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FEASIBILITY STUDY

Burlington Police Department
Burlington, Iowa

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Prepared for:

BURLINGTON POLICE DEPARTMENT

424 N. 4TH Street
Burlington, IA 52601

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TABLE OF CONTENTS

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LIST OF ABBREVIATIONS AND/OR GLOSSARY

- 5 to 10 Year plan – Building occupation and use for 5 to 10 years after renovations with concurrent design and construction of new facilities.
- 10 + Year plan – Continuing occupation and use of the current building for 10 or more years with no plans to relocate.
- AHU - Air Handling Units
- CFM – Cubic Feet Per Minute
- CMU – Concrete Masonry Unit
- HVAC - Heating, Ventilation, and Air Conditioning
- Parging - A thin coat of plaster or mortar used to smooth or cover a rough or damaged masonry surface.
- Repoint –Removing a certain depth of mortar from a brick wall and installing new mortar. (Term is sometime used interchangeably with “tuck-point”
- S.F. – Square Feet
- Spalling - The chipping, splitting, or breaking off of pieces as in brick, stone, and concrete.
- VAV – Variable Air Volume
- VCT - Vinyl Composition Tile
- VFD - Variable Frequency Drive
- Wythe -A continuous vertical section of masonry one unit in thickness.

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EXECUTIVE SUMMARY / ABSTRACT

For the past 20 years the building located at 424 N. 3rd Street Burlington, Iowa has served as the Burlington Police Department headquarters. This building exhibits signs of water infiltration, building façade deterioration, and cracks in the foundation walls and structural framing members. The Police Department asked Klingner to evaluate the feasibility of occupying the existing facility for a period of five to ten years. Through on-site inspections of previously installed crack monitors, evaluation of building systems, and the condition of materials and finishes, along with talking to building personal we are able to estimate probable construction costs for the necessary repairs, improvements, and upgrades needed to allow for the safe and efficient use of this building for an additional five to ten years.

It is recommended that the foundation deterioration, exterior wall stabilization, and coping cap issues be taken care of immediately to prevent further deterioration and damage to the building.

Costs are approximate estimates only.

The 5 to 10 year **low** estimate for repairs would be in the $500,000 – $700,000 range.

The 5 to 10 year **high** estimate for repairs would be in the $800,000 – $1,000,000 range.

The 10+ year / **complete remodel** of the entire building would be approximately $5 – 6 Million.

The construction of a **new facility** of a similar size would be approximately $6 – 7 Million.

INTRODUCTION

The Police Department moved into 418-424 North 3rd Street in 1994 after the flood of '93 damaged their previous building. Their current building was selected as the new home for the Police Department because it was close to both the Courthouse and the Jail. While the Courthouse is still downtown; the location of the jail (that was once downtown) has been relocated. These two adjacencies were the main reason for selecting this building as the new Police Department in 1994. (Information provided by Todd Darnell, whose family sold the building to the City.)

This building contributes greatly to the historic significance of the Burlington downtown commercial historic district. It was originally built in 1873 as Bennett and Frantz Carriage Works after fire destroyed the earlier carriage factory located here (Image 1.0a). As such, the exterior walls are masonry load bearing walls with the foundation being made of stone. Of the three exterior walls the North and East have been left brick. The West wall, on the other hand, has had a parging applied to the exterior and has been painted to match the color of the brick. The building is situated on the northwest corner of 3rd and Columbia Street taking up the entire 60 by 120 foot lot. The interior framing of this building is made up of heavy timber column, capitols, and beams along with two rows of steel columns in the southern bays in the western two thirds of the building that were added at a later date. These steel supports were added to divide the area and span of the original beams and help in supporting the load from all floors.

On the interior of the building, exterior walls are covered by plaster and interior partitions are typically made of gypsum wall board. Most of the floors are covered in either vinyl composition tile (VCT) or carpet. Ceilings of the spaces within are composed of a gridded drop in tile system. The building consists of three floors, a basement, and a sub-basement. Due to the slope of the hill the basement level is almost completely underground on the western façade and becomes completely exposed on the eastern façade expressing the look of four stories.

A historic photo from November 1971 shows the parging, currently on the exterior of the West façade, already applied with water markings occurring under the flag and window sills indicating it has been installed for some time (Image 1.0b). It also shows the aluminum double hung windows already installed throughout. The aluminum storms are not present in the 1971 photo and must have been installed at a later date. At the time of this photo The National Research Bureau of Chicago was using it for their local operations.

1.0 BUILDING ANALYSIS

1.1 Exterior Analysis

1.1.1 Foundation

The foundation of this building is made up of brick and stone and is in need of some major attention. Moisture and age are the main issues. Moisture is a two part issue. First between the sidewalk, ramp, and building, the sealant has deteriorated allowing water to enter and saturate the stone and mortar (Image 1.1.1a). Second, a masonry wall needs to breathe to allow moisture to escape. This is not happening because an interior coating is trapping moisture behind it and causing wall deterioration (Image 1.1.1b). This is most visible in the men's locker room. The mortar is also deteriorating due to age and repointing needs to occur (Image 1.1.1c-d). This is visible not only on the exterior east façade, but also inside the building where the mortar has turned to sand.

Proposal

(See section 2.1 Structural Analysis – Foundations)

1.1.2 Exterior Wall

There are three exposed exterior walls. The condition of these walls varies by façade with the East and West in the worst shape.

1.1.2.1 <u>West façade</u> (Image 1.1.2a)

The front façade, facing west, has a 1/2" cement based parging. Based on historical photographs, it appears the parging was installed sometime before 1971 (Image 1.0b). There is evidence of several patches as indicated by a change in the parging texture (Image 1.1.2b). The majority of the patching occurred under the 2nd and 3rd story windows. No drip ledge is under the limestone window sills and the parging has resulted in the sills being nearly flush with the wall. This may be the cause of concentration of moisture under the windows.

The parging has been painted to match the color of the existing bricks. Some paint is delaminating from the parging which would indicate trapped moisture from the installation of a non-breathable paint finish. The location of the missing paint seems to confirm that this is a moisture problem. The paint and parging deterioration is most noticeable near the parapet at the top of the building, under the windows, and at the foundation (Image 1.1.2c-e).

Near the basement window on the south end of the front façade, parging has been removed revealing the shape of the brick underneath (Image 1.1.2f). The brick are severely damaged which could be the result of "roughing-up" the brick with a hatchet prior to the application of the parging. No metal lathe was used to reinforce the parging or to secure it to the existing wall. Modern day parging installation often includes metal lathe as an integral part of the system.

Upon doing a "sounding" test to see if the parging is still securely fastened to the masonry a hollow dull sound was heard, thus there is concern that the parging is delaminating from the masonry. (The sounding test consists of gently tapping the parging with a hammer. If a dull sound results, then the structural integrity of the parging may be compromised.) This dull sound occurred under and to the side of the 1st floor windows. The shape of the brick behind the parging is telegraphing through in the form of spider web cracks. Due to the likely damage to the bricks on this façade, it is not recommended to return to the original brick façade.

Proposal

5 to 10 Year Plan – Remove all the loose parging and patch. Investigation of the existing paint is recommended to determine what type of paint is present. If it is a non-breathable type then removing it and applying a breathable coating should be considered. If more than 50% of the parging is loose, remove all parging and outer wythe of brick and relay with new brick.

10 Year + Plan – Remove all the parging, repoint as necessary and replace with a metal wall panel system. Alternatively, the outer wythe of brick could be removed and a new brick wythe laid.

1.1.2.2 North Façade (Image 1.1.2g)

The north façade historically had a signage band between the 2nd and 3rd floors (Image 1.0a). Evidence of the paint is still present.

The north façade has been repointed using a cement mortar. A photograph in the Burlington Hawkeye from November 25, 1963 states that the building was being sandblasted and repointed (Image 1.1.2h). It is assumed that this was the last time the building was repointed. While sandblasting is very detrimental to historic bricks (because it removes the harder facing material), the building does not seem to have been damaged by the process, however, it appears the cement mortar is causing damage. Historic masonry had a very soft mortar that would allow movement without damaging the bricks and allowing moisture to escape through the mortar. A cement mortar is harder than the brick so when movement occurs, the bricks are the first to give instead of the mortar. Also, it is important for the moisture to travel out through the mortar instead of out through the brick. Mortar should be softer than the brick and

designed to fail first because damaged brick is much more expensive to replace than mortar. Furthermore, when the repointing occurred, the mortar was left flush with the face of the brick instead of tooling it into a rake or weather struck profile. Again, this is a path for moisture into the bricks. What appears to be a light colored mortar spider-webbing under the 2nd and 3rd floor windows is actually sealant (Image 1.1.2i). While sealant will not damage the brick due to excessive compressive strength, it is impermeable forcing water to travel out through the brick.

Brick damage can be spotted by a brighter orange face (Image 1.1.2j). The bright orange brick is the softer interior of a brick after the hard kiln fired face has spalled off. This brick will continue to deteriorate unless the hard mortar is removed and breathability of the wall is restored.

The North façade is bowing out at the East and West ends of the wall. On the East end, the bow is related to the additional bowing between the 2nd and 3rd floor of the East façade. There is also buckling occurring under the 1st floor window on the East end.

Proposal

5 to 10 Year Plan – Repair coping cap and add thru - wall flashing to limit water infiltration into the wall. Remove caulking in the cracks and replace with appropriate mortar. Repoint as needed (assumed 20% of the wall surface).

10 Year + Plan – Repair coping cap and add thru - wall flashing to limit water infiltration into the wall. Repoint the entire façade with appropriate mortar. Bringing back the signage band could be an opportunity for improving the looks of the building.

1.1.2.3 East Façade (Image 1.1.2k)

The east façade has the most structural cracks. There is a severe bowing between the 2nd and 3rd floor windows on the North end. The Wall here is approximately 3" out of plumb from the top of the building. The most severe bowing is occurring where the brick was previously replaced. There is also bowing vertically from the basement to the third floor along the far north column of windows. Inside the building, the floor is over 2 ½" away from the wall. 15 separate areas of spider-webbing around the windows are evident from the light grey sealant that has been installed (Image 1.1.2l).

See section 2.2 Structural Analysis – Exterior walls for more information.

Proposal

5 to 10 Year Plan – Repair coping cap and add thru - wall flashing to limit water infiltration into the wall. Remove caulking in the cracks and replace with appropriate mortar. Repoint as needed (assumed 20% of the wall surface).

10 Year + Plan – Repair coping cap and add thru - wall flashing to limit water infiltration into the wall. Repoint the entire façade with appropriate mortar. Bringing back the signage band could be an opportunity for improving the looks of the building.

1.1.3 Roof

While the roof membrane itself looks to be in a decent shape further inspection by the manufacturer should be done to determine its condition. The number located on the penthouse reads E-57233 8-18-99 indicating inspection in 1999. There are a few areas of ponding occurring on the East half of the roof, and the substrate under these areas seems a bit spongy *(Image 1.1.3a).* There is also a hole in the wall of the penthouse where a cable from the antenna enters the building. Two other issues occur at the parapet. First the coping caps themselves are deteriorating *(Image 1.1.3b)* and the sealant between them has holes and is failing *(Image 1.1.3c)*. The second issue is the apparent lack of thru wall flashing. While the West wall parapet has some sort of membrane or flashing at the cap it is unclear if it is effective or if it was correctly installed. The North wall parapet on the other hand has no thru-wall flashing resulting in large gaps and cracks under the coping caps allowing for moisture and air infiltration into the building through the wall *(Image 1.1.3d)*. The final issue on the roof is the penthouse door. This door is not weather tight or efficient as evident by the daylight showing all around the door, thus another cause of air and moisture infiltration to the building.

Proposal

5 to 10 Year Plan – Have the manufacture inspect the roof membrane to determine any repairs that might be needed including but not limited to ponding areas or complete replacement. Patch hole in penthouse where cable enters. To remove coping cap on North and West wall, apply appropriate thru-wall flashing, and reset the cap replacing broken or spalled units, or to remove caps completely and replace with new metal coping sealed to top of wall. Check all sealant, repair and replace as needed. Replace weather stripping around penthouse door and install new latch to lock door, or replace penthouse door and frame with new secure and insulated door and frame.

1.1.4 Exterior Doors

The exterior doors of this building consist of three types. Type one is aluminum storefront style doors. These are located at the main entrance on the West side and the lower North entrance. Type two is hollow metal or painted steel. This door is located on the lower North side stairway exit. Both of these two types are in relatively decent shape having little to no issues. The third type is the wood loading dock door on the East side of the building. This door is a major security issue; it has a broken window and is only being secured by a 2x4 board on the interior *(Image 1.1.4a)*. It is also not weather tight or efficient as daylight is visible around the perimeter of the door.

Proposal

5 to 10 Year Plan – Check all locks, panics, closers, weather strips, and sealant on all exterior doors, repair and replace as needed. Replace loading dock door with a more secure and better insulated hollow metal door type.

1.1.5 Exterior Windows

The windows of this building consist of five types most of which are inefficient thermally and allow moisture infiltration to the building.

1.1.5.1 Type I

These opening are located along the lower level of the building along the sidewalk. They consist of a wood jamb with screw applied painted plywood panel. The paint is cracking and peeling off the wood and there is little to no sealant around the jamb. The screws have begun to rust and some of the wood has deteriorated *(Image 1.1.5a)*.

1.1.5.2 Type II

These openings are located on the lower level along the Northeast corner. They consist of the original wood jamb and wood sash with a screw applied aluminum exterior storm window. The paint is cracking and peeling off the wood and the sealant around the jamb is cracked, falling out, or missing. The storm windows seem to be in relatively decent condition *(Image 1.1.5b)*.

1.1.5.3 Type III

This type of opening make up the majority of the windows in the building, they are located on the 1st, 2nd, and 3rd floors on the West, North, and South facades. They consist of an aluminum jamb and single pane window with an exterior aluminum storm window that is riveted to the jamb. These opening have four main issues.

- The sealant on the exterior is old and weathered becoming cracked and starting to fail.
- Due to age and thermal expansion some of the storm frames have become skewed or are pulling apart at the corners *(Image 1.1.5c)*.
- Some of the glass in the storms is either missing or broken *(Image 1.1.5d)*.
- The thermal efficiency of these windows is very poor due to their single pane construction, assumed lack of a thermal break construction, and no insulation around the perimeter of the frame *(Image 1.1.5e)*.

1.1.5.4 Type IV

These opening are located at the fire escape landings on the North side of the building. They consist of an aluminum frame and insulated glass unit *(Image 1.1.5f)*. They are in relatively decent shape. While the insulated glass provides for better thermal performance the assumed lack thermal break construction, lack of insulation, and ageing sealant around these windows still allows for moisture and air infiltration.

1.1.5.5 Type V

These openings are located on the East side of the building on the lower level and first floor. They consist of a vinyl replacement window. While in relatively decent shape the makeup of these windows marks them for a different visual look from the rest. Their sealant is also ageing; that along with a broken glass unit on the first floor allowing for moisture and air infiltration into the building *(Image 1.1.5g)*.

Proposal

5 to 10 Year Plan – Check and repair all windows, frames, and storms on an as-needed basis. Check, repair, or replace all exterior sealant on all window types. Repair and repaint all exposed wood. Make sure that all storms are securely fastened to exterior. Refasten interior cover caps that have come loose

10+ Year Plan – Remove and replace all windows with more energy efficient windows.

1.1.6 Main Stairs, Ramp, and Signage

This area is the main entrance on the West side of the building. Sealant next to the building has deteriorated and is allowing moisture into the space below *(Image 2.1.6a-b)*. Boards were left in place where expansion joint and sealant should have been installed. A moisture line is visible through the stone sign. Sealant at the bottom of the sign is not allowing the sign to breath. There are no weeps in the bricks at the signage. Spalling is occurring on the face of the sign. Effervescence is present on the bricks and stone sign itself *(Image 2.1.6c)*. Effervescence indicates moisture and the dissolving of minerals. Water is following the handrails into the concrete and breaking up the concrete *(Image 2.1.6d)*. The brick at the base of the sign (on the entry side) are showing signs of pitting as the result of de-icing salt.

Proposal

5 to 10 Year Plan – Remove and replace all sealant along ramp, stair, entry door, and sign. When replaced, backer rod should be used to allow for two point adhesion in all joints. Remove wood; install backer rod and sealant in expansion joints. Remove sealant along bottom of stone sign and replace allowing for weeps. Patch and repair concrete

spalling at handrail posts. Use minimal amount of de-icing salt required, keep it off of the brick, and remove excess after its use.

1.2 Interiors Analysis

1.2.1 Wall Finishes

The wall finishes in the building varied greatly in both materiality as well as condition, which seemed to correspond to the floor in which they occurred.

1.2.1.1 Basement

Although this level of the building had by far the most diverse types of wall materiality most surfaces were simply painted or unfinished. The gypsum wall board in the stairway areas seemed to be in relatively decent shape. Some of the interior partition walls for the locker room areas on the other hand were made of some type of paneling where the masking tape used to cover the seams was peeling off the walls *(Image 1.2.1a)*. The biggest issues were along the foundation walls where the painted on coating was cracking and falling off due to brick and stone deterioration of the walls related to their age, structural issues, and moisture *(Image 1.2.1b)*.

1.2.1.2 1st Floor

The two main wall finishes viewed on this level were the exterior masonry walls which had a painted plaster coating over the masonry, and the interior partition walls which consisted of painted gypsum wall board. Both appeared to be in relatively decent shape with a few minor marks and or cracks.

1.2.1.3 2nd Floor

The two main wall finishes viewed on this level were also the exterior masonry walls which had a painted plaster coating over the masonry, and the interior partition walls which consisted of painted gypsum wall board. While the interior partition walls were in relatively decent shape the exterior walls in some areas showed a more moderate level of cracking and water damage of the plaster, especially along the North exterior wall.

1.2.1.4 3rd Floor

The two main wall finishes viewed on this level were again the exterior masonry walls which had a painted plaster coating over the masonry, and the interior partition walls which consisted of painted gypsum wall board. While the interior partition walls on this level were also in relatively decent shape the exterior walls showed a major level of cracking and water damage of the plaster, with the most severe issues along the North exterior wall. This damage consisted of large cracks and splits in the plaster as well as plaster falling off of the exterior walls *(Image 1.2.1c-e)*. This moisture issue has also

caused the formation of mold and mildew in the exterior rooms on this level *(Image 1.2.1f)*.

Proposal

5 to 10 Year Plan – Basement; remove peeling paint off of exterior walls, apply a breathable wall coating as needed. 1st floor; patch plaster and gypsum and repaint with appropriate coatings as needed. 2nd floor; patch plaster and gypsum and repaint with appropriate coatings as needed. 3rd floor; clean up plaster that has fallen off wall and take steps to mitigate mold. Not much else is needed at this time due to lack of use of the space, if this space is to be used plaster will need to be patched and repaired and walls will need repainted with appropriate coatings.

1.2.2 Ceiling Finishes

The main ceiling finish in spaces viewed during the site visit consisted of a suspended grid system with drop in tiles. The grid work along with most tiles appeared to be in decent condition. There were some tiles throughout that were damaged or had visible water marking on them.

The secondary ceiling finish viewed was on the basement level and consisted of the painting of the above structure. This finish also appeared to be in decent condition with little or no attention needed.

Proposal

5 to 10 Year Plan – Replace missing, broke, or damaged tiles throughout 1st, and 2nd floor. 3rd floor tiles to be replaced upon occupation of space.

1.2.3 Floor Finishes

There are three main floor finishes viewed in the building; Vinyl Composition Tile (VCT), Carpet, and bare concrete. These finishes also varied greatly in their condition corresponding to the floor in which they occurred.

1.2.3.1 Basement

The two floor finishes viewed on this floor were bare concrete and carpet. The bare concrete for the most part was in decent condition. The carpet located in the locker rooms was less desirable showing stains, worn traffic patterns, and some fraying at edges and seams *(Image 1.2.3a)*.

1.2.3.2 1st Floor

The two floor finishes viewed on this floor were VCT and carpet. The VCT varied in condition, most small rooms off of the main hall seemed to be in decent condition where the tile in the main hall, officer's room, and reception area were fairly worn. This wear consisted of the cracking and chipping of tiles as well as some of the tiles becoming uneven or even pieces coming off completely *(Image 1.2.3b)*. In one room 9"x9" VCT had been installed. This size tile sometimes contained asbestos. Testing is needed to confirm if asbestos is present. If asbestos is present then the flooring needs to be encapsulated or removed using proper abatement procedures. The carpet viewed was in two locations, the main front office, and the sergeant's room. The carpet in the main front office was in relatively decent condition whereas the carpet in the sergeant's room was showing stains and wear especially on the steps leading into the room.

1.2.3.3 2nd Floor

The two floor finishes viewed on this floor were also VCT and carpet. Most of the VCT was in relatively decent condition, with some minor cracking. The carpeting was located in the second floor conference room and the second floor office space. The conference room floor seemed to be in decent shape whereas the carpet in the second floor office space was less desirable showing stains, worn traffic patterns, and some fraying at edges and seams *(Image 1.2.3c)*.

1.2.3.4 3rd Floor

The two floor finishes viewed on this floor were again VCT and carpet. Most of the VCT on this floor was again in relatively decent condition, with some minor cracking. The carpet on this level was not in as good of condition. Issues of wear, traffic patterns, and sun bleaching were more apparent throughout all rooms on this level *(Image 1.2.3d)*.

Proposal

5 to 10 Year Plan – Basement; replace all carpeting in men's and women's locker room with a slip resistant tile 1st floor; replace the carpeting in the sergeant's room. Replace VCT and base in the lobby, reception, and main halls. 2nd floor; replace the carpeting in the office space on the Northwest corner. 3rd floor; take steps to mitigate moisture and mold. Not much else is needed at this time due to lack of use of the space, if this space is to be used carpeting would need replaced throughout.

10 + Year Plan – All items in 5 to 10 year plan. All remaining carpeting and VCT would need to be replaced as well as replacement of sub-flooring as needed to provide a solid base for the tile.

1.2.4 Lobby / Reception Window

This space is in need of major repair. Issues include the floor, wall, exterior windows, interior windows, secure door and keypad, and reception window. The VCT in this area is worn with cracking and chipping throughout. The walls are in relatively decent condition except where the pipes and bracket for the old drinking fountain protrude out from the wall *(Image 1.2.4a)*. This creates a safety hazard for those moving about in the lobby. The exterior windows while in decent visual shape are extremely inefficient and unsuited for their use. Lots of draft and thermal issues were felt and are visible *(Image 1.2.4b)*. The interior windows being used for information display is the next issue. The contact paper is peeling off the glass that was left in when the other side was boarded up, and the information is not displayed in a very attractive way *(Image 1.2.4c)*. Next the secure door and keypad are lacking security. The door and frame are out of adjustment and not lined up causing the door to bind on the frame or not latch securely with the strike causing a possible security breach. The key pad is also of concern. Due to the numbered function of the pad, and the code not regularly being changed people can enter thru this door without actually being authorized to do so *(Image 1.2.4d)*. The final issue in this space is the reception window. The track is worn and the bearings are out of the rollers, but this is not the main issue. The main issue is safety. During business hours the window remains unlocked for service, and even when locked it is not safe by any means due to the glass composition *(Image 1.2.4e)*. This provides for another major zone of security breach to the building occupants.

Proposal

5 to 10 Year Plan – Replace the VCT and base throughout. Remove plumbing from old drinking fountain. Patch walls where needed. Replace the two single and one double window in this space with windows made of insulated glass units and thermally broken framing. Remove the contact paper and glass from the interior display windows. Replace with cork board and new information display. Re-anchor and secure frame for the secured door. Replace butt hinges on secured door with a continuous hinge. Replace keypad on secured door with card reader type for improved security of the space. Replace reception window with secured ballistic type glazing.

10 + Year Plan – All items in 5 to 10 year plan. Replace interior partition wall along secured area perimeter with a material that is more impact resistant possibly construction masonry units (CMU).

1.2.5 Clerk / 1st Floor Northwest Office Space

This space is in relatively decent shape overall. There were two issues observed in this space, the VCT flooring behind the reception desk and down the hall, and the security of the exterior windows in the Northwest corner. The VCT in this area is quite worn with cracking, chipping, and missing pieces throughout causing the floor to become uneven in places. The windows are

visually not in bad shape, but physically do not provide any type of protective barrier to the building occupants. They are only made up of a single pane window with an exterior storm, and are located just above sidewalk level. Not only can people see in or reach these windows easily, they could also easily breach them due to their material *(Image 1.2.5a)*.

Proposal

5 to 10 Year Plan – Replace the VCT flooring and base in this area as well as down the main hallway. Apply ballistic film to exterior windows or replace with a secured ballistic type window.

1.2.6 1st Floor Unisex Bathroom

This room is in need of moderate repair. The VCT is cracked and stained due to the rusty pipes and leaking toilet. The bottom of the toilet is also stained and moldy looking due to the leak *(Image 1.2.6a)*. The plaster is cracked around the window and the walls are in need of paint *(Image 1.2.6b)*. The rusty pipes in the corner further examination to determine if they need replaced or just repainted, and the chrome trap under the sink is quite pitted and tarnished. The last issue in this room is the lack of any storage leading to the use of the window sill as a shelf.

Proposal

5 to 10 Year Plan – Replace all VCT and base in the room. Replace toilet fixture and fix leak at base. Patch plaster around window paint wall and pipes with appropriate coatings. Replace chrome trap under sink. Install some type of storage cabinet in room for supplies.

1.2.7 IT Room

The IT room has two main issues, security and ventilation. Both the security and ventilation are provided by a single pane window to the exterior not too far above the sidewalk level. The window itself is not in bad shape but is not secure especially when it is open for ventilation. The reverse is true for ventilation, the window does no good when it is shut and semi secured which means that the door to the room is left open for the heat to escape to the rest of the building thus no security for the room *(Image 1.2.7a)*.

Proposal

5 to 10 Year Plan – Install ballistic film and or metal screen to window for security. Install ventilation system to deal with excess heat generated by equipment. Replace door and frame with hollow metal type with louvers and keep closed and locked for security.

1.2.8 Officers' Room / Evidence / Armory

This area also seems to need major improvements. It has four main issues; the floor, officer work stations, layout, and security. The VCT in this area is quite worn with cracking, chipping, and missing pieces throughout causing the floor to become uneven in places *(Image 1.2.8a)*. The second issue is the work stations. Currently the countertops are worn and chipped; space is limited to three stations with little work area for each *(Image 1.2.8b)*. Next the layout, there are two smaller rooms located inside this space, one for evidence and one for the armory. These rooms are too small and not suited for the programs they facilitate *(Image 1.2.8a)*. The evidence room and equipment is located away from the work station and computer. Also the evidence lockers are not the right size or number for the evidence placed in them. The armory room also has a size issue in that there is no room to clean, service, or case the weapons within the room. The security of this room is also a concern. While the weapons are secured within a safe other supplies and the room itself is not that secure. This leads to the last issue, the security of the officer room itself. The partition wall separating the officer's room from the reception desk is an uninsulated wall that has two unused interior windows and a door. The windows and door provide for an unsecured physical and visual breach into the space and the uninsulated wall allows for an acoustical breach between the lobby and the officer's room / evidence check-in *(Image 1.2.8b)*.

Proposal

> 5 to 10 Year Plan – Re-design layout of space and remove two interior partition walls per Appendix II *(diagram 1.2.8a-b).* Replace all VCT and base in the room. Insulate partition walls for acoustical reasons. Paint walls. Install a better preforming acoustical ceiling tile. Purchase of new lockers for evidence storage, a new armory cage, and new equipment for officer workstations.

1.2.9 2nd Floor Conference Room

This room is in relatively decent shape overall. There is minor cracking in plaster around the windows, and some minor marks on the walls. There is also a wall paper boarder along the walls that is pealing a little and is not suited for this rooms use *(Image 1.2.9a)*.

Proposal

> 5 to 10 Year Plan – Remove wall paper boarder on top of wall and valances at windows. Repair plaster around windows and paint walls with appropriate coatings.

1.2.10 2nd Floor Men's Restroom

This room is in relatively decent shape overall. There is some cracking in the plaster around the window *(Image 1.2.10a)*; the main issue however is the lack of toilet partitions. Only one of the two fixtures has a stall and it is just plywood with screws sticking out of the inside of the door that one could get clothing or skin caught on *(Image 1.2.10b)*.

Proposal

> 5 to 10 Year Plan – Repair plaster around window. Paint walls with appropriate coatings. Install new toilet partitions with doors.

1.2.11 Locker Rooms - Men's / Women's

These rooms are in need of major renovation and or updating. Issues include the flooring, walls, lockers, space, shower/toilet facilities, and ventilation *(Appendix II, diagram 1.2.11a-b)*. To start with the flooring; the carpet is less desirable showing stains, worn traffic patterns, and some fraying at edges and seams. The walls have many issues ranging from the coating on the stone walls coming loose *(Image 1.2.11a)* to the deterioration of panels and mold in the showers *(Image 1.2.11b)*. The lockers are only half as big as needed; this has led to gear being stacked on top and under lockers cluttering the space. With the need for more or larger lockers these already small locker rooms will become even more cramped and less usable *(Image 1.2.11c)*. The shower facilities in both have similar issues; they do not provide a sanitary and effective place to bathe *(Image 1.2.11d)*. The toilet area while providing for the bare minimums does not have appropriate partitions for fixtures *(Image 1.2.11e)*, storage for equipment, or area needed for officers to prepare for their shifts *(Image 1.2.11f)*. As far as ventilation there is none except a floor pedestal fan which circulates the air but does not bring in fresh air. Moisture, heat, and odors build up in these spaces with nowhere to go causing an unpleasant environment for officers to occupy.

Proposal

> 5 to 10 Year Plan – Replace all carpet in both men's and women's locker rooms with a non-slip tile or anti-microbial carpet. Fix deterioration issues of foundation walls. Mitigate mold and mildew issues in shower areas. In both locker rooms install single person one piece type shower stalls with floors and shower door for improved sanitary conditions. Install new toilet partitions with doors in both the men's and women's locker rooms. Add counter, storage, mirror, and new lighting fixture to officers prep area in each. Install ventilation system to remove moisture and odor from both locker rooms.
>
> 10 + Year Plan – All items in 5 to 10 year plan. Expand both men's and women's locker rooms to allow for expanding staff/larger lockers. Purchase new larger lockers for officer's gear.

1.2.12 Exercise Area

This room is in relatively decent shape overall but seems like it is too small and not very open *(Image 1.2.12a)*. There is unused duct work both inside and outside of this area that is just hanging from the ceiling and a partition wall with a window that only makes the space smaller then needed *(Image 1.2.12b)*.

Proposal

> 5 to 10 Year Plan – Remove unused duct work and partition wall to allow area to expand and become more open.

1.2.13 Lower Interior Door North Stairway

This door while in relatively decent shape poses a security breach issue. This door is an in-swing door meaning that if someone were to breach the exterior glass storefront door they could easily use the panic device to access the stairway and allow for vertical movement in the building.

Proposal

> 5 to 10 Year Plan – Remove door and frame, replace with new door and frame that swings to exterior. Reuse panic device.

1.2.14 Sub-Basement

This space while not used a lot has two issues. First is the stairway. The hand rail is not sufficient or to code and stairs need to follow the 11inch tread to 7 inch rise rule *(Image 1.2.14a)*. Second the safety switch on the elevator shaft door is disabled and not allowed to work properly *(Image 1.2.14b)*.

Proposal

> 5 to 10 Year Plan – Installation of new stairs and handrail as needed to meet code. Enable and check elevator switch for proper safety functions.

2.0 STRUCTURAL STABILIZATION

2.1 Foundation

Major structural repairs are needed in the foundation. Crack meters indicate that cracks are actively moving. The sub-basement meter on the East wall shows expansion of ¼ inch since installation in 1999 *(Image 2.1a)*. Others issues include lots of brick and stone deterioration due to age and trapped moisture *(Image 2.1b-c)*. Coatings on walls in the basement and sub-basement have trapped moisture inside the wall causing the substrates to prematurely deteriorate and spall, and the bond of the coating to fail.

Proposal

5 to 10 Year Plan – The **BEST** structural solution would be to remove all interior coatings from exterior walls repair, replace, and relay the stone in the cracked areas of the foundation wall (primarily the East wall), and to repoint the brick and stone as needed. If exterior walls are to be painted a breathable coating that will allow moisture out of the stone needs to be used.

An *alternate* solution for above grade foundation walls would be repair the damaged and cracked areas by inserting steel channels on both sides of the wall and thru-bolting the channels together, then pressure grouting all cracks.

2.2 Exterior walls

Major structural repairs are needed in the exterior walls. The two issues that need to be dealt with ASAP are moisture and movement. First, moisture is entering the wall causing the deterioration of both the brick on the exterior along with the plaster on the interior *(Image 2.2a)*. Second the walls, especially the East wall, are moving. This is evident in brick walls cracking where beams are being supported *(Image 2.2b)*, and the East wall pulling away from interior walls and floors *(Image 2.2c)*. In addition, on the East wall, masonry has been replaced between the 3rd and 4th floors on the north side of this façade (image 1.1.2k and 1.1.2l). As mentioned earlier, the replaced brick is 3” out of plumb with the roof parapet. Layers of bond bricks (bricks that tie multiple layers (wythes) of bricks together) are present. However with this much movement, the bond bricks may be broke inside the wall and thus not tying the wall together properly.

Proposal

5 to 10 Year Plan – The *historically accurate* solution for moisture is to remove tile coping cap on the North and West wall, apply appropriate thru-wall flashing, and reset the cap replacing broken or spalled units.

An ***alternate*** solution for moisture would be to remove caps completely, apply appropriate thru-wall flashing, and replace with a new metal coping with a continuous cleat and sealed joints.

As for stopping the movement, installation of steel rods and turnbuckles the entire length of the building on each floor is recommended. This will tie the East and West walls of the building together. These rods should run one on each side of the main two wood beams. On the first and second floors two more rods should be added in the East West direction between each beam and between the exterior walls and the beams so that each rod is approximately six feet apart in the North South direction. These rods should be attached on the East side with a full length vertical steel channel on the exterior of the wall, and on the exterior of the West wall with large cast or steel diamonds. In the sub basement level the east wall should be tied to the top of the West side of the North and South generator room masonry walls.

As for the bond bricks; open up the wall where the replacement bricks are located to verify the structural integrity of the bond bricks. If the bond bricks are not tying together the multiple layers of bricks, then these bricks will need to be relayed.

2.3 Heavy Timber Frame

The heavy timber frame in the building is in relatively decent shape and looks to be in sound condition. There are a few columns, capitols, and beams that are showing radial shrinkage cracks *(Image 2.3a)*. Radial shrinkage cracks are cause by stress on the timbers as the wood dries and are not structural issues. The issue is that some of the cracks have opened up quite far.

Proposal

5 to 10 Year Plan – Installation of thru-bolts and plates on cracked columns, capitols, and beams to prevent further movement and separation.

3.0 MECHANICAL, ELECTRICAL AND PLUMBING ANALYSIS

3.1 HVAC

3.1.1 Boiler/Chiller System

Heating water for the building is generated by a series of natural gas fired water heaters *(Image 3.1.1a)*. A pair of constant volume hot water pumps provide flow to piping routed throughout the building. During the site visit the outdoor air temperature was mild and the system was generating 135°F water. Based on visual inspection and discussion with maintenance personnel it appears that the mechanical equipment is well maintained. The system was installed during the 1993 renovation making it about 21 years old. With the current maintenance program the boiler system can be expected to last another 10 to 15 years before major repairs or replacements are necessary.

Chilled water used for air conditioning in the building is generated by a chiller located in the lower level mechanical room *(Image 3.1.1b)* with a cooling tower located on the sidewalk on the north side of the building *(Image 3.1.1c)*. A separate set of constant volume pumps provide flow to a piping system separate from the heating water system. The chiller was not operating during the site visit due to the cool outdoor air temperature. It is assumed that cooling water is supplied at around 55°F when the system is operational. The cooling tower water reservoir was recently replaced to repair corrosion due to equipment age. Visual inspection reveals that the cooling tower in general is in poor condition. Many of the channels have corroded away and maintenance noted that the unit requires replacement. The chiller itself appears to be in good condition and can be expected to function for an additional 10 to 15 years before major repairs or replacements are necessary.

Proposal

5 to 10 Year Plan – Replacement of existing cooling tower with a new unit. Due to refrigerant type used in the chilled water system all existing refrigerant should be reclaimed and reused to refill the system when the cooling tower is replaced.

3.1.2 Air Handling Units

Each of the building's top three floors are provided with an air handling unit (AHU) to supply conditioned air *(Image 3.1.2a)*. The AHU is connected to fresh air duct and it contains both a heating and a cooling coil connected to the central heating and cooling systems. The supply fan is capable of varying the supply air flow rate by using a variable frequency drive (VFD) adjust the speed of the fan. The water temperature to the heating and cooling coils is adjustable through the use of three-way control valves.

The AHUs appear to be in good conditioned and are well maintained. This equipment can be expected to last an additional 10 to 15 years before major repairs or replacements are necessary.

3.1.3 Variable Air Volume Boxes

Each of the top three floors if further divided into zones that include variable air volume (VAV) boxes with a hot water reheat coils to both modulate airflow rate and to modulate the supply air temperature. The reheat coil is connected to the building central heating system and modulates flowrate through the coil using a three-way control valve. There are thermostats located in each zone to control the functions of the VAV boxes. The VAV boxes can be expected to last an additional 10 to 15 years before replacements are necessary.

3.1.4 Basement and Sub-Basement Air Conditioning Equipment

The basement and sub-basement are not air conditioned. There are unit heaters consisting of fans and hot water coils. These coils are connected to the central heating system and utilize two-way control valves to activate flow through the coils. The unit heaters can be expected to last an additional 10 to 15 years before replacements are necessary.

3.1.5 Temperature Control System

When the building was renovated in 1993, a Honeywell electronic temperature control system was installed *(Image 3.1.5a)*. The purpose of a control system is to automate control of the boiler and chiller system as well as the AHU, VAV boxes, and unit heaters to improve both occupant comfort and energy efficiency. Based on the control equipment installed, the boiler and chiller are capable of varying supply water temperatures depending on the load of the building. The AHU is capable of varying the supply air quantity and temperature to meet requirements of the zones it serves. The VAV boxes allow space temperature control by varying quantity and temperature of the air to the specific zone.

Based on conversations with building and maintenance personnel, it is evident that the system has had issues from the start. The issues most likely stem from insufficient owner training, poor customer support, lack of funding, and inadequate documentation of the system. The control system uses a protocol that does not allow new users to access existing information. The controls installing company went out of business shortly after installation of this system further complicating access to records. Over time most of the

systems capabilities have been removed simplifying operation to a single thermostat on each floor to activate the AHU. The control valves on the AHU are set to a single temperature and the VFD on the fan has been disabled causing a constant volume of air supplied to the building. The VAV box airflow control damper is disabled and the heating coil is set to a constant water temperature into the coil.

Proposal

5 to 10 Year Plan – In order to improve the indoor air temperature and quality, the control systems need to be repaired or replaced and the entire HVAC system should be inspected and commissioned to verify operation. After phone discussions with several controls contractors is recommended to replace the controllers in the system with modern technology that will allow real-time access to system information. The new system selected should utilize an open protocol control system that will enable local contractors to maintain the system in the future. It will be necessary to hire a controls contractor familiar with the Honeywell system installed to determine the full capabilities of the controls equipment. Information attained by the controls contractor can be used to repair or replace malfunctioning items and then return the system to operation as designed.

3.1.6 Evidence Room Exhaust

The existing evidence room is provided air conditioning through the floor AHU and VAV box system. Due to the fact that items stored in the evidence room can produce disturbing odors, this room should be separated from the rest of the floor.

Proposal

5 to 10 Year Plan – A separate unit should be provided to condition this room and the unit should be capable of providing 100% outdoor air. The energy code will require that the system include energy recovery capability.

3.1.7 Computer Equipment Room

The existing computer equipment room is conditioned by either opening a window during the winter or by the AHU with an additional box fan during the summer. The data and stored in this room is valuable and not replaceable and as such the room should be better protected.

Proposal

5 to 10 Year Plan – A dedicated computer room air conditioning system designed for the high sensible cooling load and with the capability to cool year round is recommended. This system would consist of an indoor cooling unit with a remote condensing unit.

3.1.8 Locker Room Ventilation

The existing locker room is not currently ventilated. Modern mechanical codes require a minimum of 0.5 cubic feet per minute (CFM) of exhaust from a locker room to remove excess moisture and odors.

Proposal

5 to 10 Year Plan – An exhaust fan should be added, there is an existing below grade window that could be utilized for this purpose for both locker rooms. Outdoor air will be drawn into the building through the fresh air duct system.

3.1.9 Performance Contracting Alternative

As an alternative to breaking the HVAC system improvements into separate items there are contractors willing to work with municipalities to provide system upgrades based on improved performance. In this type of arrangement the contractor may offer to fund the project with an agreement with the city to repay the contractor with the annual energy cost savings plus an annual fee to generate a specified payback period. Klingner & Associates can assist in selecting contractors that may be willing to pursue this venture if the owner is interested.

3.2 Plumbing

3.2.1 Piping System

The occupants of the police station do not have any current issues with water supply or pressure. The existing piping system can be expected to last another 10 to 15 years without major modification.

3.2.2 Plumbing Fixtures and Water Heater

The existing plumbing fixtures are outdated but otherwise functional. The owner does not currently have any issues with the existing domestic water heaters. In general, the fixtures and water heaters can be expected to last an additional 10 to 15 years without

major modifications. If the existing restrooms or locker rooms are renovated the plumbing fixtures should be replaced with more efficient fixtures.

3.2.3 Elevator Sump Pump

The existing elevator pit has a small sump pit and submersible pump for dewatering the pit. There is a constant flow of water into the pit due to a natural spring located beneath the building.

Proposal

5 to 10 Year Plan – At a minimum the owner should purchase a spare pump to have on hand when the existing pump fails. To further improve the issue a larger sump pit may be installed that would allow the installation of a duplex pumping system with a control panel. Having a second pump installed and prepared for operation with a control panel with alarms will prevent the elevator shaft from filling with water without notification. The system will be required to include an oil sensing system that will disable the pumps if hydraulic fluid from the elevator enters the pumps.

3.3 Electrical

3.3.1 Electrical Systems

The building electrical systems were replaced and updated during the renovation of 1993/94. The owner does not have any current issues with the electrical system as it is. If there are any future renovations the electrical systems will need to be evaluated depending on the electrical demands of that renovation.

During the site visit the radio room was discussed as a possible future renovation to accommodate more electronic equipment. This room currently has an electrical panel within it dedicated for this purpose. There are slots available in the panel to accommodate additional circuits.

The officer's room was also discussed as possibly being renovated in the near future to accommodate the growing electrical needs of personnel. The nearest panel serving this room is currently full. If the room is renovated it may be necessary to provide a new panel within the room to accommodate increased electrical demand.

4.0 PROBABLE CONSTRUCTION COST ESTIMATE

Costs are approximate estimates only.

4.1 5 to 10 Year Repair

The 5 to 10 year **low** estimate for repairs would be in the $500,000 – $700,000 range.

The 5 to 10 year **high** estimate for repairs would be in the $800,000 – $1,000,000 range.

These numbers are a low and high estimate of what it would take to make the current building safe and useable for personal and visitors for the next five to ten years. Most of the repairs are only temporary fixes to larger issues and/or will become an issue or need done again in another five to ten years. With these repairs it is assumed that a new facility is a five to ten year goal. If a longer than ten year occupation of this building is deemed necessary then a complete remodel is recommended.

4.2 10+ Year / Complete Remodel

The 10+ year / **complete remodel** of the entire building would be approximately $5 – 6 Million.

This number is estimated by taking the size of the building (60 x 120 Feet) and finding the square foot per floor (7,200 Feet) then multiplying by four floors to obtain a square footage for the building of 28,800 Feet. This number was then multiplied by an average cost per square foot that similar building of size, type, and condition cost to remodel giving a figure of $5 – 6 Million.

This complete remodel would consist of all exterior brick and foundation work, structural stabilization, and complete gutting and replacement of the interior including all mechanical, electrical, and plumbing. It would also include a study and new design of the interior space to be the safest and most efficient for both visitors and personal.

4.3 New Facility

The construction of a **new facility** of a similar size would be approximately $6 – 7 Million.

This number is estimated by taking the 28,800 square feet of space in total and deducting one level of space that is not currently being used (7,200 Feet) to give a size of used space of 21,600 feet. Then by multiplying this number by the *RSMeans Square Foot Costs 2014* average cost for this square footage of an institutional, two story, police type building. A figure of $6 – 7 Million was estimated.

This new facility would consist of an entire new two story building. This would also include a study and design of the most safe, and efficient use of the space by visitors and personal.

5.0 BIBLIOGRAPHY

- *Square Foot Costs 2014*. Norwell, MA: RSMeans, 2013. Print.
- *Site Inventory Form*. # 29-03669. Lampe, Mackey, McCarley: State Historical Society of Iowa, December 17, 2012. PDF

6.0 APPENDICES

KLINGNER & ASSOCIATES, P.C.
ARCHITECTURAL GROUP

INDEX OF IMAGES

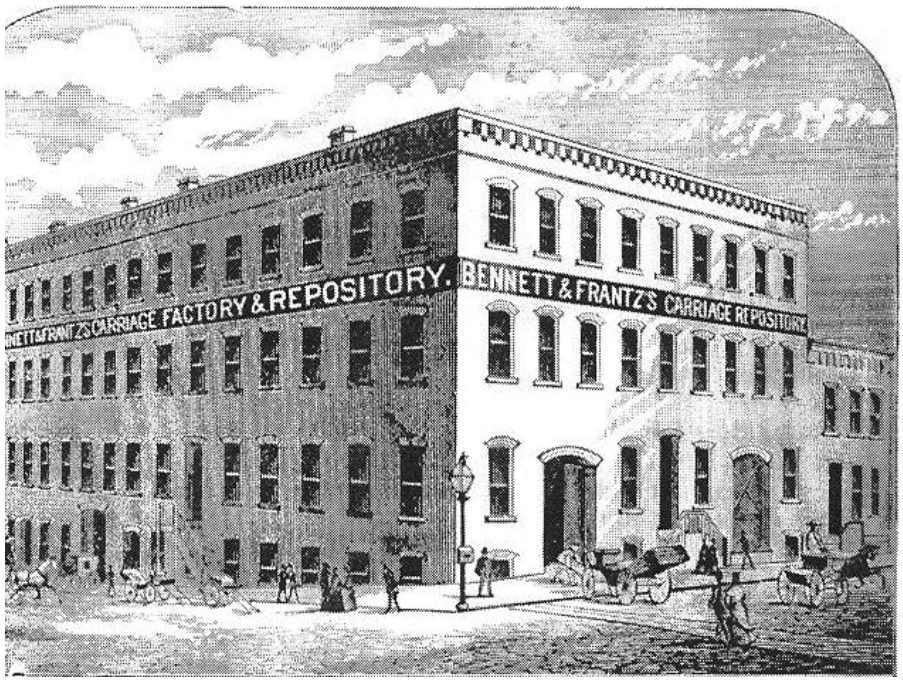
APPENDIX I

FEASIBILITY STUDY

Burlington Police Department
Burlington, Iowa

January 23, 2015

Image 1.0a



424 N. Third Street
Circa 1873

Bennett & Frantz's
Carriage Works

Image 1.0b

424 N. Third Street
November 1971

National Research
Bureau

Image 1.1.1a

Failed caulking water entry point

West Façade

Image 1.1.1b

Deterioration of foundation wall

Men's locker room

Image 1.1.1c

Deterioration of foundation wall

North wall, basement

Image 1.1.1d

Deterioration of foundation wall

Sub-basement

Image 1.1.2a

West Façade

Parging

Image 1.1.2b

Patches in parging

West Façade

Image 1.1.2c

Deterioration of parging

West Façade top of wall

Image 1.1.2d

Deterioration of parging patches

West Façade

Image 1.1.2e

Deterioration of parging

West Façade bottom of wall

Image 1.1.2f

Damaged brick

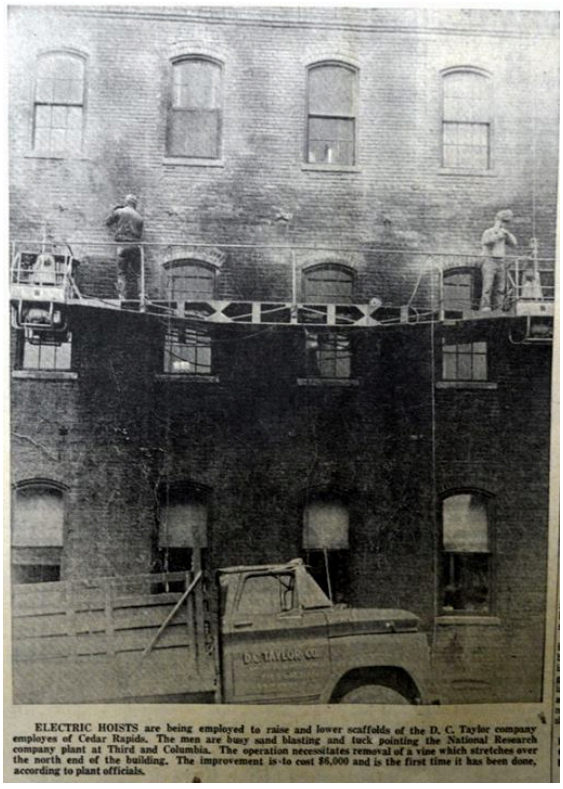
West Façade

Image 1.1.2g

North Façade

Signage band

Image 1.1.2h



ELECTRIC HOISTS are being employed to raise and lower scaffolds of the D. C. Taylor company employes of Cedar Rapids. The men are busy sand blasting and tuck pointing the National Research company plant at Third and Columbia. The operation necessitates removal of a vine which stretches over the north end of the building. The improvement is to cost $6,000 and is the first time it has been done, according to plant officials.

The Hawk Eye
25 November 1963

North Façade

Image 1.1.2i

Sealant in place of Mortar

North Façade

Image 1.1.2j

Brick spalling

North Façade

Image 1.1.2k

East Façade

Image 1.1.2l

Caulking in place of mortar

East Façade

Image 1.1.3a

Ponding on roof

East side

Image 1.1.3b

Deterioration of coping

West parapet

Image 1.1.3c

Failure of calking

North parapet

Image 1.1.3d

Lack of thru-wall flashing

North parapet

Image 1.1.4a

Lack of security

Loading dock door

Image 1.1.5a

Peeling paint, deteriorated wood

Window Type I

Image 1.1.5b

Peeling paint, missing caulking

Window Type II

Image 1.1.5c

Frame separation

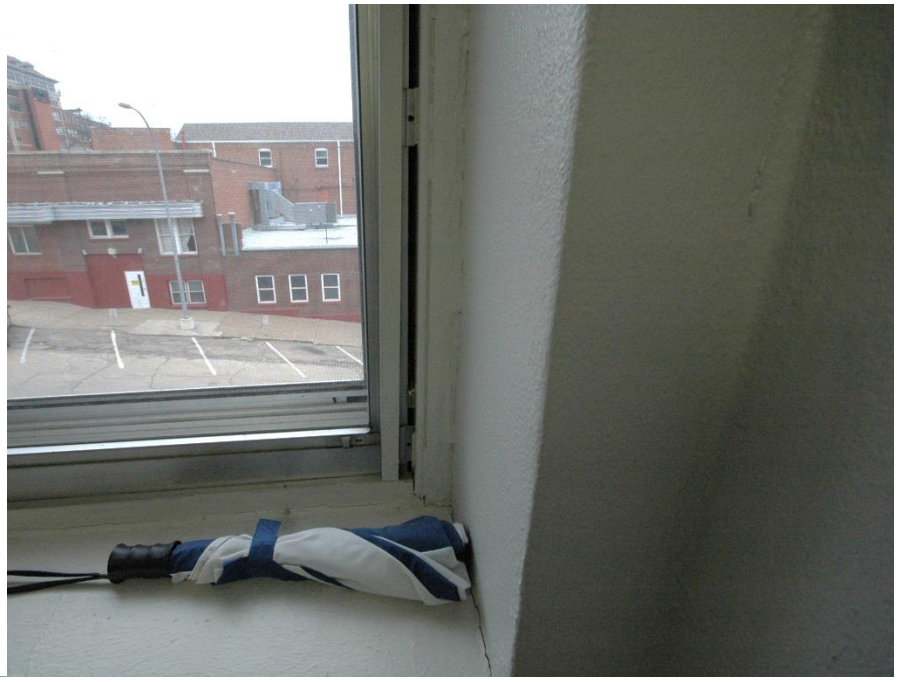
Window Type III

Image 1.1.5d

Broken Glass

Window Type III

Image 1.1.5e



No insulation around frame

Window Type III

Image 1.1.5f

Insulated Unit

Window Type IV

Image 1.1.5g

Broken glass

Window Type V

Image 1.1.6a

Failed caulking

Along North wall

Image 1.1.6b

Failed caulking

Between ramp and rail

Image 1.1.6c

Showing spalling and effervescence

Sign on West entry

Image 1.1.6d

Water infiltration causing concrete degradation

West entry stair

Image 1.2.1a

Tape peeling off of paneling joints

Woman's Locker room

Image 1.2.1b

Brick deterioration

West basement wall

Image 1.2.1c

Plaster damage around window

3rd floor North exterior wall

Image 1.2.1d

Plaster falling off wall

3rd floor stairwell

Image 1.2.1e

Plaster falling off wall

3rd floor North exterior wall

Image 1.2.1f

Mold and mildew in window

3rd floor North side

Image 1.2.3a

Worn and stained carpet

Women's locker

Image 1.2.3b

Cracking and chipping VCT

1st floor

Image 1.2.3c

Worn and fraying carpet

2nd floor

Image 1.2.3d

Stained and worn carpet

3rd floor

Image 1.2.4a

Pipes and bracket from old drinking fountain

Lobby

Image 1.2.4b

Inefficient single pane windows

Lobby

Image 1.2.4c

Windows used for display

Lobby

Image 1.2.4d

"Secure" door and keypad

Lobby

Image 1.2.4e

Reception window

Lobby

Image 1.2.5a

1st floor windows on ramp low, easy to reach

1st floor West side

Image 1.2.6a

Rusty pipe, leak around base of toilet

1st floor Unisex bathroom

Image 1.2.6b

Cracked plaster, no storage

1st floor Unisex bathroom

Image 1.2.7a

Lack of security and ventilation

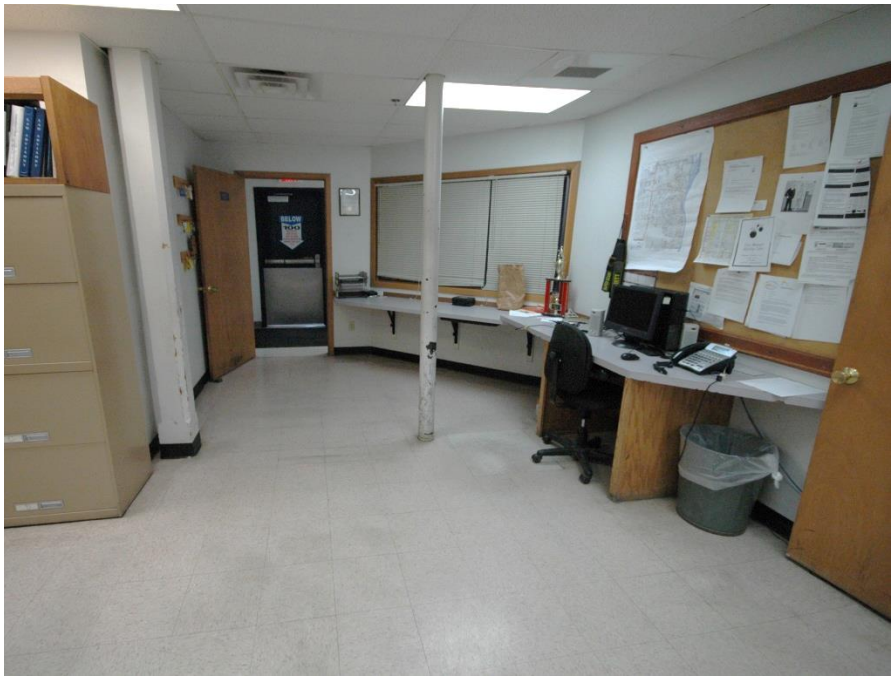
1st floor IT room

Image 1.2.8a

Broken VCT, small evidence and armory

1st floor Officer's room

Image 1.2.8b



Lack of security and workstations

1st floor Officer's room

Image 1.2.9a

Cracking plaster and wall paper boarder

2nd floor conference

Image 1.2.10a

Cracking plaster

2nd floor men's bathroom

Image 1.2.10b

Lack of toilet partitions

2nd floor men's bathroom

Image 1.2.11a

Wall deterioration

Men's locker room

Image 1.2.11b

Panel deterioration and mold at base of wall

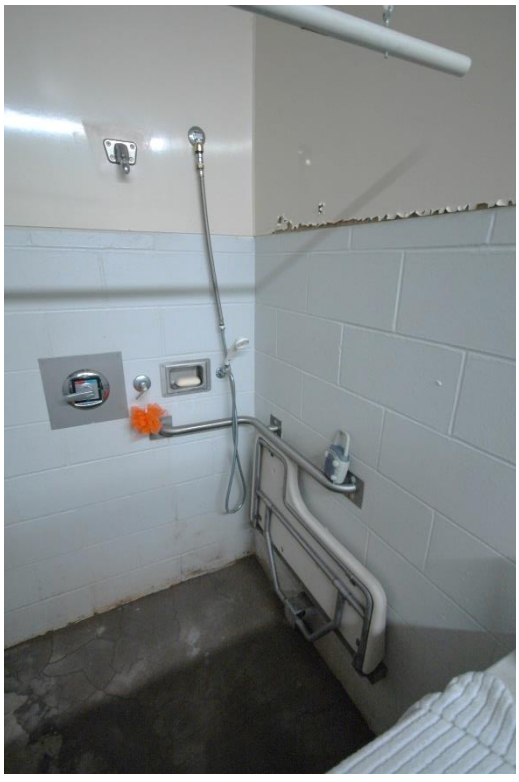
Men's locker room

Image 1.2.11c

Lack of space

Men's locker room

Image 1.2.11d



Substandard bathing condition

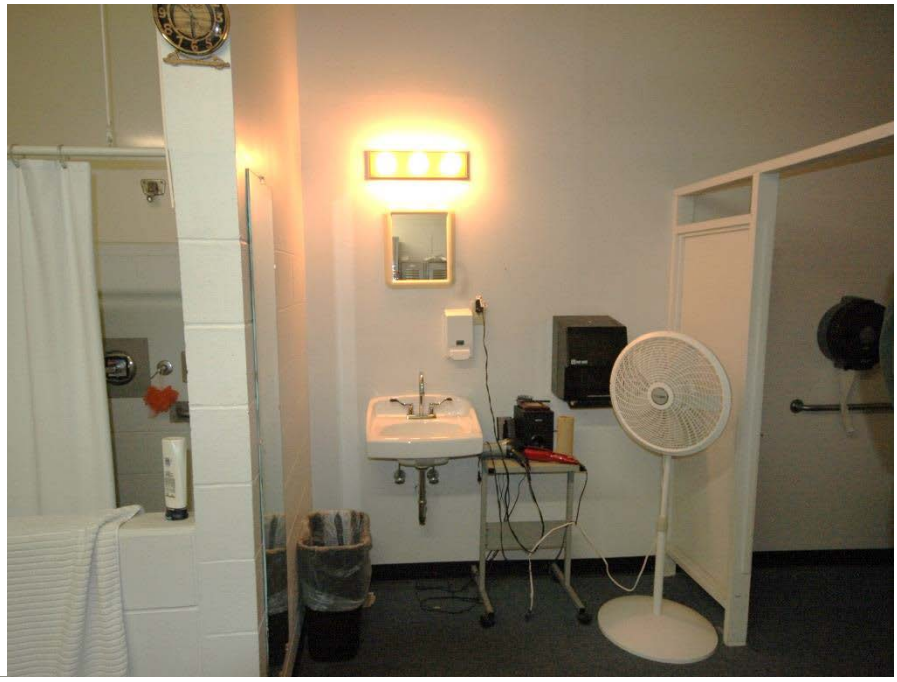
Women's locker room

Image 1.2.11e

Lack of partitions

Men's locker room

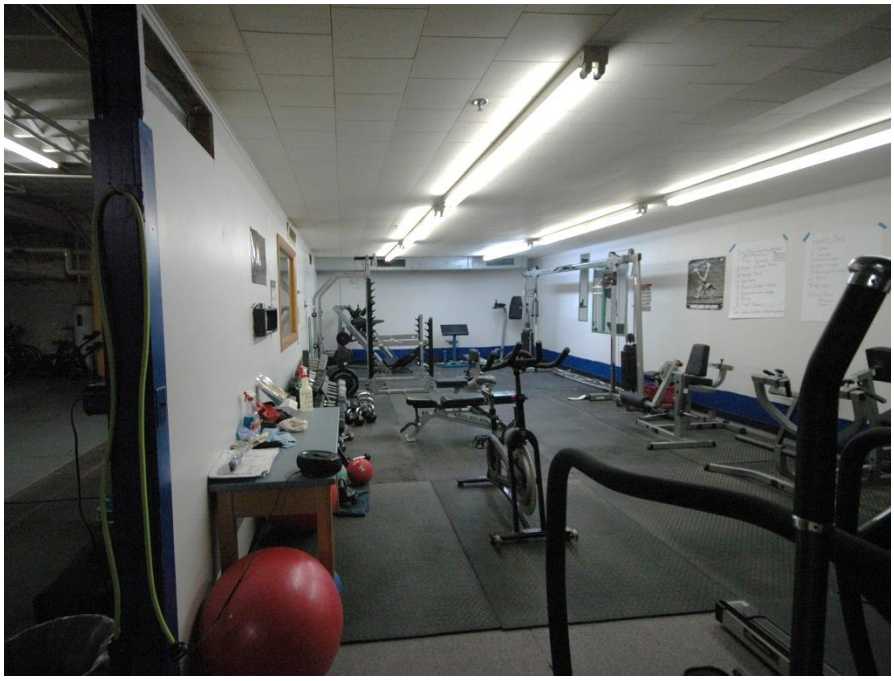
Image 1.2.11f



Lack of storage and preparation space

Women's locker room

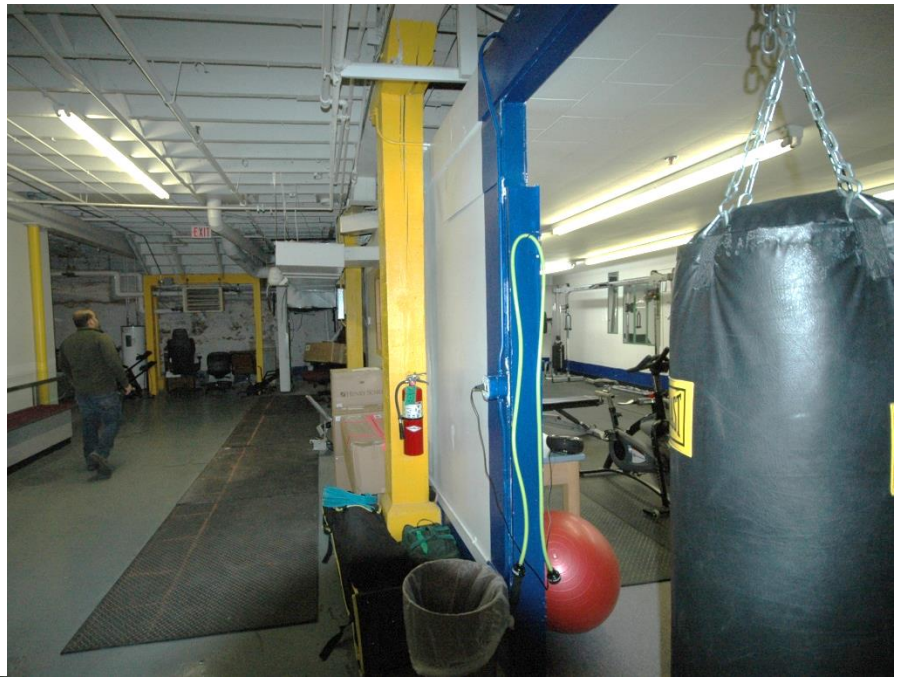
Image 1.2.12a



Lack of space unused duct work

Exercise room

Image 1.2.12b



Unused space, unneeded wall and duct work

Exercise room

Image 1.2.14a

Unsafe stair

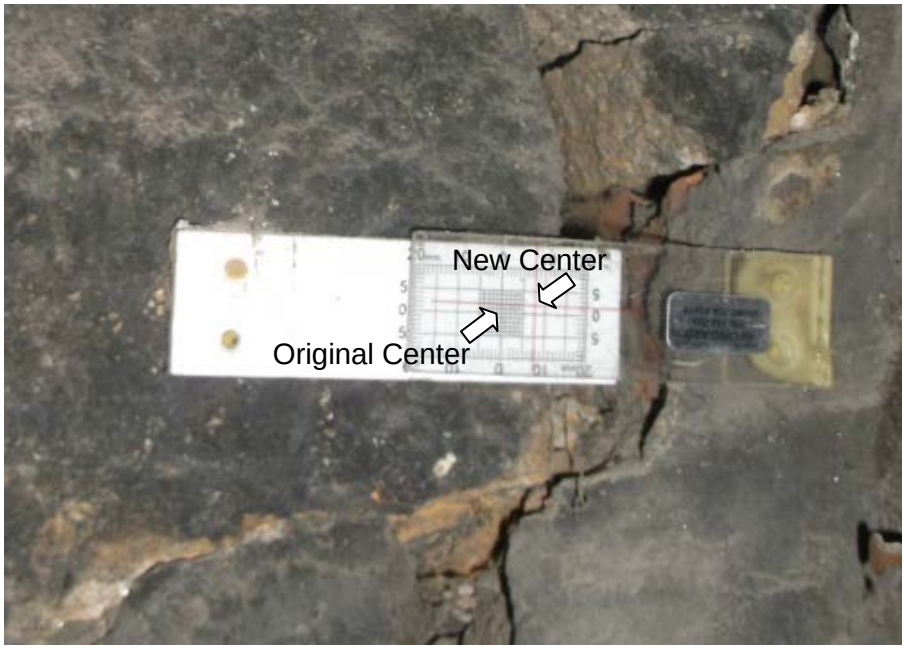
Sub-basement

Image 2.2.14b

Disabled elevator safety feature

Sub-basement

Image 2.1a



Crack Meter

Sub-basement

Image 2.1b

Stone and mortar deterioration

Sub-basement

Image 2.1c

Stone deterioration

Sub-basement

Image 2.2a

Exterior wall plaster damage

3rd Floor North wall

Image 2.2b

Exterior wall pulling away from supporting beam

Basement

Image 2.2c

Exterior wall pulling away from floor

Basement

Image 2.3a

Radial shrinkage cracks

Basement column and capitol

Image 3.1.1a

Boiler

Sub-Basement

Image 3.1.1b

Chiller

Sub-Basement

Image 3.1.1c

Cooling Tower

Exterior Northeast corner

Image 3.1.2a

Air Handling Unit

Typical of 1st, 2nd, and 3rd floors

Image 3.1.5a

Honeywell Temperature Control System

Installed in 1993

KLINGNER & ASSOCIATES, P.C.
ARCHITECTURAL GROUP

LAYOUT STUDY

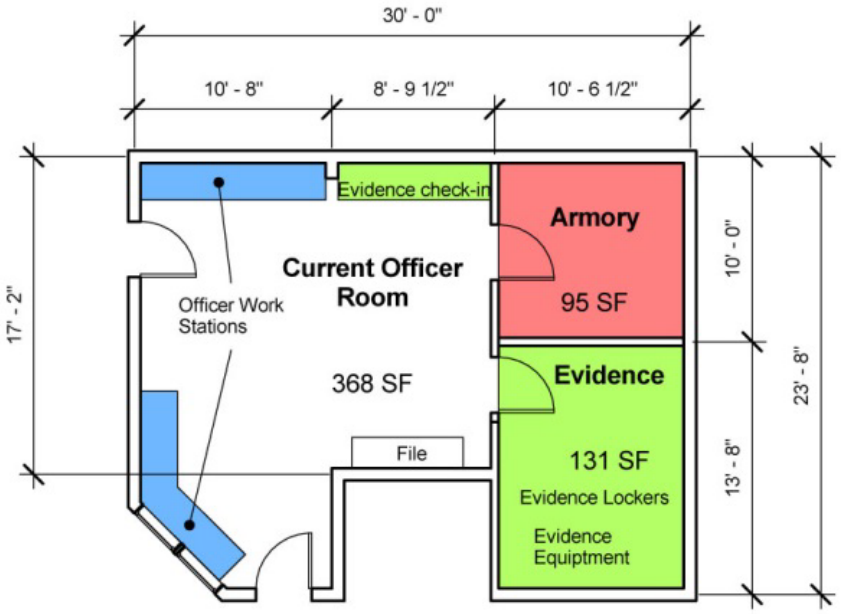
APPENDIX II

FEASIBILITY STUDY

Burlington Police Department
Burlington, Iowa

January 23, 2015

Diagram 1.2.8a

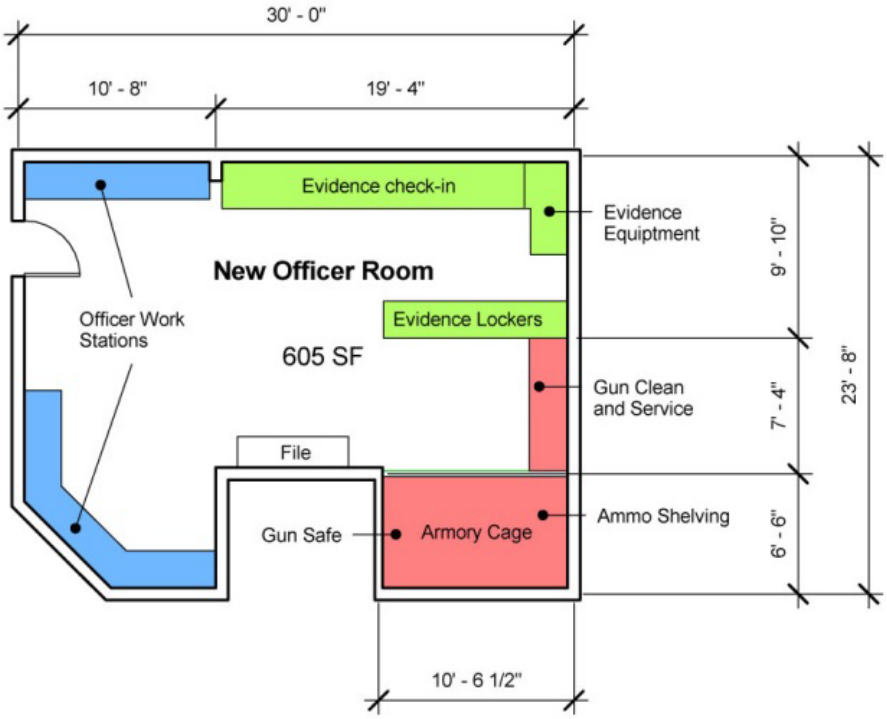


Current Officer Room Layout

594 Square Feet

Divided into three separate areas

Diagram 1.2.8b



Proposed Officer Room Layout

605 Square Feet

Flowing and open floor plan

Diagram 1.2.11a

Current Men's Locker Room Layout

724 Square Feet

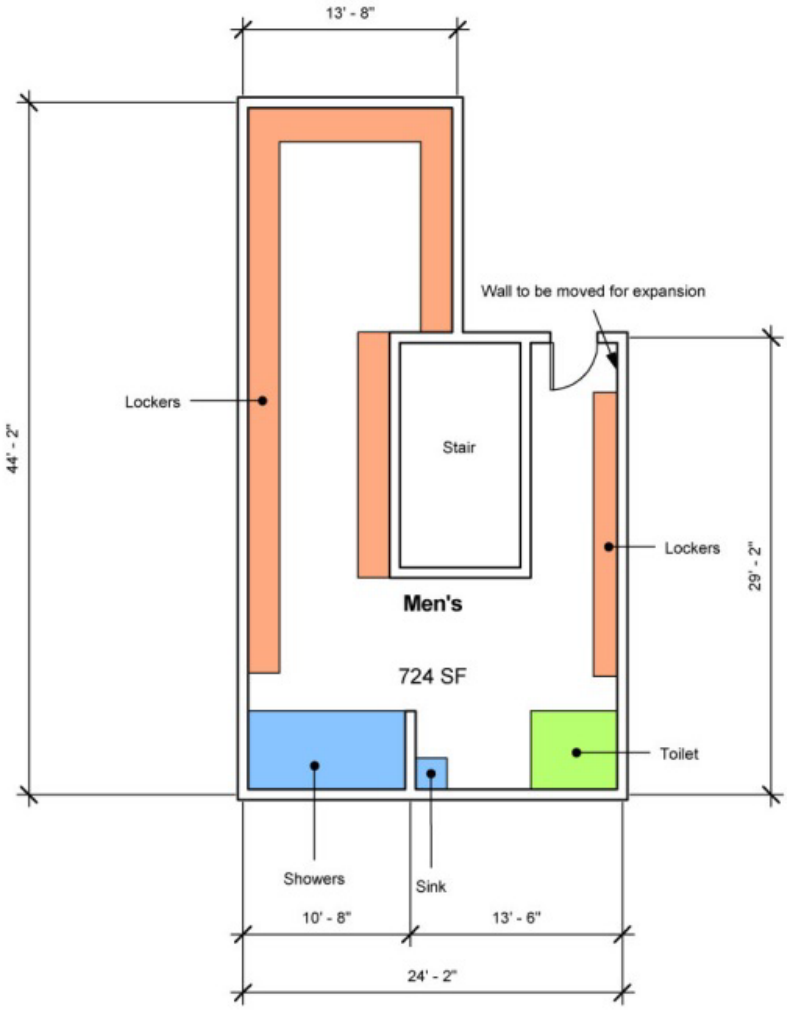


Diagram 1.2.11b

Current Women's Locker Room Layout

274 Square Feet

KLINGNER & ASSOCIATES, P.C.
ARCHITECTURAL GROUP

IMPROVEMENT TYPOLOGY

APPENDIX III

FEASIBILITY STUDY

Burlington Police Department
Burlington, Iowa

January 23, 2015

KLINGNER & ASSOCIATES, P.C. ARCHITECTURAL GROUP

Appendix III
January 23, 2015

Improvement Typology

Section #	Area	Improvement	Type of Improvement					
			Safety		Performance		Aesthetics	
1.1.2	Exterior Wall	Fix Parging on West Wall	■		■		■	
		Re-Pointing Exterior North and East Wall			■			
1.1.3	Roof	Roof Issues Inspect / Repair			■			
		Fix Parapet Cap / Thru-Wall Flashing			■			
1.1.4	Exterior Doors	New Loading Dock Door	■		■		■	
1.1.5	Exterior Windows	Fix All Exterior Windows	■		■		■	
1.1.6	Main Stair, Ramp, Signage	Replace Caulking and Fix Railing and Concrete	■		■		■	
1.2.1	Wall Finishes	3rd Floor Cleanup of Fallen Plaster / Mold Mitigation	■				■	
		Sergeants Room New Paint					■	
1.2.2	Ceiling Finishes	Replacement of Damaged Ceiling Tile					■	
1.2.3	Floor Finishes	Sergeants Room New Carpet					■	
		2nd Floor Office Area New Carpet					■	
1.2.4	Lobby	Old Drinking Fountain Area	■				■	
		Interior Window / Information Display					■	
		New Exterior Windows			■			
		New VCT Flooring					■	
		Fix Security Door and Frame	■		■			
		New Security Keypad	■					
		New Reception Window	■		■			
		Paint					■	
1.2.5	Clerk / Hall 1st Floor	New VCT Flooring					■	
		Secure Exterior Windows in Clerk Area	■		■			
		Paint					■	

Section #	Area	Improvement	Safety		Performance		Aesthetics	
1.2.6	1st Floor Unisex Bathroom	New VCT Flooring					■	
		New Fixtures x 1			■		■	
		Fix / Replace Rusting Pipes					■	
		Plaster Work					■	
		Paint					■	
1.2.7	IT Room	Window Security	■		■			
		Ventilation System			■			
		Hollow Metal Door	■		■			
1.2.8	Officers Room	New VCT Flooring					■	
		Security / Noise issues	■		■			
		Layout of Evidence check in / Armory	■		■			
		Officer Workstation Layout x 6			■			
		Countertop Replacement					■	
		Paint					■	
1.2.9	2nd Floor Conference Room	Wall Paper Removal					■	
		Plaster Work					■	
		Paint					■	
1.2.10	2nd Floor Men's	Toilet Partitions x 2 Standard	■		■		■	
		Plaster Work					■	
		Paint					■	
1.2.11	Men's Locker	Ventilation System	■		■			
		New Carpet					■	
		New Lockers x 50			■		■	
		Expansion Of Space For Lockers			■			
		Sink Area Remodel			■		■	
		Toilet Partition Large / Urinal Screen	■		■		■	
		Showers Stalls x 3	■		■		■	
		Paint					■	
1.2.11	Women's Locker	Ventilation System	■		■			
		New Carpet					■	
		New Lockers x 6			■		■	
		Sink Area Remodel			■		■	
		Toilet Partition Large	■		■		■	
		Shower Stalls x 3	■		■		■	

Section #	Area	Improvement	Safety		Performance		Aesthetics	
1.2.11	Women's Locker	Paint						
		Drywall Work						
1.2.12	Exercise Area	Partition Wall Removal						
		Old Ductwork Removal						
1.2.13	Basement	Reverse Lower Interior Door North Stairway						
1.2.14	Sub-Basement	Inspection of Elevator Safety Features						
		Stair and Handrail						
2.1	Foundation Stabilization	Re-Point / Re-stack Interior of Stone Foundation Wall						
2.2	Exterior Wall Stabilization	Stabilize East and West Wall Deflection						
2.3.	Heavy Timber Stabilization	Stabilize Radial Shrinkage Cracks						
3.1.1	HVAC	Replacement of Cooling Tower						
3.1.5	Temperature Control System	Inspect, Repair, or Replace HVAC System Components						
3.1.6	Evidence Room Exhaust	New Room Specific Ventilation						
3.2.3	Elevator Sump Pump	Backup or New System						