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# SCHROEDER MIDDLE SCHOOL





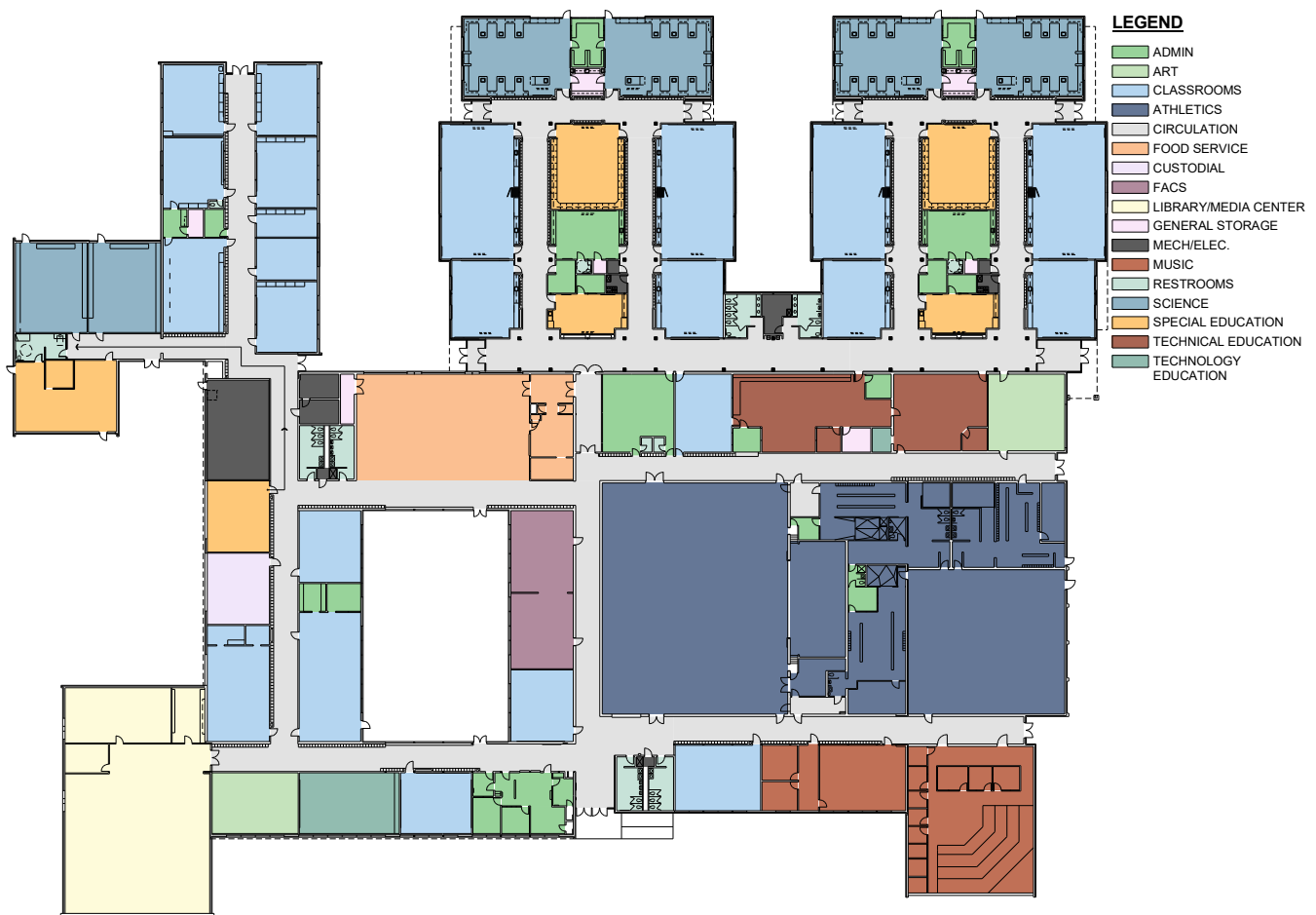
## FACILITY ASSESSMENT

### A. EXISTING BUILDING INVENTORY

Schroeder Middle School is located at 800 32nd Avenue S in Grand Forks. The original building's construction was completed in 1963. In 1964, a classroom wing was added, extending the school north from the existing northwest corner of the building. In 1976, another addition was completed. This addition included classrooms to the west of the first addition, a new library off the southwest corner of the building, and a music room, gym room, and classrooms to the east side of the original building. Another addition and renovation took place in 1998 when two new classroom wings were added onto the north side of the building.

Schroeder Middle School is accessible by Cherry Street to the east, 32nd Avenue S to the south, and S 10th Street to the west. There is a large parking lot on the west side of the building and a smaller parking lot on the east side.

### FLOOR PLANS



OVERALL FLOOR PLAN



## B. ARCHITECTURAL FINISHES

### SUMMARY

Schroeder Middle School first opened in 1963. The school has received three additions since then in 1964, 1976, and 1998. Overall, the building is in good condition. There are accessibility issues throughout the school with dated amenities. Some exterior portions of the building are in poor condition and should be addressed.

### SITE

The exterior sidewalks, curbs, and pavement are in poor condition in certain areas (001). The parking lot should be refinished. Standing water is present near entrances (002).

### MASONRY

The exterior brick is in overall good condition, but caulking is deteriorating. The caulking deterioration is most prevalent on the south side of the building (003).

### ADDITIONAL EXTERIOR MATERIALS

The exterior insulation and finish system (EIFS) is in poor condition with multiple holes seen around the building (004). A canopy repair is needed outside Door 1 (005, 006).

### ROOF

There are ongoing issues with the roof structure in certain areas. There has been a temporary fix provided, and at this time permanent repairs are being addressed.

### OPENINGS

Door openings and windows within the school are in good condition. Window gaskets and caulking are deteriorating and should be replaced (007, 008).

### CEILINGS

The ceilings within the school mostly consist of acoustical ceiling tile (ACT) and are in good condition.

### WALLS

The interior walls are either painted masonry, painted gypsum board, have vinyl wall coverings, tiling, or field stone. There is some cosmetic cracking of the concrete masonry unit (CMU) brick throughout the school (009). Portions of exterior walls are covered with vinyl covering on the interior side. It is recommended the vinyl wall covering be removed from the interior surface of exterior walls, as this could potentially create a double vapor barrier and trap moisture within the walls. Current code does not permit the use of vinyl wall covering on outside walls for this reason.

### FLOORING

The floors in Schroeder Middle School are either carpeting or various types of tiling. New carpet was put in classrooms in 2020. Spaces with older carpeting have warping and the carpet is bubbling (010). Flooring is uneven at some spots (011).

### SECURITY

Although security cameras are present at the doors, there is no direct visibility from the office to the main entrance. Ideally, all visitors should be directed into the office upon entry, before gaining access into the school.





## **C. MECHANICAL/ELECTRICAL ASSESSMENT**

### **FIRE PROTECTION**

Fire sprinkler systems are absent throughout the majority of the building. A fire suppression system riser and fire department connection were found for the 1998 addition of the school. Other than these areas, no other fire sprinkler piping was found in the school. Any renovation in this school would require sprinkler systems to be installed throughout the areas of the school not currently covered by the existing 1998 system.

### **PLUMBING**

The sewer piping in the 1998 addition is in fair condition but other than this portion of the school, the remainder of sewer piping throughout the building is in poor condition and is deteriorated. Facilities staff have reported several issues with sewer leaks and backups. Existing piping is located below floor slabs making replacement difficult but likely necessary in the near future.

The domestic water piping in the 1998 addition is in fair condition but other than this portion of the school, the remainder of the water piping is original to the year the building or addition was constructed. This places a large fraction of the water piping at 47 years old or older. This school does not currently have any type of water treatment system (e.g. a water softener) which makes it likely a majority of the water piping is scaled and in poor condition. It is likely most, if not all, existing water piping outside of the 1998 addition should be replaced in the near future.

The restroom plumbing fixtures throughout the building are currently white vitreous china fixtures. Flush valves and lavatory faucets are manually operated. It appears as though the district has been changing fixtures, flush valves, and faucets as required to address failures. Fixtures, in general, are in a reasonable condition. Fixtures should be replaced in conjunction with architectural upgrades to current codes and standards.

Domestic hot water is produced by natural gas water heaters which are fairly new and in fair condition. The water heaters are not in need of any immediate upgrades.

Plumbing in the boys and girls locker rooms is in poor condition. Showers and all other fixtures should be replaced but only in conjunction with architectural upgrades to current codes and standards.

Plumbing for the kitchen is in fair condition. No immediate upgrades other than the installation of new grease interceptor(s) are needed in the near future.

### **HEATING**

Heating for the building comes from three high-efficiency condensing hot water boilers. Boilers and their associated heating equipment were installed in 2018 and are in good condition

Hot water is delivered to heating coils in air handling units, unit ventilators, radiation, and other terminal heating devices. Hot water piping is largely located in crawl tunnels below the first floor. The hot water piping is original to the year the building or addition was constructed. This places a large fraction of the water piping at 47 years old or older. Aside from



## MECHANICAL/ELECTRICAL ASSESSMENT CONTINUED



the 1998 addition, the condition of the hot water piping for the school is not well known, though it is assumed it is in poor condition due to the age of the piping and the numerous times the tunnels have had ground/stormwater in them. Further investigation is needed to understand whether the piping before 1998 should be replaced however, it is likely that it should be.

### VENTILATION AND EXHAUST

The school has 15 different indoor air handling units, over 29 different exhaust fans, and many different unit ventilators. All equipment is hot water heated. The HVAC equipment is largely original to the year the building or addition was constructed. Most all of the HVAC equipment in the entire building is at or past the end of its useful life. In many instances, tunnels are used as ductwork. This presents challenges to indoor air quality in many ways.

Other than the 1998 addition, ductwork or the use of tunnels as ductwork throughout the building does not effectively distribute air.

Overall, all HVAC equipment in this building should be replaced with new systems which do not include unit ventilators. Where tunnels are used as ductwork, new sheet metal ductwork should be installed. In areas where ductwork exists (outside of the 1998 addition) ductwork should be replaced. Ductwork for the 1998 addition should be able to remain and be reused in the future. These improvements are necessary to properly distribute air, allow for air conditioning to be installed, and improve indoor air quality.

### AIR CONDITIONING

Except for the 1998 addition, the library, and a few small split systems, the majority of the school is not air-conditioned. It is highly recommended the school have an air conditioning system installed that is integrated into the school's HVAC systems.

### AUTOMATIC TEMPERATURE CONTROLS

Controls throughout a majority of the building are pneumatic and original to the building. Controls in the 1998 addition are electronic but are past the end of their useful life. All controls currently function poorly, if at all. Also, the existing controls offer limited control capability and limited or no ability for monitoring and alarm. With the controls as they are today, there is no way to properly control ventilation rates based on occupancies or to verify ASHRAE 62.1 requirements for recommended outdoor air are being met. It is recommended that all existing controls be replaced with DDC systems. The DDC system should be tied together to a single BAS front end. The system would be integrated across the district to allow for single stop monitoring and controls of all buildings in the district.



## MECHANICAL/ELECTRICAL ASSESSMENT CONTINUED



### ELECTRICAL SERVICE

- Electrical service is delivered to the facility by Xcel Energy via 500KVA 480/277V padmount transformer located at center courtyard of building.
- Power is routed underground from the transformer to a padmount CT cabinet adjacent to the transformer. Power is then routed underground to an MDP located at the interior of the building to the southwest.
- Peak load on this transformer in the past 12 months was 239kW (287A), as provided by Xcel Energy.
- Electrical service appears to be acceptable, as is. Capacity is adequate.

### STANDBY POWER

- A generator is not currently located on-site.
- No improvements are suggested for generator power. While emergency generator power is useful, it is not required.

### POWER DISTRIBUTION

- The service entrance distribution panel was updated in 1998 and is a 480/277V 1200A Siemens Type S5. The panel does not utilize a main disconnect and all breakers operate as a service entrance disconnect. The panel is currently utilizing six breakers as service entrance disconnects, which is the maximum allowed, per Code.
- Power is distributed from the distribution panel to various branch panels, as well as a step down transformer that delivers 208/120V power to a large 400A General Electric switchboard that appears to be original to the building. This switchboard is still functioning, but is very old and past its useful life. It is suggested that this switchboard be replaced with a new 400A distribution panel that utilizes breaker-type overcurrent protection. This panel would be much safer and take up 20% of the space that the current switchboard takes.
- 208V power is supplied to all areas of the building from this main switchboard. This includes various distribution panels, mechanical equipment, and branch panels.
- Branch panels throughout the original building were noted to be very old and in need of replacement. It is suggested that additional circuits are not added to existing panels and that panels are replaced over time as new circuits are required.
- Panels within the 7th and 8th grade wings are in fair shape.

### LIGHTING

- The large majority of the building interior consists of fluorescent and incandescent lighting. Areas such as the 6th grade wing and other smaller areas have been updated to LED lighting.
- An upgrade of all interior lighting to energy-efficient LED lighting is suggested. This would cut lighting energy usage by 50-75%.
- Lighting at exterior of building has been upgraded to energy-efficient LED lighting with either new light fixtures, or new LED bulbs within existing light fixtures.
- There are no suggestions for improvements to the exterior lighting.
- Emergency egress lighting provided via battery back lighting. Exit signage appeared to be adequate.
- The addition of building mounted exterior emergency egress lighting at each and every exit door is suggested.



## MECHANICAL/ELECTRICAL ASSESSMENT CONTINUED



### LIGHTING CONTROL SYSTEMS

- Lighting within large majority of school was noted to be controlled via manual toggle switch. Very few areas utilize dimming operation.
- Upgrade of all lighting controls throughout to digital lighting management is suggested. This includes, but is not limited to, occupancy sensors, vacancy sensors, daylight sensors, dimming controls in majority of spaces, and digital monitoring of all controls via manufacturer provided software.
- All exterior lighting is controlled via photocell and/or timeclock.
- All exterior lighting control is suggested to be tied into new digital lighting management, as outlined in interior lighting portion above.

### COMMUNICATIONS SYSTEMS

- Majority of data cabling within school consists of Category 5 and 5e cabling, with all newly-installed cabling being Category 6. Several wireless access points were noted throughout building. 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 5100 Series Building Communication System. Recessed speakers were noted to be located all throughout circulation areas and classrooms.
- 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 via wireless communication.
- It is suggested that the existing intercom system be updated to new IP system throughout entire school. This would provide the functionality to adjust the utilization and grouping of each individual speaker, as desired. This system would also include an upgraded wireless clock system. The intercom system and clock system would communicate with manufacturer provided software to set schedules, announcements, bells, etc.
- A bell system was noted throughout hallways. Function of the bells was unknown at the time of walkthrough.
- Classroom technology varied between classrooms. Technology observed consisted of short-throw projectors and classroom sound reinforcement.

### SAFETY & SECURITY SYSTEMS

- A select few exterior entrance doors currently utilize electronic door hardware for entrance.
- It is suggested that additional door security is added to all exterior doors for the purposes of access control and monitoring.
- Security camera systems, at the interior and exterior, have been updated over time to IP-based cameras. A buzz-in system consisting of a 2-way speaker and camera is located at the main entrance.
- System appears to be adequate and can be easily added to by school's IT department, as necessary.
- Fire alarm system was recently updated to building-wide voice communication and utilizes a Simplex 4100ES fire alarm control panel. Pull stations noted to be located at each exit of building. Fire detection noted to be adequate. Notification consists of strobes and speaker/strobe devices. Locations of notification devices was noted to be adequate.
- No upgrades to the fire alarm system are suggested, at this time.



## D. EXISTING DEFICIENCIES

The analysis of the existing Schroeder Middle 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 various classrooms are not accessible.
- Restrooms within classrooms are not accessible (012).
- Science labs do not have an accessible sink (013).
- Restrooms throughout the school are not accessible (014).
- Sinks in restrooms are not accessible (015).
- Entries into restrooms do not have adequate clearances for accessibility (016).
- Portions of exterior walls are covered with vinyl wall covering on the interior side, which is not to code (017).
- Staff restroom is not accessible (018).
- Hallways near the gym are not sprinklered.
- Door hardware throughout the building is not accessible (019).
- Entry into locker rooms do not have adequate clearances for accessibility (020).
- Locker room restrooms are not accessible (021).
- Showers in locker rooms do not have sufficient drains as required by code to prevent wastewater from one bather passing over areas occupied by other bathers. (022).
- Pipes are exposed throughout the school and should be protected (023).
- The weight room is not accessible (024).
- The music room is not accessible (025).
- Not all entry doors in the building are protected with an enclosed vestibule, as required by energy code (026).
- Door 24 does not meet the clear opening width required by code (027).
- FACS classroom is not accessible (028).
- Doors 18 and 19 do not have a direct access to a public way (029).
- Drinking fountains throughout the building do not meet the required ratio of wheelchair accessible fountains to standing person accessible fountains (030, 031).





## INTERIOR AND EXTERIOR EXISTING DEFICIENCIES PHOTOS



SCH-MS 001

The exterior sidewalks, curbs, and pavement are in poor condition in certain areas.



SCH-MS 002

Standing water is present near entrances.



SCH-MS 003

The caulking deterioration is most prevalent on the south side of the building.



SCH-MS 004

The EIFS is in poor condition with multiple holes seen around the building.





## INTERIOR AND EXTERIOR EXISTING DEFICIENCIES PHOTOS



A canopy repair is needed outside door 1.



A canopy repair is needed outside door 1.



Window gaskets are deteriorating and need to be replaced.



Caulking is worn and should be replaced as well.





## INTERIOR AND EXTERIOR EXISTING DEFICIENCIES PHOTOS



SCH-MS 009

There is some cosmetic cracking of the CMU brick throughout the school.



SCH-MS 010

Spaces with older carpeting have warping and the carpet is bubbling.



SCH-MS 011

Flooring is uneven at some spots.





## INTERIOR AND EXTERIOR EXISTING DEFICIENCIES PHOTOS



SCH-MS 012

Restrooms within classrooms are not accessible



SCH-MS 013

Science labs do not have an accessible sink



SCH-MS 014

Restrooms throughout the school are not accessible



SCH-MS 015

Sinks in restrooms are not accessible



## INTERIOR AND EXTERIOR EXISTING DEFICIENCIES PHOTOS



SCH-MS 016

Entries into restrooms do not have adequate clearances for accessibility



SCH-MS 017

Portions of exterior walls are covered with vinyl wall covering on the interior side, which is not to code



SCH-MS 018

Staff restroom is not accessible



SCH-MS 019

Door hardware throughout the building is not accessible





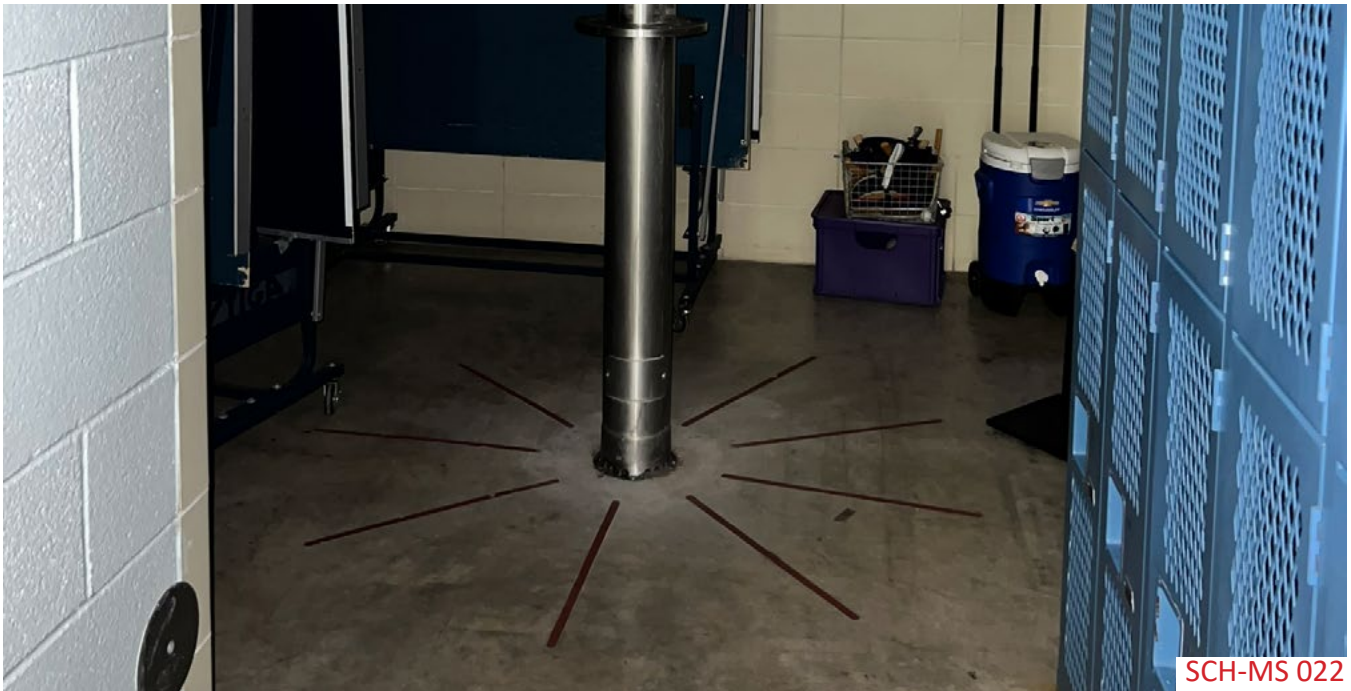
## INTERIOR AND EXTERIOR EXISTING DEFICIENCIES PHOTOS



Entry into locker rooms do not have adequate clearances for accessibility



Locker room restrooms are not accessible



Showers in locker rooms do not have sufficient drains as required by code to prevent wastewater from one bather passing over areas occupied by other bathers.





## INTERIOR AND EXTERIOR EXISTING DEFICIENCIES PHOTOS



SCH-MS 023

Pipes are exposed throughout the school and should be protected



SCH-MS 024

The weight room is not accessible



SCH-MS 025

The music room is not accessible



SCH-MS 027

Door 24 does not meet the clear opening width required by code





## INTERIOR AND EXTERIOR EXISTING DEFICIENCIES PHOTOS



SCH-MS 026

Not all entry doors in the building are protected with an enclosed vestibule, as required by energy code



SCH-MS 028

FACS classroom is not accessible



SCH-MS 029

Doors 18 and 19 do not have a direct access to a public way.



## INTERIOR AND EXTERIOR EXISTING DEFICIENCIES PHOTOS



**SCH-MS 030**

Drinking fountains throughout the building do not meet the required ratio of wheelchair accessible fountains to standing person accessible fountains



## 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	5,024 SF	4,640 SF	384
Art	1,915 SF	2,400 SF	-485
Athletics	17,320 SF	14,600 SF	2,720
Circulation	23,963 SF	32,539 SF	-8,576
Classrooms	22,619 SF	18,900 SF	3,719
FACS	1,706 SF	1,200 SF	506
Food Service/Cafeteria	3,917 SF	9,078 SF	-5,161
Library/Media Center	5,561 SF	1,875 SF	3,686
Mechanical/Electrical	1,809 SF	8,135 SF	-6,326
Music	4,663 SF	4,860 SF	-197
Restrooms	1,646 SF	2,712 SF	-1,066
Science	7,831 SF	7,200 SF	631
Special Education	3,844 SF	3,300 SF	544
Technical Education	2,880 SF	3,850 SF	-970
Technology Education	1,128 SF	2,000 SF	-872

<b>Total Missing Square Footage</b>	<b>-11,463</b>
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### ADMINISTRATION/PTO COMMENTS AND FEEDBACK

#### AIR QUALITY/CONTROL

- There are classrooms that do not have any windows and there is no airflow.
- There is no air conditioning in the several areas of the school.

#### SAFETY/SECURITY

- There is no secure entrance into the school.

#### INADEQUATE GYMNASIUM AND LOCKER ROOMS

#### STUDENT PICK-UP AND DROP-OFF IS NOT IDEAL

#### ADA ACCESSIBILITY ISSUES

### TOP PRIORITIES

1. HVAC/Air Control/Structure
2. Security
3. ADA Accessibility/Medically Fragile Students



# E. COST ANALYSIS

Schroeder Middle 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
<b>Code Compliance</b>									
Replace casework (20 lf of base, top and upper) per classroom and sinks that are not accessible	1	20 Ea	\$27,541.64 /Ea	\$550,833					\$550,833
Create an accessible workstation and sink in science labs by replacing 20 lf of base cabinets, top and sink per lab	2	4 Ea	\$14,462.54 /Ea	\$57,850					\$57,850
Remodel public restrooms (4) throughout the school within existing space that do not meet accessibility requirements	3	6 Ea	\$74,892.86 /Ea	\$449,357				X	\$449,357
Replace sinks (14). in public restrooms (6) that are not accessible	4	6 Ea	\$0.00 /Ea	\$0				X	
Modify entry into public restrooms that do not have enough clearance	5	6 Ea	\$0.00 /Ea	\$0				X	
Remove vinyl wall coverings from the inside of exterior walls that is creating a double vapor barrier. skim coat existing sheetrock and paint	6	12,500 SF	\$7.16 /SF	\$89,500					\$89,500
Remodel staff restrooms that do not meet accessibility requirements	7	2 Ea	\$39,921.37 /Ea	\$79,843				X	\$79,843
Upgrade door hardware with ADA hardware	8	30 Ea	\$1,203.10 /Ea	\$36,093					\$36,093
Remodel locker room restrooms that do not meet accessibility requirements by moving the plumbing fixtures in the existing space	9	3 Ea	\$131,540.47 /Ea	\$394,621				X	\$394,621
Modify entry into locker rooms that do not have enough clearance	10	3 Ea	\$0.00 /Ea	\$0				X	
Remove and replace concrete in locker rooms showers so each individual showerhead can have its own drain per code	11	3 Ea	\$0.00 /Ea	\$0				X	
Protect pipes that are exposed throughout the school	12	1 Ea	\$6,270.56 /Ea	\$6,271				X	\$6,271
Add a lift to the weight room	13	1 Ea	\$100,329.00 /Ea	\$100,329					\$100,329
Modify the music room to make it accessible	14	1 Ea	\$134,734.83 /Ea	\$134,735					\$134,735
Add exterior vestibules and structure at door 21 and 16. Add interior vestibules at door 1, 2, 5, and 17	15	6 Ea	\$40,556.73 /Ea	\$243,340					\$243,340
Widen door 24 to make room for entry clearance (excluding modifying library stacks)	16	1 Ea	\$7,481.13 /Ea	\$7,481					\$7,481
Add an assessable workstation the FACS classroom by replacing 20 lf of base cabinets and top	17	1 Ea	\$24,607.07 /Ea	\$24,607					\$24,607
Add a sidewalk that connects door 18 and 19 to the sidewalk at door 17	18	825 SF	\$17.56 /SF	\$14,485					\$14,485
Add handicap accessible water fountains throughout the building	19	6 Ea	\$21,946.97 /Ea	\$131,682					\$131,682
<b>Total Code Compliance</b>		<b>115,664 SF</b>	<b>\$20.07 /SF</b>	<b>\$2,321,027</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>		<b>\$2,321,027</b>
<b>Security</b>									
Administration Office Relocation and New Art Room (Remodel)	20	4,435 SF	\$266.94 /SF				\$1,183,888		\$1,183,888
<b>Total Security</b>		<b>4,435 SF</b>	<b>\$266.94 /SF</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$1,183,888</b>		<b>\$1,183,888</b>
<b>Addition/Remodel (Educational Adequacy)</b>									
Administration	21	SF	\$339.20 /SF				\$0		\$0
Art	22	485 SF	\$351.74 /SF				\$170,594		\$170,594
Athletics	23	SF	\$360.52 /SF				\$0		\$0
Auditorium	24	SF	\$485.35 /SF				\$0		\$0
Business Education	25	SF	\$376.82 /SF				\$0		\$0
Circulation	26	8,576 SF	\$376.83 /SF				\$3,231,719		\$3,231,719
Classrooms	27	SF	\$376.82 /SF				\$0		\$0
Common Spaces	28	SF	\$393.12 /SF				\$0		\$0
FACS	29	SF	\$393.12 /SF				\$0		\$0
Food Service/Cafeteria	30	5,161 SF	\$458.33 /SF				\$2,365,427		\$2,365,427

**Schroeder Middle 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
Library/Media Center	31	SF	\$395.63 / SF				\$0		\$0
Mechanical/Electrical	32	6,326 SF	\$307.85 / SF				\$1,947,481		\$1,947,481
Music	33	197 SF	\$401.90 / SF				\$79,174		\$79,174
Restrooms	34	1,066 SF	\$464.61 / SF				\$495,276		\$495,276
Science	35	SF	\$431.99 / SF				\$0		\$0
Special Education	36		\$340.28 / SF				\$0		\$0
Technical Education	37	970 SF	\$381.83 / SF				\$370,380		\$370,380
Technology Education	38	872 SF	\$394.37 / SF				\$343,895		\$343,895
<b>Total Adequacy</b>		<b>23,653 SF</b>	<b>\$380.67 / SF</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$9,003,946</b>		<b>\$9,003,946</b>
<b>Capital Maintenance</b>									
<b>Interior Upgrades</b>									
Caulk the cosmetic cracking of the CMU brick throughout the school	39	1 Ea	\$6,270.56 / Ea		\$6,271				\$6,271
Replace dated and damaged carpet	40	5,000 SF	\$11.81 / SF		\$59,071				\$59,071
<b>Interior Upgrades Subtotal</b>		<b>115,664 SF</b>	<b>\$0.56 / SF</b>						<b>\$65,342</b>
<b>Exterior Upgrades</b>									
Replace damaged exterior sidewalks, curbs, and pavement that are in rough conditions	41	2,000 SF	\$18.30 / SF		\$36,609				\$36,609
Mil and overlay parking lot asphalt including pavement stripping	42	36,582 SF	\$5.08 / SF		\$185,954				\$185,954
Replace masonry caulking at exterior brick where it is deteriorating	43	10,000 SF	\$13.80 / SF		\$137,952				\$137,952
Patch EIFS where it is in rough condition	44	1 Ea	\$31,352.81 / Ea	\$31,353					\$31,353
Repair the canopy over door 1	45	1 Ea	\$12,541.12 / Ea	\$12,541					\$12,541
Replace gasketing around windows	46	110 Ea	\$752.47 / Ea		\$82,771				\$82,771
Replace caulking around the windows	47	110 Ea	\$501.65 / Ea		\$55,181				\$55,181
Add 15 additional parking stalls to the parking lot since it is not large enough	48	3,750 SF	\$14.84 / SF				\$55,650		\$55,650
Replace the roof when it nears the end of its useable lifetime	49	115,664 SF	\$33.97 / SF		\$3,929,106				\$3,929,106
<b>Exterior Upgrades Subtotal</b>		<b>115,664 SF</b>	<b>\$39.14 / SF</b>						<b>\$4,527,117</b>
<b>Electrical Upgrades</b>									
Replace switchboard that is very old and past its useful life with a new 400A distribution panel that utilizes breaker-type overcurrent protection	50	115,664 SF	\$5.96 / SF	\$689,014					\$689,014
Replace branch panels throughout the original building that are noted to be very old and in need of replacement	51	115,664 SF	\$3.45 / SF	\$398,903					\$398,903
Add egress lighting to doors to exterior as is required by Building Code	52	115,664 SF	\$0.81 / SF		\$94,058				\$94,058
Upgrade of all lighting controls throughout to digital lighting management is suggested. This includes, but is not limited to, occupancy sensors, vacancy sensors, daylight sensors, dimming controls in majority of spaces, and digital monitoring of all controls via manufacturer provided software.	53	115,664 SF	\$1.88 / SF		\$217,584				\$217,584
Upgrade of all interior lighting controls throughout to digital lighting management	54	115,664 SF	\$0.19 / SF		\$21,758				\$21,758
Upgrade of all exterior lighting controls throughout to digital lighting management	55	115,664 SF	\$3.76 / SF		\$435,167				\$435,167

**Schroeder Middle 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
Add additional door security all exterior doors with access control and monitoring	56	115,664 SF	\$0.98 / SF	\$112,870					\$112,870
<b>Electrical Upgrades Subtotal</b>		<b>115,664 SF</b>	<b>\$17.03 / SF</b>						<b>\$1,969,355</b>
<b>Mechanical Upgrades</b>									
Add sprinklers to the building (except the 1998 addition) including a new water service line	57	80,440 SF	\$12.50 / SF	\$1,005,490				X	\$1,005,490
Replace all sewer piping that is in poor condition and is deteriorating in the building (besides the 1998 addition that is in fair condition). Costs include removal and replacement of the concrete and incidental damaged finishes	58	80,440 SF	\$24.38 / SF	\$1,961,044				X	\$1,961,044
Replace all domestic water piping throughout the building, except in the 1998 addition, that is past its useful life. Cost includes a water treatment system	59	80,440 SF	\$9.48 / SF	\$762,639				X	\$762,639
Replace plumbing fixtures that are not included in items above. The restroom plumbing fixtures throughout the building are currently white vitreous China fixtures. Flush valves and lavatory faucets are manually operated. It appears as though the district has been changing fixtures, flush valves, and faucets as required to address failures. Fixtures, in general, are in a reasonable condition. Fixtures should be replaced in conjunction with architectural upgrades to current codes and standards.	60	115,664 SF	\$0.63 / SF	\$72,528				X	\$72,528
Plumbing in the boys and girls locker rooms is in poor condition. Showers and all other fixtures should be replaced but only in conjunction with architectural upgrades to current codes and standards.	61	115,664 SF	\$0.00 / SF						
Add a grease interceptor system in the kitchen	62	115,664 SF	\$0.33 / SF	\$37,623					\$37,623
Overall, all HVAC equipment in this building should be replaced with new systems which do not include unit ventilators. Where tunnels are used as ductwork, new sheet metal ductwork should be installed. In areas where ductwork exists (outside of the 1998 addition) ductwork should be replaced. Ductwork for the 1998 addition should be able to remain and be reused in the future. These improvements are necessary to properly distribute air, allow for air conditioning to be installed, and improve indoor air quality.	63	115,664 SF	\$64.67 / SF	\$7,479,607				X	\$7,479,607
The hot water piping is original to the year the building or addition was constructed. This places a large fraction of the water piping at 47 years old or older. Aside from the 1998 addition, the condition of the hot water piping for the school is not well known, though it is assumed it is in poor condition due to the age of the piping and the numerous times the tunnels have had ground/stormwater in them. Further investigation is needed to understand whether the piping before 1998 should be replaced however, it is likely that it should be.	64	80,440 SF	\$0.00 / SF						
The school has 15 different indoor air handling units, over 29 different exhaust fans, and many different unit ventilators. All equipment is hot water heated. The HVAC equipment is largely original to the year the building or addition was constructed. Most all of the HVAC equipment in the entire building is at or past the end of its useful life. In many instances, tunnels are used as ductwork. This presents challenges to indoor air quality in many ways	65	115,664 SF	\$0.00 / SF						

COST ANALYSIS CONTINUED

**Schroeder Middle 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
Other than the 1998 addition, ductwork or the use of tunnels as ductwork throughout the building does not effectively distribute air.	66	80,440 SF	\$0.00 / SF						
Except for the 1998 addition, the library, and a few small split systems, the majority of the school is not air-conditioned. It is highly recommended the school have an air conditioning system installed that is integrated into the school's HVAC systems.	67	80,440 SF	\$0.00 / SF						
Replace all existing pneumatic controls with a direct digital control system	68	115,664 SF	\$11.99 / SF	\$1,386,732					\$1,386,732
<b>Mechanical Upgrades Subtotal</b>		<b>115,664 SF</b>	<b>\$109.85 / SF</b>						<b>\$12,705,663</b>
<b>Total Capital Maintenance</b>		<b>115,664 SF</b>	<b>\$166.58 / SF</b>	<b>\$13,950,345</b>	<b>\$5,261,482</b>	<b>\$0</b>	<b>\$55,650</b>		<b>\$19,267,477</b>
<b>Total Construction Cost</b>		<b>143,752 SF</b>	<b>\$221.05 / SF</b>	<b>\$16,271,372</b>	<b>\$5,261,482</b>	<b>\$0</b>	<b>\$10,243,484</b>		<b>\$31,776,338</b>
*** All above estimated costs are total construction costs. These include general conditions, CM fees, permits, insurances, bonds, taxes									
<b>Contingencies &amp; Soft Costs</b>									
Design Contingency	69	5.0%		\$813,568.58	\$263,074.12	\$0.00	\$512,174.20		\$1,588,817
Construction Contingency	70	5.0%		\$813,568.58	\$263,074.12	\$0.00	\$512,174.20		\$1,588,817
Escalation	71	0.0%		\$0.00	\$0.00	\$0.00	\$0.00		\$0
A & E Fees	72	7.0%		\$1,138,996.02	\$368,303.77	\$0.00	\$717,043.88		\$2,224,344
FF & E	73	2.0%		\$325,427.43	\$105,229.65	\$0.00	\$204,869.68		\$635,527
Owner Contingency	74	1.5%		\$244,070.57	\$78,922.24	\$0.00	\$153,652.26		\$476,645
<b>Total Contingencies &amp; Soft Costs</b>				<b>\$3,335,631</b>	<b>\$1,078,604</b>	<b>\$0</b>	<b>\$2,099,914</b>		<b>\$6,514,149</b>
<b>Total Facility Assessment Cost Estimate</b>	-	<b>143,752 SF</b>	<b>\$266.36 / SF</b>	<b>\$19,607,003</b>	<b>\$6,340,086</b>	<b>\$0</b>	<b>\$12,343,398</b>		<b>\$38,290,487</b>
<b>Total Critical &amp; Educational Adequacy</b>	-	<b>143,752 SF</b>	<b>\$222.26 / SF</b>						<b>\$31,950,401</b>