DMPS FACILITY ASSESSMENT | STUDEBAKER ELEMENTARY

11.08.2023

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ENGINEERS

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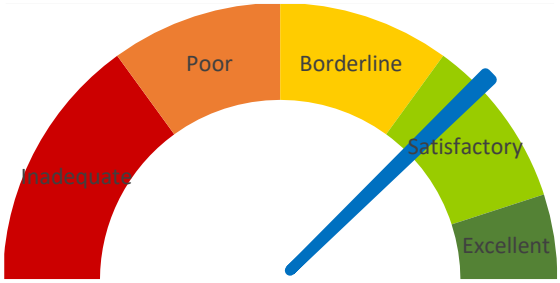


REPORT ORGANIZATION

EXECUTIVE BUILDING SUMMARY

Studebaker Elementary's on-site facility conditions assessment was conducted on November 8, 2023, and included visual conditions assessment from professionals covering interior architecture, exterior building envelope, the property's grounds (site), structural condition, mechanical (HVAC/Plumbing) systems, electrical systems (power, exterior lighting, interior lighting, fire alarm, and general IT), and the elevator conditions.

Immediate maintenance concerns identified for Studebaker Elementary school include Exterior wall repairs, exterior door latch repairs, exterior receptacle replacement, interior stair repair, and roof cleaning. These items are further described within this report. Many of the staff indicated there is a great shortage of space for administration, teachers, and students, especially for student breakout or intervention spaces. A complete space study is recommended within this report to unify disjointed systems as well as provide more information for future addition(s) and space allocation. Projects resulting from this study will help increase the overall building health score.

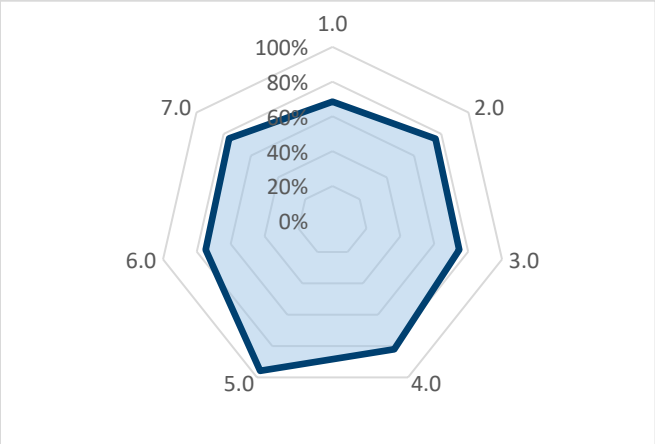
A summary of the recommended projects for Studebaker Elementary to be completed in the next 1-2 years are as follows:

- Electrical Equipment Replacement
- Acoustic Installation
- RTU Frame Refinish
- Louver Lintel Refinish
- Lintel Refinish
- Pavement Repair
- Cleanout Rim Relocation
- Playground Grading Improvements
- HVAC System Study

These projects along with all of the recommended potential projects at the 3-4 year and 5-10 year priority levels are further described within this report.

Discipline Comparison				Building Health				
Assessment Category Summary		Max Pnts	Earned Pnts	Bldg Weight Factor	Max Pnts	Earned Pnts	%	Rating
1.0	Educational Adequacy	165	113	2.00	330	226	68%	Borderline
2.0	Environment for Education	350	265	0.60	210	159	76%	Satisfactory
3.0	Exterior Envelope	95	71	3.00	285	213	75%	Satisfactory
4.0	School Site	100	82	1.50	150	123	82%	Satisfactory
5.0	Structural Conditions	95	91	1.30	124	118	96%	Excellent
6.0	Mechanical Systems	660	494	0.80	528	395	75%	Satisfactory
7.0	Electrical Systems	455	346	0.75	341	260	76%	Satisfactory
Total					**1,968**	**1,494**	**76%**	**Satisfactory**

Studebaker Elementary
Discipline Comparison



Rating Table				
1-29%	30-49%	50-69%	70-89%	90-100%
Inadequate	Poor	Borderline	Satisfactory	Excellent

After totaling the scores from the various discipline assessment reports Studebaker Elementary scored a building health rating of 76% or Satisfactory per the scale described above. Per the graph shown on the cover page of this report, scores within the "green" range are considered positive scores. While Studebaker is within this area, it is low. Improvements to educational adequacy, exterior envelope, and mechanical systems as described in this report, would make the largest impact in increasing the score to "Excellent".

Building Data Record

Building Name: Studebaker Elementary

Date: 11.8.2023

Address: 300 E County Line Road
Des Moines, IA

High School Feeder System: Lincoln High

Building SF: 64,455 SF

Site Acreage: 8.15 Acres

Date(s) of Construction: 1965, 1970, 1993, 2013 (Renovation, minor addition), 2019

Date(s) of Roof Replacement: 2012 (F-L), 2019 (M-O), 2020 (A-E)

Current/Scheduled Projects: ADA Improvements - Contracted Services
HVAC Upgrades - 2024

Existing Building Data:

- [x] Egress Plans
- [x] Original Docs
- [x] Major Renovations and Additions
- [ ] Minor Projects
- [ ] Maint. Reports

Site Items:

- [x] Student Garden
- [ ] Loading Dock
- [x] Stormwater Detention

Energy Source:

- [x] Electric
- [x] Gas
- [x] Geothermal
- [ ] Solar

Cooling:

- [x] DX RTU or DOAS
- [ ] Chiller
- [x] VRF
- [x] Water Source Heat Pump
- [x] Fluid Cooler

Heating:

- [x] Gas/Electric RTU or DOAS
- [x] Boiler
- [ ] Water-to-Water Heat Pump
- [x] VRF
- [x] Water Source Heat Pump

Structure Fireproofing:

- [x] No
- [ ] Yes

Construction:

- [x] Load Bearing Masonry
- [x] Steel Frame
- [ ] Concrete
- [ ] Wood
- [x] Other
  Precase Concrete

Exterior Facade:

- [x] Brick
- [ ] Stucco
- [x] Metal
- [ ] Wood
- [x] Other
  Precast Concrete

Floor/Roof Structure:

- [ ] Wood Joists
- [ ] Steel Joists/Beams
- [x] Slab on Grade
- [ ] Struct. Slab
- [ ] Other

A | Architectural, Programming

ASSESSOR: Kaela Shoemaker

1.0 Educational Adequacy

		Weight Factor	Rating	Points	Comments
General					
1.1	**Floor materials** are appropriate for space type.	2	4	8	Hard flooring or exposed concrete throughout is generally acceptable, however in areas used as breakout spaces softer flooring would be a better fit.
Elective/Secondary Classroom					
1.2	**Gymnasium** is adequate for providing physical education programming.	2	5	10	
1.3	**Cafeteria** has adequate space, furniture, and acoustics for efficient lunch use.	2	3	6	Space is adequate, but there are acoustic deficiencies.
1.4	**Music room** is adequate for providing introductory music instruction.	2	2	4	Band and orchestra storage is part of main music room. There is a general lack of storage in that space and the added instrument storage accentuate the issue. Acoustics seem adequate, but could be improved. Band lessons are held in the boys and girls club.
1.5	**Art room** has sufficient accommodations for program.	2	3	6	Lack of storage.
1.6	**Library/Resource/Media Center** provides appropriate and attractive space.	1	1	1	Serves as a media center, teacher offices, intervention class spaces, and other functions. Arrangement of furniture and shelving to accommodate multiple programs and functions make the space difficult to use and manage.
Core Classroom					
1.7	Classroom space permits arrangements for **small group activity.**	3	4	12	Most classrooms have some breakout space, but appear to be at max capacity.
1.8	**Student storage space** is adequate.	2	4	8	South corridors have open hooks in the corridors. Other corridors have closed lockers. 2 kindergarten rooms have cubbies in the classrooms and hooks in the corridors.
1.9	**Teacher storage space** is adequate.	3	1	3	It appears only the upper level grades have enough in classroom storage. In classroom and teacher only storage throughout the building is radically undersized.
1.10	Classroom **acoustical treatment** of ceiling, walls, and floors provide effective sound control.	3	4	12	Corridors where there are breakout spaces should be better treated with additional acoustics.

A | Architectural, Programming

ASSESSOR: Kaela Shoemaker

		Weight Factor	Rating	Points	Comments
1.11	**Classroom power and data receptacles** are located to support current classroom instruction.	4	4	16	Generally adequate. The support spaces that were changed from storage to student support or offices are not adequate for current use.
1.12	Educational **technology** supports instruction.	4	5	20	
Administration					
1.13	**Conference/Private meeting rooms** are adequate for large and small meetings.	1	1	1	No designated single use meeting or work space. All administrative areas are multi-use and appear to be lacking. Storage spaces have been turned into offices in the library. These are not suitable for the use.
1.14	**Main office** has a check-in and waiting area.	2	3	6	Main office is split into 2 segments. Waiting area and reception desk are somewhat undersized. Other work spaces are inadequate.
	TOTAL			113	

A | Architectural, Interior

ASSESSOR: Kaela Shoemaker

2.0 Environment for Education

Design

		Weight Factor	Rating	Points	Comments
2.1	**Traffic flow** is aided by appropriate foyers and corridors.	1	3	3	South corridor has open hooks for student storage. Lack of food pantry storage impacts corridors around the boys and girls club. Way finding is minimal making the traffic flow somewhat cumbersome.
2.2	Communication among students is enhanced by **common areas.**	1	3	3	Common areas are present but are not adequately furnished to provide for usable space.
2.3	Areas for students to **interact are suitable to the age group.**	1	3	3	Classrooms have adequate spaces but other specials rooms and breakout rooms are lacking collaborative and varied seating spaces.
2.4	Large group areas are designed for effective **management of students.**	2	3	6	Wayfinding throughout the school could be improved for better management. Library space arrangement makes it difficult to see all doors and spaces where students may be sitting or working.
2.5	**Furniture Systems** are in good or like new condition.	1	4	4	Classroom furniture seems to be adequate with minor surface chipping. Teacher furniture is insufficient and showing wear.
2.6	**Color schemes**, building materials, and decor are **engaging and unify** the school character.	2	3	6	Some areas have a great use of color and pattern, others do not. Materials vary from each addition creating a disjointed feeling throughout the school.
2.7	Windows and skylights provide access to **adequately controlled daylight** for regularly occupied spaces.	3	4	12	Blinds and windows seem to be in ok condition.
2.8	Windows provide access to **quality views** (to exterior, courtyards, artwork etc.) for regularly occupied spaces.	3	4	12	Several storage - turned offices have no access to daylight. Most all classrooms have at least some daylight and view access.
2.9	**Lighting has proper controls** to provide the required light levels for various teaching and learning needs.	2	4	8	Lighting is LED throughout but only a portion of the building has dimming controls. Room 1400 has lights at the front of the classroom that always stay on. Several of the classrooms without dimming control have many lamps.
2.10	**Staff dedicated spaces** include conference space, work space, and dedicated restrooms.	1	1	1	Not all are present. What office and meeting space is provided is multi-use and not adequate for learning, meeting, teaching, or preparing. There are several staff dedicated restrooms.

A | Architectural, Interior

ASSESSOR: Kaela Shoemaker

		Weight Factor	Rating	Points	Comments
2.11	**Main office** is visually connected to the entry and is welcoming to students, staff, and guests.	2	2	4	Main office is segmented into 2. The reception and waiting area is a bit small but is highly visible from the front entry. The main doors are somewhat hidden on the side, but are at the main parking lot. Visito parking and more prominent entrance is the boys and girls club.
2.12	**Break room** is adequately sized and furnished for proper use.	1	2	2	Break room has some accommodations but is very small, shares a space with restrooms and a working desk.
2.13	**Mother's room** is a separate designated space properly furnished.	1	0	0	
Maintainability					
2.14	**Floor surfaces** are durable and in good condition.	1	3	3	Carpeting throughout is showing significant wear. This is typically found in offices and student support spaces. Flooring in the original portions of the building is showing more wear than others.
2.15	**Ceilings** throughout the building – including services areas – are easily cleaned and resistant to stain.	1	5	5	
2.16	**Walls** throughout the building – including services areas – are easily cleaned and resistant to stain.	1	4	4	One classroom had peeling vinyl wall covering, but no moisture or other concerns present. The north exterior wall of room 1245 did have some peeling paint and evidence of moisture retained within that wall assembly. Other walls are acceptable.
2.17	**Built-in casework** is designed and constructed for ease of maintenance.	1	3	3	Wood casework that is more standalone is in poor condition throughout the classrooms. Other classroom casework appears in good condition, excluding the art room.
2.18	**Doors** are either solid core wood or hollow metal with a hollow metal frame and well maintained.	3	4	12	Metal frames are all showing surface wear and could use re-painting.
2.19	**Facility doors** are keyed to standardized master keying system.	3	5	15	
2.20	**Restroom partitions** are securely mounted and of durable finish.	2	3	6	The newest addition restrooms near the gym are in good condition. The other restrooms are showing significant wear and marks from cleaning.

A | Architectural, Interior

ASSESSOR: Kaela Shoemaker

		Weight Factor	Rating	Points	Comments
2.21	**Adequate electrical outlets** are located to permit routine cleaning in corridors and large spaces.	1	4	4	Could be more frequent on corridors for increased ease of maintenance.
Occupant Safety					
2.22	Classroom doors are **recessed and open outward.**	4	5	20	
2.23	Door hardware (into classrooms or any occupied rooms off of corridors) include **intruder classroom locksets.**	3	4	12	Classrooms are typically locked with a magnet over the latch to be removed in case of emergency. Closers typically are not used to hold open doors, but instead doors are wedged open with door stops.
2.24	**Door panels** into classrooms and other occupied spaces contain **vision lite.**	3	3	9	Offices within the library have no vision panels. The teacher break room has 2 doors with only 1 containing a vision lite.
2.25	**Vision lite** in doors is clear and uncovered.	2	4	8	Most are clear. A handful have paper coverings.
2.26	**Glass** is properly located and protected to prevent accidental injury.	2	5	10	
2.27	**Flooring** is maintained in a **non-slip** condition	2	5	10	
2.28	**Traffic areas terminate at exit or** stairway leading to egress	5	5	25	
2.29	Multi-story buildings have at least **two stairways** from all upper levels for student egress.	5	N/A	0	
2.30	**Stairs (interior and exterior)** are well maintained and in good condition meeting current safety requirements.	5	1	5	Stairs in offices within the library have issues with the nosing that could be a tripping hazard. These are also not accessible for student, teacher, and parent meetings.

A | Architectural, Interior

ASSESSOR: Kaela Shoemaker

		Weight Factor	Rating	Points	Comments
2.31	At least **two independent exits** from any point in the building	5	5	25	
2.32	**Emergency lighting** is provided throughout the building.	5	5	25	
	TOTAL			265	

A | Architectural , Exterior

ASSESSOR: David Unick

3.0 Exterior Envelope

		Weight Factor	Rating	Points	Comments
Design					
3.1	Overall **design is aesthetically pleasing** and appropriate for the age of students.	2	4	8	Main building entry is difficult to distinguish from parking lot due to location within courtyard. (Entry for Boys and Girls Club is more prominent from street.) Consider adding wayfinding structure near drop off drive.
Maintainability					
3.2	**Roofs** appear sound, have positive drainage, and are water tight.	3	4	12	Roofs all appear to be in good condition, requiring only periodic leaf-removal maintenance at downspouts/drains. Roofing at entry node and south addition (~5000 SF) are nearing end of service life. Remainder of roofs < 5 yrs old with anticipated 15-20 year remaining service life.
3.3	**Roof access** is safe for all roofs.	3	3	9	Provide post extension and guard at roof access hatch. Access ladders in place at all significant roof elevation changes, except one at SE side of triangular bay requires crossing of above-roof ducts. Recommend adding ladder at SW side triangular bay (in vicinity of courtyard.)
3.4	Exterior **window sealant** is fully intact without cracks or gaps.	3	4	12	Sealant generally in good condition. Anticipate maintenance replacement in 5-10 yrs.
3.5	**Glazing** is low-e coated, insulated, and overall in good condition.	1	4	4	Tinted insulated glazing in place. Hollow metal frames on original portion of building are not believed to be thermally broken.
3.6	**Operable windows** are functional and safe. Operable portion of window fully seals when closed without gapping or leaking.	2	4	8	Windows appear to be functional. Approx 50% of window frames are steel and should be repainted.
3.7	**Exterior doors** are of durable material requiring minimum maintenance.	2	4	8	Approximately 50% of doors are steel in steel frames and should be repainted.
3.8	**Exterior walls** are of material and finish requiring little maintenance,	1	3	3	Exterior walls brick veneer or pre-cast concrete. North wing of building will require re-pointing in 3-5 years. Biological growth widespread on north and east walls of north wing. Pressure wash in 1-5 years.
3.9	**Exterior Doors** open outward and are equipped with **panic hardware.**	1	4	4	Exterior doors open outward. 2 openings do not fully close (Room 1320 and courtyard) and should be adjusted.
3.10	**Exterior Doors are monitored** or controlled by an access control system.	1	3	3	Primary entry, Boys and Girls Club entry, playground entries, staff entry, and kitchen service entry all contain access control. Remaining exterior doors are not monitored
	TOTAL			71	

C | Civil

ASSESSOR: Jack Gorman

4.0 The School Site

		Weight Factor	Rating	Points	Comments
4.1	**Site topography** and grading drains water away from the building and retaining walls.	1	2	2	Site fairly flat and drains primarily to the north. There appears to be a drainage issue of drainage towards the building just north of the playground equipment.
4.2	**Parking areas** are in good condition.	5	5	25	Parking pavement looks new and is in good condition holding up well.
4.3	**Drive areas** are in good condition.	3	4	12	The pavement in adjacent drive aisle next to the trash enclosures is cracking, but all other drive areas are in good condition.
4.4	**Sufficient on-site, solid surface parking** is provided for faculty, staff, and community.	1	2	2	There were only a couple of parking spaces available for visitors at the time of site visit, staff parking is short and events are challenging.
4.5	**Sidewalks** around the facility are in good **condition.**	1	4	4	Most of sidewalk pavement was in good condition. The pavement north of building with picnic tables on it was cracking throughout with a tripping hazard. There was also a tripping hazard observed on the south sidewalk just north of Count Line Rd.
4.6	**Sidewalks are located** in appropriate areas with adequate building access.	1	4	4	There was 1 door on the east side of the building without sidewalk access.
4.7	**Hard surface** playground surfaces are in good condition.	3	4	12	The concrete playground surfaces were in good condition. The NW asphalt was cracking but did not appear to be at risk of failing in the next 4 years.
4.8	**Fencing** around the site is in good condition.	1	5	5	All fences were in good condition, no issues were observed.
4.9	**Trash enclosure** is in good condition.	1	5	5	The enclosures themselves were not in use at the time of visit, dumpsters were sitting in front, but the masonry brick and gates were in good condition. The pavement in front of the enclosures was cracking but that is not part of this item, it is accounted for in the drives item above.
4.10	**Utilities** are in newly constructed conditions and placed in suitable locations.	1	4	4	All utilities were in good condition and placed appropriately. There was one structure on the north side of the site that would benefit from grading down from the outlet, water must currently pond approx. 6 inches before it can release to the north.

ASSESSOR: Jack Gorman

		Weight Factor	Rating	Points	Comments
4.11	**Site has sufficient room** for both building and parking expansion.	1	2	2	The county conservation board owns the land to the north and limits expansion in that direction. Some limited space for a building expansion is available to the west and northwest of the existing building.
4.12	Site has **onsite bus and parent pickup** up with adequate length, good separation and general good site circulation.	1	5	5	The bus and parent drop off are both on site and separated. Stacking lengths are adequate and no conflicts occur when the circulation plan is followed.
	TOTAL			82	

S | Structural

ASSESSOR: Trevor Pullen

5.0 Structural Conditions

		Weight Factor	Rating	Points	Comments
Foundations					
5.1	**Foundations** appear to be in good condition with no visible cracks.	1	5	5	
5.2	There does not appear to be any **foundation settlement.**	2	5	10	
5.3	**Basement walls** do not appear to have any cracks.	1	N/A	0	
5.4	**Stoops** appear to be in good condition.	1	5	5	
Slab on Grade					
5.5	**Slabs on grade** do not appear to have any cracks	1	4	4	There is some cracking in the polished concrete floor slabs. They are most likely shrinkage cracks. Do not appear to be from settlement.
5.6	Slabs on grade do not appear to have any **settlement.**	1	5	5	
Exterior Walls					
5.7	**Brick masonry** appears to be in good condition.	2	4	8	Overall appears to be in good condition. There is some grout that is cracking / spalling and could use some tuck-pointing. See projects for additional description and locations.
5.8	**Lintels** appear in good condition (no visible deflection or rust).	1	4	4	Most of the lintels are in good condition. The lintels over the louvers at the bottom of the walls are all rusted.
5.9	**CMU** is in good condition.	1	N/A	0	
5.10	**Precast** is in good condition.	1	5	5	

S | Structural

ASSESSOR: Trevor Pullen

		Weight Factor	Rating	Points	Comments
Interior Walls					
5.11	**Interior walls** appear to be in good condition.	1	5	5	
Floor Framing (Elevated)					
5.12	**Floor framing** appears to be in good condition.	3	N/A	0	
5.13	Floor framing appears to meet the **code requirements.**	3	N/A	0	
Roof Framing					
5.14	**Roof framing** appears to be in good condition.	3	5	15	
Miscellaneous					
5.15	**Retaining walls** appear to be in good condition.	1	N/A	0	
5.16	**Canopies** appear to be in good condition.	1	5	5	
5.17	**Loading dock concrete** appears to be in good condition.	2	N/A	0	
5.18	**Mechanical screening** appears to be in good condition.	2	5	10	
5.19	**Stairs** appear to be in good condition.	1	N/A	0	
5.20	**Stair railings** appear to be in good condition.	1	N/A	0	

S | Structural

ASSESSOR: Trevor Pullen

		Weight Factor	Rating	Points	Comments
5.21	**Tunnels** appear to be in good condition without cracks.	1	N/A	0	
5.22	There is a **designated hardened area** in the building.	1	5	5	
5.23	The hardened area appears consistent with the **ICC 2018 code.**	1	5	5	The hardened area was added in the 2019 addition and designed according to IBC 2015.
	TOTAL			86	

MP | Mechanical & Plumbing

ASSESSOR: Corey Metzger

6.0 Mechanical Systems

HVAC Design

		Weight Factor	Rating	Points	Comments
6.1	**Zone Control.** Thermostats are provided in each space for individual zone control of space temperatures.	3	5	15	Appears true for most spaces.
6.2	**Thermostat location.** Thermostats are properly located in the space.	3	5	15	Locations generally appear appropriate/acceptable.
6.3	Appropriate **amount of ventilation** are provided to each space.	5	4	20	True for most spaces. Appears some classrooms may be slightly below current code requirements for airflow.
6.4	**Ventilation** is provided during occupied hours.	5	3	15	Generally true. ERU-2 (south unit) did not appear to be operating when observed. Other units were operating. Staff indicated area served by this unit had fairly significant temperature and humidity control issues.
6.5	**Outdoor air intake locations** are appropriate.	4	1	4	Some units are acceptable. Classroom units do not provide separation between intake and exhaust and large ERU has exhaust fan within approximately 2-3 feet of intake.
6.6	Appropriate **levels of exhaust** are provided for areas requiring this such as restrooms, janitor's closets and locker rooms.	5	2	10	True for most observed areas. Some custodial spaces did not have exhaust and there were a few restrooms provided with exhaust where effective operation was questioned due to odors or lack of apparent airflow.
6.7	**Building pressurization.** The design takes into account the balance between ventilation and exhaust air	2	4	8	Generally appears to be true.
6.8	**Major HVAC Equipment** appears to be within it's acceptable **service life.**	5	4	20	Most equipment is less than 15-years old. Likely should have remaining life, but there appear to be operational issues with a number of items (heat pumps, dry cooler, etc.).
6.9	**Cooling loads** are within equipment operational capacity.	5	3	15	Generally true for sensible loads, though concerns related to humidity (latent cooling) were identified by multiple individuals. Issues with lack of capacity on hybrid geothermal loop (includes supplemental dry cooler and boilers).
6.10	**Heating loads** are within equipment operations capacity.	5	5	25	No issues observed.

MP | Mechanical & Plumbing

ASSESSOR: Corey Metzger

		Weight Factor	Rating	Points	Comments
6.11	**Dehumidification** is provided and addressed humidity loads in incoming outside air.	3	1	3	Concerns identified by multiple individuals. Appears some improvement has been achieved, but still significant issues
Plumbing Design					
6.12	**Water Supply Pressure** is adequate to allow for operation of plumbing fixtures.	5	5	25	Yes.
6.13	Appropriate **backflow preventer** is provided at connection to city water supply.	5	5	25	Yes.
6.14	**Domestic hot-water systems** are within equipment operational capacity.	5	5	25	Appear to be in good condition.
6.15	Domestic **hot-water recirculating systems** allow for hot-water at fixtures within a reasonable amount of time.	3	0	0	No recirculation observed.
6.16	**Sanitary sewer systems** are sized and sloped to allow for proper drainage.	5	5	25	No issues identified.
6.17	Appropriately sized **grease interceptors** are provided for facilities with food service.	3	5	15	3,000 gallon grease interceptor.
6.18	**Roof drainage** systems are sized appropriately and overflow drainage systems are installed.	5	4	20	Overflow for much of roof is over edge. Some gutters plugged with leaves. New roofs have primary and secondary drains.
6.19	**Restroom fixtures** comply with DMPS preferences.	3	2	6	Combination of manual and automatic fixtures. Manual faucets observed in some restrooms with no mixing valve control.
Maintainability					
6.20	Equipment is provided with **adequate service clearance** to allow for regular maintenance	3	4	12	True for most major equipment. Screening structure provides obstructions at a few units.

MP | Mechanical & Plumbing

ASSESSOR: Corey Metzger

		Weight Factor	Rating	Points	Comments
6.21	AHUs and chiller are provided with **coil pull space.**	2	N/A	0	N/A.
6.22	**Filter** sizes are standard and filter types are standard.	2	3	6	Mix of filter sizes/types with different unit types (console heat pumps, horizontal WSHPs, classroom units, RTUs, etc.).
6.23	**Equipment mounting heights** are reasonable.	3	5	15	Generally appears to be true.
6.24	**Floor surfaces** throughout the mechanical room are non-slip and are dry.	2	5	10	Generally appears to be true.
6.25	**Isolation valves** are located in the plumbing and hydronic systems to allow for isolation of only portions of the system for servicing.	2	5	10	Yes.
6.26	Appropriate means are provided for **airflow and water balancing.**	3	5	15	Yes.
6.27	**Hose Bibbs** located in proximity to **outdoor condensers and condensing units**. Is cottonwood an issue at this location?	2	1	2	Not for multiple pieces of roof-mounted equipment (condenser for DOAS near gym is of particular concern given location and high ladder access). Mature trees throughout the park area around the building.
6.28	**Fall protection** is provided for equipment within 15 ft of roof edge.	2	1	2	Several pieces of equipment are within 15 feet of roof edge without fall protection.
6.29	**Building devices are on DDC controls** and fully visible through Building Automation System. No pneumatic controls remain.	4	4	16	Yes. FC Bus vintage equipment. Generally does not appear to be newest vintage of controller.
Occupant Safety					
6.30	**Backflow prevention** is provided at all **cross-connections** to non-potable water.	5	5	25	Yes.

MP | Mechanical & Plumbing

ASSESSOR: Corey Metzger

		Weight Factor	Rating	Points	Comments
6.31	Building is fully **sprinklered.**	5	5	25	Yes.
6.32	**Domestic hot-water temperature** at lavatories used by students or staff is provided with a thermostatic mixing valve and adjusted properly.	5	3	15	Not true for all spaces.
6.33	**Emergency eye-washes and tempering valves** are located where required.	5	0	0	Eyewash not observed. Recommend evaluation with an occupational safety and health professional to determine if eye irrigation is needed.
6.34	**Emergency boiler stop switches** are located at exits from boiler rooms.	5	5	25	Yes.
6.35	**Refrigeration evacuation systems** are provided in rooms with chillers.	5	N/A	0	N/A.
6.36	**Carbon Monoxide monitoring** and alarming is provided for areas with gas-fired equipment.	5	5	25	Yes.
	TOTAL			494	

E | Electrical

ASSESSOR: David Carlson

7.0 Electrical Systems

Electrical Design

		Weight Factor	Rating	Points	Comments
7.1	**Transformer location** is easily accessible by utility line truck to allow for rapid transformer replacement in the event of an issue.	5	5	25	
7.2	**Transformer** has adequate clearance from non-combustible building components, paths of egress, etc. 10' clear working area in front of doors.	5	0	0	Partition/screen wall erected in front of transformer allows doors to open fully but does not provide the appropriate 10' clear in front of doors to allow utility workers access with hotsticks. .
7.3	**The MDP environment** is safe, has adequate clearances and exiting.	3	5	15	
7.4	The **MDP** appears serviceable.	4	4	16	MDP consists of Square D QED-2 Switchboard with fusible switches in lieu of breakers. Installed in 2012 (-1 point for age greater than 10 years).
7.5	The MDP is **maintainable.**	3	5	15	All parts readily available from Square D. All fuses are non-proprietary and readily available.
7.6	The MDP will support **future expansion.**	4	2	8	As a fusible switchboard, fused sections are set and not flexible for growth. Two of twenty-one sections are currently being utilized, leaving ~10% capacity remaining.
7.7	The Distribution Panel **environment is safe**, has adequate clearances and exiting.	4	5	20	
7.8	The Distribution Panel appears **serviceable.**	4	3	12	Score is average of all distribution panels. One DP is ~11 years old and is a 5 in excellent condition. Two remaining DPs are rated a 1, as they are in poor condition and are in need of removal or replacement. Existing Frank Adam and GE panels are beyond useful life.
7.9	The Distribution Panel is **maintainable.**	4	3	12	Score is average of all distribution panels. One DP is Square D and is fully supported. Frank Adam and GE panels are at end of life and do not have 1st party replacement parts.
7.10	The Distribution Panel will support **future expansion.**	4	3	12	Score is average of all distribution panels. Square D DP has more than 50% spare mounting space. Frank Adam and GE panels are full, and it is unknown how many breakers are in use vs abandoned. Given the lack of replacement parts, these panels are considered at capacity .

E | Electrical

ASSESSOR: David Carlson

		Weight Factor	Rating	Points	Comments
7.11	**Electrical panels and disconnect switches** observed during assessment are safe, serviceable, and maintainable.	2	5	10	
7.12	Building has adequate and appropriately located, **safe exterior power** to allow for regular maintenance activities.	1	3	3	Building has three exterior receptacles with weatherproof in-use covers. One of those three covers is broken.
7.13	Building has adequate **exterior lighting** to promote safety and security of the property.	5	3	15	Light at NE Corner out. Parking area and back of building very dark. Affects camera views. Dark areas just east of front entry.
Electronic System Design					
7.14	MDF is **neatly organized** and has appropriate clearances and working spaces. Cables are neatly laced or trained. Entry to the room is restricted.	4	3	12	Patch cabling is disorganized.
7.15	MDF Equipment Racks have adequate space for **future growth.**	4	5	20	MDF has two racks for future growth.
7.16	MDF is equipped with UPS to back up main switch(es), providing **backup power** to necessary equipment in the event of a power outage.	5	5	25	
7.17	MDF Power is supplied by **20A circuits and receptacles.**	1	5	5	
7.18	MDF Power is supplied from a branch panel located in the room with **adequate spare circuit capacity.**	1	5	5	
7.19	MDF employs up-to-date **network cabling.**	2	4	8	Majority of cabling is CAT5e.
7.20	MDF is connected to Intermediate Distribution Frame (IDF) closets with **fiber optic cabling.**	1	3	3	Connection to IDF utilizes armored OM3 12-strand multi-mode fiber optic cable.

E | Electrical

ASSESSOR: David Carlson

		Weight Factor	Rating	Points	Comments
7.21	MDF has adequate **grounding busbar capacity.**	2	5	10	
7.22	Building is equipped with an **addressable fire alarm system.**	5	4	20	Building utilizes Honeywell Notifier panel in lieu of current DMPS standard Simplex panel (-1 point).
7.23	Building is equipped with an **access control system.**	5	3	15	7/14=50%
7.24	Building is equipped with a **CCTV system.**	5	4	20	Camera views would be enhanced with better exterior lighting.
7.25	Building is equipped with an **intercom system.**	4	5	20	
7.26	Building is equipped with a **master clock system.**	4	5	20	
	TOTAL			346	

RECOMMENDED PROJECTS AND COST ESTIMATING METHODOLOGIES

One of the major impetuses for our facility condition assessment work is the need to support strategic fiscal and maintenance planning for their facilities. As such, DMPS requires that recommended projects be assigned a total project cost in order to support the strategic planning needs of the District. A total project cost is a cost that includes the estimated construction cost as well as the various other 'hard' and 'soft' costs of a construction project such as professional design fees, contractor overhead, required contingencies, inflation, direct costs (e.g. permitting costs), etc. The full list of these hard and soft costs are defined later in this section.

Project Descriptions

Every building assessment report includes a section titled Recommended Projects and Priorities. This section is divided into the following subcategories: "Short Term Maintenance", "1-2 Year Project Priorities", "3-4 Year Project Priorities", "5 - 10 Year Project Priorities", and "Projects Requiring a Study". Each of these subcategories includes a list of project recommendations. The projects listed in each subcategory are grouped by discipline and listed in the following order: interior architecture, exterior architecture, civil (site), structural, mechanical, electrical, and elevator projects. The discipline order as described mirrors the order of the discipline Scoring Reports section found earlier in the building assessment report. The projects listed within Short Term Maintenance section do not include a cost. It is assumed that DMPS will perform this work. Additionally, projects which recommend furniture repair or replacement do not include a cost since furniture systems are selected and procured via a separate process. All other projects associated with the remaining subcategories, other than "Projects Requiring a Study" are provided an estimated total project cost.

Projects Requiring a Study

The projects listed within Projects Requiring a Study are provided estimated professional design fees to produce the recommended design study. In the future, once commissioned and completed, these recommended studies will not produce a completed design. Rather, the completed study will provide recommended project descriptions and estimated total project costs similar to the projects listed in this assessment report. For studies that most likely will result in a substantial project with a substantial cost associated, an "anticipated capital investment" cost number has been provided to help assist the District's strategic planning. This anticipated capital investment cost is based on a 5-10 Year Priority completion date and very high level general 'rules of thumb' estimations since it is unknown exactly what conclusions or recommendations will be determined by the study before the study is commissioned and completed.

Cost Estimating

To achieve the total project cost reflected in this building report, the recommended projects incorporate construction costs with added percentages to account for professional design services, design phase contingency, construction contingency, general contractor overhead and profit, other direct costs incurred by the project, and year-over-year inflation dependent on how many years out the recommended project is recommended to be completed. Not included in the total project cost are costs associated with hazardous materials abatement, testing, surveys, or site exploration (geotechnical testing, etc.). Additionally, for projects that are expected to produce a minimal amount of waste that is normally acceptable to City of Des Moines collection, costs for dumpsters have been excluded. To arrive at the final estimated total project cost as described above, the following methodology was used by the assessment team for each recommended project:

Step 1: Determine estimated direct cost of construction in 2024 dollars.

The recommended projects are conceptual in nature; therefore, all cost multipliers are overall systems level and/or unit costs. (These costs are not based on itemized breakdowns.) The cost information used is based on current available information which is in 2024 dollars and is a mixture of recent bids, firm experience, manufacturer provided information, and RS Means costing data.

Step 2: For recommended projects that are smaller in scale, scope, and estimated cost, a "small project fee" additive cost is applied to the estimated direct cost of construction determined in Step 1. This additive cost works to cover outsized mobilization, staffing, and equipment costs that are incurred on a small scale project the same as for a large project with a large economy of scale. These costs are as follows:

For projects with a Step 1 cost of $4,999.99 or less, an additive cost of $5,000.00 has been added.

For projects with a Step 1 cost of $5,000.00 to $14,999.99, a graduated additive cost from $5,000.00 to $0 has been added.

For all other projects (Step 1 cost of $15,000.00 and above) this step is skipped.

Step 3: Add 10% of the estimated direct construction cost for construction contingency.

RECOMMENDED PROJECTS AND COST ESTIMATING METHODOLOGIES

Step 4: Add a percentage of estimated direct construction cost plus construction contingency for inflation.
The projects are grouped based on how many years out it is recommended that the project is started. Projects closer to 2024 are more urgent projects. As project start times move further and further away from 2024, inflation must be added to best estimate how 2024 dollars will translate into the future. 5% year-over-year inflation was chosen as a reasonable assumption for this work.

- For projects assigned the 1-2 Year Priority add 10% of the estimated construction cost.
- For projects assigned the 3-4 Year Priority add 20% of the estimated construction cost.
- For projects assigned the 5-10 Year Priority add 50% of the estimated construction cost.

Step 5: Add 5% of the estimated direct construction cost, construction contingency, plus inflation for general conditions.
This cost covers the incidental costs incurred by the contractor to perform the work that are not directly tied to the specific materials and labor; examples include mobilizing to the site and final cleaning.

Step 6: Add 10% of the estimated direct construction cost, construction contingency, inflation, plus inflation for general contractor overhead and profit; combined, this is the total construction cost.

Step 7: Add 10% of the total construction cost for professional design services.
These services include, when appropriate: architectural design and project management, civil engineering, structural engineering, mechanical engineering, and electrical engineering. These services are for conceptual design through construction phase work.

Step 8: Add 5% of the total construction cost and professional design services for other direct costs.
These costs cover various other costs directly associated with the project such as printing, equipment, required permits, etc.

At the conclusion of Step 8, the total project cost for the recommended project is finalized.

PROJECT RECOMMENDATIONS

Below are recommended maintenance, projects, and studies based on the previous assessment scoring information. Short Term Maintenance items are items requiring DMPS attention in less than a year's time and is less than $5,000. Costs for these items are not estimated. 1-2 year priority projects are projects that require attention within the next 2 years. 3-4 year priority projects are projects that require attention within the next 4 years. 5-10 year priority projects are projects that require attention within the next 10 years. Project quantities are all estimated based on observations. These are not measured or verified quantities. Project costs are listed. Project requiring Study are items where project scope is not able to be defined at this time and further investigation is required. Costs for these items are design service fees, not project costs. See the Cost Methodology description for additional information.

Short Term Maintenance

Stair Repair	In the Media Center office 1305 there are 4 stairs that descend into the office. The top stair nosing is loose and is a potential tripping hazard.
interior Wall Refinish	Interior wall in room 1245 needs to be prepped and re-painted behind the teachers desk. Approximately 15 SF.
Exterior Door Adjustment	Exit door from cafeteria 1320 does not properly latch: Sign on outside of door confirms issue. (2) of the (4) exit doors at SW corner of courtyard do not properly latch. The issues appears to be that the bottom of door/weather-stripping is dragging on the threshold.
Roof Cleaning	Remove leaves and debris from roof gutters and roof drains.
Cleanout Adjustment	Move cleanout rims down to grade and protect with PCC. For location, refer to civil site plan exhibit found in the appendix of this report.
Confirm ERU-2 Operation	Have DMPS Staff or contractor confirm proper operation of ERU-2. Unit was not operating when observed near the end of a school day. Based on staff comments it is possible unit was intentionally disabled, but ventilation is required to areas served.
Exterior Receptacles Replacement	Replace broken in-use weatherproof cover on exterior receptacle.

1 - 2 Year Priority

		Project Cost
Acoustic Installation	Cafeteria is in need of additional acoustic treatments. Wall or ceiling baffles should be added to improve acoustics in this area. Approximately 850 SF of acoustic material recommended.	$35,000
RTU Frame Refinish	Re-paint the RTU support framing near the roof access hatch. 60 linear feet of frame to be scraped/painted. Approximately 240 SF total.	$7,000
Fall Protection Installation	Add fall protection at 3 locations, where roof-mounted equipment is less than 15 feet from roof edges. Approximately 60 LF guardrail.	$30,000
Lintel Refinish	Rusted steel lintels at doors, windows, and louvers need to be cleaned and loose material removed down to sound material. New high performance coating and sealant shall be applied. Approximately 80 LF.	$7,000
Grading Repair	Re-grade to drain away from building along playground curb. For location, refer to civil site plan exhibit found in the appendix of this report.	$20,000
Sidewalk Repair	Repair damaged sidewalks across the site. Approximately 6 SY. For locations, refer to civil site plan exhibit found in the appendix of this report.	$6,000
Curb Repair	Return damaged curbs to new condition. Approximately 20 LF of 6" curbs. For locations, refer to civil site plan exhibit found in the appendix of this report.	$6,000
Exhaust/Intake Separation Repairs	Where feasible, and specifically at ERU-1, address lack of separation between intake and exhaust. Confirm scope of B9073-Studebaker HVAC Upgrades make sure this work is not included in that project.	$8,000
Exhaust Installation, partial	At least three (3) spaces requiring exhaust were not observed to have any (typically custodial spaces). Add exhaust to serve these areas.	$50,000

Dehumidification Improvements	Consider equipment changes or add dehumidification components to address concerns in areas with high humidity during fall and spring cooling seasons. Replace ERU-1 and 2 with DOAS units with dehumidification and Vertical Self-Contained Heat Pumps with 2 stage compressors. Confirm scope of B9073-Studebaker HVAC Upgrades make sure this work is not included in that project.	$990,000
Geothermal Improvements	Wellfield temperatures are near the upper range and the existing dry cooler is not helping to reduce them. The sequence of operations for the Dry Cooler does not allow it to reject heat from the loop water during opportune times (spring and fall.) Revise control sequence for the dry cooler controls, or install a fluid cooler in place of the dry cooler to allow for better heat rejection during higher outdoor air temperatures. Confirm scope of B9073-Studebaker HVAC Upgrades make sure this work is not included in that project.	$350,000
Recirculation Equipment Installation	Add pumps, piping, valves, etc. to provide domestic hot water recirculation at all domestic hot water heaters.	$40,000
Hose Bibbs Installation	Add hose bibbs/hydrants to roof at multiple locations to allow for easier maintenance of roof-mounted air-cooled equipment.	$20,000
Thermostatic Mixing Valves Installation	Add local thermostatic mixing valves to individual fixtures where missing (only observed at a few locations).	$20,000
Electrical Equipment Replacement	Replace (1) GE distribution panel and (3) Frank Adam panelboards OR remove panels and redirect circuits to modern panels.	$70,000
	Total 1-2 Year Project Costs:	**$1,659,000**

3 - 4 Year Priority

		Project Cost
Masonry Joint Repair	Reseal masonry soft joints around the building. Approximately 350 LF.	$10,000

Classroom Restroom Expansion	Restroom expansion to meet accessibility needs as well as refinishing. There are 10 classroom restrooms, at least 50% should be demolished and expanded from approximately 18 SF to 60 SF. Classroom casework and sink will be replaced with new. Approximately 6 LF. The rest of the classroom restrooms should receive new finishes and fixtures. Restrooms likely meet current needs, but future inclusion and flexibility will be best addressed with additional accessible restrooms.	$360,000
Exterior Steel Refinish	The RTU Support frame near the roof hatch and steel lintels at the exterior louvers have considerable flaking paint. The steel should be prepped and re-painted to avoid further rusting and replacement. Approximately 700 SF.	$10,000
Pavement Replacement	Remove, replace, and reinforce 170 SY of pavement in front of trash enclosure. For location, refer to civil site plan exhibit found in the appendix of this report.	$30,000
Sidewalk Repair	Repair damaged sidewalks across the site. Approximately 53 SY. For locations, refer to civil site plan exhibit found in the appendix of this report.	$13,000
	Total 3-4 Year Project Costs:	**$423,000**

5 - 10 Year Priority

		Project Cost
Interiors Refinish	Re-paint all interior hollow metal frames, approximately 80 door frames. Replace carpet in offices and student support spaces, approximately 5,500 SF. Repaint classroom walls, approximately 25,000 SF. Removal of any wall covering present, approximately 5,000 SF.	$240,000
Exterior Refinish	Repaint HM doors, window frames, infill panels, and mech unit infill panels. (21) windows/infill @ 5'x8' with 2'-6" high panel; (2) single doors (3'x7'); (2) double doors (6'x7'); (1) single door with large 4-bay sidelight (18' x 8' overall frame); and (2) double doors w/ sidelights (16'x8' overall frame). Prep and paint lintels above all window and doors, approximately 300LF	$45,000
Roof Replacement	Replace TPO roofs F-L with new TPO membrane and insulation. Approximately 5,250 SF.	$170,000

Exterior Sealant Replacement	Reseal door/window perimeters, approximately 1,600 LF.	$30,000
Masonry Re-Pointing and cleaning	Masonry repointing-north and west walls of north triangle. Approximately 3,600 SF of exterior wall. Remove biological growth on east and north walls of building. Approximately 6,000 SF of exterior wall.	$150,000
Pavement Replacement	Remove and replace 17 SY of pavement. For location, refer to civil site plan exhibit found in the appendix of this report.	$8,000
Sidewalk Repair	Repair damaged sidewalks across the site. Approximately 25 SY. For locations, refer to civil site plan exhibit found in the appendix of this report.	$11,000
Playground Asphalt Replacement	Remove and replace asphalt at the playground area. Approximately 562 SY. For location, refer to civil site plan exhibit found in the appendix of this report.	$100,000
Grading Repair	Re-grade down from storm water outlet. For location, refer to civil site plan exhibit found in the appendix of this report.	$7,000
Update restroom fixtures	Mix of automatic and manual fixtures observed throughout the building. Replace fixtures/flush valves/faucets to standardize and have automatic fixtures throughout.	$110,000
MDP to Breaker Adjustments	Consider replacing fused distribution with breakers for increased available space.	$310,000
	Total 5-10 Year Project Costs:	$1,181,000

Projects Requiring Study

		Design Services Fee
Mother's Room Space Study	Study to define a private dedicated space for a Mother's Room that includes at least a sink, side table, chair, and privacy door hardware. There are several single occupant restrooms that have the potential to be converted into a Mothers Room.	$5,000.00

Spatial Re-Allocation Study - Addition or Renovation	A study should be conducted to define the added space needed for student support spaces. This should include community food pantry storage, intervention or breakout rooms, media center, and meeting space for teachers, students, and parents. Programming and space planning services would be required. The Anticipated Capital Investment is based on an 8,000 SF addition. Anticipated Capital Investment: $3,800,000	$10,000
HVAC System, Study	Recommend study of full HVAC system given issues identified with temperature control, humidity control, geothermal loop capacity, separation of intakes/exhausts, etc. to determine best path forward for HVAC system modifications. **This is recommended as an immediate, high priority study.** Anticipated Capital Investment: $4,400,000	$20,000
	Total Anticipated Investment Costs:	**$8,200,000**
	Total Study Design Services Fees:	**$35,000**

APPENDIX

5+ YEAR REPLACEMENT

3-4 YEAR REPLACEMENT

1-2 YEAR REPLACEMENT

NORTH

GRAPHIC SCALE

80 0 40 80 160

bbs ARCHITECTS ENGINEERS

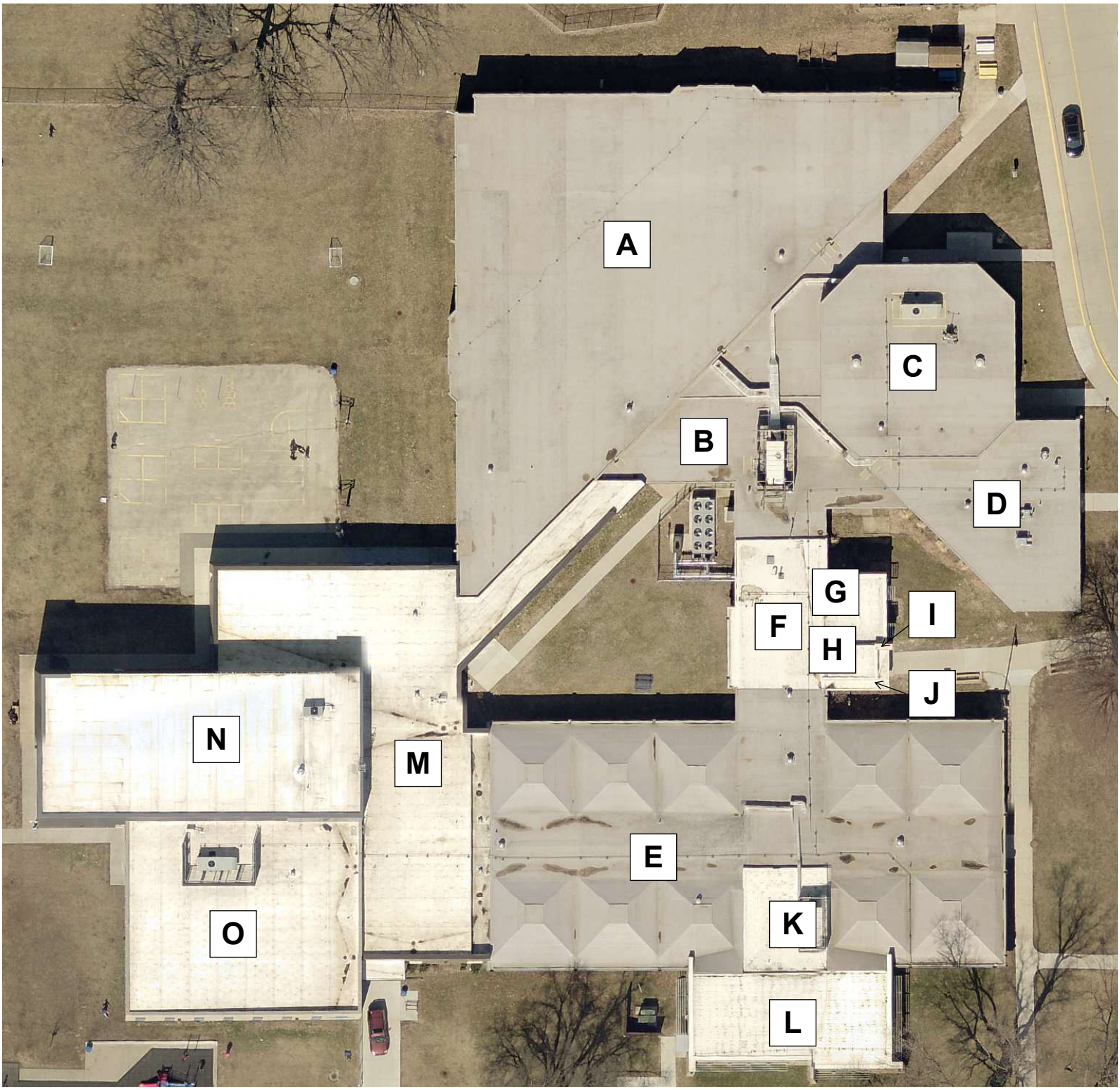
BISHOP ENGINEERING +

STUDEBAKER ELEMENTARY

EXHIBIT

PROJECT # 230286-34

DATE 10/24/2023



N

bbs ARCHITECTS ENGINEERS

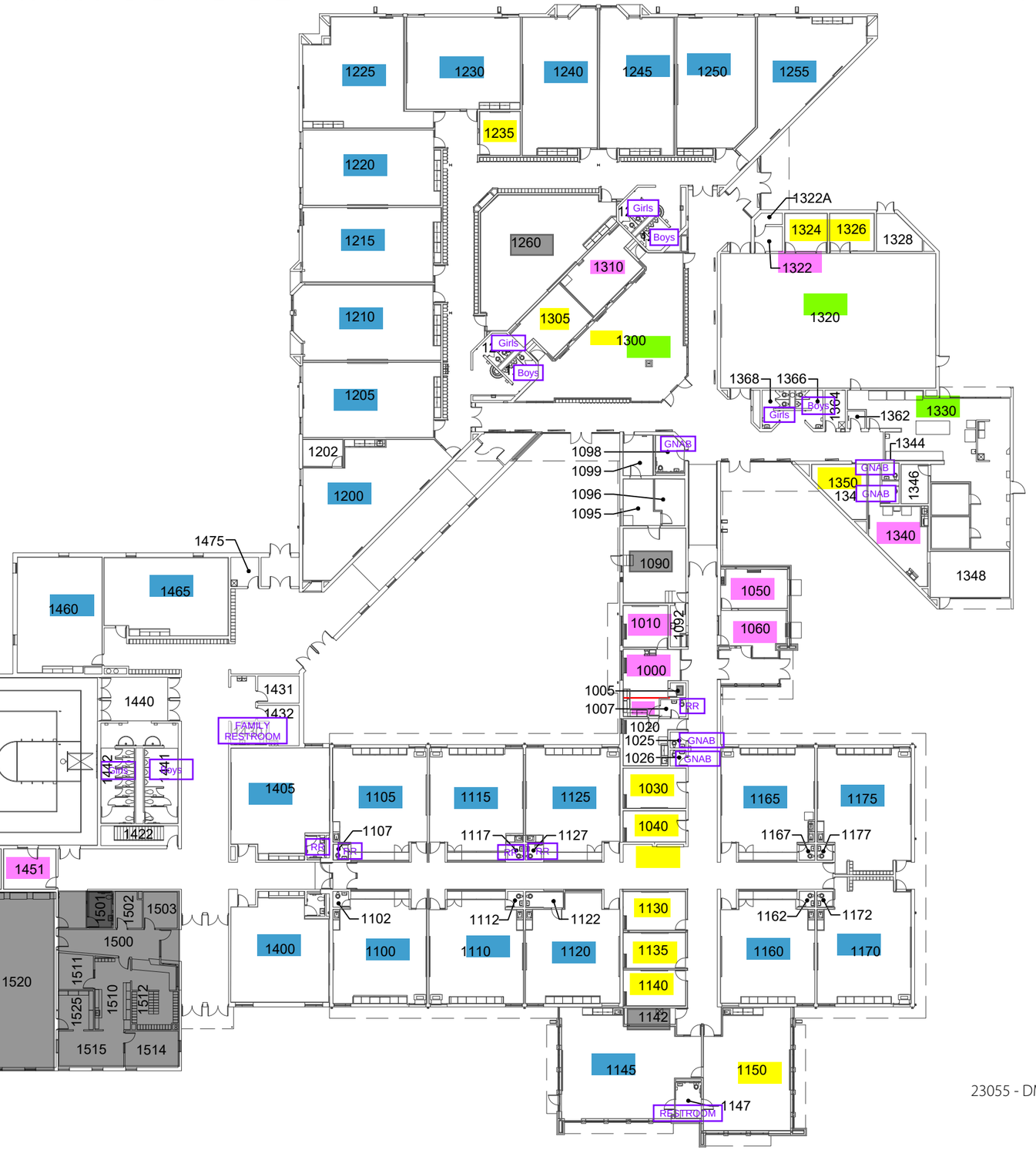
23055 - DMPS Facility Conditions Assessment
Roof Identification Image
Studebaker Elementary
11.8.2023

STUDEBAKER ELEMENTARY SCHOOL

300 COUNTY LINE ROAD
DES MOINES, IOWA 50320

FIRST FLOOR

NORTH



- Core Classroom
- Student Support
- Administration
- Large Shared Space
- Other
- GNAB Gender Neutral Adult Bathroom

bbs ARCHITECTS ENGINEERS

STUDEBAKER ELEMENTARY SCHOOL

300 COUNTY LINE ROAD
DES MOINES, IOWA 50320

SECOND FLOOR

NORTH