The Status of the Existing Fire Suppression System at the Commencement of the Works

In my submission of 16 January 2019, I advised that there was a high-pressure mist fire suppression system in place, 95% complete, prior to the May 2014 fire. This was stated by GSA after this fire. This was also confirmed by the suppliers and installers of that system. GSA also confirmed that only one part of the installation was not yet connected, in the main entrance hall. From this and further evidence supplied to the Committee it can be determined that once that work was done, what was required for the fire suppression system to be operational was the installation of the pumps, the filling and charging of the pipework and the commissioning of the system. GSA commented in their *"Statement of Rebuttals"* of 8 November 2018: *"… the building had been made safe after the fire on 23 May 2014 (bearing in mind that fire damage was contained to part of the building)…"*

Drawings of the status of the building after the May 2014 fire were prepared by Page/Park, showing loss of the parts of the building containing the high pressure system restricted to the top floor of the West wing and the West Elevation rooms. GSA's original intention was to repair the existing system, and drawings were produced for this by Harley Haddow in 2015. Within the timeline produced by Page/Park it is confirmed that GSA appointed contractors after the 2014 fire *"to make the site secure, manage the clear out works… install protective services…"* If this work had been carried out as part of those protective services, the Mackintosh building would have had full coverage by a high-pressure mist fire suppression system. The initial work to consolidate and commission this system could have been done within the two-year period before the appointment of Kier in July 2016. If pumps were water damaged and not installed, new pumps could be installed. The remaining works to complete the system could have been brought on line when Kier had reconstructed the top floor of the West wing, and this could have been connected as an extension to the live system.

Therefore, the entire works could have been covered by the existing high-pressure mist fire suppression sprinkler system, commencing with the occupied and extant building, progressing into the new works. Coverage of the East wing could have been achieved at any time from the beginning to the end of 2016, either by Kier or by others, and Listed Building Consent had been granted for this work on 6 June 2013. The repairs to the original system were covered by the Phase 1 Planning Consent dated 28 June 2016. Because the original system had already obtained approval from the building's insurers, there would have been no need for further permission, and no ensuing delay. Therefore, the only limiting factor would be the programme for the West wing being made wind and watertight. All of the building, including upper floor of the West wing, could have been covered by the original high-pressure mist suppression system by the middle of 2017, one year before the fire. The East wing and lower floors of the West wing could have been protected by the end of 2015.

Response to GSA Commentary of 30-01-19 upon the Existing System

Within their commentary, the GSA claim that the original high-pressure mist system layout would need to be reconfigured, reinstalled and redesigned, in order to be made operational. This statement is both incorrect and misleading, if read in the context of the status of the original high-pressure mist system and the work necessary to make it operational, for the purpose of determining the date that it would have been reasonably practicable for the system to protect the building.

The GSA's references to reconfiguration and redesign, and to a resultant reinstallation, do not refer to work needed to be done to make the original system function. They refer to redesign work undertaken by the GSA after the 2014 fire, due to the fact that they took the opportunity to change the layouts of some of the spaces in the building. If the original system had been retained, subsequent changes to its layout may have been found necessary. Such changes could have been assembled remotely, before connection section-by-section into the original live system. Other than for short periods of down-time, such later changes would not impact upon the capability of the original system to provide fire protection. The certified designer/installer of the original high-pressure mist system has confirmed that Kier sought a tender price from them, which was not accepted.

Comparison Between Achievable Programme for Mist System Protection and GSA Works

Because GSA changed layouts, they decided to revise the mist system layout, and in August 2016, more than two years after the first fire, GSA decided to change from the installed system to a new low-pressure mist system. The cost of installation for the replacement system is cheaper than for the original high-pressure mist system, but the pipework and fittings are bulkier, and a larger water tank is required. Because of the layout and system changes proposed, including excavations for the new tank room in the basement, new applications needed to be made for Listed Building Consent and, according to the GSA, there was discussion with their insurer at a later date to obtain approval for the new system. These consents, applied for later than necessary, caused delay in installation of the replacement system, which was only 60% complete at the time of the June 2018 fire.

If the process of redesign and procurement been undertaken in advance of August 2016, the work could have commenced much earlier. Given that the original works took one year to install, when the building was fully occupied, it would be reasonable to expect that the new mist system could have been installed in a partially occupied building in a shorter time, and therefore by the middle of 2017, one year before the June 2018 fire.

Response to GSA Commentary of 30-01-19 upon the Timetable for Installation

In the GSA commentary, it is asserted that the work to alter the existing system would have taken a similar time to undertake as a new installation. I would agree with this only to the extent that either system could have been installed and commissioned in full, and in accordance with the revised layout, more than one year before the June 2018 fire. I do not agree that the time at which the system installation was commenced was the earliest stage at which this work could be done. Had the original system been commissioned in accordance with the requirements of the Joint Fire Code, whether or not a new system was installed in parallel, or whether the original system was later updated to match a new layout in some rooms, the majority of the Mack building could have had effective fire protection and suppression two and a half years before the 2018 fire, with full coverage of the building being achieved at least one year before that fire.

Response to GSA Commentary of 30-01-19 upon Conformity with the Joint Fire Code

The GSA state that they complied with the Joint Fire Code. In their timeline, Page/Park note that a decision to use *"an enhanced automatic, low-pressure mist fire suppression system"* was made between 2015-16. The Phase 2 Planning and Listed Building applications made by the GSA, noting the intention to replace the *"…fire suppression mist system…"* were lodged on 29 August 2016 and consented on 9 December 2016. Kier had already been on site for five months before the consents were obtained, and beyond that the GSA entered into further discussions with their insurers. Had this been programmed appropriately, the work could have commenced at an earlier stage. The delays caused by the GSA prevented compliance with the requirement for *"early installation"* of the fire suppression system, and thereby resulted in a contravention of the Joint Fire Code.

The GSA claim that failure in terms of the CDM regulations and the Joint Fire Code would mean that the site would have been closed. This is incorrect. The HSE do not carry out routine inspections of building sites and processes. It is possible for non-compliance to remain beyond the knowledge of the HSE, until such time as they are given cause to investigate, or in the event of a reported incident.

Conclusion to Opinion, Based Upon Available Evidence

The GSA instructed that a viable and near complete mist fire suppression system be stripped out and delayed the commencement of installation of an alternative. By so doing, the GSA failed to comply with the Joint Fire Code. Because of GSA's actions, the building did not benefit from the protection that a mist fire suppression system would have offered against the fire on 15 June 2018.