., Struct.Eng.
Attendance:	Richard Herfst Serena Trachta – City of New Westminster King Luk and Bal – City of New Westminster David – Representative of neighboring church
Distribution:	Serena Trachta King Luk

Observations, Recommendations, and/or Comments:

1. I visited the site as requested to review the existing building with respect to observed deformations and damage, and to discuss possible courses of remedial action.

2. The existing structure is a three-storey multi-family wood-frame residential building set on concrete foundations. There appears to be a shallow crawlspace under the main floor at the south half of the building, while the north half of the main floor is composed of a concrete slab-on-grade.

3. The City of New Westminster (the City) had expressed concern about deformation, damage, and potential settlement on the south side the building.

4. The building is situated on a slope that falls from the north to the south. This means that the south exterior wall is on the low edge of the property.

5. We observed the existing south wall from the exterior, and then from the interior via access to Units # 1 and 2 on the south side of the main floor.

6. Significant lateral deformations along the full width of the south exterior wall are evident from both the exterior and interior sides. The wall from the top of the foundations to the second floor is obviously out of plumb, with the upper part of the wall leaning inward (i.e. toward the north).

7. Significant vertical deformations of the central area of the main floor near the south exterior wall were observed in Units # 1 and 2. We were not able to access the second-level units directly above, but vertical deformations in the floor of the corridor near the doors to these units suggest that similar but probably somewhat less severe vertical deformations are present in the second floor near the south exterior wall.

8. Research via Google Maps Street View indicates that the deformation and damage of the exterior stucco finishes progressed (in the captured images) from slight and difficult to detect in 2009 to pronounced and obvious in the latest images from June 2024.

9. The cause of the deformations is not obvious, but from past experience we can surmise that several factors have combined to bring the existing structure to its current state:

    a. Softening and decomposition of the wood framing of the wall and edges of the floors due to decay from water ingress through the building envelope system.

    b. Insufficient framing at the edges of the lower floor with limited and/or compromised capacity to transmit stacking wall loads down to the bearing wall below.

    c. Settlement of the south exterior concrete foundation wall, possibly due to a combination of footings of inadequate size, persistent soil weakness, or softening of the soil due to groundwater fluctuations.

    d. Lateral displacement of the south exterior concrete foundation wall in a down-slope direction due to loss of bearing and/or loss of passive pressure arising from excavations for adjacent utilities and/or groundwater fluctuations.

10. Regardless of the cause(s), it is my opinion that the south face of the building requires urgent stabilization and repairs. The observed damage and deformations pose little, if any, risk to the occupants of the north half of the building. But it is not clear whether the risk to occupants of the south half of the building, particularly of the six units adjacent to the south wall is, or is becoming, unacceptable. This uncertainty stems from the fact that the structural framing is all covered with finishes and therefore cannot be observed directly. And only a small portion of the top of the foundations can be observed, while the footings are completely buried and concealed. However, it seems clear that if stabilization and repairs are not implemented, then the risk to those units would soon become severe as progression of damage presumably continues.

11. Based on our discussions on site, I understand there is a desire to avoid moving any occupants out of the building, while at the same time taking reasonable measures, given the uncertainty described above, to maintain their safety . Hence, it is my opinion that a prudent and balanced solution would entail the following steps, commencement of which should proceed as soon as possible:

    a. Install a temporary line of shoring just inside the south exterior wall in conformance with recommendations from a structural engineer. The shoring might best be composed of a continuous timber or steel beam set at the underside of the second-floor joists. The beam should rest on perhaps four or five adjustable steel shoring posts with lateral bracing to suit. Small holes should be cut in the main floor framing so the posts can be set on timber cribbing resting on the floor of the crawlspace, and then extending up without splices to the shoring beam. See the attached concept sketch for a rough illustration of this scheme.

    b. Demolish the south exterior wall from the foundations to the underside of the second-floor joists. Also, demolish the existing foundation wall and footings.

    c. Retain a geotechnical engineer to verify the suitability of the soil underlying the existing footings to support new footings. Excavate to a lower bearing stratum if/as directed by the geotechnical engineer.

    d. Install new permanent reinforced concrete footings and foundation walls. Alternatively, install temporary foundations composed, for example, of concrete Lok-Bloks. In any case, undertake this work in consultation with a structural engineer.

    e. Repair or replace any decayed floor framing (joists, rim joists, and/or sheathing).

    f. Install a new stud wall to the underside of the second floor, sheathed with plywood, and anchored to the foundations.

g. Reinstate the building envelope on the new framing, and repair any other obvious damage to the envelope in consultation with a building envelope engineer.

12. If additional and/or more specific structural engineering advice is required, RAHC would be pleased to assist as we are able.

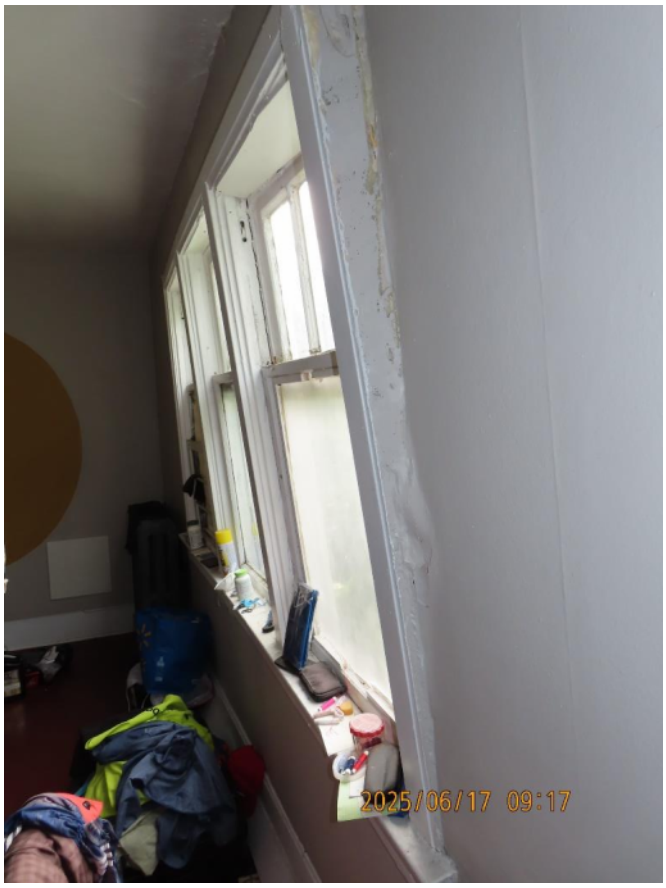
Photographs:

1. Southwest corner from southwest vantage.

2. South wall from south vantage.

3. Damaged and deformed stucco at southwest corner.

4. Exposed and decayed framing at southeast corner.

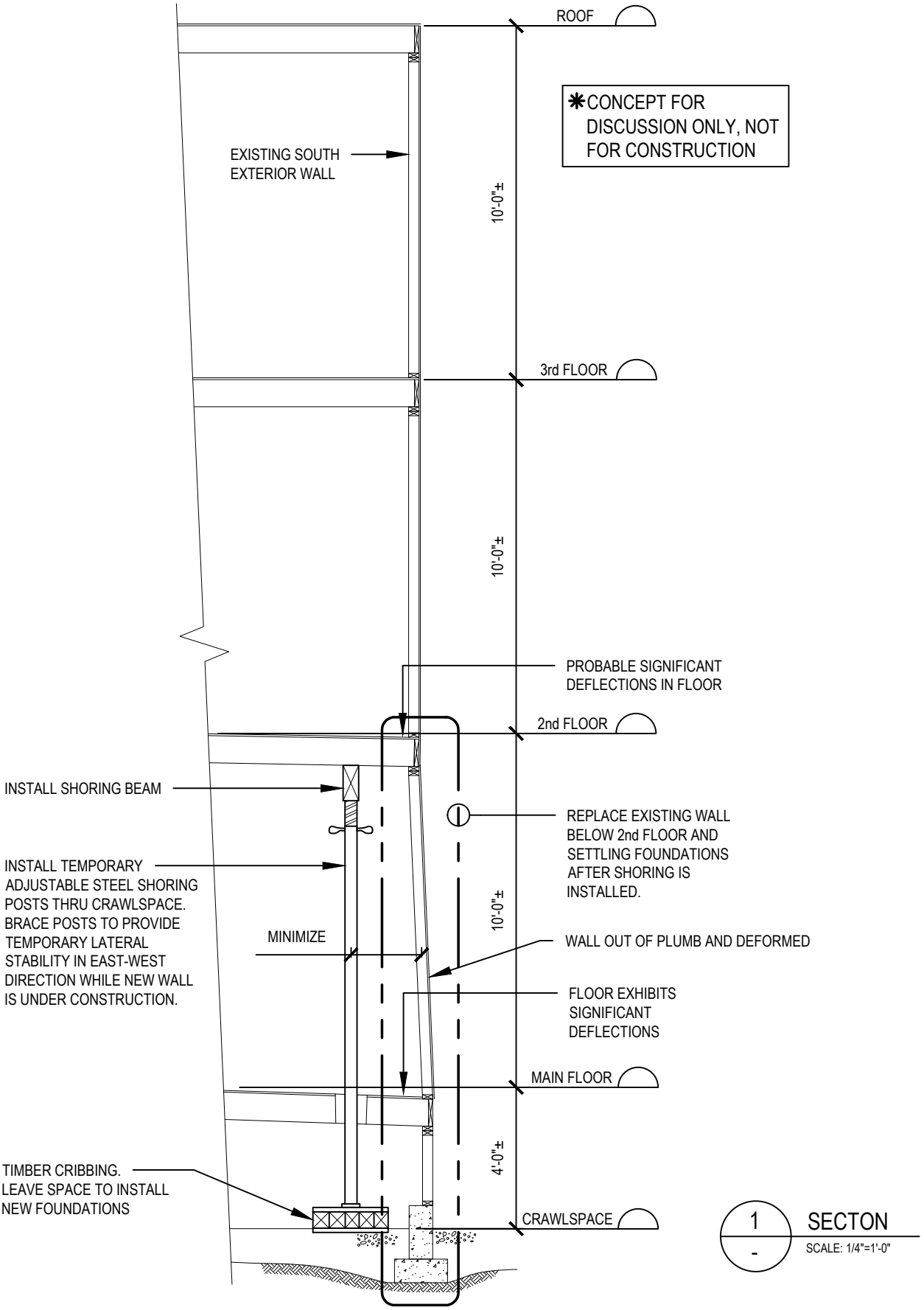


5. Obvious deformation around window in Unit # 1.

Attachments:

- **Concept sketch SSK-PR01.**

- End of Report -



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EGBC PERMIT TO PRACTICE NO. 1002521
PROJECT NO.: 25124
DESIGNED / DRAWN BY: RH / TS
PLOT DATE: JUNE 20, 2025

PROJECT:
SHORING AND REPAIR CONCEPT FOR SOUTH EXTERIOR WALL OF MULTI - FAMILY APARTMENT BUILDING
53 FOURTH STREET
NEW WESTMINSTER, BC

STRUCTURAL SKETCH No:
SSK-PR01