

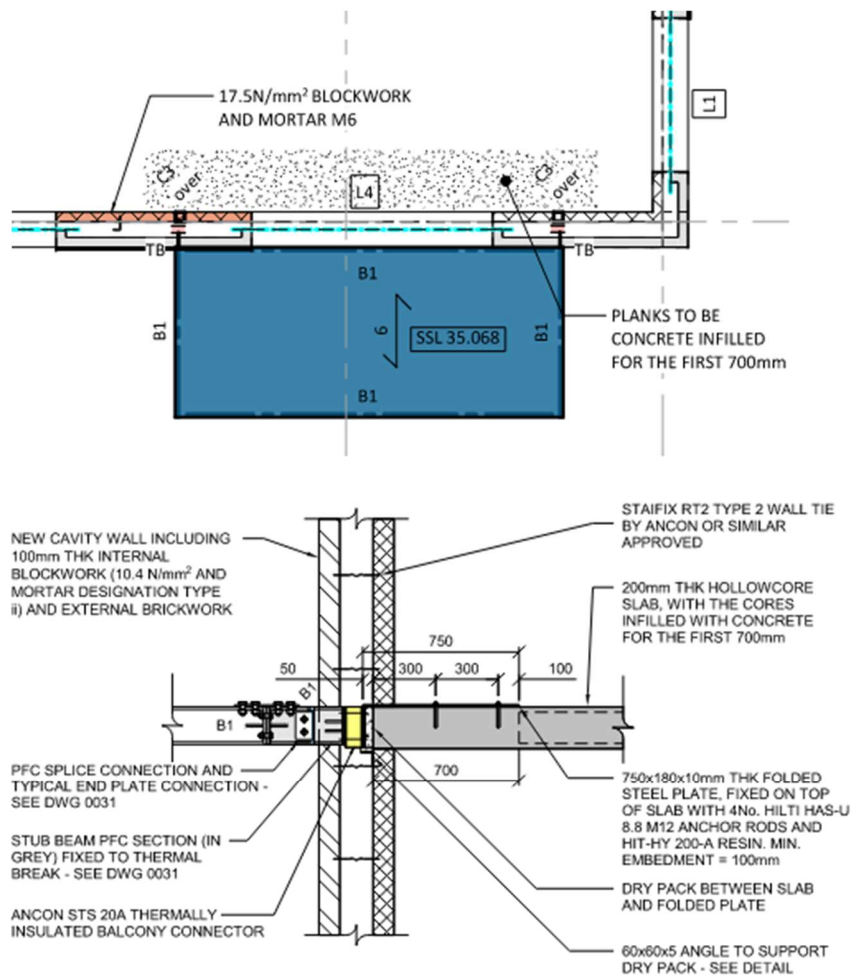
MAPLE & POPLAR

NHBC Cantilever Balcony Design Timeline

Original Base Design

The original cantilever balcony design and calculations pack was issued to both NHBC and Building Control.

This design was based on the precast slabs being solid in the location of the balconies onto which the back cantilever span of the balcony steels was bolted, as can be seen in the below 2 screenshots.



TYPICAL BALCONY TO SLAB DETAIL

(SCALE 1:20)

Building Control carried out their checks and signed off the design but NHBC raised various queries, the balconies being one of these. Since these initial NHBC comments there has been continuous back

and forth with them answering queries, which then in turn created more queries from their engineers.

It has ended up with NHBC not wanting to warrant the design as is, even though it has been proved to work by calculation they believe there still to be a risk. They have said they have had various claims recently on balconies so are reviewing these in detail now. Please note these schemes with NHBC balcony issues were not Neilcott.

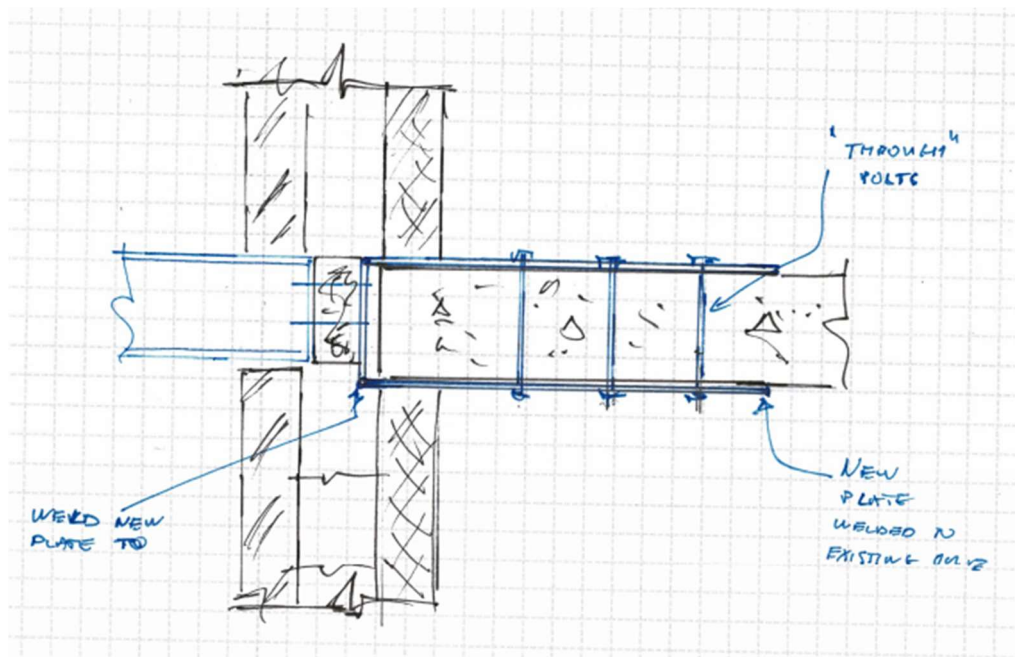
We have then been having meetings with the Structural Engineer, Creagh (Precast supplier) and NHBC to work through an alternative scheme which would be warranted by NHBC.

The evolution and timeline of the options discussed are as per below.

Option 1 – Clamping of Precast Slab

This was our preferred option so as not to affect the external appearance of the building in any way.

The details here would have been to open up the soffit below each affected balcony position and install a plate beneath the one already installed and then resin bolt this up to the soffit (slightly different from below screenshot which shows bolts going right through slab). We would also have had to open up the external block and brickwork to weld this onto the existing plate.



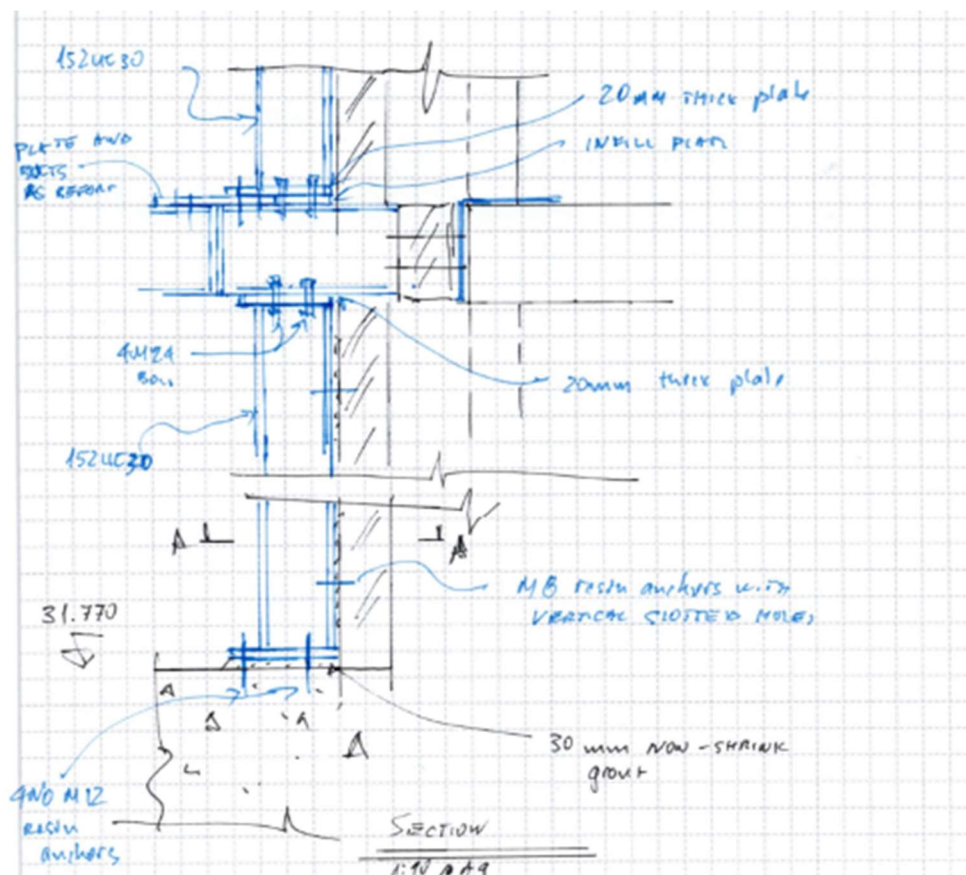
NHBC reviewed this option and although again it structural worked, as it was unconventional they would not approve this design option.

Option 2 – External Columns Tight to Brickwork

This design introduced new steel columns up against the external brickwork to eradicate the forces of concern by the NHBC. This design by its nature would change the external appearance of the building, hence why it was our second option.

A full information and structural pack was presented to NHBC on this design option and a meeting held with their engineers to discuss it in detail. The proposed columns would have been galvanised and spray painted to match the window / balcony fascia RAL colour.

Below is screenshot of the connection design, and below that marked up elevations of where the posts would be on the South Block.





Unfortunately again although the NHBC engineers liked the out the box proposal and could be proven to work, they would not accept this as it was unconventional.

Option 3 – External Columns on the Balcony Corners

Although this would have been the easiest way to overcome the problem, we tried not to pursue it as it would detract from the cantilever balcony affect of the building, but NHBC have left us no choice but to go down this route. They have said all their concerns would be alleviated by this design, so I have instructed our engineer to draw this up.

All the columns would come down into the ground floor garden terrace walls and their foundation so those are easy, it is just 2 balconies on the front of the South Block which we are looking at independently to see if we can avoid a column from the first floor down to ground as this is on the entrance route to the block. At this location there is a huge 305 steel, so we are looking to use that to support the first and second floor balconies.

Therefore we have no choice but to go down this design route, otherwise NHBC would endorse / caveat the warrantee.

I have marked up the affected elevations in red on both blocks below for ease of reference. Once drawn up Neillcott will submit an NMA for these changes and the reasoning behind them to the planners.

Note it only affects 2 sets of balconies on the North Block, which are on the side east elevation, the remainder of the balcony are simply supported already.

North Block East Elevation



North Block East Elevation
1 : 50

South Block North & East Elevations



South Block South & West Elevations

