

**Commission of Inquiry into the Diaphragm Wall and Platform Slab Construction
Works at the Hung Hom Station Extension under the Shatin to Central Link Project**

FIRST WITNESS STATEMENT OF EDWARD MOK

I, EDWARD MOK, of [REDACTED]

say as follows:

1. I was, at the times relevant to this statement, a graduate engineer with Leighton Contractors (Asia) Limited (“**Leighton**”), the main contractor for the Hung Hom Station Extension contract (Contract SCL 1112) (“**Project**”) under the Shatin-Central rail link project. The project manager for the Project is MTR Corporation Limited (“**MTRC**”).
2. Unless otherwise stated, the facts stated herein are within my personal knowledge and are true. Where the facts and matters stated herein are not within my own knowledge, they are based on the stated sources and are true to the best of my knowledge, information and belief.

My qualification and experience

3. I was employed by Leighton on 21 August 2013 as a graduate engineer, and was part of the engineering construction team. The engineering construction team is responsible for method statement programming, procurement, management of resources, coordination, supervision and inspection of the works, sequencing of the works and worker safety.
4. From Aug 2015 to Nov 2016, I worked on Areas C1, C2 and C3 of the East West Corridor platform slab (“**EWL Slab**”) and Areas B, C1, C2 and C3 of the North South Corridor platform slab (“**NSL Slab**”). This statement is confined to Area C of the EWL Slab, as that is the only area where I recalled reinforcement bars (“rebars”) with threaded ends cut off or shortened.

My role and responsibilities

Working hours

5. My usual working hours on the Project were from 8am to 6pm. However, I worked overtime (subject to work completion) for pre-pour check on the day before concrete pour and started earlier (around 7am) on the day after unless another suitable Leighton employee was available to inspect the work.

Duties and responsibilities

6. For around the first two years of my work on the Project, I was responsible for the diaphragm wall works. I subsequently moved on to work on the NSL Slab and EWL Slab.
7. On the EWL Slab and NSL Slab, one of my main duties was to coordinate with subcontractors and inspect corresponding work according to the hold points in the Inspection Test Plan. The subcontractors were Fang Sheung Construction Company (“**Fang Sheung**”) who were responsible for rebar fixing, and China Technology Corporation Limited (“**CT**”), who were responsible for concreting related works, including formwork and falsework erection, cleanliness before concreting.
8. I was generally responsible for checking the work of the subcontractors in my area, including rebar fixing and ensuring other works were ready for concrete pours. A very important part of this was conducting formal inspections at each “hold point”. I will discuss these in greater detail below.
9. On the EWL Slab and NSL Slab, I worked in a team of engineers which was supervised by Andy Ip (Sub Agent) and Joe Leung (Site Agent). Other engineers in the team were Man Sze Ho and Sasa Leung.
10. Whilst both Andy Ip and Joe Leung were my seniors, Joe Leung would mainly sort out the design issues (although at least twice a day he would go down to Site). Andy Ip would be more hands on for day-to-day training and inspections (both formal and informal).

11. When I started working on the EWL Slab and NSL Slab, for each of the inspections I had to do (including rebar fixing and pre-pour check) Andy Ip took me through the working drawings in the site office and explained what needed to be done and what I needed to check for.
12. He then took me to the site to guide and supervise me through each of the different inspections. For rebar fixing, we mainly would check the layers of rebars, whether there were sufficient layers, spacing and lap length, and the coupler connection in accordance with the working or agreed drawings. I recall that Andy Ip went through this process for each type of inspections around three or four times, until he had confidence I knew exactly how to do it.
13. If I came across difficulties or something unusual (such as the rebars with the threaded ends cut off, as discussed below) I would raise it with Andy Ip or, sometimes, Joe Leung and we would discuss it. For routine in-progress rectification where no difficulties arose, I would probably not raise it with Andy Ip or Joe Leung.
14. We had regular meetings with the subcontractors to discuss progress, safety issues and work schedules from Aug 2015 to Aug 2016. Initially these were held weekly but became more frequent over time which we had them almost daily. Joe Leung, Andy Ip and their senior Gary Chow (Construction Manager) would usually attend these meetings. I and the other engineers would also attend them if our work schedule allowed it. By attending the meetings, I had a good understanding of site progress, issues that were of concern and the next steps in the works.

Daily routine

15. I set below a summary of my daily routine while working on the EWL Slab.
16. I would start my day in the site office. Between 9 am and 9.30am, I would normally go down to the site and do the first of my “rounds” i.e. visit the areas that I was responsible for and check the work being performed. I would do around three to four rounds each day. Time needed of each round is approximately one hour, therefore I would spend about four hours per day on site.

17. During my rounds, I checked the work being carried out in accordance with the company's safety standard, approved or agreed drawings and workflow process. I also ensured that supervisors from Fang Sheung and CT were aware of the work schedule and made necessary arrangements to assist them to meet target completion dates.

Supervision and inspection of reinforcement

18. I understand the Commission of Inquiry is concerned about the connection between rebars and couplers. I describe below my role in both informal and formal inspections of the works, including the connections between the rebars and the couplers, and the action I took when I identified a small number of defective rebars installed by Fang Sheung.
19. It is important to understand that there are various levels of inspection and supervision: from regular inspections during my rounds (as mentioned above) to formal inspections which were conducted by Leighton and MTRC representatives. The intention, and effect, of this system is to ensure that subcontractors are closely monitored and that their work complies with the approved or agreed drawings and workflow processes. It is also intended to identify and rectify any defects as soon as possible.
20. I set out below first a description of my routine inspections and; secondly, the formal inspection process.

Routine inspections

21. In a complex project like SCL1112, there are frequent minor issues that need to be addressed. In the case of rebar fixing, when I discovered a defect (for example missing layer for rebars), I would directly instruct Fang Sheung's workers to rectify accordingly. Sometimes the workers would undertake the rectification immediately in my presence without seeking approval from their supervisor. On other occasions, they may call their supervisor, Joe Cheung, to come to the location for discussion. In that case, Joe Cheung and I (sometimes with MTRC's engineers) would discuss and agree the required rectification which would be done immediately. In all cases, I would personally ensure that the rectification work was properly performed.

22. In addition to my routine inspection of the works, I would regularly undertake informal inspections together with MTRC's engineers or Inspector of Works ("IoW"). This would happen when we meet each other on site and agree that a spot check would be helpful on the quality of the work.
23. In these informal inspections (which were very similar to the formal inspections noted below, but not documented), we would check coupler connections, arrangement of the installed rebars, condition of formwork and falsework and other miscellaneous items prior concreting. When checking the connections between rebars and couplers, I looked to ensure rebars are properly screwed in (at most you might see one or two threads as the rest would be screwed into the coupler).

Formal inspections

24. The formalities associated with the formal inspections were as follows:
 - (a) There were two key formal inspections of the reinforcement. The first was the rebar fixing inspection with MTRC's engineer. The second was the pre-pour check with MTRC's IoW.
 - (b) The subcontractors' (in this case, Fang Sheung) knew that their work need to be inspected or rectified (if there are any defects) before they move on to next work area. This was called a "hold point". The "hold points" were a critical stage in the construction process. They were set out in the ITP and included in the method statement. Once a "hold point" was reached, subsequent work could only be started after approval given by MTRC based on a formal inspection conducted by Leighton and MTRC.
 - (c) MTRC's engineer and I would jointly conduct the formal inspection for rebar fixing (which I discuss further below).
 - (d) Once MTRC's engineer had approved the rebar fixing inspection, I would then conduct further checks to satisfy myself that the area was ready for concreting. Generally, I tried to arrange the concreting preparation work and rebar fixing work simultaneously to reduce delay.

- (e) Once I was satisfied with the preparation works before concreting, MTRC's IoW and I would jointly conduct the formal inspection for the pre-pour check.
 - (f) It was standard practice that MTRC's engineer/IoW would verbally approve the inspected works and authorise Leighton to proceed immediately after the formal inspections. The only exception would be if MTRC's engineer/IoW required rectification work. If the defect was minor, I would ensure that such remedial work was completed immediately by the subcontractor during the inspection. Otherwise, if more time was required to complete the rectification work, I would check the work later before arranging a further inspection with MTRC. Then MTRC's engineer/IoW would inspect the rectification work and give their verbal approval.
 - (g) It was standard practice that Leighton would continue working after verbal approval was obtained from MTRC following a formal inspection. This allowed works to continue without delay. Thereafter, MTRC's engineer/IoW would complete the inspection forms to record their approval and return it to Leighton later.
25. The practical aspects of the formal inspection for rebar fixing were as follows:
- (a) There were in fact two formal inspections. The first was undertaken after Fang Sheung had completed the bottom layers of rebars and the second after the top layers were completed.
 - (b) Each of the two inspections of rebar fixing comprised checking the arrangement of rebars, the spacing of the rebars, lap length of rebars and the connections between rebars and couplers. I would physically measure the spacing and lap length of rebar samples in the area to be inspected and check whether the as-built complied with the working or agreed drawings. With reference to the measured samples, I would then conduct visual check across the area to ensure that there was consistency of the spacing and lapping of the rebars. I understand that the Commission is mainly interested in the connections between rebars and couplers and will focus on this topic below.

- (c) As noted above, for the connections with between rebars and couplers, I would check that the threads of the rebars were screwed into the couplers and not exposed (or that only one or two threads were exposed). Both MTRC's engineer and I would often use a torch to inspect the connections. This was not essential (you could see adequately without it), but it did give us a slightly better view of the coupler connections.
- (d) Both MTRC's engineer and I would walk along the bay looking down at rows of rebars (the MTRC's engineer was normally a couple metres ahead of me) and check for ourselves that rebars were properly connected to the coupler.
26. I was one of the engineers who was responsible for the rebar fixing inspection. On two or three occasions, when I was not available and my fellow engineer, Man Sze Ho, did the formal inspections of rebar fixing. I performed the rest of the formal inspections of rebar fixing in Area C1, C2 and C3 for the EWL Slab. The inspections conducted by Man Sze Ho were successful and he obtained MTRC's approval of the works and authorisation to proceed.
27. For the areas that I was responsible for, all formal inspections for rebar fixing and pre-pour checks were approved by MTRC. This indicated the connections between rebars and couplers were formally inspected and approved by both Leighton and MTRC. I should emphasise that these formal inspections were in addition to the informal inspections that were frequently carried out by Leighton and MTRC prior to the relevant "hold points" being reached. No concrete was poured without hold points being inspected, formal inspections having been completed and MTRC authorising Leighton to proceed.

Identification and rectification of defective rebars

28. There were three occasions when I identified that the threaded ends of rebars had been cut off, rather than being screwed into the couplers. In total, I recall identifying no more than eight defective rebars with the threaded ends cut off. They were all identified in Area C of the EWL within a period of around 4 months. All these rebars were rectified at the time that they were identified.

29. I recall that the first occasion was around September 2015. I cannot recall precisely, but I believe it was during a formal inspection for rebar fixing with MTRC's engineer. I do not recall exactly which MTRC's engineer attended and cannot say with certainty which RISC form relates to this inspection, as there were various such inspections taking place around that time. I identified that the threaded end of one rebar had been cut off. The rebar was not screwed into the coupler and there was a gap of several millimetres between the bar and the coupler. As Fang Sheung's workers were still on site, I immediately asked them to replace the defective bar by taking it away and replacing it with a new bar. I watched Fang Sheung's workers change the rebar and screw a new threaded rebar into the existing coupler. The rectification took about 15 minutes to complete. I do not recall the exact location of the defective bar. As it was rectified immediately, there was no formal follow up or record made, as is normally the case with routine and minor rectification works. I recall that MTRC's engineer was with me at the time and granted approval after the inspection.
30. I reported the incident to one of my supervisors, Andy Ip, at the end of the day. I explained that it had been rectified immediately. I also mentioned the incident to Fang Sheung's supervisor, Joe Cheung. I said I had discovered a cut threaded rebar on site and please ensure his workers checked the threaded bars were in good condition and being screwed into the couplers. I do not recall his exact response, but I believe it was along the lines of "Yes, I will remind my workers."
31. Although I assumed it was an isolated incident, after that I took extra care to thoroughly check the coupler connections. I also mentioned the incident to other engineers in my team, Man Sze Ho and Sasa Leung.
32. The second occasion was around one month later in October or November. Again, it was discovered during a formal inspection with a MTRC engineer. Again, I do not recall exactly which MTRC's engineer attended and cannot say with certainty which RISC form relates to this inspection, as there were various such inspections taking place around that time. The engineer walked a few metres ahead of me. I recall that I and MTRC's engineer identified one or two (I cannot remember exactly, but it was no more than two) defective rebars during the inspection. Again, the threaded ends of the rebar(s) had been cut off and there was an obvious gap between the rebar(s) and the coupler(s).

33. Similar to the first occasion, I asked the Fang Sheung's workers to remove the defective bar(s) and replace them with new bar(s). I recall it was necessary to replace the coupler for one of the bars. The rectification work was done immediately, and I personally supervised the entire process. It would have taken between 15 and 30 minutes, depending on whether it was one or two rebars. Once again, the MTRC's engineer approved the inspection and the rectification.
34. After the inspection, I mentioned the matter to one of my supervisors (either Joe Leung or Andy Ip). I also told Joe Cheung, Fang Sheung's supervisor about the matter. I told him to ensure his workers checked the threaded bars were in good condition and being screwed into the couplers. I recall Joe Cheung being a little surprised that the same issue had arisen again, and he said he would take appropriate steps to ensure it would not happen.
35. At the time, I considered whether to issue a non-conformance report ("NCR"). On balance, I took the view that it was not necessary. The work had been rectified quickly, without issue and only related to two bars. I believe that my supervisors agreed with that assessment, although I do not recall the specific conversation.
36. Upon checking my records, I found that on 9 December 2015 I sent from my personal email account to my Leighton email account photographs of two defective rebars that I had taken using my mobile phone, for record keeping. These are likely to have been photographs of two defective rebars from the second occasion, but I now cannot remember for sure. A copy of these emails is provided in Exhibit "[EM-1]".
37. The third occasion when defective rebars were identified was on 15 December 2015. The defective rebars were identified during an informal inspection of Bay C3-2 and C3-3 of the EWL Slab that I conducted with MTRC's IoW, Andy Wong. As explained above, I often conducted informal inspections with MTRC's engineer or IoWs during our rounds. It was a normal practice.
38. During the informal inspection, both I and the MTRC's IoW noticed five defective rebars with the threaded ends cut off. At that time, installation of the bottom rebar layers was still in progress.

39. As before, I had Fang Sheung's workers (in this occasion with the help of Leighton's direct labourers) immediately replace the defective bars. I believe on that occasion that at least one of the couplers had to be replaced. Both MTRC's IoW and I personally supervised the rectification of the work which took around one to two hours. Both the IoW and I attended the entire rectification process. We were both satisfied with the rectification work.
40. Whilst the rectification was being undertaken, MTRC's IoW also asked the workers to unscrew three further bars from the completed coupler connections to check the bars were in good condition. This was a kind of "sample testing" to ensure the problem had not occurred across the bay. In truth, these sample checks were not necessary as a visual check is sufficient. However, during the rectification process, we decided to carry out this additional check. All those three connections were found to be satisfactory.
41. On the same day (15 December 2015), Kobe Wong sent an email to me, Andy Ip, Joe Leung and Kevin Harman (Quality Assurance and Environmental Manager) reporting the incident and photographs of the defective bars were attached (provided in Exhibit "EM-2"). The email noted that remedial works were conducted immediately and were witnessed by MTRC's IoW, Andy Wong.
42. After this incident, I discussed the matter with Andy Ip or Joe Leung (I do not recall which one) and we agreed that it was necessary to issue a NCR. MTRC also agreed with our approach. A copy of this NCR is provided in Exhibit "EM-3". Later, in August 2016, I submitted a RISC form to MTRC to document the rectification and inspection as part of closing out of the NCR, which was signed off by MTRC in September 2016 (provided in Exhibit "EM-4").
43. I spoke to Joe Cheung, Fang Sheung's supervisor, to explain that it was completely unacceptable that the same issue had arisen three times and that, on this occasion, there were five defective bars within the same area. I informed him that a NCR would be issued. I understand that Joe Cheung gave a briefing to his workers about the issue afterwards, but I did not attend and had not seen any record of this briefing.
44. On 24 December 2015, I and MTRC's engineer conducted a formal inspection for rebar fixing for the relevant bay where the five defective rebars were identified and rectified. Approval was granted by MTRC to move to the subsequent pre-pour check. The

inspection was documented in a RISC form (provided in Exhibit “EM-5”), which recorded approval from MTRC.

45. On 27 December 2015, I arranged the formal pre-pour check inspection for the relevant bay where the five defective rebars were identified and rectified. Approval was granted by MTRC to proceed with concreting. This inspection was documented in a RISC form (provided in Exhibit “EM-6”), which recorded approval from MTRC.
46. Other than as noted above, I do not know of any further rebars where the threaded ends had been cut off or shortened. I recall no one had told me that they had discovered threaded rebars being cut. I was also aware that there was only one NCR issued in relation to this issue.
47. I did not instruct, or allow, any person to cut off or shortened the threaded ends of rebars. I do not know of anyone (whether from Leighton or otherwise) who instructed or allowed a person to cut off or shorten the threaded ends of a rebar. I do not believe that anyone from Leighton would have given such an instruction. I also do not know of any reason why someone from Leighton would give such an instruction.
48. I do not know why Fang Sheung’s workers installed the small number of defective rebars which I identified on the three occasions noted above. If a coupler was damaged, Fang Sheung could easily request Leighton to replace them.

Allegations by Joe Cheung of Fang Sheung

49. As part of MTRC’s investigation in June 2018 (which led to the MTRC’s report dated 15th June 2018), I understand that Joe Cheung made comments which suggested that Fang Sheung had cut short the longer-threaded ends of rebar with “Type B thread” to make them the same length as the threaded ends of rebars with “Type A thread”, which is shorter. If this happened, I think it is unacceptable.
50. The thread length of the threaded rebars was strictly controlled under BOSA’s (coupler and threaded bars supplier) quality assurance. It is still acceptable if a rebar with Type B thread (which is not cut or shortened) is connected to a coupler. The number of the exposed threads would just be more than if a rebar with Type A thread was used. In

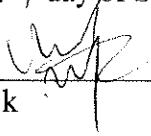
this situation, Fang Sheung should notify Leighton prior to connecting rebars with Type B thread in order to show it was not a defective connection.

51. There is simply no benefit whatsoever to shorten a Type B thread to Type A thread. I will be very surprised if Fang Sheung workers ever did that.

The works are safe

52. In the areas that I was responsible for (which is all that I can comment on), I am satisfied with Leighton's and my supervision of the Project. We implemented a thorough system of supervision and inspection to ensure that the procedures were followed. In my personal opinion, the EWL Slab and NSL Slab are safe and properly constructed base on agreed or approved drawings and methods.

Dated the 14 day of September 2018.

Signed: 
Edward Mok

**Commission of Inquiry into the Diaphragm Wall and
Platform Slab Construction Works at the Hung Hom Station
Extension under the Shatin to Central Link Project**

FIRST WITNESS STATEMENT OF EDWARD MOK

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