# DMPS FACILITY ASSESSMENT | WINDSOR ELEMENTARY

11.28.2023

ARCHITECTS
ENGINEERS

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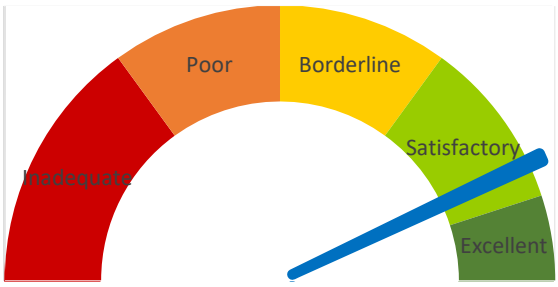
Suite 100
Des Moines, IA 50309
515.244.7167

**www.bbsae.com**



# REPORT ORGANIZATION

COVER SHEET

REPORT ORGANIZATION

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# EXECUTIVE BUILDING SUMMARY

Windsor Elementary's on-site facility conditions assessment was conducted on November 28, 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.

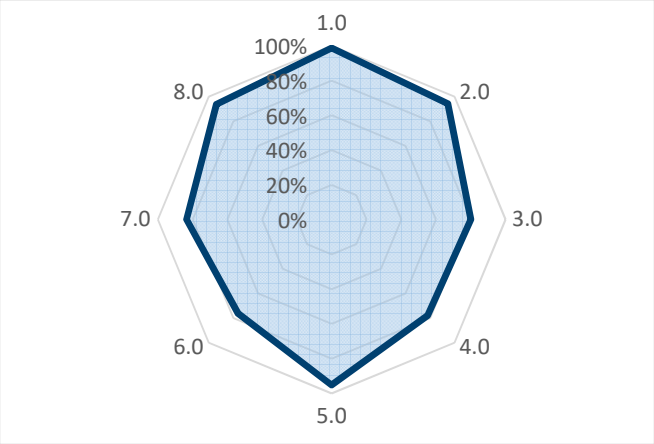
Windsor Elementary is a well-maintained building with few concerning items. As the building continues to age, however, planning for facility maintenance and improvements will be necessary. Maintenance items noted for Windsor include the need for adjustment of exterior doors to ensure latching, replacement of the geothermal loop expansion tank, installation of a second reduced pressure zone valve for redundancy, and an increase in frequency of elevator inspection and maintenance.
The recommended projects for Windsor Elementary to be completed in the next 1-2 years are as follows:

- Roof replacement for areas A, B, C, and D
- Roof access improvements
- Insulated metal panel replacement
- Sidewalk and curb repairs
- Mechanical equipment replacements and upgrades
- Upgrade of elevator cab doors and finishes

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 | 163 | 2.00 | 330 | 326 | 99% | Excellent |
| 2.0 | Environment for Education | 375 | 354 | 0.60 | 225 | 212 | 94% | Excellent |
| 3.0 | Exterior Envelope | 95 | 76 | 3.00 | 285 | 228 | 80% | Satisfactory |
| 4.0 | School Site | 100 | 78 | 1.50 | 150 | 117 | 78% | Satisfactory |
| 5.0 | Structural Conditions | 145 | 138 | 1.30 | 189 | 179 | 95% | Excellent |
| 6.0 | Mechanical Systems | 635 | 484 | 0.80 | 508 | 387 | 76% | Satisfactory |
| 7.0 | Electrical Systems | 370 | 309 | 0.75 | 278 | 232 | 84% | Satisfactory |
| 8.0 | Elevator Conditions | 65 | 61 | 1.00 | 65 | 61 | 94% | Excellent |
| **Total** | | | | | **1,964** | **1,682** | **86%** | **Satisfactory** |

**Windsor 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 Windsor Elementary scored a building health rating for 86% 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. The building scored in the "Excellent" range in four categories, and "Satisfactory" in the remaining four. Improvements to exterior envelope, school site, and mechanical systems proposed in this report can help raise the overall rating of this school to the "Excellent" range.

# Building Data Record

Building Name: **Windsor Elementary**

Date: **November 28, 2023**

Address: **5912 University Avenue**
**Des Moines, IA 50311**

High School Feeder System: **Roosevelt**

Building SF: **60,475 square feet**

Site Acreage: **5.16 acres**

Date(s) of Construction: **1918, 1929, 1946, 1952, 1960, 1977, 2005, 2016**

Date(s) of Roof Replacement: **1995, 2007**

Current/Scheduled Projects: **Header Rebuild - 2024**
**Hard Surface Restoration (PERL) - 2024**

Existing Building Data:

- [x] Egress Plans
- [ ] 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
- [ ] Gas
- [x] Geothermal
- [ ] Solar

Cooling:

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

Heating:

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

Structure Fireproofing:

- [x] No
- [ ] Yes

Construction:

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

Exterior Facade:

- [x] Brick
- [ ] Stucco
- [x] Metal
- [ ] Wood
- [x] Other
  Cast-In-Place Concrete

Floor/Roof Structure:

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

# A | Architectural, Programming

ASSESSOR: Tim Bungert

## 1.0 Educational Adequacy

| | | Weight Factor | Rating | Points | Comments |
|---|---|---|---|---|---|
| **General** | | | | | |
| 1.1 | **Floor materials** are appropriate for space type. | 2 | 5 | 10 | |
| **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 | 5 | 10 | |
| 1.4 | **Music room** is adequate for providing introductory music instruction. | 2 | 4 | 8 | Wonderful, large auditorium space, but hard surface walls and floors are not optimal for acoustics. Consider adding carpeting and/or acoustic wall panels to supplement the acoustic tile ceiling. |
| 1.5 | **Art room** has sufficient accommodations for program. | 2 | 5 | 10 | |
| 1.6 | **Library/Resource/Media Center** provides appropriate and attractive space. | 1 | 5 | 5 | |
| **Core Classroom** | | | | | |
| 1.7 | Classroom space permits arrangements for **small group activity.** | 3 | 5 | 15 | |
| 1.8 | **Student storage space** is adequate. | 2 | 5 | 10 | |
| 1.9 | **Teacher storage space** is adequate. | 3 | 5 | 15 | |
| 1.10 | Classroom **acoustical treatment** of ceiling, walls, and floors provide effective sound control. | 3 | 5 | 15 | |

# A | Architectural, Programming

ASSESSOR: Tim Bungert

| | | Weight Factor | Rating | Points | Comments |
|---|---|---|---|---|---|
| 1.11 | **Classroom power and data receptacles** are located to support current classroom instruction. | 4 | 5 | 20 | |
| 1.12 | Educational **technology** supports instruction. | 4 | 5 | 20 | |
| **Administration** | | | | | |
| 1.13 | **Conference/Private meeting rooms** are adequate for large and small meetings. | 1 | 5 | 5 | |
| 1.14 | **Main office** has a check-in and waiting area. | 2 | 5 | 10 | |
| | **TOTAL** | | | 163 | |

# A | Architectural, Interior

ASSESSOR: Tim Bungert

## 2.0 Environment for Education

### Design

| | | Weight Factor | Rating | Points | Comments |
|---|---|---|---|---|---|
| 2.1 | **Traffic flow** is aided by appropriate foyers and corridors. | 1 | 5 | 5 | |
| 2.2 | Communication among students is enhanced by **common areas.** | 1 | 5 | 5 | |
| 2.3 | Areas for students to **interact are suitable to the age group.** | 1 | 5 | 5 | |
| 2.4 | Large group areas are designed for effective **management of students.** | 2 | 5 | 10 | |
| 2.5 | **Furniture Systems** are in good or like new condition. | 1 | 4 | 4 | Some classrooms have mismatched desks and/or desks with minor stains or surface damage. |
| 2.6 | **Color schemes**, building materials, and decor are **engaging and unify** the school character. | 2 | 4 | 8 | Flooring and walls are attractive and well maintained. The beige/tan band of ceiling tiles at edges of all corridors does not positively contribute to an engaging character for the spaces. |
| 2.7 | Windows and skylights provide access to **adequately controlled daylight** for regularly occupied spaces. | 3 | 5 | 15 | |
| 2.8 | Windows provide access to **quality views** (to exterior, courtyards, artwork etc.) for regularly occupied spaces. | 3 | 5 | 15 | |
| 2.9 | **Lighting has proper controls** to provide the required light levels for various teaching and learning needs. | 2 | 5 | 10 | |
| 2.10 | **Staff dedicated spaces** include conference space, work space, and dedicated restrooms. | 1 | 5 | 5 | |

# A | Architectural, Interior

ASSESSOR: Tim Bungert

| | | Weight Factor | Rating | Points | Comments |
|---|---|---|---|---|---|
| 2.11 | **Main office** is visually connected to the entry and is welcoming to students, staff, and guests. | 2 | 4 | 8 | Front desk can see the interior vestibule door, but has no visibility to main entrance door. |
| 2.12 | **Break room** is adequately sized and furnished for proper use. | 1 | 5 | 5 | |
| 2.13 | **Mother's room** is a separate designated space properly furnished. | 1 | 0 | 0 | No mother's room observed. |
| **Maintainability** | | | | | |
| 2.14 | **Floor surfaces** are durable and in good condition. | 1 | 5 | 5 | Terrazzo corridors and wood classrooms floors are in excellent condition. |
| 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 | 5 | 5 | |
| 2.17 | **Built-in casework** is designed and constructed for ease of maintenance. | 1 | 4 | 4 | Nearly all classrooms have finish damage on wood casework doors that appears to be caused by use of tape or other adhesives to hang signs, posters, etc. |
| 2.18 | **Doors** are either solid core wood or hollow metal with a hollow metal frame and well maintained. | 3 | 4 | 12 | Nearly all classrooms have finish damage on wood doors that appears to be caused by use of tape or other adhesives to hang signs, posters, etc. |
| 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 | 5 | 10 | |

# A | Architectural, Interior

ASSESSOR: Tim Bungert

| | | Weight Factor | Rating | Points | Comments |
|---|---|---|---|---|---|
| 2.21 | **Adequate electrical outlets** are located to permit routine cleaning in corridors and large spaces. | 1 | 5 | 5 | |
| **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 | 5 | 15 | |
| 2.24 | **Door panels** into classrooms and other occupied spaces contain **vision lite.** | 3 | 5 | 15 | |
| 2.25 | **Vision lite** in doors is clear and uncovered. | 2 | 4 | 8 | A handful of classrooms have obstructed or partially obstructed vision lites. |
| 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 | 5 | 25 | |
| 2.30 | **Stairs (interior and exterior)** are well maintained and in good condition meeting current safety requirements. | 5 | 4 | 20 | Stairs are in good condition. Guardrails do not meet current code requirements for height, but are considered acceptable as a grandfathered existing condition. Future improvements to stairs would require modifications or replacement of the rails to meet code requirements. |

# A | Architectural, Interior

ASSESSOR: Tim Bungert

| | | 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** | | | 354 | |

# A | Architectural , Exterior

ASSESSOR: Matthew Gaul

## 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 | 5 | 10 | |
| **Maintainability** | | | | | |
| **3.2** | **Roofs** appear sound, have positive drainage, and are water tight. | 3 | 3 | 9 | Roof replacement required in near future for roof areas A, B, C, and D. |
| **3.3** | **Roof access** is safe for all roofs. | 3 | 4 | 12 | Ladders are present at all roof transitions and are secure, but they do not meet code requirements for safe use. |
| **3.4** | Exterior **window sealant** is fully intact without cracks or gaps. | 3 | 3 | 9 | Sealant at perimeter of windows, except on the north facade, are weathered and need to be replaced in 3-4 years. |
| **3.5** | **Glazing** is low-e coated, insulated, and overall in good condition. | 1 | 5 | 5 | Windows are tinted. Low-e coating cannot be determined. |
| **3.6** | **Operable windows** are functional and safe. Operable portion of window fully seals when closed without gapping or leaking. | 2 | 5 | 10 | |
| **3.7** | **Exterior doors** are of durable material requiring minimum maintenance. | 2 | 5 | 10 | |
| **3.8** | **Exterior walls** are of material and finish requiring little maintenance, | 1 | 3 | 3 | Sealant at masonry soft joints needs to be replaced in some locations.<br>Soffits require repair. |
| **3.9** | **Exterior Doors** open outward and are equipped with **panic hardware.** | 1 | 5 | 5 | |
| **3.10** | **Exterior Doors are monitored** or controlled by an access control system. | 1 | 3 | 3 | 03 - Doors do not latch<br>02 - Doors with card readers<br>08 - Doors with locks or no exterior lock<br>12 - Doors with no signage. |
| | **TOTAL** | | | 76 | |

# C | Civil

ASSESSOR: Jack Gorman / Joel Jackson

## 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 | 4 | 4 | Good drainage away from building, one erosion issue around parking pavement on NW side of site |
| 4.2 | **Parking areas** are in good condition. | 5 | 4 | 20 | Appears to be subsurface moisture issues on site, pavement cracking at joints in a few locations in the west parking area |
| 4.3 | **Drive areas** are in good condition. | 3 | 3 | 9 | Sizable section of the western drive cracking due to surface moisture issues. Recommend a rock base for any new pavement. |
| 4.4 | **Sufficient on-site, solid surface parking** is provided for faculty, staff, and community. | 1 | 5 | 5 | Multiple parking spaces open at time of visit. DMPS states events are manageable with the available street parking. |
| 4.5 | **Sidewalks** around the facility are in good **condition.** | 1 | 4 | 4 | Sections of sidewalk across site in need of repair, a tripping hazard in the NW walk through the north exit is in need of immediate repair |
| 4.6 | **Sidewalks are located** in appropriate areas with adequate building access. | 1 | 5 | 5 | Sidewalks were easy to navigate and all doors had sidewalk access |
| 4.7 | **Hard surface** playground surfaces are in good condition. | 3 | 3 | 9 | A substantial section of the upper level asphalt is cracking and sagging, the lower level asphalt was better and appeared to be able to last another 10 years |
| 4.8 | **Fencing** around the site is in good condition. | 1 | 5 | 5 | Some of the fence mesh was pushed/moved but still in good condition. |
| 4.9 | **Trash enclosure** is in good condition. | 1 | 5 | 5 | Brick, gate, and pavement all in good condition. |
| 4.10 | **Utilities** are in newly constructed conditions and placed in suitable locations. | 1 | 5 | 5 | No issues were observed |

ASSESSOR: Jack Gorman / Joel Jackson

| | | Weight Factor | Rating | Points | Comments |
|---|---|---|---|---|---|
| 4.11 | **Site has sufficient room** for both building and parking expansion. | 1 | 3 | 3 | There is room for building expansion to the south but not much space available for parking expansion on site |
| 4.12 | Site has **onsite bus and parent pickup** up with adequate length, good separation and general good site circulation. | 1 | 4 | 4 | Bus drop off is on the north side of the site and parents use drive on the west side of the building. DMPS stats parents can only do right turns out of the drive and they back up onto the southern street. |
| | **TOTAL** | | | 78 | |

# S | Structural

ASSESSOR: Erik Raker

## 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 | 5 | 5 | |
| 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 | 5 | 5 | |
| 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 | 5 | 10 | |
| 5.8 | **Lintels** appear in good condition (no visible deflection or rust). | 1 | 4 | 4 | Minor rust visible on steel lintels at various locations around the building. This is not a huge concern. Recommend continued monitoring for 5 years. |
| 5.9 | **CMU** is in good condition. | 1 | 5 | 5 | |
| 5.10 | **Precast** is in good condition. | 1 | N/A | 0 | |

# S | Structural

ASSESSOR: Erik Raker

| | | 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 | 5 | 15 | |
| 5.13 | Floor framing appears to meet the **code requirements.** | 3 | 5 | 15 | |
| **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 | 4 | 4 | Several exterior stairs and site retaining walls need attention. |
| 5.16 | **Canopies** appear to be in good condition. | 1 | 5 | 5 | |
| 5.17 | **Loading dock concrete** appears to be in good condition. | 2 | 5 | 10 | |
| 5.18 | **Mechanical screening** appears to be in good condition. | 2 | N/A | 0 | |
| 5.19 | **Stairs** appear to be in good condition. | 1 | 5 | 5 | |
| 5.20 | **Stair railings** appear to be in good condition. | 1 | 5 | 5 | |

# S | Structural

ASSESSOR: Erik Raker

| | | Weight Factor | Rating | Points | Comments |
|---|---|---|---|---|---|
| **5.21** | **Tunnels** appear to be in good condition without cracks. | 1 | 5 | 5 | |
| **5.22** | There is a **designated hardened area** in the building. | 1 | 0 | 0 | No hardened area observed, but designating one may be easier than in most other buildings. |
| **5.23** | The hardened area appears consistent with the **ICC 2018 code.** | 1 | N/A | 0 | |
| | **TOTAL** | | | 138 | |

# MP | Mechanical & Plumbing

ASSESSOR: Chuck Heldenbrand

## 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 | |
| 6.2 | **Thermostat location.** Thermostats are properly located in the space. | 3 | 5 | 15 | |
| 6.3 | Appropriate **amount of ventilation** are provided to each space. | 5 | 1 | 5 | OA to classrooms is 50-60% off what is required. |
| 6.4 | **Ventilation** is provided during occupied hours. | 5 | 4 | 20 | Ventilation for entire building is provided by a single unit . If this one unit is out for service, the entire building will not have ventilation. |
| 6.5 | **Outdoor air intake locations** are appropriate. | 4 | 4 | 16 | Rooftop unit intakes are stacked close and behind screened enclosure |
| 6.6 | Appropriate **levels of exhaust** are provided for areas requiring this such as restrooms, janitor's closets and locker rooms. | 5 | 5 | 25 | |
| 6.7 | **Building pressurization.** The design takes into account the balance between ventilation and exhaust air | 2 | 1 | 2 | The pathway for ventilation air to leave the rooms is unclear. Outdoor air is supplied to the return side of the heat pumps, but the path for air to return back to the ERV is not indicated. It is likely that all Classrooms are positively pressurized and the Corridor is acting as a return plenum. |
| 6.8 | **Major HVAC Equipment** appears to be within it's acceptable **service life.** | 5 | 2 | 10 | Heat pumps are approaching 20 years old and are past their useful life. Existing heat pumps appears to need standard range, and extended range is required for the geothermal application. Geothermal loop pumps are 20 years old. |
| 6.9 | **Cooling loads** are within equipment operational capacity. | 5 | 5 | 25 | |
| 6.10 | **Heating loads** are within equipment operations capacity. | 5 | 2 | 10 | Electric boiler is intended to supplement the geothermal well field during cold periods. The boiler was enabled (electric) during the day of visit and operating a few stages to maintain loop temperature, possibly due to the heat pumps not being designed for the extended range. |

# MP | Mechanical & Plumbing

ASSESSOR: Chuck Heldenbrand

| | | Weight Factor | Rating | Points | Comments |
|---|---|---|---|---|---|
| 6.11 | **Dehumidification** is provided and addressed humidity loads in incoming outside air. | 3 | 4 | 12 | New DOAS unit has dehumidification capacity. New DOAS unit uses a heat pump and is tied to the wellfield in lieu of stand-alone gas/DX which is used at some schools and preferred by maintenance staff as this keeps hydronics off the roof and does not add load to the wellfield. |
| **Plumbing Design** | | | | | |
| 6.12 | **Water Supply Pressure** is adequate to allow for operation of plumbing fixtures. | 5 | 5 | 25 | |
| 6.13 | Appropriate **backflow preventer** is provided at connection to city water supply. | 5 | 3 | 15 | Single RPZ installed. Recommend second for backup and reduced pressure drop. |
| 6.14 | **Domestic hot-water systems** are within equipment operational capacity. | 5 | 3 | 15 | Single electric domestic hot water-heater and appears to be approaching 20 year old. |
| 6.15 | Domestic **hot-water recirculating systems** allow for hot-water at fixtures within a reasonable amount of time. | 3 | 5 | 15 | |
| 6.16 | **Sanitary sewer systems** are sized and sloped to allow for proper drainage. | 5 | 5 | 25 | |
| 6.17 | Appropriately sized **grease interceptors** are provided for facilities with food service. | 3 | 5 | 15 | |
| 6.18 | **Roof drainage** systems are sized appropriately and overflow drainage systems are installed. | 5 | 3 | 15 | Older roof drains with small strainer grid. Recommend replacing with next roof replacement. |
| 6.19 | **Restroom fixtures** are in good condition and comply with current DMPS standards. | 3 | 5 | 15 | |
| **Maintainability** | | | | | |
| 6.20 | Equipment is provided with **adequate service clearance** to allow for regular maintenance | 3 | 3 | 9 | Over head heat-pumps are tight and new DOAS has limited clearance due to existing building and new screening too close. |

# MP | Mechanical & Plumbing

ASSESSOR: Chuck Heldenbrand

| | | Weight Factor | Rating | Points | Comments |
|---|---|---|---|---|---|
| 6.21 | AHUs and chiller are provided with **coil pull space.** | 2 | N/A | 0 | |
| 6.22 | **Filter** sizes are standard and filter types are standard. | 2 | 4 | 8 | Varies with equipment type. |
| 6.23 | **Equipment mounting heights** are reasonable. | 3 | 4 | 12 | Overhead units are hard to access. |
| 6.24 | **Floor surfaces** throughout the mechanical room are non-slip and are dry. | 2 | 4 | 8 | Some moisture in sub-basement boiler room and appears to have some mold present in areas. |
| 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 | 3 | 6 | |
| 6.26 | Appropriate means are provided for **airflow and water balancing.** | 3 | 2 | 6 | Console heat pumps are provided with balancing valves, but pipe sizes to the heat pumps are small (1/2"). These smalelr size pipe, along with flex connectors, adds extra pressure drop, which may be decreasing flow to the heat pumps. |
| 6.27 | **Hose Bibbs** located in proximity to **outdoor condensers and condensing units**. Is cottonwood an issue at this location? | 2 | 5 | 10 | |
| 6.28 | **Fall protection** is provided for equipment within 15 ft of roof edge as per OSHA standard 1910.28(b). | 2 | 5 | 10 | |
| 6.29 | **Building devices are on DDC controls** and fully visible through Building Automation System. No pneumatic controls remain. | 4 | 5 | 20 | |
| **Occupant Safety** | | | | | |
| 6.30 | **Backflow prevention** is provided at all **cross-connections** to non-potable water. | 5 | 3 | 15 | Glycol automatic feed tank and water fill were disconnected and removed. Unclear why this was done. Expansion tank appears to be small and may have issues if loop is not kept within a small temperature range. |

# MP | Mechanical & Plumbing

ASSESSOR: Chuck Heldenbrand

| | | Weight Factor | Rating | Points | Comments |
|---|---|---|---|---|---|
| **6.31** | Building is fully **sprinklered.** | 5 | 5 | 25 | |
| **6.32** | **Domestic hot-water temperature** at lavatories used by students or staff is provided with a thermostatic mixing valve and adjusted properly. | 5 | 5 | 25 | |
| **6.33** | **Emergency eye-washes and tempering valves** are located where required. | 5 | 3 | 15 | One eyewash in kitchen. Recommend evaluation with an occupational safety and health professional to determine necessity of eye wash(es) for other areas, such as mechanical room. |
| **6.34** | **Emergency boiler stop switches** are located at exits from boiler rooms. | 5 | 4 | 20 | Located at door on the boiler room side. |
| **6.35** | **Refrigeration evacuation systems** are provided in rooms with chillers. | 5 | N/A | 0 | |
| **6.36** | **Carbon Monoxide monitoring** and alarming is provided for areas with gas-fired equipment. | 5 | N/A | 0 | |
| | **TOTAL** | | | 484 | |

# E | Electrical

ASSESSOR: Rob Hedgepeth

## 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 | 4 | 20 | Transformer located approx 12' from building exit path (east door) |
| 7.3 | **The MDP environment** is safe, has adequate clearances and exiting. | 3 | 4 | 12 | Christmas decorations, chairs, etc. are stored in the MDP room. |
| 7.4 | The **MDP** appears serviceable. | 4 | 4 | 16 | 2006 Square D<br>2000A 120/208V Bolted pressure switch<br>With Surge Suppressor |
| 7.5 | The MDP is **maintainable.** | 3 | 5 | 15 | 2006 era. |
| 7.6 | The MDP will support **future expansion.** | 4 | 4 | 16 | 117" / 33" spare = 128% |
| 7.7 | The Distribution Panel **environment is safe**, has adequate clearances and exiting. | 4 | N/A | 0 | |
| 7.8 | The Distribution Panel appears **serviceable.** | 4 | N/A | 0 | |
| 7.9 | The Distribution Panel is **maintainable.** | 4 | N/A | 0 | |
| 7.10 | The Distribution Panel will support **future expansion.** | 4 | N/A | 0 | |

# E | Electrical

ASSESSOR: Rob Hedgepeth

| | | Weight Factor | Rating | Points | Comments |
|---|---|---|---|---|---|
| 7.11 | **Electrical panels and disconnect switches** observed during assessment are safe, serviceable, and maintainable. | 2 | 0 | 0 | Of observed, 50% had light obstructions/storage. |
| 7.12 | Building has adequate and appropriately located, **safe exterior power** to allow for regular maintenance activities. | 1 | 3 | 3 | Only one receptacle for mobile med. |
| 7.13 | Building has adequate **exterior lighting** to promote safety and security of the property. | 5 | 4 | 20 | Front and inset could use additional ext fixtures. Also, stair on west to parking is dark. |
| **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 | 5 | 20 | |
| 7.15 | MDF Equipment Racks have adequate space for **future growth.** | 4 | 3 | 12 | Limited space for expansion. 15-20" |
| 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 | Three UPS units (one new). One additional for SureCall |
| 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 | 2 | 2 | Panel located directly outside room. Fairly full capacity. |
| 7.19 | MDF employs up-to-date **network cabling.** | 2 | 4 | 8 | Cat 5e and Cat 6A. |
| 7.20 | MDF is connected to Intermediate Distribution Frame (IDF) closets with **fiber optic cabling.** | 1 | N/A | 0 | |

# E | Electrical

ASSESSOR: Rob Hedgepeth

| | | 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 | 5 | 25 | Simplex 4100U |
| **7.23** | Building is equipped with an **access control system.** | 5 | 2 | 10 | 4/11=36% |
| **7.24** | Building is equipped with a **CCTV system.** | 5 | 5 | 25 | |
| **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 | Primex |
| | **TOTAL** | | | 309 | |

# EV | Elevator

ASSESSOR: Mike Brown - ATIS

## 8.0 Elevator Conditions

| | | Weight Factor | Rating | Points | Comments |
|---|---|---|---|---|---|
| **Design** | | | | | |
| **8.1** | **Size** meets minimum as directed by ADA. | 2 | 5 | 10 | |
| **8.2** | **Control protections and signals** meet ADA standards. | 2 | 5 | 10 | |
| **8.3** | **Signage** meets code requirements. | 1 | 5 | 5 | |
| **Operation and Safety** | | | | | |
| **8.4** | Elevators have **proper level accuracy and door times.** | 1 | 5 | 5 | |
| **8.5** | **Safety devices** are in place and operable. | 1 | 5 | 5 | |
| **Condition and Maintainability** | | | | | |
| **8.6** | **Equipment is easily accessible** for periodic maintenance. | 1 | 5 | 5 | |
| **8.7** | **Equipment** is at an acceptable point in the life cycle, and does not contain obsolete parts. | 2 | 5 | 10 | |
| **8.8** | **Finishes** are adequate and maintainable. | 1 | 3 | 3 | The laminate panels have some chips and flaking on the corners. |
| **8.9** | **Maintenance** is adequate. | 1 | 3 | 3 | The level of maintenance is below average. More visits per year are recommended. |
| **8.10** | **Testing** is up to date, and all **record and logbooks** are present and filled out. | 1 | 5 | 5 | |
| | **TOTAL** | | | 61 | |

# 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 approximately $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+ year priority projects are projects that require attention within the next 10 years. 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 in the appendix for additional information.

## Short Term Maintenance

| | |
|---|---|
| Exterior Door Adjustment | Adjust 3 exterior doors so that they latch from any closing position. One door at room 108 and two doors at east end of building. |
| Geo-Loop Expansion Tank | Existing expansion tank is likely undersized. Calculate expansion tank requirements for extended range temperature on geo-loop (32 to 90 deg. F) and add expansion tank to meet capacity. |
| Increase Elevator Maintenance Frequency | Increase frequency to quarterly and include small renewable parts. |

## 1 - 2 Year Priority

| | | Project Costs |
|---|---|---|
| Roof Replacement | Remove 25,800 SF of ballasted modified bitumen roofing and insulation over roof areas A, B, C, and D.<br>Install code compliant insulation and TPO roofing. | $720,000 |
| Roof Access Repair | Install handrail extensions on ladder from roof F to G. Remove embedded rungs from roof D to A, 8 total. Install guardrails around and a permanent 12 VLF ladder below roof hatch on roof D. | $13,000 |
| Insulated Metal Panel Replacement | Replace three insulated metal panels in hollow metal window at east end of hallway to gymnasium, 45 SF. | $10,000 |
| Sidewalk Repair | Repair damaged sidewalks across the site. Approximately 23 SY. For locations, refer to civil site plan exhibit found in the appendix of this report. | $11,000 |

| | | |
|---|---|---|
| Curb Repair | Return damaged curbs to new condition. Approximately 3 LF of 6" curbs. For locations, refer to civil site plan exhibit found in the appendix of this report. | $6,000 |
| Heat Pump Replacement | Replace all of the older 2005 heat pumps in the building with extended range. Include two stage compressor to more closely match load and provide dehumidification. | $1,700,000 |
| Domestic Water Heater Replacement | Replace electric hot water heater. | $40,000 |
| Exterior Lighting Installation | Add exterior lighting at west side, especially to cover stairs to lower parking lot. | $11,000 |
| CCTV Camera Installation | Add cameras at northeast corner of building. | $9,000 |
| Elevator Cab Interior Finishes | Replace the laminate panels and car door. Panels need metal edges for increased durability | $25,000 |
| | **Total 1-2 Year Project Costs:** | **$2,545,000.00** |

## 3 - 4 Year Priority

| | | Project Costs |
|---|---|---|
| Music Room Acoustic Improvements | Install acoustic wall panels on rear and side walls in music room / auditorium (1,700 SF) to reduce reverberation time in the room. | $25,000 |
| Casework Refinishing | Repair veneer and refinish approximately 1,500 SF of wood veneer casework doors and panels across all classrooms. | $5,000 |
| Interior Door Refinishing | Repair stain and clear protective finish on approximately 25 wood veneer interior doors. Install kick plates on both sides of these doors to protect from future damage from traffic and mopping. | $5,000 |

| | | |
|---|---|---|
| Exterior Sealant Replacement | Replace sealant at the following: around perimeter of windows on east, south, and west facades, 1560 LF; at wide masonry soft joints around gym addition, west façade of south wing, and south façade of east wing, 180 LF; concrete cap at west façade 1/4 inch wide, 12 LF. | $25,000 |
| Playground Pavement Replacement | Take out and restore deteriorated playground asphalt. Approximately 517 SY. For locations, refer to civil site plan exhibit found in the appendix of this report. | $75,000 |
| Pavement Replacement | Remove and replace 40 SY of PCC and install a rock base. For locations, refer to civil site plan exhibit found in the appendix of this report. | $12,000 |
| Sidewalk Repair | Repair damaged sidewalks across the site. Approximately 54 SY. For locations, refer to civil site plan exhibit found in the appendix of this report. | $13,000 |
| Drainage Repair | Flume down to basin to stop water undermining concrete. For location, refer to civil site plan exhibit found in the appendix of this report. | $9,000 |
| Geothermal Loop Pump Replacement | Replace geo-loop pumps and boiler circ pump. Add backup boiler circ pump. | $110,000 |
| Exterior Lighting Installation | Install additional exterior lighting at front of building and at inset between gym and classrooms. | $10,000 |
| | **Total 3-4 Year Project Costs:** | **$289,000.00** |

## 5+ Year Priority

| | | Project Costs |
|---|---|---|
| Roof Replacement | Remove approx 4,900 SF of TPO roofing and insulation over roof areas F and G.<br>Install code compliant insulation and TPO roofing.<br>Approx year 2031. | $130,000 |
| Canopy Roof and Soffit Replacement | Replace the membrane roof and direct applied stucco soffit of the canopy at the end of the south wing, 100 SF each | $11,000 |

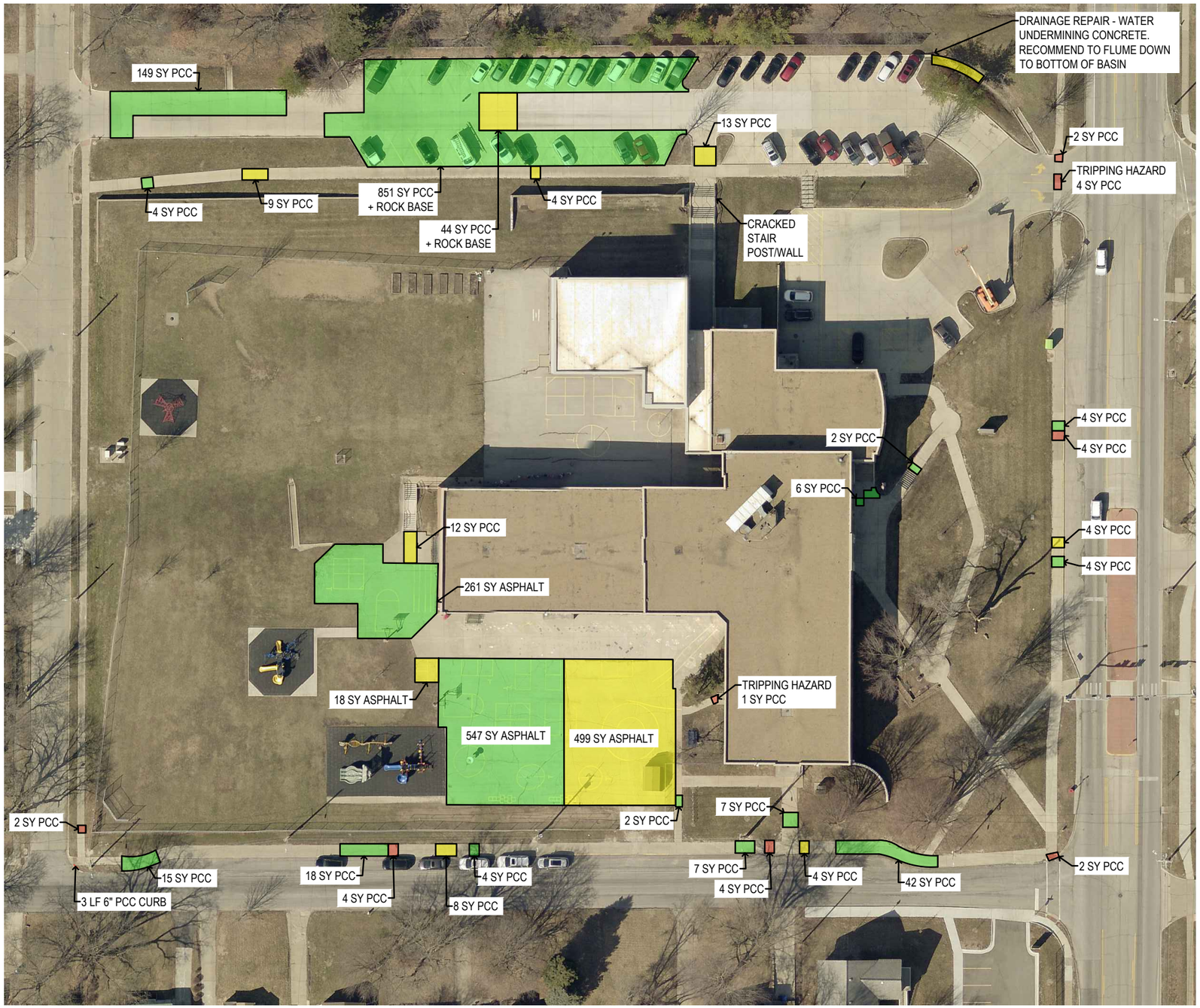
| | | |
|---|---|---|
| Playground Pavement Replacement | Take out and restore deteriorated playground asphalt. Approximately 808 SY. For locations, refer to civil site plan exhibit found in the appendix of this report. | $150,000 |
| Pavement Replacement | Remove and replace 1000 SY of PCC and install a rock base under the 851 SY experiencing subsurface moisture issues. For locations, refer to civil site plan exhibit found in the appendix of this report. | $250,000 |
| Sidewalk Repair | Repair damaged sidewalks across the site. Approximately 133 SY. For locations, refer to civil site plan exhibit found in the appendix of this report. | $30,000 |
| Thermostatic Mixing Valve Installation | Replace central thermostatic mixing valve with digital style. | $15,000 |
| | **Total 5-10 Year Project Costs:** | **$586,000.00** |

## Projects Requiring Study

| | | Design Services Fee |
|---|---|---|
| Room 203 Space Use Study | Room 203 (340 SF) appears to be unused at this time. Recommendation is for a study to propose and evaluate potential programmed uses for this space. Options may include expanding teacher's lounge from room 204, shared offices, student support space, etc. | $5,000 |
| 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. | $5,000 |
| Designated Hardened Area | No designated hardened area was observed. Study to determine the feasibility of adding a designated hardened area to the building including location within the existing building, schematic design concept if deemed feasible, and preliminary project costs. | $2,500 |
| Ventilation System Improvements | Replace or modify ventilation systems to address significant concerns identified throughout the building. These include under ventilation of spaces and no path for ventilation air to leave the Classroooms causing overpressurization of spaces and likely use of the Corridor as a return air path. | $15,000 |
| | Anticipated Capital Investme | $1,700,000 |

| | | | |
|---|---|---|---|
| Loopwater Pipe Size Deficiencies | Investigate options for upsizing existing branch lines serving heat pumps and/or increasing the available pump head pressure to make up for piping losses due to the smaller piping. This study should be completed before replacing the geothermal loop water pumps and the heat pumps. | | $10,000 |
| | Anticipated Capital Investme | $1,100,000 | |
| | | **Anticipated Capital Investment Costs:** | **$2,800,000** |
| | | **Total Study Design Service Fees:** | **$37,500** |

# APPENDIX




5+ YEAR REPLACEMENT

3-4 YEAR REPLACEMENT

1-2 YEAR REPLACEMENT

NORTH

GRAPHIC SCALE

60 0 30 60 120

bbs ARCHITECTS ENGINEERS

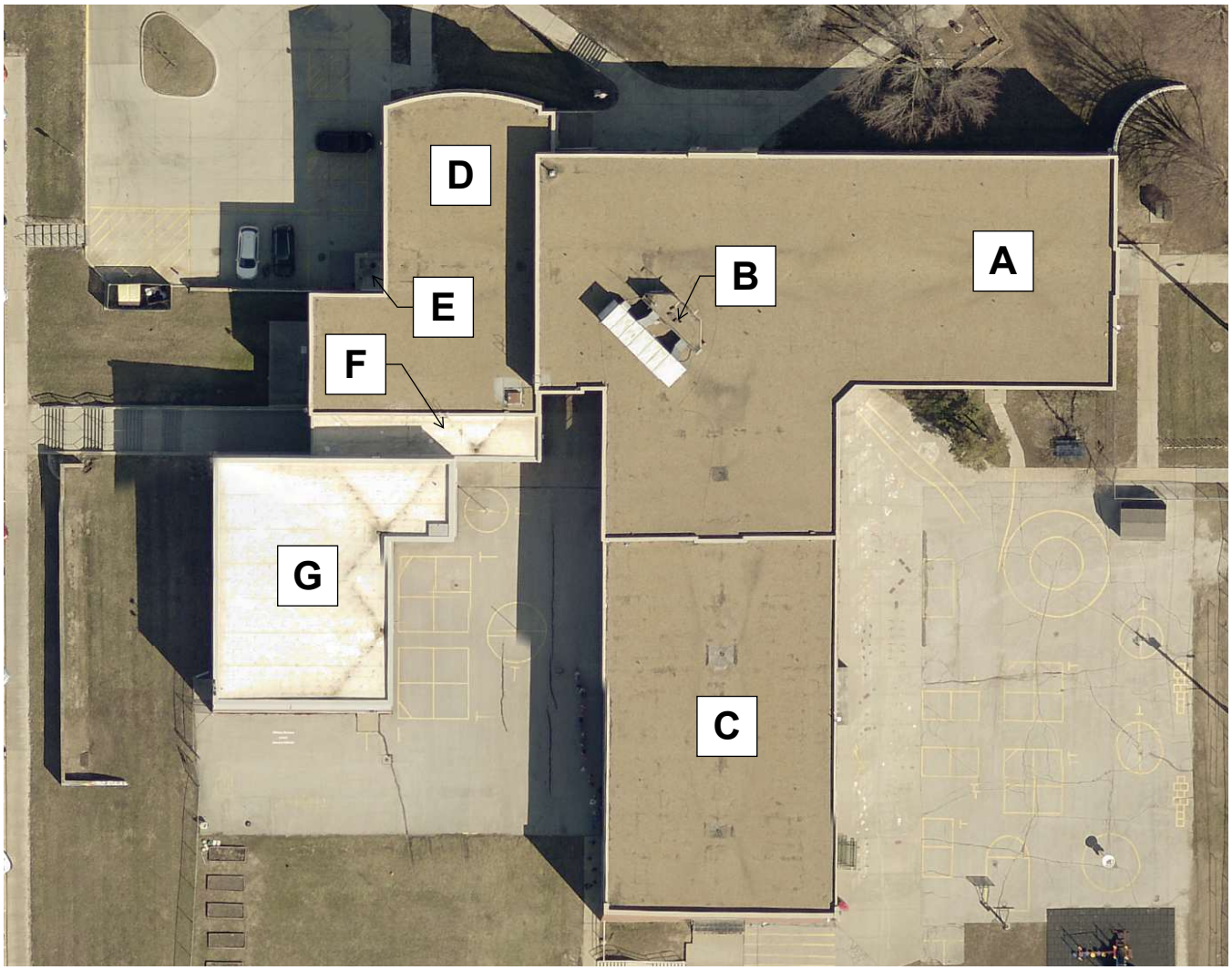
BISHOP ENGINEERING +

# WINDSOR ELEMENTARY

EXHIBIT

PROJECT # 230286-37

DATE 11/1/2023




N

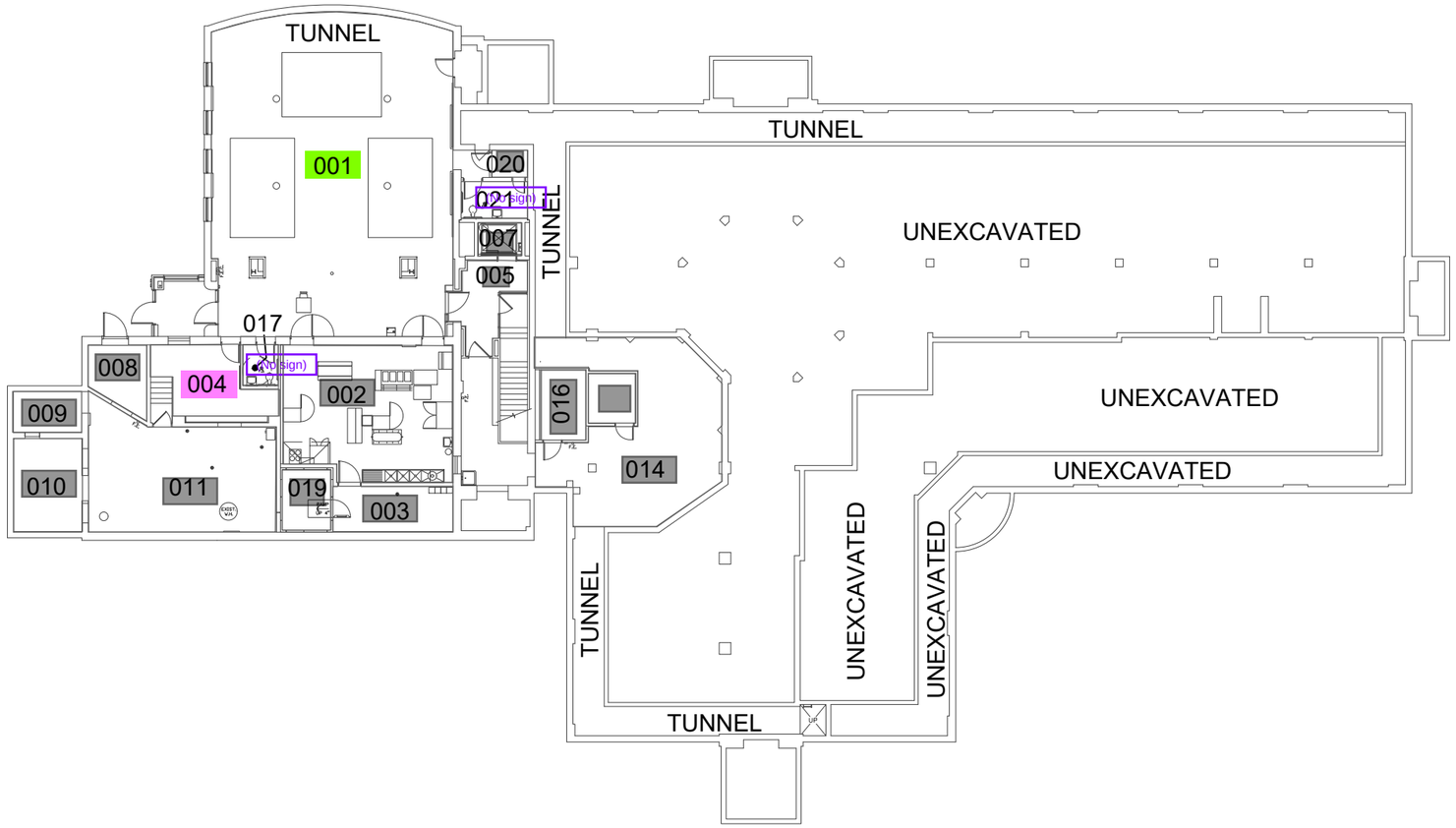
bbs ARCHITECTS ENGINEERS

23055 - DMPS Facility Conditions Assessment
Roof Identification Image
Windsor Elementary
November 28, 2023

# WINDSOR ELEMENTARY SCHOOL

5912 UNIVERSITY AVENUE
DES MOINES, IOWA 50311

# FOUNDATION



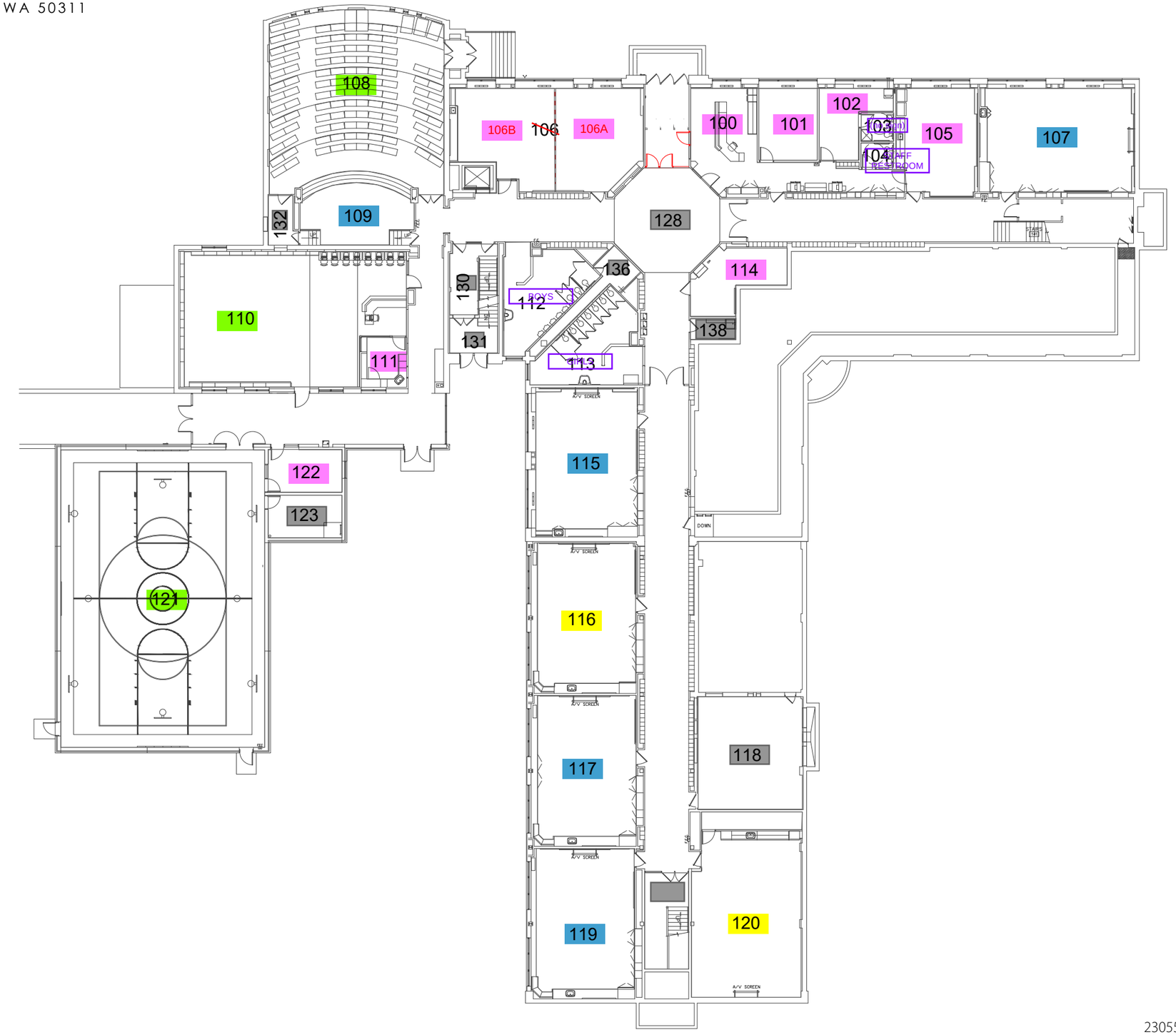

bbs ARCHITECTS ENGINEERS

# WINDSOR ELEMENTARY SCHOOL

5912 UNIVERSITY AVENUE
DES MOINES, IOWA 50311

# FIRST FLOOR

NORTH




23055 - DMPS Facility Conditions Assessment

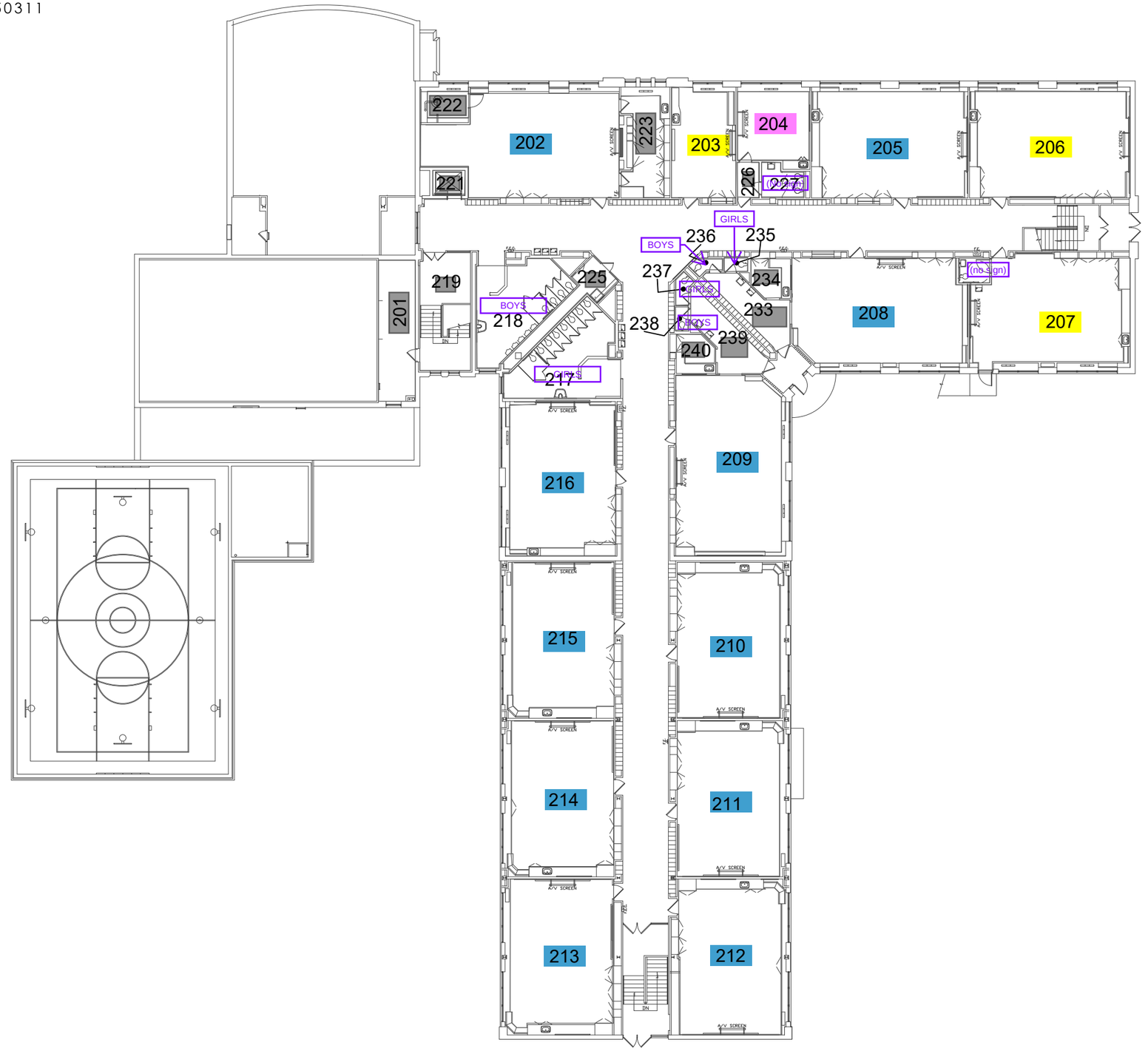
11.28.2023

# WINDSOR ELEMENTARY SCHOOL

5912 UNIVERSITY AVENUE
DES MOINES, IOWA 50311

# SECOND FLOOR

NORTH




ARCHITECTS ENGINEERS