Rusling Hose Company
Fire Engine #13
13 Rennie Street, Hamilton, NJ 08610

Feasibility Study

Prepared by

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Fire Station # 13, Rusling District 3 – 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 # 13, Rusling District 3 – Audit

Executive Summary

Fire Station #13

1. Is located at 13 Rennie Street, Hamilton, NJ
2. The station is district owned.
3. The building was constructed in 1983, and is a one and half stories in height.

This building's current exterior and interior condition is **Poor** as is evident by the number of deficient items identified within the Summary of Findings Section; such as the roof, the concrete apron curbs and parking lot concrete apron entrance and several sections of concrete sidewalks, etc.

A description of the Site and Building deficiencies is indicated below and recommendations and estimated 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 30, 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 18,210 square feet in size, and has approximately 1.2390 acres of property. The facility does not have a current property survey.
B. The station has 1 fire engine/pumper truck, 1 ladder truck, and 1 rescue truck. For a total of 3 trucks.
C. There are 5 existing truck bays.

D. The station is planning on purchasing an additional rescue truck and marine unit vehicle.
E. There are no current plans to renovate or expand the fire house.
F. The facility has four 24 hour shifts, with a total occupant load of 6 fire fighters present during each shift.
G. Currently the staff is comprised of 18 males and 0 female firefighters. The projected ratio of men and women fire fighters per shift is unknown at this time.
H. The facility appears to have adequate program space requirement with the exception of a little under sized exercise room due to its triangular configuration, however it still contains cardio and weight lifting areas.
I. The Station has the Rusling Hose Company outside agency uses the meeting room occasionally.
J. The entire building is sprinklered.

2. Site Analysis

A. The station has adequate fire truck maneuverability and turn-around space.
B. The concrete apron at the truck entrance is in good with only one minor crack. However the concrete curb located between the apron and street is in poor condition containing many spalls and cracks in the concrete. There are several locations on the apron where vegetation growing within the concrete joints.
C. The concrete apron and concrete curb apron at the entrance to the parking lot are in poor condition with several cracks and spalls.
D. The parking lot is in good condition.
E. There are designated parking lot and street barrier free parking spaces.
F. The station has barrier free entrances.
G. There are 4 locations along the concrete sidewalk on Chambers Street where a section of the sidewalk has heaved and are higher than the adjacent sidewalk sections. This is most likely caused by the roots of the adjacent tree running under the sidewalk. There are 5 locations along the concrete sidewalk on Rennie Street where a section of the sidewalk has slightly heaved and are higher than the adjacent sidewalk sections.
H. There are several locations within the brick paver areas where the brick mortar joints require repointing and several bricks require replacement.

3. Exterior Building Analysis

A. Building Façade Conditions
1. Chambers St. Elevation
i. The aluminum awing windows are original and in fair operational condition with no reported water infiltration leaks. The window color has faded with age. The sealant around the perimeter of the windows is oxidizing causing it to split open and fail.

ii. The aluminum personnel doors are in fair condition, however the hollow metal door and frame leading into the generator room is rusting at the sill and at the bottom of the door frame.
iii. The overhead truck bay doors all operate properly and are in fair condition.

2. Rennie St. Elevation
i. The aluminum awing windows are original and in fair operational condition with no reported water infiltration leaks. The window color has faded with age. The sealant around the perimeter of the windows is oxidizing causing it to split open and fail.
ii. Three newer aluminum casement windows have been installed and are approximately 5 years old and in good condition.
iii. The aluminum personnel doors are in fair condition.
iv. The overhead truck bay doors all operate properly and are in fair condition.
v. There are some locations where the steel divider strips between the exposed aggregate panels are rusting.

3. Genesee St. Elevation
i. There are no windows on this facade.
ii. The hollow metal personnel door is in good condition.
iii. There are no overhead truck bay doors on this facade.
iv. A communication cell tower owned by Verizon is located on this façade behind a locked wooden fenced area. The fire and police equipment are located on this tower. The tower is maintained by the Fire Station.
v. There are some locations where the steel divider strips between the exposed aggregate panels are rusting.

B. <u>Roofs</u>
i. A single ply membrane roofing system and base flashings are located on the various roofs are original and in poor condition, several areas have either been patched or replaced. These roofs have exceeded its life expectancy.
ii. These roofs are exhibiting water infiltration, especially during a wind driven rain at the base of the second floor wall adjacent to the lower roof.

iii. The skylights are original and in fair condition with no reported water infiltration leaks.
iv. There is vegetation growing in one corner of the roof.
v. The metal roof copings are in poor condition and the coping color has faded with age. The exposed coping fasteners are rusting. The sealant in the transverse joints of the parapet wall aluminum copings is alligatoring and oxidizing causing them to split open and fail.
vi. We were informed during the field visit that the fire station has retained a roofing contractor to have the exposed aggregate panels located on the second floor wall adjacent to the lower roof removed and replaced with full height single ply roofing base flashing in an effort to stop water infiltration at this location.

4. Interior Building Analysis - Program Spaces and Deficiencies

A. Living Spaces

i. The engine/apparatus room is in fair condition with the exception of a few cracks within the epoxy flooring system and a few areas where the concrete slab has spalled.
ii. The training/meeting room is located on the second floor and is in fair condition. This room has a maximum capacity of 339 occupants with chairs only and 226 occupants with chairs and tables. The outline of the metal studs is starting to telegraph through the wall fabric finish. There are 4 additional overflow beds located in an area of the training/meeting room meant to handle occasional additional personnel during a major crisis.
iii. The kitchen, dining and day room are located off the engine/apparatus room and are in fair condition.
iv. The dormitory has 4 beds, currently there is no separate sleeping area for future women staff.
v. The day room is used as their recreational room.
vi. There are barrier free mens and womens bathrooms, showers and locker rooms located on the first floor. The mens bathroom is missing one grab bar behind the water closet. There are non barrier free mens and womens bathrooms on the second floor.
vii. The exercise room is in fair condition and appears to be a little under sized, See item H in the General Station Information Section for additional information.
viii. The offices located on the second floor are in fair condition.
ix. This facility has a watch room which serves as an operations room.
x. There is one small bedroom with a non barrier free bathroom located off the watch room.
xi. This facility does not have a rental hall or a commercial kitchen.

xii. There appears to be adequate storage areas.
xiii. There is a generator located in its dedicated generator room, and it provides backup for the entire building.

5. Interior Accessibility of Station

A. The first floor is barrier free accessible and this facility contains an elevator which provides access to the second floor.
B. There are no barrier free bathrooms located on the second floor.

6. Building Code Considerations

The following items identified below are not in compliance with the latest IBC Building Code, 2015 NJ Edition requirements. – N/A

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 which are in fair condition.
C. There is a fire department extractor/gear washer which is in fair condition.
D. The facility does not have an air compressor, equipment storage or a SCBA compressor unit.

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

A. There is no current separate sleeping facility for future female staff.

9. Mechanical Systems

A. Cooling and heating to all spaces except the office is provided by four rooftop units with electric cooling and natural gas heating. The four rooftop units are each of 4 ton, 5 ton, 7 ½ ton and 15 ton capacities. The 5on, 7 ½ ton and 15 ton units are by Trane and the 4 ton unit is by York, All the units are over a year old and utilize R410A refrigerant. The office is served by a 2 ton capacity Trane DX split AC system. The condensing unit is installed on the roof and the associated indoor unit is installed in the ceiling of the office. The DX split AC system is also over a year old and utilizes R410A refrigerant. The office space is heated by electric baseboard heaters. All equipment appears to be in good working condition.
B. The fire truck bays are provided only with heating through three ceiling mounted natural gas fired unit heaters. The units are over 20 years old. Ceiling fans are also provided to ventilate the truck bays. The fire truck bays are provided with air purifiers to maintain the carbon monoxise

levels in the space within limits. Restrooms as well as truck bays are provided with roof mounted exhaust fans. Exhaust fans appear to be 15 years old.

C. An air compressor unit by Ingersoll Rand with a rating of 14.0 SCFM at 175 PSI with a 60 gallon storage tank is provided for the facility. The unit is about 14 years old and appears to be in good working condition.

D. The facility does not have self-contained breathing apparatus (SCBA) air compressor unit. They refill their units Fire Station # 16.

E. 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.

F. 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 boiler associated pumps and equipment perform satisfactorily and that there are no major issues with them. Maintenance service is provided by an outside contractor.

G. As per ASHRAE, median life expectancy of rooftop units and split AC units is 15 years and that of exhaust fans is 20 years. The installed equipment is relatively new and has several years of useful life.

10. Plumbing Systems

A. The facility is provided with one Westinghouse 50 gallon capacity electric water heater. The water heater is new and appears to be in good working condition however there is no hot water re-circulating pump resulting in delay in availability of hot water at utilizing locations.

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 800 amp service. The electrical equipment consists of electrical panels MDP, A, EM1, EM3, B, EM-C and an unlabeled panel, and one electrical meter. The equipment is relatively new and appears to be in good condition.

B. Panel schedules seem accurate and up to 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 appears to be adequate for the existing electrical loads.

12. Emergency Generator

A. A 130 KW natural gas generator serves the emergency loads. Manufacturer is Katolight. Model No. NL130FGG4. The generator is at less than 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 10 years old. Fire alarm devices are approximately 35 years old. The existing system is comprised of horn strobes, pull stations 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. According to Firehouse officials lighting fixture lamps have been replaced approximately 6 years ago with energy efficient lamps. There is adequate lighting coverage thru-out the facility. Light switches are installed thru-out the facility for lighting controls.

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 entrance	$3,500
ii.	Replace concrete curb along street at the truck entrance	$9,000
iii.	Reseal the concrete apron joints.	$4,500
iv.	Replace concrete apron at parking lot entrance	$12,000
v.	Remove large tree roots located under the heaved and replace 9 sections of concrete sidewalk	$4,500
vi.	Repoint mortar joints of brick pavers	$9,000
vii.	Replace brick pavers	$2,500

B.	Facades	
i.	Reseal around the perimeter of existing windows	$6,500
ii.	Option 1-Replace aluminum awing windows	$180,000
iii.	Replace the hollow metal door & frame at generator room	$3,000
iv.	Remove the rust from the steel divider strips	$6,000
C.	Roofs	
i.	Replace the single ply roofing system with a built-up roofing system	$550,000
ii.	Replace the metal copings	$30,000
iii.	Replace the skylights	$18,000
D.	Interior	
i.	Repair the cracks within the epoxy flooring system	$8,500
ii.	Patch the spalled concrete slab areas	$3,500
iii.	Remove the wall fabric finish and install gypsum wallboard on the exterior walls of the 2nd floor	
iv.	meeting room	$5,500
E.	Interior Accessibility of Station **(*)**	
i.	Provide barrier free bathrooms on the second floor	$20,000
F.	Building Shortfalls **(*)**	
i.	Provide separate sleeping facility for future women staff	$12,000
G.	HVAC	
i.	Provide a domestic hot water re-circulating pump and Associated piping	$40,000
ii.	Replace 3 electric water heaters with gas fired units	$18,000
iii.	Option 2-provide low water consuming fixtures & Automatic flushometeres	$5,500
H.	Electric	
i.	Replace the fire alarm control panel and associated devices	$7,500
	Sub-Total Cost Opinion	$959,000
	Contingency (20%)	$191,800
	Total Cost Opinion	**$1,150,800**
	Say	**$1,151,000**

(*) 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

Rusling Hose Company
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EXTERIOR CONDITIONS

Fire Engine #13 – Hamilton Township

SEVERE CRACKS IN THE SIDEWALK

VISIBLE SETTLEMENT IN THE SIDEWALK CREATING A TRIPPING HAZARD

VISIBLE CRACKS IN THE SIDEWALK

VISIBLE CRACKS IN THE CURB

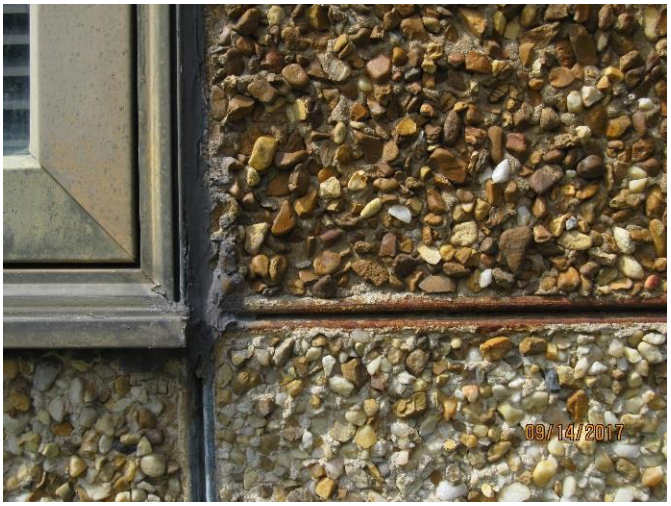
VISIBLE CRACKS IN THE SIDEWALK

Fire Engine #13 – Hamilton Township

GROUT HAS ERODED AND SIGNS OF MOSS GROTH IN THE BRICK PAVERS

GROUT HAS ERODED AND MISSING IN SOME AREAS OF THE BRICK PAVERS

VISIBLE RUST IN METAL EXPANSION JOINT



VISIBLE RUST IN METAL EXPANSION JOINT

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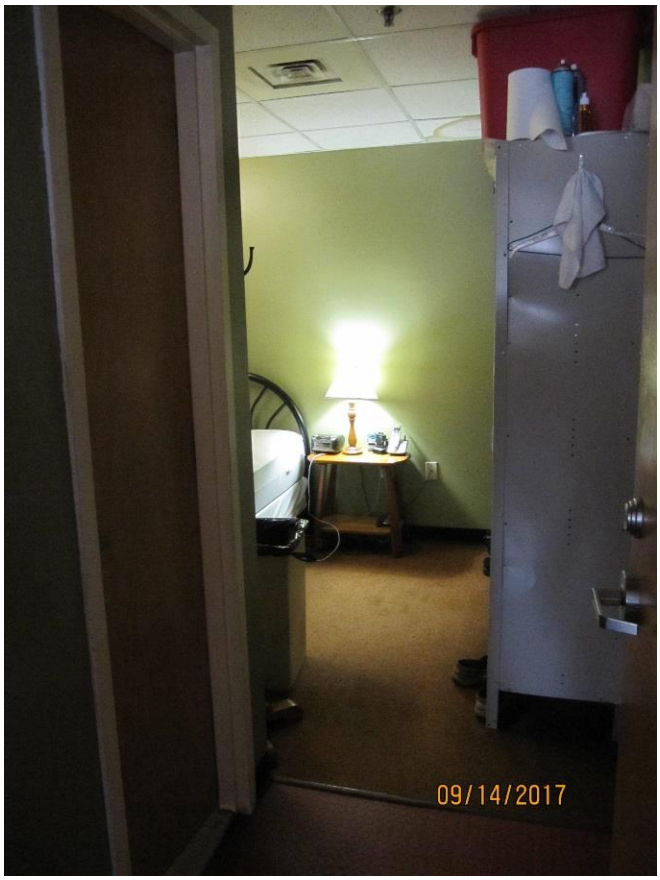
INTERIOR CONDITIONS

Fire Engine #13 – Hamilton Township

SIGNS OF WATER LEAKEAGE ON THE WALL

SIGNS OF WATER LEAKEAGE IN THE CEILING AND DAMAGE TO THE WALLPAPER

SIGNS OF WATER LEAKEAGE IN THE CEILING



SIGNS OF WATER LEAKEAGE IN THE CEILING

SIGNS OF WATER LEAKEAGE IN THE CEILING

Fire Engine #13 – Hamilton Township

VISIBLE CRACK IN CONCRETE FLOOR

VISIBLE CRACK IN CONCRETE FLOOR

VISIBLE CRACK IN THE CONCRETE FLOOR

ADA STALL DOES NOT COMPLY WITH CURRENT CODE

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ROOF

Fire Engine #13 – Hamilton Township

SIGNS OF WATER AND BLISTERS

RUSTED MECHANICAL CURBS COPING

SIGNS OF PREVIOUS REPAIRS TO THE PARAPET COPING

PRESENCE OF VEGETATION GROWTH ON THE ROOF INDICATES BAD DRAINAGE

SIGNS OF BUBBLING UNDER THE MEMBRANE

SIGNS OF PREVIOUS EFFORT TO SEAL THE ANCHORS' PENETRATION

Fire Engine #13 – Hamilton Township

SIGNS OF BLISTERS IN THE BASE FLASHING

SIGNS OF BLISTERS AT THE SEAMS