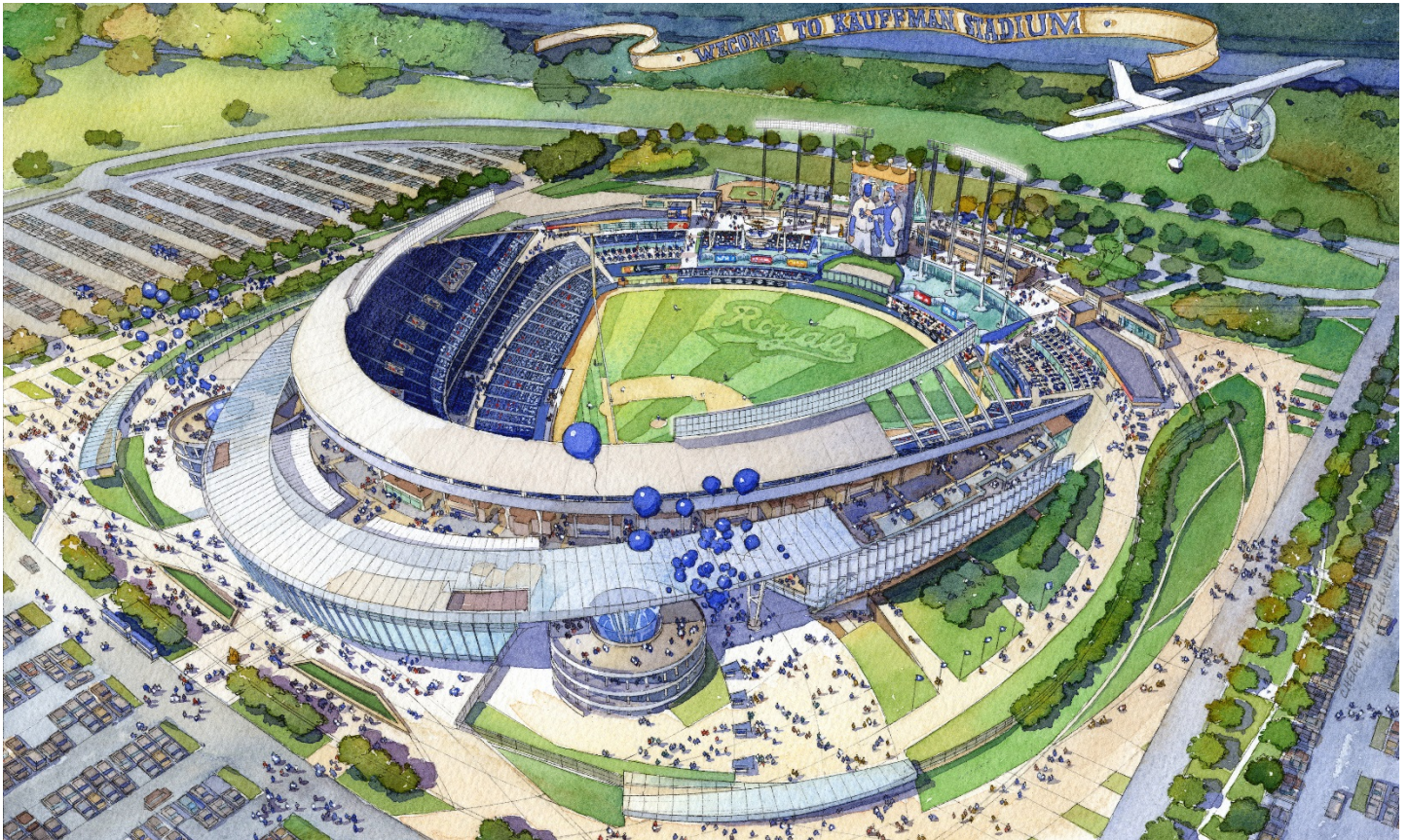


# Kauffman Stadium Assessment

## JCSCA + Burns & McDonnell

This document contains information pertaining to the condition of Kauffman Stadium as documented by the Jackson County Sports Complex Authority (JCSCA), including descriptions, conditions, and exhibits which have been reviewed by Burns & McDonnell and documented in this report.



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## PURPOSE AND SCOPE

### Purpose

The Kansas City Royals organization has a lease with the Jackson County Sports Complex Authority (JCSCA) that requires the organization to maintain Kauffman Stadium to a level consistent with a First Class MLB Baseball Stadium. The purpose of this study is to report the overall condition of Kauffman Stadium and its immediate environs to determine if the team is upholding their lease agreement.

### Scope

Burns & McDonnell, in conjunction with the JCSCA, has developed a Facility Assessment Report that reviews and documents the stadium condition. During 2016, the Jackson County Sports Complex Authority conducted an inspection of every space in Kauffman Stadium. Each room was carefully examined and documented using iPad technology (Fuze Inspections mobile application by Evoco Inc.) for the walkthrough. This application allowed the Jackson County Sports Complex Authority to build a database containing photos, condition ratings, and an inventory of building elements in each room. These elements included: a rating of overall room, electrical components, mechanical components, and various pieces of equipment, including, a listing of the type of floors, walls, and ceilings in each room. Checks of mechanical and plumbing equipment, including, life safety systems, such as 24 hour monitored control rooms and fire suppression systems were also completed. Burns & McDonnell reviewed the database, interviewed Kansas City Royals staff and received maintenance records. This report is based on the above review in conjunction with on-site evaluations by Burns & McDonnell engineers and architects.

Burns & McDonnell's scope is limited in nature and did not include an entire facility room-by-room inspection or evaluation. An on-site walk through of the stadium and its immediate environs was performed by Burns & McDonnell's engineers and architects to spot-check rooms and areas to compare that the overall conditions reported in the Jackson County Sports Complex Authority's condition reports align with the actual conditions as observed. Additionally, Burns & McDonnell has provided recommendations for observed maintenance issues that may need to be rectified in the near future.

## EXECUTIVE SUMMARY

### General Description

Kauffman Stadium is located at One Royal Way in Kansas City, Missouri. The renovation completed in 2010 was intended to enhance the fan game day experience, increase revenue generation, and improve the day to day operations of the Kansas City Royals and its other users. The stadium holds approximately 38,000 fans and offers amenities such as an outfield concourse, kids' area, bars, restaurants, hall of fame/conference center, and various other spaces geared towards large scale entertainment.

### General Condition

In general, Kauffman Stadium and its immediate environs were observed to be in satisfactory condition. It is apparent that the Kansas City Royals have performed the ordinary cleaning and maintenance obligations consistent with a First Class MLB Baseball Stadium.

Minor physical deficiencies were observed throughout various locations within Kauffman Stadium and its immediate environs. Such deficiencies are expected in such a large facility and typical of a high-use facility. Most deficiencies can be easily addressed by the Kansas City Royals through standard maintenance procedures.

### Recommendations

The final section of this document, labeled "Summary of Recommendations" includes recommendations for the deficiencies observed for each building or site category. Most observed deficiencies are generally minor and may require attention in the near future.

### KC Royals Response Plan

The Kansas City Royals have developed a response plan to rectify the deficiencies observed by Burns & McDonnell this year. This plan includes the location of each deficiency, an action to correct or maintain the item of concern, and a date for which each item is to be addressed. This report can be found as "**Exhibit A**" attached to the end of this document.



## EXISTING CONDITIONS

### Site Flatwork

Kauffman contains a large amount of paved walkways, retaining walls, curbing, and stairs that make up the sites flatwork. In general, the flatwork was observed to be in satisfactory condition with minor defects found during the walkthrough, as shown in **Figure C-1**.



**Figure C-1: Minor Cracking at Concrete Walkways**

The majority of distresses observed consisted of minor cracking, spalling, and faulting of concrete flatwork. The figure above, located south of Gate A inside the stadium, shows an example of the minor cracking observed during the walkthrough. Minor vertical hairline cracking along with minor web cracking was observed in some retaining walls. Moderate faulting was observed at a joint within the range of pedestrian traffic as shown in **Figures C-2** and **C-3**. Joints faulting within the natural flow of foot traffic pose a tripping hazard.



**Figure C-2: Joint Fault near Stairs to Gate A**



**Figure C-3: Broken Pavers and Settling at Crosswalk East of Gate D**

Joint distress is another common deficiency in concrete pavement that was observed in the pavement at Kauffman. At several locations, joint failure was observed both at the face of structures, and within walkway pavement. At some of these joints, missing sealant or differential settlement was observed as shown in [Figures C-4](#) and [C-5](#). Failed joint sealant allows water to penetrate the joint which can decrease the life of the concrete through freeze-thaw degradation. In locations where the paved surface or stairs settle at a different rate than the adjacent structure, sealant has pulled away from the joint rendering it ineffective.





**Figure C-4:** Interface of Stairs and Retaining Wall, Gate A



**Figure C-5:** Moderate Severity Joint Spalling at North Building Façade

At several locations, both at the face of structures and within walkway pavement, higher severity spalling was observed. In many cases, this spalling was coupled with missing or damaged sealant. These two deficiencies combined can amplify the negative effects of one another and increase the rate of degradation of the pavement. Refer to [Figure C-5](#) and [C-6](#).



**Figure C-6: Spalling of Concrete along Joint at Outfield Concourse**

A few areas were observed with moderate to heavy cracking and spalling. Refer to [Figures C-7, C-8, and C-9](#) for a few examples of these areas.



**Figure C-7: Moderate Spalling and Cracking at Drainage Structure, near Mini-Golf**





**Figure C-8:** Severe Spalling of Joint with Rebar Exposed inside Gate E, near Seating Stairway



**Figure C-9:** Moderate Edge Spalling at Gate B Spiral Ramp

### Landscaping and Appurtenances

Various species of native plants and grasses can be found between walkways and within planting beds surrounding the stadium. Landscaping around the stadium improves aesthetic appeal of the facility, and provides visual breaks between the largely paved surfacing.

Landscaping was observed in satisfactory condition at the time of the assessment. Grasses, trees, and other vegetation appears to be healthy. Irrigation systems were observed as operational and control boxes appeared to be intact. Area drains within landscaping were observed to be clogged with mulch and other landscape materials, as shown in [Figure L-1](#).



**Figure L-1: Drain Covered by Landscape Material**

Site appurtenances such as light poles, fencing, and handrail were also visually inspected during the walkthrough while no handrail was observed as loose, yearly inspections should occur to check for damaged or loose railings. Light pole and outlet covers were noticed as missing and should be replaced. Covers provide safety against tampering and debris accumulation. Refer to **Figures L-2** through **L-3** give examples of items found during the walkthrough.



**Figure L-2: Hand Hole in Light Pole Missing Cover**



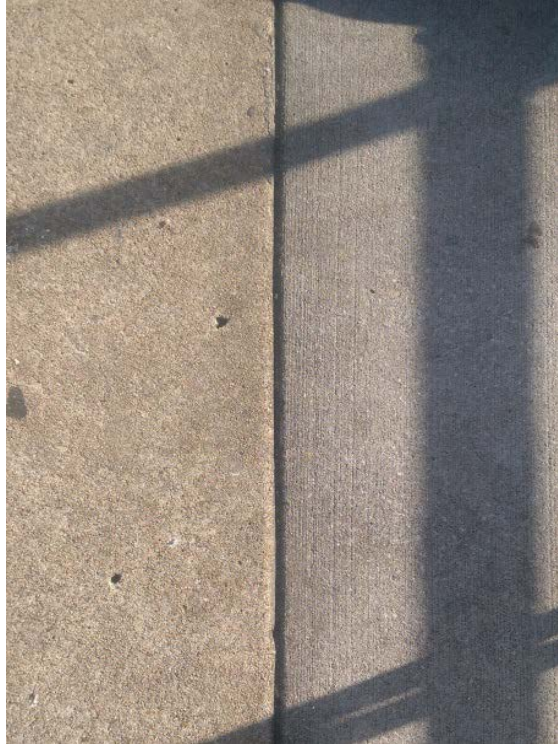


**Figure L-3:** Outdoor Electrical Outlets Missing Covers

## Structure

The substructure is primarily concrete drilled piles with pile caps. Cast-in-place (CIP) grade beams are located around the perimeter and throughout the foundation system. CIP mat foundations support the stair and elevator core walls and CIP single spread footings also exist for lighter loaded structures. Floating slabs-on-grade exist throughout the facility.

No significant settlement of the structure was observed. The slab-on-grade is primarily in satisfactory condition. No major cracks or spalling of the concrete were observed. Control joints and expansion joints are in satisfactory condition as shown in [Figure S-1](#).



**Figure S-1: Slab-on-Grade Control Joint**

The original superstructure is primarily cast-in-place (CIP) reinforced concrete columns and walls for the vertical support system with reinforced concrete pan joist slab system. During major renovations stage, additions were constructed which consisted primarily of CIP reinforced concrete walls and steel wide flange columns. Other vertical support systems include Hollow Structural Section (HSS) columns and concrete masonry (CMU) load bearing shear walls.

The Plaza level consists of a suspended reinforced concrete slab/beam system. Other framing systems include a light weight slab-on-foam fill bearing on suspended concrete slab and composite deck supported by steel wide flange beams. The Broadcast, Writing Press and Loge level primarily consists of light weight concrete composite deck supported by steel wide flange beams. Main Roof and Outfield Roof levels primarily consist of steel wide flange and Hollow Structural Section (HSS) beams supporting standing seam metal roof deck. This level also consists of metal roof deck supported by steel wide flange beams. The scoreboard consists of a mixture of steel wide flange beams, Hollow Structural Sections (HSS) tubes and steel angles. The floor system is steel grating.

While some cracking and spalling was observed, the original reinforced concrete columns and walls are in satisfactory condition. The vertical column and wall surfaces are flat and smooth. Concrete patchwork of the original structure was observed to be flat and smooth and is in satisfactory condition as well. The expansion joints at the original superstructure to the renovation superstructure are in satisfactory condition. No deterioration was observed.

The original reinforced concrete pan joist slab systems are currently in satisfactory condition. No major cracks or spalling was observed. However, minor cracking and spalling exists which has exposed the reinforcement in the concourse at the top of section 220, as shown in [Figure S-2](#) (left). Minor cracking and spalling was also observed while standing in the concourse at the top of section 312, shown in [Figure S-2](#) (right).



**Figure S-2:** Concrete Spalling, Exposing Reinforcement at Sections 220 and 312

The reinforced concrete walls of the renovation stage are in satisfactory condition. No major cracks or spalling was observed and the vertical wall surface is flat and smooth. The steel beams and connections of the renovation stage are generally in satisfactory condition. No corrosion or deflection was observed, as shown in [Figure S-3](#). Concrete anchors are not fully embedded in a few locations as shown in [Figure S-4](#). This image was captured outside of the broadcast booths at the Press Level. This appears to be an installation issue rather than a maintenance concern.



**Figure S-3: Plaza Level Steel Framing**



**Figure S-4: Concrete Anchor not fully embedded in concrete beam (installation)**

The steel floor decks and roof decks are in satisfactory condition. No corrosion or significant deflection was observed.

An expansion joint issue was observed above the home batting practice cages. Signs of water leaking are evident and have corroded pipe conduit below as can be seen in [Figure S-5](#) below. Water dripping was occurring during our visit. The source may be related to stadium seating connection in and around the expansion joint above. This area should be further investigated and repaired to prevent further water damage. Also, refer to architectural [Figures AI-3](#) and [AI-8](#) related to this issue.





**Figure S-5: Conduit Corrosion in Home Batting Tunnels**

## Façades

Kauffman stadium incorporates a variety of finish materials that are used in the composition of the exterior façade, as shown in [Figure AF-1](#). The primary surface materials include structural concrete, insulated metal panel, curtainwall, and patterned perforated metal panels on cold formed steel structure.

Stone veneer and glass storefront systems are utilized extensively along the base of the stadium, in addition to miscellaneous structures such as metal entry canopy, gates, and fencing.



**Figure AF-1:** Kauffman Stadium Overall Exterior

All facades, in general, appear to be in satisfactory condition. Glass storefronts and curtainwall systems appear to be in satisfactory condition, as shown in **Figures AF-2**. Aluminum frame and mullions were observed to be free of staining, fading, or degradation of any kind. Seals and flashing around storefront appear to be in satisfactory condition. Interior curtainwall systems were being cleaned during the assessment.



**Figure AF-2:** External (left) and Internal (right) Storefront, Curtainwall, and Stone Veneer

Stone cladding systems appear to be in satisfactory condition, as shown in [Figure AF-3](#). No chipping or staining of the stone or grout was observed. However, sealant between the base of the stone wall and concrete sidewalk was observed to be pulling away from the concrete at the ticketing counter just east of the main entry, as shown in [Figure AF-3](#) (right). This condition may create a potential moisture problem in various service spaces under the stadium.



**Figure AF-3: External Ticketing and Stone Veneer (left), Unsatisfactory Sealant Joint (right)**

Insulated metal panels and glass storefront systems at the ticketing structures, in general, appear to be in satisfactory condition. However, glass at ticketing windows 5, 11, and 12 were observed to be cracking as shown in [Figures AF-4](#). This image was taken at the ticketing structure on the Southeast side of the stadium. We note that the cracked glass at window 5 was observed to be cracked during the 2015 assessment while windows 11 and 12 have since been damaged as well.





**Figure AF-4: Cracked Glass, Storefront System at Southeast Ticketing Counter**

Insulated metal panels and storefront systems at the Belfonte ice cream shop in the Outfield Experience were observed to be in satisfactory condition, as shown in **Figure AF-5** (left). No oil canning, staining, or degradation of any kind was observed. Aluminum frame and mullions were observed to be free of staining, fading, or degradation of any kind. Seals and flashing around storefront appear to be in satisfactory condition. Similarly, the sliding glass wall system and metal panels at the Triple Crown Suites were observed to be in satisfactory condition, as shown in **Figure AF-5** (right). No signs of scratches were noticeable on the frames, glass appeared to be free of cracks or chips, and operable tracks were free of dirt and grime that would prevent the door from smooth operation.



**Figure AF-5: Metal Panel and Storefront Systems at Outfield Experience (left) and TC Suites (right)**



Perforated metal panels and graphic mesh systems appear to be in satisfactory condition, as shown in [Figures AF-6](#). No oil canning, staining, or degradation of any kind was observed.



**Figure AF-6: External Perforated Metal Panel Systems**

The galvanized sub-structure for the perforated metal panel system appears to be free of corrosion or rust in general. However, small areas of rust are beginning to develop in some locations, as shown in [Figure AF-7](#) (right). Additionally, trash was observed in the crevice between the perforated metal panel and the sub frame structure, as shown in [Figure AF-7](#) (right).



**Figure AF-7: External Perforated Metal Panel Systems Details, Trash Observed in Base Frame (right)**

## Roofing

The roofing structures throughout Kauffman stadium vary greatly in composition. The primary roofing material utilized at the interior structures is a Polyvinyl-Chloride (PVC) membrane on R-24 thermal insulation.

Alternative roofing materials are also utilized at various external structures and over the stadium concourses, including standing seam metal roof panels and in some cases perforated metal panels. Coping and fascia panels, finished to match adjacent metal panels, provide moisture protection at roof eaves and parapet conditions.

Roofing membranes appear to be in satisfactory condition. Roofing membranes observed were free of rips, tears, or defects. However, construction debris was observed at the catwalk area between the roof and HVAC unit at the Writing Press Level, as shown in [Figure AR-1](#) (left). Additionally, standing water was observed at the same catwalk, as shown in [Figure AR-1](#) (right).



**Figure AR-1: Roofing Membrane (left) and Standing Seam/Perforated Metal Panel (right)**

Coping and fascia panels at roof eaves and parapets were observed to be in satisfactory condition, typically. Rust at the View Level bar areas, noted in the 2015 assessment, appear to have been addressed and repainted to avoid further degradation, as shown in **Figure AR-2** (right).





**Figure AR-2:** Roof Coping at Outfield Experience (left), Fascia Panels at Roof Eaves (right)

#### Miscellaneous Exterior Observations

At the home dugout, the platform structure paint was observed to be chipping off and exposing the raw steel as shown in **Figure AME-1**. The steel shows surface rust, which if not properly treated will eventually compromise the structural integrity of the supports. This may be a safety issue if not properly maintained, due to multiple players or coaches standing on this structure.





**Figure AME-1: Rust at Home Dugout Bench/Platform**

At the East fountain, rust was observed on the metal stair leading into the pool as shown in **Figure AME-2**. It is unclear to what extent the rust has damaged this stair, however, if the rust has weakened any portion of this stair structure it may pose a potential safety hazard. It is advisable that in the very near future this stair be replaced with a new stair or ladder constructed of stainless steel or another material which will be more suitable for such a corrosive environment.

It should also be noted that the West fountain stair was observed to be in roughly the same condition. The structural integrity of both stairs is questionable.



**Figure AME-2: Severe Rust at East Fountain Stair**

#### Interior Elements

Interior finishes within Kauffman stadium encompass a broad range of materials for floors, walls, and ceilings. The primary flooring systems are composed of epoxy and sealed concrete, as shown in [Figures AI-1](#) and [AI-2](#). These surfaces were observed to be in satisfactory condition, typically. Minor cracking was observed at various locations throughout the facility, which is considered normal given the expansion and contraction properties of the materials. No excessive cracking was observed during the walk-through.



**Figure AI-1:** Sealed Concrete Floor at the Bullpen Bar



**Figure AI-2:** Epoxy Floor at the View Level

Generally speaking, the expansion joint seals appeared to be in satisfactory condition. However, minor leaking was noted in the batting tunnels at the Clubhouse Level which appears to be due to anchor bolts which penetrate these seals at the plaza level seating as shown in [Figure AI-3](#). This is likely a condition at multiple locations throughout the stadium, as a result of the design and construction.



**Figure AI-3: Expansion Joint at Plaza Level Seating Bowl**

Carpet flooring was generally observed to be in satisfactory condition. No signs of rips, tears, or discoloration were observed. A few stains were observed at the clubhouse level media room, as shown in [Figure AI-4](#) (right).





**Figure AI-4: Carpet Flooring at Open Office (left) and Clubhouse Media Room (right)**

Porcelain/Ceramic tile flooring areas appear to be in satisfactory condition, as shown in **Figure AI-5**. No signs of grout discoloration or cracking were observed.



**Figure AI-5: Ceramic Tile Flooring at Dugout Suite**

Wall materials at Kauffman stadium typically include painted or exposed Concrete Masonry Units (CMU) or painted gypsum board on metal stud framing. Alternative wall materials include porcelain or ceramic tile, glass tile, wood veneer, and glass storefront systems.

In general, interior wall surfaces were observed to be in satisfactory condition. Painted gypsum board walls appear to be in satisfactory condition. No punctures, holes, or scratches were observed.

Ceramic tile walls appear to be in satisfactory condition, as shown in [Figure AI-6](#). No visible chipping, flaking, or cracking of the tile or grout was observed.



**Figure AI-6:** Ceramic Tile and Gypsum Board Walls

Wood paneling, typically, is in satisfactory condition. As shown in [Figure AI-7](#), no signs of scratching, fading, or deterioration of any kind were observed at the Triple Crown Suites.



**Figure AI-7: Wood Veneer Panel Wall at Triple Crown Suite**

Ceilings in Kauffman stadium are generally concrete which has been left exposed or painted. Refer to the “Structure” section for observations of concrete surfaces. Other ceiling types located within the interior spaces of the stadium include gypsum board, acoustical ceiling tile, and wood paneling in some cases.

Exposed ceilings appear to be in satisfactory condition, typically. However, several foil faced batt insulation pieces at the Clubhouse Batting Tunnels were observed to be hanging down, as shown in [Figure AI-8](#). This may be in part due to baseballs hitting the ceiling, through the net. However, it may also be a result of leakage through the plaza level seating anchors as previously described and shown in [Figure AI-3](#).





**Figure AI-8: Foil Faced Batt Insulation at Clubhouse Batting Tunnels**

Gypsum board ceilings appear to be in satisfactory condition, typically. No punctures, stains, scrapes, or tears were observed. Refer to [Figure AI-9](#) for typical condition.



**Figure AI-9: Gypsum Board Ceilings at Diamond Club Area**

Acoustical ceiling tiles appear to be in satisfactory condition, generally. Refer to **Figure AI-10** (left) for typical condition at observed interior ACT ceilings. Exterior ceiling tiles leading out of the central elevator lobby area at the Service Level were observed to be stained, as shown in **Figure AI-10** (right).



**Figure AI-10: Interior (left) and Exterior (right) Acoustical Ceiling Tiles**

Wood ceiling panels, where present, were observed to be in satisfactory condition. Surface conditions appear to be new and are free of scuffs, scratches, warps, or deterioration as shown in **Figure AI-11**.



**Figure AI-11: Wood Plank Ceilings at Craft & Draft Area**

Door types and styles throughout Kauffman Stadium include painted hollow metal doors and frames, flush wood doors, aluminum glazed doors, overhead coiling doors, and an occasional access door.

Generally, painted hollow metal doors were observed to be in satisfactory condition. However, at the Men's restroom door located just outside the Diamond Club the hollow metal door was observed to have several scuffs and scratches as shown in **Figure AI-12**.





**Figure AI-12:** Hollow Metal Door at Men's Restroom adjacent to the Diamond Club

Interior storefront doors were general found to be in satisfactory condition. It was observed, however, that the aluminum framed glass door at the Craft and Draft bar area did not have a proper door stop installed or engaged within the closer. This may create a “pinch” point for guest fingers or may also damage the door and/or wall over time. Refer to [Figure AI-13](#).



**Figure AI-13:** Aluminum Framed Glass Door at Craft & Draft Bar

#### Miscellaneous Interior Observations

The railing at the stairs leading from the clubhouse corridor to the batting tunnels and home dugout was observed to be loose. Refer to **Figure AMI-1** (left). Additionally, the same condition was observed at the handrail in the Press Dining area, as shown in **Figure AMI-1** (right). These conditions may pose a potential safety concern if the railings were to fail.



**Figure AMI-1: Stair Railing to Home Dugout (left) and Press Dining (right)**

Several fire extinguishers were checked for verification of updated inspection tags. All fire extinguishers observed were inspected and punched within the last year, as shown in **Figure AMI-2**.





**Figure AMI-2: Fire Extinguisher Inspection Tags**

## Mechanical

The general mechanical systems appear to be in satisfactory condition. The facility comprises mainly of air-conditioning units that utilize chilled water, some stand-alone direct expansion (DX) units, roof-mounted condensing units, hot water boilers, pumps (fire, domestic water, and chilled water), exhaust fans, concession stand water heaters, and air-cooled chillers.

Boiler Room M127 houses the main chilled water pumps, hot water pumps, and domestic water heaters. The equipment in this room appeared to be in satisfactory condition. However, a few minor maintenance items were observed inside this room.

As noted within the 2015 assessment of Kauffman Stadium, several piping insulation shields were not present, as shown in [Figure M-1](#). Over time, the weight of the piping will “crush” the piping insulation thus degrading the effectiveness of the insulation. Evidence of this “crushing effect” has already begun to occur.



**Figure M-1: Piping Hangers Missing Insulation Shields**

Indication lights were observed to be burned out at the domestic water booster pump control panel, specifically for pump #2 as shown in **Figure M-2**. Pump #1 light was burned out during the 2015 assessment of Kauffman Stadium. This #1 light could not be verified “fixed” during this year’s assessment.



**Figure M-2: Missing Indicator Lights at Domestic Water Control Panel**

The main kitchen mechanical systems appeared to be in satisfactory condition. Located in the back corner of the main kitchen is a dry-pipe sprinkler valve, shown in **Figure M-3**. The valve itself appears to be in satisfactory condition and had a current year inspection tag.



**Figure M-3: Dry-Pipe sprinkler Valve System**

As stated within the 2015 assessment of Kauffman Stadium, the steel piping associated with this dry-pipe system has severe corrosion/deterioration. **Figure M-4** shows the level of severity of this pipe. Layers of exterior piping have corroded away, leaving a thinner piping sidewall. This corroded, thinner pipe wall is under high pressure. As previously stated, we **STRONGLY** recommend addressing or replacing this particular section of piping.





**Figure M-4: Hot Water Boiler Temperature Gauge**

## Electrical

The stadium main electrical service consist of (7) 3,000A, (2) 1600A and (2) 4000A, 480Y/277V 3 phase, 4 wire main switchgears with integral 13.2kV to 480V transformers. The switchgears area located throughout the Service level and the Plaza level. The stadium's emergency power distribution service consists of a 1600A switchgear at 480Y/277V, 3- phase, 4- wire and is connected to a 1000KW on-site generator. Lighting and appliance panelboards are located in each electrical closet on each stadium level.

The main telecommunications service is fed from an underground vault and is routed to the Main Telecommunications Equipment room on the Service level. Backbone cabling is routed by way of cable tray system each telecommunications rooms on each stadium level. Horizontal cabling is routed from each telecommunication room to workstations on respective floor levels.

The overall electrical system present installation was observed to be in satisfactory condition. However, the following conditions have been observed:

The emergency bug-eyed battery units in the electrical rooms were evaluated in 2015 and found to be non-operational. The assessment performed in 2016 has found that the bug-eyed fixtures have not been addressed and are still non-operational. Refer to [Figure E-1](#).



**Figure E-1: Emergency Bug-Eyed Unit**

Electrical rooms were evaluated and found to be used as storage, typically. The rooms have equipment and ladders in front of panelboards, inhibiting access and clearance in front of panelboard doors and around equipment. Refer to **Figure E-2** (left).

Branch circuit breakers in panelboard B1H5B are not labeled. Panelboard schedule is not provided indicating description of loads on the panelboard. Refer to **Figure E-2** (right).



**Figure E-2:** Electrical Room (left), Panelboard B1H5B Schedule (right)

Non-GFI receptacles in Boiler room were evaluated in 2015 and found that installations were within 6'-0" of liquid containment.



## SUMMARY OF RECOMMENDATIONS

### Site Flatwork

The majority of the concrete flatwork elements were observed to be in satisfactory condition. Continue to perform routine maintenance to seal and repair minor cracking observed along walkways and concourses. Cracks and spalling where rebar is exposed should be repaired to prevent further weakening. Areas of with severe cracking or spalling should be repaired or replaced to prevent these locations from becoming tripping hazards. Replace any missing, damaged, or otherwise unsatisfactory joint sealant and/or backer rod required for concrete joints.

The following comments pertain to elements that may pose potential safety concerns and should be addressed as soon as possible.

- Monitor any minor faulting slabs in walkways for progression of the faulting. If faulting becomes more severe, repair or replacement of concrete may be necessary. To protect pedestrian safety and provide a full ADA compliant route, repair and/or replace any faulting panels or pavers to maintain a consistent surface where faulting has resulted in a drastic elevation change.
- Replace or secure any trench drain or drainage structure as necessary to prevent it from being accidentally or intentionally dislodged and maintain design inflow capacities. Loose trench drain covers could be a tripping hazard for pedestrians.

### Landscaping and Appurtenances

The majority of the landscaping surrounding Kauffman Stadium appeared to be in satisfactory condition. The native grasses and plants appeared to be in good health. Continue to maintain the plants and grass on a regular basis to sustain plant health. The following comments pertain to recommended general site maintenance:

- To optimize the efficiency of the irrigation system, adjust the operating range to prevent excess water from spraying the concrete sidewalks.
- Area drains within landscaping should be periodically checked and cleaned to limit standing water during rain events. Consider adding landscaping edging to help keep mulch within landscape beds.
- Continue with plant maintenance by replacing dead or sick plants and by providing weed control.

The following comments pertain to elements that may pose potential safety concerns and should be addressed as soon as possible.

- Replace hand hole and outlet covers on light poles and outdoor electrical outlets, as shown in [Figures L-2](#) and [L-3](#).
- Route exposed wiring into control boxes and conduit to prevent further weathering and potential tampering from the public.

## Structure

The majority of all substructure elements were observed to be in satisfactory condition. Continue routine maintenance as required.

The majority of all superstructure elements were observed to be in satisfactory condition.

Minor cracking and spalling was observed at the original concrete pan joist system in sections 220 and 312, as shown in [Figure S-2](#). This has led to the exposure of reinforcement. Other areas of the stadium have similar conditions.

- Concrete cracking and spalling should be routinely monitored and patched to insure rebar corrosion does not worsen.
- Continued, routine monitoring of these areas is recommended. Concrete patchwork is recommended within the next 1 to 2 years.

## Façades

Glass storefronts, in general, appear to be in satisfactory condition. However, glass panels at a few of the ticketing windows on the Southeast Ticketing structure were observed to be cracking as shown in [Figure AF-4](#).

- Consider repairing or replacing the damaged glass to maintain a quality appearance at the entry to the facility and to prevent further damage to the glass or aluminum frames.

The galvanized sub-structure for the perforated metal panel system appears to be free of corrosion or rust in general. However, small areas of rust are beginning to develop in some locations, as shown in [Figure AF-7](#) (right). Additionally, trash was observed in the crevice between the perforated metal panel and the sub frame structure, as shown in [Figure AF-7](#) (right).

- Consider providing a topical coating at rust areas to prevent further corrosion, where necessary.
- Removing plastic bottles and debris from panel bases will help maintain the appearance of a First Class MLB Baseball Stadium and will also prevent moisture from being captured by trash further exacerbating potential rust concerns.

## Roofing

Roofing membranes appear to be in satisfactory condition, however, construction debris was observed at the catwalk area between the roof and the HVAC unit at the Writing Press Level as shown in [Figure AR-1](#) (left). Additionally, ponding water was observed at the same location as shown in [Figure AR-1](#) (right). The roof slope does not appear to be sloped to the area drain which may have been incorrectly installed at the time of construction.

- Consider relocating debris to avoid potential rips or tears that would be caused by the wind catching the material moving it across the surface of the membrane, thereby creating moisture issues within the space below the roof surface.

- The catwalk area is not susceptible to water typically, except for times of cleaning when power washing is used. Therefore, the ponding issue does not pose an immediate threat but this area should be closely monitored and inspected to make sure that ponding water does not find a path through the membrane.

## Miscellaneous Exterior Observations

The following comments pertain to elements that may pose potential safety concerns and should be addressed as soon as possible.

At the home dugout, the platform structure paint was observed to be chipping off and exposing the raw steel as shown in [Figure AME-1](#). The steel shows surface rust, which if not properly treated will eventually compromise the structural integrity of the supports. This may be a safety issue if not properly maintained, due to multiple players or coaches standing on this structure.

- Consider coating with a rust neutralizing paint to prevent further damage.

At the East and West fountains, rust was observed on the metal stairs leading into the pool as shown in [Figure AME-2](#). It is unclear to what extent the rust has damaged this stair, however, if the rust has weakened any portion of this stair structure it may pose a potential safety hazard.

- It is advisable that in the very near future this stair be replaced with a new stair or ladder constructed of stainless steel or another material which will be more suitable for such a corrosive environment.

## Interior Elements

Interior floor, wall, and ceiling finishes were observed to be in satisfactory condition, generally. However, minor leaking was noted in the batting tunnels at the Clubhouse Level which appears to be due to anchor bolts which penetrate the seals at the plaza level seating as shown in [Figure AI-3](#). This is likely a condition at multiple locations throughout the stadium, as a result of the design and construction.

- Consider sealing around the anchor bolt penetrations to prevent water from penetrating these areas and leaking to the finished areas below the stadium.

Acoustical ceiling tiles appear to be in satisfactory condition, typically. However, a few exterior ceiling tiles were observed to be drooping or stained by moisture. Refer to [Figure AI-10](#) (right).

- Consider replacing ceiling tiles and/or grid to maintain a clean appearance and prevent further deterioration which may result in pieces of material falling from the ceiling.

Doors throughout the stadium appear to be in satisfactory condition. However, the hollow metal door at the Men's Restroom just outside the Diamond Club was observed to have several scuffs and scratches as shown in [Figure AI-12](#).



- Consider re-painting damaged hollow metal doors to prevent rust and to maintain the appearance of a First Class MLB Baseball Stadium.

The aluminum framed glass door at the Craft and Draft bar area did not have a proper door stop installed or engaged within the closer. Refer to [Figure AI-13](#).

- Consider installing a door stop at the adjacent masonry wall to prevent the door handle from being damaged by repeated collisions

### Interior Miscellaneous Observations

Interior floor, wall, and ceiling finishes were observed to be in satisfactory condition, generally. However, minor leaking was noted in the batting tunnels at the Clubhouse Level which appears to be due to anchor bolts which penetrate the seals at the plaza level seating as shown in [Figure AI-3](#). This is likely a condition at multiple locations throughout the stadium, as a result of the design and construction.

- Consider sealing around the anchor bolt penetrations to prevent water from penetrating these areas and leaking to the finished areas below the stadium.

### Mechanical

The majority of all the mechanical systems were observed to be in satisfactory condition. Continue routine maintenance as required.

As noted in the 2015 assessment of Kauffman Stadium, several piping insulation shields were not present, as shown in [Figure M-1](#).

- To prevent this, piping shields should be placed between the pipe hanger and the insulation.

Indication lights were observed to be burned out at the domestic water booster pump control panel, specifically for pump #2 as shown in [Figure M-2](#).

- Consider checking all control panel lights to verify if they are working properly.

The following comments pertain to elements that may pose potential safety concerns and should be addressed as soon as possible.

The dry-pipe sprinkler valve located inside the main kitchen area is in satisfactory condition. However, the steel piping associated with that system is showing severe corrosion. The potential water damage associated with this pipe rupturing could be extensive in nature. Refer to [Figure M-4](#). As previously stated, we STRONGLY recommend addressing or replacing this particular section of piping.

### Electrical

The following comments pertain to elements that may pose potential safety concerns and should be addressed as soon as possible.

The emergency bug-eyed battery units in the electrical rooms were evaluated in 2015 and found to be non-operational. The assessment performed in 2016 has found that the bug-eyed fixtures have not been addressed and are still non-operational. Refer to [Figure E-1](#).

- For the safety of the public and workers, it is recommended to replace battery to all bug-eyed units and test to ensure battery units are functional and operational.

Non-GFI receptacles in the Boiler room were observed to be within 6'-0" of liquid containment.

- It is recommended to replace receptacles with GFI receptacles at locations within 6'-0" of liquid containment.

Electrical rooms were evaluated and found to be used as storage, typically. The rooms have equipment and ladders in front of panelboards, inhibiting access and clearance in front of panelboard doors and around equipment. Refer to [Figure E-2](#).

- In all electrical rooms, it is recommended to ensure that all switchboards, distribution boards, switchboards and switchgears are labeled as well as all branch circuit breakers. All electrical equipment should maintain clearance access in front and around equipment to reduce blocking of path of egress and to avoid all tripping hazards upon emergency situations.

## 2016 KAUFFMAN STADIUM ASSESSMENT - RESPONSE PLAN

ISSUE	CATEGORY	RESPONSE PLAN	DUE DATE
Concrete/Pavers Repair	Site Flatwork	Repair specific items listed with ongoing inspections	Ongoing
Trench Drains	Site Flatwork	Repair broken trench drain covers	4/1/2017
Adjust Irrigation	Landscaping	Adjust Irrigation heads and monitor	4/1/2017
Check Area Drains	Landscaping	Check/clear area drains in landscaping areas	4/1/2017
Plant Maintenance	Landscaping	Check/maintaining landscaped areas	Ongoing
Hand Hole/Outlet Covers	Landscaping	Replace hand hole and outlet covers	4/1/2017
Exposed Wiring	Landscaping	A/V wiring to be in boxes when not in use	4/1/2017
Spalling Concrete at Sections 220/312	Structure	Will monitor for any changes and address as needed.	Ongoing
Ticket Windows	Facades	Cracked windows to be replaced	4/1/2017
Rust Prevention on Metal Panels	Facades	Rusty areas will be cleaned and painted	4/1/2017
Remove Trash in Metal Panels	Facades	Trash to be removed	4/1/2017
Remove Debris/Ponding Water on Catwalk	Roofing	To be cleaned up	2/1/2017
Dugout Rust	Miscellaneous Exterior	To be repainted	4/1/2017
Fountain Stairs	Miscellaneous Exterior	To be replaced	3/1/2017
Home Batting Tunnel Leaks/Insulation	Interior Elements	The joints will be sealed and insulation fixed	4/1/2017
Level 2 Ceiling Tile	Interior Elements	To be replaced	2/1/2017
Paint Outdoor Restroom Doors Level 2	Interior Elements	To be painted	4/1/2017
Door Stops at Craft & Draft	Interior Elements	Door stops will be added	4/1/2017
Missing Pipe Shields in Boiler Room	Mechanical	Pipe shields will be put back in proper place	2/1/2017
Pump Station Indicator Lights	Mechanical	Bulbs to be checked/replaced	2/1/2017
Main Kitchen Sprinkler Pipe	Mechanical	To be replaced	4/1/2017
Bug Eye Emergency Lights	Electrical	Batteries to be replaced	4/1/2017
Non-GFI Receptacles in Boiler Room	Electrical	Replaced with GFI receptacles	4/1/2017
Clear Out Electrical Rooms	Electrical	Other than electrical contractor's tools/materials, all other non-essential items to be removed from electrical rooms	4/1/2017



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