

August 24, 2012

SR1 Fume Hood leak preliminary investigation report

BUILDING BACKGROUND: SR1 is a 214,496 sq. ft. Science building, constructed in 1969. Fume hoods in this building have dedicated exhaust fans (the majority of these on top of the 7th floor and with a few on the roof of the sixth and second floor). All the fume hoods and exhaust systems are original to the building and the ductwork appears to be galvanized in construction.

ISSUE BACKGROUND: Facilities Management (FM) was contacted late July by Natural Science and Mathematics (NSM) and Environmental Health and Safety (EHS) group about a leak of unknown substance with unknown origin in basement room 33 (Dr. Jacobson's lab).

FM assigned a Project Manager (Bobby Galvan) to work on this project and engage Cotton to do any emergency repairs and testing. After the July 31st meeting at SR1 with representatives from NSM, Cotton, EHS, an outside chemical responder and FM, the leak was traced to a fume hood in the basement that mixes acids. This leak was later tested and determined to be acidic in nature. Cotton has submitted a proposal to replace the horizontal exhaust duct where the acidic fumes condense and the fan.

On August 22, 2012 NSM reported another similar leak in the Dean's Business office area (Room 209). This leak seems to be coming from the weld seam of the exhaust duct work. After noticing two similar leaks within few weeks, FM decided to investigate the remaining systems in the building on August 24, 2012 and found one other area with severe deterioration (Room 51D) in the basement.

RECOMMENDATION:

IMMEDIATE: We recommend adding Rooms 51D and Room 209 to Cotton's repair scope previously submitted for room 33 only and replace the existing ductwork connecting the fume hoods to the exhaust fans (both horizontal and vertical runs). We recommend using schedule 80 PVC for the ductwork and replacing the three dedicated exhaust fans serving these three areas. The new exhaust fans will need to be epoxy coated (or PVC depending on the size). **Note: the ductwork for room 51D will have to be redone from the basement to the 7th floor roof. This would be a CRDM expense and we will send the issues summary once we have the proposal for committee vote.**

The leak in room 209 is located at the duct weld seam and could be temporarily resealed if full replacement needs to be deferred to coincide with rest of the building exhaust systems.

LONG TERM: As identified in the building facility condition audit report, SR1 has all original exhaust systems and fume hoods. We agree with the FCA recommendation that within next 2-5 years we need to replace all the fans (65 approximately) with new fans and with new ductwork. Detail design would be necessary for this project. This design would evaluate the type of hoods necessary based on the usage and functional needs of the respective labs. During the design, possible use of acid scrubbers will also need to be evaluated to assure safety for all personnel working in the vicinity of the exhaust fans and the long term life of the exhaust systems.

Attached are some of the pictures taken in SR1 room 51D - fume hood and the building exhaust visibly showing the rust and deterioration due to age and environment.

PICTURES OF EXHAUST SYSTEM IN ROOM 51D

