

Drumheller Institution: Kitchen and Health Centre Crawlspace Remediation — Case Study

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Correctional Services Canada's, Drumheller Institution Kitchen & Dining Building and Health Care Centre were built in the mid 1960's. The buildings were constructed with crawlspaces where all utility and service lines hung from the floor slabs. The crawl space headroom varied from less than a metre to slightly over a metre from the underside of the floor slab to the exposed soil materials. The exposed ground was not graded to allow for drainage. Normal operations of the kitchen experienced frequent leaks in the heating system's lines, water lines, kitchen drain lines and sewage lines. The Health Care Center experienced leaks from the heating system lines. These leaks created large accumulations of ponded wastewater in the crawlspaces. A study completed by Correctional Services Canada indicated that the ponded water was contaminated with coliform, and in particular E.coli. In the kitchen crawlspace no mould was detected, but the environmental conditions were considered conducive to the potential of future episodes of mould growth. In the Health Centre crawlspace Penicillium/Aspergillus mould was detected at one location. The conditions in the crawlspaces were creating maintenance issues and concerns with respect to potential impacts to immune compromised individuals.

AECOM was retained by Public Works and Services Canada to provide a remedial design to the crawlspaces that would: remove or contain the impacted soils and eliminate the potential of contaminated air affecting uses in the kitchen and health care spaces above; provide a drainage and collection system to manage the wastewater resulting from piping system leaks; and provide a design that provided a more effective and user friendly maintenance environment. Any design considered had to ensure that continued use of the facilities was maintained during construction, and would not compromise facility security.

This paper is a case study of the innovative methods used in the design and construction of this project. The paper will discuss:

- Existing site issues and constraints and client expected results;
- Design approach to address physical site constraints; and
- Innovative materials and construction methods utilized.

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Mr. Clare is a Senior Civil Technologist in the Environment group in AECOM's Edmonton office. He has over 40 years of experience and manages projects on a wide variety of environmental and waste management areas that involve site assessment, site selection, design and construction, regulatory approvals, and regulatory and operational audits.