



STRUCTURAL CONDITION ASSESSMENT

Johnson County Sheriff's HQ and Jail

511 South Capitol Street

June 7th, 2024



300 South Clinton Street #200
Iowa City, IA 52240
www.axiom-con.com

PREPARED FOR: Brad Kunkel – Johnson County Sheriff

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EXECUTIVE SUMMARY

This Structural Property Condition Assessment (PCA) for the Johnson County Sheriff's Headquarters and Jail provides an in-depth analysis of the physical condition of the facility, particularly as it relates to the structural (and by association – architectural elements) of the building. This analysis includes but is not limited to the building components including the foundation elements, flooring, interior walls, ceilings, interior roof, exterior walls, exterior roof, and any other related elements. The assessment is based on a comprehensive walkdown of the facility by our structural engineering staff and includes findings and data therefrom. It also includes some review of historical records and discussions with staff and stakeholders to gather some additional institutional knowledge. The assessment is non-destructive and non-forensic in nature. No demolition or specialty sensing/detection was used during this phase of the investigation to gather information beyond that which can be seen through the investigative methods described. ***This report is a follow-up report to the 2023 report that was requested by the State of Iowa Jail Inspector. This report will attempt to follow up on some of last years findings while still standing on it's own. This report will be part of an ongoing annual inspection process.***

The PCA is predicated on standard methodology for inspection based on nationally recognized standards detailed later on in this report. It also includes information and inclusions unique to Axiom Consultants that we believe provide additional benefits to the client.

Our assessment reveals that the facility continues to show a number of significant deficiencies, some of which require short-term attention. These include issues with the exterior wall and façade system as well as signs of initial failure of some of the supporting structural elements. We don't deem these issues to be life threatening in need of immediate repair, but they are critical to address soon as the possibility exists for them to grow in severity and potentially at an increased rate. When considering the importance of this facility to Johnson County Public Safety, the need is enhanced.

Overall this structure has been showing signs of age for a significant period of time and three (3) different bond votes to replace the facility have failed. Because of this, repairs have been ongoing and undertaken as needed. Roofing was replaced in 2002 and leaks into the structure from both the roof and upper level plumbing have been fairly frequent. Historical information was provided in the form of some historical plans from repairs since 2010, as well as photo documentation of the original build which were scanned in for delivery to the owner. These were included in the 2023 report.

This report should not be considered to the "last-word" in terms of Axiom's provided service. Our team is available for additional questions and clarifications as they may arise from the reading and digestion of all that is contained herein. Please reach out to us with those needs as they arise.



ROBERT A. DECKER MSE, CPG, CPII, CDT
Principal – Owner

INTRODUCTION

What Is A Property Condition Assessment (PCA)?

A Property Condition Assessment (PCA) is a comprehensive evaluation of the physical condition of a property, typically conducted by qualified professionals such as engineers and architects, or construction experts. PCAs should focus on both the building(s) in question but also the surrounding associated infrastructure including the grounds, site improvements, and utilities. PCAs should be based on physical findings by the investigating team as well information from people with institutional knowledge of the buildings and grounds. Historical information should also be utilized when available to provide additional context. Original plans, rehabilitation or addition plan sets, maintenance records, and equipment information can all provide additional invaluable information.

PCAs are typically requested by property owners and stakeholders to examine a specific issue, or set of issues, or to provide an overarching snapshot of the property in question. This snapshot can help groups to determine immediate needs, set long term goals, and understand and develop a projected capital improvement budget expectations.

The assessment report typically includes a detailed description of the current conditions, including any deficiencies, damage, or deterioration identified, along with simple recommendations for addressing any issues found. The report may also include an estimate of the cost and timeline for any recommended repairs or upgrades, as well as any potential risks or hazards associated with various findings.

A PCA is an important tool for property owners to ensure the safety, functionality, and longevity of a building or structure.

Background

In Spring of 2023, Axiom Consultants completed a Structural PCA and report for the Johnson County Board of Supervisors (JCBS) and reported on those findings to the board along with Mr. Delbert Longley (Chief Jail Inspector for the State of Iowa) who had required the report. Findings are detailed in the 2023 report and include a number of items of long-term concern. Sheriff Kunkel contacted Axiom Consultants in early 2024 to request another inspection and to set up an ongoing annual inspection considering the findings that were made by Mr. Longley as well as by Axiom Consultants in 2023. A secondary process was initiated to install survey prisms on the East and West exterior of the building in an ongoing effort to monitor to exterior of the building in regards to movement. Additionally, crack gauges will be installed at four (4) locations within the building for additional monitoring based on the findings of this report. Those gauges will be installed in late June/early July 2024. Findings for the survey data are being reported in periodic memoranda and the crack gauge findings will be included in next year's report (if not sooner.)

Stakeholders

The following individuals were involved with some portion of this report either by being a part of the engineering team or through direct or indirect participation with that team and evaluation of the subsequent report on behalf of the Client.

AXIOM TEAM

Rob Decker – Audit Lead/Engineering Lead
Justine Siglin – Structural Engineering Lead
Sofie Stribos – Structural Engineering Associate

JoCo TEAM

Brad Kunkel – JoCo Sheriff
Randy Lamm – JoCo Chief Deputy Sheriff
Dave Curtis – Facilities Manager

Definitions

The definitions below may or may not be used in this report and comprise a number of the terms the might be utilized throughout.

JCS/JCBS: Johnson County Sheriff/Board Supervisors

FFE: Finished Floor Elevation

PCR: Property Condition Report

HMA: Hot Mix Asphalt

CMU: Concrete Masonry Unit ("cinder block")

FCU: Fan-Coil Unit

AXC: Axiom Consultants

PCA: Property Condition Assessment

PCC: Portland Cement Concrete

CIP: Cast-in-Place (concrete)

OSB: Oriented Strand Board

RTU: Rooftop Unit

Methodology

PROCESS

Our general process is straight-forward and deliberate: INVESTIGATE – GATHER – ANALYZE – REPORT. The results of this PCA are based on our specific field observations while on site, investigation of existing plans for the facility, and discussions with staff. We provide the four (4) required components within our report as required by ASTM E-2018: documentation review and interviews, walkthrough survey, opinion of costs to remedy, and an overall PCR.

GUIDELINES WE ADHERE TO

1. **ASTM E-2018-15: "Standard Guide for Property Condition Assessments: Baseline Property Condition Assessment Process."**
2. **Standard and Poor's: "Property Condition Assessment Criteria."**

FACILITY WALKTHROUGH

On May 20th, 2024 in the early afternoon, the AXC team including **Rob Decker, Justine Siglin, and Sofie Stribos** completed the on-site survey and walkdown of the building and grounds. Sheriff Kunkel accompanied us, provided additional insight as well as coordinating inmate movement out of cell blocks during investigation periods. Unlike 2023, the AXC team had full and open access to all areas because of the coordinated inmate movement - and were able to get into and out of most areas as necessary. Drone imagery was captured of the roof, grounds, and exterior and is provided as part of the overall package of data accompanying this PCR. Weather during the inspection was as follows:

Temperature: 86°F max

Precipitation: 0.50" (cloudy; humid; rainy)

Precipitation Total Prior Week: 1.10" (including day of inspection); River level high

LIMITATIONS OF ON-SITE INSPECTION

1. Not technically exhaustive: the information gathered from this report is not done so in technically exhaustive fashion. There is a point at which the cost and effort of information obtained outweighs that of the usefulness of the information and the timeliness of its conveyance. Every effort was made to obtain the most amount of information in the most efficient use of time and effort.
2. Not physically destructive: the information obtained for this report was done through non-destructive and non-invasive means. Information was gathered via physical appearance, outward information, available records and institutional knowledge, and other readily available means.

3. Safe and readily accessible: information was obtained via methods that were deemed to be safe and which did not present a risk to the AXC teams or add liability for the client. All attempts were made to get into as many areas as possible and provide the best information with the access that was available at the time.

Interviews and Research

STAFF INTERVIEWS

AXC staff discussed the building with Mr. Kunkel as they inspected it. Questions were informal and initiated as the particular situation called for it. Interview forms were not used for this effort. The following information was gathered during that time (notes may include abbreviations, shorthand or other unclear information as they are often written quickly and without the background that facilities personnel have. We do our best to make these as clear as possible.)

1. Roofing condition continues to be an issue.
 - a. Numerous and continual leaks.
 - b. Permanent bucket placed in the West upper hallway below particularly problematic roof ponding area.
2. Upper hallway door (West hallway, North end) was repaired recently by McComas-Lacina.
 - a. New CMU block was cut into the door jamb on either side.
 - b. Steel pins were drilled through the block from the jamb into the existing adjacent masonry.
 - c. All jamb cavity areas were slugged solid with grout.
 - d. This seems to have stabilized the door against movement during use.

EXISTING PLANS

1. Existing plans for the building were provided and scanned in electronically in 2023. These are on file for the project and are referenced as needed.
 - a. Original plan set by Wehner, Nowysz, and Pattschull Architects (April 1979.)
 - b. First Floor Jail Remodel – 2010 (Neumann Monson Architects)
 - c. Johnson County Jail Security Improvements – 2014

PROPERTY DESCRIPTION

Overview

SITE

ADDRESS: 511 South Capitol Street, Iowa City, IA

SEC-TWN-RNG: Section 15; T79N; R6W

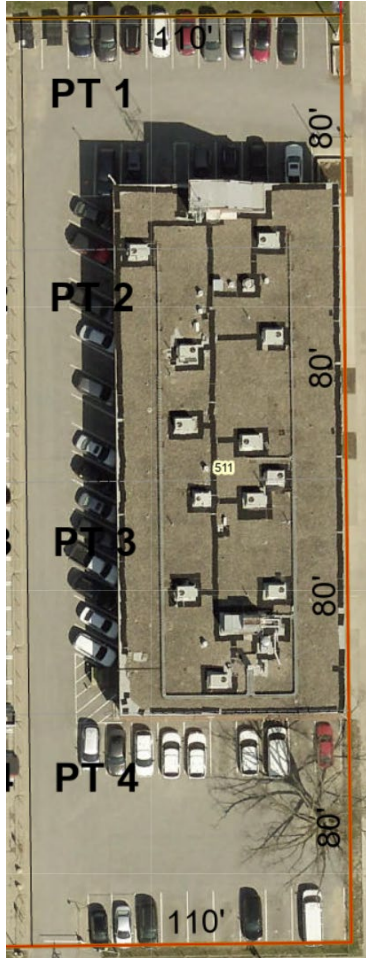
CURRENT ASSESSMENT: \$1,056,000 land + \$1,835,210 building = \$2,891,210 total

PARCEL: 1015229001

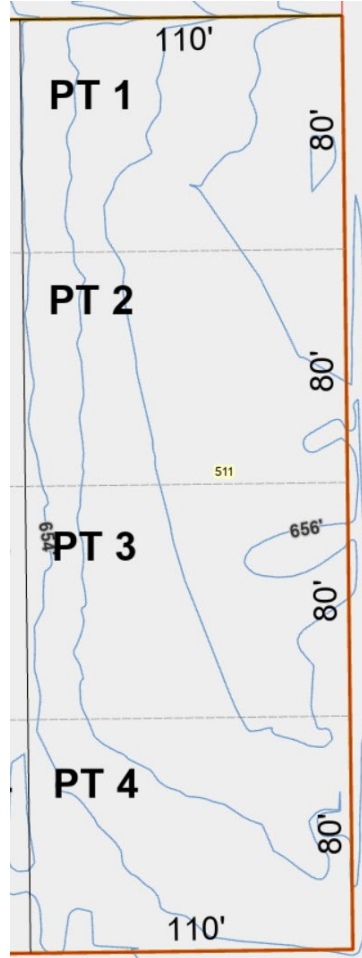
LOT: 0.81 acres (35,200 ft²)

ZONING: C-comm

100/500 YEAR FLOODPLAIN: No



Site information from Johnson County Property Viewer



IFIS Floodplain information – inundation levels shown for 500-year flooding (Yellow – 1ft; Dark Blue – 8+')

BUILDING

GRADE PLANE ELEVATION: ~656.00

ASCE RISK CATEGORY: IV

SQUARE FOOTAGE: 28,500 ft² (estimated – no plans exist; approximately 14,250 ft² per floor)

BUILDING CODE: n/a

TOP of BUILDING ELEVATION: ~680 (est.)

ASCE 7-22 WIND HAZARD: 120Vmph

BUILT IN: 1979-80 (43-44 years old)

HEIGHT: ~24 ft.

SNOW LOAD: 72lb/ft²

TYPE: I/IIb

GENERAL DESCRIPTION: two-story commercial office building with a second story jail. Lower level that contains offices, locker rooms, conference room, dispatch center, administrative, storage, restroom facilities, janitorial, IT room, mechanical rooms, records space, and other utility rooms. Upper level includes jail cells in nine (9) cell blocks, commercial kitchen, meeting room, small workout room, library, meeting/video conference room, and some utility/storage rooms.



Drone image of overall building – June 2024

History

**Also included in the 2023 Report*

The Johnson County Sheriff's Office and Jail was constructed in 1979-80 and has been in continuous operation ever since. The facility sits on county-owned land within the legal limits of the City of Iowa City. It is surrounded on the N/W/S sides primarily by land owned by the University of Iowa. It sits along Capitol Street owned by the City of Iowa City and the County owns 3 of the 4 residences across the street – the remaining house is a private residence. Original plans exist and were provided by the City of Iowa City. Examination of available documents on the City of Iowa City permitting portal revealed some additional documents for alterations and permits within the last decade for equipment upgrades, plumbing improvements, and other typical maintenance items. Some photographic information was provided by the JCSO and was scanned into electronic format by AXC. We have included that in the appendix for reference.



1979 photo of footing construction



CIP PCC foundation and footing



Masonry (CMU) foundation construction



Hollowcore precast second level floor construction



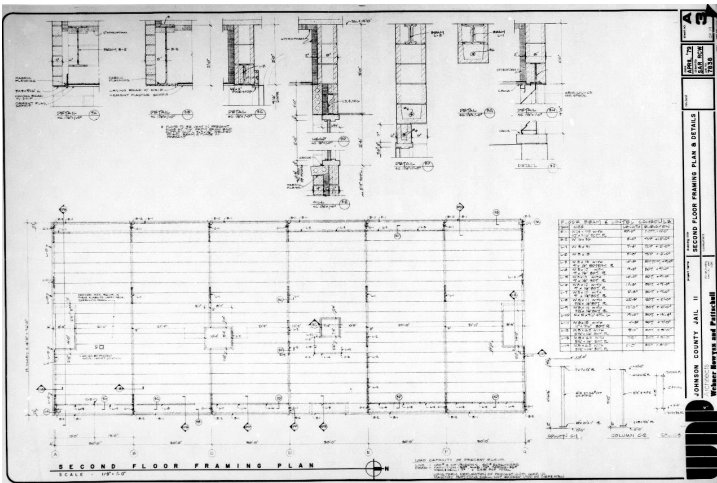
Masonry (CMU) construction of interior walls



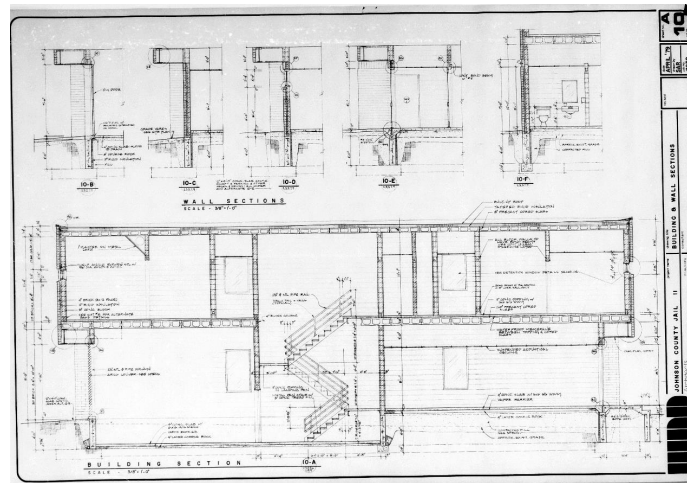
1980 construction of the cantilvered second level edge



Photo from ~1980 just after the jail had opened



Plan page A3 from original plan set showing 2nd floor framing (more information on this later)



Plan page A10 from original plan set showing building and wall sections (more information on this later)

SITE WALKDOWN

Narrative

The following section includes a comprehensive logging of the physical walkthroughs that were performed of each space and well as drone photography for overall site views and inaccessible area evaluation (primarily roof areas that couldn't be accessed.) This walkdown includes the majority of items that were examined and evaluated, particularly those of concern. Some items deemed to be minor, or merely cosmetic in nature, are not generally included. Following this section is a categorization of all items in a simpler summary list for reference. Cross-references will be included in both sections for the user to easily access the items back-and-forth. Our team categorizes items using the following nomenclature:

Categorization

CRITICAL

Items that should be corrected as soon as possible. These items represent a critical need and/or possible safety risk. They may require quick repairs or further evaluation to ensure the item is successfully accounted for.

IMPORTANT

Items that should be corrected as soon as is practical for the organization taking into consideration items such as budget, phasing, occupancy, and schedule. Left unchecked, these items may become critical in nature or exacerbate in terms of extent. These items are best suited for a capital improvement plan/budget.

MONITOR

The items should be placed into a longer-term "to-do" list. These items aren't critical but could become problematic or more extensive in the future. Items should be monitored by maintenance staff for worsening condition. These items may be suited for a capital improvement plan/budget.

NO ISSUES

At the time of inspection these areas/items showed no apparent issues of concern. These areas were looked at during the inspection – potentially in only a cursory manner – but are recorded in the report for the sake of due diligence.


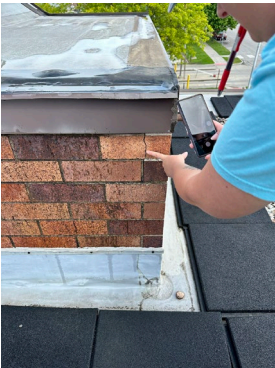
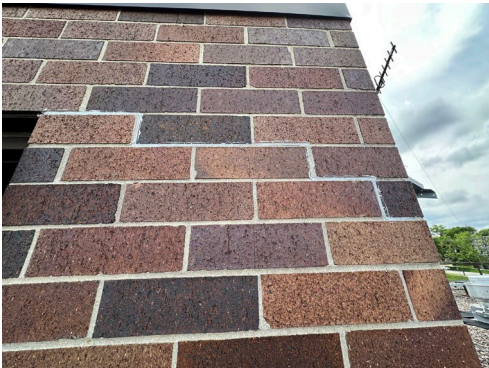
Walkthrough



Items are further categorized into disciplines of practice (for the engineering/architectural discipline that would design/prescribe the repairs for these areas. This report focuses primarily on structural areas per the County's request:




STR (S): includes items related to the structural system or which are structural in nature.

ARCH (A): includes finish items, doors, siding, and other appurtenances




The categorization of a discipline is only done to help sort through and track issues. It is not meant to denote any particular requirements and many issues have many disciplines involved with them as the root cause.



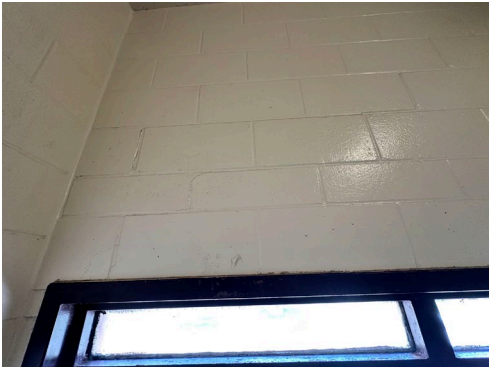
ROOF AREA		
#	PHOTO	DESCRIPTION (RATING)
1		<p>A: General overview of the roof condition during this visit. The roof is in poor condition overall and should be scheduled to be replaced. It is older than 20 years according to stakeholders which is well outside of any warranty period. The roof shows serious signs of degradation and has active known leaks.</p> <p>While not the purview of this report – Axiom generally inspects mechanical and electrical equipment during a full PCA effort. The mechanical equipment noted during this structural inspection was in very poor condition and should also be replaced when the re-roofing is done as it will need to be removed regardless.</p>
2		<p>S: This condition was noted last year at the North end of the building. The clay brick exterior fascia on the North stairwell's East end has settled and fractured. This is assuredly tied to the movement noted in the North stairwell on last years report. Interior elements within the stair show a slightly shifted hollowcore precast panel and some cracking in the CMU consistent with movement down and to the East.</p> <p>This condition should be monitored along with the interior conditions.</p> <p>A crack gauge will be placed at this location.</p>
3		<p>S: Another view of settled and cracked brick detailed in Item 2 above showing additional cracking of the stairwell brick fascia.</p>

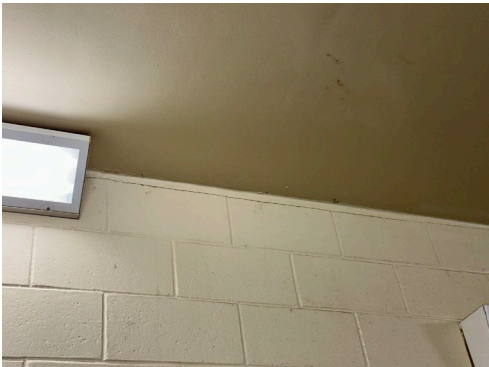


4		<p>A: Membrane roofing areas which are visible between walkway pads/ballast show heavy signs of degradation. The membrane is not only old and worn, it is actually showing the fibrous integral material and is raveled/fraying. This is indicative of heavy wear and age and is likely worse across the roof than is visible. The roof is a ballasted system meaning that most areas are not visible. This is concerning and should be corrected immediately for safety, occupant conditions, and preservation of the interior building elements.</p> <p>A new membrane roof would require removal of the existing MEPT elements on the roof. New roofing would not require ballasted installation and we recommend its removal.</p>
5		<p>A: Membrane roofing areas which are visible between around roof edges show heavy signs of degradation. The membrane is not only old and worn, it is actually showing the fibrous integral material and is raveled/fraying. This is indicative of heavy wear and age and is likely worse across the roof than is visible. The roof is a ballasted system meaning that most areas are not visible. This is concerning and should be corrected immediately for safety, occupant conditions, and preservation of the interior building elements.</p> <p>A new membrane roof would require removal of the existing MEPT elements on the roof. New roofing would not require ballasted installation and we recommend its removal.</p>
6		<p>A: A low area located around the North 1/3 of the roof on the Western half shows an obvious low area. Ballast here was still wet after the rest of the roof had dried out. Sheriff Kunkel noted that a permanent bucket is installed in the hallway directly below this point in the upstairs West hall. This area consistently holds water and frequently leaks. Tapered insulation in this area is likely in very poor condition and may not have been installed properly. Area should be installed with a positive drainage pattern/cricket when the new roofing is installed.</p>


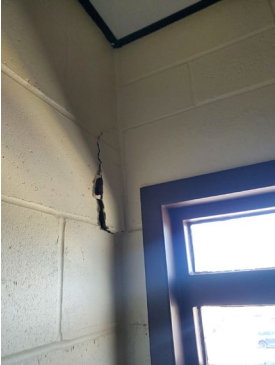

7		A: Drone image of roofing looking South down the East roofline.
8		A: Drone image of the Southern portions of the roof.
9		A: Drone image of the Northern portions of the roof.

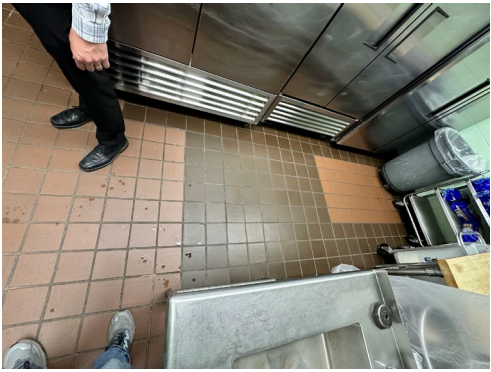
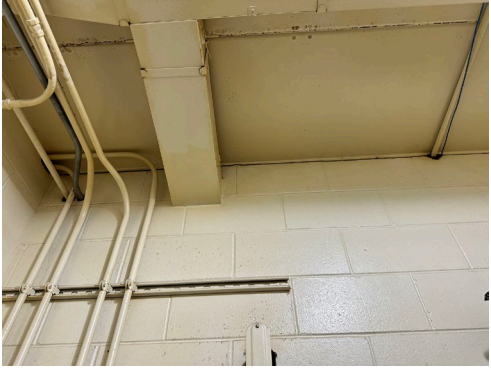

Additional photos for the walkthrough are available. A sampling of items is provided from the walkthrough detailing both typical conditions reviewed as well as call outs for all items of note.

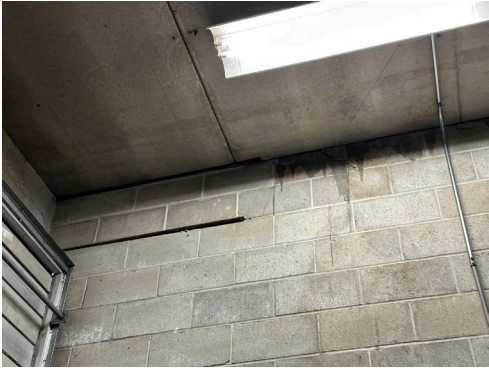

INTERIOR AREAS		
#	PHOTO	DESCRIPTION (RATING)
1		<p>S: Angled precast ceiling in the North stairwell. (This item was examined and identified in last years report as well.) Precast roofing shows prior signs of water infiltration and movement. Movement is not extreme and could have occurred during construction. The water infiltration lines can clearly be seen in the picture running away and down. This movement is indicative of some of the general building issues Axiom has noted occurring towards the outsides of the building. This should be monitored for worsening.</p> <p>A crack gauge will be placed here.</p>
2		<p>S: In conjunction with the issues noted in Item 1 above are corresponding cracks in the CMU wall directly in line with the panel gaps. The fact that the cracks line up almost directly with the gap in the precast panel is unlikely to be circumstantial. The cracking in the CMU blocks is occurring both on joint lines and through members. This should be monitored annually for worsening.</p> <p>Cracks in the brick stairwell fascia are located directly above this area. These were detailed in the previous section above.</p>
3		<p>S: This crack was noted in the NE corner of the North stairwell, near the upper floor on the landing to the roof. This crack has been previously patched but has since separated. Cracking is active and gappy – starting to show a little bit of material loss. This is located in the Northern portion of the building which shows the most significant signs of fatigue (compared to the South.) This area should be monitored and may be a candidate for repair depending on wear over time.</p> <p>A crack gauge will be placed here.</p>

4		<p>S: Additional cracking noted in the North stairwell, NE corner near the roof. Cracking is directly below the roofing issues described above and is related to Item 3 on the previous page. This cracking should be noted as it is breaking through the CMU blocks not just on the joints. This is indicative of greater strain/movement than simple settlement might show.</p> <p>This area should be monitored and may be a candidate for repair depending on wear over time.</p>
5		<p>S: Corner cracking in Block A – typical of nearly every corner interface within all cell blocks on the East side of the building. Very few corners did <u>not</u> show this condition. This example is worse than most and shows active cracking and movement.</p> <p>This should be monitored for worsening condition when time and access allows and we will continue to examine these conditions on the annual inspections.</p> <p>These cracks are mapped later on in this report for locational tracking.</p> <p>Most of the corner cracking does not split through CMU units.</p>
6		<p>S: Additional typical cracking in cells shows stair-step cracking noted elsewhere in the building. This type of cracking is present in many of the cells on the East side and some cells on the West. This cracking is not generally as significant/gappy as the corner cracking noted in the previous item.</p> <p>Monitor these for worsening, further separation, and/or material loss.</p>


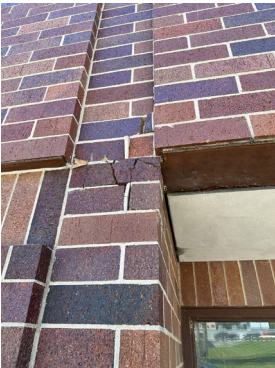

7		<p>S: Ceiling/outer wall interface cracking noted in many of the cells on both sides of the upper floor. These cracks were noted on both the outer walls and the inner walls of day-rooms. As noted elsewhere in this report, the ceiling hollowcore precast panels have shown some signs of movement and/or pull towards the outsides of the building. These cracks would be consistent with such a condition. While not incredibly large or particularly active in appearance they should be monitored for worsening or changing conditions.</p> <p>These cracks will be examined on an annual basis.</p>
8		<p>S: A number of cells on the East side of the building, and some on the West, show cracking near the middles of the cells, often directly centered on the bunk beds or above/below steel window frames. These cracks – like the one in the picture at left – show cracking that splits the structural CMU and are somewhat active/clean. These are more concerning than the more hairline and/or stair-stepped cracks and should be monitored closely and during the annual inspection.</p> <p>These may be a candidate for repair in the future pending changing conditions to the building.</p>
9		<p>S: A few of the corner cracks described in Item 5 above display additional cracking that includes the beginnings of some spalling of the CMU resulting in plate-type fractures. When considering outward movement of the West or East walls that are tied into the demising walls in the jail cells – this type of fracture is what would be expected should such movement continue. Because the walls are tied together, they will spall/split when moving apart. Most cells do not show this condition but it is occurring in 1-2 places along the E side (mostly on N half) as well as in Block E in the NW part of the building.</p> <p>These areas should be closely monitored and evaluated during the annual inspections.</p>




10		<p>S: A few cells on both sides of the building, show corner cracking that is splitting away and bisecting blocks. This is similar to Items 4, 8, and 9 above. These areas are more concerning than the simple corner-only cracks and should be closely examined and reevaluated during the annual inspections. Some of the crack gauge placements will be on cracks of this type.</p> <p>These may be a candidate for repair in the future pending changing conditions to the building.</p>
11		<p>S: Cell block E shows the worst overall cracking of any interior section of the building. This upper corner shows a significant spall similar to that in Item 9. This area was noted last year as an area of concern although the exterior portions of the building associated with this area aren't in as bad a condition as those on the NE and E portions of the exterior. These particular cracks were noted in Room 218 which serves as a small office.</p> <p>A crack gauge will be placed in this location.</p>
12		<p>S: Door jamb in the West hallway, North end where McComas-Lacina recently completed a CMU repair. Repair area can be noted by the new paint. Steel pins were drilled and epoxied horizontally from the door frame outward, and the CMU cells were grouted solid.</p> <p>Additional doors are slated for similar repairs.</p>




1 3		<p>S/A: Flooring in the kitchen area was previously repaired according to Sheriff Kunkel. This area has been noted as buckling at least two (2) previous times during the Winter months – reason unknown. According to Sheriff Kunkel, the area did not experience any movement or shifting during this past Winter season.</p> <p>This area will continue to be evaluated.</p> <p>The previous Winter was noted as the warmest on record.</p>
1 4		<p>S: Storage areas on the upper floor which are located more towards the core of the building (inside of the two hallways) also show signs of movement/separation. In the inner areas, this more often at the ceiling/wall interface which would be consistent with the outer walls pulling on the hollowcore slabs away from the building.</p> <p>Continue to monitor these areas. They will be examined during the annual inspections.</p>
1 5		<p>Internal rooms do show some wall cracking but at much less common frequency. This area does show a vertical crack that splits through the individual CMU. This area was located in the core of the building towards the South end – in the 232-234 area.</p> <p>This area should be monitored moving forward and will be examined during annual inspections.</p> <p>This particular location showed a hairline fracture only.</p>




1 6		<p>S: This area was noted during the inspection last year and sits directly within some very bad exterior areas. This is located at the SE corner of the building. The angle which is embedded two (2) courses down from the roof has both pulled (1-2") and shifted (inward.) While not necessarily different in condition from last year, this area should be monitored on a periodic basis for worsening conditions/cracking.</p> <p>Poor conditions on the exterior are likely tied to this issue in the mechanical/equipment space in the sub-basement.</p>
1 7		<p>S: This area is located in the sally port and includes a hairline crack on the interior (W) all. This crack is not as concerning as many of the others but is likely tied to issues along the E side of the building. This wall is the first interior wall inside of some of the worst exterior conditions on the structure detailed in the next section.</p> <p>Monitor this crack.</p> <p>This will be examined during the next annual inspection.</p>

Additional photos for the walkthrough are available. A sampling of items is provided from the walkthrough detailing both typical conditions reviewed as well as call outs for all items of note.

SHELL/EXTERIOR AREAS		
#	PHOTO	DESCRIPTION (RATING)
1		<p>S: Siting down the East face (looking North) to do a cursory check for wall plumb and observable shifting. None noted.</p> <p>It should be noted that siting is simply a quick and simple way to examine obvious defects in a building façade. This in no ways should minimize the other issues showing outward “pull” on the building.</p>
2		<p>S: Exterior entryway inset/jamb near the main entrance to the building. This particular location is nearest to gridline D.3 for reference with original plans. The clay brick fascia in this area is crushed and fracturing and the end of the opening lintel. This is likely close to the demising wall between cells 262A and 262B within Block C where cracking was noted.</p> <p>Cracking this significant is indicative of movement outside of normal settlement of a building.</p>
3		<p>S: Interior view of Item 2 above showing shifting gaps, crushing brick, and rusted steel (poor drainage condition.)</p>

4		<p>S: North side of main entry point showing similar shifting and crushing issues to item #2 and 3 above within the same opening. Additional brick cracking can be seen to the right of the lintel.</p>
5		<p>S: SE corner of the building outside of the sally port door. This area is detailed in closeup on Item #6 below.</p>
6		<p>S: SE corner of the building – exterior lintel shows very poor drainage condition, water damage, buckling/warping of the lintel and gapping measured at near 2". Shifting and movement here have not translated into cracking/breaks in the brick above but the shifted angle on the inside of the building combined with conditions in the East side cells help form an overall picture of issues with the building exterior pulling/settling to the outsides.</p>

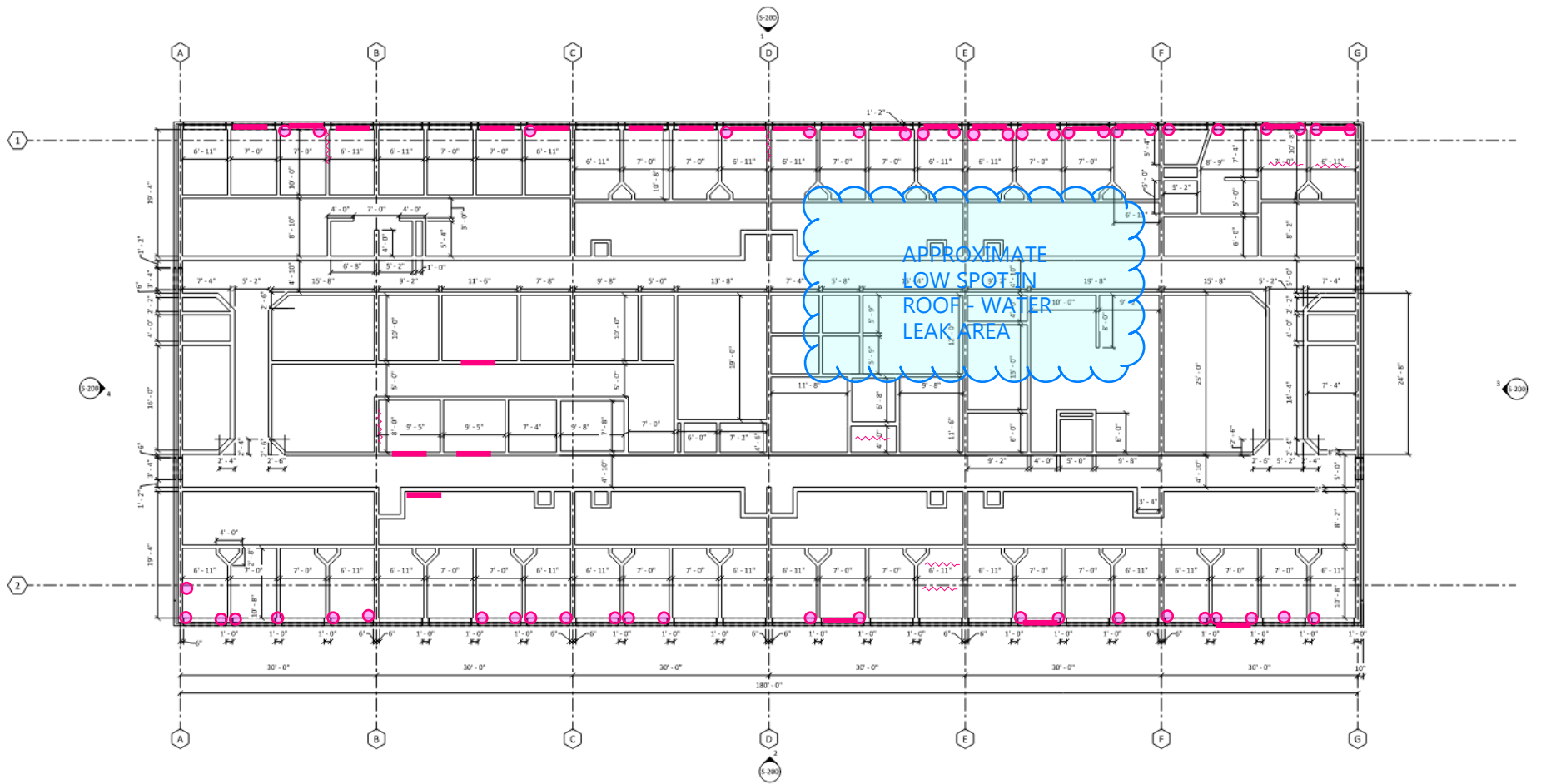
7		
8		<p>S: In addition to the issues described above, the settled and shifted lintel is causing vertical cracking within the brick walls which is traveling regardless of jointing. This is likely translating into the wall cracks within the cells which are directly above this.</p> <p>This area is likely below the 260A-D cells.</p>
9		<p>S: Whole view of the sally-port door for reference/record-keeping.</p>

10			<p>S: Additional examples of lintel damage (shown for the next 3 items including this one.) All lintels show a significant water problem – indicating water buildup and corrosion due to lack of drainage and poor design. The lintels are heavily rusted and are pulling and twisting away from their installed positions.</p> <p>Gaps measured at these locations ranged from 1-2" which is significant and is allowing further moisture intrusion and potential freeze/thaw condition. Over time these areas will worsen including the lintels, soffit material, and surrounding brick.</p> <p><i>These areas will require repair to stabilize the building – along with the roof.</i></p>
11			<p>S: Secondary example of Item 10 above – this is on the West side of the building as is Item 10.</p>
12			<p>S: Tertiary example of Item 10 above – this is on the South side of the building.</p>

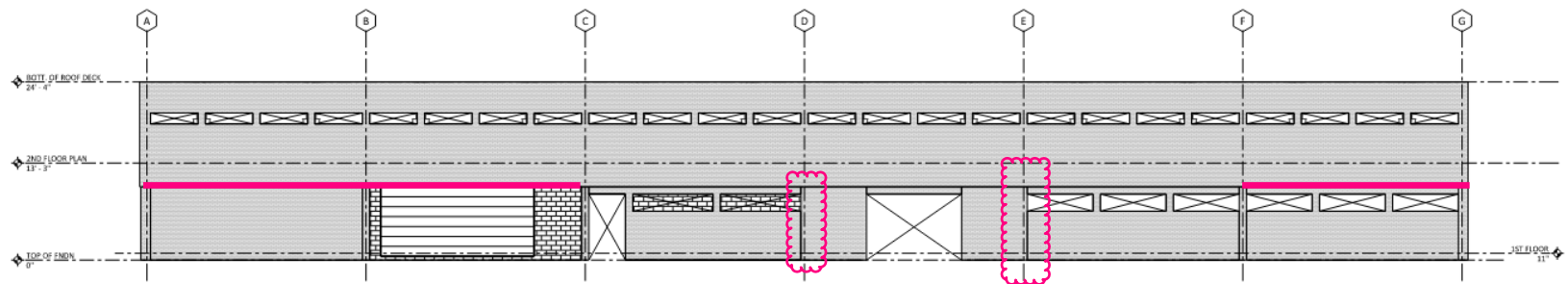
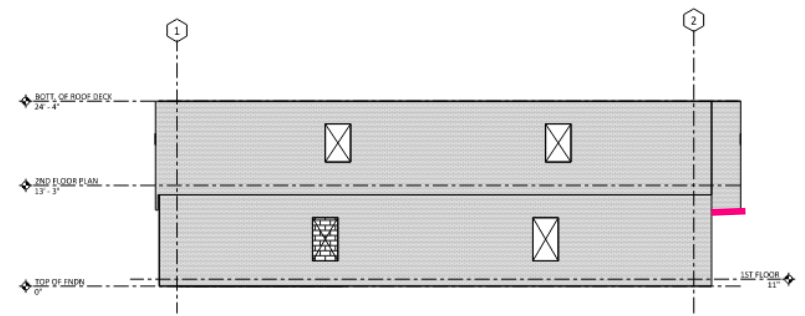
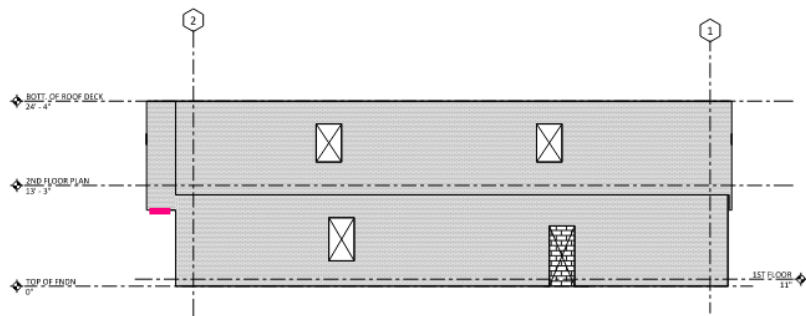
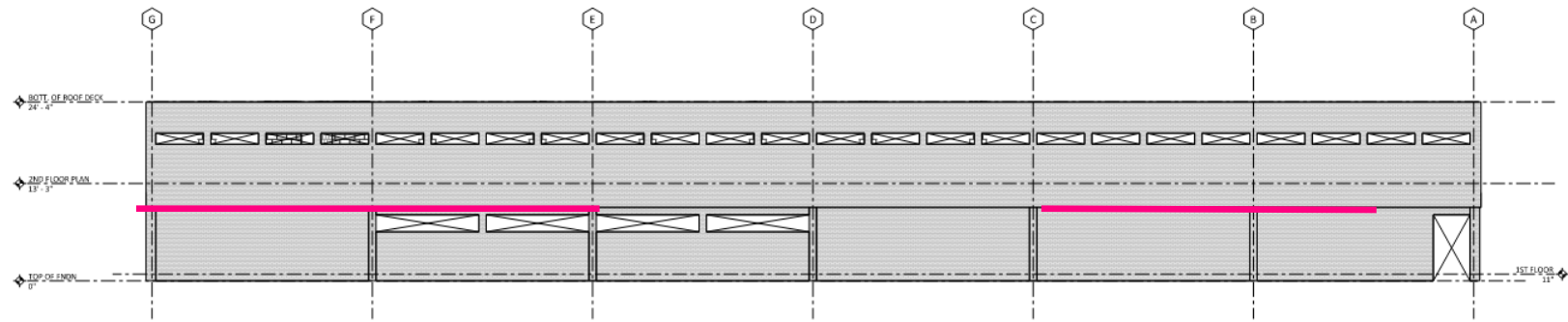
Additional photos for the walkthrough are available. A sampling of items is provided from the walkthrough detailing both typical conditions reviewed as well as call outs for all items of note.

Crack/Damage Logging

Because the 2024 inspection (and ongoing efforts) includes monitoring of conditions and cracking – Axiom consultants developed a “clean” version of the original floorplan in Revit to utilize for these efforts. The plan below includes the second floor of the facility (no structural conditions of note were observed on the first floor interior.) A key is included for reference detailing the general locations of items that were noted by the Axiom team.



	Vertical Crack
	Horizontal Crack
	Panel Pull



	Vertical Crack
	Horizontal Crack
	Broken/Fractured Bricks

CAPITAL EXPENDITURE EXPECTATIONS

NARRATIVE

The following section includes a secondary breakdown of the **CRITICAL**, **IMPORTANT**, and **MONITOR** items only. This section is intended to provide a potential remedy description and potential associated costs list for the owner in order to develop a comprehensive capital expenditure outlay moving forward. ***These estimations were mostly included in the 2023 report and included enough range that we believe them to still be applicable for the 2024 report. These will be updated moving forward. Applicable item numbers have been adjusted.***

COST OPINIONS

CRITICAL DEFICIENCIES

The following table of costs represents deficiencies that AXC believes should be repaired immediately. Items associated with deficiencies are labeled in **ORANGE**. These items include a brief description of a potential remedy along with a conceptual cost. Actual costs should be provided by licensed contractors after repairs are actually detailed and designed. Pricing for this section, as well as the subsequent section is obtained by the following:

- Historical cost data from similar efforts AXC has worked on
- National pricing guide services such as RS Means
- Publicly available bid-tabulation data

#	SECTION	SUGGESTED REMEDY	UNIT	TOTAL RANGE
1, 4-6	ROOF	Roof Replacement Will require extensive coordination with HVAC	\$30-50/SF	\$427,500 - \$712,500
2-12	EXT	Repair Exterior Building Shell/Facade Exterior brick needs to be removed and replaced. Underlying steel support structure needs to be repaired and rebuilt. New façade assembly needs to be designed and constructed including potential in-fill of cantilever.	\$250 -500/SF (~7,300)	\$1.825 – 3.65M
TOTALS			\$2,252,500 - \$4,362,500	

REPLACEMENT RESERVE ANALYSIS

The following table of costs represents deficiencies that AXC recommends should be planned for under a capital expense program for the client. These deficiencies may either be present now (and not critical) and marked in **YELLOW** or they may be minor or not-present now but expected in the future and marked in **GREEN**.

Repairs are categorized with an **Expected Useful Life (E.U.L.)** timeframe based on our professional opinion from information gathered during the creation of this report. Associated cost opinions are then included under the yearly timeframe area of the table and carried to the bottom of the table for time-based totals. We have broken these into four (4) primary categories:

Costs are broken down with associated timeframes. These timeframes can be best understood as a time when AXC estimates that an item may wear out, fail, or become overly problematic. These are only guesses based on our observations in the field and expertise working with these types of items. These timeframes are provided so that the client can develop a more comprehensive outlay of potential expenditures.

Costs are indicated with our estimate of a current replacement as well as a cost (or costs) with calculated interest to show what costs for that item may be if extended into the future versus immediate repair. If an item requires periodic repairs or additional replacements can be expected, multiple instances of cost may be entered. If additional clarification is required AXC can provide more input into our reasoning. Determining replacement costs at this stage of a potential project is extremely difficult. Because of this these numbers should just be used as a potential baseline. Many of these costs represent FULL removal and replacement. For more applicable cost estimation, a General Contractor should be engaged.

ITEMS	LOC	ITEM	EUL (yr)	COSTS NOW	EXTENDED COSTS (year timeframe) – 3% Inflation Assumed					
					1-5	6-10	11-15	16-20	>20	TOTALS
2, 3	ROOF	Brick Repairs	10	\$10,000		\$13,439				\$13,439
1-11, 14-17	INT	CMU/Structural Patching	5	\$200,000	\$231,854					\$231,854
12	INT	Additional Door Repairs	5	\$15,000	\$17,389					\$17,389
13	INT	Kitchen Tile Replacement	5	\$50,000	\$57,963					\$57,963
n/a	2023	Stoop Replacement	20	\$2,000				\$3,612		\$3,612
n/a	2023	Exterior Door Replacement	5	\$40,000	\$46,370				\$72,244	\$118,614
n/a	2023	Lally Column Repair	5	\$5,000	\$5,796					\$5,796
n/a	2023	Replace ALL Doors in Facility	5	\$1M	\$1.159					\$1,159,000
R.R.A. TOTALS				\$1.322M	\$1.518M	\$13,439		\$3,612	\$72,244	\$1.607M

Hollow-core repairs weren't evaluated because there isn't really a feasible way to repair these without disassembling the entire building and/or building a new building. The best solution would be to stabilize them from getting worse by correcting the façade and shell issues.

NEW BUILDING COSTS

We estimate new building costs to be in the range of \$350-500/SF for this type of facility. Considering demolition and site work we would estimate construction of a similar size facility to be \$10.5 - 15M.

SUMMARY

Narrative

The following section breaks down our general opinion of the following large-scale areas into simplistic terms for a top-level view by the ownership group. These ratings are meant to provide a very general wrap-up of the details included into the report to establish a general baseline condition for the associate portions of the property. Because these items are used to wrap up large sections of infrastructure, it must be understood that the ratings may refer to the lowest common denominator of an item (e.g. a brand new roof with a hole in it will still be rated POOR, but that doesn't necessarily mean that the entire roof needs replacement.) The nomenclature used is as follows:

- CRITICAL:** overall condition is of low quality, with poorly to very poorly maintained conditions due to lack of care, damage to the area, or possible neglect. Areas with this ranking are in need of immediate repair. Immediate attention is required to portions of this area.
- POOR:** overall condition is of below average quality, with moderately neglected conditions that may require an upgrade in maintenance. Areas with this ranking should be repaired relatively soon or undergo a substantial maintenance upgrade. Some significant immediate attention may be required or plans made to improve some items in a relatively timely fashion.
- FAIR:** overall condition is of average quality, with the area condition being what could be reasonably assumed considering the overall age and conditions of the item. Areas with this ranking need to be maintained as they have been and repairs should be expected within standard time frames. Some immediate attention may be required.
- GOOD:** overall condition is of above average quality, with well maintained conditions considering the age in question. Areas with this ranking need some attention to repair but probably less than might be expected for the age. Minor immediate attention required.
- EXCELLENT:** overall condition is of very high quality, either new or fairly new conditions or incredible condition considering the age in question. Areas with this ranking need very little or no attention to repair. No immediate attention required.

ITEM	RATING
Foundation	Good*
Roof	Critical
Shell/Fascia	Critical
Interior Structure – 2 nd Floor	Poor
Interior Structure – 1 st Floor	Fair
Doors – Exterior	Critical
Doors – Interior	Poor
Accessory/Basement Area Structure	Fair

**If an item is not-reviewed visually but only estimated by guess, it is marked with an asterisk.*

Overall Synopsis

The basis of this inspection was the February 2023 letter from the State Inspector, the findings of the 2023 Axiom Consultants inspection, and subsequent requests from Sheriff Kunkel for ongoing inspections and updated monitoring procedures to keep an eye on the facility considering its poor condition.

Findings by the State Inspector, and by Axiom Consultants on the 2023 report indicated significant problems with the building structure and associated fascia.

Late in the 2023 process, some plans were discovered that included the original structural configuration which Axiom was able to examine. These provided a clearer picture of the building and it's possible issues. The cantilevered upper floor design combined with a poorly thought out structural angle support with no consideration of drainage is a bad combination of items that is weathering and aging the building worse than might be expected at 45 years.

Most of the problems that are occurring with the building are due to this problematic design which does a poor job accounting for water management and which allows that water to back up and not drain. This exposes some of the structural elements to extreme weathering and fatigue-inducing conditions. This fatigue is now quite evident on all sides of the building. Steel support angles/plates are severely rusted, delaminating and scaling, and showing signs of buckling and bowing. Some of the gapping on the cantilever support angles seemed larger than last year. These will be monitored very closely moving forward. Masonry supported on these angles is beginning to fracture and ripple. Additional signs of the upper masonry fascia begging to pull away are evident inside the building where cracks in many of the upper cells are forming, as well as some areas of masonry that are beginning to break and crack through the units themselves. The precast assemblies (hollow-core panels) forming the ground level ceiling, upper level floor, and angled areas of the stairwells, show multiple signs of pulling away from the core of the building with formation of gaps ranging from ~ 1/4 to 1" in width. Some cracking on brick areas of the roof also are indicative of this pulling-away and are detailed in the walkthrough.

The worst areas of the building are located on the upper floor. The lower floor shows typical signs of age for a building of 44 years, and the structure is also not as visible. Without the cantilever of the upper floors it is unlikely that any hidden areas would show similar types of aging. The North end of the building is also in far worse condition as a whole (than the South end.) The reason for this is unknown but it is definitely a trend when looking at interior cracking and exterior conditions. The SE portion of the exterior is also very poor (around the sally-port) but those condition don't translate to the interior (yet) in the same fashion at the North end shows.

Additional structural or structural-related items are noted throughout the building including failing door jambs, cracked stoops, water leaks (or evidence thereof) and a failing roof, that are causing (or may cause) additional exacerbation of structural degradation and problems.

Axiom Consultants would not state, at this time, that the building is in danger of imminent structural failures of any sort, but there are concerning signs that should be addressed soon to prevent larger and more costly damage to upper building structure and which may cascade into other problems within the building. Because the primary skeleton of the building is constructed from CIP PCC foundations with a unit masonry core, it is durable and resistant to age related damage in ways many other buildings aren't. However, the unnecessary cantilever feature and associated poor drainage management are creating conditions that allow the upper structure to prematurely age.

Many other factors that are structurally and architecturally intertwined like poor steel door design and construction (along with associated jambs/headers), inadequate cell plumbing and drainage considerations, and obsolete door hardware all contribute to the fact that the building appears to either be nearing obsolescence for Johnson County's needs, or in need of a significant rehabilitation and repair effort.

APPENDICES

Firm Profile

Axiom Consultants, LLC is a fully-licensed engineering firm based out of Iowa City, IA. With offices in Iowa City and Cedar Rapids we provide civil, structural, mechanical, and electrical engineering services across the State of Iowa and Western Illinois. We also provide fully licensed professional land survey and construction staking services, and specialty services including aerial photography and video, 3D scanning, planning, project management/owner's representative, property condition assessments, specialty inspections, and more. Our staff have over 200-years of combined engineering experience and provide unique owner-focused services based on being adept, agile, and communicative in ways that are often overlooked.

Staff Roles and Qualifications



ROB DECKER, MSE, CPG, CPII

PRINCIPAL – OWNER

Building Services Manager

M.S. - Engineering (Structural and Geotechnical)

The University of Wisconsin (Platteville)

B.S. – Geoscience

The University of Iowa

Mr. Decker is the owner and founder of Axiom Consultants located in Iowa City and Cedar Rapids. On a practical level he serves a variety of roles including managing the Building Services division of Axiom. He serves as the lead for the majority of Axiom's building-related projects and has a long history working on facilities designs for GreenState CU. Rob is an expert in civil, structural, mechanical, and electrical engineering and has worked on a variety of projects from small tenant improvements to large multi-million dollar facilities. He works closely with owners and architects to deliver sound design and project management services and is known for being a level-headed problem solver.

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JUSTINE SIGLIN, PE

SENIOR STRUCTURAL ENGINEER

Structural Division Lead

B.S. – Civil Engineering (Structures)

Iowa State University

Ms. Siglin leads the Structural Division for Axiom Consultants. She manages complex designs of primarily commercial projects while also working on residential and industrial efforts as the need arises. She has a versatile skillset in design of steel, concrete, masonry, and wood structures and effective use of BIM and structural modeling software. Her team of structural engineers and designers works in tandem with architects on a daily basis to complete full structural plans and specifications on everything Axiom does. Ms. Siglin has great familiarity with forensic investigations, ACI, AISC, and ASCE code, and continually expands and enhances her and her teams' skillset through continuing education and outreach.

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Disclaimer

This structural PCA is provided solely for the use of Johnson County personnel in the evaluation efforts of the facility located at 511 South Capitol Street. It is not intended to serve as a design document or construction guide. The accuracy and completeness of the information provided is based on assumptions, limitations, and available data as detailed herein. Existing document-based information on the facility is very limited and no original data exists for plans or specifications. Construction records are limited only to a few original photos. The behavior and performance of the building is analyzed based on the limited information we have and this document should not serve as a certification or endorsement of the structural integrity or safety of the building by AXC. AXC reserves the right to amend or alter its position related to conclusions or assumptions in this report based on additional information that is discovered or later provided. Any provision of cost or cost-related items is estimated and is the opinion of AXC only. This information should be verified and confirmed with a general contractor or subcontractor to establish actual values for construction costs. If more specific knowledge is required for areas that can't be viewed or analyzed, remote detection equipment or destructive analysis may be required to further understand the internal workings of the structure. No repairs or corrections should be undertaken without development of plans and specifications for such work.