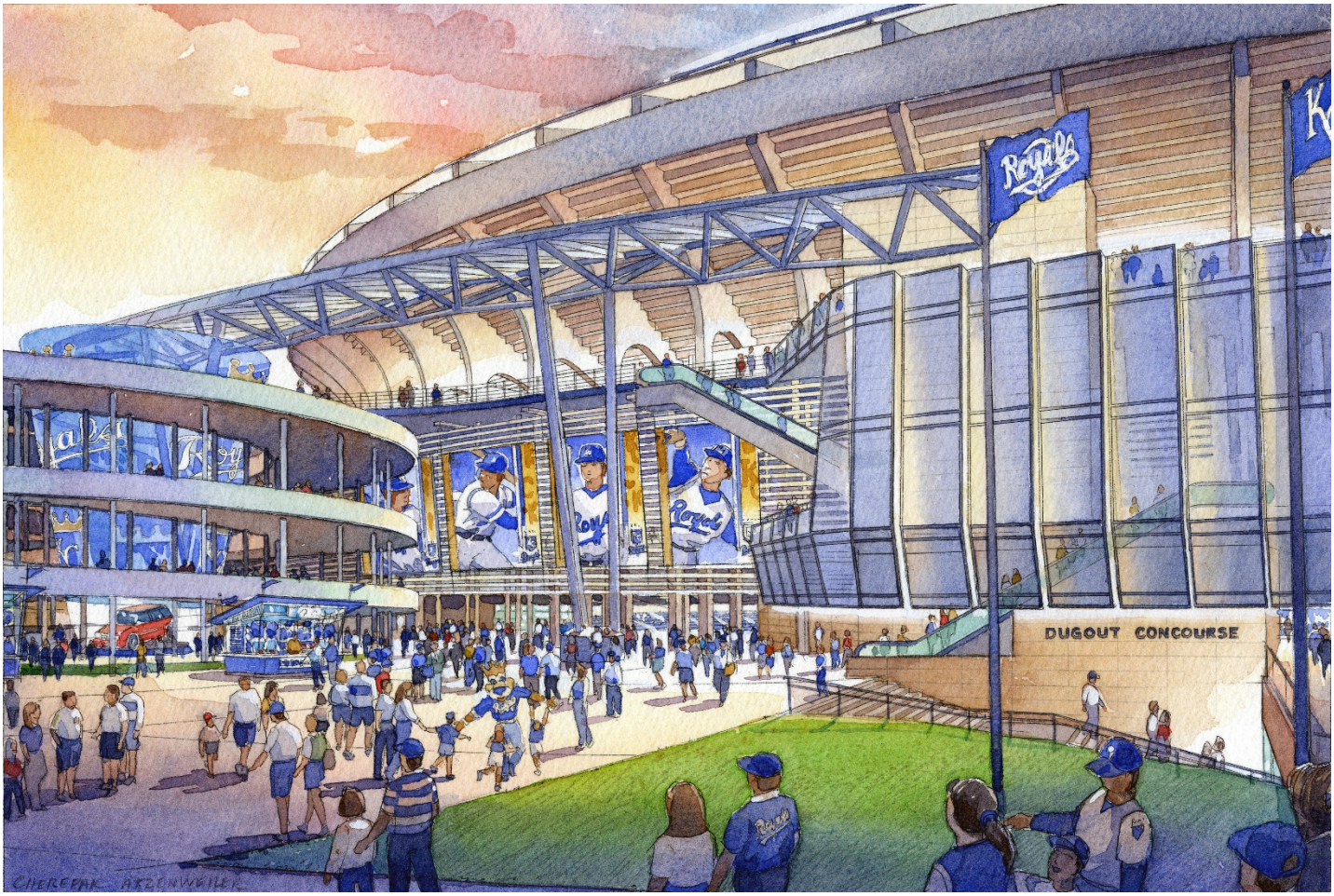
Kauffman Stadium Assessment

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.



JACKSON COUNTY Sports Complex Authority

BURNS McDONNELL architecture + engineering

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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 2017, 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.

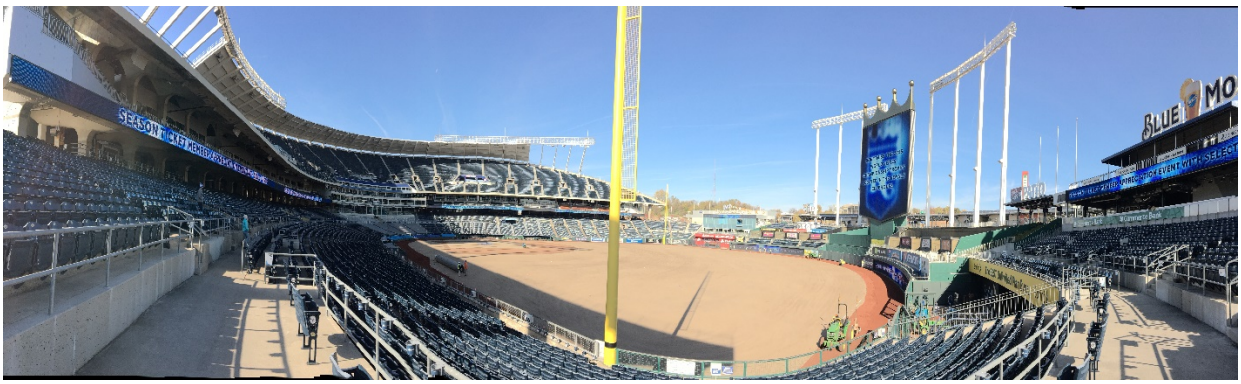
Minor physical deficiencies were observed throughout various locations within Kauffman Stadium and its immediate environs. Such deficiencies are expected in such a large facility and typical of a high-use facility. Most deficiencies can be easily addressed by the Kansas City Royals through standard maintenance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



Site Flatwork

Kauffman Stadium contains a significant amount of paved walkways surrounding and leading into the complex. These paved areas serve as access walkways both inside and outside the stadium fencing. Stairs, curbing, and retaining walls were also observed in addition to the paved walkways. Overall, the site flatwork was observed to be in acceptable condition, with the exception of a few mild to moderate site defects.

The most common defect observed on the site was transverse cracking, spalling, & faulting of the pavement. Cracking was commonly seen in the curb surrounding the stadium as well as several other places within the stadium concourse. **Figure C-1** shows an example of curb cracking that was observed on site. **Figure C-2** and **C-3** shows typical transverse cracking observed on site. **Figure C-4** illustrates the corner cracking observed inside the stadium concourse.

Figure C-1: Cracking Along Exterior Curb
Location: Near Gate D

Figure C-2: Transverse Cracking
Location: Near Gate A

Figure C-3: Transverse Cracking Leading Up to Removable Bollard
Location: Near Gate D

Figure C-4: Corner Cracking Observed
Location: Near Playground Area

Trench drains are located in several locations around the stadium concourse. Many of the trench drains were found to be broken into pieces, making them susceptible to displace from the channel grooves. **Figure C-5** shows a broken section of trench drain that has been displaced from the channel.

Figure C-5: Damaged Trench Drain
Location: Near the Children's Baseball Field

Damaged or deteriorating joint sealant was another common occurrence within the site flatwork, in some cases it would be accompanied by joint spalling. **Figure C-6** show separation of the sealant from the stairs and adjacent wall. **Figure C-7** show deterioration of the sealant.

Figure C-6: Joint Sealant Separation
Location: Near Gate E

Figure C-7: Joint Sealant Deterioration
Location: Near Gate E

Pavers are commonly used around the site for decorative purposes and double in use as a detectable warning. Some of the pavers on site were observed to be loosened making them easy to displace when stepped on. **Figure C-8** shows the separated pavers located in front of Gate C.

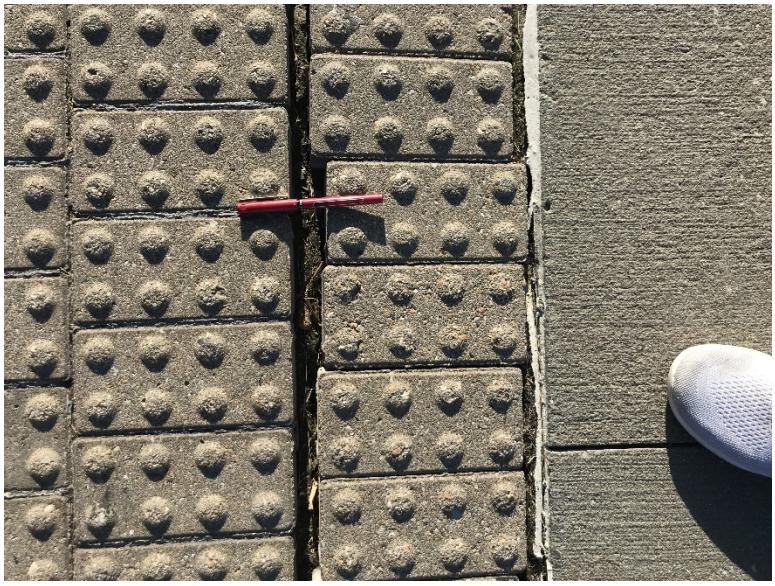


Figure C-8: Loosened Pavers
Location: Near Gate C

Other site amenities were observed to be damaged during the visit, although they do not create any risk to pedestrians it is recommended that they be addressed for aesthetic appeal. **Figure C-9** shows damage to a light pole and **Figure C-10** shows damaged tile near a set of stairs in the concourse.

Figure C-9: Damaged Light Pole
Location: Near Gate E

Figure C-10: Broken Tile Along Stairs
Location: Near Gate D

Landscaping and Appurtenances

Kauffman Stadium host a variety of native plantings and grass between the concourse walkways. Much of the landscape amenities are accented with a combination of rock and mulch. Overall, the landscaping on site was observed to be in acceptable condition, with regular maintenance and regulation the site landscaping can sustain at an acceptable level. Irrigation systems appeared to be operational and the control boxes were intact.

Area drains and valve covers appeared to be free of mulch and other landscape materials. **Figure L-1** shows an example of an acceptable landscape bed with water valve access. Other site appurtenances such as handrails and fencing were also inspected and found to be in acceptable condition. Yearly inspections should occur to ensure that these site items remain in an acceptable state to ensure the quality of the concourse landscaping.

Figure L-1: Clear Valve Covers
Location: Among Landscape

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 slab-on-grade was observed. A few control joints and expansion joints need repair or replacement as shown in **Figure S-1.** Concrete was observed to be spalling around various steps and handrail posts as shown in **Figures S-2, S-3** and **S-4.**

Figure S-1: Slab-on-Grade Expansion Joint
Location: Various Locations including Special Outside Cooking Room 03.14.01

Figure S-2: Concrete Spalling on Stairs
Location: Top of stairs in section 206

Figure S-3: Concrete Spalling
Location: Home Dugout Suite 1.09.02

Figure S-4: Concrete Spalling
Location: Home Dugout Suite 1.09.02

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 renovation stages, 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 widespread spalling was observed. However, minor cracking and some spalling exists which has exposed the reinforcement in the concourse at the top of section 234, as shown in **Figure S-5** (left). Minor cracking and spalling was also observed while standing in the concourse at the top of section 312, shown in **Figure S-6** (right).

Figure S-5: Exposed Reinforcement
Location: Concourse 03.10.01

Figure S-6: Exposed Reinforcement
Location: Adjacent to Signature Suite 05.17.01

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.

Handrails and handrail anchorage was inspected in various locations throughout the stadium. At (2) locations inspected, it was observed that anchorage was either loose (**Figure S-7**) or the base plate and anchorage was missing (**Figure S-8**). Additionally, various washers and anchors associated with the handrails surrounding the Hall of Fame Suite have developed rust.

Figure S-7: Loose Handrail Anchors
Location: Stair 16 Room S16.01

Figure S-8: Missing Base Plate & Anchorage
Location: Outside Hall of Fame Suite Meeting Room 02.51.01

Exterior ungalvanized steel was present at several locations throughout the stadium. This was mostly likely due to paint peeling or chipping off. **Figure S-9** shows paint missing on the external perforated metal panel system. **Figure S-10** shows paint missing on the outfield steel light tower columns.

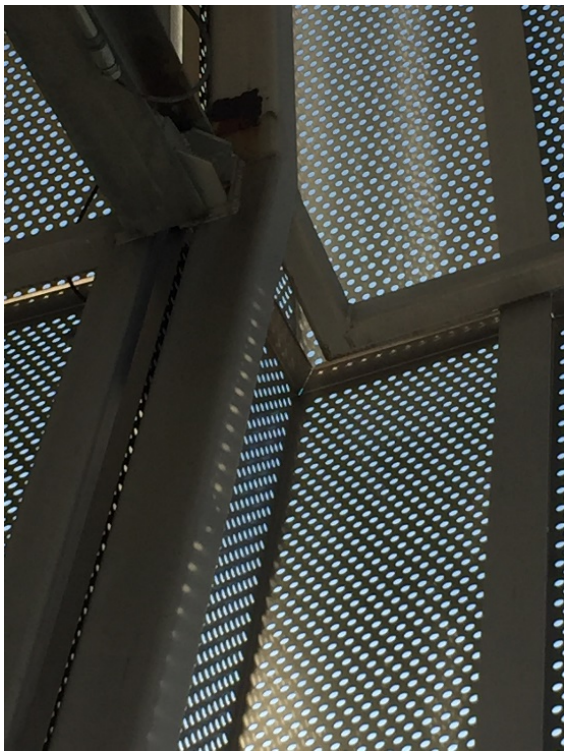


Figure S-9: Exposed Ungalvanized Steel
Location: Adjacent to Escalator ES01.03

Figure S-10: Paint Chipping
Location: Outside Steel Light Towers

Temporary structures around the stadium were also inspected. The wood Leinenkugel stand beyond the scoreboard in the outfield has sustained wood degradation in a few spots (**Figure S-11**). The hot dog stand in the concourse beyond section 208 has developed rust in places (**Figure S-12**).

Figure S-11: **Leinenkugel Outfield Structure**
Location: **Behind Outfield Scoreboard**

Figure S-12: **Hot Dog Structure**
Location: **Beyond Section 208 in Concourse 03.38.01**

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 galvanized steel structure.

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

Figure AF-1: Kauffman Stadium Overall Exterior
Location: South-West Parking Lot

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.

Figure AF-2: Masonry Cladding Systems Exterior (left) and Interior (right)
Location: Kauffman Stadium Exterior at Dugout Concourse and Concessions at View Level

Masonry cladding systems appear to be in satisfactory condition, as shown in **Figure AF-2**. No chipping or staining of the stone or grout was observed.

Figure AF-3: **Glass Storefront Systems**
Location: **Plaza Level 3 - 3.63.01 Outfield Experience (left) &Hall of Fame Suites 03.51.03 (right)**

Glass storefront systems appear to be in satisfactory conditions, as shown in **Figures AF-3.** 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

Glazing, in general, appears to be free of damage or defects. However, glass at ticketing window 5 was observed to be cracking as shown in **Figures AF-4** and windows 11 and 12 were observed to be scratched. These images were taken at ticketing structure 03.17.01. 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 at Ticketing Building
Location: Plaza Level 3 - 03.17.01 Ticketing Building

Additionally, internal storefront systems appear to be in satisfactory conditions, as shown in **Figures AF-5.** 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. However, storefront flashing outside room 03.23.02 was observed to be bent outwards exposing an opening in the system. This may pose potential risks of snagging clothing or getting cut by exposed edge to guests.

Figure AF-5: Interior Storefront (left) and Storefront Flashing (right)
Location: Plaza Level 3 – 03.26.02 (left) and 03.23.02 (right)

Insulated metal panels systems were observed to be in satisfactory condition. In general, no oil canning, staining, or degradation of any kind was observed, as shown in **Figure AF-6** (left). However, on the South-Western face of the Rivals Sports Bar, minimal amounts of rust and streaking was observed at locations of penetrations, as shown in **Figure AF-6** (right).

Figure AF-6: **Insulated Metal Panel System**
Location: **Plaza Level 3 - 03.78.01 Rivals Sports Bar**

Perforated metal panels and graphic mesh systems appear to be in satisfactory condition, as shown in **Figures AF-7.** No oil canning, staining, or degradation of any kind was observed and galvanized sub-structure appears to be free of corrosion or rust.

Figure AF-7: **Kauffman Image**
Location: **Kauffman Stadium North-West Exterior**

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. as shown in **Figure AR-1**.

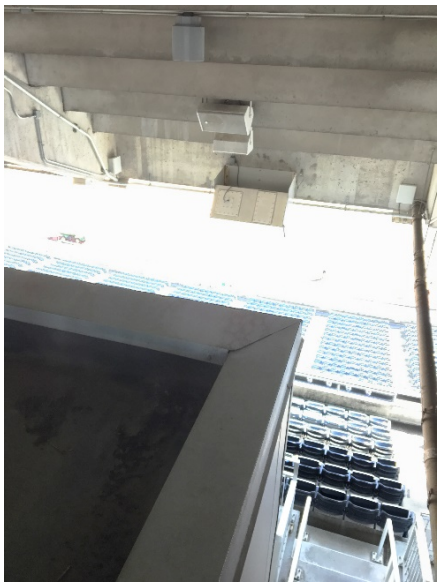


Figure AR-1: Roofing Membrane (left) and Coping (right)
Location: Catwalk on Press Level

Coping and fascia panels at roof eaves and parapets were observed to be in satisfactory condition. Though pooling was not observed at the time of observation, the membrane roof observed from the catwalk area at the Writing Press Level shows evidence that pooling still occurs as noted in the 2016 assessment.

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. We note that the surface rust was observed in the 2016 assessment.

Figure AME-1: Surface Rust on Platform Support Brackets
Location: Clubhouse Level 1 - Royal's Dugout

At the East fountain, it had been observed in the 2016 report that rust had potentially begun to compromise the metal structural integrity and safety. It was observed that stairs into the East and West fountains had been replaced with what appears to be solid, robust stainless tube steel posts, stringers, handrail, and treads, as shown in **Figure AME-2.**

Figure AME-2: **New Stair**
Location: **East Fountain in the Outfield Concourse**

At standing room only areas along outfield concourse, it was observed that the designation paint has begun to wear away, as shown in **Figures ME-3**.

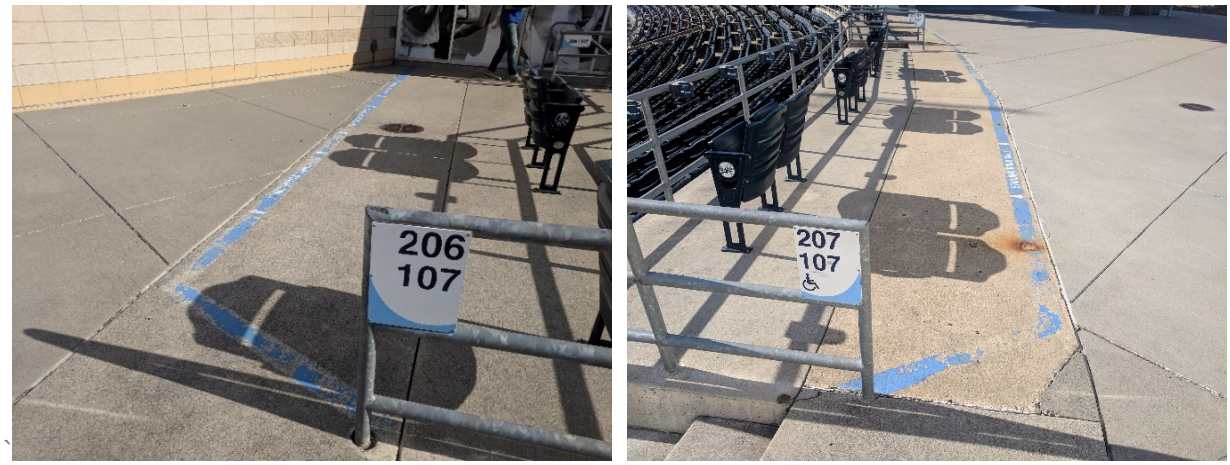


Figure AME-3: **Standing Room Only Paint**
Location: **Plaza Level 3 – North West Concourse**

In most locations joint sealant observed appears to be in satisfactory condition. However, at various locations throughout the stadium, sealant was observed to be cracked or separating, as shown in **Figure AME-4**, in the South-West Plaza Concourse near 03.14.01. This condition may create a potential moisture problem in various service spaces under the stadium. Refer to the "Civil" Section of this report for additional locations throughout the stadium.

Figure AME-4: Joint Sealant
Location: South-West Plaza Concourse near 03.14.01

It was observed that the non-slip texture is beginning to wear away from typical use in various locations in the Upper Seating Bowl 07.18.23, as shown in **Figure AME-5**, This could become a slip and fall hazard to patrons.

Figure AME-5: **Non-Slip Coating**
Location: **Upper Seating Bowl Level 7 - 07.18.23, Section 423**

At the Ticketing Building 03.17.01, it had been observed in the 2016 report that the base sealant had begun to pull away from the concrete at the ticketing counter. Upon observation the sealant has been replaced.

Figure AME-6: **Base Sealant**
Location: **Plaza Level 3 - 03.17.01 Ticketing Building**

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: Tile Floor at the View Level
Location: View Level 7 – South West Concourse

Figure AI-2: Epoxy Floor at the View Level
Location: View Level 7 – South West Concourse

Carpet flooring was generally observed to be in satisfactory condition. No signs of rips, tears, or discoloration were observed. Various stains were observed at the Visiting Team's Locker Room 01.27.03, as shown in **Figure AI-4**.

Figure AI-3: Carpet Flooring
Location: Clubhouse Level 1 Visitor's Locker Room

Porcelain/Ceramic tile flooring areas appear to be in satisfactory condition. No signs of grout discoloration or cracking were observed. However, it was observed that the door to the Men's Restroom 03.23.01 in the Diamond Club drags on the floor during when opening and has begun to wear on the tile flooring, as shown in **Figure AI-5**.

Figure AI-4: Ceramic Tile Flooring
Location: Plaza Level 3 - 03.23.01 Diamond Club Men's Restroom

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. In general, no punctures, holes, or scratches were observed. However, In the Police Open Office 02.26.07 a significant amount of damage to the gypsum board was observed, typically at standard chair heights, as shown in **Figure AI-6.**

Figure AI-5: **Gypsum Board**
Location: **Service Level 2 - 02.26.07 Police Open Office**

Ceramic tile walls generally appear to be in satisfactory condition, as shown in **Figure AI-7.** No visible chipping, flaking, or cracking of the tile or grout was observed.

Figure AI-6: **Ceramic Tile**
Location: **Club Level 3 – 03.22.01 Diamond Club**

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 or the Royal's Clubhouse.

Figure AI-7: Wood Veneer Panel Wall
Location (left): Loge Level 5 - 05.24.01 Triple Crown Suite
Location (right): Clubhouse Level 1 - 01.21.03 Royals Clubhouse

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 typically appear to be in satisfactory condition. It had been observed in the 2016 assessment that several foil faced batt insulation sections in the Clubhouse Batting Tunnels 01.13.01 were hanging down due to suspected impact from baseballs or a potential gap in the expansion joint above. From observation underneath, the issue appears to have been resolved, with the exception of one significant area of insulation hanging down, as shown in **Figure AI-8** (right), suspected to be due to maintenance.

Figure AI-8: Foil Faced Batt Insulation
Location: Clubhouse Level 1 – Batting Tunnels 01.13.01

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**
Location: **Club Level 3 – 03.22.01 Diamond Club**

Acoustical ceiling tile is the primary material used for interior spaces. The typical condition of the acoustical ceiling tile appears to be in satisfactory condition. Refer to **Figure AI-10** for typical condition at observed interior ACT ceilings. However, locations in the Triple Crown Suites 05.24.01 and Dugout Concourse 02.11.02 were observed to have been stained, as shown in **Figure AI-11**.

Figure AI-10: **Acoustic Ceiling Tile**
Location: **Plaza Level 3 – 03.51.02 Hall of Fame Suites**

Figure AI-11: **Stained Acoustic Ceiling Tile**
Location (left): **Loge Level 5 – Triple Crown Suites 05.24.01**
Location (right): **Service Level 2 - 02.11.02 Dugout Concourse**

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-12**.

Figure AI-12: Wood Plank Ceilings and Accents
Location (right): View Level 7 – 07.24.05 Boulevard Concessions
Location (left): Plaza Level 3 – 03.10.01 Boulevard Concessions

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.

It was observed in the 2016 assessment that the hollow metal door to the men's restroom adjacent to the Diamond Club had been scuffed and scratched on the exterior of the door. Upon current observation the door had been replaced with a flush wood door, as shown previously in **Figure AI-5**.

Generally, painted hollow metal doors were observed to be in satisfactory condition. However, at the entrance to the Police Open Office 02.26.07, it was observed that significant amounts of paint have begun to wear away **Figure AI-13**.

Figure AI-13: **Hollow Metal Door**
Location: **Service Level 2 - 02.26.07 Police Open Office**

Miscellaneous Interior Observations

Upon observation of concessions stand 03.14.01 it was observed that fiberglass reinforced plastic at the head of the opening has fallen off as shown in **Figure AMI-1**. Exposure of construction adhesive materials in a concessions environment may not comply with retail / health standards.

Figure AMI-1: **Missing Header Cap**
Location: **Plaza Level 3 - 03.14.01 Concession Stand**

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**.

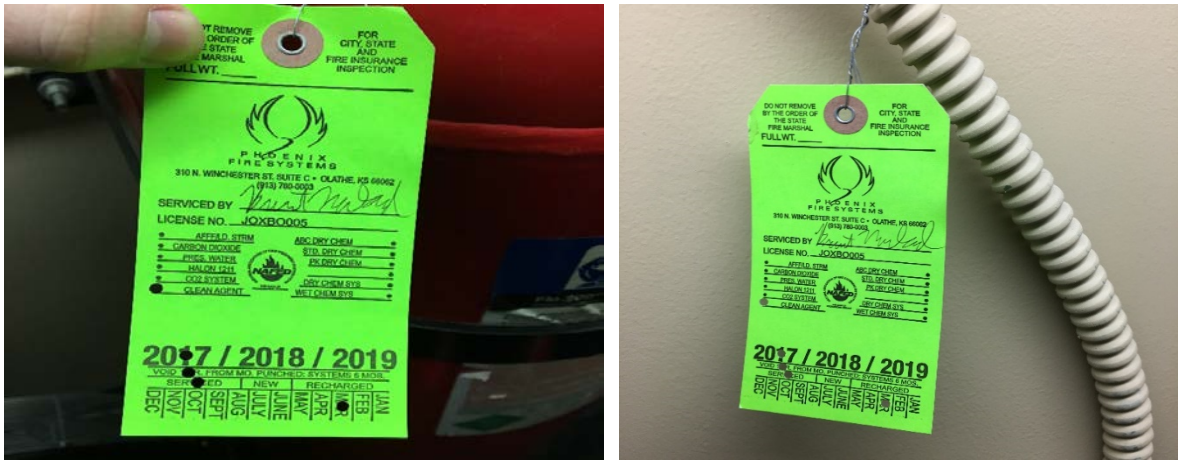


Figure AMI-2: **Fire Extinguisher Inspection Tags**
Location: **Broadcast Level 4 – 04.21.03 Corridor**

At the entrance to the Craft & Draft Bar 05.42.01, it had been observed in the 2016 report door was lacking a proper door stop or closer engaged creating a pinch point. Upon review it appears that a proper closer is installed no longer creating a pinch point.

Figure AMI-3: Aluminum Framed Glass Door
Location: Loge Level – 05.42.01 Stadium Club Reception

Mechanical

Overall, the mechanical systems appear to be in satisfactory condition. The facility is mainly served by 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.

In the previous report from 2016, some maintenance items were called out in the Boiler Room 02.26.03. Pipe shields that were missing on insulated piping have been replaced. The indication lights on the domestic water booster pump that were burned out could not be verified as “fixed” during the walkthrough.

Also in the boiler room, a union on the domestic water heater #1 is leaking and leaving lime scale discharge on the top of the water heater, as shown in **Figure M-1**. Above the water heaters, a duct mounted fan appears to be missing the protective guard at the motor pulley, as shown in **Figure M-2**.

Figure M-1: Leaking Union on Domestic Water Heater #1
Location: Service Level – 02.26.03 Boiler Room

Figure M-2: Missing Motor Guard
Location: Service Level – 02.26.03 Boiler Room

The kitchen and commissary, room 02.21.01, mechanical systems appeared to be in satisfactory condition. The dry pipe sprinkler piping noted in the 2016 report as severely corroded has been replaced, as shown in **Figure M-3**.

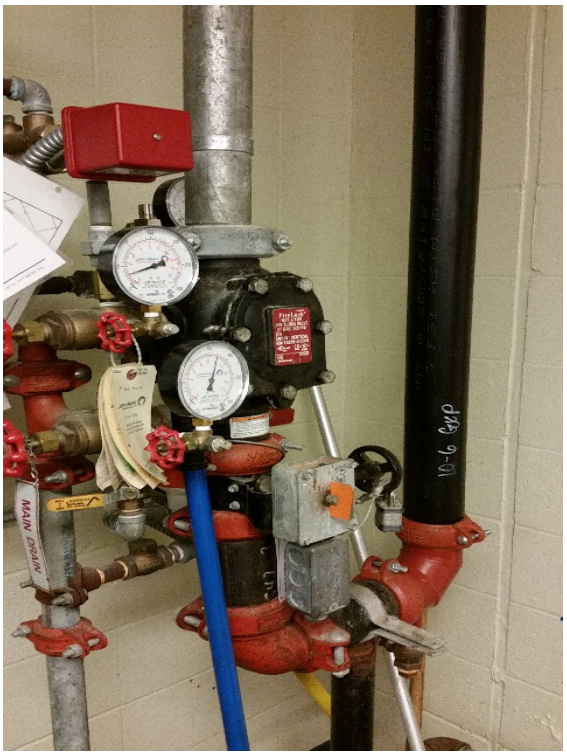


Figure M-3: **Dry-Pipe Sprinkler Valve System**
Location: **Service Level – 02.21.01 Kitchen and Commissary**

In all kitchen and concessions spaces, the HVAC grilles and diffusers are coated in a layer of dust and grease that may begin to restrict airflow, typical images are shown in **Figures M-4 and M5**. The dust should be cleaned off to prevent an impact on airflow performance.

Figure M-4: Dirty Grilles in Concessions Areas
Location: Service Level – 02.21.01 Kitchen

Figure M-5: Dirty Grilles in Concessions Areas
Location: Plaza Level – 03.50.01 Concession

Electrical Room 02.19.01 is served by a DX air handling unit. This unit was observed to have a large vibration from the fan while operating which should be repaired to prevent further damage to the unit.

In Special Cooking 03.14.01, there is a recessed sprinkler head that is missing its cover plate, as shown in **Figure M-6**.

Figure M-6: Sprinkler Missing Cover Plate
Location: Plaza Level – 03.14.01 Special Cooking

Electrical

The stadium main electrical service consists 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 a1600A switchgear at 480Y/277V, 3- phase, 4- wire and is connected to a 1000KW on-site generator with lighting and appliance panelboards are 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 via cable tray system to each telecommunications room on each stadium level.

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

Junction boxes were found without cover-plates in the following rooms. Refer to **Figure E-1**:

- Electrical Room 02.19.01 (E129A) – Service Level
- Concession Room 03.54.01 (C234) – Plaza Level
- Mechanical Room 01.15.02 (M032) – Clubhouse Level
- Electrical Service Room 02.09.04 (E125A) – Service Level

Figure E-1: Junction Boxes without Cover Plates
Location: Room 02.19.01 (top left) Room 03.54.01 (top right)
Room 01.15.02 (bottom left) Room 02.09.04 bottom right)

Electrical equipment in Electrical Service Room 02.09.04 (E125A) are not labeled.

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. The assessment performed in 2017 has found that the bug-eyed fixtures are no longer used for egress lighting. Selected light fixtures have been circuited to the standby generator power.

At Concourses 07.39.01 and 07.24.04 and bridges 07.19.01 and 07.29.01, GFI receptacles on the View Level were evaluated and were found to not have weatherproof covers on receptacles. Refer to **Figure E-2** (left). In some instances, it was also found that the TV monitors on concourse level were non-GFI receptacles and without cover-plates. Refer to **Figure E-2** (right).

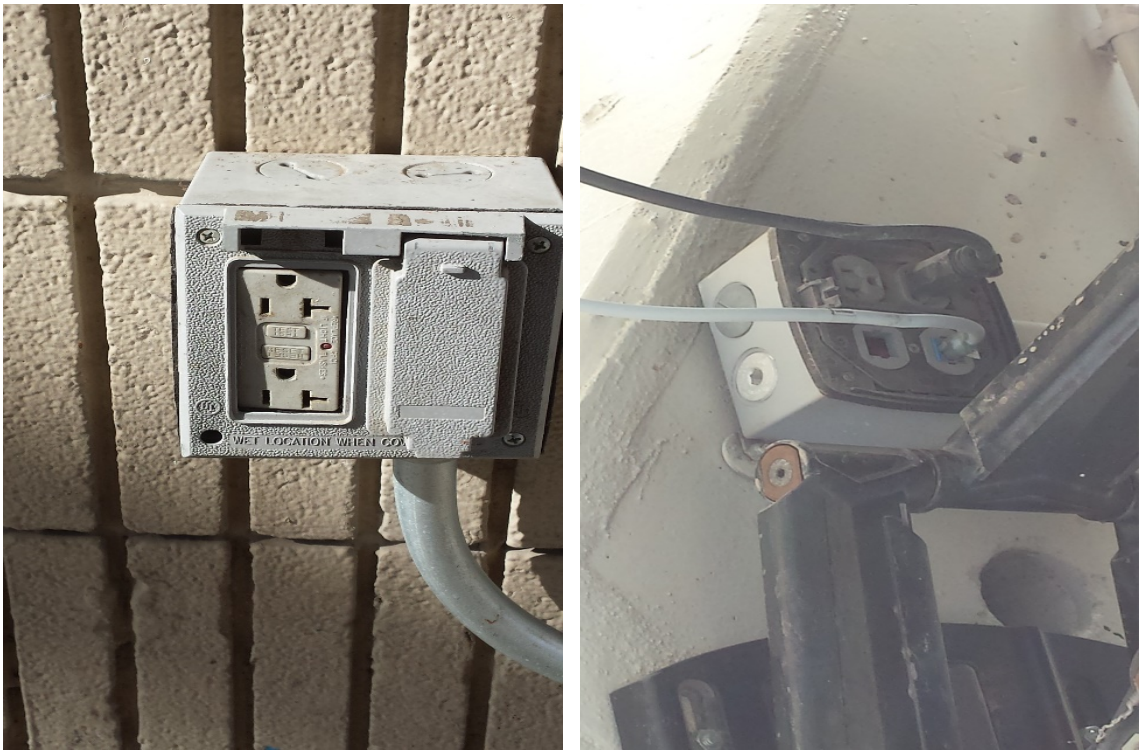


Figure E-2: Receptacle w/o Cover Plate (left), Non-GFI receptacle and w/o WIU cover (right)
Location: Concourses 07.39.01 and 07.24.04, Bridges 07.19.01 and 07.29.01

Walk-in cooler in Beer 02.18.02 on service level was evaluated and found to have in operable light fixtures. Refer to **Figure E-3**.

Figure E-3: Inoperable Cooler Light Fixture
Location: Service Level – Beer 02.18.02

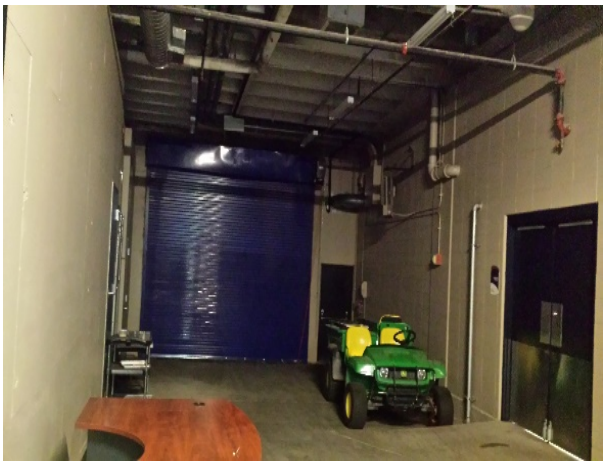
In Mechanical Room 01.15.02 (M032) on clubhouse level, it was observed that electrical equipment in room were not labeled with equipment tag naming convention. Refer to **Figure E-4**. Fused switches in distribution board are not labeled indicating the equipment description. Refer to **Figure E-5**.

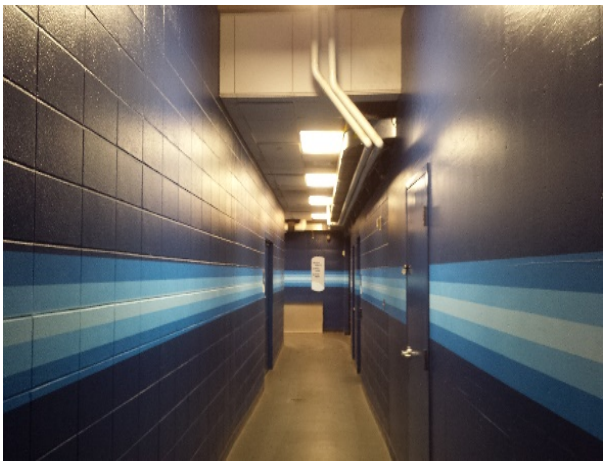
Figure E-4: Electrical Equipment Not Labeled **Figure E-5: Fused Switches Not labeled**
Location: Clubhouse Level – Mechanical Room 01.15.02 (right and left)

Junction boxes for pendant mounted receptacles in Vendor Commissary Room 02.44.01 (Room 144) on service level were found to be not fully recessed in gypsum board ceiling. Light fixtures were also found to have dirty and damage lenses. Refer to **Figure E-6**

Figure E-6: **Unsupported Pendant Receptacle and Dirty Light Fixture Lenses**
Location: **Service Level - Vendor Commissary 02.44.01**

It has been observed that there are no exit signs along the path of egress in the corridors 01.16.02 and 01.17.08, Truck Ramp area, of the Royal Clubhouse level. Refer to **Figure E-7**.





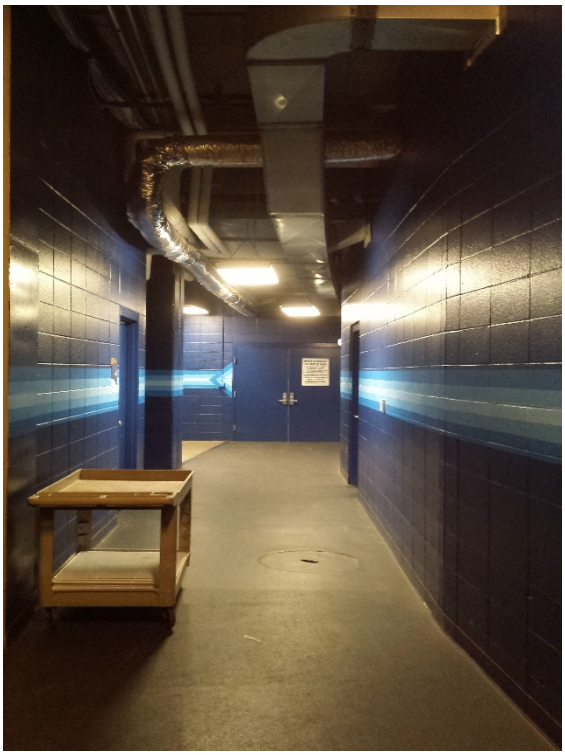


Figure E-7: Corridors with No Exit Signs
Locations: South Corridor 01.16.02 (top left)
North Corridor 01.16.02 (top right)
Corridor 01.17.08 (bottom middle)

The Royals service tunnel was observed and found no emergency egress lights or exit signs along the path of egress. Refer to **Figure E-8**.

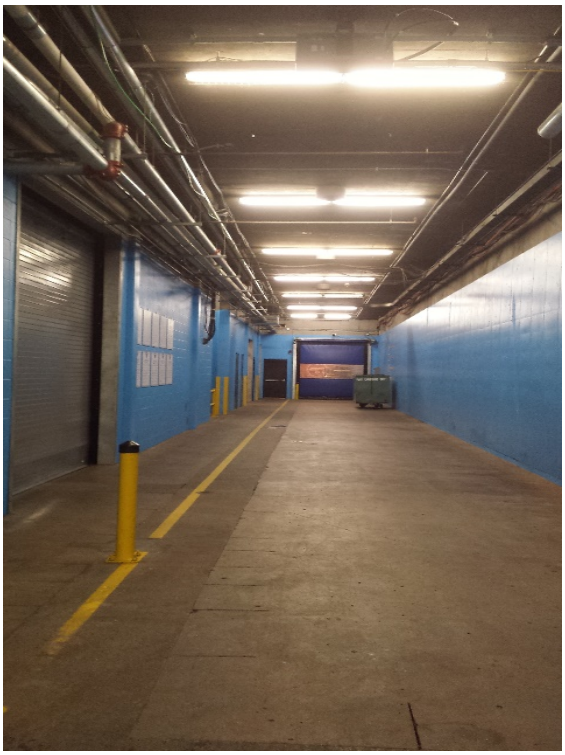


Figure E-8: **Royals Service Tunnel with No Emergency Egress Lights or Exit Signs**
Location: **Royals Service Tunnel**

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.

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 various handrail locations and at the original concrete pan joist system in section 312, as shown in **Figure S-6**. 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.

Hand rail anchors were observed to be loose or missing as shown in **Figures S-7** and **S-8.**

- Locations where handrails anchors are loose, it is recommended to replace/tighten those anchors immediately
- Locations where handrail base plate is missing, it is recommended to add base plate and secure base of handrail immediately

Paint chipping was observed at various locations throughout the stadium exposing the bare steel. Refer to **Figures S-9** and **S-10.**

- It is recommended to apply touchup paint routinely as needed to keep the bare steel from rusting

Wood degradation and rusting was observed in various temporary structures around the stadium. Refer to **Figures S-11** and **S-12.**

- It is recommended to monitor these structures closely and repair and replace portions of these structures as needed.

Façades

Glass storefronts, in general, appear to be in satisfactory condition. However, glass panels at ticketing structure 03.17.01. 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 Insulated Metal Panel Systems appear to be in overall satisfactory condition. However, panels on the South-Western face of the Rivals Sports Bar, outside 03.78.01 show minimal amounts of rust, as shown in **Figure AF-6** (right).

- Consider providing a topical coating at rust areas to prevent further corrosion, where necessary.

The Interior storefront systems appear to be in satisfactory condition in general. However, storefront flashing outside room 03.23.02 was observed to be bent outwards exposing an opening in the system. as shown in **Figures AF-5.**

- Consider bending end flashing back into cap to eliminate dangerous edge condition.

Roofing

Roofing membranes appear to be in satisfactory condition, however, evidence of ponding water 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). The roof slope does not appear to be sloped to the area drain which may have been incorrectly installed at the time of construction.

- 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

Designation paint along the outfield concourse on the Plaza level was observed to have begun to wear away as shown in **Figures ME-3**.

- Consider stripping remaining paint from areas and repainting designation lines on clean concrete.

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

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**. As noted in the 2016 assessment, 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.

In the Upper-Seating Bowl near section 423 the non-slip texture on stair treads has begun to wear away, as shown in **Figure AME-5.**

- Consider reapplying non-stick texture to the stairs to prevent potential slips and falls.

Interior Elements

Interior floor, wall, and ceiling finishes were observed to be in satisfactory condition, generally. However, various stains were observed in the Visitor's Locker Room 01.27.03

- Consider replacing areas of the areas carpet that have been affected to maintain the appearance of a First Class MLB Stadium.

Acoustical ceiling tiles appear to be in satisfactory condition, typically. However, locations in the Triple Crown Suites 05.24.01 and Dugout Concourse 02.11.02 were observed to have been stained, as shown in **Figure AI-11**.

- 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, at the entrance to the Police Open Office 02.26.07, it was observed that significant amounts of paint have begun to wear away **Figure AI-13**.

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

Additionally, the door to the Men's Restroom 03.23.01 in the Diamond Club drags on the floor during when opening and has begun to wear on the tile flooring, as shown in **Figure AI-5**.

- Consider rehanging the door to clear the tile along the door's swing to prevent further marking of the tile in the restroom.

Interior Miscellaneous Observations

Fiberglass Reinforced Plastic at the head of an opening in concession stand 03.14.01 was observed to have fallen exposing construction adhering material to workers and patrons.

- Consider replacing the Fiberglass Reinforced Plastic at this location to protect wall structure and maintain the appearance of a First Class MLB Stadium.

Mechanical

The mechanical systems observed were overall in satisfactory condition. To extend the life of equipment and components, continue routine maintenance as required.

Indication lights could not be verified as fixed at the domestic water booster pump control panel.

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

A union on domestic water heater #1 in the Boiler Room 02.26.03 is leaking and leaving lime scale discharge on top of the water heater as shown in **Figure M-1**.

- Repair the leaking union to eliminate the lime scale.

A duct mounted fan above domestic water heater #1 in the Boiler Room 02.26.03 appears to be missing its protective guard around the motor and pulley as shown in **Figure M-2**.

- Replace the protective guard for OSHA compliance and personnel safety.

The air handling unit in Electrical Room 02.19.01 has a large vibration while operating

- Repair to prevent further damage to the unit

All grilles and diffusers in kitchen and concessions spaces are coated in dust and grease that will begin to impact their performance, as shown in **Figures M-4** and **M5**.

- Clean the diffusers and grilles to restore their original intended airflow.

In Special Cooking 03.14.01, there is a recessed sprinkler head that is missing its cover plate, as shown in **Figure M-6**.

- Replace the cover plate to ensure the sprinkler head will operate as intended.

Electrical

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

Junction boxes were found without cover-plates in the following rooms. Refer to **Figure E-1**:

- Electrical Room 02.19.01 (E129A) – Service Level
- Concession Room 03.54.01 (C234) – Plaza Level
- Mechanical Room 01.15.02 (M032) – Clubhouse Level
- Electrical Service Room 02.09.04 (E125A) – Service Level

- It is recommended to provide cover-plates over junction box openings.

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. The assessment performed in 2017 has found that the bug-eyed fixtures are no longer used for egress lighting. Selected light fixtures have been circuited to the standby generator power.

- It is recommended to disconnect and remove bug-eyed fixtures. Removing the fixtures will make clear which fixtures are egress fixtures.

At Concourses 07.39.01 and 07.24.04 and bridges 07.19.01 and 07.29.01, GFI receptacles on the View Level were evaluated and were found to not have weatherproof covers on receptacles as shown in **Figure E-2**. In some instances, it was also found that the TV monitors on concourse level were non-GFI receptacles and without cover-plates as shown in **Figure E-2**.

- It is recommended to provide weatherproof cover on GFI receptacles.
- It is recommended to replace TV monitor receptacles with GFI receptacles and provide "while in use" covers.

Walk-in cooler in Beer 02.18.02 on service level was evaluated and found to have in operable light fixtures. Refer to **Figure E-3**.

- It is recommended to replace light fixture lamps in walk-in cooler unit.

In Mechanical Room 01.15.02 (M032) on clubhouse level, it was observed that electrical equipment in room were not labeled with equipment tag naming convention. Refer to **Figure E-4**. Fused switches in distribution board are not labeled. Refer to **Figure E-5**.

- It is recommended to provide labels on all electrical equipment in mechanical room 01.15.02.
- It is recommended to provide load description labels on each fuse switch.

Junction boxes for pendant mounted receptacles in Vendor Commissary Room 02.44.01 (Room 144) on service level were found to be not fully recessed in gypsum board ceiling. Light fixtures were also found to have dirty and damage lenses. Refer to **Figure E-6**

- It is recommended to recessed and support pendant fixture as required to avoid electrical connect damage.
- It is recommended to replace light fixture lenses in room so as to provide sufficient light distribution in work space.

It has been observed that there are no exit signs along the path of egress in the corridors 01.16.02 and 01.17.08, Truck Ramp area, of the Royal Clubhouse level. Refer to **Figure E-7**.

- It is recommended to provide exit signs along the patch of egress to guide persons out of a building in an emergency situation.

The Royals service tunnel was observed and found no emergency egress lights or exit signs along the path of egress. Refer to **Figure E-8**.

- It is recommended to provide exit signs and emergency egress light fixtures along the path of egress to guide persons out of a building during an emergency situation.

2017 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	3/28/2018
Adjust Irrigation	Landscaping	Adjust Irrigation heads and monitor	3/28/2018
Check Area Drains	Landscaping	Check/clear area drains in landscaping areas	3/28/2018
Plant Maintenance	Landscaping	Check/maintaining landscaped areas	Ongoing
Spalling Concrete at Sections 220/312	Structure	Will monitor for any changes and address as needed.	Ongoing
Loose Handrails	Handrails	Tighten and/or replace fasteners/parts	3/28/2018
Ticket Windows	Facades	Cracked windows to be replaced	3/28/2018
Storefront flashing 03.23.02	Facades	Repair flashing	3/28/2018
Rivals/C251 Panels	Facades	Repair/caulk panel openings	3/28/2018
Dugout Platform Support Rusting	Miscellaneous Exterior	To be inspected/painted	3/28/2018
Standing Room Only Paint	Miscellaneous Exterior	To be repainted	3/28/2018
Home Batting Tunnel Insulation	Interior Elements	The insulation will be fixed or replaced.	3/28/2018
Men's Restroom Door in Diamond Club	Interior Elements	Adjust to not drag on floor	3/28/2018
Paint Police Office/Door	Interior Elements	To be painted	3/28/2018
Clubhouse Batting Cage Insulation	Interior Elements	Re-attach insulation	3/28/2018
Ceiling Tile	Interior Elements	Dugout Concourse and Triple Crown Suites	3/28/2018
242/244 Concession Wall Board	Interior Elements	Re-attach wall board	3/28/2018
Clubhouse Carpet	Interior Elements	Clean/replace stained areas of carpet	3/28/2018
Pump Station Indicator Lights	Mechanical	Bulbs to be checked/replaced	3/28/2018
Boiler #1 Leaking Union/ fan guard	Mechanical	To be replaced	3/28/2018
Concession Grills/Louvers	Mechanical	To be cleaned	3/28/2018
Electrical Room DX Unit Vibration	Mechanical	Investigate and repair	3/28/2018
Missing Sprinkler Head Cover Plate	Mechanical	To be replaced	3/28/2018
Junction Box Cover Plates/Outlet Covers	Electrical	To be inspected/repaired/replaced as needed	3/28/2018
Walk in Cooler Lights	Electrical	To be repaired	3/28/2018
Pendant Receptacles/Dirty Lights	Electrical	Repair/Clean	3/28/2018
Egress Lighting	Electrical	Review and install as needed	3/28/2018
Remove unused bug-eyed units	Electrical	Remove units not being used for egress	3/28/2018
Electrical Equipment Labels	Electrical	To be inspected and labeled properly	3/28/2018

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