StrucD Limited
Consulting Structural Engineers

05 August 2021

Matt Warren
Paekakariki Surf Life Saving Club
The Parade
Paekakariki

Dear Matt,

Structural Inspection of Surf Club Building – The Parade, Paekakariki

We have, as requested, undertaken a visual inspection of the Surf Club's premises located on The Parade. The inspection was undertaken by Ivan Govender and Barend Geldenhuys of StrucD Ltd and was accompanied by Matt Warren and Hamish Wakefield of HWA. We have not reviewed or sighted any building records of this building.

Observations:

The building is currently two stories. The bottom floor comprises of changes rooms and storage rooms for equipment. The first floor is used as the club rooms. We understand that the original building consisted of the change rooms and the club rooms, and the ground floor was subsequently extended to include the storage rooms.

The change rooms consist of primarily steel frames in the east-west direction and concrete masonry block walls on the perimeter. We observed severe corrosion of the steel columns, particularly at the base and flanges. This corrosion is approximated at 50% of the steel section. We also noted some bracing elements on the western face has rusted off the connections to the columns.

Some blocks at the northwest corner are loose, which may suggest failure of the of the block mortar and blocks. The same was observed at the northeast corner.

The storage rooms are constructed of reinforced concrete beams and floor and concrete masonry block walls. We understand that this section of the building was constructed by volunteers from the local community. There are numerous areas of the concrete work showing spalling of concrete and corrosion of reinforcement in beams and columns. The main reinforced concrete floor beams are showing visible signs of sagging. The deflection could be because of long spans or may also be because of construction errors.

The first-floor club room is predominately open plan. The roof framing is supported by steel frames and both interior and external walls are timber framed. We did not observe any distress, distortion, or deterioration at this level.

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Conclusion:

The change room steel columns, in our opinion, appear to be of a smaller section size compared to other similar buildings constructed in recent years. The column's primary function is to transfer vertical dead and imposed loads during the life span of building. Under seismic loading the columns and beam above serve as a bracing frame (we are assuming that this is the original intention of the building designer). The columns are severely corroded in places. In our opinion, this has compromised the both the vertical and seismic capacity of the columns. Under seismic loading the columns are still expected to carry vertical loads safely to the ground without collapses. Due to the corrosion of the flanges, it's likely that the columns could undergo further damage and loss of steel, and this could further compromise the vertical capacity of the columns.

The concrete work in the storage area is showing signs of deterioration. The spalling of the concrete, corrosion of reinforcement and general cracking has compromised the structural performance of these elements, but to a lesser extent compared to the columns in the change rooms.

Whilst we have not observed any physical distress, distortion, or deterioration at this level, it's our opinion that the steel frames are not of a sufficient size to resist seismic loads. We do not believe there will be a collapse of the roof structure, but there may be severe distortion and deflection of the upper-level roof during a significant seismic event that may render the club rooms unusable.

Recommendations:

We recommend that the change-rooms be cordoned off and all access into this area be prohibited. Since part of the club room is supported off the change-room structure, we also recommend that access into this area be prohibited.

We further recommend that the storage areas may continue to be used for the sole purposes of storage only, and access into this area be restricted to selected club personnel only, but with short periods of visits into these rooms.

We trust you find this satisfactory. Please do not hesitate to contact us if you require further information.

Yours sincerely,

Ivan Govender
Senior Structural Engineer
StrucD Limited
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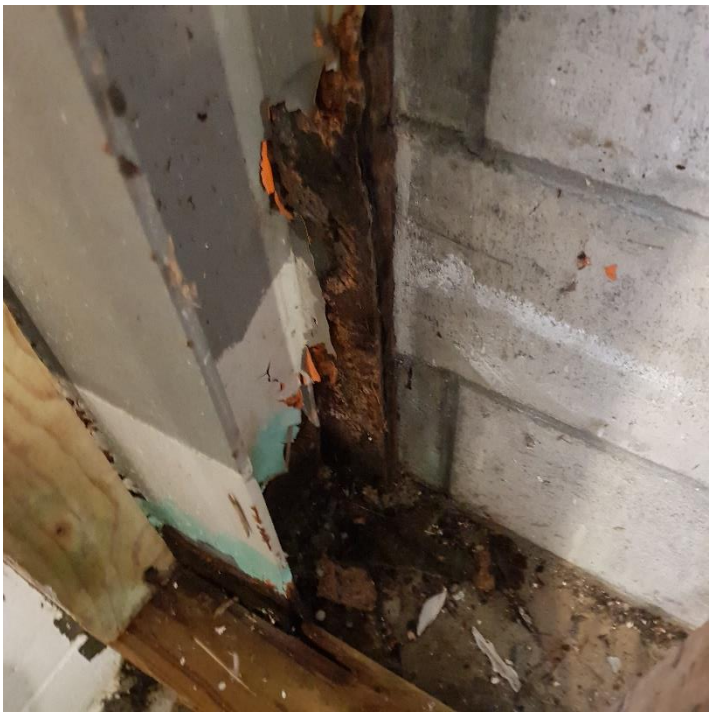
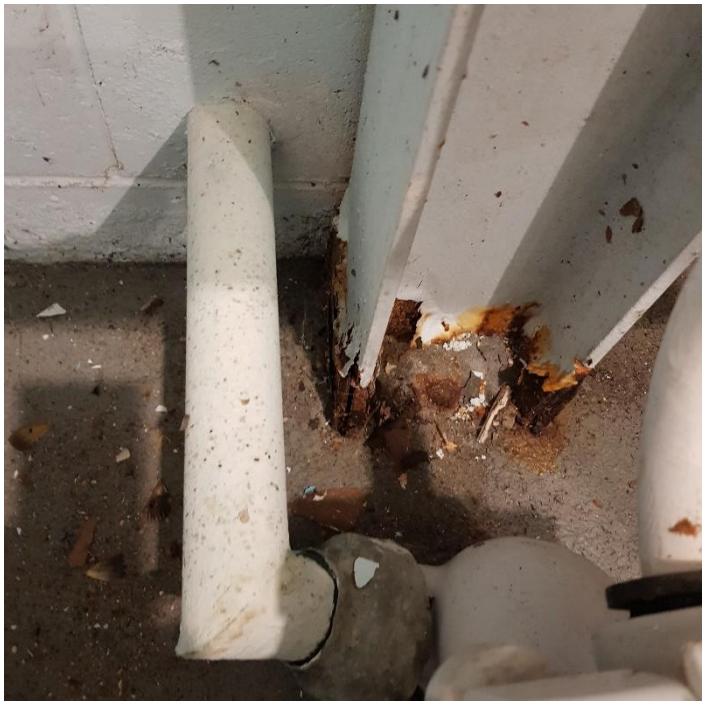
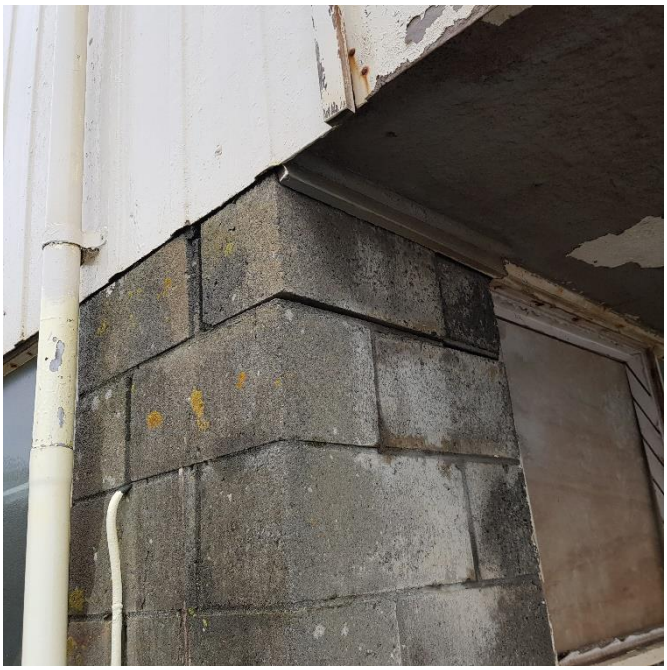
Photos



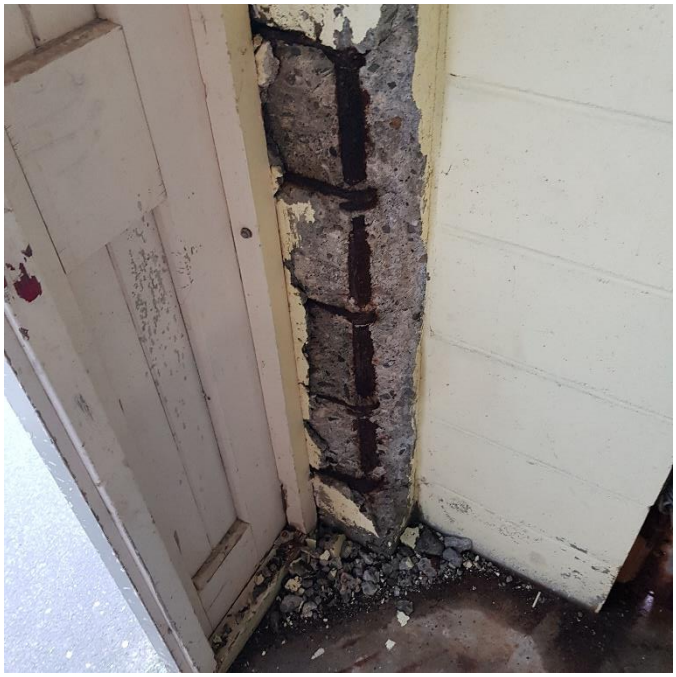
Severe corrosion of steel column flanges and base plate



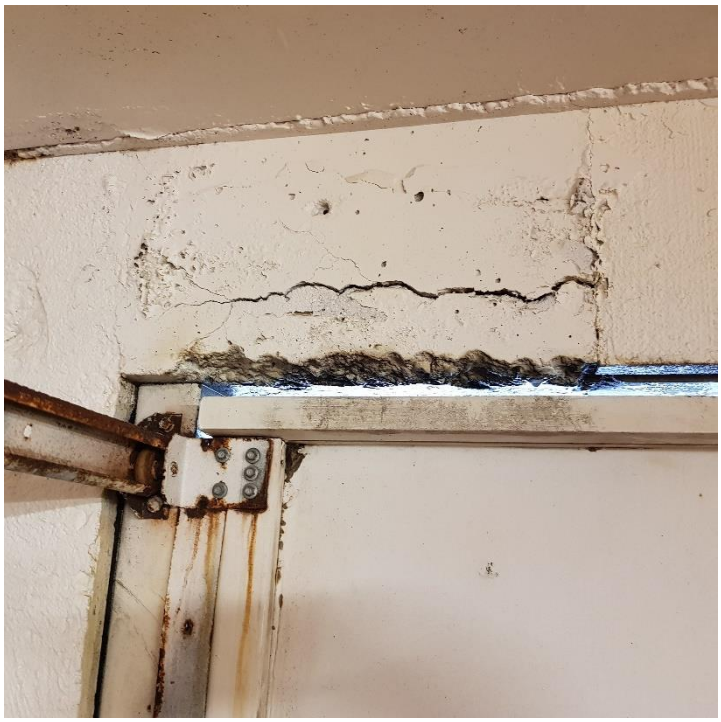
Severe corrosion of steel column base plate



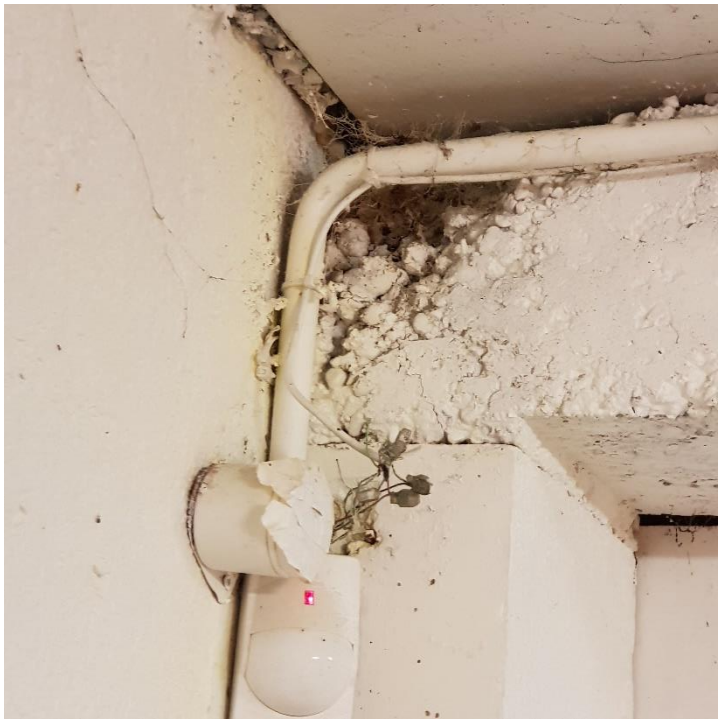
Loose blocks in northwest wall corner



Concrete column in storage area



Cracking in concrete floor beam



Honeycombing of concrete in critical beam/column joint