

Committee(s):	Date(s):
Culture, Heritage and Libraries Committee	28 th January 2013
Subject: Guildhall Library Flood – Summary Report	Public
Report of: The City Surveyor	For Information

Summary

This report summarises the incident which occurred on 31st October and 1st November 2012, leading to the Guildhall Library suffering from closure as a result of flooding caused by a blockage to the West Wing's waste water services.

The actions undertaken by Guildhall Facilities Management, in conjunction with contracted service suppliers, are also outlined. As a result of this incident, an inspection of the internal condition of the affected waste water pipe system will be conducted in early January 2013 to try and determine the cause of the blockage resulting in the flood, and if further remedial action will be required to prevent such an incident recurring.

The current estimate of damage to the fabric of the building is £5,000 which is subject to an insurance claim, while the inspection of the waste pipe system is estimated at £1,000 and will be conducted by the Department of the Built Environment.

Recommendations

- It is recommended that Members note the content of this report.

Main Report

Background

1. At approximately 5.00am on 31st October 2012, during a routine patrol of the building, Guildhall security discovered water flooding on the first floor of the West Wing office area outside the entrance to the female/male toilet facilities. The previous patrol took place at approximately 3.00am and had nothing to report.
2. The affected toilet was flooded with water overflowing from initially the female and then also the male facilities. At approximately 6.00am while everything was being done by security officers to stem the flow of water, arriving cleaning contractors at Guildhall Library reported that water had entered the Business Library area and that the carpet was wet. While now seeking assistance from

the cleaners to help clear the water, Guildhall security contacted Saeed Khadki – Library Service Manager, and informed him of the incident. It was later discovered that the lower ground floor area had also been affected, with some water penetrating as far as two floors below, into the manuscript store.

3. As soon as Guildhall maintenance staff arrived on site, every effort was made to isolate the water supply to the flushing systems as this was initially identified as contributing to the flooding. At this point in time, it was assumed that there was a blockage in the waste system resulting in automatic flushing water backing-up the system with flush water. The toilet facilities on all floors were immediately taken out of use and arriving staff informed of the problem.
4. While Guildhall maintenance staff made every effort to deal with what was thought to have been a localised blockage, it was soon realised that further assistance would be required from specialist drainage contractors. This was initiated via the City Surveyors Service Desk. Meanwhile, additional cleaning resources were mustered to begin to clear-up the water from the affected areas in the office and library.
5. Following the arrival of the drainage contractor, it was quickly established that the location of the blockage was in a horizontal waste pipe run located in the ceiling void near to and above the affected area of the Guildhall Library.
6. The fixed fabric of the ceiling was breached to ascertain if the waste pipe system could be accessed. This proved positive, and plans were made for the run of waste pipe to be cleared later that afternoon following the closure of the Library at approximately 5.00pm. This operation seemed to be successful with the backed-up water having been discharged from the waste system. It could not be ascertained as to what exactly had caused the blockage, but it was thought that it may have been due to a build-up of scale resulting in the diameter of the 4 inch pipe being significantly reduced.
7. Despite the blockage being cleared, the same problem reoccurred the following morning. Once again, the same actions were instigated as per the previous day with the blockage being quickly cleared within 2 hours of the incident being reported. To ensure that this particular run of waste pipe would not suffer a further blockage, the drainage contractor cleared the blockage using a special diamond tipped tool clearing any build-up of scale from within the waste pipe from the affected area to street level where the system discharges to street services
8. The affected areas were subsequently subjected to a deep clean using appropriate cleansing products and equipment to quickly allow all facilities to be brought back into use.

Possible contributing factors

9. While it is relatively common to experience localised blockages to toilet systems across the Guildhall complex, this particular incident was unusual given that the blockage occurred within the waste pipe system. This type of blockage is thought to be the first of its kind affecting the Guildhall.

Unfortunately, the material causing the blockage could not be recovered to establish the exact cause, but the drainage contractor had stated that the most probable cause was due to the accumulation and build-up of water scale. This can happen in older buildings (the West Wing was built late 60's/early 70's), in hard water areas (the City's utilities system supplies hard water) and in a horizontal element of the waste pipe system where scale can rest.

10. It is believed that this section of the waste water pipe system also serves the Member's dining facilities. Whether or not waste products from these facilities were also a contributing factor remains to be established. Therefore, the possible accumulation of fatty products cannot be ruled out.
11. The blockage resulted in automated flushing water backing-up the waste pipe system until the water level reached a point of overflow and release which in this case was the toilet pans on the first floor of the West Wing. On both occasions, the accumulation of flushing water occurred over night.

Current Position

12. **Insurance** – As a result of the water ingress affecting the fabric of the building, the Chamberlains Department (Property, Risk Management & Insurance) were informed and arrangements made for a Loss Adjuster from Royal Sun Alliance to visit Guildhall and assess the extent of damage and the value of services procured in response to the flooding. The Loss Adjuster conducted an assessment on 28th December 2012 from which the initial feedback was that costs incurred as a result of damage to the fabric of the building and services procured will be subject to a claim and therefore receipts and quotations were asked to be submitted. Guildhall Facilities Management is working with the Loss Adjuster in settling a claim. It is anticipated that the affected tiled carpet area of the Guildhall Library will be replaced.
13. **System Inspection** - An inspection of the waste pipe system is being planned to be conducted by the City's Department of the Built Environment. This inspection using a camera is aimed at assessing the condition of the internal surface of the waste pipe.
14. **Flood alert systems** - Throughout the Guildhall complex, where there are significant wet services at lower ground floor levels, water flood alert systems are installed (including the Library/Archive stores in West Wing). An assessment of other vulnerable areas is being carried out by Guildhall Facilities Management and such alarm systems will be installed where significant risks are identified. Relevant stakeholders will be consulted.
15. **Prevention** – To further help prevent any further blockages, all associated toilet facilities in the West Wing now have notices reminding users that only toilet consumables provided should be flushed down toilet pans.

Future preventative measures

16. Such internal waste water systems are generally not subjected to routine maintenance as they are designed to be maintenance free under normal planned use. However, such systems are generally fitted with removable plates to facilitate the clearing of blockages. However, the locations of such removable plates are not always known and can be hidden within the fabric of the building. The installation drawings for the West Wing will be sought from the City's archives to establish the level of detail and information provided by the architects to enable any future troubleshooting to be undertaken more swiftly.
17. The planned inspection of the affected waste water system and others with West Wing, utilising a camera, will establish if any further remedial works are required to prevent such a blockage occurring again. It is anticipated that this inspection will be completed in January 2013.
18. Meetings have been held between staff in the City Surveyor's and Culture, Heritage and Libraries Departments to review the incident, learn any lessons, and ensure that clear lines of communication are in place should any further incidents occur.
19. No damage was sustained to the collections during this incident but the risks associated with this possibility, should such an incident recur, are actively monitored. There are two basement stores below Guildhall Library, devoted to manuscripts and printed books, including very valuable historical material. The security and vulnerability of such items needs careful consideration wherever it is placed, and there are advantages and disadvantages to all possible locations; secure basement storage is standard professional practice for many institutions (e.g. the British Library). The most valuable items stored in the Guildhall basements are either in separate strong rooms or placed in areas known to be less vulnerable to water ingress. On this occasion, although some water came through to the manuscripts store, no items were placed such that water reached them, and the associated area was immediately covered with plastic sheeting to minimise risks. It is deliberate policy to avoid placing historic material in storage areas that are known to be vulnerable to water ingress.

Flood risks within the Guildhall complex

20. The Guildhall complex has many systems which are classified as 'wet systems/services'. These not only include waste water as in this particular incident, but also:
 - Sprinkler systems to extinguish an outbreak of fire (installations are in the Members Car Park and the Art Gallery);
 - Domestic hot and cold water supplies (throughout the complex);

- Air conditioning (cooling towers located on the roof of the West Wing and a number of other air conditioning systems throughout the complex);
- Sewerage ejector pumps;
- Heating;
- Ponds and water features (pumps and treatment services located within Guildhall plant rooms);
- Citigen district heating system (North Wing lower floor plant rooms);
- All catering facilities throughout the complex.

21. There is always a risk of flooding associated with wet systems. For this reason, there are preventative measures or procedures in place for early detection of system failure. Not all scenarios are foreseeable, however most incidents would come to the attention of Guildhall facilities staff as a result of an alarm, alerts from the Building Management System, system failure or as with this particular incident, staff discovering an incident.

22. During silent hours, Guildhall security conducts extensive and regular patrols around the whole Guildhall complex. Historically they have encountered many scenarios requiring immediate response to prevent extensive damage to property and assets. They are able to call upon resources to assist in responding to such incidents while having some ability to provide an initial response.

23. All incidents are fully investigated and if any improvements can be made in mitigating risk, then action is taken to implement improvements.

Implications

24. Guildhall Facilities Management will, together with stakeholders, examine potential risk areas in protecting corporate assets and will contribute to disaster recovery plans ensuring that it has access to contact details of departmental staff that would need to be informed of an incident affecting their department at Guildhall.

25. Early indications is that the cost of replacing the affected carpet tiles and making good the ceiling in the Business Library will be £3,500 and £1,500 respectively. These costs will be subject to an insurance claim. The cost of the camera inspection of the waste pipe is estimated to be £1,000 being met from Guildhall maintenance budgets.

Conclusion

26. This unforeseeable incident unfortunately affected areas of the West Wing, particularly Guildhall Library, as result of a circumstances not directly related to activities being undertaken by the affected departments. The exact cause

of the flooding is inconclusive but experienced advice indicates that a contributing factor could be the age of the services in the West Wing, hard water scale and the accumulation of food deposits from the Members dining facilities. The planned inspection by camera of the affected waste pipe system will hopefully indicate the possible cause. The results of this inspection will determine if any remedial works and/or future checks will be required to be undertaken to prevent the reoccurrence of such incidents.

Appendices - None.

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