Nottingham Fire Company
Fire Engine #17
200 Mercer Street, Hamilton, NJ 08690

Feasibility Study

Prepared by

NETTA ARCHITECTS

1084 US Route 22 West, Mountainside, NJ 07092

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NETTAARCHITECTS
1084 US22 Mountainside NJ, 07092
973 379-0006 I nettaarchitects.com

Fire Station # 17, Nottingham District 7 – Audit

Fire Station Audits

Hamilton, NJ

Hamilton Township has authorized Netta Architects to conduct and prepare a Fire District Facilities Audit of the following fire houses: Fire Stations 12 through 19 to assess the Current conditions of these Fire Stations.

Contents

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Fire Station # 17, Nottingham District 7 – Audit

Executive Summary

Fire Station #17

1. Is located at 200 Mercer Street, Hamilton, NJ
2. The station is Volunteer Fire Company owned and the Fire District leases space.
3. The original building was constructed in 1965, and an addition was constructed in 2000 along with a renovation of the existing facility; the building is one story in height.

This building's current exterior and interior condition is **Fair** as is evident by the few deficient items identified within the Summary of Findings Section, with the exception of the concrete apron curbs and a few façade and interior items which are in poor condition.

A description of the Site and Building deficiencies is indicated below and recommendations and cost opinions for repairing these deficiencies is summarized in the recommendation section.

Introduction

This feasibility study considered the following items;

- Architectural: Building and Code deficiency conditions.
- Preliminary probable construction costs for the repairs.

Netta Architects conducted an assessment survey of the Building on September 19, 2017, and Concord Engineering (CCE) conducted their assessment survey on October 17, 2017.

Analysis of Existing Conditions:

(Refer to the Photos located within the Field Report in the Appendix of this report typical)

1. General Station Information

A. The station is approximately 25,262 square feet in size, and has approximately 3.20 acres of property. The facility does not have a current property survey.
B. The station has 1 ladder and 1 engine/pumper, and support vehicles, for a total of 2 trucks plus the support vehicles.
C. There are 6 existing truck bays.
D. The station does not have plans to purchase any additional trucks or vehicles at this time.
E. There are no current plans to renovate or expand the fire house.

F. The station is a 24/7 facility with 4 to 9 career fire fighters on duty per shift.
G. Currently the staff is comprised of 9 men and 0 female fire fighters. Consisting of 4 firefighters, 1 fire marshals and 3 part-time fire inspectors. The projected ratio of men and women fire fighters per shift is unknown at this time.
H. The Station has a Banquet Hall on the premises.
I. The building is not sprinklered.

2. Site Analysis

A. The station does have adequate fire truck maneuverability and turn-around space.
B. The concrete apron is in in poor condition with several cracks and spalls, and some apron areas have been recently replaced.
C. The concrete apron curb is in poor condition containing many spalls and cracks in the concrete
D. The concrete sidewalk leading from the parking lot to the main fire station entrance is in fair condition but does have a few cracks.
E. The parking lot is in poor condition with many pot holes and cracks.
F. There are designated parking lot and street barrier free parking spaces.
G. The banquet hall and the main station entrance have barrier free entrances.
H. The facility has a communication tower.
I. There is only one handrail at the side entrance steps.

3. Exterior Building Analysis

A. Building Façade Conditions
1. Mercer Ave. Elevation (South Elevation)
i. The overhead truck bay doors all operate properly and in fair condition.
ii. The expansion joint sealant material is either alligatoring and oxidizing causing it to split open or is missing.
iii. There is a vertical crack in the brick veneer.
iv. The personnel doors are in fair condition.
v. The aluminum windows are in fair condition.

2. East Elevation
i. There are no overhead truck bay doors on this elevation.
ii. The expansion joint sealant material is either alligatoring and oxidizing causing it to split open or is missing.
iii. The aluminum windows are in fair condition.
iv. The frame at a pair of exterior doors exiting the banquet hall do not cover the brick return and therefore there are openings within the wall at the door jambs.

v. The joint above the door lintel need to be resealed.
vi. There are no issues with this façade.

3. North Elevation
   i. There are no overhead truck bay doors on this elevation.
   ii. There are no windows on this facade.
   iii. The aluminum personnel door is in fair condition.
   iv. The overhead truck bay doors all operate properly and in fair condition.
   v. There is one louver on this facade that is damaged and covered with a metal security screen.
   vi. There is an abandoned opening on this façade that most likely contained a window or louver and is covered with a damaged metal security screen.

4. West Elevation
   i. There are no overhead truck bay doors on this elevation.
   ii. The expansion joint sealant material is either alligatoring and oxidizing causing it to split open or is missing.
   iii. The aluminum windows are in fair condition.
   ii. There are no overhead truck bay doors on this facade.
   iii. The sealant at the brick chimney and brick façade is alligatoring and oxidizing causing it to split open.
   iv. The window lintels require repainting.

B. Roofs
   i. A pitched roof with asphalt shingles was installed over the entire facility and is in good condition and there are no reported roof leaks.

4. Interior Building Analysis - Program Spaces and Deficiencies

A. Living Spaces

First Floor

1. The Engine/Apparatus Room epoxy floor finish is in good condition, with the following exceptions; a. there is a scratch and hairline crack, b. there is an outside corner of the gypsum board wall that is damaged, c. there is some glazed CMU at a door jamb that is damaged, d. The paint on the gypsum ceiling is peeling in several locations, e. there is a wooden stair and railing which leads to an open mezzanine section in the engine/apparatus room.
2. There is a non-barrier free mens bathroom located off the engine/apparatus room which contains a service sink. The mens room and service sink are in fair condition.

3. There is a maintenance shop and SCBA rooms located off the engine/apparatus room which are in fair condition.
4. The kitchen/dining area is in good condition, with the exception of the counters which are in poor condition and have been patched. There is a barrier free bathroom located off the dining area which is in good condition.
5. The watch desk/control room has an old console which is not working and this station does not conduct any dispatching from this facility. The cabinets are in poor condition.
6. The Bureau of Fire Protection office and the other offices are in good condition.
7. The captains office and a connected non-barrier free bathroom are in good condition.
8. The recreational room is in good condition, however it was noted that the fireplace currently does not work.
9. The dormitory has 4 beds and 2 bunk beds; and currently there is no separate sleeping area for future female staff.
10. The meeting/training room and exercise room are in good condition.
11. There is a barrier free locker room and bathroom with a shower located by the gym and dormitory, which are in good condition.
12. There is a separate bathroom with a shower that is non-barrier free.
13. There appears to be adequate storage areas.
14. There is an outdoor generator which provides backup to mostly the banquet hall of the building.

Banquet Hall on the First Floor

1. The banquet hall has an attached commercial kitchen which is also used by the fire fighters when on a shift. The kitchen is in fair condition, with the exception of several damaged quarry floor tiles.
2. The halls maximum occupancy 400 occupants.
3. There are mens and womens barrier free bathrooms located off the banquet hall.

5. Interior Accessibility of Station

i. The station and banquet hall have entrances that are barrier free accessible.
ii. The facility does have barrier free mens and womens bathrooms.
iii. The facility only has only unisex barrier free bathroom with a barrier free shower.

6. Building Code Considerations

The following items identified below are not in compliance with the latest IBC Building Code, NJ Edition requirements.

A. The wooden stair leading to the mezzanine should be enclosed within a fire rated assembly.

7. Fire Fighting Equipment and Misc Appliances

A. There are standard clothes washer and dryer which are in fair condition.
B. There is a fire department extractor/gear washer and is in fair condition.
C. The facility has hose dryer, fire fighters equipment storage and a SCBA compressor unit which are in fair condition. The current equipment storage is insufficient since the station is using the mezzanine for additional fire fighters equipment storage.
D. There is one service sink.

8. Building Shortfalls (In addition to the building's deficiencies indicated in Previous Sections)

A. There is no current separate sleeping facility for female staff.
B. There is no separate womens bathroom, locker room and showers.

9. Mechanical Systems

A. Cooling for all spaces in the facility is provided by twelve air cooled DX split AC units. All the condensing units are installed on grade and the indoor units are installed in the ceiling or mounted on the floor. The condensing units are of varying age, utilize R-22 or R410A refrigerant and are as follows:

B.

MAKE	QTY.	CAPACITY	REFRIGERANT	YEAR
Trane	Two	20 Tons	R-22	1996
Trane	Three	7/1/2 Tons	R-22	1999
Lennox	One	11/2 Tons	R-22	1999
Sanyo	One	1 Ton	R-410A	2014
Trane	One	5 Tons	R-410	2014
Trane	Four	5 Tons	R-410	2015

C. All the associated indoor units are over 17 years old.

D. Heating for the facility is through heating hot water provided by five Lochinvar make natural gas fired fully condensing boilers. Three of the boilers have an output rating of 374 MBH each and two of the boilers have an output rating of 139 MBH each. The boilers are about 2 years old. Heating hot water is circulated to all the spaces by hot water pumps, a network of hot water piping and heating hot water coils in the indoor units and finned tube radiators.

E. The fire truck bays are provided only with heating through three ceiling mounted down flow unit heaters with hot water coils. Plymovent vehicle exhaust systems are provided for the fire trucks. Restrooms are provided with roof mounted exhaust fans. Exhaust fans appear to be old.

F. An air compressor unit by Ingersoll Rand is provided for the facility. The unit is two years old. We were given to understand that the air compressor unit has problems and appears to be undersized. Also, there are several violations cited by the State.

G. The self contained breathing apparatus (SCBA) air compressor unit is by Bauer with a capacity rating of 25.2 CFM at a maximum pressure of 6000 PSIG. The unit is over 18 years old and appears to be in good working condition.

H. CCE used the nameplate data on the units to estimate the age of the units. Age of units that had no nameplates was based on interview with the Fire Station officials.

I. All the installed equipment appears to be in good condition and well maintained. The Fire Station officials stated that the air conditioning units, hot water boilers associated pumps and equipment perform satisfactorily and that there are no major issues with them. Maintenance service is provided by an outside contractor.

J. As per ASHRAE, median life expectancy of split AC units is 15 years, boilers is 25 years, and that of exhaust fans is 20 years. Some of the installed equipment is relatively new, some is nearing the end of its useful life while some has exceeded its useful life.

10. Plumbing Systems

A. The facility is provided with one Bradford White 75 gallon capacity natural gas fired water heater installed in 2011. There is no re-circulating pump installed. This will result in wastage of domestic water. The water heater appears to be in good working condition.

B. Urinals and water closets are provided with manual flushometers and wash basins are provided with manual faucets. The fixtures appear to be in good working condition.

11. Electrical Service

A. Electrical service is comprised of 208v-3 phase 600 amp service. The electrical equipment consists of electrical panels A, B, 9 unlabeled panels, ATS switch, and an electrical meter.

B. The electrical equipment consists of older electrical equipment and appears to be in good condition. Panel schedules seem inaccurate and out of date.

C. The electrical loads consists of lighting, site lighting, general receptacles, TV outlets, roll up doors, mechanical and plumbing equipment (rooftop units, fans, air conditioners, boilers, water heaters, heaters, etc), cooking equipment and other miscellaneous loads. The electrical service seems adequate for the existing electrical loads.

12. Emergency Generator

A. A 30 KW natural gas generator serves the ballroom electrical loads and not the firehouse. Manufacturer is Onan. Model No. 30 EK. The generator is at least 20 years old and appears to be in good working condition and is regularly maintained.

13. Fire Alarm

A. The existing fire alarm control panel is new and fire alarm devices are over 18 years old and due to be replaced with new. The existing system is comprised of horn strobes, pullstations and smoke detectors. Fire alarm devices provide code compliant fire alarm coverage thru-out the facility. The fire alarm system devices has exceeded it's life expectancy.

14. Lighting

A. Interior lighting fixtures are comprised of 2x4, 1x4, exit lights and recessed lighting fixtures. Exterior lighting fixtures are comprised of outdoor wall packs. Approximately 50% of the lighting fixture lamps have been replaced recently with hi efficiency lamps. There is adequate lighting coverage thru-out the facility. Light switches are installed thru-out the facility for lighting controls

15. Receptacles

B. All receptacles are in good condition. There is adequate receptacle coverage thru-out the facility.

Deficiency Repair Recommendations and Estimated Cost Opinion

1. The following repairs are required based on Netta Architects' evaluation of the existing building's condition;

Work Item	Estimated Cost Opinion
A. Site	
i. Repair the concrete apron at the truck entrance	$17,000
ii. Replace the concrete apron curb	$12,000
iii. Repair the concrete sidewalk	$8,500
iv. Repair the parking lot asphalt paving	$55,000
v. Provide the additional handrail at the side entrance steps	$3,500
B. Facades	
i. Replace the sealant at the expansion joints	$5,000
ii. Repair the vertical brick crack	$5,500
C. Roofs	
N/A	
D. Interior	
i. Repair the scratch and hairline cracks in the engine/apparatus Room	$4,500
ii. Repair the outside gypsum board wall corner in the engine/apparatus room	$600
iii. Repair the glazed CMU at a door jamb in the engine/apparatus room	$3,500
iv. Repaint the gypsum ceiling in the engine/apparatus Room	$40,000
v. Replace the kitchen counters	$12,000
vi. Replace the cabinets at the watch desk/control room	$15,000
vii. Repair quarry floor tiles in the kitchen	$3,500
viii. Replace damaged acoustical ceiling tiles and grids from roof leaks	$10,000
E. Interior Accessibility of Station **(*)**	
i. Provide an additional mens barrier free bathroom with a barrier free shower and designate the current unisex barrier free bathroom with the barrier free shower as the womens bathroom	$20,000

F.	Building Code Considerations	
i.	It is suggested that the wooden stair and railing that leads to a mezzanine be in a fire rated enclosure	$15,000
G.	Building Shortfalls **(*)**	
i.	Provide a separate sleeping facility for women staff	$10,500
ii.	Provide a separate womens bathroom, locker room and showers as noted in the accessibility section above	Incl Above
H.	HVAC & Plumbing	
i.	Replace twelve older air conditioning units in a phased Manner	$270,000
ii.	Option 1- Provide recirculation pump for the domestic hot water	$7,500
iii.	Option 2- Replace the air compressor unit	$8,500
iv.	Option 3- Provide low water consuming fixtures & Automatic flushometeres	$9,000
I.	Electrical	
i.	Identify all existing circuits and update all electrical panel schedules	$8,500
ii.	Replace the fire alarm control panel and associated devices	$12,500
iii.	Replace all interior lighting fixtures with new energy efficient LED lighting fixtures	$65,000
	Sub-Total Cost Opinion	$622,100
	Contingency (20%)	$124,420
	Total Cost Opinion	**$746,520**
	Say	**$747,000**

(*) The Building Shortfalls and Interior Barrier Free Accessibility renovation estimate costs are not based on a design for these items and therefore the costs are only a suggested budget cost and will certainly vary in cost based on actual design drawings.

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Appendix A

Field Photographical Report

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EXTERIOR CONDITIONS

Fire Engine #17 – Hamilton Township

VISIBLE VOID BETWEEN MASONRY & DOOR FRAME

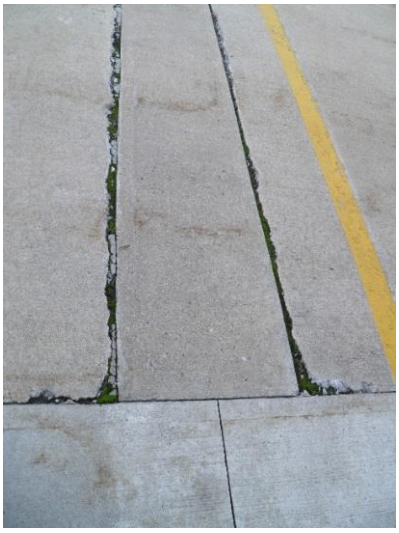
VISIBLE VOID BETWEEN MASONRY & DOOR FRAME

SPALLED BRICK

VISIBLE CRACK IN THE CONCRETE PAVERS

DAMAGED METAL SCREEN

VISIBLE CRACK IN THE CONCRETE PAVERS

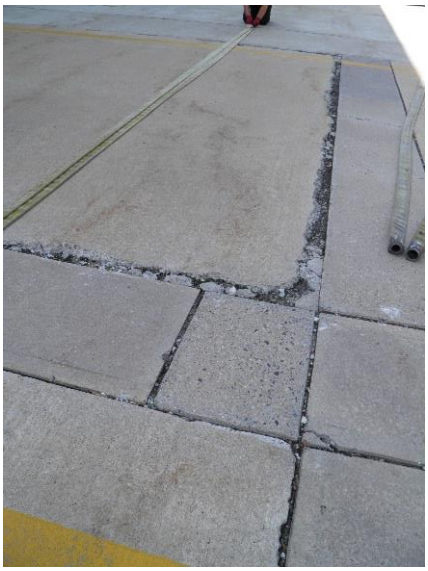


ERODED CONCRETE JOINT

VISIBLE CRACK IN THE CONCRETE PAVERS

Fire Engine #17 – Hamilton Township

VISIBLE CRACK IN THE BRICK WALL



VISIBLE CRACK IN THE CONCRETE PAVERS

VISIBLE CRACK IN THE BRICK WALL

VISIBLE CRACK IN THE CONCRETE PAVERS

VISIBLE CRACK IN THE CONCRETE PAVERS

VISIBLE CRACK IN THE CONCRETE PAVERS

Fire Engine #17 – Hamilton Township

VISIBLE CRACK THE PARKING LOT

VISIBLE CRACK THE PARKING LOT

VISIBLE CRACK THE PARKING LOT

VISIBLE CRACK THE PARKING LOT

VISIBLE CRACK THE PARKING LOT

VISIBLE CRACK THE PARKING LOT

VISIBLE CRACK THE DRIVEWAY

VISIBLE CRACK THE DRIVEWAY

VISIBLE CRACK THE PARKING LOT

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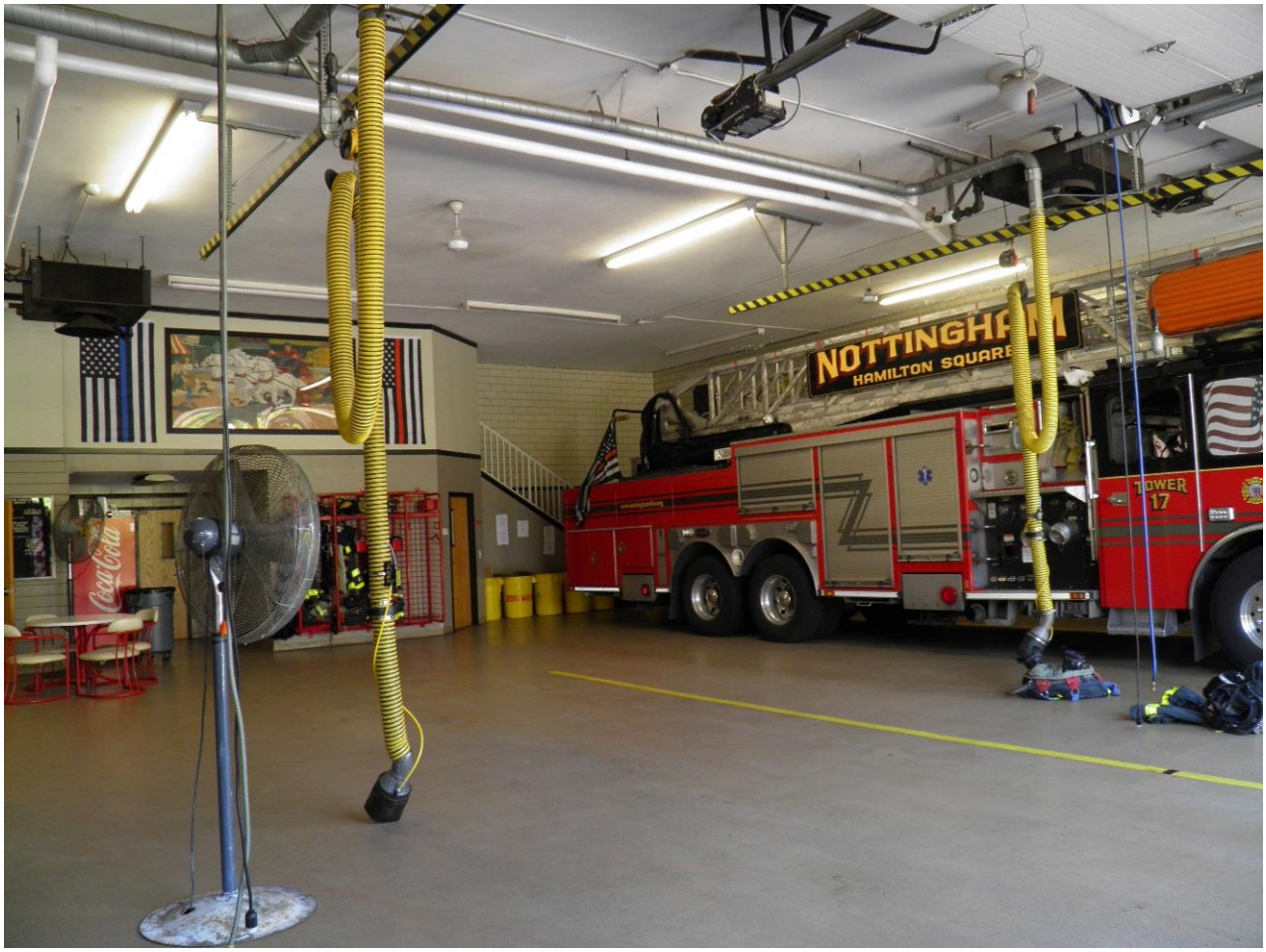


INTERIOR CONDITIONS

Fire Engine #17 – Hamilton Township

DIRTY AND DAMAGED CEILING TILES

STAINED CEILING TILE PROPABLY FROM PREVIOUS PIPE LEAK

STAINED CEILING TILE PROPABLY FROM PREVIOUS PIPE LEAK

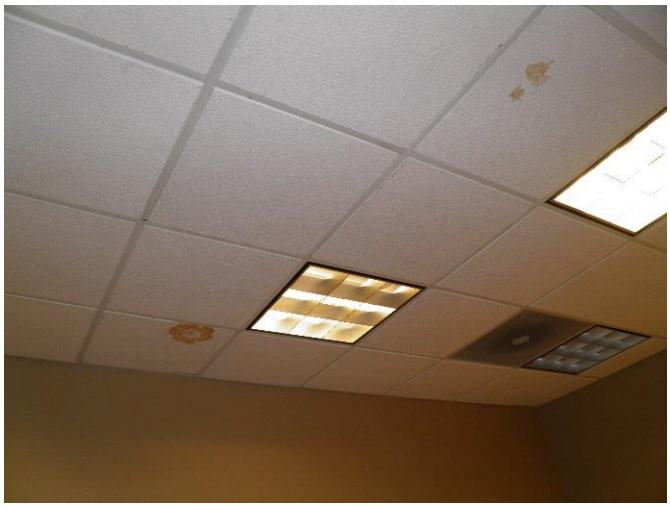
PAINT PEELING OF FROM THE CEILING

PAINT PEELING OF FROM THE CEILING

SIGNS OF WATER DAMAGE ON THE CEILING TILES

Fire Engine #17 – Hamilton Township

DIRTY AND DAMAGED CEILING TILES



STAINED CEILING TILE PROPABLY FROM PREVIOUS PIPE LEAK

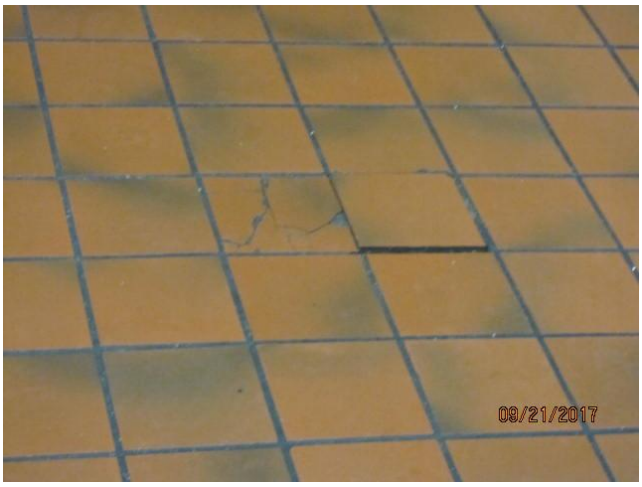
SIGNS OF WATER DAMAGE IN THE CEILING & ON THE FLOOR

MISSING SEAL AROUND WALL PENETRATION

VISIBLE CRACK AT WALL JOINT

VISIBLE CRACK AT WALL JOINT

Fire Engine #17 – Hamilton Township



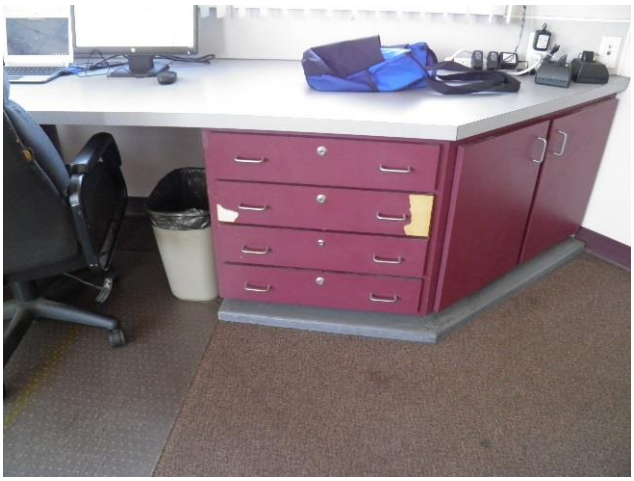
CRAKED FLOOR TILES

CRACK IN THE VCT FLOOR TILES

CRAKED FLOOR TILES

VISIBLE DAMAGE TO FLOOR TILES

VISIBLE DAMAGE TO MILLWORK



VISIBLE DAMAGE TO MILLWORK

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ROOF

ASPHALT SHINGLE ROOF APPEARS TO BE IN GOOD CONDITION.
NO MAJOR ISSUES OBSERVED