De Cou Hose Company
Fire Engine #15
61 Ruskin Avenue, Hamilton, NJ 08610

Feasibility Study

Prepared by

NETTA ARCHITECTS

1084 US Route 22 West, Mountainside, NJ 07092

December 7, 2017

Fire Station # 15, Decou District 5 – 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 # 15, Decou District 5 – Audit

Executive Summary

Fire Station #15

1. Is located at 61 Ruskin Ave., Hamilton, NJ
2. The station is Volunteer Fire Company owned and the Fire District leases space.
3. The original building was constructed in 1958, and an addition was constructed in 1990, the building is one story in height. The addition consists of 3 fire truck bays, offices and sleeping quarters and is owned by the Volunteer Fire Company.

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 built-up roofing system, the concrete apron curbs and parking lot, and several 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.

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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 4, 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 12,300 square feet in size. The facility does not have a current property survey.
B. The station has 1 engine, 1 special services truck, 1 fire chief command vehicle and 1 utility truck, for a total of 4 vehicles.
C. There are 5 existing truck bays.
D. The station has no plans to purchase any additional 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 career fire fighters working twelve hour shifts
G. Currently the staff is comprised of 7 men and 1 female fire fighters.
H. The facility appears to not have adequate program space requirements, as indicated in the Building Shortfalls Section.
I. The Station has a Banquet Hall, and the also has a Board of Fire Commissioners Office on the premises.
J. The building is only partially sprinklered with the heads located in certain storage rooms.

2. Site Analysis

A. The station does not have adequate fire truck maneuverability and turn-around space. The station noted in Netta Architect Survey form that the (3) truck bay section truck apron is too short and the 2 truck bay section does not have a truck apron.
B. The concrete apron at the truck entrance is in fair with a few cracks. However the concrete curb located between the apron and street is in poor condition containing many spalls and cracks. There are several locations on the apron where vegetation growing within the concrete joints.
C. The steel bollards are rusting.

D. The overhead doors are all working properly and station noted in Netta Architect Survey form that they have been retrofitted to comply with the current PEOSHA standards.
E. The concrete sidewalk is in fair condition.
F. The existing handrails at the concrete ramp are rusting.
G. The parking lot is in fair condition with some cracks and a few pot holes.
H. There are designated parking lot and street barrier free parking spaces.
I. The station has barrier free entrances.

3. Exterior Building Analysis

A. Building Façade Conditions

1. Ruskin Ave. Elevation (North Elevation)

i. There several locations on the soffit located above the overhead doors where the stucco finish is crack and spalled.
ii. The mortar is eroded in several locations on the ground face concrete masonry units and requires repointing.
iii. There is a shifted ground face concrete masonry unit located on the half circular flagpole base.
iv. The top landing of the concrete ramp is spalled on the underside and edges.
v. The ground face concrete masonry units at the landscaping box area requires repointing.
i. The aluminum awing windows are original and in fair operational condition with no reported water infiltration leaks. The sealant around the perimeter of the windows is oxidizing causing it to split open and fail.
vi. The overhead truck bay doors all operate properly and in fair conditon.

2. East Elevation

ii. The aluminum awing windows are original and in fair operational condition with no reported water infiltration leaks. The sealant around the perimeter of the windows is oxidizing causing it to split open and fail.
i. The aluminum personnel doors are in fair condition.
ii. There no overhead truck bay doors on this elevation.
iii. There are some locations where the EIFS exterior insulation finish system is cracking and its color is fading.

3. Linden Ave. (South Elevation)

i. The hollow metal personnel door at grade is in poor condition with rusting of the door sill and at the bottom of door frame.

ii. There are no overhead truck bay doors on this facade.
iii. There are some locations on this façade where the EIFS finish system is cracking and its color is fading.
iv. The cell tower is in fair condition.
v. The aluminum storefront door and transom glazing are damaged.
vi. The ground face concrete masonry units need to be cleaned and repointed at the upper section of the south west corner of the building.

4. West Elevation
i. There are no windows on this facade.
ii. There are no overhead truck bay doors on this facade.
iii. The ground face concrete masonry units need to be cleaned and repointed at the south east corner of the building.

B. Roofs
i. The roof on the district leased portion of the building was replaced in 2005 with a single ply roofing system and base flashings and is currently under warranty and is in fair condition, but appears to have been patched in the past. The volunteer fire company portion of building has an original built-up roofing system which is not under warranty and is in poor condtion however it currently does not leak. There is a pitched roof section which has an asphalt shingle roofing system with gutters and downspouts and was installed approximately 2 years ago and is good condition.

4. Interior Building Analysis - Program Spaces and Deficiencies

A. Living Spaces

First Floor

2. The Engine/Apparatus Room is in good condition with the exception of a few spalls in the concrete slab and one horizontal crack within the concrete masonry unit (CMU) wall to the left of an overhead door.
3. The gypsum board ceiling at the rear stair way is damaged.
4. The station uses the Banquet Hall's commercial kitchen. There is a Dining and lounge/meeting room and club room which are located off the engine/apparatus room and all are in fair condition.
5. The exercise universal gym is located in the back of the large apparatus room and is open to the entire room, which unfortunately provides no privacy for someone exercising.

6. There are barrier free mens and womens bathrooms and showers located on the first floor.
7. There is a drivers room and a non-barrier free bathroom with a shower attached to the drivers room which are in fair condition.
8. There is a SCBA Room and Maintenance Shop located off the Engine/Apparatus Room which are in fair condition.
9. The storage room and radio room are in fair condition, with the exception of the concrete floor in the storage room which has several spalls and stained acoustical ceiling tiles.
10. The auxiliary engine room is in fair condition with the following exceptions, a section of wall tile on one of the columns is either missing or damaged.
11. There appears to be adequate storage areas.
12. There is an outdoor generator which provides backup to 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.
2. The halls maximum occupancy is 200 standing occupants and 150 occupants with tables and chairs.
3. The mens and womens bathrooms are located within the hall and are 4 steps higher than the floor of the hall, making them non-barrier free.

Partial Basement

13. There is a partial basement with a mechanical room located below the first floor club room.

Second Floor

1. There are two separate second floor areas. One section is above the Engine/Apparatus Room (Area 1) and the other one is in the vicinity of the first floor club room (Area 2).
2. Area 1
3. The Board of Fire Commissioners Office is in good condition.
2. The dormitory has 4 beds, and currently there is no separate dormitory room for the female staff. A kitchenette unit is located within the dormitory and is currently not used. The room was originally a board room and was converted into a dormitory. The fabric wall covering is peeling off at the window jamb and head within the dormitory room.

3. The wood door leading into the vestibule outside of the fire commissioners office is non-barrier free and the bottom of this door is scraping the floor tile.
4. The offices are in fair condition.
5. There is only one non-barrier free bathroom in area 1 on the second floor.
6. Area 2
7. The lounge room is in fair condition.
8. The offices are in fair condition.
9. There is only one non-barrier free bathroom in area 2 on the second floor.

5. Interior Accessibility of Station

i. The there are several entrances that are barrier free accessible and the entire first floor is accessible.
ii. There are no barrier free mens and womens bathrooms directly off the banquet hall.
iii. This facility does not contain an elevator to provide access to the second floor areas.
iv. There are no barrier free bathrooms located in Area 1 and Area 2 on the second floor.

6. Building Code Considerations

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

A. The existing stairway leading down to the partial basement from the parking lot has non-code compliant treads and risers and does not have any handrails on either side of the stair, based on the latest building code.

7. Fire Fighting Equipment and Misc Appliances

A. There are standard clothes washer and dryer which are in fair condition.
B. There are several flammable cabinets located within the facility.
C. There is a fire department extractor/gear washer and in fair condition.
D. The facility has a SCBA air compressor unit, a manual hose dryer and adequate equipment storage.
E. There is a three compartment service sink and a mop sink on the first floor, and a mop sink on the second floor.

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

A. There is inadequate fire truck maneuverability and turn-around space.
B. There is no current separate sleeping facility for the female staff.
C. There is no designated exercise room.

D. There is no standard kitchen for the staff.
E. There are no mens and womens locker rooms.

9. Mechanical Systems

A. Cooling for the Township owned spaces is provided by five air cooled DX split AC units. Four of the condensing units, two of 3 ton capacity each by Nordyne and Rudd, one of 2 ½ ton capacity by Trane and one of ¾ ton capacity by Sanyo are installed on the roof and one 1 ½ ton capacity unit by Sanyo is installed on grade. Associated indoor units are installed either in ceiling or on floor. All the units except the 1 ½ ton unit installed on grade are over 20 years old. The 1 ½ ton unit on grade is about five years old.

B. Cooling for the Volunteer Fire Fighters spaces is provided by two air cooled DX split AC units and three rooftop units. The three rooftop units, each of 7 ½ ton capacity of York make, serve the hall and the split AC units each of about 3 ton capacity by Arcoaire, serve the offices. The air cooled condensing units of the DX split AC units are installed on the roof and the indoor units are ceiling mounted. All the units are over 15 years old.

C. Heating for the facility is through heating hot water provided by three natural gas fired boilers. One Weil McLain high efficiency boiler serves the Township spaces. Another Weil McLain high efficiency boiler serves the Volunteer Fire Fighters spaces except the hall. The hall is served by a HB Smith boiler. Both the Weil McLain boilers are two years old while the HB Smith boiler is over 20 years old. Heating hot water is circulated to all the spaces by hot water pumps, a network of hot water piping and convectors and finned tube radiators.

D. The fire truck bays are provided only with heating through seven ceiling mounted natural gas fired unit heaters. Ceiling fans are also provided to ventilate the truck bays. Plymovent vehicle exhaust systems are provided for the fire trucks. Restrooms as well as truck bays are provided with roof mounted exhaust fans. Exhaust fans appear to be old and about 15 years old.

E. An air compressor unit by Campbell Hausfeld of 16.1 SCFM at 90 PSI capacity with an 80 gallon storage tank is provided for the facility. The unit is 8 years old and appeared to be in good working condition.

F. There were no records to indicate the age of the units. 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.

G. 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.

H. As per ASHRAE, median life expectancy of split AC units and roof top units is 15 years and that of exhaust fans is 20 years. Based on this, the air cooled split DX AC units and the rooftop units have exceeded their useful life. Moreover, the units work on R-22 refrigerant that is no longer produced.

10. Plumbing Systems

A. The facility is provided with three water heaters, A Lochinvar 50 gallon capacity natural gas fired water heater installed in 2016 provides hot water to the Township spaces. Domestic water for the Volunteer Fire Fighter's spaces is provided by a Rheem 40 gallon capacity natural gas fired water heater that was installed in 2015. The hall has a stand-alone 50 gallon capacity natural gas water heater by Bardford White installed in 2006. All the water heaters appear 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 one (1) 208v-3 phase 300 amp service for the Old Building and one (1) 208v-3 phase 300 amp service for the Addition Building. The electrical equipment consists of electrical panels PP1, MDP, AC and 3 unlabeled electrical panels, 2 ATS switches, 6 disconnect switches and two electric meters.

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

C. The Addition and Original Building 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 appears to be adequate for the existing electrical loads.

12. Emergency Generator

A. A 100 KW natural gas generator serves the emergency loads for both the old and new building loads. Manufacturer is Onan. Model No. 100 Genset. The generator is at least 27 years old and appears to be in good working condition and is regularly maintained.

13. Fire Alarm

A. Fire alarm system is at least 20 years old and 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, Hi Bays, exit lights and recessed lighting fixtures. Exterior lighting fixtures are comprised of outdoor wall sconces and wall packs. All seem to be fluorescent lamps. There is adequate lighting coverage thru-out the facility. Light switches are installed thru-out the facility for lighting controls along with timeclock controls in the electrical room.

15. Receptacles

A. 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 crack in concrete apron at the truck entrances	$6,500
ii.	Replace concrete apron curb at the truck entrances	$10,000
iii.	Repaint the steel bollards	$1,500
iv.	Repaint the handrails at the concrete ramp	$2,500
v.	Patch the parking lot pot holes and cracks	$14,000
B.	Facades	
i.	Repair the stucco finish at soffit above the overhead doors	$1,200
ii.	Repoint CMU mortar joints	$3,500
iii.	Reset shifted CMU unit	$750
iv.	Replace the top landing of the concrete ramp	$4,500
v.	Reseal the perimeter of the windows	$4,000
vi.	Repair the EIFS finish system	$6,500
vii.	Replace the hollow metal door and frame	$3,000
viii.	Replace the Storefront door and Transom Glazing	$7,500

C.	Roofs	
i.	Replace the built-up roofing system with a built-up roofing system	$175,000
ii.	Replace the metal copings	$10,000
D.	Interior	
i.	Repair cracks in Engine/Apparatus Room	$6,500
ii.	Repair horizontal crack in (CMU)	$2,500
iii.	Repair the gypsum board ceiling at the rear stairway	$2,000
iv.	Repair cracks in the concrete floor in the storage room	$3,500
v.	Replace acoustical ceiling tiles	$600
vi.	Repair the wall tile on the column in the auxiliary engine room	$500
vii.	Repair the fabric wall covering in the dormitory room	$500
viii.	Repair the floor tile and bottom of the door to eliminate the scraping at the floor tile	$1,000
E.	Interior Accessibility of Station **(*)**	
i.	Provide barrier free mens and womens bathrooms directly off the banquet hall	$25,000
ii.	Provide access to the second floor areas 1 and 2	$35,000
iii.	Provide barrier free bathrooms on the second floor at Area 1 and Area 2	$30,000
F.	Building Code Considerations	
i.	Replace the stairway and provide handrails on both sides of the stair	$11,500
G.	Building Shortfalls **(*)**	
i.	Provide a separate sleeping facility for the women staff	$10,500
ii.	Provide a designated exercise room	$15,000
iii.	Provide a standard kitchen for the staff	$25,000
iv.	Provide mens and womens locker rooms	$30,000
H.	HVAC & Plumbing	
i.	Replace air conditioning units in a phased manner	$24,000
ii.	Replace the HB Smith boiler	$7,500
iii.	Option 1-provide low water consuming fixtures & Automatic flushometeres	$4,500

I.	Electric		
i.	Identify all existing circuits and update all electrical panel schedules		$3,000
ii.	Replace the fire alarm control panel and associated devices		$7,500
iii.	Replace all interior lighting fixtures with new energy efficient LED lighting fixtures		$60,000
	Sub-Total Cost Opinion		$545,550
	Contingency (20%)		$109,110
	Total Cost Opinion		**$654,660**
		Say	**$655,000**

(*) 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

De Cou Hose Company
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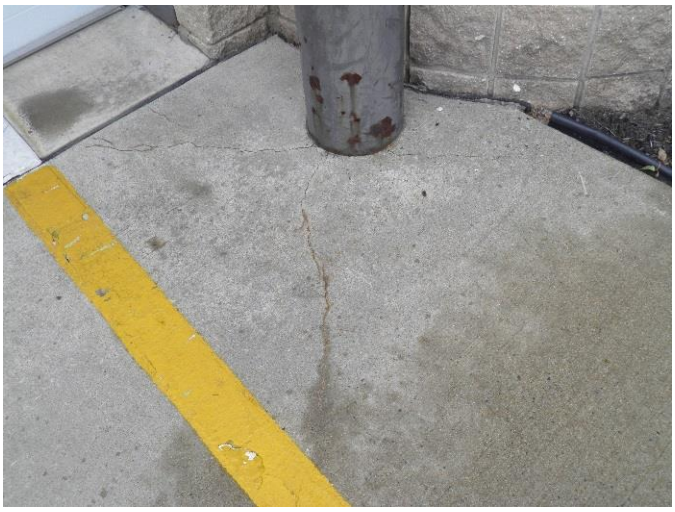
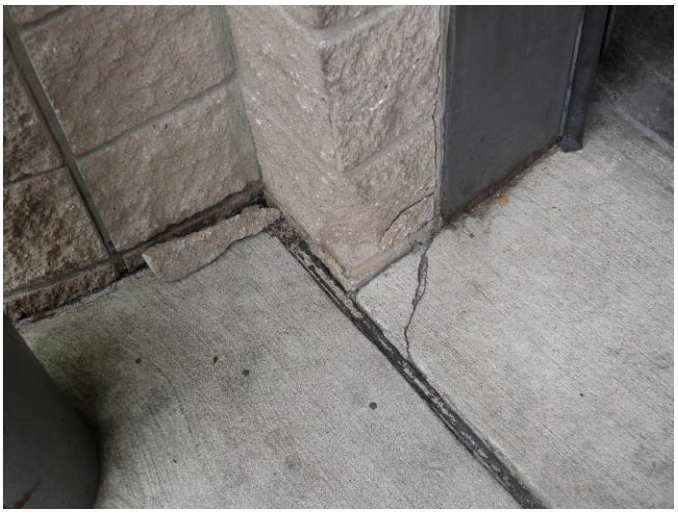
EXTERIOR CONDITIONS

Fire Engine #15 – Hamilton Township



VISIBLE CRACK IN CONCRETE SIDEWALK

VISIBLE DAMAGE TO THE BRICK PLANTER



SPALLING IN MASONRY BLOCKS AND CRACKS IN CONCRETE SIDEWALK

SEVERE CRACKS TO THE MASONRY WALL

VISIBLE DIRT FROM WATER RUNOFF

Fire Engine #15 – Hamilton Township

CRACK IN CONCRETE SIDEWALK

VISIBLE CRACK ON THE WALL

VISIBLE CRACKS AND PAINT PEELING ON THE WALL

VISIBLE CRACK IN THE CONCRETE PAVERS

VISIBLE EROSION AT CONCRETE JOINT

VISIBLE DAMAGE TO CURB

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INTERIOR CONDITIONS

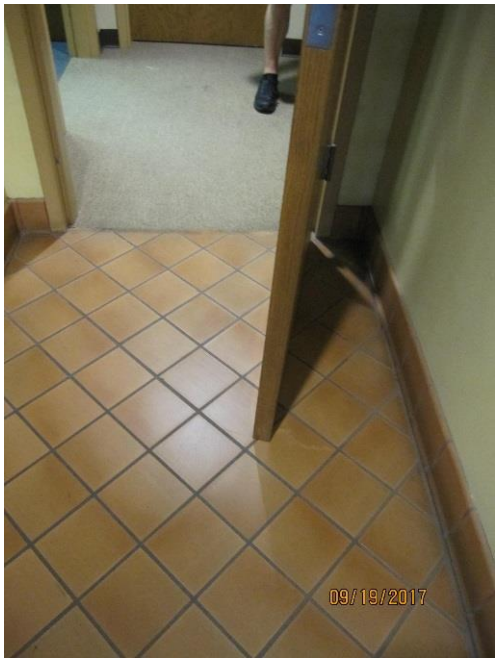
Fire Engine #15 – Hamilton Township

PAINT PEELING AT GYPSUM BOARD CEILING

VISIBLE DAMAGE TO THE CEILING TILES

PAINT PEELING AT GYPSUM BOARD CEILING

PAINT PEELING AT WALL



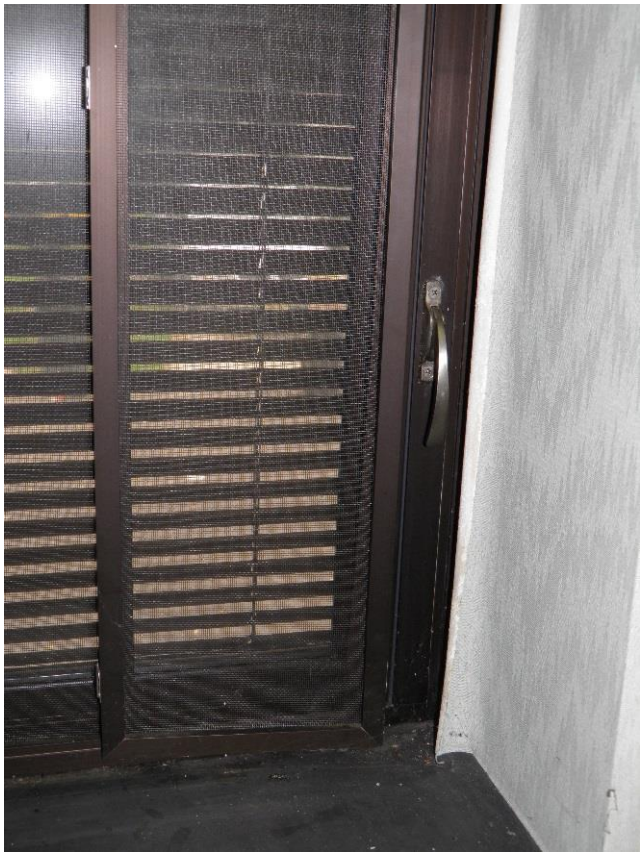
DOOR IN CONTACT WITH TILE FLOOR

VISIBLE CRACKS IN CONCRETE FLOOR

Fire Engine #15 – Hamilton Township

SIGNS OF WATER LEAKEAGE IN CEILING

DAMAGED AND MISSING CEILING TILES

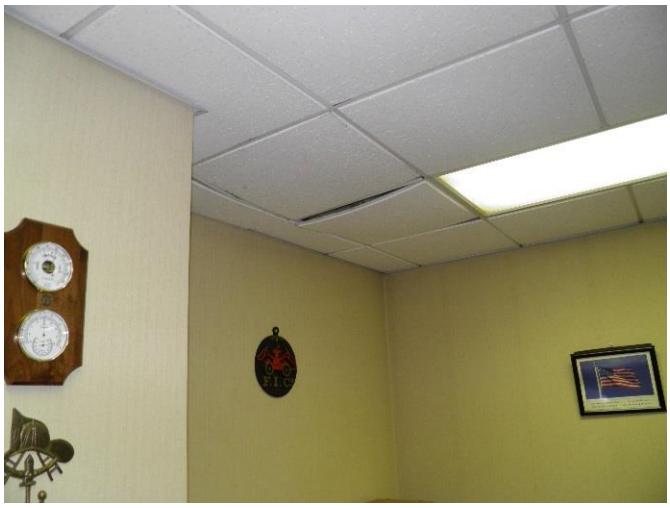


WALLPAPER PEELING OFF AT WINDOW JAMB

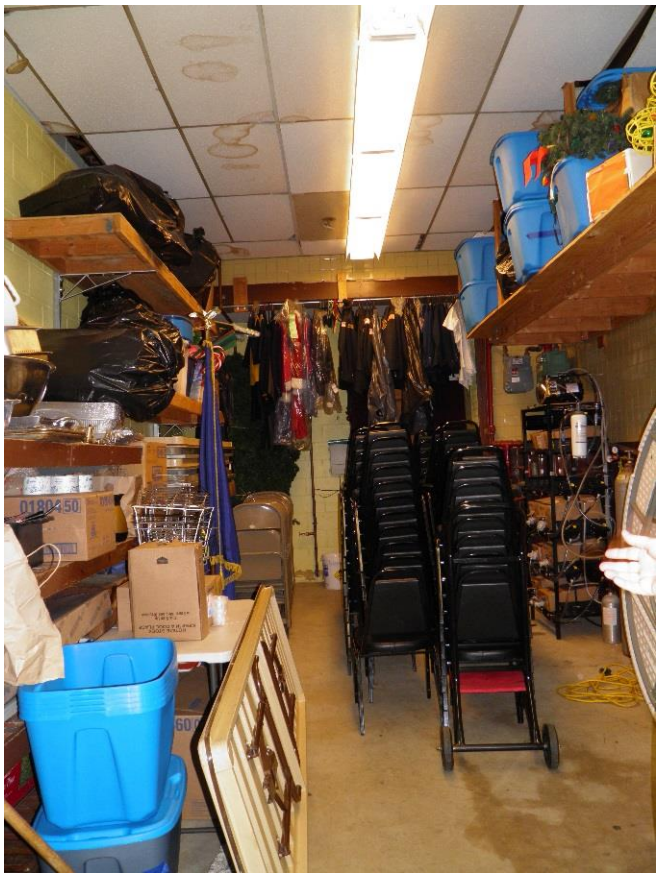
DAMAGED AND MISSING CEILING TILES

Fire Engine #15 – Hamilton Township

MISSING CEILING TILE



VISIBLE DAMAGE TO THE CEILING



SIGNS OF WATER LEAKEAGE IN CEILING

SIGNS OF WATER LEAKEAGE IN CEILING

Fire Engine #15 – Hamilton Township

MISSING AND DAMAGED CEILING TILES

SIGNS OF WATER DAMAGE IN CEILING TILES

SIGNS OF WATER DAMAGE IN CEILING TILES

VISIBLE CRACK IN CONCRETE FLOOR

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ROOF

Fire Engine #15 – Hamilton Township

AREAS OF MISSING GRAVEL BALLAST

VISIBLE ROOF PATCHES

AREAS OF MISSING GRAVEL BALLAST

VISIBLE ROOF PATCHES

RUSTED ROOF ACCESS DOOR