

MELROSE FIRE DISTRICT

Firehouse Project Facts #2

November 10, 2025

BUILDING CONDITION SURVEY

The Building Condition Survey (BCS) was designed to evaluate facility conditions, identify any deficiencies and evaluate potential future needs. The BCS report cited several negative findings related to structural, mechanical, electrical, plumbing, septic system and building code/ADA compliance matters, all issues consistent with the lifecycle stage of the four firehouse building sections built in 1953, 1970, 1991 and 1999.

Two extremely critical life-safety concerns emphasized in the BCS report are the significant settling of the south bay floor slab and the separation of the concrete masonry unit (CMU) pilasters in that bay from their CMU anchor walls.

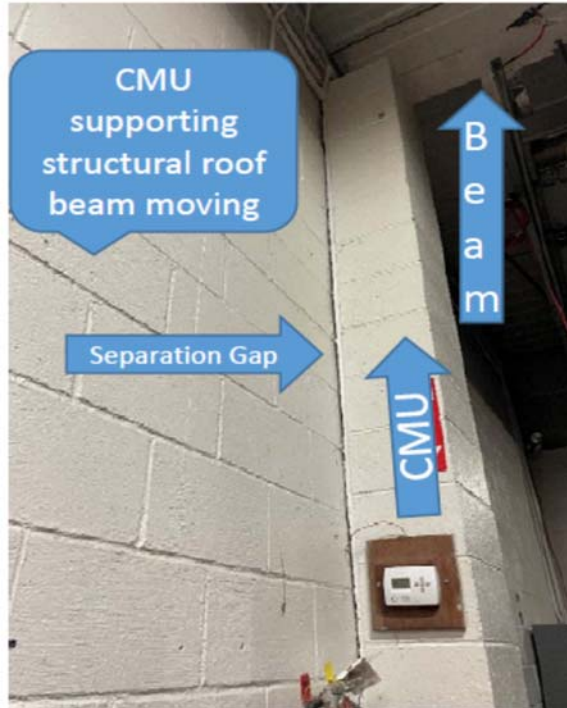
Specifically, decaying fill material under the apparatus bay slab is causing settling and separating in the south bay slab from the other building slab sections, resulting in a significant trip hazard that will continue to worsen. Possibly caused by organic material such as trees & stumps being mixed with the back fill soil.



NYS Building Code prohibits the use of organic materials under a concrete slab and requires that the site be stripped of all organic materials before filling. Fill material must be free of organic matter and other debris and must be properly compacted.

Even more concerning, this settling has created underground voids below the bay slab, causing the CMU pilasters that support the structural roof beam to separate from the CMU wall. Continued movement or a complete collapse of the CMU pilaster will create a dangerous safety condition by weakening the roof support beam system.

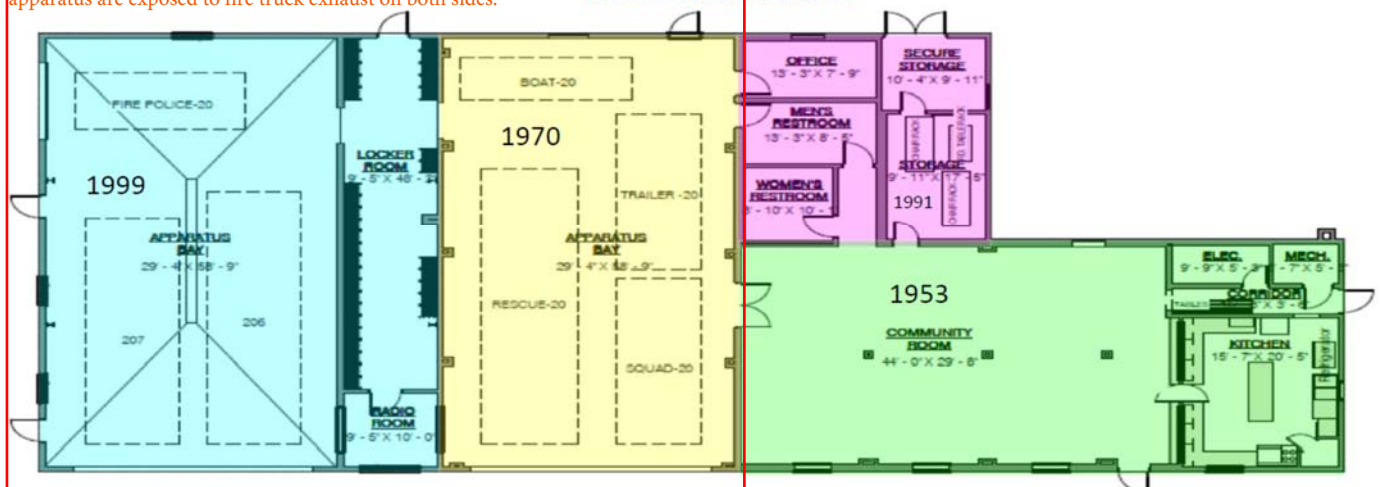
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Firehouse “Hot Zone/Cold Zone” cross-contamination was also identified as a significant concern by the BCS. Cross-contamination in a firehouse occurs when contaminants from a hot zone (the area with the highest exposure) are transferred to the cold zone (safe living and administrative areas) through a failure to follow proper decontamination procedures, often via equipment, clothing, or personnel. Currently, the turnout gear & SBCA storage area and the decontamination & laundry facilities are not separate from other spaces in the building, especially the apparatus bays. Exposure to unfiltered apparatus exhaust has proven to be a carcinogen. Chemicals and materials from firefighting can be being inhaled, carried on their clothing, transmitted into the apparatus and transported into their living/working environment back at the station or even into their personal cars and homes. Constant interaction with such chemicals, materials, exhaust, and carcinogens have been shown to directly relate to respiratory disorders, pulmonary diseases, and cancer in firefighters. Community members who frequently use the firehouse facility also need to be protected from the Hot Zone.

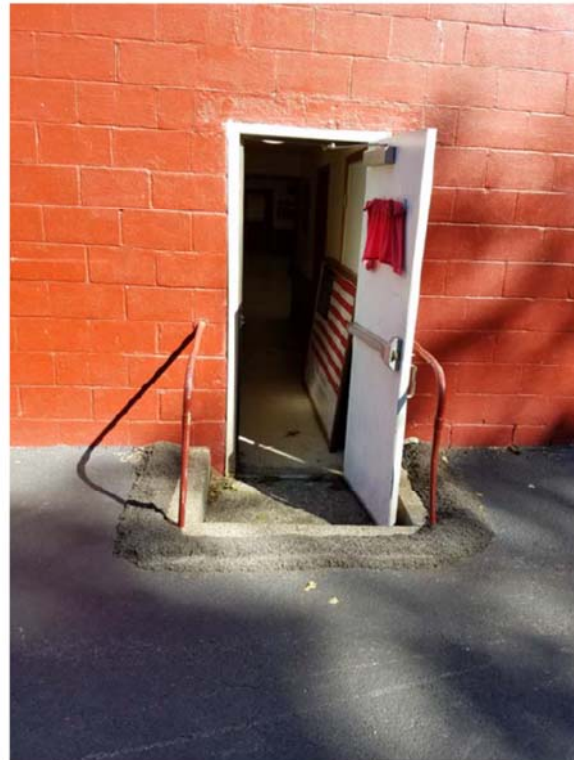
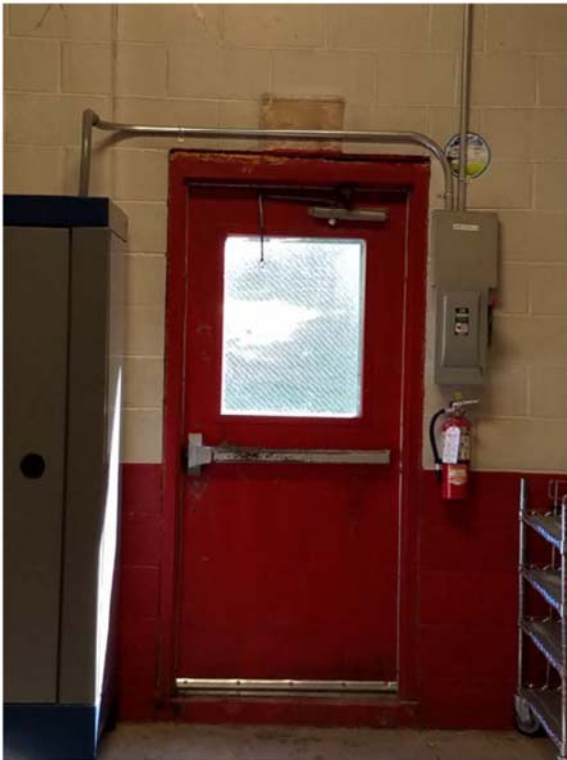
Firefighter Locker Room: Turnout gear & self-contained breathing apparatus are exposed to fire truck exhaust on both sides.

MELROSE FIRE DISTRICT
 FIREHOUSE EXISTING DESIGN



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The BCS also documented multiple building code compliance conditions, including no fire alarm system, no kitchen hood fire suppression system, no sprinkler system and multiple hallways that do not meet the required width. ADA compliance issues included, non-accessible bathrooms, non-accessible entrances, non-compliant door handles and non-compliant door thresholds.



Following the BCS, a site assessment was performed by the environmental engineering firm CT Male. The site assessment identified a leaking underground fuel oil storage tank, causing below grade soil contamination. The fuel oil leak was deemed to be reportable as a spill incident to the NYS Department of Environmental Conservation (NYSDEC), necessitating a remediation plan that has to date, resulted in removal of the leaking tank and excavation of some contaminated soil. NYSDEC has authorized a plan to remove the remaining contaminated soil as a component of this

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project, since at this time, further excavating the soil abutting and under the building's foundation may lead to destabilizing the existing firehouse.



Melrose Fire District Facts:

The Board of Fire Commissioners (Board) with guidance from their architectural firm, Balzer & Tuck Architecture, evaluated the BCS, prioritizing the findings using the following criteria.

- Life safety: If a structural issue poses a risk to the life safety of occupants, funding must be spent on these issues first.
- Health and safety: These are also absolute top priority items that need to be addressed.
- Overall building condition: Structural, mechanical, electrical, plumbing and code compliance issues were ranked to determine which conditions, if any, could be corrected using existing funds over a 2-5 year period or if the repair should be included in a larger capital project.

PRIORITIZATION RANKING

Life Safety

Apparatus Bay Floor	The most pressing issue needing repair is the bay floor and structural pilasters in the bays. The floor is a trip hazard and will continue to deteriorate. The pilasters should be pinned back to the CMU wall before there is structural movement of the support beams resting on them. There are several methods to repair the floor. A permanent fix involves removal and replacement of all unsuitable soil and organics under the slab. The only way to do this is to remove the slab and replace it onto proper compacted base. There is an unknown factor of how much and how deep the unsuitable materials are. Imagine excavation of many feet of materials to try and reach virgin ground. The unknowns associated with this type of fix could present untenable budget problems.
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Health and Safety

Hot Zone and Cold Zone Cross Contamination	Create zones within the facility to try to limit carcinogens from the apparatus area "hot zones," from administrative and public area "cold zones." Develop "standard operating procedures," various cleaning protocols, special layouts, specially designed "transition zones," and HVAC design to move from zone to zone. The goal is to manage or eliminate the level of exposure to contaminants and ensure carcinogens do not make their way into the cold zones of the facility.
Code/ADA Matters	Building code and ADA noncompliance create unsafe conditions that can lead to personal injuries, resulting in possible civil liability and/or property damage that can inhibit the District's ability to properly deliver services to the community. These items require a high priority response.
Underground Fuel Storage Tank (UST)	It is recommended that the 500-gallon UST be properly closed. Proper closure shall include emptying the tank of bulk liquids, proper disposal of these contents, swabbing the interior of the tank, and recycling of the steel tank carcass upon removal. During the tank removal activities, an assessment of the excavation's floor and walls must be completed to determine the level of petroleum impacted soil removal required to meet NYSDEC requirements. Samples of the excavation floor and walls are required to be submitted for laboratory analysis for documentation of the soil quality being left in-place. Impacted soils removed from the tank grave shall be properly characterized and then disposed of at a facility permitted to accept this type of waste.

Overall Building Condition

Site, Building Envelope, Building Interior, Structural & Foundation, Mechanical, Electrical and Plumbing	Please review the full Building Condition Survey for more information on these areas using the link below: www.melrosefireco.org/capital-project-mfd/
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The Board, using their prioritization ranking, then evaluated multiple options for most effectively and efficiently addressing these conditions. For more information on these options, please see Firehouse Project Facts #3, November 12, 2025, Firehouse Project Options.