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DISCOVERY ELEMENTARY SCHOOL





A. EXISTING BUILDING INVENTORY

Discovery Elementary School is located at 3300 43rd Avenue S, in Grand Forks. The school opened in 2015 and hasn't undergone any additions or renovations.

Discovery is accessible to the west by S 34th Street, to the south by 43rd Avenue S, and to the east by S 32nd Street. Students arrive at the south entrance via parent drop-off lane and enter the school through Door 1. The visitor pick-up lot is also located to the south of the building allowing access to the main office through Door 1. The faculty parking lot is located to the east of the building with access to Door 7 and 8.

FLOOR PLANS



LOWER FLOOR

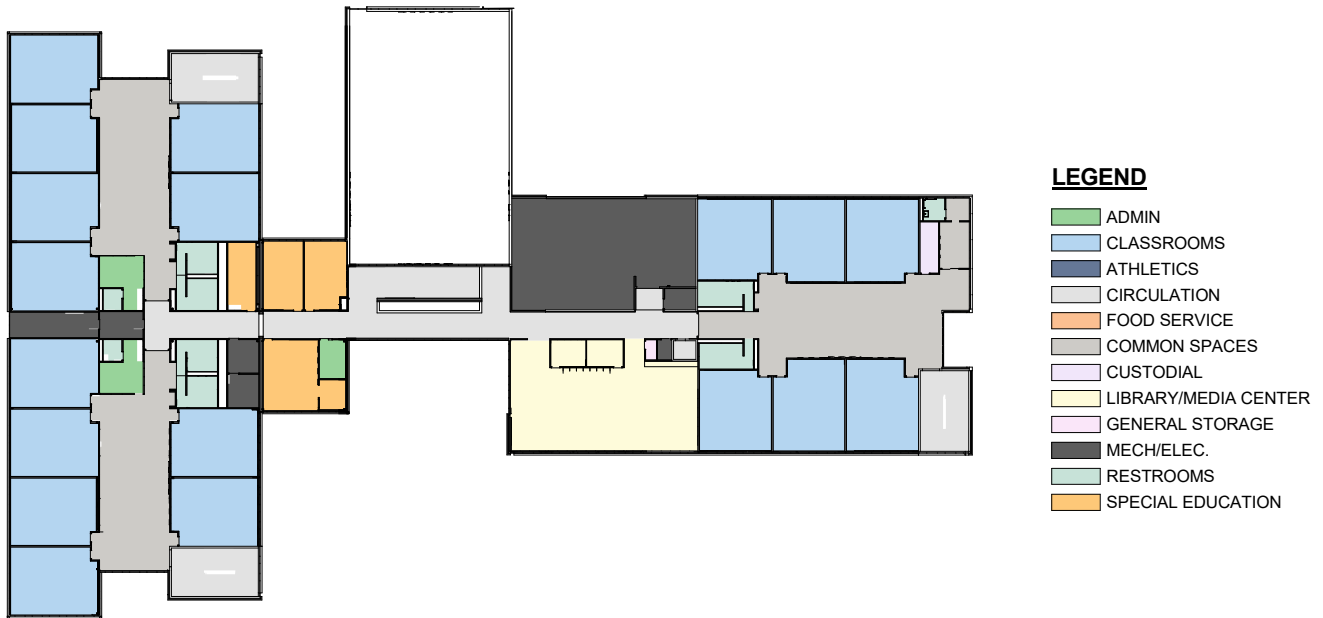


DISCOVERY ELEMENTARY SCHOOL

FACILITY ASSESSMENT EXISTING BUILDING INVENTORY ARCHITECTURAL FINISHES
MECH/ELEC ASSESSMENT EXISTING DEFICIENCIES COST ANALYSIS APPENDIX

EXISTING BUILDING INVENTORY CONTINUED

FLOOR PLANS



UPPER FLOOR



B. ARCHITECTURAL FINISHES

SUMMARY

Discovery Elementary School opened its doors in 2015. A concern with the building is that there is no voice activated alarm system. The site is currently lacking in parking and does not have any sort of irrigation/sprinkler system. There are a few water issues in the building as well. Water leaking and pooling in the 2nd floor mechanical room is resulting in ceiling leaks into the music and band rooms below. The original casework of the building is low quality and damages easily. The laminate is peeling on the counters (001) and replacement should be considered; damage is especially apparent in library islands (002). Another concern is the lack of storage in restrooms (003). The school's open concept is appreciated, but it would be more functional if certain areas, such as the library, were closed off with doors. Overall, the building is in very good condition.

SITE

There are several concerns with the site. The slab is sagging and sinking around the stoop at Door 7 (004, 005). There is also a wind issue at Door 7 due to the building's layout and orientation. Other concerns with the site include the lack of parking and the lack of an irrigation system.

MASONRY

There are no notable issues with the masonry.

ADDITIONAL EXTERIOR MATERIALS

The exterior of the building is primarily masonry with large portions of glazing. Along with the glass, spandrel panels are also located within the aluminum mullions throughout the building's façade.

ROOF

There are no notable issues with the roof.

OPENINGS

Doors at the entrance of each wing/pod don't latch, so they cannot be locked.

CEILINGS

Water is leaking and pooling in the 2nd floor mechanical room (006) which is resulting in ceiling leaks into the music and band rooms below (007, 008). There are also several ceiling tiles throughout the school that have water damage (009, 010, 011).

WALLS

The walls are painted masonry, painted gypsum board, have vinyl wall coverings, or are tiled. All walls appear to be in good condition

FLOORING

Flooring throughout the school is in good condition.

SECURITY

There is no voice activation on alarm system in the school.



C. MECHANICAL/ELECTRICAL ASSESSMENT

FIRE PROTECTION

Fire sprinkler systems are installed throughout the entire building. The system is in good condition and offers full protection of the entire building. Depending on the level of work performed in the building, sprinkler systems may need to be modified.

PLUMBING

Plumbing piping throughout the building is concealed in the walls and above the ceilings in public areas. Piping that can be observed in exposed spaces appear to be in very good condition. Based on the age of the piping there is no concern with deterioration of the existing piping at this point. The kitchen three compartment sink has a recessed grease interceptor installed to protect the waste piping system.

The restroom plumbing fixtures throughout the building are white vitreous china fixtures with the sensor activate flush valves for water closets and urinals. Lavatory faucets are manual operated. The sink faucets in the classrooms and break rooms are manually operated with classroom sinks also having a bubbler for drinking water.

Domestic hot water is produced by one gas fired water heater serving the kitchen and three electric water heaters serving different wings of the building. Water heaters are all original to the building from 2014 and are in good condition. Each water heater system has a recirculating pump to maintain hot water at the plumbing fixtures.

HEATING

Heating for the building is produced by three (3) condensing Aerco Benchmark 1500 MBH boilers. Boilers, heating system pumps, and heating piping are all original from 2014. Variable frequency drives (VFDs) are provided for the main building circulating pumps and the boiler circulating pumps creating a variable primary/variable secondary pumping system.

Existing piping throughout the building is concealed in the walls and above the ceilings in public areas. Piping that can be observed in mechanical spaces appears to be in very good condition. Based on the age of the piping there is no concern with deterioration of the existing piping at this point.

Perimeter hot water finned tube radiation is installed in exterior classrooms and offices for supplemental heat. Hot water cabinet unit heater and suspended unit heaters provide heat for vestibules, stairwells, mechanical rooms, and other similar spaces. Variable air volume (VAV) boxes with hot water reheat coils are provided to provide zone level conditioning to spaces.

VENTILATION AND EXHAUST

The ventilation and exhaust systems in the school include four (4) indoor air handling units, two (2) roof mounted air handling units, and various exhaust fans. Air handling units all have hot water heating coils, chilled water cooling coils, and DDC controls. Air handling units all have air flow measuring station installed on the outdoor air intakes for verification and



MECHANICAL/ELECTRICAL ASSESSMENT CONTINUED



monitoring of proper ventilation rates. Air handling units have fan arrays for supply and return with each fan array having a primary and backup VFD for control. These offer very good control and efficiency for the system.

AIR CONDITIONING

Air conditioning for the school is provided by a 230-ton air cooled chiller. Redundant chiller loop pumps and redundant building loop chilled water pumps are installed in the system. VFDs are provided on all circulating pumps for variable speed pumping capability. An in-room computer room air conditioning unit is provided for cooling in the main IT room. Remote condenser for this unit is located on the roof.

Existing piping throughout the building is concealed in the walls and above the ceilings in public areas. Piping that can be observed in mechanical spaces appears to be in very good condition. Based on the age of the piping there is no concern with deterioration of the existing piping at this point.

During the walkthrough the boiler room was very warm. A transfer fan could be added to circulate air between the boiler room and adjacent receiving room to mitigate this.

AUTOMATIC TEMPERATURE CONTROLS

Controls throughout the building are a Direct Digital Controls (DDC) system provided by Johnson Controls Inc. (JCI). The controls system is integrated with the existing Grand Forks Public School's Building Automation System (BAS). Controls are original to the building, installed in 2014, and are in good condition.



MECHANICAL/ELECTRICAL ASSESSMENT CONTINUED



ELECTRICAL SERVICE

- Power is delivered to the facility by Xcel Energy via 750kVA 480/277V 3-phase padmount transformer located near northeast corner of the building. Power is routed from the transformer through a CT cabinet that is sitting adjacent to the transformer, and then underground to the main service entrance switchboard located in the electrical room directly to the south. Peak load on this transformer in the past 12 months was 309kW (373A), as provided by Xcel Energy.
- Service appears to be acceptable, as is. Capacity is more than adequate.

STANDBY POWER

- The emergency generator is located at the exterior northeast corner of the building. The generator is 480/277V 60kW and is manufactured by Cummins. Two automatic transfer switches are located within the service entrance electrical space. One for life safety loads, and one for all other loads desired to be on emergency power.
- No improvements are suggested to the generator, at this time. Generator appears to have been maintained and tested over time to ensure efficient operation.

POWER DISTRIBUTION

- The electrical service is delivered underground into a 480/277V 3-phase 2000A Siemens Type SB2 switchboard. Power to all areas of the building is supplied from this main switchboard. This includes various distribution panels, branch panels, and mechanical equipment.
- With peak demand on the service within the past year being 373A, the capacity of the existing switchboard is more than adequate. At this time, there are no recommendations for improvements.
- No improvements are suggested for the building electrical service.

LIGHTING

- All lighting within building currently consists of LED.
- It was stated that suspended can lights within cafeteria area and other areas throughout school are now obsolete and parts cannot be obtained for repairs.
- No upgrades are suggested for interior lighting.
- All exterior lighting currently consists of LED.
- No upgrades are suggested for exterior lighting.
- Emergency egress lighting provided via generator or battery back lighting. Exit signage appeared to be adequate.
- Egress lighting and exit signage appears to be adequate and no updates are suggested.

LIGHTING CONTROL SYSTEMS

- Lighting controls within entire school, where required by Energy Code, consist of automatic devices. System consists of network lighting controls routed back to main data closet. Lighting in majority of spaces is not dimming-capable.
- No upgrades are suggested for interior lighting controls.
- All exterior lighting is controlled via automatic lighting controls. Exterior lighting also utilizes a master manual switch.
- No upgrades are suggested for exterior lighting controls.



MECHANICAL/ELECTRICAL ASSESSMENT CONTINUED



COMMUNICATIONS SYSTEMS

- Majority of data cabling within school consists of Category 5e cabling, with all newly-installed cabling being Category 6. Several wireless access points were noted throughout building with dedicated wireless access points within classrooms. Coverage seemed to be adequate for general use.
- Telecom service appears to be adequate and is being updated over time, internally.
- Intercom system consists of Simplex Building Communication System. System has the capability of paging several specific zones, as desired. Recessed speakers were noted to be located all throughout circulation areas, in all classrooms, and in almost all “normally-occupied” spaces. Speakers also observed at exterior canopies.
- IP phones are located in all classrooms for room-to-room communication.
- Centrally-controlled clock system is manufactured by Simplex with clocks located all throughout school. All communication between clocks and central system is done wirelessly. Separate independent battery-powered clocks were also observed in a few locations. Large majority were analog clocks with digital clocks in some public areas.
- Intercom, clock, and bell systems appear to be adequate and no updates are suggested.
- Classroom technology varied between spaces. Technology observed consisted of short-throw projectors, and classroom sound reinforcement.

SAFETY & SECURITY SYSTEMS

- Majority of doors to exterior of building, along with several interior doors, consist of electronic door hardware.
- Electronic door hardware appears to be adequate and no updates are suggested.
- Security camera system consists of IP-based cameras throughout building.
- System appears to be adequate and can be easily added to by school’s IT department, as necessary.
- Fire alarm control panel is Simplex 4100ES with voice capabilities. Fire detection noted to be adequate. Notification consists of strobes, ceiling-recessed speakers, and speaker/strobe devices. All strobe locations consist of a “Fire” device and an “Alert” device for mass notification.
- Fire alarm / mass notification system appears to be adequate and no updates are suggested.



INTERIOR AND EXTERIOR EXISTING DEFICIENCIES PHOTOS

D. EXISTING DEFICIENCIES

The analysis of the existing Discovery Elementary School has been broken down into three categories: code compliance/Americans with Disabilities Act (ADA) compliance, educational adequacy, and capital maintenance. The facility has been assessed for deficiencies as defined below:

1. Code Compliance/Americans with Disabilities Act (ADA) Compliance

This includes evaluation of the current building codes required by the City of Grand Forks and the State of North Dakota. Non-compliant items within the building have been identified and are listed below.

- Sinks in commons areas are not accessible (012).
- Fire alarm systems should have permanently installed audible alarms (013).



INTERIOR AND EXTERIOR EXISTING DEFICIENCIES PHOTOS



DIS-ES 001

The original casework of the building is low quality and damages easily. The laminate is peeling on the counters .



DIS-ES 002

Replacement should be considered; damage is especially apparent in library islands.



DIS-ES 003

Another concern is the lack of storage in restrooms.



DIS-ES 004

The slab is sagging and sinking around the stoop at door 7.



INTERIOR AND EXTERIOR EXISTING DEFICIENCIES PHOTOS



DIS-ES 005

The slab is sagging and sinking around the stoop at door 7.



DIS-ES 006

Water is leaking and pooling in the 2nd floor mechanical room.



DIS-ES 007

Water is leaking and pooling in the 2nd floor mechanical room which is resulting in ceiling leaks into the music and band rooms below.



DIS-ES 008

Water is leaking and pooling in the 2nd floor mechanical room which is resulting in ceiling leaks into the music and band rooms below.



INTERIOR AND EXTERIOR EXISTING DEFICIENCIES PHOTOS



There are also several ceiling tiles throughout the school that have water damage.



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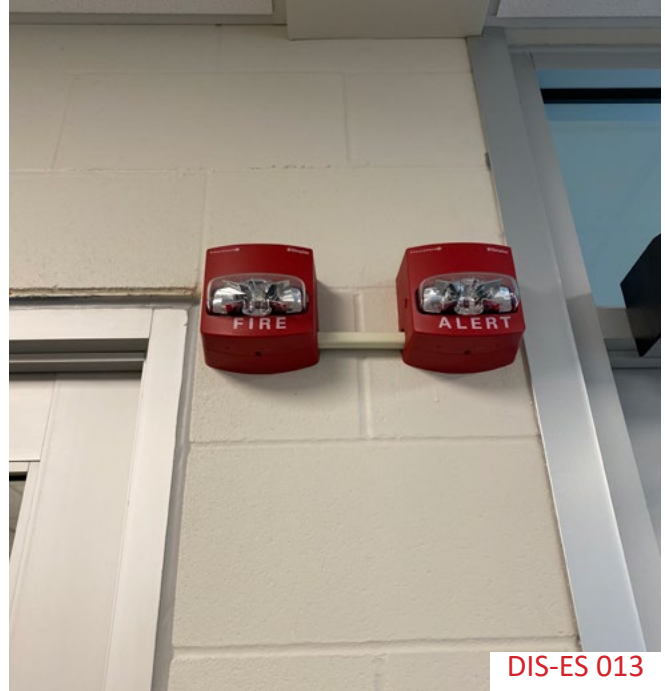


INTERIOR AND EXTERIOR EXISTING DEFICIENCIES PHOTOS



DIS-ES 012

Sinks in commons areas are not accessible.



DIS-ES 013

Fire alarm systems should have permanently installed audible alarms.



EXISTING DEFICIENCIES CONTINUED

EDUCATIONAL ADEQUACY

This is a review of applicable Department of Public Instruction recommendations as they relate to Grand Forks Public Schools' curriculum. To understand educational space deficiencies, we have evaluated educational models, curriculum configurations, and quantity and quality of existing spaces in comparison to the option of a modern, purpose-built educational facility.

Area	Current Square Footage	DPI Recommended Square Footage	Difference
Administration	3,516 SF	3,300 SF	216
Athletics	6,054 SF	3,400 SF	2,654
Circulation	15,971 SF	25,272 SF	-9,301
Classrooms	30,864 SF	33,900 SF	-3,036
Common Spaces	7,106 SF	4,200 SF	2,906
Food Service/Cafeteria	4,878 SF	7,388 SF	-2,510
Library/Media Center	2,697 SF	2,017 SF	680
Mechanical/Electrical	4,843 SF	6,318 SF	-1,475
Music	2,192 SF	5,000 SF	-2,808
Restrooms	3,128 SF	2,106 SF	1,022
Special Education	2,208 SF	2,600 SF	-392

Total Missing Square Footage	-12,044
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EXISTING DEFICIENCIES CONTINUED

ADMINISTRATION/PTO COMMENTS AND FEEDBACK

SECURITY CONCERNS

- There are unconventional spaces for lockdowns/shelter in place.

LACKING SPECIALTY AREAS

- There are not private rooms for therapy or rooms without windows.
- There is a lack of open flex spaces.
- There is only one staff restroom on the first floor.
- The gym is small and cannot fit bleachers.

THERE IS ONLY ONE ELEVATOR IN THE SCHOOL.

- There is no freight elevator.

TOP PRIORITIES

1. Shelter in Place Area
2. Increased Parking
3. More Storage of Winter Gear

E. COST ANALYSIS

Discovery Elementary School
Grand Forks, ND
11/2/2022



Facility Assessment Estimate

Description	Item Number	Takeoff Qty	Total Cost/Unit	Critical	5 yrs Deferred Maint	10 yrs Deferred Maint	Educational Adequacy	Synergistic with other needs	Total Cost
ADA and Building Code Compliance									
Replace casework (20lf of base, top, and upper) per common room and sinks to make them accessible	1	4 Ea.	\$26,939.88 /Ea.	\$107,760					\$107,760
Total Code Compliance		92,118 SF	\$1.17 / SF	\$107,760	\$0	\$0	\$0		\$107,760
Addition/Remodel (Educational Adequacy)									
Administration	2	SF	\$339.20 /SF				\$0		\$0
Art	3	SF	\$351.74 /SF				\$0		\$0
Athletics	4	SF	\$360.52 /SF				\$0		\$0
Auditorium	5	SF	\$485.35 /SF				\$0		\$0
Business Education	6	SF	\$376.82 /SF				\$0		\$0
Circulation	7	9,301 SF	\$376.83 /SF				\$3,504,923		\$3,504,923
Classrooms	8	3,036 SF	\$376.82 /SF				\$1,144,023		\$1,144,023
Common Spaces	9	SF	\$393.12 /SF				\$0		\$0
FACS	10	SF	\$393.12 /SF				\$0		\$0
Food Service/Cafeteria	11	2,510 SF	\$458.33 /SF				\$1,150,402		\$1,150,402
Library/Media Center	12	SF	\$395.63 /SF				\$0		\$0
Mechanical/Electrical	13	1,475 SF	\$307.85 /SF				\$454,084		\$454,084
Music	14	2,808 SF	\$401.90 /SF				\$1,128,531		\$1,128,531
Restrooms	15	SF	\$464.61 /SF				\$0		\$0
Science	16	SF	\$431.99 /SF				\$0		\$0
Special Education	17	392 SF	\$340.28 /SF				\$133,388		\$133,388
Technical Education	18	SF	\$381.83 /SF				\$0		\$0
Technology Education	19	SF	\$394.37 /SF				\$0		\$0
Total Adequacy		19,522 SF	\$384.97 / SF	\$0	\$0	\$0	\$7,515,351		\$7,515,351
Capital Maintenance									
Interior Upgrades									
Fix water leak in the 2nd floor mechanical room that is resulting in ceiling leaks into the music and band rooms below.	20	1 Ea.	\$26,141.24 /Ea.	\$26,141					\$26,141
Replace the original casework in the building since it is low quality and damages easily.	21	2,735 SF	\$389.57 /SF			\$1,065,483			\$1,065,483
Reattached PLAM countertops that are peeling at the library islands	22	1 Ea.	\$12,548.14 /Ea.	\$12,548					\$12,548
Replace hardware on the doors at the entrance of each wing/pod with latches, so they be locked.	23	12 Ea.	\$651.32 /Ea.		\$7,816				\$7,816
Replace the water damaged ceiling tiles throughout the school	24	2,394 SF	\$9.54 /SF		\$22,827				\$22,827
Interior Upgrades Subtotal		92,118 SF	\$12.32 /SF						\$1,134,816

Discovery Elementary School
Grand Forks, ND
11/2/2022



Facility Assessment Estimate

Description	Item Number	Takeoff Qty	Total Cost/Unit	Critical	5 yrs Deferred Maint	10 yrs Deferred Maint	Educational Adequacy	Synergistic with other needs	Total Cost
Exterior Upgrades									
Replace the slab at door 7 since it is sagging and sinking	25	500 SF	\$17.56 /SF	\$8,780					\$8,780
Add 8 additional parking stalls to the parking lot since it is not large enough	26	2,000 SF	\$14.84 /SF				\$29,680		\$29,680
Replace the roof when it nears the end of its useable lifetime	27	75,387 SF	\$31.46 /SF			\$2,371,675			\$2,371,675
Change the door swing of door 7 to fix the wind issue due to the building's layout and orientation	28	1 Ea.	\$3,561.29 /Ea.	\$3,561					\$3,561
Exterior Upgrades Subtotal		92,118 SF	\$26.20 /SF						\$2,413,696
Electrical Upgrades									
Replace lighting in the cafeteria area since the suspended can lights are now obsolete and parts cannot be obtained for repairs	29	3,000 SF	\$7.32 /SF			\$21,960			\$21,960
Upgrade the fire alarm system to a voice-capable system as is currently required by the North Dakota Building Code	30	92,118 SF	\$5.32 /SF		\$490,068				\$490,068
Electrical Upgrades Subtotal		92,118 SF	\$5.56 /SF						\$512,028
Mechanical Upgrades									
During the walkthrough the boiler room was very warm. Add a transfer fan to circulate air between the boiler room and adjacent receiving room to mitigate this.	31	1 Ea.	\$12,367.24 /Ea.		\$12,367				\$12,367
Mechanical Upgrades Subtotal		92,118 SF	\$0.13 /SF						\$12,367
Total Capital Maintenance		92,118 SF	\$44.21 /SF	\$51,031	\$533,078	\$3,459,118	\$29,680		\$4,072,907
Total Construction Cost		111,640 SF	\$104.77 /SF	\$158,790	\$533,078	\$3,459,118	\$7,545,031		\$11,696,017
*** All above estimated costs are total construction costs. These include general conditions, CM fees, permits, insurances, bonds, taxes									
Contingencies & Soft Costs									
Design Contingency	32	5.0%		\$7,939.51	\$26,653.90	\$172,955.91	\$377,251.53		\$584,801
Construction Contingency	33	5.0%		\$7,939.51	\$26,653.90	\$172,955.91	\$377,251.53		\$584,801
Escalation	34	0.0%		\$0.00	\$0.00	\$0.00	\$0.00		\$0
A & E Fees	35	7.0%		\$11,115.31	\$37,315.46	\$242,138.27	\$528,152.14		\$818,721
FF & E	36	2.0%		\$3,175.80	\$10,661.56	\$69,182.36	\$150,900.61		\$233,920
Owner Contingency	37	1.5%		\$2,381.85	\$7,996.17	\$51,886.77	\$113,175.46		\$175,440
Total Contingencies & Soft Costs				\$32,552	\$109,281	\$709,119	\$1,546,731		\$2,397,683
Total Facility Assessment Cost Estimate		111,640 SF	\$126.24 /SF	\$191,342	\$642,359	\$4,168,237	\$9,091,762		\$14,093,700
Total Critical & Educational Adequacy		111,640 SF	\$83.15 /SF						\$9,283,104