Douglas County Schools

Douglas County School District
620 Wilcox Street
Castle Rock, CO 80104

ACC South Feasibility Study/Test Fit

Issue Date: October 22nd, 2021

Cuningham

1500 Wynkoop St. Suite 300
Denver, CO 80202

ACC Parker Feasibility Study/Test Fit

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Introduction

Cuningham and our technical consultants are pleased to submit this Feasibility Analysis and Test Fit report to the Douglas County School District (DCSD). We understand this is just one step in the possible acquisition and conversion of the Arapahoe Community College (ACC) Parker Campus property into a District Alternative High School. We are prepared to answer questions on the contents of this report and to provide further analysis if needed.

Executive Summary

Douglas County School District staff contacted Cuningham to request assistance with a feasibility analysis and test fit for the ACC Parker building located at 15653 Brookstone Drive, Parker, CO. Please note that although the mailing address for the facility is Parker, the site is technically west of and outside the limits of the town. The site and building have many natural advantages that make such an effort reasonable.

- Approximately 22,000 gross square feet available, in comparison to 23,000 s.f. Alternative High School designed for Pine Drive
- Location immediately adjacent to Chaparral High School in DCSD
- Quality materials and finishes throughout with a high degree of durability
- Ten existing classrooms and two science labs that are ready for use by DCSD students, almost completely as is
- Expansive site with more than enough parking spaces and convenient access
- Open central space that unites both floors, which can be used as a student commons

Cuningham staff, augmented by five specialty engineering/technical consultants representing three different firms, visited the site twice to evaluate the condition of the building and its suitability for the proposed new uses. Key findings from these experts are:

- Changing the Building Code Occupancy Use from Assembly and Office to Education should not impose especially costly changes.
- Building infrastructure of electrical service and mechanical capacity are adequate for the proposed uses.
- The exterior weathering surfaces (roofs and walls) are in generally good condition but do need some maintenance.
- The proposed uses fit well in the existing structure and Alternative High School staff are very satisfied with the potential floor plans
- The site including pavements and landscaping are in good condition
- The proposed uses will require a new vehicular access around the building to an overhead door into one classroom space

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- Design, Permitting, and Construction would require approximately 14 months for a full build-out.

Within the short time duration of this study, Cuningham and its consultants have provided input on probable construction costs where appropriate. In order to provide the District with a useful Opinion of Probable Cost, our team worked closely with a local general contractor who is familiar with local market conditions and district standards.

Process Summary
Cuningham staff walked the site, in the company of DCSD staff, on September 28, 2021 to assess the issues and challenges. Within days, Cuningham contacted three additional consulting firms and received proposals for their services. Those services were submitted along with Cunningham's services to DSCD for approval. DCSD immediately approved that. Services were to be completed by October 22, 2021.

Two consulting firms visited the site to familiarize themselves with the property. Every mechanical room and electrical room was viewed and the roof was observed. DCSD involved many of their own department staff in the analysis and site visits, including security, IT, maintenance, environmental, and planning. Preliminary test fit plans were presented to District staff on October 6 and October 14.

No public agencies or authorities having jurisdiction (AHJ's) were consulted by the Cuningham team. This Due Diligence report was delivered to DCSD on October 22, 2021.

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ACC Parker Preliminary Project Schedule

Schematic Design (SD)	1 month
SD Review	1 week
Design Development (DD)	1 month
DD Review	1 week
Construction Documents (CD)	2 months
CD review	1 week
Design/Documents subtotal	5 months
Permit, Bid, and Negotiation	3 months
Construction	4 - 5 months
Total start of design to Substantial Completion	12 - 13 months

Assumptions:

Permitting will be through Douglas County Building Department.

Design will not start before January 2022.

Delivery method will be Construction Manager/General Contractor (CM/GC)

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ACC Parker Preliminary Cost Opinion

Property Purchase Price	To be Determined	
Project Cost Categories	Low Range	High Range
Exterior/Site Renovation	$28,720	$54,600
Building Renovation	$689,130	$1,369,550
Security Upgrades	$145,250	$279,000
Security Vendor	$393,953	$393,353
IT Upgrades	$51,400	$102,800
IT Vendor	$245,388	$282,138
Subtotal Site and Building	$1,553,841	$2,481,441
Renovation Contingency 15%	$233,076	$372,216
FF&E	$200,000	$400,000
Other Soft Costs 20%	$310,768	$496,288
Total Project Cost excluding purchase	**$2,297,685**	**$3,749,945**

Annual estimated utilities and maintenance costs $

Note: If ACC Parker leaves existing furniture and equipment in place, the FF&E budget could be reduced substantially.

Exclusions:

Backup power generator
BAS system upgrades
Sanitary and water line (none anticipated to be needed)

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Site Plan 15653 Brookstone Dr, Parker, CO 80134

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ACC South

Program Feasibility Study (Test Fit)

October 22nd, 2021

General Note:

In order to minimize construction costs, the design team has endeavored to retain as many existing walls as possible. Generally speaking, the bulk of reconfiguration takes place on level one to the north and east of the existing Lower Commons space. Level two, with the exception of code-required partition upgrades and increased fixture counts, remains largely unchanged from its current layout.

Level 1 (see accompanying graphic for more information):

Circulation:

- The selective incorporation of glass partitions is proposed to allow the future school to close off/secure portions of the building for after-hours and/or events use. Magnetic hold open doors are also proposed as a means to further compartmentalize interior spaces in case of an emergency or lockdown scenario. The exact location and extents of these elements would be addressed in more detail as part of the design process.

Entry:

- The proposed main entry into the building would be through the existing SE vestibule. A new partition would divide this space into a secure vestibule/holding area with a new SRO office immediately adjacent. This arrangement would be similar to the current Pine Drive building entry.
- Occupants and guests would then exit the north side of the secured vestibule where they would have a direct line of sight to a new reception desk and waiting area, as well as the Lower Commons. The SE stair, located immediately adjacent to the vestibule, would provide quick access to the second level of the building.

School Admin:

- A new Admin suite is located north of the reception desk.
- Adjacent to the bank of offices on the west side of level one is an open flex space for informal meetings and teacher/staff collaboration.
- Flanking the open flex space, adjacent to the east side of the Lower Commons, a Storage/Copy area has been provided.
- A new Nurse's office, shared staff/nurse restroom, and office are arranged along the north side of the open flex space. IT, Electrical, and Janitorial rooms continuing down the corridor leading to the NE entry.

Classrooms:

- Moving clockwise from the south side of level one, the humanities, textiles, and design lab classrooms open directly onto the Lower Commons.

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- North of the Design lab, an outdoor learning space, bounded by a security/privacy fence has been provided.

Accessory:

- Immediately adjacent to the northwest stair a new kitchen and student store will serve students and staff grab and go type meals and essentials.

Level 2

Circulation:

- The selective incorporation of glass partitions is proposed to allow the future school to close off/secure portions of the building for after-hours and/or events use. Magnetic hold open doors are also proposed as a means to further compartmentalize interior spaces in case of an emergency or lockdown scenario. The exact location and extents of these elements would be addressed in more detail as part of the design process.

Admin Support:

- North of the southeast stair, directly above the Principal's office, a large shared office space provides additional space for administrative support staff.
- Across from the shared office on the opposite side of the southeast stair, a group meeting room is conveniently accessible to students and staff.
- A space for dedicated to staff professional development is located at the northwest corner of level two readily accessible form the existing elevator and northwest stair.

Classrooms:

- Surrounding the Upper Commons clockwise starting from the south are humanities classrooms, a computer lab, and two math classrooms.
- The existing Wet and Dry Lab spaces at the northeast corner of level 2 will be repurposed to serve as science classrooms with a shared prep/storage area in between accessible from both. The Boiler, Electrical, and Janitor rooms adjacent to these classrooms will remain.

Accessory:

- The existing Student Lounge space directly above the current reception area will remain a dedicated gathering space for students.

ACC South

Code Feasibility Study Narrative

October 22nd, 2021

Introduction

It is our understanding that the Douglas County School District (DCSD) is considering the possibility of acquiring the existing Health and Physical Science lab at Arapahoe Community College (ACC South) located at 15653 Brookstone Drive in Parker, CO. CGA staff and its consultants have had the opportunity to visit the site and assess the feasibility of repurposing the existing facility for use as an Alternative High School.

Observations

Based on recent site visits by CGA staff, the following initial code-related observations are offered:

Level 1 (see accompanying graphic for more information):

- Changes in proposed occupancy/use will result in higher fixture count to meet code requirements. Existing bathrooms will need to be reconfigured/expanded to include one additional toilet and sink for both males and females. Staff/Nurse toilets that are otherwise inaccessible to students do not count towards this total.
- Reconfiguration of existing NW vestibule will be required to accommodate egress requirements.
- Reconfiguration of existing SE vestibule will be required to accommodate egress requirements.
- 2 additional drinking fountains will be required on this floor to satisfy current fixture requirements.

Level 2 (see accompanying graphic for more information):

- Existing walls at proposed science labs will need to be modified/upgraded to resist the passage of smoke.
- The existing fire resistance rating of the Boiler and Electrical Room walls will need to be maintained. Those sections of these walls immediately adjacent to the new science labs (and associated Science Prep/Storage) will also need to be modified to resist the passage of smoke.
- 2 additional drinking fountains will be required on this floor to satisfy current fixture requirements.
- Changes in proposed occupancy/use will result in higher fixture count to meet code requirements. Existing bathrooms will need to be reconfigured/expanded to include one additional toilet and sink for males plus two additional toilets and one sink for females.

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Envelope Assessment Report

Arapahoe Community College – Parker Campus
Parker, CO
CO221280.00 (210)

Prepared for:
Cuningham Group Architecture, Inc.

Property Address:
15653 Brookstone Drive
Parker, CO 80134

Date:
October 22, 2021

Investigation by:
Quentin Odes, P.E.

6275 Joyce Drive, Suite 200 | Arvada, CO 80403-7541
1-866-552-5246 | 303-552-0177 | www.pieglobal.com

October 22, 2021

Mr. Paul Hutton, FAIA, NCARB
Principal, Director of Regenerative Design
Cuningham Group Architecture, Inc.
1500 Wynkoop Street, Suite 300
Denver, CO 80202

Project Name:	Arapahoe Community College – Building Envelope Assessment
Project Name:	CO221280.00 (210)
Property Location:	15653 Brookstone Drive Parker, CO 80134

Dear Mr. Hutton:

Pie was retained to perform a building envelope assessment at the Arapahoe Community College Parker Campus in Parker, Colorado. The building was a two-story steel-framed structure originally constructed in 1999. The existing roof and exteriors were part of the original construction. There were no known additions or alterations to the building envelope.

The building exterior wall materials consisted of split-face concrete masonry units, exterior insulation finishing system (EIFS), storefronts, and curtain wall at two-story locations. Canopies were located at the southern main entrance and at the north entrance. Two roof systems existed at the campus – ballasted EPDM main roof area, and a standing seam metal roof with a curved profile at the higher roof areas along the west side and at the northwest corner. For the purposes of this report, the main entrance faced south onto the parking lot.

The results of our investigation are presented herein.

Purpose and Scope

Pie's scope of work was the following:

1. Perform a visual assessment of the exterior envelope and roof.
2. Provide recommendations for the next steps and/or repairs.
3. Provide a high-level opinion of recommended repair cost, delivered separately from this report.

Gathered Information

Pie conducted the visual assessment of building exteriors and the roof on October 15, 2021. See Attachment A, included with this report, for photos taken during the assessment site visit.

OBSERVATIONS

ROOF

The building was covered with two different roof systems – a ballasted EPDM system located at the main roof area and a standing seam metal roof at the west side and northwest corner of the building. The main roof area with a ballasted EPDM system was divided into three distinct regions, separated by parapets or curb walls that extended approximately 24-inches above the roof surface. Parapet walls were capped with either precast or metal coping.

No tears or punctures were observed in the membrane, and the membrane did not appear tented along the parapet walls. Visible seams were intact without openings, tears, or holes. The membrane extended up the perimeter parapet walls and terminated directly below the precast coping or continued under the metal coping. Membrane termination height above the roof surface was at least 8-inches and varied due to the different heights of the parapet walls. Counterflashing was located over the vertical membrane termination bars on the parapet walls, however, exposed termination bars were located at the horizontal membrane termination points and where the membrane wrapped around parapet walls. Sealant was visible at the exposed termination bars along the exposed edge of the membrane and around fasteners.

Metal counterflashing was generally securely fastened to the building, however, at the north EIFS wall of the main roof area, a section of counterflashing had fallen and was laying on the roof ballast. Adjacent to the fallen section of flashing, fasteners were loose. Sealant joints, of multiple colors, were typically placed along the top of the flashings and at the ends, in lieu of end dams, however, locations of exposed flashing ends were observed. Sealant joints along the counterflashing appeared intact without cracks or gaps.

Precast coping at the top of the parapet walls had cracks in the coping and in the mortar joints. Sealant was placed in several mortar joints, however, some had no mortar or sealant. Metal coping was securely fastened, with locations of flaked paint on the top side. Metal coping terminated into the face of the split-face masonry parapet walls at multiple locations of elevation steps in the parapet wall and where interior parapet walls met the EIFS exterior walls. Sealant joints were placed at the interface of the metal coping with the split-face masonry and EIFS. Cracks and gaps were observed at these sealant joints.

The crowns of the curved standing seam metal roof areas were approximately 5-feet higher than the main roof (ballasted EPDM areas) and had integral gutters located at the low ends of the curved profile. Sealant joints were visible at the joints in the gutter.

EXTERIOR CLADDING

The building exterior consisted of split-face concrete masonry and EIFS. EIFS was only located at the upper level and above the roof, below the standing seam metal roof areas. A combination of windows, storefront, and curtain wall systems were located around the building perimeter, and at the walls above the main roof area.

Two small cracks were observed in the split-face masonry, at the southeast corner of the building (adjacent to the electrical equipment) and at the service door on the south elevation. Sealant-filled control joints were provided in the split-face masonry, along with weeps near grade and near the upper-level floor line. Discoloration and staining of the split-face masonry were observed near the sidewalks around the building, however, no efflorescence was visible.

Isolated locations of cracks and damaged finish coat in the EIFS were located above the main roof, on both the east and north walls, leaving the mesh visible. At the EIFS above the main roof, cracks and damaged finish coats were observed at the bottom of the EIFS system and at one window corner. Weeps were observed below all the EIFS walls.

Storefronts extended down to the main level floor slab without a curb. At the interior of the storefronts, stains were visible near the base of the storefront system. Sealant joints were placed at grade on the exterior of the storefronts and had gaps and holes. Exposed steel at the south and northeast entrance was visible from the exterior and corroded. At the northwest of the building, the sealant placed at the glazing to mullion connection had cracks and holes.

SOFFITS

Cantilevered canopies were located at the south and northeast entrances, with an EIFS on the underside. A crack was observed at the south entrance canopy soffit, however, no staining was visible. The remaining soffits did not have cracks or visible staining.

Discussion and Recommendations

ROOF

The ballasted EPDM roof system is nearing the end of its expected service life, given the age of the system. As EPDM roof systems age, the membrane typically loses elasticity and shrinks with ultraviolet exposure. Effects of the shrinkage present as membrane tenting, openings at membrane laps and joints along with the membrane pulling away from anchor points such as termination bars. Near points of restraint, tears and holes develop from the tension in the membrane. Openings in laps and joints allow water intrusion through the membrane and into the occupied spaces of the building. **Expect to replace the existing roof due to aging of the membrane, but not immediately. A roof replacement will require increased insulation thickness to meet building code requirements and modification to the roof/wall tie-ins to accommodate the increased insulation thickness.**

The standing seam metal roof has a longer expected service life than the ballasted EPDM and did not appear near the end of its service life except for the internal gutter system that had significant

sealant joints placed at all the seams. Typically, joints would be soldered and not rely on sealant, indicating past repairs to the gutter system. **A more permanent solution to the gutter system should be provided to reduce the potential for water intrusion through the internal gutter. This could involve repairing the original joints in the metal panels or lining the gutter.**

Sealant joints are typically expected to perform for about 10 years, depending on the type of sealant and environmental factors. The observed sealant joints appeared functional, however will require ongoing maintenance until the roof is replaced, especially at locations where the roof membrane extends minimally up the walls and parapets. The low termination points along the EIFS walls above the main roof and along the interior parapet walls created potential water intrusion locations for accumulated snow and rain on the roof. Multiple colors of sealant observed indicate repairs have been ongoing. **Expect ongoing repairs to the existing sealant joints until the roof systems are replaced.**

Counterflashing above the main roof area, below the north EIFS wall, was detached and laid on the ballast. There was no damage to the flashing itself, indicating the fasteners pulled out of the substrate and were not pried out under pressure. The adjacent section of flashing was loose with exposed fasteners, indicating the fasteners were pulling out of this section. **Reinstall the existing flashing with fasteners into an acceptable substrate. Additional blocking may be required in the existing wall to secure the fasteners.**

Open joints and cracks in the precast coping can allow water intrusion into the exterior wall assembly and behind the roof membrane unless flashing was installed across the wall assembly below the coping. Without observed efflorescence on the building exterior or reports of water intrusion at the roof, the existing parapet wall assembly was functioning. **Cosmetic repairs to the mortar joints between sections of precast coping should be considered.**

EXTERIOR CLADDING

The exterior of the split-face masonry was in good condition, with only two locations of observed cracks and minimal staining/discoloration near grade. Stains and discoloration near sidewalks can be caused by salt placed on the sidewalks and are not an indication of water intrusion into the exterior wall assembly. **The stains and discoloration were consistent with salt exposure, given that efflorescence was not observed. No repairs are required, however, consider adding a surface-applied sealer to protect the lower 4-feet of the wall.**

Areas with EIFS exterior appeared in good condition, with isolated locations of damage to the finish coat above the main roof area. **Isolated repairs to the EIFS exterior walls above the main roof area are required to restore the finish coat.**

Sealant-filled control joints in the split-face masonry had locations of cracks and gaps and require repair to maintain the exterior envelope and reduce potential water intrusion into the wall assembly. **Immediate repairs to the sealant joints with visible holes are recommended.**

Staining on the interior of the storefronts at the slab elevation was consistent with water intrusion below the existing storefront system. Sealant joints below the storefronts were placed around the entire building perimeter were consistent with ongoing repair attempts to stop the water intrusion. Several of the observed joints had open cracks and gaps that allowed water to enter below the storefronts and directly into the building. Using sealant joints to stop the water intrusion will require ongoing monitoring and maintenance. A more permanent solution to address water intrusion below the storefronts would require removal of the storefront and installing sub sill or sill pan flashing (with integral end and back dams) beneath the storefront. **Provide immediate repairs to the sealant joints with cracks and gaps to reduce potential water intrusion below the storefronts and protect the exposed steel base plates. Exposed portions of the steel base plates require cleaning and coating with high-performance paint. Ongoing repairs to the sealant joints will be required unless a more permanent solution can be provided.**

SOFFITS

The crack in the EIFS soffit, on the underside of the south main entrance canopy, did not appear related to water intrusion through the roof since staining was not observed at the crack location or at the nearby recessed light fixtures. The crack was cosmetic and did not affect the performance of the building exterior envelope.

Conclusions

It is Pie's determination that:

1. The building envelope is in good condition, however, both immediate and ongoing repairs to sealant joints will be required, especially below the storefront systems that extend to grade.

2. The ballasted EPDM roof system is nearing the end of its expected service life and will require replacement. Expect ongoing repairs to the sealant joints at flashings and roof/wall transitions until the roof is replaced.

The determinations and results described in this report are based on information available at the time of the observation and preparation of this report. Should additional information or unknown conditions be uncovered or made available, Pie Consulting & Engineering retains the right to revise and supplement this report accordingly. In addition, this report is a general summary of writings, recordings, photographs, and other information, which is available for review and placed within the job file.

Sincerely,

Pie Consulting and Engineering

Observed and Prepared by:
Quentin Odes, P.E.
Senior Project Manager

Reviewed by
Matt Heron, P.E.
Vice President

QO:MH:rl

Attachments:
Attachment A – Site Observation Photographs

Attachment A

Arapahoe CC Site Observation Photos

Photo 1 – View of the front (south) entrance from the south parking lot.

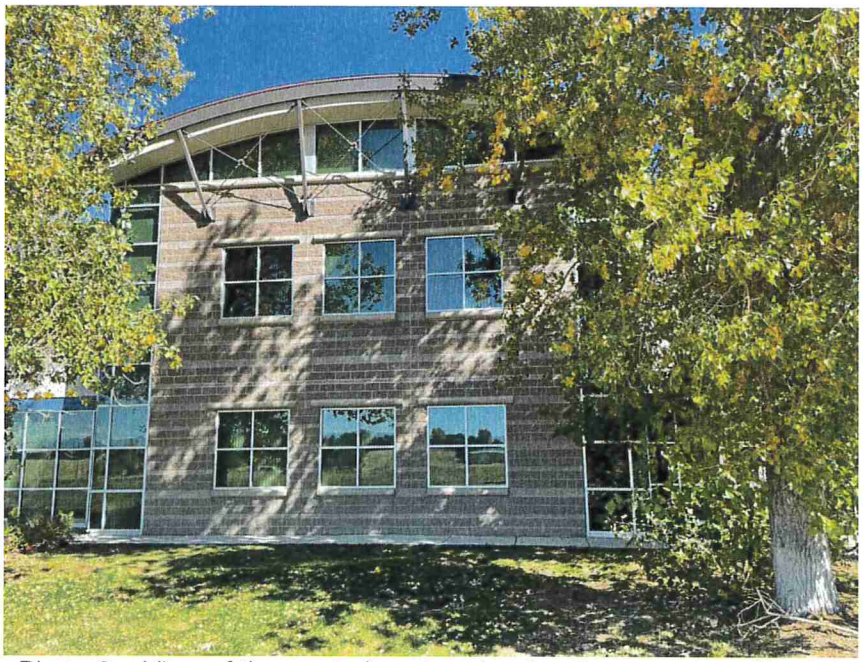


Photo 2 – View of the west elevation showing the curved profile of the metal roof.

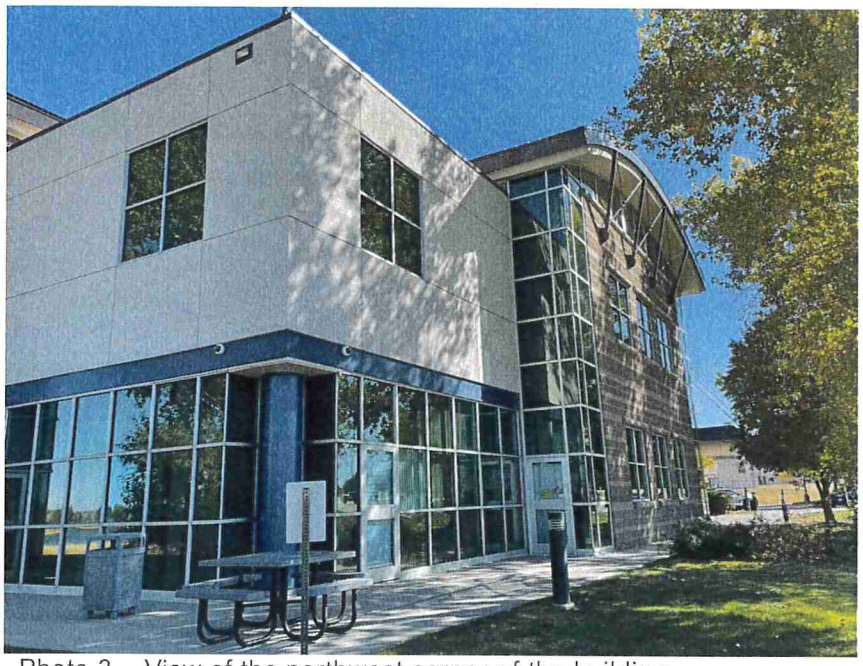


Photo 3 – View of the northwest corner of the building.

Photo 4 – View of the north elevation of the building.

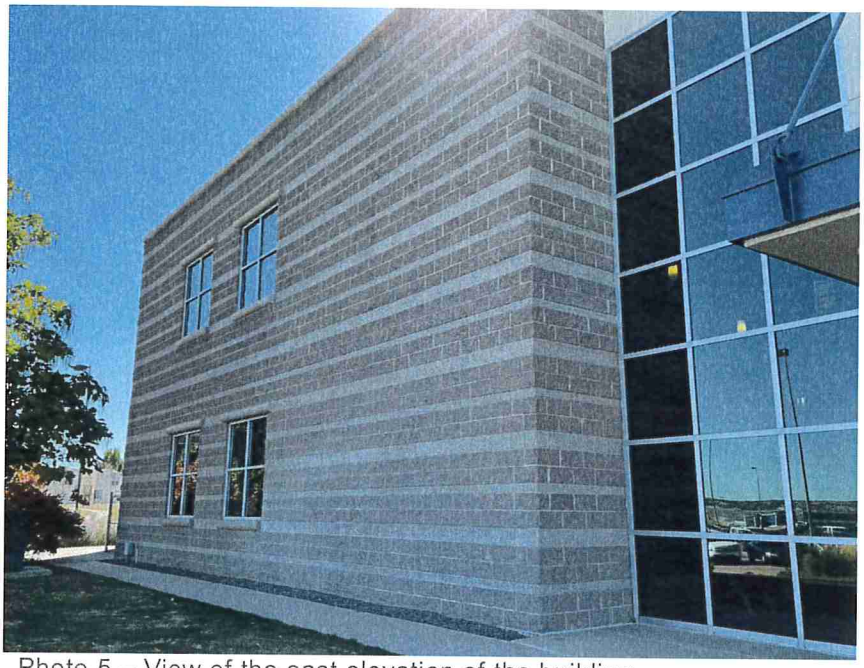


Photo 5 – View of the east elevation of the building.

Photo 6 – View of the south elevation of the building.

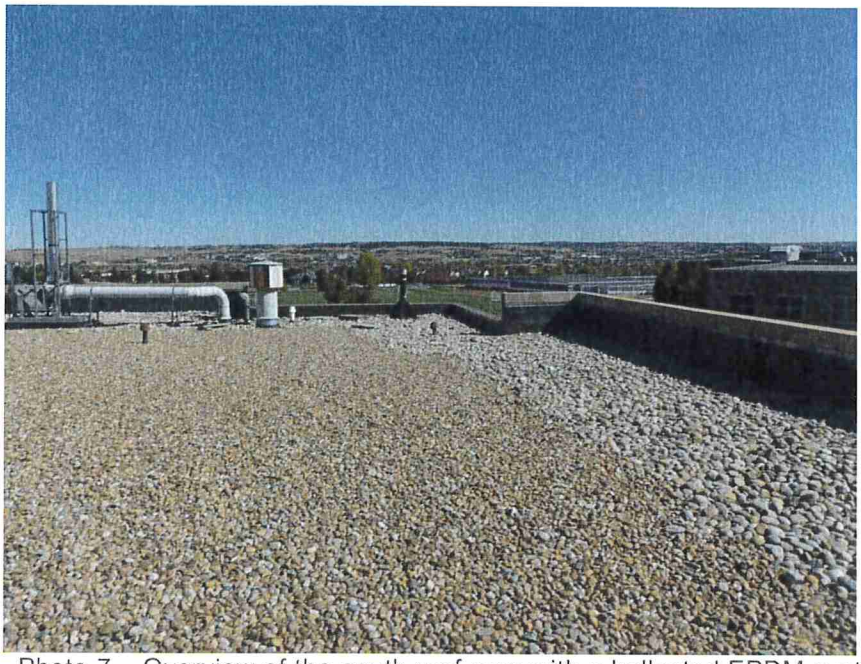


Photo 7 – Overview of the south roof area with a ballasted EPDM system, facing east.

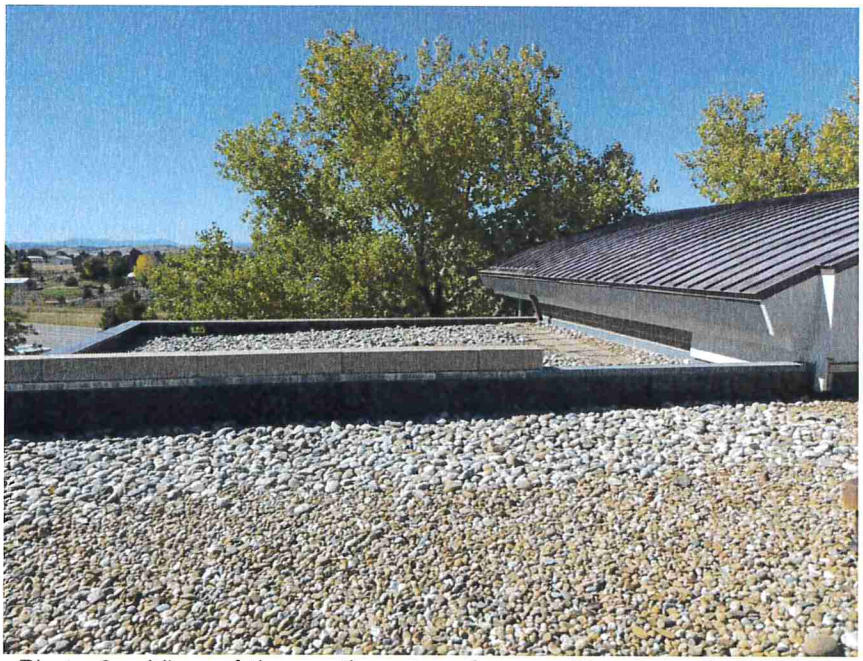


Photo 8 – View of the southwest roof area with a ballasted EPDM system and the standing seam metal roof located north of the ballasted EPDM.

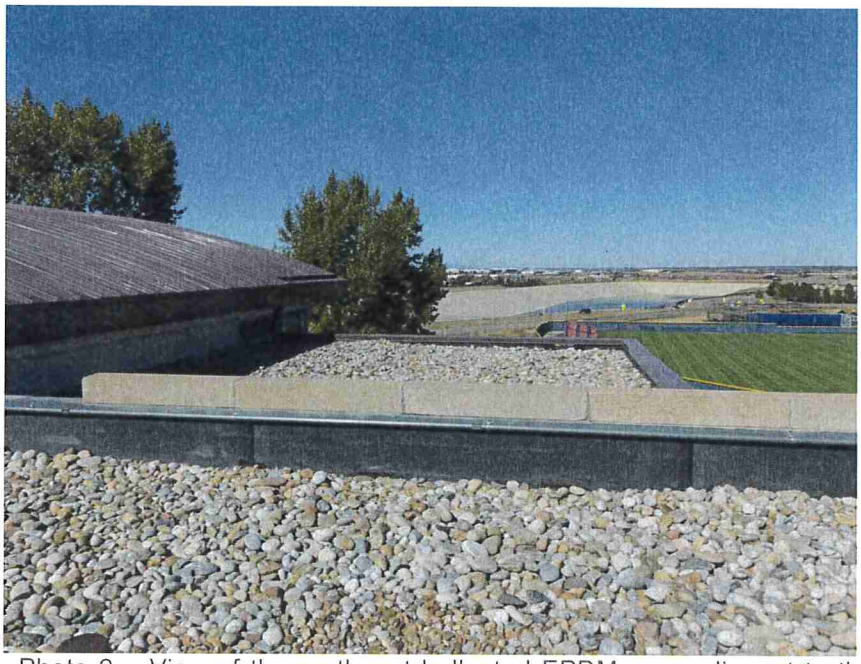


Photo 9 – View of the northeast ballasted EPDM area adjacent to the standing seam metal roof located west of the ballasted EPDM.

Photo 10 – Existing roof drains were clear of debris and had no signs of clogging on the roof.

Photo 11 – Roof penetrations had flashing boots and clamp rings (indicated) at most locations.

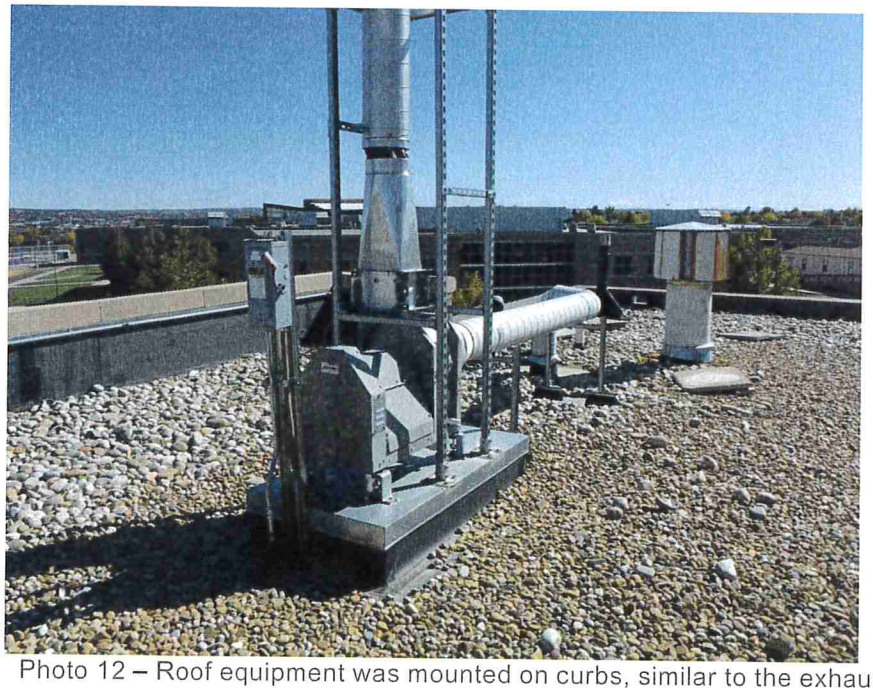


Photo 12 – Roof equipment was mounted on curbs, similar to the exhaust fan depicted. There were no observed holes or tears in the membrane at the curbs.

Photo 13 – Sealant around the membrane flashing was cracked and brittle, although was still bonded to the membrane.

Photo 14 – Sealant was placed around fasteners at the exhaust fan. No holes were observed in the sealant.

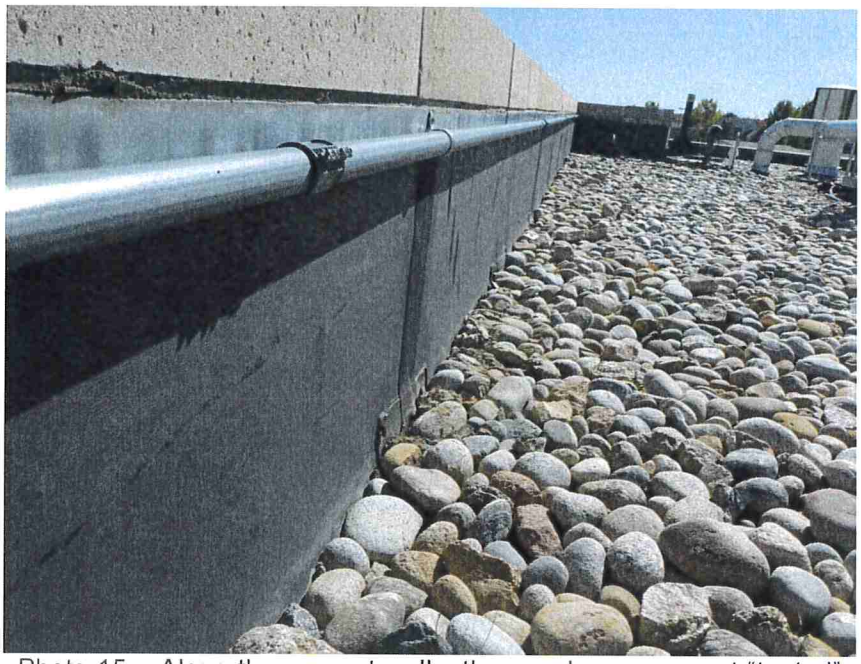


Photo 15 – Along the parapet walls, the membrane was not "tented" or pulled away from the parapet wall.

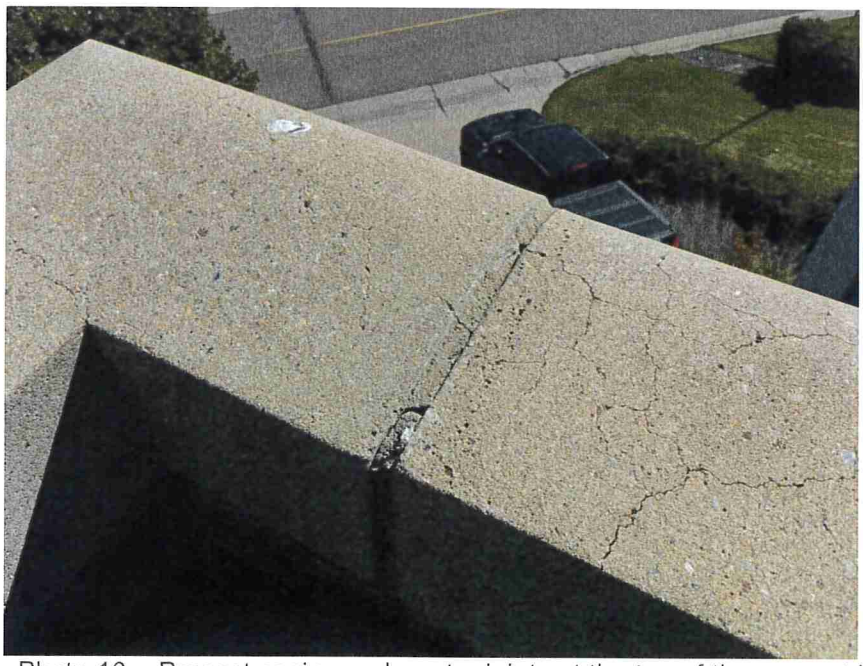


Photo 16 – Precast coping and mortar joints at the top of the parapet had cracks.

Photo 17 – Mortar at the joint between sections of precast coping appeared different from adjacent areas.

Photo 18 – At the southwest corner of the main roof, the mortar was missing in the joint of the precast coping.

Photo 19 – Multiple layers of sealant were visible at the EPDM to EIFS transition at the southwest section of the ballasted EPDM roof.

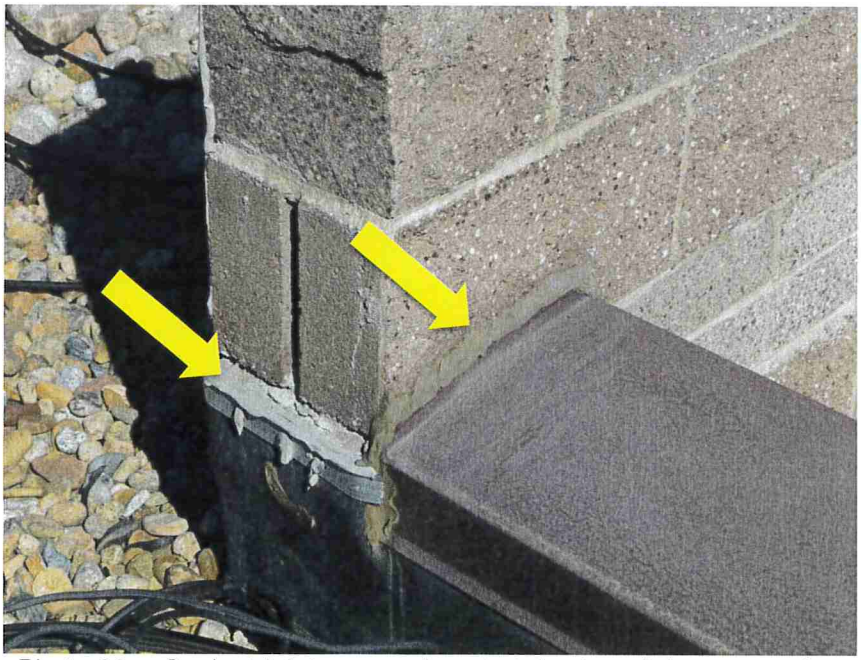


Photo 20 – Sealant joints were placed at the top of the exposed termination bar and at the metal coping to wall transition.

Photo 21 – Sealant was placed at the ends of roof flashings. The membrane did not extend 8-inches up the parapet wall.

Photo 22 – At the northeast ballasted EPDM roof area, metal counerflashings were placed directly above the membrane. The membrane did not extend 8-inches up the parapet wall. No sealant was placed at the end of the flashing at this location (indicated).

Photo 23 – Flashing was not secured below the EIFS on the north side of the main roof area. A section of flashing was resting on the roof.

Photo 24 – Flashing was placed directly above the membrane, and the membrane did not extend 8-inches up the wall. Sealant joints were placed at the ends of the flashing (indicated).

Photo 25 – Coping was corroded at the parapet wall between the main and northeast ballasted EPDM areas.

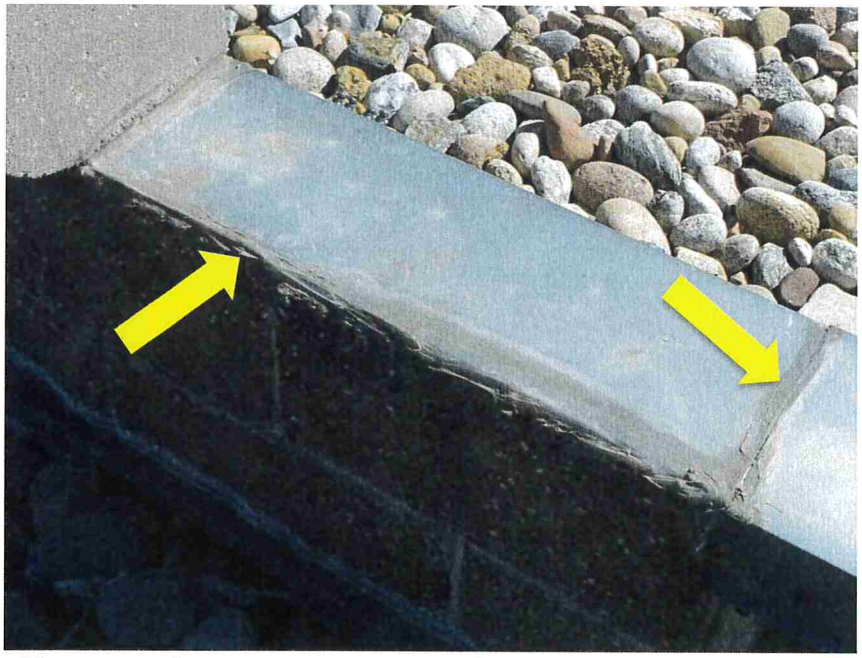


Photo 26 – The metal coping did not extend fully over the parapet wall. Sealant was placed at the joints in the coping and along the transition to the masonry parapet wall.

Photo 27 – The paint on the metal coping was peeling.

Photo 28 – Internal gutters along the standing seam metal roof had sealant joints.

Photo 29 – Pavers were crumbled with exposed aggregate and reinforcement.

Photo 30 – View of the curved profile at the standing seam metal roof at the northwest corner of the building.

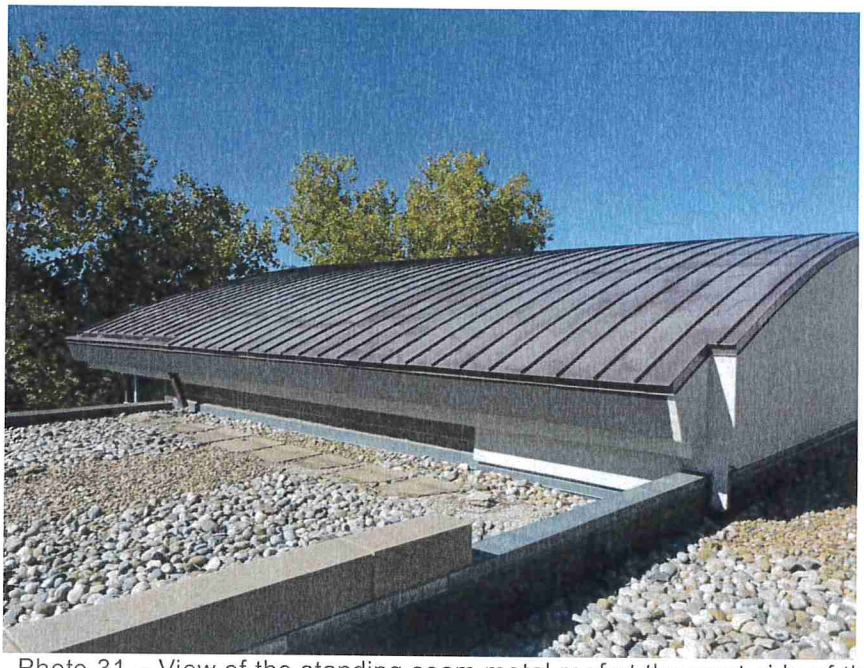


Photo 31 – View of the standing seam metal roof at the west side of the building.

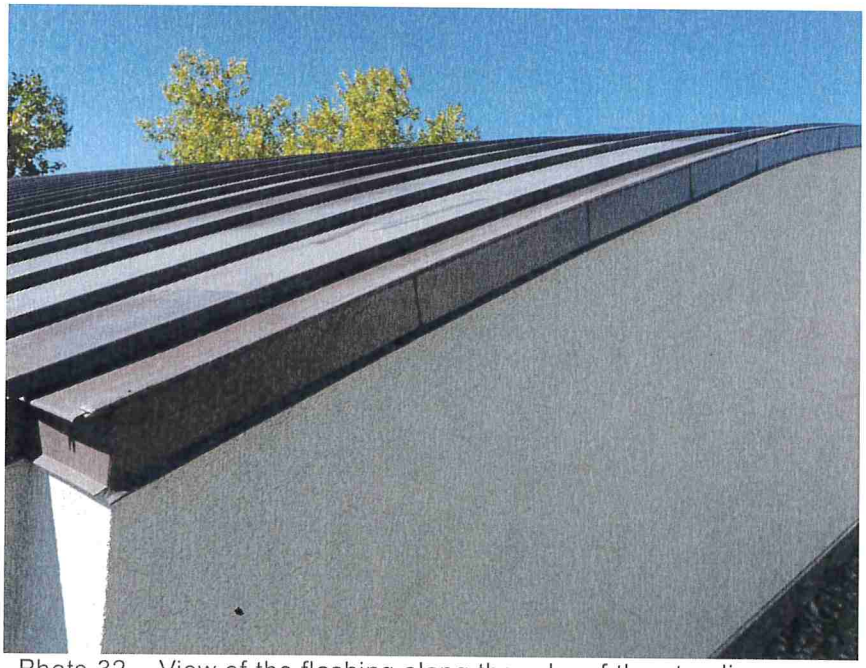


Photo 32 – View of the flashing along the rake of the standing seam metal roof.

Photo 33 – View of the EIFS exterior along the west side of the main roof area.

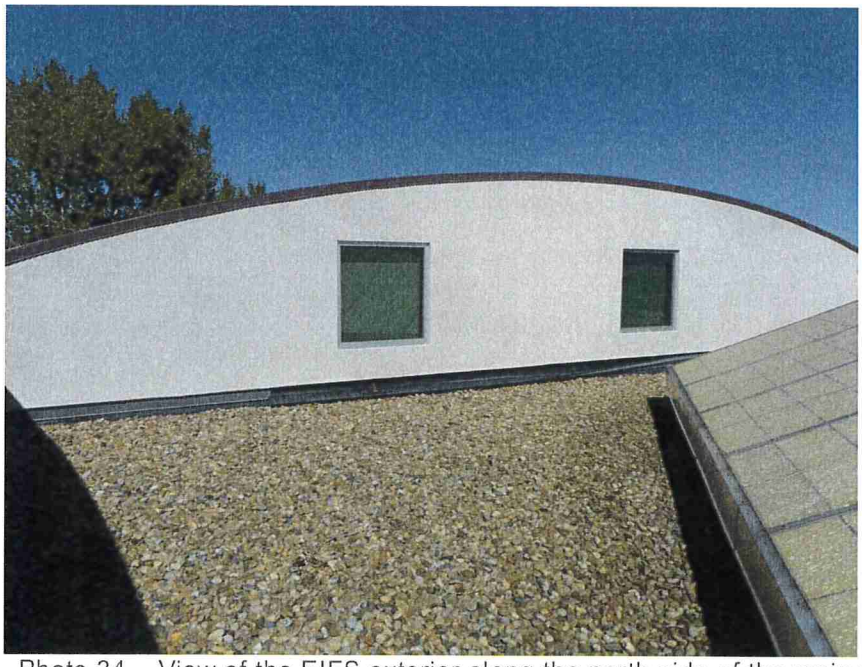


Photo 34 – View of the EIFS exterior along the north side of the main roof area.

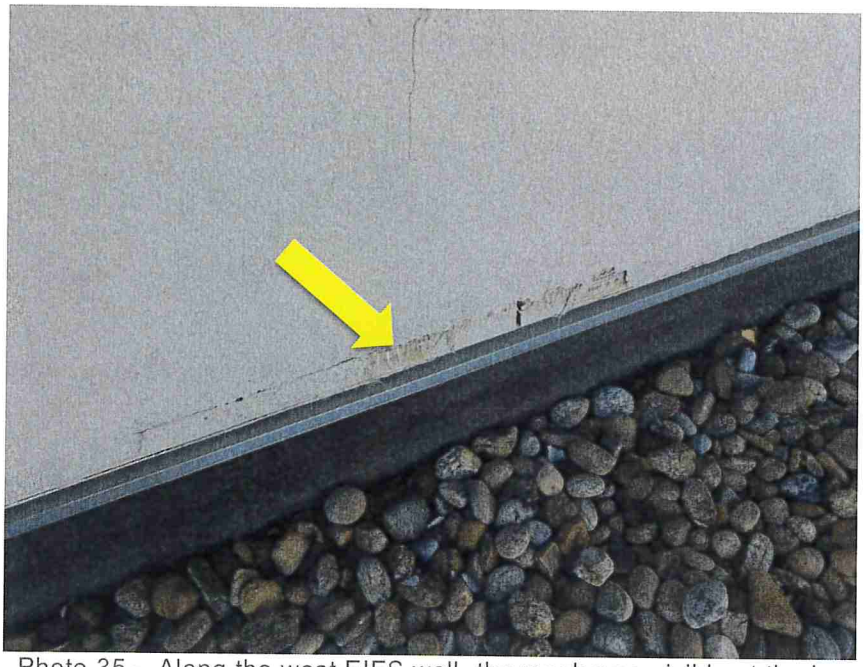


Photo 35 – Along the west EIFS wall, the mesh was visible at the base of the wall.

Photo 36 – A crack was located at the bottom corner of the window opening in the EIFS on the north wall.

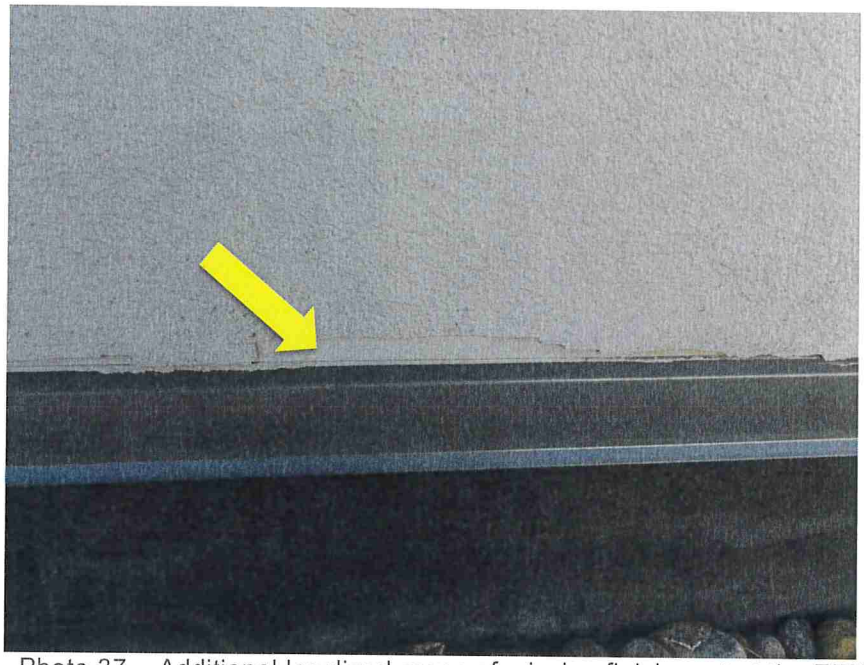


Photo 37 – Additional localized areas of missing finish coat at the EIFS were observed above the roof.

Photo 38 – Weeps were visible below the EIFS on the building exterior. Localized damage to the finish was observed (indicated).

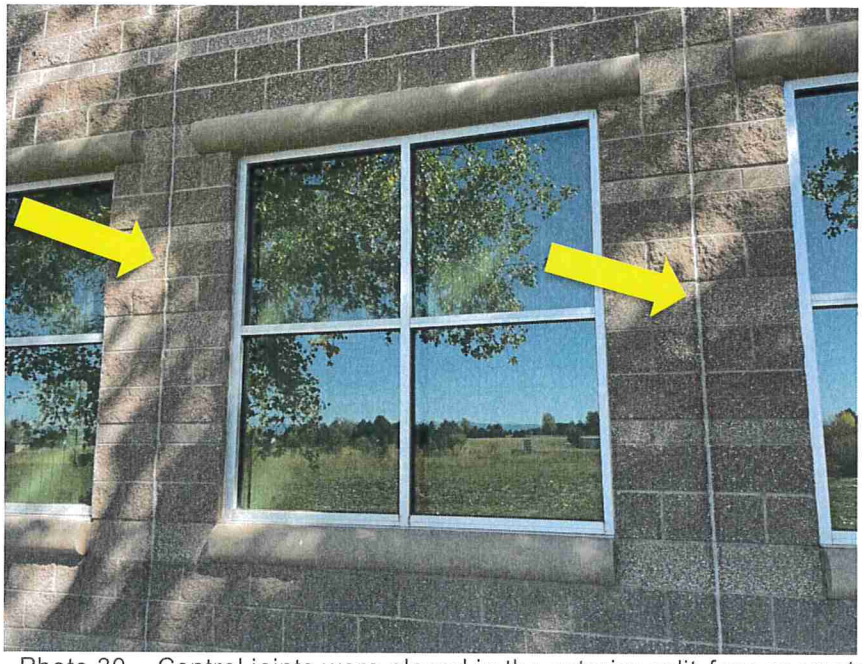


Photo 39 – Control joints were placed in the exterior split-face concrete masonry units (CMU).

Photo 40 – Sealant in the control joints was becoming brittle and starting to exhibit cracks.

Photo 41 – Sealant at some control joints had holes and gaps, allowing water and moisture to enter the wall assembly.

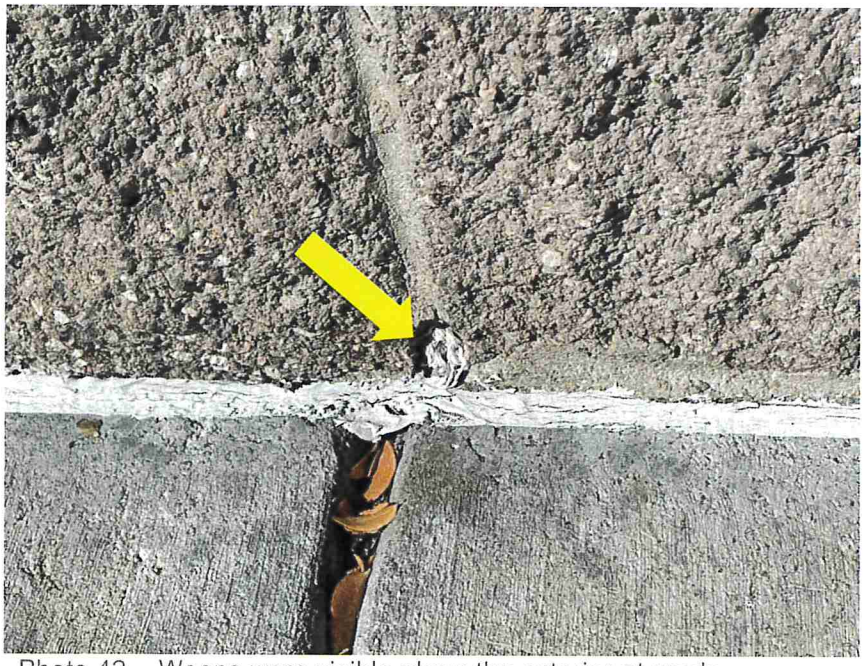


Photo 42 – Weeps were visible along the exterior at grade.

Photo 43 – Additional weep holes were observed around the building exterior.

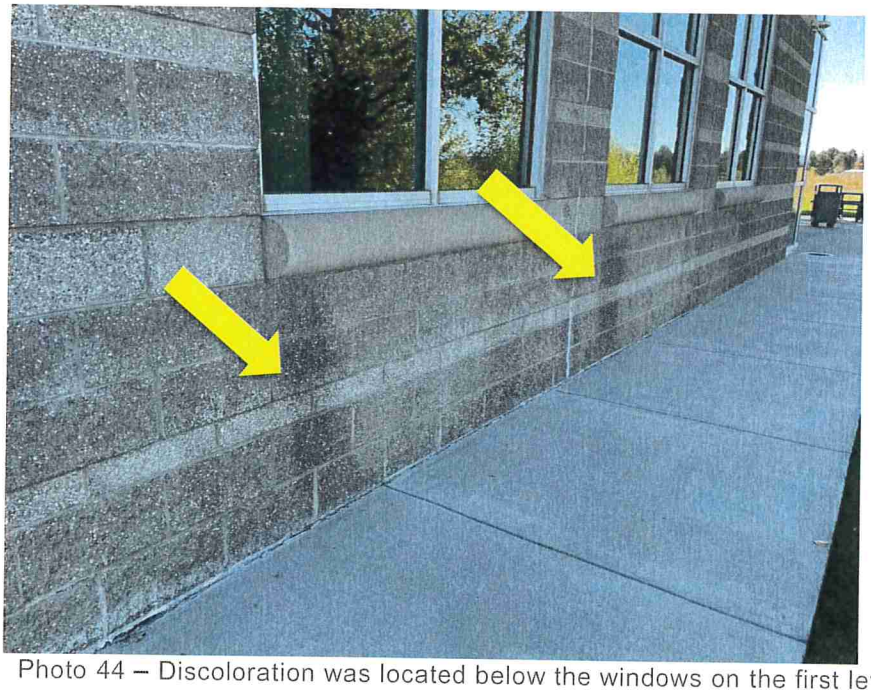


Photo 44 – Discoloration was located below the windows on the first level.

Photo 45 – Cracks in the exterior were observed at the southeast corner (indicated). The cracks were in the mortar joint and across the split-face CMU.

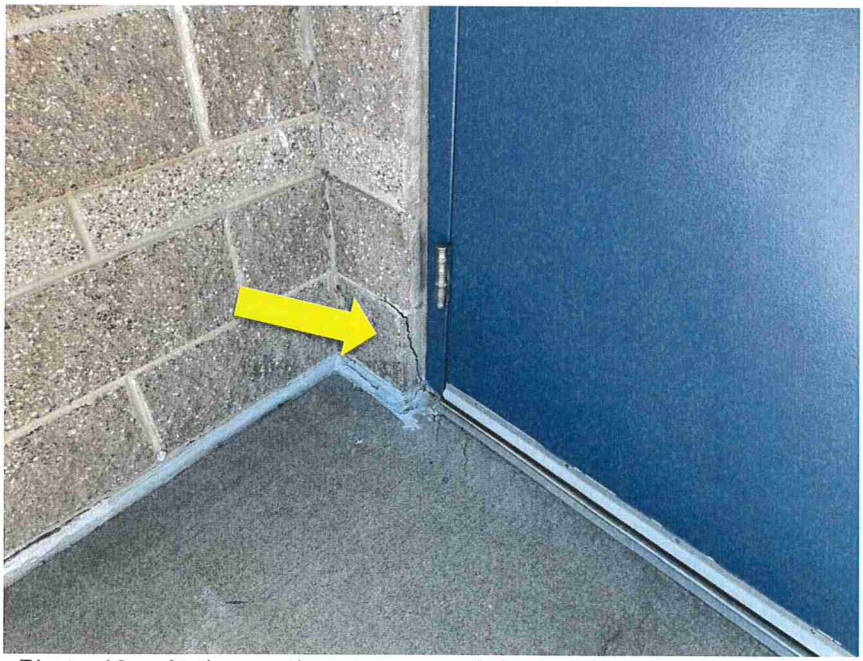


Photo 46 – At the southeast corner of the building, the face of the CMU was cracked at the door jamb.

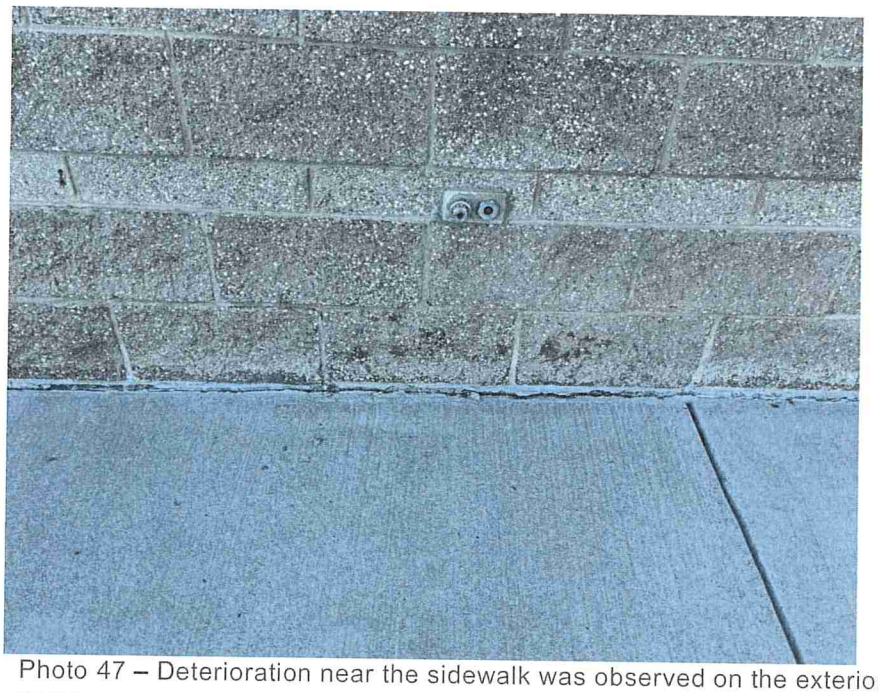


Photo 47 – Deterioration near the sidewalk was observed on the exterior face of the split-face CMU.

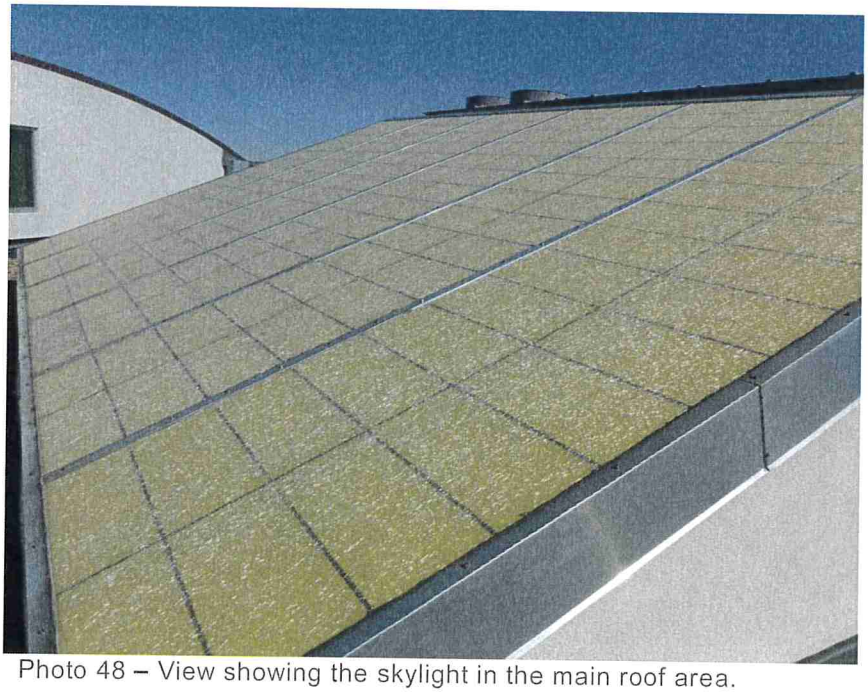


Photo 48 – View showing the skylight in the main roof area.

Photo 49 – Sealant joints were located around the perimeter of the skylight.

Photo 50 – Sealant was missing at a portion of the window jamb, but the remaining sealant did not have cracks or holes.

Photo 51 – Sealant joints were located below the storefront systems.

Photo 52 – Cracks and holes (indicated) in the sealant below the storefront system were observed around the building perimeter.

Photo 53 – A steel base plate was exposed and corroded (indicated) at the exterior of the storefront at the north entrance.

Photo 54 - A steel base plate was exposed and corroded (indicated) at the exterior of the storefront at the south main entrance.

Photo 55 – Stains were visible at the base of the entrances, along the interior.

Photo 56 – A corner of the corroded base plate (indicated) was visible from the interior of the building.

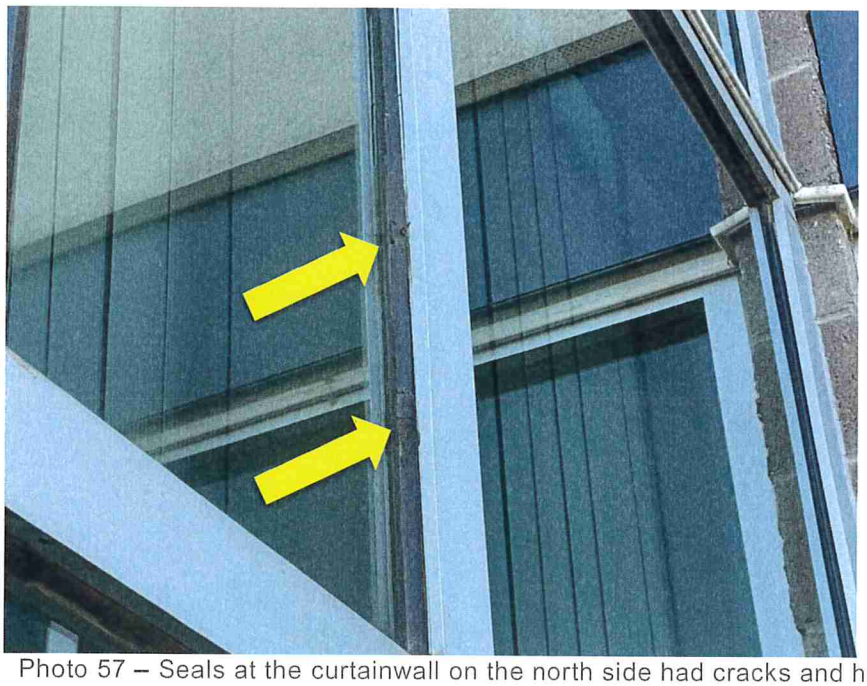


Photo 57 – Seals at the curtainwall on the north side had cracks and holes.

Photo 58 – View of the canopy soffit at the main entrance on the south side of the building.

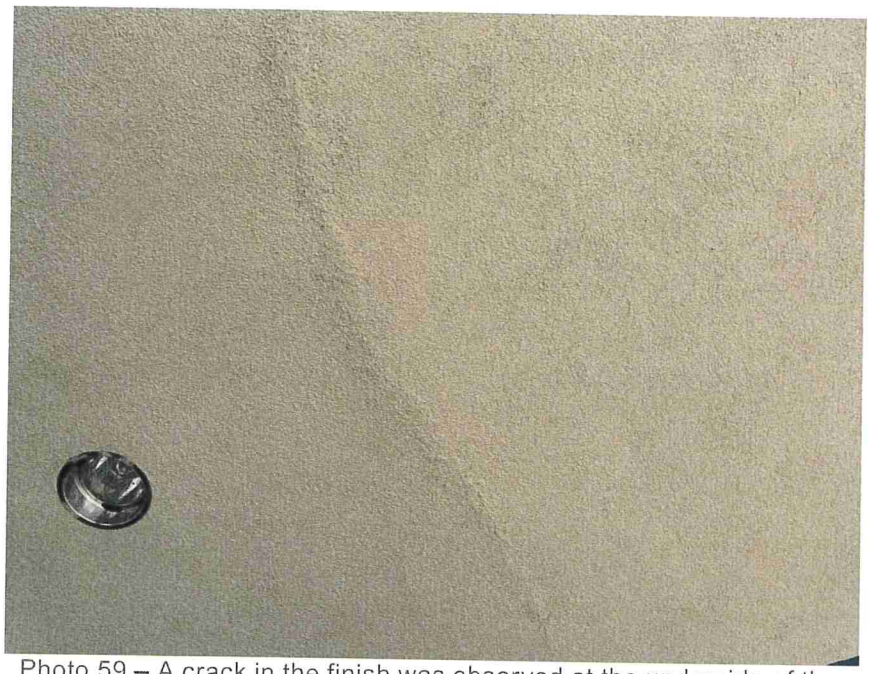


Photo 59 – A crack in the finish was observed at the underside of the south canopy. No stains were visible.

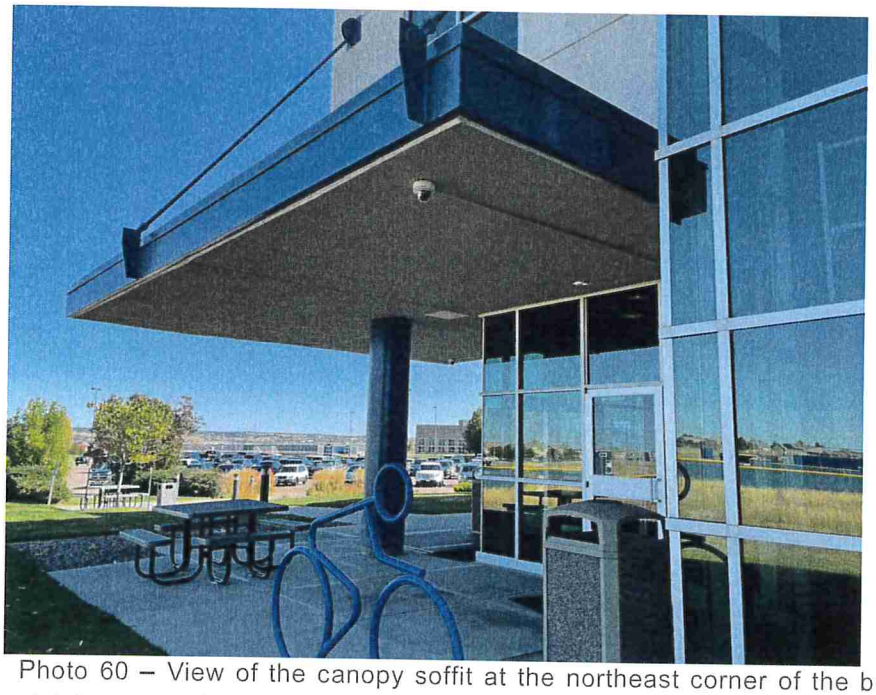


Photo 60 – View of the canopy soffit at the northeast corner of the building. No cracks or staining were observed at this location.

FELSBURG HOLT & ULLEVIG
connecting & enhancing communities

October 22, 2021

MEMORANDUM

To: Paul Hutton, FAIA, NCARB, LEED Fellow BD+C
Director of Regenerative Design
Cunningham Group

From: Philip Dunham, PE, PTOE
Paul Brown, PE, PTOE

Re: Douglas County Schools Due Diligence – ACC Parker Campus
FHU Reference No. 121346-01

The Douglas County School District is exploring the possibility of operating an alternative high school campus for 150 students on the Arapahoe Community College (ACC) Parker Campus located at the northeast corner of the South Chambers Road and Brookstone Drive intersection in unincorporated Douglas County. The Felsburg Holt & Ullevig (FHU) team has performed a high-level analysis of potential traffic issues at this site to inform the District's due diligence for the potential redevelopment. These evaluations include trip generation, parking generation, site circulation, and the potential for off-site traffic-related improvements.

Trip Generation

Trip generation estimates were developed using weekday data contained in *Trip Generation*, 10th Edition, Institute of Transportation Engineers (ITE), 2017. **Table 1** shows the trip generation for the proposed development, which is estimated to generate 527 daily trips. It should be noted that schools often do not generate peak levels of traffic at the same time as the peak hour traffic on the surrounding roadway network. This is most common in the afternoon when school dismissal is typically earlier than evening commuting along the adjacent roadways. To be conservative, the estimates in **Table 1** represent AM and PM trip generation for the peak hour of the generator. Trip generation estimates for the existing community college use based on capacity of the building are also presented for sake of comparison.

Table 1. ACC Parker Trip Generation

Land Use (Trip Generation Category)	Students	Daily Vehicle Trips	AM Peak Hour Trips			PM Peak Hour Trips		
			In	Out	Total	In	Out	Total
Proposed Alternative School Use								
High School (#530)	150	527	109	51	160	30	63	93
Existing ACC Parker Use								
Junior/Community College (#540)	300	1,202	91	52	143	61	48	109
Numeric Difference		**-675**	**18**	**-1**	**17**	**-31**	**15**	**-16**
Percentage Difference		**-56%**	**20%**	**-2%**	**12%**	**-51%**	**31%**	**-15%**

Parking Generation

Parking generation estimates were developed using weekday data contained in *Parking Generation*, 5th Edition, Institute of Transportation Engineers (ITE), 2019. The peak parking demand is estimated at 44 parking spaces for a 150-student high school. The existing parking lot for the ACC campus provides approximately 190 spaces, well in excess of the anticipated need.

Site Circulation

Douglas County Schools is interested in the possibility of using smaller busses to serve the proposed alternative high school. The existing parking lot was not constructed with this in mind given that busing is typically not provided for community colleges. The northern of the two parking lot access drives has a row of parking in place that is centered and parallel to the driveway that would make navigating the driveway, especially inbound difficult for larger vehicles. Given the anticipated surplus of parking the removal of this parking could allow for a bus drop-off location immediately adjacent to the buildings main entrance while making the lot easier to navigate for larger vehicles. A raised island should be considered in this area to give bus riders a protected place as they enter and exit buses as well as to clearly delineate separate space for buses and the handicap parking stalls to the north. Even in the absence of bussing to the campus this modification should still be considered as there is no existing location for pick-up and drop-off locations for passenger vehicles and this location works well for both activities.

Site Access

Access to the site is provided via two driveways from a north/south access road between the ACC site and Chaparral High School that terminates into a 138-space parking lot for Chaparral High School immediately north of the ACC site. No turn lanes are provided and it is not anticipated that they would be needed given both turning volume into the site as well as lack of significant through traffic along the access road.

External Intersections

As noted above, it is anticipated that the proposed use would likely reduce overall daily traffic, but the peak hours are more similar. The hourly increases anticipated for inbound trips in the AM and outbound trips in the PM are fewer than 20. It is unlikely that these moderate differences would have significant impact on traffic operations. The eastbound left turn lane from Brookstone Drive onto the north/south access road between the ACC site and Chaparral High School provides 100 feet of queuing, enough for 4 vehicles. Both the southbound left turn lane and the northbound right turn lane from Chambers Road onto Brookstone Drive provide 275 feet of queuing, enough for 11 vehicles. It is unlikely that these lanes need to be modified for 20 additional peak hour vehicles. However, a more formal analysis would be needed to confirm these observations.

Conclusions

This cursory review of the potential innovation campus has identified the following traffic conclusions:

- Trip generation estimates are not a concern.
- Parking generation estimates are not a concern
- Site access and related potential off-site improvements will need to be further evaluated.

The Cunningham Group should consider the following next steps:

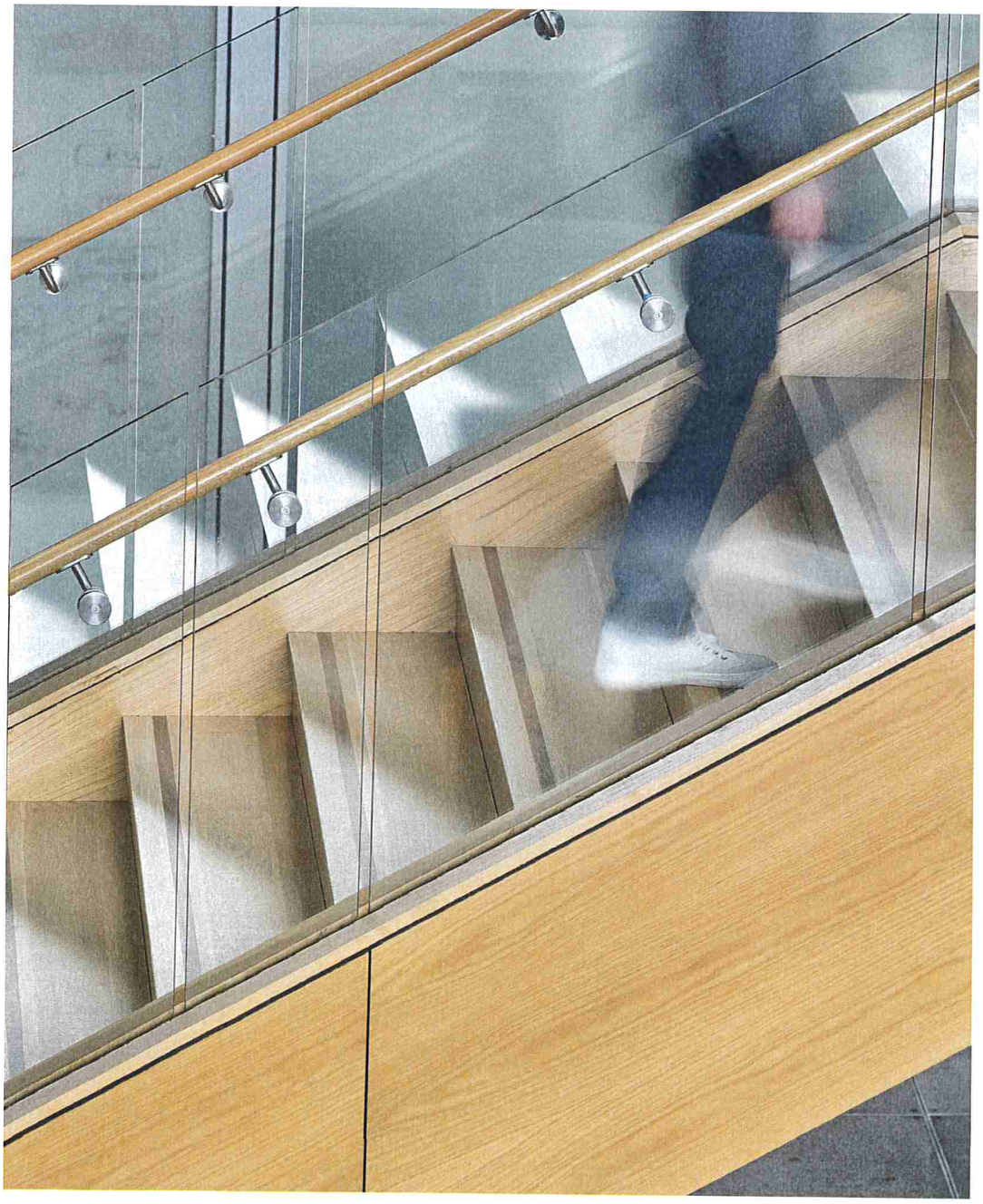
- Completion of a formal traffic study, with particular emphasis on site access and circulation.
- The site is in unincorporated Douglas County, so the traffic study would be reviewed by Douglas County.

BranchPattern

FACILITY ASSESSMENT

ACC Parker

Parker, CO



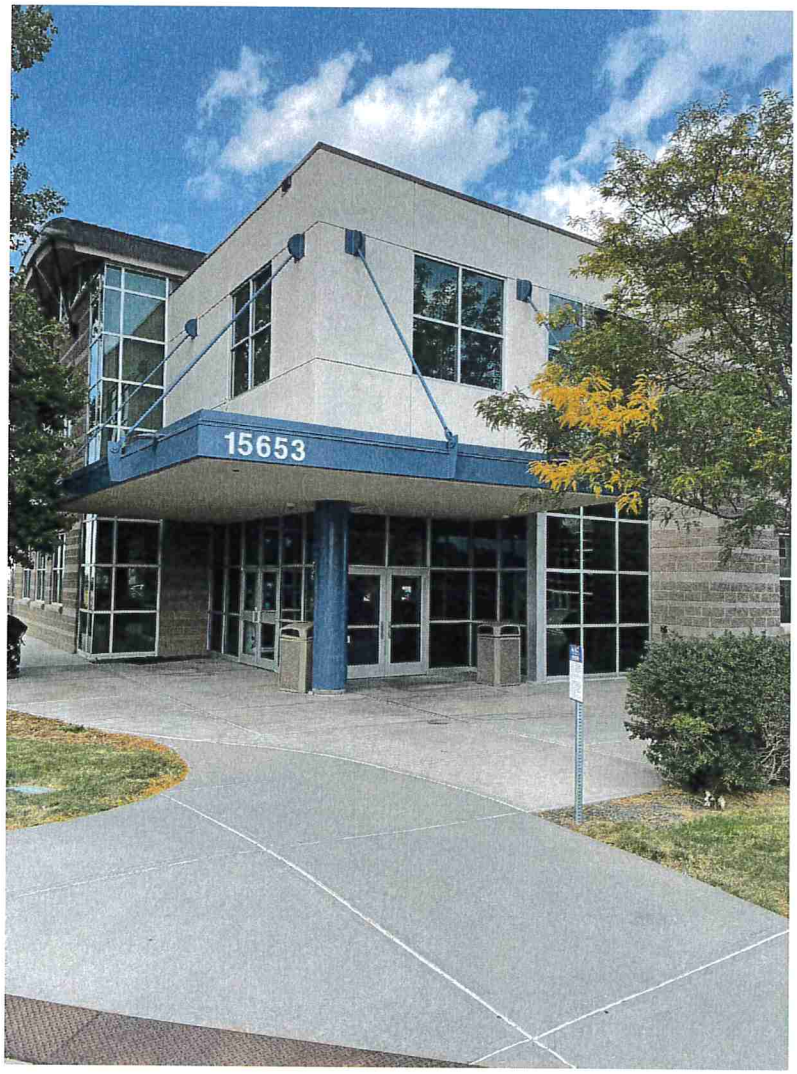
Revision History

REVISION #	REVISION DATE	Description of Change	Author
1.0	10/22/2021	Initial Assessment	BranchPattern

Table of Contents

1.0 INTRODUCTION

The Mechanical, Electrical, Plumbing, and Technology systems at the Arapahoe Community College - Parker Building, located at 15653 Brookstone Dr, Parker, CO 80134, were reviewed during field visits on September 28th and October 15th, 2021. The following report includes information gathered from a visual survey of this facility and interviews with the facility manager and staff. The purpose of this report is to summarize the systems that were observed, identify the specific facility infrastructure that requires immediate attention, identify infrastructure that requires attention in the short term, identify infrastructure that will require attention in the long term, and identify infrastructure that will require upgrade or replacement during any proposed renovation or expansion. The average life of equipment shown in this report is attributed to the experiences of the writers and others at BranchPattern throughout years of design. The average life of mechanical, electrical, plumbing, and technology equipment is an estimate and depends a great deal on the type of maintenance that has been provided, and the condition of the space where the equipment is installed. Specifically, BranchPattern is looking for equipment or code deficiencies that will need to be repaired, replaced, or otherwise addressed prior to the building being occupied.



2.0 SUMMARY OF RECOMMENDATIONS

2.1 MECHANICAL

2.1.1 General Infrastructure

- The HVAC system serving the building is a gas fired/DX type rooftop unit with air distributed to variable air volume terminal units throughout the building. The airside is a variable air volume (VAV) with reheat type of system. The existing rooftop unit appears to be adequate to meet the needs of the new program plan requirements since no substantial building square footage is being added.
- The building has two hydronic boilers serving the reheat system, cabinet unit heaters and perimeter fin tube unit.
- Exhaust fan, EF-5, is dedicated to the fume hood and has a discharge damper and 10-foot exhaust stack.
- The mechanical equipment is controlled by a central automation system with direct digital controls (DDC) controls. All air handling units have downstream variable-air-volume terminal boxes that are controlled by space temperature sensors.

2.1.2 Commons:

- The commons area is located on Level 1 with the central portion open to Level 2 above. The Level 1 and Level 2 areas as shown on the adjacency document will require tenant finish type modifications to the branch ductwork and supply diffusers/return grille layouts. If additional temperature control zones are needed, new VAV boxes, downstream distribution ductwork, air devices, and reheat piping will need to be provided.
- Any new zones will require modifications to the BAS to have the zones added to the system.
- It is recommended that a complete test and balance be performed for all zones within these areas.

2.1.3 Administration/Closed Offices/Open Offices:

- The administration, closed offices, and open offices located on Level 1 and Level 2 will require tenant finish type modifications to the branch ductwork and supply diffusers/return grille layouts. If additional temperature control zones are needed, new VAV boxes, downstream distribution ductwork, air devices, and reheat piping will need to be provided.
- The secured vestibule will require mechanical modifications to provide ventilation and temperature control to this space.
- Any new zones will require modifications to the BAS to have the zones added to the system.
- It is recommended that a complete test and balance be performed for all zones within these areas.

2.1.4 Kitchen/Student Store:

- The kitchen/student store located on Level 1 will require significant modifications to the mechanical system. The new temperature control zones will require new VAV air terminals, downstream distribution ductwork, air devices, and reheat piping.
- The new zones will require modifications to the BAS to have the zones added to the system.

- It is recommended that a complete test and balance be performed for all zones within these areas.
- The extent of work required for the proposed kitchen is depended on the type of kitchen that will be developed. If it is a cooking kitchen with grease producing capabilities a grease exhaust hood, grease interceptor and plumbing fixtures will need to be added. This will be difficult to accommodate within the existing building.

2.1.5 Nurse:

- The proposed Nurse room located on Level 1 will require tenant finish type modifications to the branch ductwork and supply diffusers/return grille layouts.
- A new restroom exhaust fan and ductwork will be required for the proposed Nurse/Staff ADA restroom.
- It is recommended that a complete test and balance be performed for this zone.

2.1.6 Classrooms:

- The classrooms located on Level 1 and Level 2 will not require any significant mechanical modifications assuming the classrooms remain in the same configuration in the new plan as they are currently used.
- It is recommended that a complete test and balance be performed for all zones within these areas.

2.1.7 IT Room:

- The existing IT room is conditioned by the main rooftop unit, RTU-1. This room does not have a standalone cooling system and therefore requires the main system to operate 24/7 including unoccupied hours of the building to provide cooling for the IT equipment.
- It is recommended that a standalone ductless split system cooling unit be provided for this space to let it operate independently of the main building HVAC system.

2.2 ELECTRICAL

2.2.1 General Infrastructure

- The existing electrical distribution system is adequate to serve the new proposed program. The existing gear appears to be in great condition and should support the building for 20+ years. Modifications will be required to accommodate the new spaces.
- No internal or external Surge Protection device was observed, and one is recommended to be installed at the Main Distribution Board for additional protection to the equipment and personnel.
- It does not appear that the complete existing electrical distribution has arc-flash labels per NEC code. An arc-flash study will be required for the whole electrical distribution to provide new arc-flash labels that meet the NEC requirements.
- It appears the Fire Alarm System is in good condition and will need to be reconfigured to accommodate the new renovation. The system will need to be upgraded with Voice Evacuation.
- To accommodate the new proposed program. All renovated areas will require new lighting and controls.

2.2.2 Commons (Level 1 & 2):

- New wall and ceiling receptacles will be provided to serve the power need for the new spaces.

- New lighting and controls will be provided to serve the new/renovated spaces.
- Existing branch panelboards serving this area will be re-configured to accommodate power feed to new Commons area.

2.2.3 Administration/Closed Offices/Open Office (Level 1):

- New wall receptacles will be provided to serve the power need for the new/renovated spaces.
- New lighting and controls will be provided to serve the new/renovated spaces.
- Existing branch panelboards serving this area will be re-configured to accommodate power feed to new Admin/Closed Offices/Open office area.

2.2.4 Classrooms (Level 1 & 2):

- The renovation area of the building noted to serve the new classrooms to include Humanities, Textiles, Design Lab, Math and Computer will require new branch panelboards. The panelboards will be fed from existing 480V-3ø Main Distribution Board via Step-down transformers.
- Existing Science classrooms will require an Emergency Power Off – EPO- button to shunt-trip power serving these spaces.
- New wall and ceiling receptacles will be provided to serve the power need for the new/renovated spaces.
- New lighting and controls will be provided to serve the new/renovated spaces.

2.2.5 Kitchen/Student Storage (Level 1):

- New wall receptacles will be provided to serve the power need for the new/renovated space.
- New lighting and controls will be provided to serve the new/renovated space.

2.2.6 Nurse (Level 1):

- New lighting and controls will be provided to serve the new/renovated space.
- New wall receptacles will be provided to serve the power need for the new/renovated space.

2.3 PLUMBING

2.3.1 General Infrastructure:

- The existing domestic cold-water service is a 1-1/2" line entering the building at the Water Service room 115.
- The domestic water heating system is a single unit providing 120 deg F water to the building. The system does not have any redundancy.
- The building does not have a Fire Protection sprinkler system.

2.3.2 Commons:

- The commons area does not require any significant plumbing system modifications to accommodate the program as shown in the adjacency document.

2.3.3 Administration/Closed Offices/Open Offices:

- The administration, closed offices, and open offices located on Level 1 and Level 2 will not require any significant plumbing system modifications to accommodate the program as shown in the adjacency document.
- The existing restrooms on Level 1 and Level 2 that are indicated "to be updated" will require new plumbing fixtures. It is recommended that the new fixtures be provided with automatic flush valves and faucets in lieu of the existing manual valves and faucets.

2.3.4 Kitchen/Student Store:

- The extent of work required for the proposed kitchen is depended on the type of kitchen that will be developed. If it is a cooking kitchen with grease producing capabilities a grease exhaust hood, grease interceptor and plumbing fixtures will need to be added. This will be difficult to accommodate within the existing building.

2.3.5 Nurse:

- The proposed Nurse room located on Level 1 may require a new sink and plumbing piping to be added to this space.
- The proposed Nurse/Staff ADA restroom will require new plumbing fixtures, plumbing piping, and a sanitary sewer line to be installed to connect below the slab into the existing sanitary sewer lines.

2.3.6 Classrooms:

- The commons area does not require any significant plumbing system modifications to accommodate the program as shown in the adjacency document.

2.4 TECHNOLOGY

2.4.1 General Infrastructure

- Telecom
  - Incoming service for the facility is existing to remain. Additional coordination with service provider may be required to verify bandwidth and service availability.
  - The existing telecommunications room (MDF #112) should be reused for all data cabling within the new program.
  - All existing horizontal data cabling was observed as category 5 and should be replaced with blue-jacketed category 6 cabling. All cabling must be certified and labeled per district standards.
  - Existing Wireless Access Point (WAP) locations and cabling will not meet district standards. All new Cat 6a cabling should be provided for the wireless system. Preliminary layouts should assume coverage is required for the entire interior of the building and exterior parking lot areas, with at least one WAP per classroom and assuming a maximum WAP coverage radius of 25 feet.
  - Additional telecom outlets and cat 6 cabling should be installed for auxiliary systems, such as elevators, FACP, building systems, vending machines and ATMs as needed.

- Audiovisual
  - No existing paging system was observed within this facility. As part of the renovation, a new paging headend is recommended with new speakers. Speakers should be added around the perimeter of the building for exterior paging near student common spaces and parking lots.
  - A new clock system will be required to meet the needs of the school district. A Primex clock system should be supplied to match current district design standards, and a clock should be planned for all classrooms and common spaces.
  - Classroom audiovisual systems include aging equipment that does not meet district standards. These systems should plan to be replaced with district standard interactive short throw projection and voice lift systems.

2.4.2 Commons (Level 1 &2):

- The Commons area should be revised to support the new program. This should include wireless access, clocks, and digital signage systems.
- A presentation system consisting of projection and overhead speakers will be required to support the Alternative High School program. This will include control and integration with any theatrical lighting within the space.

2.4.3 Administration/Office (Level 1):

- The administration offices data needs will be served from MDF #112 adjacent. All data cabling should be replaced in this area with new Category 6 cabling. A minimum of one 2-port telecom outlet should be provided per desk and a minimum of two 2-port telecom outlets should be provided per office.
- Lock down/security infrastructure will need to be provided in admin areas.

2.4.4 Classrooms (Level 1 & 2):

- Classroom technology will be revised to meet district standards.
- Interactive projection systems with whiteboards should be installed in all classrooms. These systems should tie into voice lift in each classroom.
- Clock systems should be provided for all classrooms, common spaces, and group spaces.
- A minimum of one 2-port telecom outlet and one 1-port wall-phone outlet should be provided for each classroom. Additional telecom outlets should be planned for computer lab spaces and will need to be coordinated based on program needs.

3.0 MECHANICAL, ELECTRICAL, PLUMBING, AND TECHNOLOGY SYSTEMS

3.1 HEATING, VENTILATION, AND AIR CONDITIONING SYSTEMS

- The HVAC system serving the building is a gas fired/DX type rooftop unit with air distributed to variable air volume terminal units throughout the building. The airside is a variable air volume (VAV) with reheat type of system. The existing rooftop unit appears to be adequate to meet the needs of the new program plan requirements since no substantial building square footage is being added.
- The building has two hydronic boilers serving the reheat system, cabinet unit heaters and perimeter fin tube unit.
- Exhaust fan, EF-5, is dedicated to the science laboratory fume hood and has a discharge damper and 10-foot exhaust stack.
- The building does not have a Fire Protection sprinkler system.
- The mechanical equipment is controlled by a central automation system with direct digital controls (DDC) controls. All air handling units have downstream variable-air-volume terminal boxes that are controlled by space temperature sensors.

3.1.1 Science Lab Fume Hood

Science Lab Fume Hood:
Labconco X-Stream
Flammable storage cabinet.
Cold Water Connection.
Natural Gas Connection.

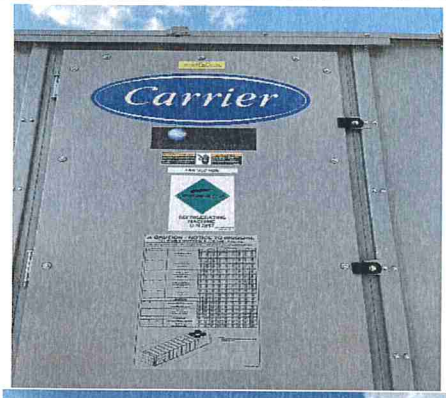
3.1.2 Heating System

No picture available.	Boilers (Level 2 Boiler Room): Service Life Estimate (SLE) 30 years B-1, B-2 (Hot Water) The boilers appear to be in good condition and have approximately 25-years remaining of their ASHRAE median expected service life of 30 years. If properly maintained the boilers can be expected to exceed the SLE.

3.1.3 Pumps

No picture available.	Pumps (Base-mounted) Service Life Estimate (SLE) 20 years The base mounted pumps appear to be in good condition and have approximately 15-years remaining of their ASHRAE median expected service life of 20 years. If properly maintained the boilers can be expected to exceed the SLE.

3.1.4 Air Handling Units



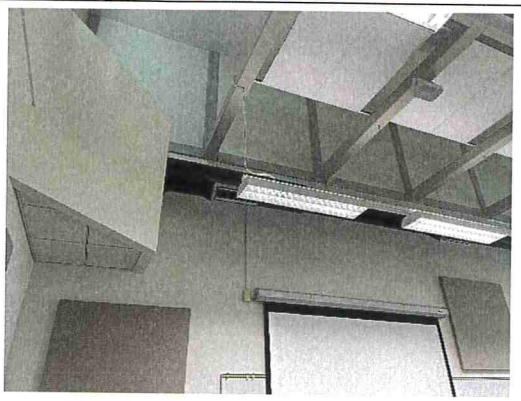
RTU-1 (Roof)

Service Life Estimate (SLE) 15 years

Carrier Model 50P3W0756S98Z41532

The air handling unit appears to be in good condition and if properly maintained the rooftop unit can be expected to exceed the SLE.

3.1.5 Air Distribution & Ductwork



The majority of the ductwork within the building was installed during the original construction. Exposed duct appeared to be in good condition. Ductwork is also located in ceiling plenum space and assumed to be in similar condition.

The ductwork does not exceed the ASHRAE median expected service life, however it is recommended that if the ductwork is to be reused it is thoroughly cleaned.

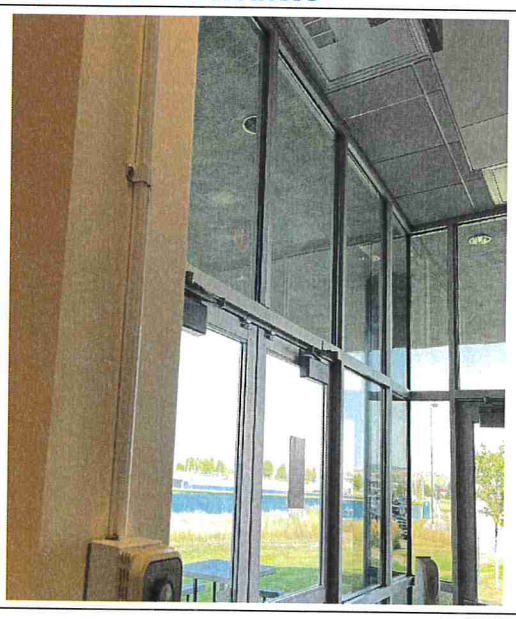
Dampers Service Life Estimate (SLE) 20 years.

Coils Service Life Estimate (SLE) 20 years

Heat Exchangers Service Life Estimate (SLE) 24 years.

Insulation Service Life Estimate (SLE) 24 years.

3.1.6 Cabinet Unit Heaters



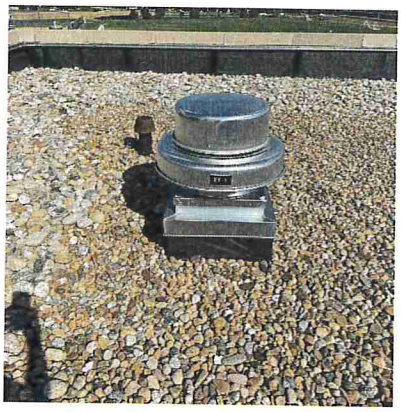
Cabinet Unit Heaters:

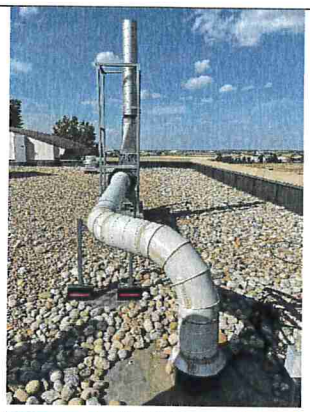
Service Life Estimate (SLE) 20 years

The cabinet unit heaters appear to be in good condition. If properly maintained the cabinet unit heaters can be expected to exceed the SLE.

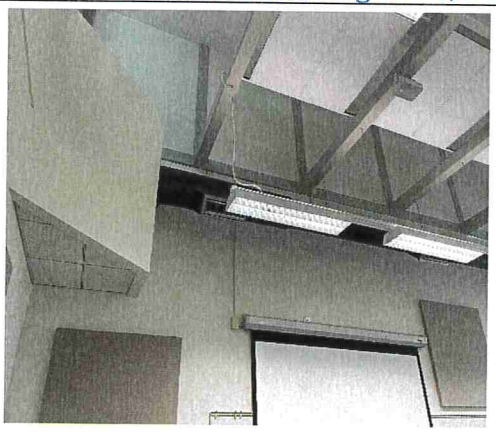
	

3.1.7 General Exhaust Fans

	EF-01: Service Life Estimate (SLE) 20 years The exhaust fan appears to be in good condition and has approximately 3-years remaining of its ASHRAE median expected service life of 20 years. If properly maintained the fan can be expected to exceed the SLE.
	EF-05 (Fume Hood Exhaust) Greenheck CSW-X-10-CW-UB-0-A Service Life Estimate (SLE) 20 years Utility Set type fan – up discharge arrangement with discharge damper and exhaust stack.



3.1.8 Air Terminals, Grills, Registers, Diffusers



Air Terminals Service Life Estimate (SLE) 20 years.

The air terminal units appear to be in good condition and have approximately 15-years remaining of their ASHRAE median expected service life of 20 years.

If the air terminals are reused it is recommended that they are cleaned and rebalanced.

Ductwork Service Life Estimate (SLE) 30 years.

All interior lay-in diffusers appear to be in good condition.

3.1.9 HVAC Controls

The building automation system (BAS) is a Carrier system.

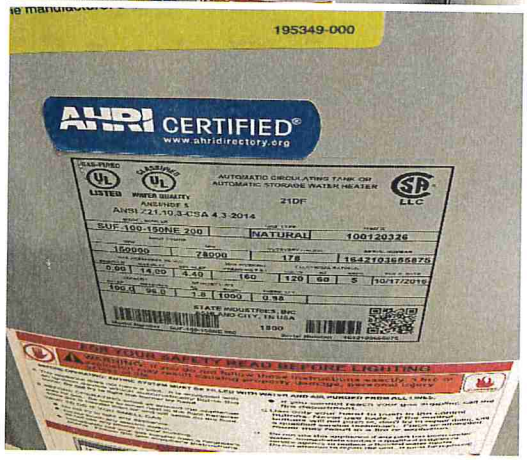
Controls Service Life Estimate (SLE) 15 years.

The mechanical equipment is controlled by a central automation system with direct digital controls (DDC) controls. All air handling units have downstream variable-air-volume terminal boxes that are controlled by space temperature sensors

Repairs can be accomplished by replacing individual components. Software upgrades generally can be accomplished utilizing existing hardware thereby significantly extending the life of the BAS.

3.2 PLUMBING SYSTEMS

3.2.1 Domestic Hot Water Heaters



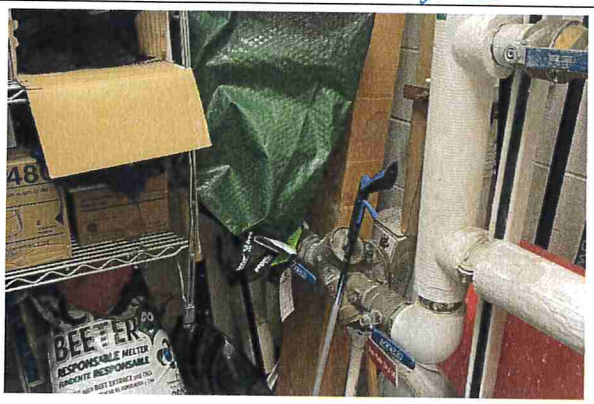
II

Domestic Water Heater – Tank type
Service Life Estimate (SLE) 12 years
120 deg F system

State Industries, Inc
Model #SUF-100-150NE 200
150,000 Btu/hr input (Max)
78,000 Btu/hr input (Min)
178 Gal/Hr recovery

The domestic water heater appears to be in good condition and has approximately 7-years remaining of its ASHRAE median expected service life of 12 years. If properly maintained the water heater can be expected to exceed the SLE.

3.2.2 Domestic Cold-Water System



Domestic Cold-Water:

The water entry is a 1-1/2" service.

The incoming water pressure was at approximately 75 psi at the time of this site survey.

The domestic cold-water system throughout was not accessible because it is above ceilings and within walls. The domestic cold water backflow preventer (BFP) needs to be tested annually. These reports should be located and reviewed to determine if there are any issues with the BFP.

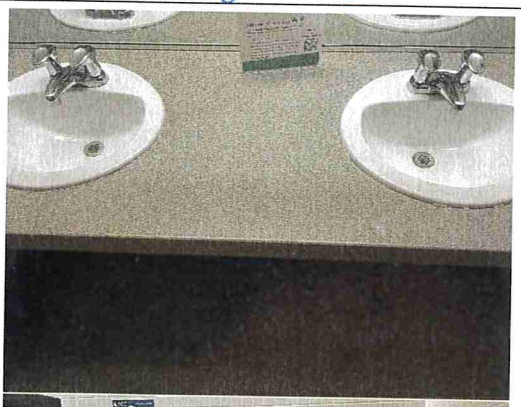
3.2.3 Sanitary Sewer

No picture available.	Sanitary sewer: The sanitary sewer system is located below the slab, above ceilings and within walls. All below slab sewer lines should be inspected using a plumbing sewer scope to determine condition, location and invert elevations.

3.2.4 Roof Drainage

No picture available.	Roof Drains: Service Life Estimate (SLE) 30 years. The roof drains appear to be in good condition. If properly maintained and cleaned the drains can be expected to last the life of the roof.

3.2.5 Plumbing Fixtures

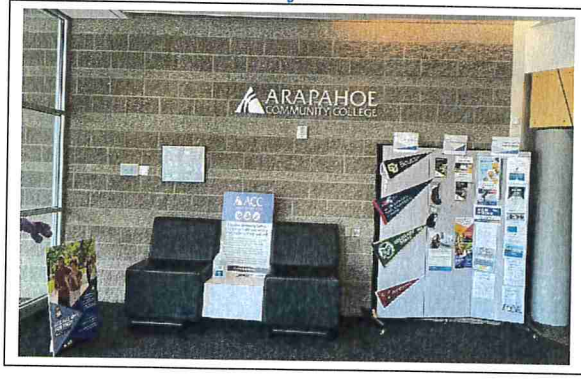


Plumbing Fixtures:

All plumbing fixtures appear to be in good condition and working properly.

The flush valves and faucets are manual type. It is recommended that these be replaced with automatic type valves and faucets during the anticipated upgrade of the fixtures.

3.2.6 Fire Water Systems



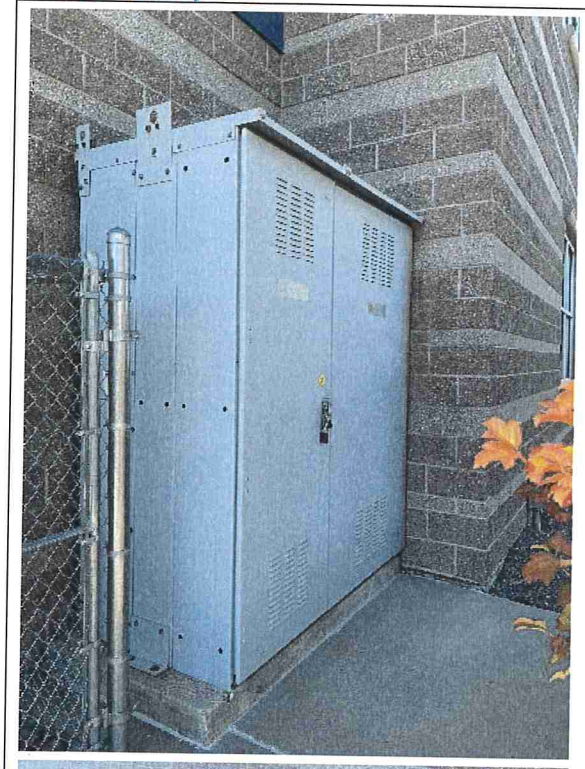
The building does not have a fire protection sprinkler system.

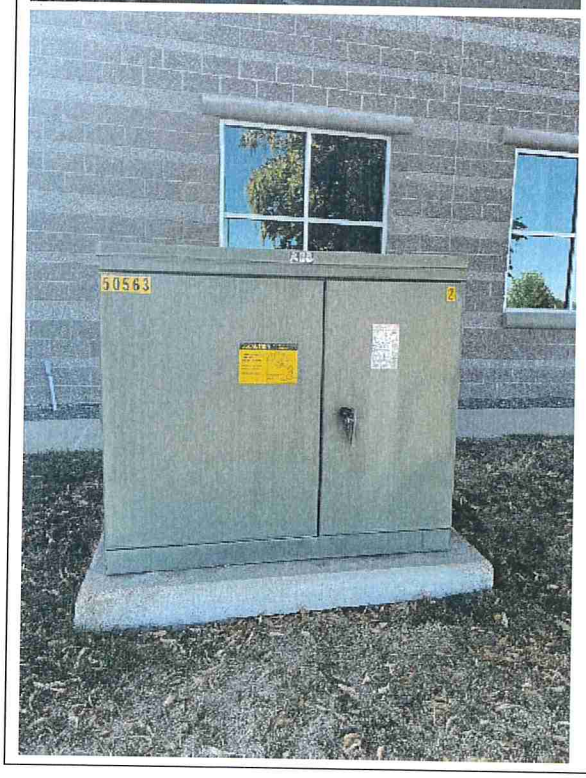
3.2.7 Gas Piping System

The gas piping mains are original to the building. The system is sized to provide gas service to the gas fired boilers and the gas fired rooftop unit.

3.3 ELECTRICAL SYSTEMS

3.3.1 Utility Service

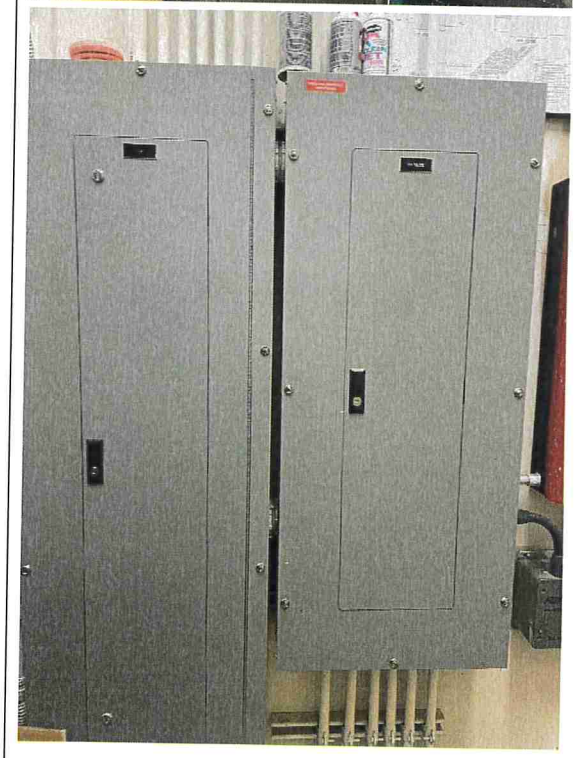




The building's electrical service is provided by CORE Electric Utility Company (Formally IREA). The existing electrical service consists of a utility owned pad mounted transformer (rating of transformer is unknow), that provides 480/277V, 3-Phase, 4-Wire service to the building. It is assumed that transformer is adequately sized for any new renovations. The transformer, EUSERC Cabinet and utility meter appear to be in good condition and do not require immediate replacement. The incoming feeder from the transformer to the main switchboard 'MSB' are to remain as is.

There appears to be no code related issues with the utility service.

3.3.2 Normal Power Distribution



The building's main electrical distribution is 480/277V, 3-Phase, 4-Wire solidly grounded. The main distribution switchboard 'MSB' is rated 600A, 480/277V, 3-Phase, 4-Wire.

No internal or external Surge Protection Device was observed.

The 'MSB' was installed in 1999 and appears to be in good condition.

The main electrical room appear to be used as storage and interfering with NEC required clearances.

The building is served by multiple step-down transformers and branch Panelboards that appear to be in good condition and can be utilized for the new renovation where applicable.

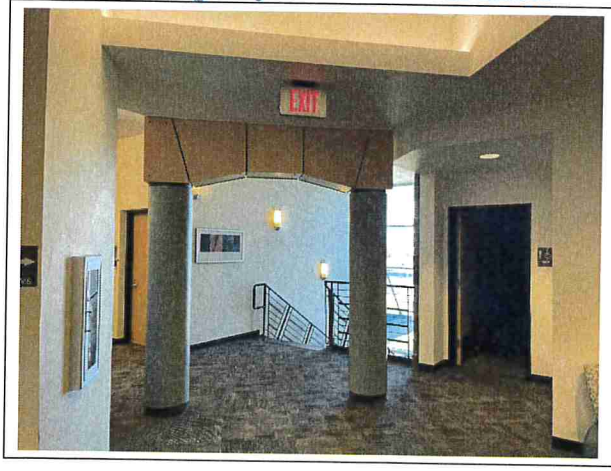
The branch circuit panelboards throughout the building appear to be in good condition and can be re-purposed for the renovation of the space.

Most panelboards appeared to have spare breakers or space. The panel directories and labels on distribution board and sub-distribution board appear to be up to date.

3.3.3 Grounding

It appears the electrical system is grounded per the National Electric Code. Any new electrical equipment will require grounding to follow all NEC requirements.

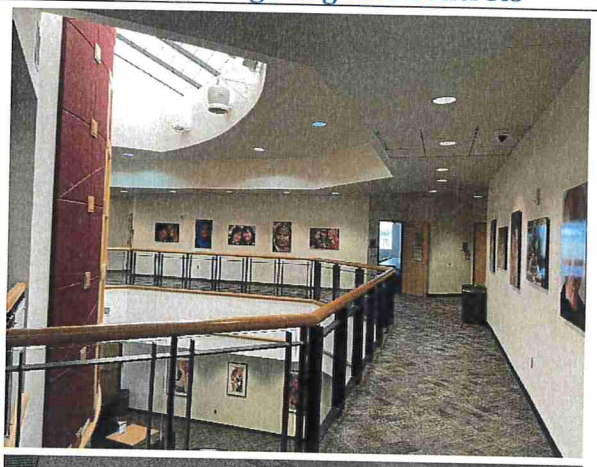
3.3.4 Emergency Power Distribution



The building does not have an emergency generator and egress lighting/exit signs are served with local emergency batteries.

An assessment of all egress lighting is recommended to verify all local batteries are functional and replace any that have served their life-expectancy.

3.3.5 Interior Lighting and Controls

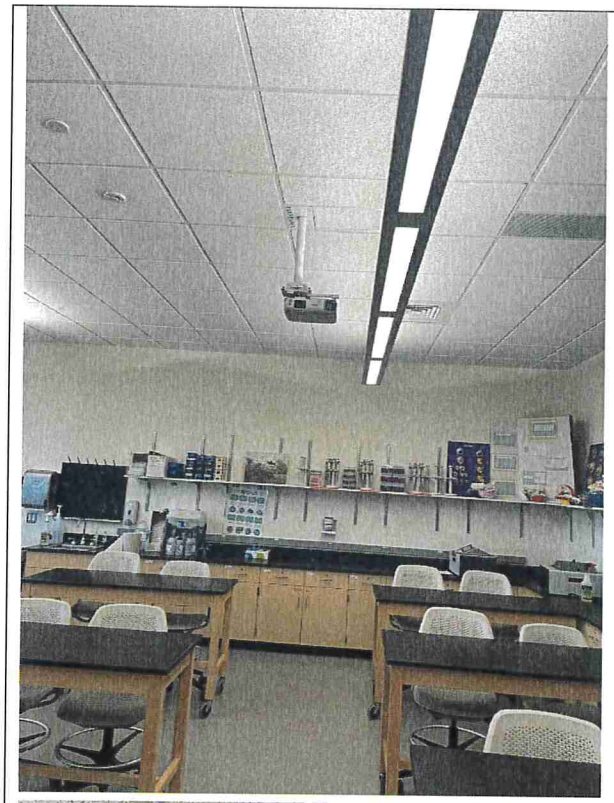


Existing lighting consists of fluorescent and HID fixtures.

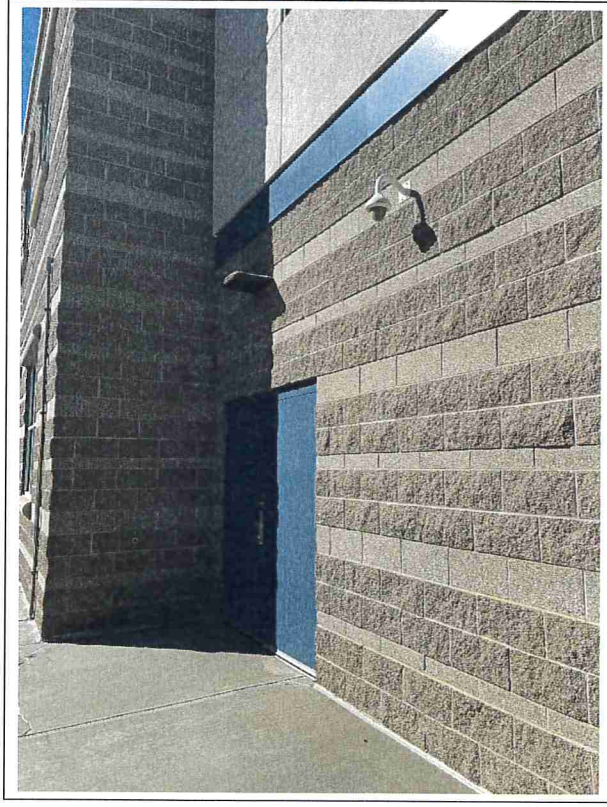
New LED lighting should be provided in all renovation areas. The new LED lighting will provide adequate lighting levels and also provide good visibility and comfortable surroundings. Lighting levels for each space will be designed to conform to the Illuminance Selection Tables appearing in the Illuminating Engineering Society (IES) Lighting Handbook.

Existing lighting in areas outside of renovation are to remain as is.

All new lighting is to be provided with new controls to meet IECC. Occupancy or Vacancy sensors shall be installed in spaces where automatic shutoff of electric lighting is appropriate. Sensor time-out shall be adjustable from 15 to 30 minutes. Automatic dimming/reduction of electric lighting associated with daylight harvesting shall be implemented in public spaces receiving adequate daylight. Multi-level lighting level control shall be provided in spaces as deemed appropriate to allow the level of electric lighting and energy consumption to be reduced to best suit the comfort level of the building occupants. Continuous dimming control of electric lighting shall be provided where appropriate. Electric lighting in public spaces that operate on a workday schedule shall be controlled by a networked lighting control system. Override switch capability will be provided for all common spaces

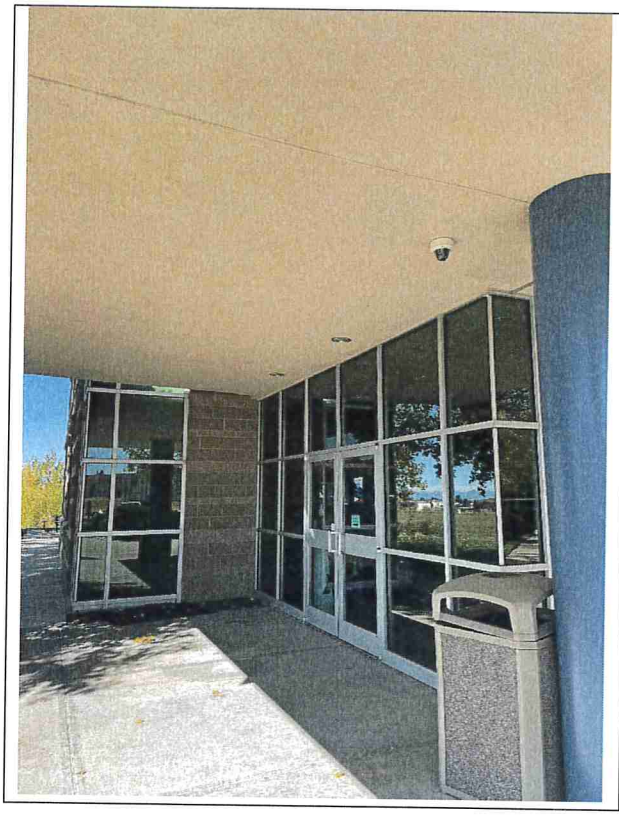
 	controlled by the networked lighting control system.

3.3.6 Exterior Lighting and Controls

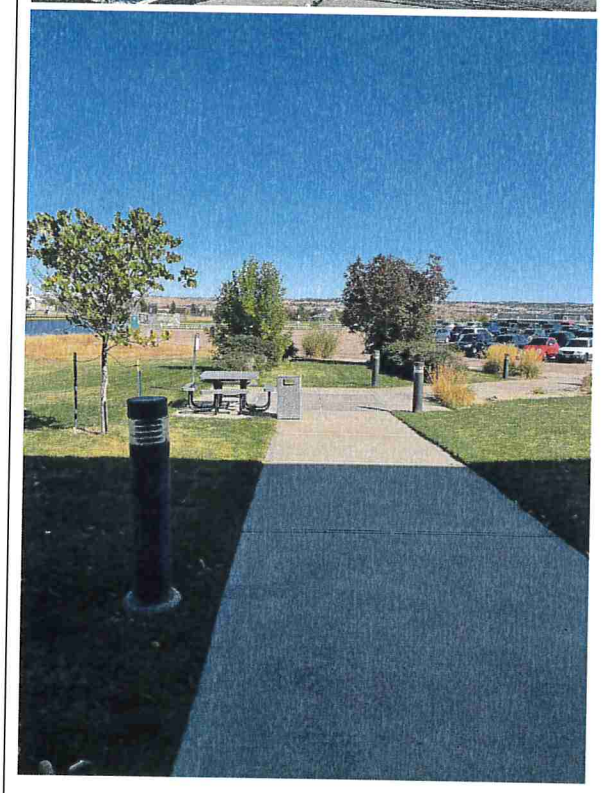


Exterior lighting consists of recessed downlights and wall mounted lights around the building. Majority of these fixtures contain fluorescent and HID bulbs.

New LED lighting is recommended to be provided to conform with IESNA Guidelines for Security Lighting for People, Property, and Public Spaces. Exterior lighting control will be accomplished through the networked lighting control system, utilizing photocell and astronomical time clock control.



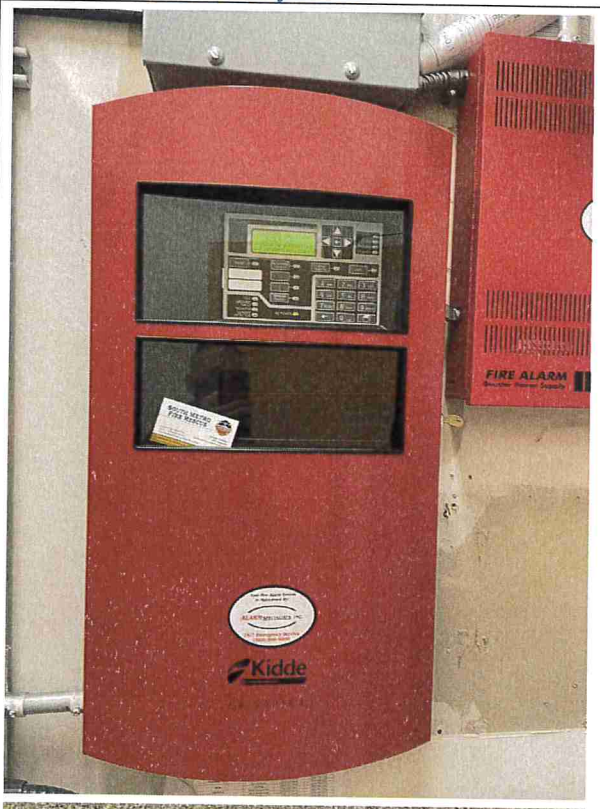
3.3.7 Site Lighting



The exterior site lighting appears to be in good condition. The fixtures appear to be HID fixtures.

New LED heads are recommended to be provided to conform with IESNA Guidelines for Security Lighting for People, Property, and Public Spaces. Exterior lighting control will be accomplished through the networked lighting control system, utilizing photocell and astronomical time clock control.

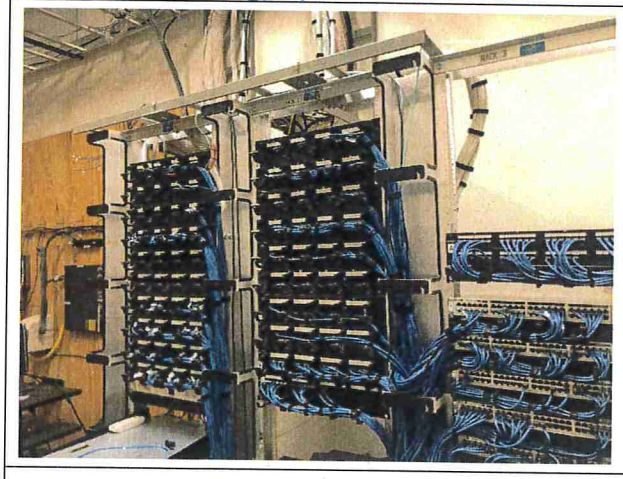
3.3.8 Fire Alarm System



The Fire Alarm System is a zoned system. Initiation devices include smoke & heat detectors and manual pull stations at exit doors. Notification devices consists of horns and strobes. The Fire Alarm System will need to be reconfigured to accommodate the new renovation and be provided with Voice Evacuation. All new devices are to be provided throughout the building and existing raceway and wiring can be re-used where applicable. A new graphic zone map, zone annunciator, and an LCD Character display will need to be provided in the main entrance. Power supplies shall be sized for a minimum of 2 hours of stand-by operation in addition to 15 minutes of full system operation in alarm mode.

3.4 TECHNOLOGY SYSTEMS

3.4.1 Technology Systems Overview

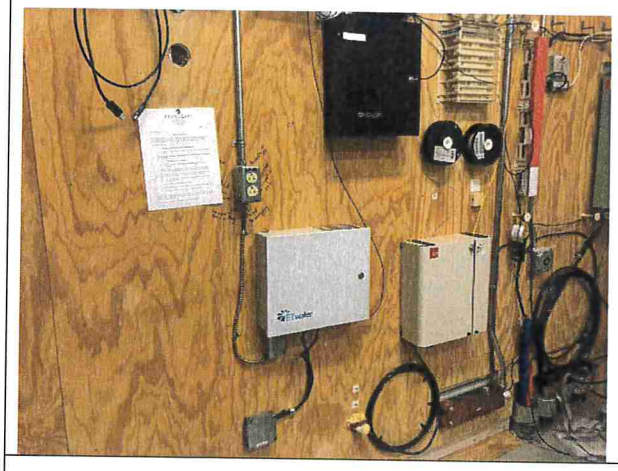


The current Arapahoe Community College – Parker Campus contains technology infrastructure for data, security and audio-visual systems. Many of these systems are believed to have been included with the original construction and are beginning to show signs of age. Functional testing would be required for any systems intended for reuse to verify current conditions.

3.4.2 Telecommunications Spaces

Telecommunication needs in the existing facility are served primarily from an MDF and entrance facility located on the first floor of the building. No other closets were observed within the facility and all observed cabling terminates in this room.

3.4.2.1 Entrance Facility



The entrance facility provides sufficient wall space for incoming service connections and service provider demarcation equipment. Underground conduits extend from the north side of this room to service provider vaults.

3.4.2.2 MDF #112

The existing MDF includes (3) 2-post racks. Approximately 40% of existing rack space is used for horizontal cabling termination and access switches. Remaining space is allocated to UPS and other active network electronics.

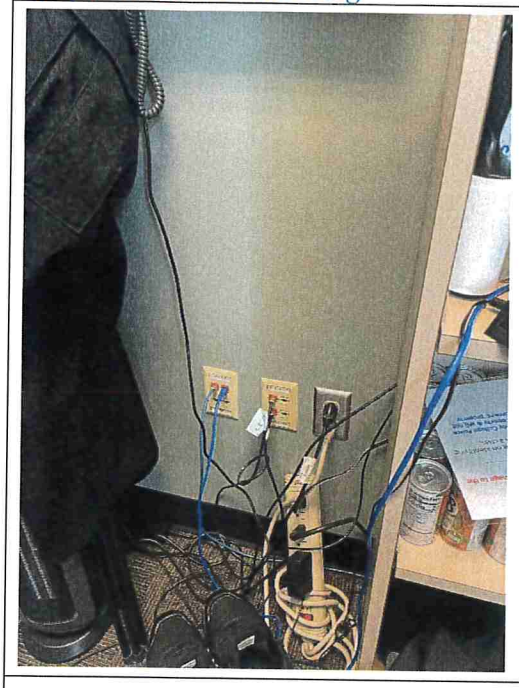
Racks are provided with horizontal and vertical wire management as well as ladder rack across the top. A higher wire cable tray is provided that continues into the corridor to serve horizontal cabling needs.

66-block panels are provided at the wall for analog phone termination.

3.4.3 Telecommunications Systems

The existing telecommunications systems include an analog phone backbone, data cabling, wireless access points, and phone system. These systems are currently in use by the occupant.

3.4.3.1 Horizontal Cabling



The horizontal cabling in the building included data outlets at walls in offices and classrooms, as well as connections to ancillary devices. Most classrooms contained 4-6 floorboxes with power and data as well as data at the instructor station.

All horizontal cabling and data outlets observed in the facility was noted as Category 5 cabling. No fiber backbone was observed outside of the MDF.

3.4.3.2 Wireless

Existing wireless infrastructure included Meraki access points within several offices, classrooms, and common areas. These are assumed to be retained by current occupant. Category 5 cabling is provided to these locations.

3.4.3.3 Phones

Existing phones are included within offices and classrooms. These are IP models and terminate to standard data outlets. Analog phone system use is limited to special systems and applications.