



Lake Mills Area

SCHOOL DISTRICT



LAKE MILLS AREA SCHOOL DISTRICT

FACILITIES ASSESSMENT | MAY 2023

EUA PROJECT NO. 320571



Lake Mills Area

SCHOOL DISTRICT

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one:

EXECUTIVE SUMMARY

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EXECUTIVE SUMMARY

INTRODUCTION

The Facilities Assessment is a critical first step in the planning process to help school districts and their stakeholders better understand the current state of the facilities and how well these facilities support educational goals. The Facilities Assessment provides an independent, objective analysis of the present conditions and capabilities of the district's facilities and grounds. It also serves as a foundational resource document to support fiscally responsible short and long term facilities planning.

The information presented in this report was gathered through on-site inspections of the sites and buildings, and interviews with district administrators, building principals, the director of facility services and key team members. Included in this report is an analysis of:

- Conditions Assessment
- Site Capacity
- Existing Building Capacities + Utilization
- Educational Adequacy Assessment

DISTRICT OVERVIEW

Lake Mills Area School District Vision Statement

A community passionate about inspiring all learners.

Lake Mills Area District Mission

Preparing all of today's students for tomorrow's opportunities.

Lake Mills Area School District Pillars for continuous improvement

- Fostering Student Engagement and Learning
- Developing and Retaining Effective Leadership and Staff
- Connecting School and the Community
- Aligning Resources with Needs

EXECUTIVE SUMMARY

GENERAL SUMMARY / OVERVIEW

Lake Mills Elementary School was constructed in 2013/2014, opening in the fall of 2014. Lake Mills Middle School was originally built in 1973. It was significantly renovated and added onto in 2008. Lake Mills High School has been renovated and/or expanded numerous times since its original construction. Originally built in 1962, with additions in 1964, 1975, 1988, 2001, 2005 and 2019.

This report represents a summary of findings as a result of data collected during building walk-throughs, staff interviews and other research between March and May 2023.

PROJECT INTENT

The first step of planning includes the assessment of building and site conditions. The study reviews major building systems (mechanical, electrical, plumbing, building exterior, building interiors, accessibility) and building operations (capacity, utilization and educational appropriateness).

This report is based upon industry standards and practices in architecture and engineering in the areas of mechanical, electrical, plumbing, and fire protection. Observations and recommendations included in this report are based on a cursory visual assessment and interviews on site. It is important to note that the buildings are generally well maintained, and maintenance needs have been prioritized based on safety concerns and severity of need.

This study does not include observations related to compliance with applicable building codes and regulations. Existing buildings may have been designed under building codes that were less stringent. Schools designed today now face significant code compliance issues, such as with the Americans with Disabilities Act (ADA) guidelines. Although older buildings are legally 'grandfathered' by the previous codes, some items will require corrections if renovations or additions are completed in the future.

EXECUTIVE SUMMARY

DATA GATHERING PROCESS

Team site visits took place between March and May 2023 and included Eppstein Uhen Architects (EUA), MSA Engineering and Fredericksen Engineering. The team met with administration and facilities staff to review priorities and concerns and gather building information. The team walked through the building to conduct their own observations and analyses. Conditions observed were not field measured and require additional review if future action is to be taken.

UNDERSTANDING THE FACILITY ASSESSMENT

The Building Condition Assessment includes a comprehensive review of the building's exterior shell (roof, wall systems, windows/doors, etc.); interior finishes and materials (flooring, casework, etc.); mechanical, electrical, and plumbing systems; and general compliance with the Americans with Disabilities Act (ADA.)

Americans with Disabilities Act Assessment - The Americans with Disabilities Act (ADA) Assessment considers the compliance relative to accepted industry standards. A building's adherence with ADA is based on the review of the accessible routes to and through the building and site, as well as accessible features and accommodations inside the building as defined by ADA design guidelines and the International Building Code.

The Building Capacity & Utilization Analysis reviews the student capacity and evaluates the data against several nationally recognized educational planning recommendations. There are three different capacity calculations used that are detailed in the complete Facility Assessment. In general, over the past decade, recommended space provided per student has increased. The major reasons are:

- Space needed to support personalized learning, team teaching, and flexible collaboration in common areas.
- Space to accommodate technology and its infrastructure.
- Space is needed to support children with special needs, students with disabilities, cognitively disabled students, and special education needs.
- Space needed to support specialists in the area of reading, speech, occupational therapy, physical therapy, and Title I programs.
- Space needed to support paraprofessionals, volunteers, and parent support groups.

The Educational Adequacy Assessment (EAA) is a comprehensive review of the educational program activities, use of the building, and physical spaces required for each activity and provides analysis of how effectively the spaces support student learning and program delivery. This is done with input from building principals and staff.

The building assessment involves visual assessment of current conditions, documentation of observations, and general recommendations for repair and/or replacement of building components or systems where necessary. On-site observations include the review of system and component age, construction methods, material adequacy, and longevity. The Facility Assessment compiles visual assessment data, meeting discussions, and source documents to identify known deficiencies

EXECUTIVE SUMMARY

UNDERSTANDING THE FACILITY ASSESSMENT (CONT)

The Facility Assessment does NOT include:

- Detailed validation of as-built conditions
- Hazardous material assessments
- Destructive testing or observation of concealed systems, below grade conditions, or components buried within walls, ceilings, or roofing systems
- Specific details about electrical panels, mechanical equipment, or plumbing components that are not readily visible
- Measurement of electrical loads or temperatures of any electrical equipment
- Actual efficiencies or performance testing of HVAC and plumbing equipment (pumps, fans, boilers, etc.)
- Adequacy of fire or life safety components associated with building systems including code requirements, dampers, fire rating of systems, etc.

RECOMMENDED NEXT STEPS

At the conclusion of a Facilities Assessment, many school districts ask how to best proceed. It is our recommendation that the administration closely review this document and understand the observations and recommendations.

For the Lake Mills Area School District, the next recommended steps are to share the key findings of the facilities assessment with district staff and stakeholders and gathering their feedback about the most pressing needs and priorities this summer followed by a community -wide survey in the fall of 2023. Input from a variety of district and community stakeholders will be critical as district leaders work to establish priorities for long-term facilities planning.

Once broad-based community input has been received, the identified needs and priorities should again be considered and potential solutions evaluated. From there, components of the potential solutions can be isolated, prioritized and shared for further community feedback.

Thank you for the opportunity to participate in this endeavor. If you have any questions or concerns regarding this summary, please feel free to contact the EUA team.

Sincerely,



Teresa Wadzinski
EDUCATION STUDIO DIRECTOR: PRINCIPAL



Kit Dailey
CLIENT EXECUTIVE : PRINCIPAL



two:

CONDITIONS ASSESSMENT

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BUILDING CONDITIONS ASSESSMENT

This Assessment provides an objective analysis of present site and building conditions, and is a critical step needed to understand how today's facilities support the goals of the District. The information presented was gathered by EUA's team of professionals through on-site tours, as well as interviews with building administrators and facilities personnel. It serves as a foundational resource document to support the development of immediate solutions as well as long-range planning.

CONDITIONS ASSESSMENT METHODOLOGY

This conditions assessment was completed to evaluate the physical building and site based on site visits from both architects and engineers. This section evaluates the architectural aspects and reported findings based on several factors:

- Performance and condition of exterior shell of the building to include walls, roof, windows/doors and other components.
- Performance and condition of interior materials to include walls, flooring, ceilings, windows/doors and other components.
- Performance as it relates to accessibility and ease of access to students, staff and visitors based off the current guidelines from the state of Wisconsin and The Americans with Disabilities Act Standards.
- Performance and condition of mechanical, electrical and plumbing systems and components

Please refer to the Assessment Appendix for the detailed conditions reports, including comments, photos and recommendations from the architectural and engineering teams.

LAKE MILLS ELEMENTARY SCHOOL

Address: 155 East Pine Street
Lake Mills, WI 53551

GENERAL COMMENTS:

The existing building was built in 2013/2014, opening to students in the fall of 2014. There have been no major additions or alterations since its original construction.

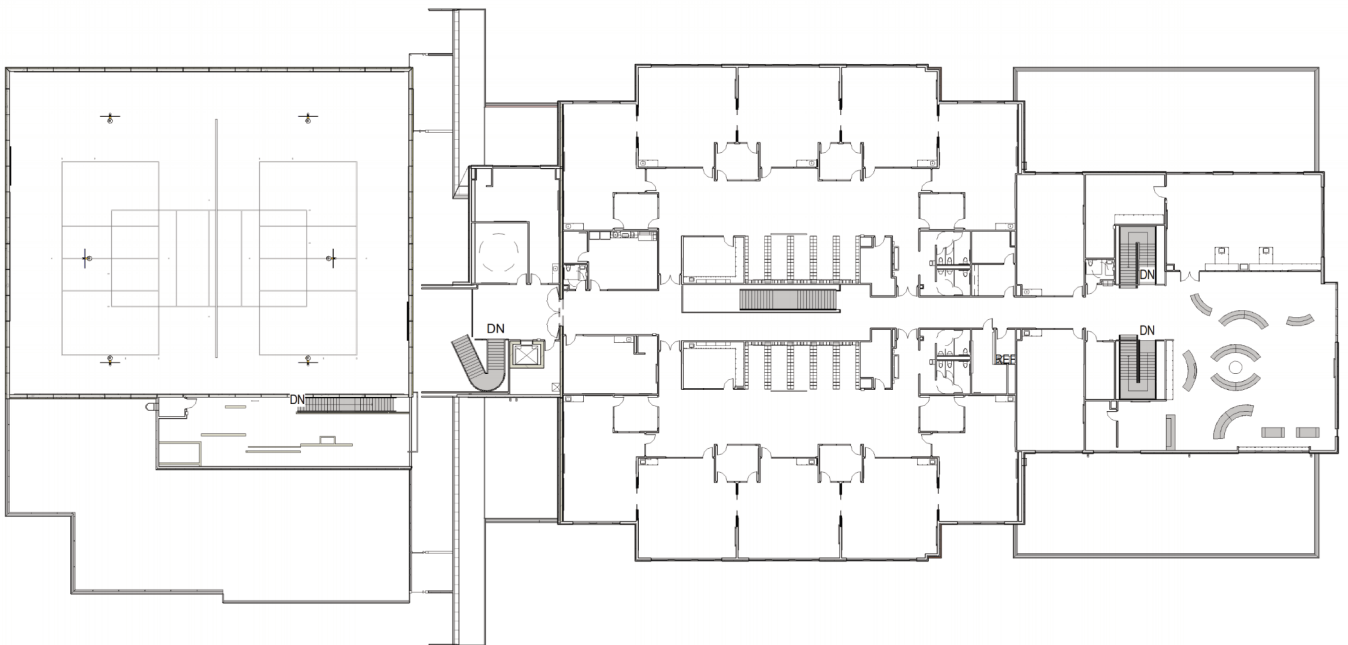


LAKE MILLS ELEMENTARY SCHOOL

OVERALL FLOOR PLANS



FIRST FLOOR PLAN



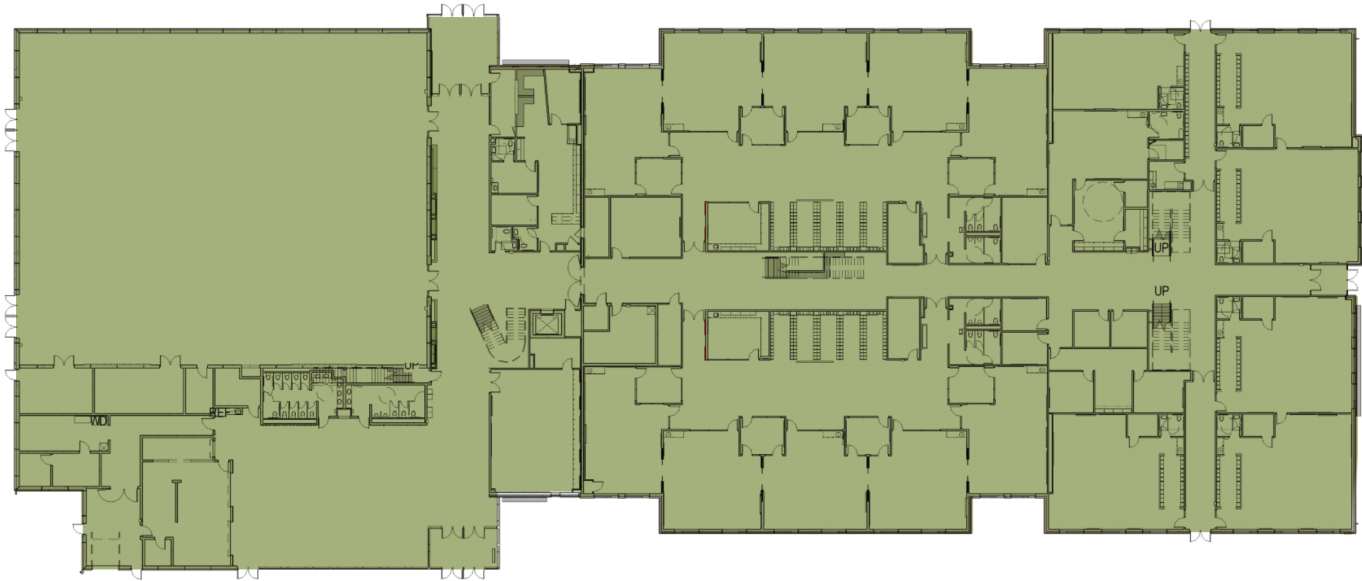
SECOND FLOOR PLAN

LAKE MILLS ELEMENTARY SCHOOL

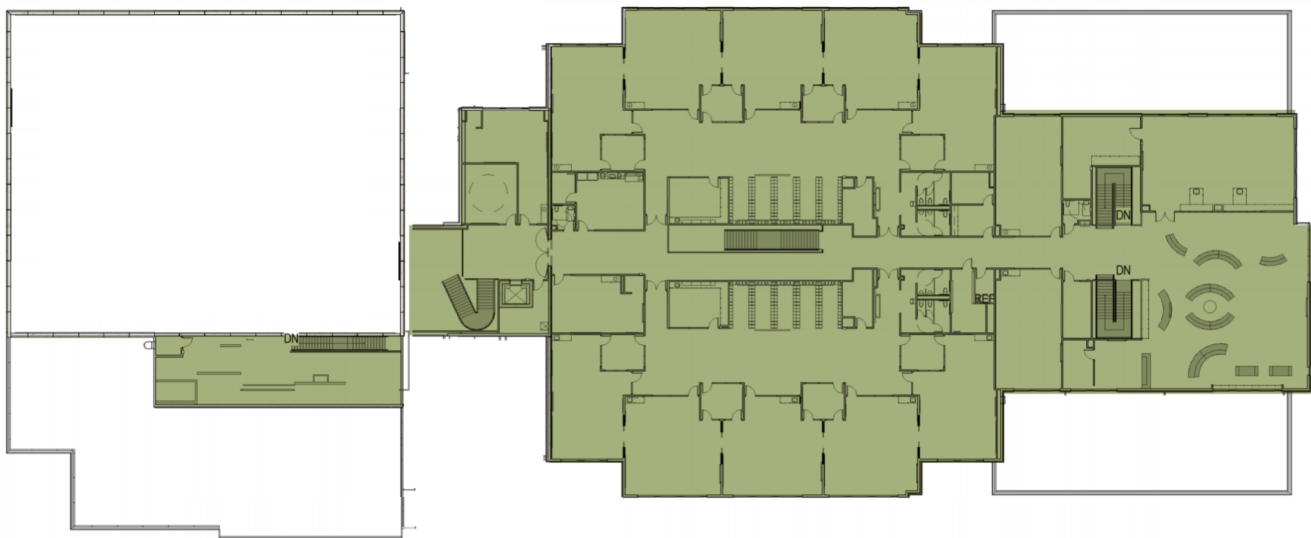
OVERALL FLOOR PLANS - ADDITIONS AND RENOVATIONS



2014 ORIGINAL BUILDING



FIRST FLOOR PLAN



SECOND FLOOR PLAN

LAKE MILLS ELEMENTARY SCHOOL

CONDITIONS SUMMARY

Category	Topic	Comment	Average of Score
ADA	Accessible Parking	The building has code compliant accessible parking	5.00
ADA	Passenger Loading Zone		5.00
ADA	Accessible Entry(s)	Entries are accessible	5.00
ADA	Accessible Route		5.00
ADA	Accessible Restrooms	All restrooms are accessible	5.00
Electrical	Site lighting	All LED light fixtures.	5.00
Electrical	Site utilities (transformers, etc.)	Spare capacity for additional loads.	5.00
Electrical	Low Voltage Switchgear & Distribution	Extra breaker space for future use.	5.00
Electrical	Distribution Panelboards	Panelboard schedules identify loads incorrectly; trace circuit and update schedules. No arc flash labels on electrical distribution equipment; complete study and installed detailed labels.	4.00
Electrical	Generator System	Separate emergency and optional standby transfer switches.	5.00
Electrical	Lighting	4' Fluorescent fixtures in majority of building; some have been retrofitted with LED replacement lamps.	4.00
Electrical	Lighting Control	Digital lighting control systems with daylighting and occupancy / vacancy sensors.	5.00
Electrical	Power Devices	Adequate amount of receptacles with minimal wear and tear.	5.00
Electrical	Communications Systems	No operational issues with intercom system or clock system.	5.00
Electrical	Fire Alarm System	No operational issues, but any addition will require upgrading control panel for Voice annunciation in addition.	4.00
Electrical	CCTV	Original from 2014, minimal camera coverage. District IT is currently working on upgrade of system.	2.00

LAKE MILLS ELEMENTARY SCHOOL

CONDITIONS SUMMARY

Category	Topic	Comment	Average of Score
Electrical	Keyless Entry	Frequent servicing required for card readers and control panels; consider upgrading to IP type of system.	2.00
Electrical	Data	Consider adding an additional Cat6 or 6A cable to existing WAP locations to increase W-Fi capacity.	4.00
Exterior Enclosure	Exterior Brick	The masonry is performing as expected for its age	5.00
Exterior Enclosure	Exterior Metal Panels	The building has a mix of single skin and MCM metal panels	5.00
Exterior Enclosure	Exterior Precast	There is a number of cracks in the precast face shell, caulk cracks as they appear	3.00
Exterior Enclosure	Exterior Sealants	Sealants are in good condition	4.00
Exterior Enclosure	Expansion Joints	Expansion joints are in good condition	4.00
Exterior Enclosure	Windows, Storefronts & Curtainwalls	Windows are performing as expected for their age	5.00
Exterior Enclosure	Exterior Doors	They are mostly Aluminum doors and frames with a few FRP doors	5.00
Interior	Wall Finish Condition	The majority of the walls are drywall on metal stud, there are typical scuffs but the maintenance staff have done a great job of patching and repairing as needed	4.00
Interior	Casework & Millwork	The casework is primarily laminate cabinets with laminate counter tops	5.00
Interior	Interior Doors, Frames & Hardware	The majority of doors are wood on hollow metal frames	5.00
Interior	Fire Doors & Shutters	Fire doors and frames are in good condition	5.00
Interior	Ceiling Finish	The ceiling is mainly 2x2 ac ceiling tiles	5.00
Interior	Floor Finish	The school is primarily rubber floor tiles and carpet squares	5.00
Interior	Gym/Sports Flooring	The gym floor is a typical wood gymnasium sports floor	5.00
Interior	Flooring Other	All the rubber base is in good condition	5.00

LAKE MILLS ELEMENTARY SCHOOL

CONDITIONS SUMMARY

Category	Topic	Comment	Average of Score
Interior	Stairs & Handrails	The stairs and railings are performing as expected for their age	5.00
Interior	Window Treatments	The windows have roll up style window shades	5.00
Mechanical	Air Handlers, Rooftop Units	All major equipment was installed in 2014 and is in good overall condition. The roof-mounted units will likely require replacement before the indoor units will. The energy recovery wheels located within each unit will require replacement first.	4.00
Mechanical	Cooling	The geothermal heating and cooling system is now 9 years old and appears to be in good condition yet.	4.00
Mechanical	Terminal heat pumps	The Climate Master units have been performing well with some minor maintenance issues. Replace units as needed.	4.00
Mechanical	Unit Heaters	Units are gas-fired units and appear to be in good overall condition.	4.00
Mechanical	Cabinet Unit Heaters	Units are electric units and appear to be in good overall condition.	4.00
Mechanical	Exhaust Fans	Most units are still in good condition	4.00
Mechanical	Ducts & Distribution	Ductwork should be cleaned out every 3-5 years to help maximize life.	4.00
Mechanical	Pumps	The geothermal system circulation pumps are scheduled for some maintenance work in summer of 2023 and are currently in good condition.	4.00
Mechanical	Piping/Insulation	Pipe insulation is in good overall condition.	4.00
Mechanical	Controls	Automated Logic is the control vendor. The system has been kept current.	4.00
Mechanical	General Ventilation Comments	In general the maintenance staff has done a great job of maintaining the HVAC systems and replacing items as needed.	3.00
Miscellaneous	Toilet Partitions	They are a HDPE partition type	5.00
Miscellaneous	Toilet Accessories	All accessories are in good condition	5.00
Miscellaneous	Toilet Room Other	The floor, wall and ceiling finishes are in good condition	5.00
Miscellaneous	Bleachers	The bleachers are made a wood on metal frames	5.00

LAKE MILLS ELEMENTARY SCHOOL

CONDITIONS SUMMARY

Category	Topic	Comment	Average of Score
Miscellaneous	Lockers	Each grade pod has wood laminate cubbies	5.00
Miscellaneous	Classroom Equipment (Hoods, Kilns, etc.)	Classrooms have whiteboards and tack boards	5.00
Miscellaneous	Elevator	The elevator is performing as expected for its age	5.00
Plumbing	Domestic Water Piping System	Type L copper piping and fittings. The isolations valves are ball valves and butterfly valves for large pipe sizes. No issues to report.	5.00
Plumbing	Fire Suppression Piping System	The building contains an automatic fire sprinkler system. The kitchen hoods are protected by an Ansul suppression heads and cylinder for kitchen equipment with open flames.	5.00
Plumbing	Sanitary DWV Piping System	No-hub Cast Iron and PVC pipe and fittings. No issues to report.	5.00
Plumbing	Storm and Clear Water DWV Piping System	No-hub Cast Iron and PVC pipe and fittings. No issues to report.	5.00
Plumbing	Natural Gas Piping System	Black Iron Steel pipe and fittings. The isolations valves are ball valves. Average wear for since installation of the piping system.	5.00
Plumbing	Water Softener(s)	Whole Building – 75gpm duplex resin/mineral tank with single brine tank. Good Condition.	5.00
Plumbing	Water Heater(s)	Whole Building – 80 gallon 100,000btu power vent, high efficiency gas water heater with expansion tank, 120 gallon hot water storage tank and solar roof panels. Temperature is 140degrees. No issues to report.	5.00
Plumbing	Circulating Pump(s)	No issues to report	5.00
Plumbing	Grease Interceptor	Kitchen Area – 75gpm.	3.00
Plumbing	Clearwater Sump Basin and Pump	No issues to report	5.00
Plumbing	Fixtures (sinks, toilets, urinals, etc.)	Some wear is beginning to show on the fixtures.	4.00

LAKE MILLS ELEMENTARY SCHOOL

CONDITIONS SUMMARY

Category	Topic	Comment	Average of Score
Roofing	Roofing Membrane	The roof membrane is performing as expected for its age	4.00
Roofing	Drains, Gutters & Downspouts	(Average score) There are portions of gutters that are severely damaged	3.00
Roofing	Skylights & Hatches	There are no skylights and the metal roof access hatches are in good condition	5.00

LAKE MILLS MIDDLE SCHOOL

Address: 318 College Street
Lake Mills, WI 53551

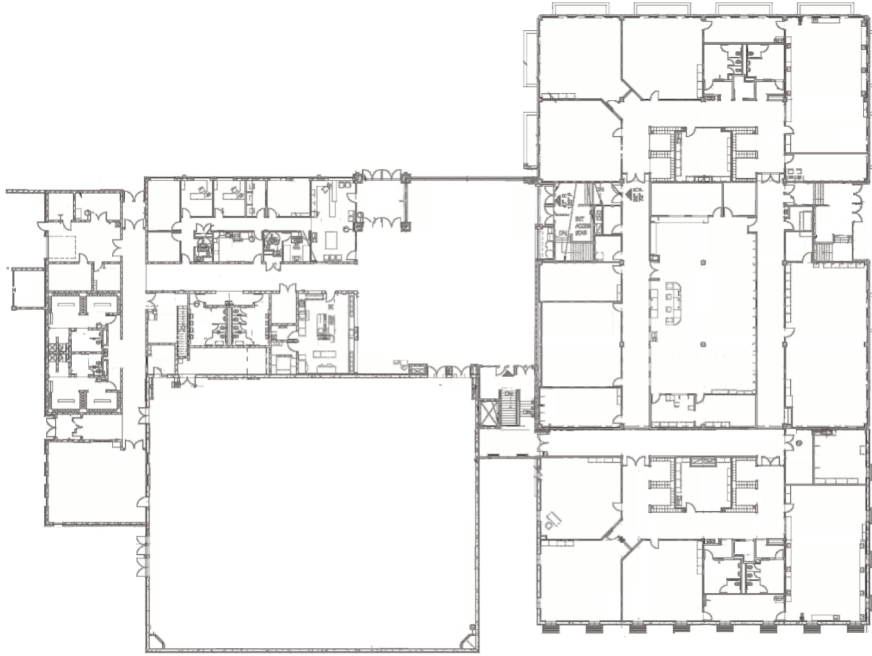
GENERAL NOTES:

The existing building was built in 1973. An addition and extensive renovation in 2008, essential rebuilt the entire building.

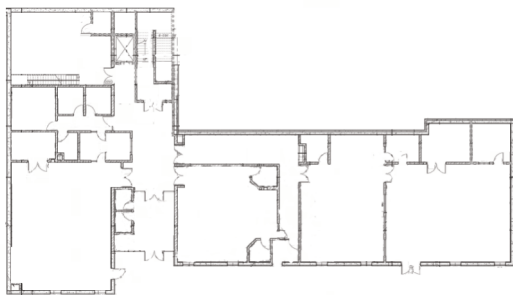


LAKE MILLS MIDDLE SCHOOL

OVERALL FLOOR PLANS - ADDITIONS AND RENOVATIONS



FIRST FLOOR PLAN



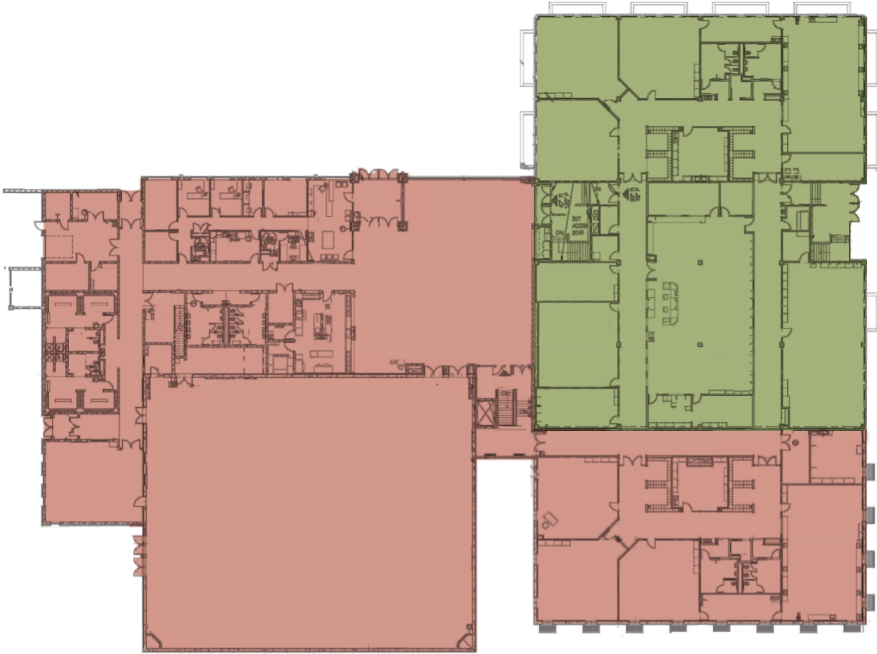
BASEMENT FLOOR PLAN



LOWER LEVEL FLOOR PLAN

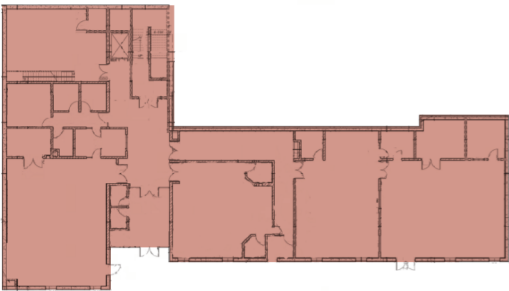
LAKE MILLS MIDDLE SCHOOL

OVERALL FLOOR PLANS - ADDITIONS AND RENOVATIONS



FIRST FLOOR PLAN

- 1973 ORIGINAL BUILDING
- 2008 ADDITION



BASEMENT FLOOR PLAN



LOWER LEVEL FLOOR PLAN

LAKE MILLS MIDDLE SCHOOL

CONDITIONS SUMMARY

Category	Topic	Comment	Average of Score
ADA	Accessible Parking	The building has accessible parking	5.00
ADA	Passenger Loading Zone		5.00
ADA	Accessible Entry(s)	The buildings Entry's are accessible	5.00
ADA	Exterior Stairs, Ramps & Rails	Exterior stair railings are in poor condition, and is only on one side of the stairs.	1.00
ADA	Accessible Route		5.00
Electrical	Site lighting	Replace all compact fluorescent building mounted lighting, including recessed downlights at canopies with LED type fixtures for energy efficient and reduced maintenance of lamps and ballasts. Provide relay at contactors for exterior lighting to be controlled by Building Automation System for more efficient adjustment of time schedules.	3.00
Electrical	Site utilities (transformers, etc.)	Spare capacity for additional loads.	5.00
Electrical	Low Voltage Switchgear & Distribution	Minimal breaker space available; may need an additional section for any large additional loads.	4.00
Electrical	Distribution Panelboards	No arc flash labels on electrical distribution equipment; complete study and installed detailed labels.	4.00
Electrical	Generator System	No optional standby branch (and not large enough) to power data rooms, coolers, freezer, main office, intercom system, and possibly elevator.	3.00
Electrical	Lighting	As fluorescent lamps fail, continue replacing with LED replacement lamps that are compatible and UL listed for the ballast configuration / removal of ballast. Replace existing fixtures which are not compatible with LED replacement lamps with dedicated LED light fixtures, including Cafeteria pendants, recessed downlights in very select areas of the building.	3.00
Electrical	Lighting Control	Dual level switching with analog occupancy sensors.	5.00

LAKE MILLS MIDDLE SCHOOL

CONDITIONS SUMMARY

Category	Topic	Comment	Average of Score
Electrical	Power Devices	Adequate amount of receptacles with minimal wear and tear.	5.00
Electrical	Communications Systems	Investigate clock synchronization issues with Primex technical support; ensure FCC licensing is current. Investigation intercom speaker volume in toilet rooms with Simplex; possibly adjust speaker taps.	4.00
Electrical	Fire Alarm System	Consider replacement of dialer with IP / Cellular digital communicator to remove phone line from alarm monitoring. (Reason for Score of 1) No other operational issues, but any addition will require upgrading control panel for Voice annunciation in addition. (Reason for Score of 4)	2.50
Electrical	CCTV	Original from 2010, minimal camera coverage. District IT is currently working on upgrade of system.	2.00
Electrical	Keyless Entry	Frequent servicing required for card readers and control panels; consider upgrading to IP type of system. Consider adding door contacts for monitoring door props on exterior doors. Consider controlling compartmentalization doors if will be added in building for security.	2.00
Electrical	Data	Consider adding an additional Cat6 or 6A cable to existing WAP locations to increase W-Fi capacity.	3.00
Exterior Enclosure	Exterior Brick	The Brick was constructed in 2008 and in good condition.	5.00
Exterior Enclosure	Exterior Precast	The precast at the original building is in Fair condition for its age.	4.00
Exterior Enclosure	Exterior Sealants	There are areas at the original building precast that should be evaluated for recaulking.	4.00
Exterior Enclosure	Expansion Joints		4.00
Exterior Enclosure	Windows, Storefronts & Curtainwalls	All windows were constructed or replaced in 2008.	4.00

LAKE MILLS MIDDLE SCHOOL

CONDITIONS SUMMARY

Category	Topic	Comment	Average of Score
Exterior Enclosure	Exterior Doors	Mostly Aluminum doors in Aluminum frames, but there are some HM doors and frames that should be painted.	4.00
Exterior Enclosure	Louvers & Vents		4.00
Exterior Enclosure	Play Structures		4.00
Exterior Enclosure	Tennis Courts	The tennis court retaining wall is failing and should be replaced.	1.50
Exterior Enclosure	Baseball Field	The retaining walls are failing at the baseball field and should be replaced. The field needs to be evaluated to solve drainage issues.	1.50
Interior	Wall Finish Condition	The interior walls are a mix of either CMU or Drywall.	5.00
Interior	Casework & Millwork	Casework in the building was constructed in 2008 and in good condition.	4.00
Interior	Interior Doors, Frames & Hardware	There are a few doors with cosmetic scratches but otherwise the doors are in good condition.	4.00
Interior	Coiling Shutters & Grilles		4.00
Interior	Rated Doors & Shutters		5.00
Interior	Ceiling Finish	The ceilings are at the end of their lifespan but still seem to be in good to fair condition. As the ceiling tiles begin to sag consider replacing the ceiling system.	3.00
Interior	Floor Finish	The broadloom carpet is in fair condition but has begun to wear in heavy traffic areas. The rubber flooring is not performing well and is in poor to fair condition.	2.00
Interior	Gym/Sports Flooring	The gym floor is a typical wood	5.00
Interior	Flooring Other	Wall base is in good condition	4.00
Interior	Stairs & Handrails	The stairs and railings are performing as expected for its age	4.00
Interior	Window Treatments		4.00

LAKE MILLS MIDDLE SCHOOL

CONDITIONS SUMMARY

Category	Topic	Comment	Average of Score
Mechanical	Air Handlers, Rooftop Units	All major equipment was installed in 2009 and is in good overall condition. The roof-mounted units will likely require replacement before the indoor units will. The energy recovery wheels located within each unit will require replacement first.	3.00
Mechanical	Cooling	The geothermal heating and cooling system is now 14 years old and appears to be in good condition yet.	4.00
Mechanical	Terminal heat pumps	The Johnson Controls units have been experiencing some premature failures and about seven (7) unit shave been replaced so far with Climate Master units. The remainder of the units should be considered for future replacement.	3.00
Mechanical	Unit Heaters	Units are electric units and appear to be in good overall condition.	4.00
Mechanical	Cabinet Unit Heaters	Units are electric units and appear to be in good overall condition.	4.00
Mechanical	Exhaust Fans	Most units are still in good condition	4.00
Mechanical	Ducts & Distribution	Ductwork should be cleaned out every 3-5 years to help maximize life.	4.00
Mechanical	Pumps	The geothermal system circulation pumps have been rebuilt in 2019 and are currently in good condition.	4.00
Mechanical	Piping/Insulation	Pipe insulation is in good overall condition.	4.00
Mechanical	Controls	Johnson Controls is the control vendor. The system has issues with properly controlling the Johnson Controls heat pumps and the Owner has expressed a desire to replace the JCI system with Automated Logic in the future.	3.00
Mechanical	General Ventilation Comments	In general the maintenance staff has done a great job of maintaining the HVAC systems and replacing items as needed.	2.00
Miscellaneous	Toilet Partitions	Partitions are plastic type in good condition.	4.00
Miscellaneous	Toilet Accessories	All accessories are in good condition	5.00
Miscellaneous	Toilet Room Other	The floor, wall and ceiling finishes are in good condition	4.00

LAKE MILLS MIDDLE SCHOOL

CONDITIONS SUMMARY

Category	Topic	Comment	Average of Score
Miscellaneous	Bleachers	The bleachers are made of high density plastic on metal frames	5.00
Miscellaneous	Lockers	The lockers are a metal type in the corridors	4.00
Miscellaneous	Classroom Equipment (Hoods, Kilns, etc.)		4.00
Miscellaneous	Elevator	The elevator is performing as expected for its age	5.00
Plumbing	Domestic Water Piping System	Type L copper piping and fittings. The isolations valves are ball valves and gate valves. No issues to report.	4.00
Plumbing	Fire Suppression Piping System	The building contains an automatic fire sprinkler system. No issues to report.	4.00
Plumbing	Sanitary DWV Piping System	Hub and Spigot Cast Iron and PVC pipe and fittings. Provide backwater valve on sewer main.	4.00
Plumbing	Storm and Clear Water DWV Piping System	Hub and Spigot Cast Iron and PVC pipe and fittings. No issues to report.	3.00
Plumbing	Natural Gas Piping System	Black Iron Steel pipe and fittings. The isolations valves are ball valves. Average wear for since installation of the piping system.	4.00
Plumbing	Compressed Air Piping System	Black Iron Steel pipe and fittings. The isolations valves are ball valves. Average wear for since installation of the piping system.	3.00
Plumbing	Water Softener(s)	Whole Building – 250gpm resin/mineral tank with single brine tank. No issues to report.	4.00
Plumbing	Water Heater(s)	Whole Building – Two 100 gallon 199,000btu power vent, high efficiency gas water heater with expansion tank. Temperature is 120degrees. No issues to report.	4.00
Plumbing	Circulating Pump(s)	Whole Building –15gmp pump. Temperature is 120degrees. No issues to report.	3.00
Plumbing	Grease Interceptor	Kitchen – 75 gmp - no issues to report.	3.00
Plumbing	Acid Neutralization Basin	Northside of building - 125 gpm - no issues to report. Southside of Building - 125 gpm - no issues to report.	3.00
Plumbing	Clearwater Sump Basin and Pump	No issues to report	3.00

LAKE MILLS MIDDLE SCHOOL

CONDITIONS SUMMARY

Category	Topic	Comment	Average of Score
Plumbing	Fixtures (sinks, toilets, urinals, etc.)	Some wear is beginning to show on the fixtures.	4.00
Roofing	Roofing Membrane	The roof was either constructed or replaced in 2008 and is in good condition	4.00
Roofing	Drains, Gutters & Downspouts		4.00
Roofing	Skylights & Hatches	The skylights and roof hatches are in good condition	4.00

LAKE MILLS HIGH SCHOOL

Address: 615 Catlin Drive
Lake Mills, WI 53551

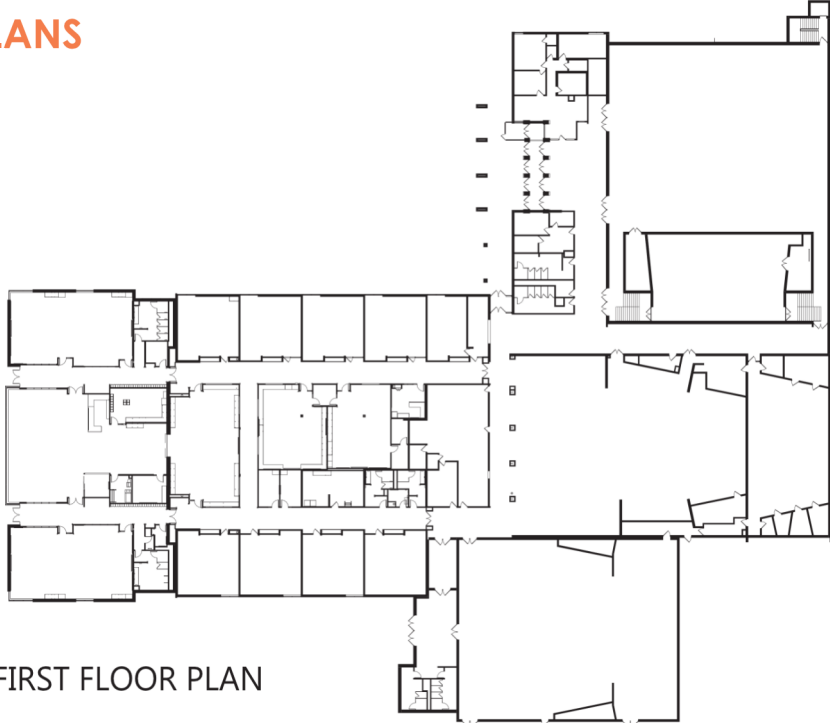
GENERAL COMMENTS:

The Lake Mills High School building and site have been continually invested in to keep the educational and athletic facilities up to date. Although parts of the building and the educational spaces have been invested in as recently as 2019, several areas of the building have not been addressed since 1964.



LAKE MILLS HIGH SCHOOL

OVERALL FLOOR PLANS



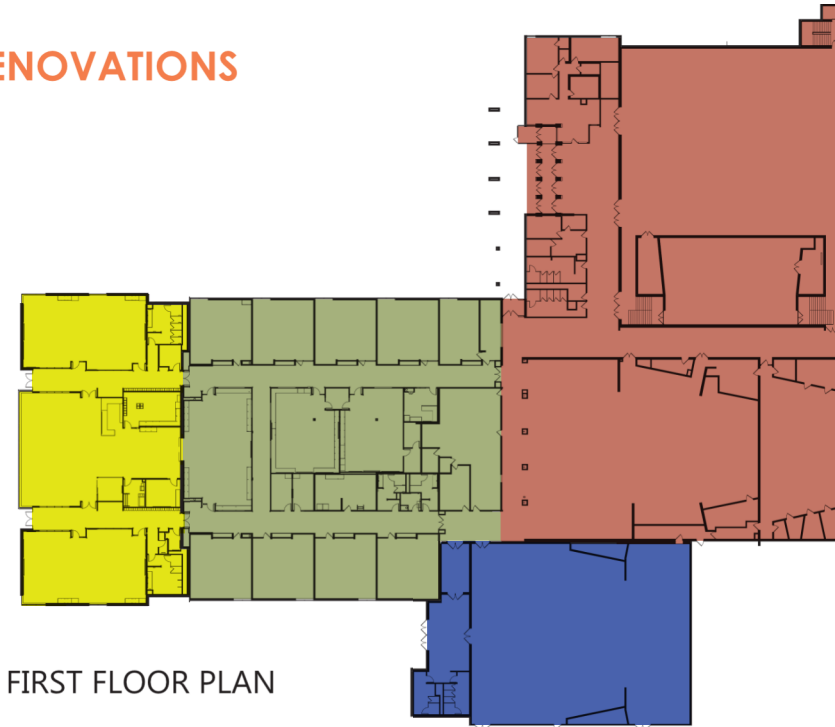
FIRST FLOOR PLAN



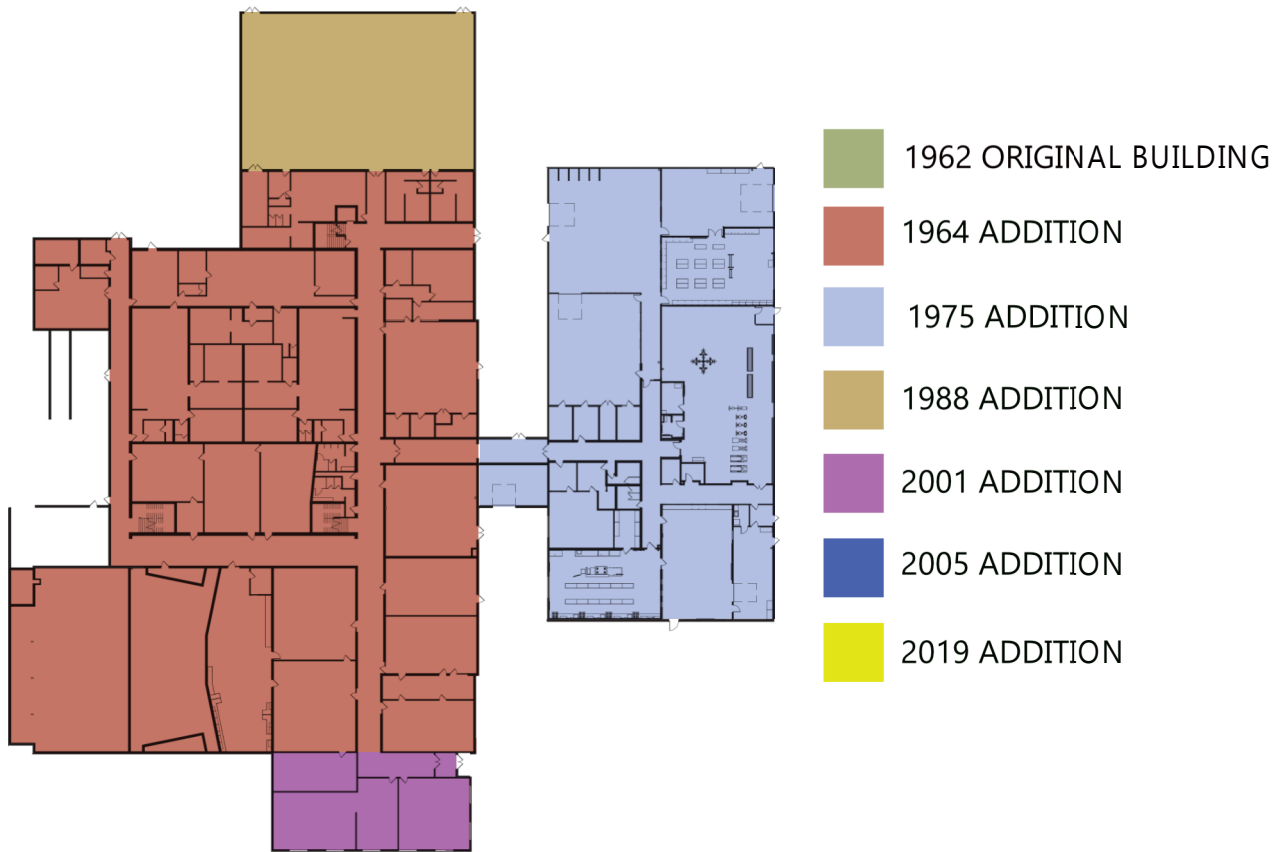
LOWER LEVEL FLOOR PLAN

LAKE MILLS HIGH SCHOOL

ADDITIONS & RENOVATIONS



FIRST FLOOR PLAN



LOWER LEVEL FLOOR PLAN

LAKE MILLS HIGH SCHOOL

CONDITIONS SUMMARY

Category	Topic	Comment	Average of Score
Exterior Enclosure	Bus Barn	The bus barn is in poor condition, the exterior enclosure, garage doors and metal roof are past their useful life and have become dented and rusted at portions. The floor slab is a gravel pad for the majority of the barn with a small paved area for one garage bay and a small break room. The Cabinetry, plumbing fixtures and finishes in the break room are also in poor condition.	1.00
ADA	Accessible Parking	The building has accessible parking at main entrance and auditorium entrance	5.00
ADA	Passenger Loading Zone		5.00
ADA	Accessible Entry(s)	The main entrance and auditorium entrance are accessible	5.00
ADA	Exterior Stairs, Ramps & Rails	The exterior railings have areas of rust and deterioration	2.50
ADA	Accessible Route	To access the lower level from the main entrance involves from the elevator you would need to go thru the gym	3.00
ADA	Accessible Restrooms	The building has a combination of compliant and non-compliant restrooms. Restrooms in recently renovated spaces are compliant. Restrooms within locker rooms are non-compliant	3.00
Electrical	Site lighting	Replace all pre-2019 building mounted lighting, including recessed downlights at canopies and wall packs with LED type fixtures for energy efficient and reduced maintenance of lamps and ballasts.	2.00
Electrical	Site utilities (transformers, etc.)	Spare capacity for additional loads.	5.00
Electrical	Low Voltage Switchgear & Distribution	Extra breaker space for future use. Add surge protection device at main service switchboard.	4.00

LAKE MILLS HIGH SCHOOL

CONDITIONS SUMMARY

Category	Topic	Comment	Average of Score
Electrical	Distribution Panelboards	Kinney and Federal Pacific panelboards from original 1962 and 1964 construction which are no longer serviceable. No arc flash labels on electrical distribution equipment; complete study and installed detailed labels.	1.00
Electrical	Generator System	Existing generator not operational. Consider one not only for emergency loads such as exit lights, emergency egress lighting, and fire alarm, but also optional standby loads such as data rooms, coolers, freezer, sump pumps, water heater, main office, etc.	1.00
Electrical	Lighting	As fluorescent lamps fail, continue replacing with LED replacement lamps that are compatible and UL listed for the ballast configuration / removal of ballast. Replace existing fixtures which are not compatible with LED replacement lamps with dedicated LED light fixtures. Replace Auditorium House Lighting fixtures with LED type fixtures. LED screw-in type lamps equivalent to high wattage incandescent lamps installed are likely not available with desired dimming performance for auditorium. Replace Auditorium Theatrical lighting fixtures with LED type fixtures. With the replacement of both House Lighting and Theatrical lighting, consider replacement of control system as dimming control technology will be different and a relay panel in lieu of a dimmer rack should be used.	3.00

LAKE MILLS HIGH SCHOOL

CONDITIONS SUMMARY

Category	Topic	Comment	Average of Score
Electrical	Lighting Control	<p>With the replacement of both House Lighting and Theatrical lighting, consider replacement of control system as dimming control technology will be different and a relay panel in lieu of a dimmer rack should be used. (Reason for Score of 3)</p> <p>Dual level switching with analog occupancy sensors. (Reason for Score of 5)</p>	4.00
Electrical	Power Devices	<p>Supplement existing receptacles in the spaces original to the 1962, 1964, 1975, and 1988 construction with additional receptacles and circuits</p> <p>Replace worn devices in the spaces original to the 1962, 1964, 1975, and 1988 construction.</p>	3.00
Electrical	Communications Systems	Investigate speaker coverage in all areas of the building and supplement as needed, such as in the Kitchen area.	4.00
Electrical	Fire Alarm System	Extend the EST3 voice annunciated system into the remaining areas of the building and remove the JCI Metasys system in its entirety.	1.00
Electrical	CCTV	<p>Minimal camera coverage.</p> <p>District IT is currently working on upgrade of system.</p>	2.00
Electrical	Keyless Entry	<p>Frequent servicing required for card readers and control panels; consider upgrading to IP type of system.</p> <p>Consider adding door contacts for monitoring door props on exterior doors.</p> <p>Consider controlling compartmentalization doors if will be added in building for security.</p>	2.00

LAKE MILLS HIGH SCHOOL

CONDITIONS SUMMARY

Category	Topic	Comment	Average of Score
Electrical	Data	Add air conditioning to Main Data Room. Consider relocating to a dedicated room adjacent to the Main Electrical Room for better temperature control, as well as security, and accessibility for routing. Add telecommunications grounding to main data room and remote data room in Tech Ed wing. Consider adding an additional Cat6 or 6A cable to existing WAP locations to increase W-Fi capacity.	2.00
Exterior Enclosure	Exterior Brick	Older portions of the building have areas needing tuckpointing, the grout has also become discolored at these older locations	4.00
Exterior Enclosure	Exterior Precast	The precast is performing as expected for its age. There is some staining at the precast locations.	3.00
Exterior Enclosure	Exterior Metal Panel	Metal panels are performing as expected for their age.	4.00
Exterior Enclosure	Exterior Sealants		4.00
Exterior Enclosure	Expansion Joints		4.00
Exterior Enclosure	Windows, Storefronts & Curtainwalls	(Average Score) The majority of the windows are newer but there are certain portions of the building with older windows some near expected life span and others have gone past	3.50
Exterior Enclosure	Exterior Doors	There are hollow metal doors around the auditorium that have begun to rust	3.50
Exterior Enclosure	Louvers & Vents	Many of the louvers that are below the lower level windows adjacent to the paved areas have some damage	3.00
Interior	Wall Finish Condition	The majority of the building is CMU block, the 2019 addition is primarily drywall on metal studs.	4.00

LAKE MILLS HIGH SCHOOL

CONDITIONS SUMMARY

Category	Topic	Comment	Average of Score
Interior	Casework & Millwork	(Average Score) There is a mix of casework ranging from good condition to poor condition. Original casework in the older portions of the building still existing and have gone beyond their expected life span	3.50
Interior	Interior Doors, Frames & Hardware	(Average Score) The school has doors, hardware and frames that are different ages and in various conditions. There are still many doors with knob style hardware that do not meet accessibility requirements.	3.50
Interior	Coiling Shutters & Grilles		4.00
Interior	Fire Doors & Shutters		4.00
Interior	Ceiling Finish	(Average Score) There is a range of new 2x2 act ceiling tiles to older and at the end of there useful life 2x2 or 2x4 act ceiling tiles.	3.50
Interior	Floor Finish	(Average Score) The majority of the corridors are VCT 12 x 12 tiles in various conditions based on the location in the building. There are areas of carpet that again vary in condition based on the location of the building. Older portions of the building have original finishes in many areas to the construction of that portion. Their appears to be a few minor locations of 9x9 VAT tile that may contain asbestos.	3.00
Interior	Gym/Sports Flooring	(Average Score) Both gym floors are a wood competition floor, the secondary gyms is older but in fair condition	4.00
Interior	Flooring Other	The rubber base condition changes based on the age of original construction, many older portions still have original finishes	3.00

LAKE MILLS HIGH SCHOOL

CONDITIONS SUMMARY

Category	Topic	Comment	Average of Score
Interior	Stairs & Handrails	The stairs are a painted concrete and the risers and treads are the same color. Painted concrete can be slick when wet. Placing a rubber integral riser and tread with a visual impairment strip would reduce the slickness when wet and also provide a contrast at the stair edge essential for those with visual impairments to navigate safely.	3.00
Interior	Window Treatments	(Average score) Newer window shades are the roll up type, the older ones are mini blinds that are past their useful life.	3.00
Mechanical	Air Handlers, Rooftop Units	All major equipment was installed in 2009 and is in good overall condition. The roof-mounted units will likely require replacement before the indoor units will. The energy recovery wheels located within each unit will require replacement first.	3.50
Mechanical	Cooling	The geothermal heating and cooling system is now 14 years old and appears to be in good condition yet.	3.50
Mechanical	Terminal heat pumps	The Johnson Controls units have been experiencing some premature failures and about seven (7) unit shave been replaced so far with Climate Master units. The remainder of the units should be considered for future replacement.	3.00
Mechanical	Unit Heaters	Units are electric units and appear to be in good overall condition.	3.50
Mechanical	Cabinet Unit Heaters	Units are electric units and appear to be in good overall condition.	4.00
Mechanical	Exhaust Fans	Most units are still in good condition	3.50
Mechanical	Ducts & Distribution	Ductwork should be cleaned out every 3-5 years to help maximize life.	4.00
Mechanical	Pumps	The geothermal system circulation pumps have been rebuilt in 2019 and are currently in good condition.	3.50
Mechanical	Piping/Insulation	Pipe insulation is in good overall condition.	4.00

LAKE MILLS HIGH SCHOOL

CONDITIONS SUMMARY

Category	Topic	Comment	Average of Score
Mechanical	Controls	Johnson Controls is the control vendor. The system has issues with properly controlling the Johnson Controls heat pumps and the Owner has expressed a desire to replace the JCI system with Automated Logic in the future.	3.00
Mechanical	General Ventilation Comments	In general the maintenance staff has done a great job of maintaining the HVAC systems and replacing items as needed.	2.00
Miscellaneous	Toilet Partitions	(Average score) Toilets partitions have either been replaced in the last 5 years or are original to the construction of that portion of the building and at the end of its useful life	2.50
Miscellaneous	Toilet Accessories		4.00
Miscellaneous	Toilet Room Other	(Average score) The older toilet rooms that have not been renovated have wall and floor tile that is past the end of its useful life.	2.50
Miscellaneous	Bleachers	Both gyms bleachers are wood over a metal frame, the secondary gyms are older and show their age	3.00
Miscellaneous	Lockers	Lookers are located in the corridors and are original to each construction time frame of that section of the building. Depending on the age they are in either good to fair condition. The color is not consistent throughout the building.	4.00
Miscellaneous	Locker Rooms	The looker rooms have had some upgrades to the benches and lockers but the toilet, showering and finishes are original to the construction of the building. The toilets and showers do not meet ADA requirements.	3.00
Miscellaneous	Classroom Equipment (Hoods, Kilns, etc.)	Many areas have been remodeled recently but there are still older equipment, for example hoods in the workshop that are original and past their useful life.	2.50
Miscellaneous	Elevator	The elevator is at the end of its useful life	2.00

LAKE MILLS HIGH SCHOOL

CONDITIONS SUMMARY

Category	Topic	Comment	Average of Score
Miscellaneous	Auditorium	The auditorium is performing as expected for its age. The finishes and equipment are generally in good condition. The house floor is broadloom carpet in the aisles and sealed concrete under the seats. The carpet is showing signs of wear from traffic.	3.00
Plumbing	Domestic Water Piping System	Majority Type L copper piping and fittings. The isolations valves are ball valves and butterfly valves for large pipe sizes. No issues to report.	4.00
Plumbing	Fire Suppression Piping System	The building does contain an automatic fire sprinkler system. - no issues to report The kitchen hoods are protected by an Ansul suppression heads and cylinder for kitchen equipment with open flames. - no issues to report	4.00
Plumbing	Sanitary DWV Piping System	No-hub Cast Iron and PVC pipe and fittings. Back-ups reported recommend further inspection.	2.00
Plumbing	Storm and Clear Water DWV Piping System	No-hub Cast Iron and PVC pipe and fittings. No issues to report.	3.00
Plumbing	Natural Gas Piping System	Black Iron Steel pipe and fittings. The isolations valves are ball valves. Average wear for since installation of the piping system.	3.00
Plumbing	Compressed Air Piping System	No issues to report	3.00
Plumbing	Water Softener(s)	Hot Water System–Simplex resin/mineral tank with single brine tank. No issues to report.	2.00
Plumbing	Water Heater(s)	Whole Building –Replaced in 2015 - (2) 119 gallon 199,000btu power vent, high efficiency gas water heaters with expansion tank . Temperature is 130degrees. No issues to report.	3.00
Plumbing	Circulating Pump(s)	General Plumbing Fixtures – 15gpm pump. Temperature is 120degrees. No issues to report.	3.00
Plumbing	Grease Interceptor	Kitchen – Was not able to inspect at time of site visit. It is assumed that the structure is in fair condition since there are no issues to report.	3.00

LAKE MILLS HIGH SCHOOL

CONDITIONS SUMMARY

Category	Topic	Comment	Average of Score
Plumbing	Acid Neutralization Basin	No issues to report	3.00
Plumbing	Clearwater Sump Basin and Pump	No issues to report	3.00
Plumbing	Fixtures (sinks, toilets, urinals, etc.)	Majority of the plumbing fixtures replaced are in good condition. Replace original shower pedestals and new ADA compliant shower units in locker rooms as required.	3.00
Roofing	Roofing Membrane	The district is continuing to replace roofs at the high school	4.00
Roofing	Drains, Gutters & Downspouts		3.00
Roofing	Skylights & Hatches	The roof hatch is in good condition	5.00



three:

CAPACITY + UTILIZATION ASSESSMENT

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SITE CAPACITY, BUILDING CAPACITY + UTILIZATION ASSESSMENT

This Assessment provides an objective analysis of present site and building capabilities, and is a critical step needed to understand how today's facilities support the goals of the District. The information presented was gathered by EUA's team of professionals through on-site tours, as well as interviews with building administrators. It serves as a foundational resource document to support the development of immediate solutions as well as long-range planning.

SITE CAPACITY METHODOLOGY

The Site generally refers to the size of the land associated to an educational facility and the improvements made on that land which include buildings, parking lots, athletic fields, etc. The size of the total land often allows or limits the amount of improvements or amenities that can be offered to a specific student population. The information below analyzes the existing site area against the recommended site area for programs of the same type. The following school site information comes from the Council of Educational Facility Planners International (CEFPI) Planning Guide 2004 (now referred to as Association for Learning Environments (A4LE)):

- Elementary School sites should be a minimum of 10 acres plus an additional acre for each 100 students.
- Middle School sites should be a minimum of 20 acres plus an additional acre for each 100 students.
- High School sites should be a minimum of 30 acres plus an additional acre for each 100 students.

There are other publications with slight variation on these general rules, but in our experience, these recommendations have provided a fairly reliable benchmark for assessing general site conditions. Of course specific conditions (e.g. need for stadium parking, on-site septic, well, etc.) may require additional area, and on landlocked or urban sites the benchmark numbers may be unattainable.

It should be noted that the recommended site size assumes the entire property is buildable. If the site has easements, wetlands, open water, unsuitable soils, or drastic topography that would not lend to the construction of buildings, parking, drives, or play areas the site size would need to increase based on the size of the unbuildable area.

SITE CAPACITY SUMMARY

SITE CAPACITY			
BUILDING	EXISTING SITE SIZE	CURRENT ENROLLMENT ^d (Third Friday of September 2022)	BEST PRACTICE SITE AREA
Lake Mills Elementary	8.67 + 1.53 acres	608 students	16.08 acres ^a
Lake Mills Middle	9.61 acres	410 students	24.10 acres ^b
Lake Mills High School (+ District Office Building)	43.83 acres	491 students	34.91 acres ^c
District-owned property	33.55 acres		

- a. Based on 10 acres plus one additional acre for each 100 students at Elementary School.
- b. Based on 20 acres plus one additional acre for each 100 students at Middle School.
- c. Based on 30 acres plus one additional acre for each 100 students at High School.
- d. Wisconsin Department of Public Instruction - 3rd Friday September 2022 Enrollment - unadjusted head count; <https://wisedash.dpi.wi.gov>

LAKE MILLS ELEMENTARY SCHOOL

SITE CAPACITY ANALYSIS

Lake Mills Elementary occupies a 8.67 + 1.53 acre site in a residential neighborhood. EUA used the Jefferson County GIS website and tax assessment to obtain the property boundaries and the site acreage.

Guidelines for a school this size would suggest a minimum of 16.08 acres which would allow for the recommended space for the building, on-site parking, playgrounds, physical education space, and storm water retention. The site size is significantly below the standard for total acreage, which limits on-site functions.



LAKE MILLS MIDDLE SCHOOL

SITE CAPACITY ANALYSIS

Lake Mills Middle School is located in downtown Lake Mills, surrounded by commercial and residential land. The Middle School site covers approximately 9.61 acres directly around the building. EUA used the Jefferson County GIS website to obtain the property boundaries and the site acreage.

Guidelines for a school this size would suggest a minimum of 24.10 acres in order to allow for the recommended space for the building, on-site parking, playgrounds, physical education space and storm water retention. It is noted that the site size is well below the goal for total acreage, similar to what would be expected in an urban location.

The under-sized site leads to the need for off-site bus queuing on a public street; though drop off and pick up of students occurs on the school's site. Vehicle queuing in the circle drive is also impacted at certain times of day due to the shared community uses of the building and the original historic school gym.



LAKE MILLS HIGH SCHOOL

SITE CAPACITY ANALYSIS

Lake Mills High School occupies a 43.83 acre site on the south side of Lake Mills. There is a fishing and wildlife area to the north, and gold course to the south. EUA used the Jefferson County GIS website to obtain the property boundaries and the site acreage.

Guidelines for a school this size would suggest a minimum of 34.91 acres which would allow for the recommended space for the building, on-site parking, athletic fields, physical education space, and storm water retention. The site size is above the goal for total acreage.



DISTRICT-OWNED PROPERTY

SITE CAPACITY ANALYSIS

The districts owns 33.55 acres, located south of the High School property on Hwy 89. EUA used the Jefferson County GIS website to obtain the property boundaries and the site acreage.



BUILDING CAPACITY METHODOLOGY

As enrollment fluctuations affect school districts nationwide, the physical capability of each building will determine whether or not capacity should increase beyond its present level, or if it will be necessary to move students to other buildings more capable of accommodating such enrollment shifts. This analysis should provide a guide to measure each building's capability to handle a student population and provide a measuring stick to keep up with the changing needs.

Historical Perspective on School Capacity

It is worthwhile to briefly cover why schools may not be able to contain the same number of students as when they were originally constructed. America's public schools can be traced back to 1640 when founders assumed families bore the responsibility of raising and educating a child. Gradually, programs were added by Federal and State mandates that have dramatically affected the educational environment. The trend of increasing responsibilities for public schools has accelerated ever since.

1900-1910

- Health Instruction Added

1910-1930

- Physical Education
- Vocational Education

1940's

- Business Education
- Art & Music
- Speech & Drama
- Half-Day Kindergarten
- Lunch Provided

1950's

- Expanded Science & Math
- Expanded Art & Music
- Foreign Language

1960's

- Advanced Placement
- Head Start
- Title I (Reading)
- Consumer & Career Education

1970's

- Special Education

1980's

- Computer Education
- English As A Second Language

1980's Cont.

- Early Childhood
- Full-Day Kindergarten
- At-Risk Programs
- After School Programs

1990's

- Expanded Computer / Internet
- Inclusion Of Special Education Learners In General Classrooms
- School-To-Work Programs

2000's

- Standardized Testing
- Personalized Learning
- Foreign Language For Elementary
- Common Core Standards
- Trans-Gender Amenities
- One To One Initiatives
- Career Readiness
- Maker Spaces
- Breakfast Provided
- Title IX (Equality For Girl's Athletics)

2010's

- 1:1 Devices
- Flexible Classrooms
- Small Group Rooms, Collaboration Spaces

In many districts, spaces that were once used as standard classrooms have been transformed into multiple educational environments that have to act as offices, teaching space for 4-6 students, and reference libraries for several different areas associated for all learners. One of the most dramatic program requirements of the past 30 years is quickly becoming obsolete. The computer labs that were created in the 90's and early 2000's are now underutilized as technology transitions to laptops and hand-held devices. The bottom line is the programmatic demand on educational space is always changing, and it should be expected that buildings need to evolve along with those programs.

METHODOLOGY

At the elementary level, only standard classrooms are included in the capacity analysis because students remain in a single assigned classroom most of the day. At the middle and high school level, all regularly scheduled instructional spaces are used in the calculation because students are not expected to return to a homeroom after instruction in other spaces.

Several areas are not included in this calculation:

- Special education rooms are not typically included because it is unlikely that other students would fill the seats of these students while they are receiving additional instruction elsewhere in the building.
- Most resource areas and labs are not factored into this calculation because these areas are intended to supplement instruction for their learning areas located somewhere else in the school. For example, a computer lab dedicated to an English Department is not included because the students are physically leaving one space to use the other as a resource.

The number generated by this calculation is sometimes referred to as the “Maximum Capacity” for the building. This number can be misleading because it is unlikely that every room will be used at 100% capacity all the time. At the middle and high school levels, the capacity calculation needs to account for teacher prep time, bell schedules, and tutoring needs which would drop the total utilization of any one space. Even at the elementary school level, because of fluctuations in student population it is impractical to expect every classroom to be filled completely to maximum capacity in any given school year. Taking school schedules, programmatic issues, and fluctuations in student populations into consideration, the Maximum Capacity is multiplied by a utilization rate to create the final “Functional Capacity.”

Utilization rates can vary district-to-district depending on school size, scheduling procedure, and availability of resource space. Target utilization rates, however, generally fall within the following ranges:

- Elementary schools: 90-95% utilization
- Middle and high schools: 70-80% utilization

When the maximum capacity is modified to reflect the appropriate utilization rate, the resulting **Functional Capacity based on District Desired Class Size** provides a reasonably accurate representation of how many students a school can accommodate with little or no change to room configuration or staffing policies.

For this assessment, EUA is using three (3) methods to calculate capacity:

1. Functional Capacity Based on District Desired Class Size

Historically, building capacity has been determined by counting the number of available teaching stations and multiplying by the district’s desired number of students per class. The number of students per class is set by the district based on a practical understanding of how many students a teacher can effectively manage while maintaining district expectations for quality and control. The resulting capacity reflects the maximum capacity based on current classroom usage procedures indicated in the district guidelines (effective 2021) below:

Grade	Students per Class
4K-K	18 students per classroom
1-2	20 students per classroom
3-5	22 students per classroom
6-8	25 students per classroom
9-12	25 students per classroom

2. Functional Capacity Based on Learning Environment Area

While class size calculations provide a reasonable estimation of capacity based on current room usage, they do not account for spaces whose physical areas are either too small or too large for their intended uses. They also do not readily account for the potential of non-traditional learning spaces outside of classroom environments. To better understand what a building’s potential capacity could be, a space by space analyses of available learning area is often required.

Based on the best practice data currently available, it is possible to define the square footage (SF) per student needed for optimum performance in each learning space:

- Kindergarten Level Learning Areas (4K and 5K): 50 – 60 SF per student
- Elementary Grade Level Learning Areas (1-5): 30 – 40 SF per student
- Middle/High School Level Learning Areas (6-12): 25 – 35 SF per student

Specialty instruction areas like shops, art rooms, and lab spaces have their own “Best Practice” square foot allowances per student. To calculate the total capacity of a building, then, each academic space is analyzed to determine its area in square feet (SF). This area is then divided by the recommended SF/ student to determine the maximum number of occupants for each learning space.

The Maximum Capacity can then be calculated by totaling the number of occupants in each individual learning space. As in the previous method, at the elementary level only “homeroom” learning environments are included in the calculation, whereas all available instructional spaces are included at the middle and high school levels. This resulting Maximum Capacity is multiplied by the target utilization rate to determine the final Functional Capacity. The **Functional Capacity based on Learning Area** provides a clearer picture of what a building’s capacity could be if all learning areas were utilized at optimal efficiencies. It is important to note that achieving this level of efficiency may have direct impacts on staffing procedures, or even require the reconfiguration of space. For example, two extra large classrooms may contain enough area within them to support three classes worth of students. To utilize that potential, additional staff may be required to support the unusually large class sizes, or the spaces may need to be reconfigured to create three individual rooms.

3. Capacity Based on Gross Building Area

Gross Building Area refers to the total size of the building including instructional space, support space, mechanical space, circulation and walls. Capacity based on Gross Building Area, then, is a more general calculation which evaluates the capacity based not only on learning space, but on guidelines for total building area per student.

Total building area standards are derived from historic data compilation, optimal planning models for space utilization, and from regional and national educational research and planning organizations. There is no recognized national standard for school size, and only a few states publish area guidelines. The Minnesota Department of Children, Families & Learning - Guide for Planning Construction Projects (published 2002) is one such guideline. It provides a range of acceptable areas based on school size. Smaller schools generally require more area per student than larger schools.

- Elementary School: 125 – 155 sq. ft. per student
- Middle School: 170 – 200 sq. ft. per student
- High School: 200 – 320 sq. ft. per student

We have found these ranges to be reasonably consistent with gross square footage of school building projects built in Wisconsin over the past fifteen years.

- Elementary School: 125 – 170 sq. ft. per student
- Middle School: 150 – 220 sq. ft. per student
- High School: 200 – 260 sq. ft. per student

These two sources of information can be averaged to create a recommended area per student for each building type. The **Capacity based on Gross Building Area** can then be calculated by dividing the existing building SF by the average recommended SF per student. The resulting data can then be used as an indicator for how the school compares with regional norms.

Gross building area per student recommendations are often used as a baseline guide for planning and analysis. For existing schools capacity calculations based on Gross Building Area can serve as indicators for overall building efficiencies. Lower SF to student ratios would typically indicate that there is less auxiliary or support space present within the building. High SF per student numbers may reflect the presence of amenities that may not always be typical for schools of comparable size (i.e. more specialist or intervention space, more gym or cafeteria space, auditorium space, etc.). Smaller schools are typically less efficient than larger schools.

BUILDING CAPACITY SUMMARY

The following table summarizes information of district facilities and current enrollment as of September 2022. The following pages provide more in-depth background and information for each building.

BUILDING CAPACITY				
BUILDING	CURRENT ENROLLMENT ^e	1. FUNCTIONAL CAPACITY ^b BASED ON DISTRICT DESIRED CLASS SIZE ^c	2. FUNCTIONAL CAPACITY ^b BASED ON SQUARE FEET PER STUDENT BY LEARNING AREA ^a	3. CAPACITY BASED ON GROSS SQUARE FOOTAGE OF SCHOOL ^d
Lake Mills Elementary School	608	515	584	622
Lake Mills Middle School	410	520	637	527
Lake Mills High School	491	619	735	536
Totals	1,509	1,654	1,956	1,685

a. Based on 55 SF per Kindergarten student, 35 SF per student grades 1-5, and 30 SF per student for general classrooms grades 6-12. General labs such as Art and Science use 50 SF per student. General Music and Choir use 35 SF per student, Orchestra and Band use 50 SF per student. Gyms are assumed to accommodate 1 to 2 classrooms at a time, depending on number of courts.

b. Functional Design Capacity is 90% of maximum capacity at an elementary school, and 80% of the maximum capacity at a middle and high school.

c. Based on recommended students per instructional space as provided by Lake Mills Area School District.

d. Based on 150 SF per student at Elementary, 180 SF per student at Middle, 250 at High

e. Wisconsin Department of Public Instruction - 3rd Friday September 2022 Enrollment - unadjusted head count; <https://wisedash.dpi.wi.gov>

LAKE MILLS ELEMENTARY SCHOOL

BUILDING CAPACITY SUMMARY

Lake Mills Elementary School serves 4K through 4th grade in the Lake Mills Area School District. As of the Third Friday of September 2022, enrollment was **608 students**.

For the purposes of this assessment, capacity was calculated in three different ways:

- **Functional Capacity based on District Desired Class Size** is the method that most realistically captures capacity numbers for the building in its existing configuration. This calculation yields a functional capacity of **515 students**, which would mean that the current enrollment is well above functional capacity, by 93 students. The district's desired class size guidelines were recently updated in 2021, and these guidelines are reflected in this calculation.
- **Functional Capacity based on Learning Area** yields a slightly larger capacity of **584 students**. Based on available learning area, the building is theoretically at capacity or slightly over.
- **Capacity based on Gross Building Area** suggests a total capacity of **622 students**, which would indicate that the current enrollment is close to capacity. The relative discrepancy between these calculations tends to indicate that the overall size of the building and its support spaces are slightly larger than what would be expected, largely due to the small group instruction spaces and learning neighborhoods.

The different capacity totals provide a clear picture of capacity at Lake Mills Elementary School. The building is at / slightly over capacity.

The following diagrams illustrate the current building utilization, and the calculations used to generate each total.

LAKE MILLS ELEMENTARY SCHOOL

BUILDING CAPACITY PROGRAM

Revised: 5/4/2023



eppstein uhen : architects

Lake Mills Elementary School - Capacity Study

			Maximum Class Size	Capacity Based by Learning Area	Total Gross Building Area of 93,284 SF
1	General Office				
-	Principal				
-	Health				
-	Nurse				
-	Storage				
99	Conference				
101	Classroom - 1st Grade	808	20	15	
102	Classroom - 1st Grade	822	20	15	
103	Classroom - 1st Grade	821	20	15	
104	Classroom - 1st Grade	821	20	15	
105	Classroom - 1st Grade	831	20	15	
112	Classroom - Kindergarten	1072	18	31	
113	Classroom - Kindergarten	1006	18	29	
114	Classroom - 4K	857	18	24	
201	Classroom - 2nd Grade	797	20	23	
202	Classroom - 2nd Grade	821	20	23	
203	Classroom - 2nd Grade	824	20	24	
204	Classroom - 2nd Grade	821	20	23	
205	Classroom - 2nd Grade	832	20	24	
212	Classroom - Kindergarten	1014	18	29	
213	Classroom - Kindergarten	1006	18	29	
214	Classroom - Kindergarten	976	18	28	
301	Classroom - 3rd Grade	813	22	23	
302	Classroom - 3rd Grade	881	22	25	
303	Classroom - 3rd Grade	863	22	25	
304	Classroom - 3rd Grade	856	22	24	
305	Classroom - 3rd Grade	852	22	24	
310	Flex Classroom	772	22	22	
401	Classroom - 4th Grade	812	22	23	
402	Classroom - 4th Grade	879	22	25	
403	Classroom - 4th Grade	865	22	25	
404	Classroom - 4th Grade	856	22	24	
405	Classroom - 4th Grade	852	22	24	
411	Flex Classroom	772	22	22	
12	Music	989			
109	Spec Ed	316			
110	Spec Ed	702			
	Gymnasium	9818			
500	Media Center	3106			
501	Video	128			
312	Art	1406			
312A	Art Storage	466			
396	PT	301			
397	Spec Ed	590			
499	Spec Ed	512			
302	Cafeteria	2783			
AVERAGE					
	Max Capacity		572	649	622
	Functional Capacity		515	584	
	Gross Building Area	93,284			
	2022-2023 Sept. Enroll.		608		

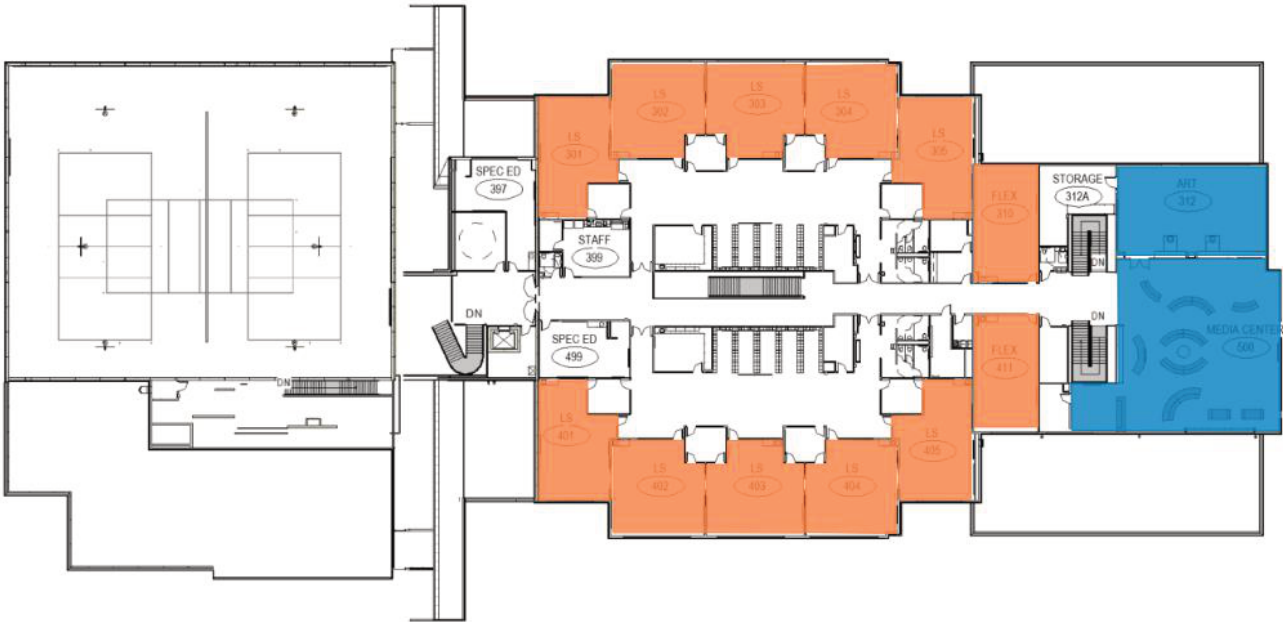
LAKE MILLS ELEMENTARY SCHOOL

CURRENT BUILDING UTILIZATION FLOOR PLAN

- STANDARD CLASSROOM
- SPECIALTY SPACE



FIRST FLOOR



SECOND FLOOR

LAKE MILLS MIDDLE SCHOOL

BUILDING CAPACITY SUMMARY

Lake Mills Middle School serves 5th through 8th grades for the Lake Mills Area School District. As of the Third Friday of September 2022, enrollment was **410 students**. For the purposes of this assessment, capacity was calculated in three different ways:

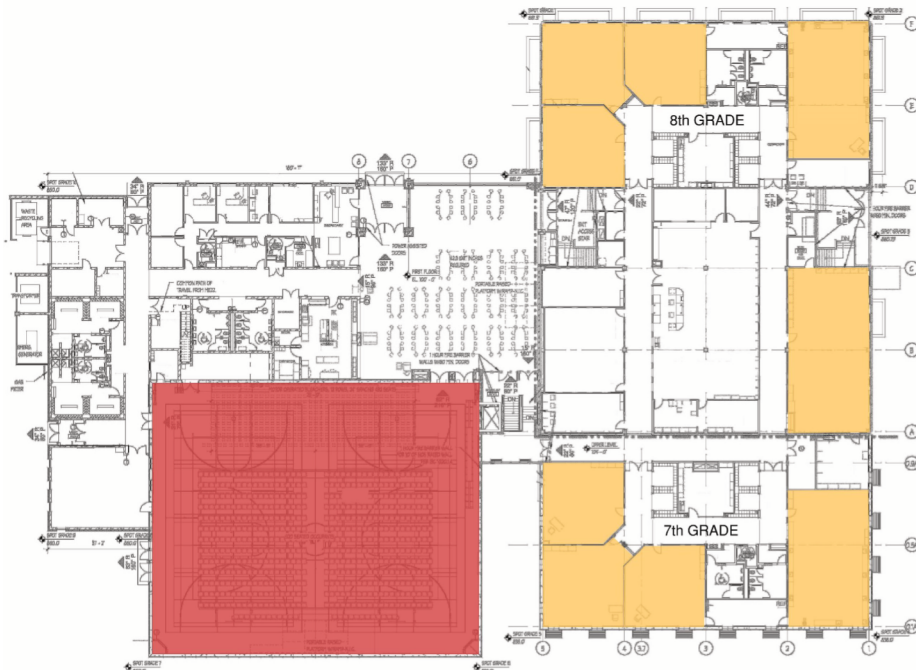
- **Functional Capacity based on District Desired Class Size** is the method that most realistically captures capacity numbers for the building in its existing configuration. This calculation yields a functional capacity of **520 students**, which would mean that the building is slightly below functional capacity, but could theoretically serve up to an additional 110 students if the classroom populations matched the desired class size.
- **Functional Capacity based on Learning Area** yields a capacity of **637 students**. Based on available learning area, the building could theoretically support up to an additional 227 students. The district desired class sizes are a slightly lower number than what could comfortably fit in these classrooms which explains the difference in the calculated capacities. It is also noted that there is very little space in the building dedicated to student breakout and collaboration space outside of the primary classroom environment.
- **Capacity based on Gross Building Area** suggests a similar capacity of **527 students**, which would mean that the building could theoretically accommodate an additional 117 students. The relative similarity in these calculations tends to indicate that the overall size of the building is largely dedicated to classroom spaces and does not have square footage dedicated to support spaces.

Overall, the building is operating just below its ideal functional capacity based on currently assigned learning spaces, desired class sizes and overall building square footage. There are numerous spaces within the building that are not currently contributing to capacity. The following diagrams illustrate the current building utilization, and the calculations used to generate each total.

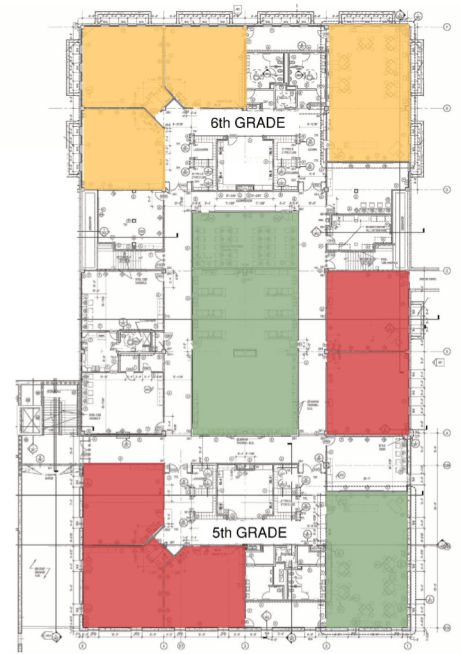
LAKE MILLS MIDDLE SCHOOL

CURRENT BUILDING UTILIZATION FLOOR PLAN

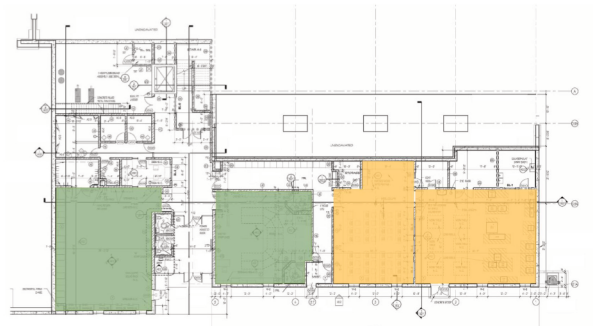
- 71-100% UTILIZATION
- 51-70% UTILIZATION
- 0-50% UTILIZATION
- NO CORE CLASSES



FIRST FLOOR



LOWER LEVEL



BASEMENT

FIRST FLOOR

LAKE MILLS MIDDLE SCHOOL

BUILDING CAPACITY + UTILIZATION PROGRAM

Revised 5/30/2023



Lake Mills MS - Utilization Study (Day 1)

Room No.	Primary Use of Room (Subject)	S.F. Area	Square Feet per Student of Room Size	Based on Administrative Guidelines	Total Square Feet 94,800 @ 180	Periods									Avg Class Size	% of use	# periods used (9)
						1	2	3	4	5	6	7	8	9			
						8:00-8:50	8:53-9:43	9:46-10:07 Core	10:10-11:00	11:03-11:53	11:56-12:26	12:29-1:19	1:22-2:12	2:15-3:05			
296	Art	1596	32	25		16	26	0	26	24	0	0	26	20	23.0	66.6	6
201	Band	2125	43	25		28	0	0	0	19	0	13	13	0	18.3	44.4	4
Commons	Cafeteria	3096				0	0	0	0	93/105	112/105	0	0	0			
203	Choir/Orchestra	1043	21	25		0	25	0	18	30	0	0	9	22	20.8	55.5	5
281	English - 8th Grade	931	31	25		24	0	22	21	0	19	0	21	20	21.2	66.6	6
271	English - 7th Grade	931	31	25		0	25	23	22	0	24	0	22	24	23.3	66.6	6
245	FACE	1971	39	25		23	0	0	0	24	0	8	0	0	18.3	33.3	3
243	5th Grade Classroom	926	31	25		22	22	22	22	22	22	22	22	22	22.0	99.9	9
244	5th Grade Classroom	943	31	25		22	22	22	22	22	22	22	22	22	22.0	99.9	9
250	5th Grade Classroom	895	30	25		21	21	22	21	21	21	21	21	21	21.1	99.9	9
251	5th Grade Classroom	920	31	25		23	24	23	24	24	24	24	24	24	23.8	99.9	9
252	5th Grade Classroom	846	28	25		23	23	23	23	23	23	23	23	23	23.0	99.9	9
298	Library Media Center	3866				10	5	0	4	0	2	13	24	21			
282	Math - 8th Grade	861	29	25		22	0	21	20	0	21	0	21	19	20.7	66.6	6
272	Math - 7th Grade	861	29	25		0	21	24	24	0	23	0	24	25	23.5	66.6	6
234	Gym / PE	11719	59	25		37	25	0	25	24	0	29	64	49	36.1	77.7	7
286	Science Lab - 8th Grade	1453	29	25		22	0	22	21	0	21	17	24	22	21.3	77.7	7
276	Science Lab - 7th Grade	1432	29	25		0	25	24	0	0	24	24	23	21	23.5	66.6	6
266	Science Lab - 6th Grade	1456	29	25		26	25	26	0	0	0	26	26	27	26.0	66.6	6
256	Science Lab - 5th Grade	1456	29	25		0	0	0	0	0	0	0	0	0	0.0	0.0	0
260	6th Grade Classroom	845	28	25		26	25	26	26	0	0	25	0	27	25.8	66.6	6
261	6th Grade Classroom	931	31	25		26	26	26	26	0	0	26	0	26	26.0	66.6	6
262	6th Grade Classroom	861	29	25		27	27	26	26	0	0	25	0	24	25.8	66.6	6
280	Social Studies - 8th Grade	845	28	25		0	0	20	22	0	22	20	19	21	20.7	66.6	6
270	Social Studies - 7th Grade	845	28	25		0	23	23	0	0	22	23	24	23	23.0	66.6	6
241	Special Ed	753				0	0	0	0	5	0	0	7	0			
246	Special Ed	793				0	0	0	0	0	0	0	0	0			
247	Special Ed	542				2	0	0	0	0	0	2	0	0			
277	Special Ed	441				6	0	0	0	0	0	0	0	0			
204	Tech Ed - Classroom	1250	23	25		18	20	0	26	24	0	24	25	23	22.9	77.7	7
206	Tech Ed - Lab	1572															
233	Fitness (Used occasionally during Phy Ed)	1000															
240	Flex - World Language, Health, Healthy Living	753	25	25		22	16	0	25	0	0	23	0	0	21.5	44.4	4
290	Flex - English 8th Grade	753	25	25		22	0	19	20	0	21	18	20	23	20.4	77.7	7
294	Special Ed	311				0	4	0	0	0	0	6	0	6			
AVERAGE															22.1	68.7	6.2
	Max Capacity		797	650	527												
	Functional Capacity		637	520													
	2022-2023 Enroll.	410															

LAKE MILLS HIGH SCHOOL

BUILDING CAPACITY SUMMARY

Lake Mills High School serves 9th through 12th grades for the Lake Mills Area School District. As of the Third Friday of September 2022, enrollment was **491 students**. For the purposes of this assessment, capacity was calculated in three different ways:

- **Functional Capacity based on District Desired Class Size** is the method that most realistically captures capacity numbers for the building in its existing configuration. This calculation yields a functional capacity of **619 students**, which would mean that the building is well below functional capacity and could theoretically serve up to an additional 128 students if the classroom populations matched the desired class size.
- **Functional Capacity based on Learning Area** yields a greater capacity of **735 students**. Based on available learning area, the building could theoretically support up to an additional 244 students. This calculation does not address larger classrooms such as band or tech ed being able to hold more students, whereas the core academic classrooms are generally smaller in size and cannot hold more than the desired class size of 25. It is also noted that there is very little space in the building dedicated to student breakout and collaboration space outside of the primary classroom environment.
- **Capacity based on Gross Building Area** suggests a smaller capacity of **536 students**, which would mean that the building could theoretically accommodate an additional 59 students. The relative discrepancy between these calculations tends to indicate that the overall size of the building is somewhat smaller than what would be expected based on other capacity calculations. This indicates that the building does not have planned spaces dedicated to student breakout and collaboration, or that ancillary spaces may be smaller than current standards suggest. This is evident in the crowding of the cafeteria and commons spaces. In this calculation, some additional pressures may be created on space typically required for support, including circulation, specialists, PE and other amenities.

Overall, the building is operating under its ideal functional capacity, however commons spaces and support spaces are not larger enough to serve the student population and under-utilized spaces should be addressed to better serve the school. Sufficient space is noted for primary classrooms in the building's current configuration. Most of the general classrooms are highly utilized, while some of the specialty spaces are underutilized. The following diagrams illustrate the current building utilization, and the calculations used to generate each total.

LAKE MILLS HIGH SCHOOL

CURRENT BUILDING UTILIZATION FLOOR PLAN

- 71-100% UTILIZATION
- 51-70% UTILIZATION
- 0-50% UTILIZATION
- NO CORE CLASSES



FIRST FLOOR



LOWER LEVEL

LAKE MILLS HIGH SCHOOL

BUILDING CAPACITY + UTILIZATION PROGRAM

Revised 5.30.23



Lake Mills HS - Utilization Study (Day 1)

Room No.	Primary Use of Room (Subject)	S.F. Area	Based on Square Feet per Student of Room Size	Based on Administrative Guidelines	Based on Total Square Feet 133908 @ 250	Periods				Avg Class Size	% of use	# periods used (5)		
						1 7:55-9:24	Advisory 9:28-9:57	2 10:01-11:30	Lunch				3 12:00-1:29	4 1:33-3:02
312	Ag	1700	34	25		25	16	12		28	17	19.6	100.0	5
123	Alt School	702	23	25		8	8	8		8	8	8.0	100.0	5
104	Art	1596	32	25		21	15	18		10	16	16.0	100.0	5
Auditorium	Auditorium (choir/orchestra use)													
204	Band	2125	43	25		18	14	8		24		16.0	80.0	4
233	Business	846	28	25		10	18	28		24	27	21.4	100.0	5
231	Business Computer Lab	957	24	25		6	13	15			18	13.0	80.0	4
Commons	Cafeteria	3096												
323	Culinary	1456	29	25		24	13	22		17	22	19.6	100.0	5
243	English	754	25	25		25	22	13		27		21.8	80.0	4
244	English	754	25	25		30	21	24		25	26	25.2	100.0	5
247	English	755	25	25		21	18	15		17	26	19.4	100.0	5
248	English	755	25	25		22	16	25		25	23	22.2	100.0	5
117	Transitions Program / The Mill	1971	39	25		8		8		8	8	0.0	80.0	4
222	Learning Center (JEDI)	755	25	25		23	15			24	21	20.8	80.0	4
245	Library Media Center	3866												
107	Math	1003	33	25		22	18	17		5	14	15.2	100.0	5
109	Math	1003	33	25		19	15	25			21	20.0	80.0	4
112	Math	896	30	25		36	18	24		26	20	24.8	100.0	5
114	Math	958	32	25			21	15		22	23	20.3	80.0	4
205	Multi-Purpose/Orchestra/Choir	1500	30	25		0	0	0	0	0	0			
100	Lower Gym / PE	7786	25	25		10		28		26	23	21.8	80.0	4
201	Upper Gym/PE	8099	25	25		31	19			10	26	21.5	80.0	4
108	Science / Biology	1453	29	25			17	16		24	4	15.3	80.0	4
111	Science / Physics	1432	29	25			16	25		26	20	21.8	80.0	4
113	Science Lab / Chemistry	1456	29	25		31	18	28		25		25.5	80.0	4
208	Social Studies	754	25	25		26	14			7		15.7	100.0	5
209	Social Studies	754	25	25		24	16			25	23	22.0	100.0	5
210	Social Studies	754	25	25		20	13	27		19	20	19.8	100.0	5
211	Social Studies	753	25	25		15	22	6		21	16	16.0	100.0	5
103B	Special Ed - At Risk	542												
115	Special Ed	793												
116	Special Ed	542												
121	Special Ed	798												
300	Tech Ed - Small Engines Building Trades	1369	25	25										
301	Tech Ed - Classroom	728	24	25		21	20	16				19.0	60.0	3
302	Fitness	4577												
314	Tech Ed- Woods	1971	20	25							18	18.0	20.0	1
314A	Tech Ed- Metals	2988												
219	World Language - Spanish	753	25	25		7		17		11		11.7	60.0	3
220	World Language - Spanish	754	25	25			17	13		23	22	18.8	80.0	4
221	World Language - French	754	25	25				18		20		19.0	40.0	2
AVERAGE												18.3	84.5	4.2
	Max Capacity		918	825	536									
	Functional Capacity		735	619										
	2022-2023 Enroll.	491												

LAKE MILLS HIGH SCHOOL

BUILDING CAPACITY + UTILIZATION PROGRAM (CONT.)

Revised 5.10.23



Lake Mills HS - Utilization Study (Day 2)

Room No.	Primary Use of Room (Subject)	S.F. Area	Based on Square Feet per Student of Room Size	Based on Administrative Guidelines	Based on Total Square Feet 133908 @ 250	Periods								Avg Class Size	% of use	# periods used (5)
						1		2		3		4				
						7:55-9:24	9:28-9:57	10:01-11:30	Lunch	12:00-1:29	1:33-3:02					
312	Ag	1700	34	25		30	16	17		20	15	19.6	100.0	5		
123	Alt School	702	23	25		8	8	8		8	8	8.0	100.0	5		
104	Art	1596	32	25		5	15	11			26	14.3	80.0	4		
	Auditorium (choir/orchestra use)															
204	Band	2125	43	25		28	14	4		29		18.8	80.0	4		
233	Business	833	28	25		1	18	28		17	27	18.2	100.0	5		
231	Business Computer Lab	953	24	25			13	8		27	10	14.5	80.0	4		
	Commons									9						
323	Culinary	1456	29	25		20	13	17		23	25	19.6	100.0	5		
243	English	754	25	25		25	22	26		16	23	22.4	100.0	5		
244	English	754	25	25		23	21	24		20	0	22.0	80.0	4		
247	English	755	25	25			18	26		21	24	22.3	80.0	4		
248	English	755	25	25			16	15		15	22	17.0	80.0	4		
117	Alternative HS / The Mill	1971	39	25		8		8		8	8	0.0	80.0	4		
222	Learning Center (JED)	755	25	25		24	15	13		15	27	18.8	100.0	5		
245	Library Media Center	3866														
107	Math	1003	33	25		18	18	13			22	17.8	80.0	4		
109	Math	1003	33	25		18	15	21		6	19	15.8	100.0	5		
112	Math	896	30	25			18	15		22	24	19.8	80.0	4		
114	Math	958	32	25		30	21	25		11	10	19.4	100.0	5		
205	Multi-purpose/Orchestral/Choir	1500	30	25												
100	Lower Gym / PE	7786	25	25				27		22	11	20.0	60.0	3		
201	Upper Gym/PE	8099	25	25		21	19	8		8	14	14.0	100.0	5		
108	Science / Biology	1453	29	25		21	17	8		25	24	19.0	100.0	5		
111	Science / Physics	1432	29	25			16	14		26	28	21.0	80.0	4		
113	Science Lab / Chemistry	1456	29	25		18	18	27		27	10	20.0	100.0	5		
208	Social Studies	754	25	25		23	14	23		16		19.0	100.0	5		
209	Social Studies	754	25	25		15	16	24		19	17	18.2	100.0	5		
210	Social Studies	754	25	25		29	13	20			18	20.0	80.0	4		
211	Social Studies	753	25	25		14	22	15		25		19.0	80.0	4		
103B	Special Ed - At Risk	753														
115	Special Ed	793														
116	Special Ed	542														
121	Special Ed	1520														
300	Tech Ed - Small Engines Building Trades	1369	25	25												
301	Tech Ed - Classroom	728	24	25		13	20					16.5	40.0	2		
302	Fitness	4577														
314	Tech Ed - Woods	1971	20	25		17		18		18	13	16.5	80.0	4		
314A	Tech Ed - Metals	2388				7						7.0	20.0	1		
219	World Language - Spanish	753	25	25			17			3	4	8.0	60.0	3		
220	World Language - Spanish	754	25	25		22	17	20		25	26	22.0	100.0	5		
221	World Language - French	754	25	25				21			15	18.0	40.0	2		
AVERAGE												17.1	83.1	4.2		
	Max Capacity		918	825	536											
	Functional Capacity		734	619												
	2022-2023 Enroll.	491														

BUILDING UTILIZATION METHODOLOGY

Understanding current building utilization is useful in the facility development process because it allows a true view of what spaces are being used, how often, and to what extent.

The utilization of a school is evaluated based on “Best Practices” or recommendations found in CEFPI (The Council of Educational Facilities Planners International, now Association for Learning Environments, A4LE) and other national publications that primarily focus on the design and evaluation of educational facilities.

There are two important aspects to study when determining the utilization of any school:

1. The first is the **Utilization Factor** which is expressed as a percentage. This percentage provides a facility a certain degree of flexibility in scheduling of teaching stations. Middle and High Schools are typically considered “at maximum recommended utilization” when the average reaches 80 percent based on the teaching stations in the facility.
2. The second aspect of utilization is the **Occupant Capacity** of each educational space per period the space is being used. The school district provided EUA with an occupant count for every space, every period of the day. Although a space may be “occupied” which is reflected in the utilization, it may not be occupied to the space’s full potential or full instructor ratio potential.

Finally, a note about the eventual findings from this analysis. Many school districts are surprised by how low their buildings are utilized and they question the data. Exploratory areas (technical education, agriculture, band, art, etc.) can be particularly challenging for many districts. The physical design of these spaces tends to be highly specialized so that the spaces become limited in their use to one specific function. If staffing or students for those specialized areas are limited, these areas will often calculate out as being underutilized.

Elementary schools do not have a measured utilization because they are not organized around a specific number of periods per day. Though elementary schools are considered at ‘optimum’ use when academic space utilization averages 90%.

SUMMARY OF BUILDING UTILIZATION FINDINGS:

When studying Middle and High Schools, a schedule is provided by the district that represents as a “typical day.” However, due to variations in scheduling (such as “A days” and “B days”) there may be more than one “typical” day. In these cases, we have used the “A” Day scheduling for our utilization calculations.

The Average Class Size at Lake Mills Middle School is **22.1** students per instructional space. Based on the typical classroom sizes, the average number of students in a given space is most likely less than what the physical space can accommodate. This leads to several conclusions:

- a. The average class size could be increased to the District Desired Class Size of 25, without needing to alter the physical size of the learning spaces.
- b. Adding more students to each classroom could allow reconfiguration of spaces and/or a reduced staff count.

The Overall Average Building Utilization Factor at Lake Mills Middle School is **68.7%**. On average, academic spaces are used for scheduled instruction **6.2** periods out of 9 available periods per day.

Middle Schools are considered at ‘optimum’ use when academic space utilization averages between 70-80%. This confirms that the school is below its optimal utilization.

The Average Class Size at Lake Mills High School is **18.3** students per instructional space. The average class size is slightly below the District Desired Class Size of 25.

The Overall Average Building Utilization Factor at Lake Mills High School is **84.5%**. On average, academic spaces are used for scheduled instruction **4.2** periods out of 5 available periods per day.

High Schools are considered at ‘optimum’ use when academic space utilization averages between 70-80%. This confirms that the school is above its optimal utilization.

BUILDING UTILIZATION			
BUILDING	AVERAGE CLASS SIZE	% OF USE	# PERIODS USED
Lake Mills Middle School	22.1	68.7	6.2 / 9
Lake Mills High School	18.3	84.5	4.2 / 5



four:

EDUCATIONAL ADEQUACY ASSESSMENT (EAA)

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EDUCATIONAL ADEQUACY

CRITERIA + DESCRIPTIONS + COLOR KEY

The **Educational Adequacy Assessment (EAA)** is a comprehensive review of the educational program activities, use of the building, and physical spaces required for each activity and provides analysis of how effectively the spaces support student learning and program delivery. Observations made during building walk-throughs along with input from building principals, administrators, and key team members contributed to these findings.

Below is the EAA matrix that indicates the seven (7) criteria (Site, Safety, Size & Proportion, Space Type & Adjacency, Learning Based Equipment & Infrastructure, Furniture, Environment) that are analyzed during this assessment. The general description for each criteria defines the focus for that specific criteria. The evaluation results in a rating of Good, Mixed or Poor for each criteria. See below Evaluation Color Key for clarification of each designation.

EDUCATIONAL ADEQUACY ASSESSMENT MATRIX

CRITERIA	DESCRIPTION
SITE	Assesses general site amenities and attributes. Includes site circulation, visitor/parent pick-up and drop-off, bus pick-up and drop-off, and service/delivery traffic. Assesses outdoor environments for learning, athletics, activity and play.
SAFETY	Assesses site access and supervision. Assesses monitoring and control of building perimeter entry points, including entrance and admittance sequence for visitors. Assess passive supervision capabilities throughout school interior.
SIZE & PROPORTION	Assesses the physical size (square footage) and proportion (functional/usable dimension) of learning environments in relation to use.
SPACE TYPE & ADJACENCY	Assesses appropriateness and availability of spaces to support multiple forms or learning. Assesses space adjacencies and connectivity (physical, visual, auditory) between multiple learning environments.
EQUIPMENT & TECHNOLOGY	Assesses education equipment and infrastructure used for learning. This includes equipment used by students and staff.
FURNITURE	Assesses furniture in relation to its flexibility, adaptability, and functionality for multiple uses.
ENVIRONMENT	Assesses environmental factors such as quality of natural light, acoustics, appropriateness of finishes and aesthetics.

EVALUATION COLOR KEY

GOOD	Most of criteria assessed was found to be acceptable and satisfied its purpose
MIXED	Some of the criteria assessed was found to be acceptable, while other criteria assessed was unacceptable and did not satisfy its purpose
POOR	Most of criteria assessed was found to be unacceptable and did not satisfy its purpose

EDUCATIONAL ADEQUACY

DISTRICT SUMMARY MATRIX

Below is the EAA matrix showing the ratings for the schools side-by-side. The descriptions in this chart are general. The following pages contain a detailed matrix for each school which include school specific descriptions to better understand the findings.

EDUCATIONAL ADEQUACY ASSESSMENT MATRIX - SUMMARY

CRITERIA	LAKE MILLS ELEMENTARY SCHOOL	LAKE MILLS MIDDLE SCHOOL	LAKE MILLS HIGH SCHOOL
SITE	MIXED	MIXED	GOOD
SAFETY	GOOD	GOOD	GOOD
SIZE & PROPORTION	MIXED	GOOD	MIXED
SPACE TYPE & ADJACENCY	GOOD	MIXED	MIXED
EQUIPMENT & TECHNOLOGY	GOOD	GOOD	GOOD
FURNITURE	GOOD	MIXED	MIXED
ENVIRONMENT	GOOD	GOOD	MIXED

LAKE MILLS ELEMENTARY SCHOOL

EDUCATIONAL ADEQUACY SITE MAP



LAKE MILLS ELEMENTARY SCHOOL

EDUCATIONAL ADEQUACY MATRIX

EDUCATIONAL ADEQUACY MATRIX

LAKE MILLS ELEMENTARY SCHOOL

CRITERIA	OBSERVATION HIGHLIGHTS	EVALUATION
SITE	There is separate site circulation for vehicle and bus traffic. Vehicle traffic is at the front of the building and bus and service/delivery traffic are at the back of the site. Vehicle pick up/drop off is at the main entry. Morning bus drop off is along E Prospect Street and pick up is at the back entrance. 4K pickup/drop off is at door #2 and 5K pickup/drop off Birch Street entrance. Visitor parking is along the inside of the traffic loop. Outdoor environments are split onto two sides of the building. Overall outdoor environments are adequate in physical size for learning, athletics, activity and play; would benefit from a fence to divide morning bus traffic. No crosswalk is available for 4K drop-off. During spring and fall, students visit greenhouse across Prospect Street.	MIXED
SAFETY	The main visitor entry has video-controlled access that allows the Main Office to see incoming visitors. Once allowed into the vestibule, visitors are required to enter the Main Office. Main Office staff must greet visitors, before they have access to student occupied spaces within the school. Once visitors are through the vestibule, they have access to the main corridor space. The 4K program works in similarly. Other exterior entry points have various levels of security in place, with key fob access.	GOOD
SIZE & PROPORTION	Academic classrooms have small group instruction rooms connected. Square footage within classrooms allows for a variety of configurations and ability to use furniture to create zones/sub areas within classroom. There are moveable walls between classrooms that allow for larger collaboration spaces, these have been used more regularly in the past couple years. 4K program next year will be doubled to include two classrooms with 2 half day sections.	MIXED
SPACE TYPE & ADJACENCY	The building provides flexible learning spaces, and direct access from classrooms to different types of learning spaces to support multiple forms of learning. There is visual connectivity between spaces, and from learning spaces to common areas. Resource spaces are located within neighborhoods, and allow for passive supervision between learning spaces and corridors. District would like to offer wrap around care in the future. Could use a staff assembly space, currently use art room for large gatherings. Green screen room currently used as storage for EC. Could use connection from flex classroom to regular classroom on second level.	GOOD
EQUIPMENT & TECHNOLOGY	Most classrooms have 1 smartboard, along whiteboards and tackboards. Devices are 1:1. Energy TV stopped working, could use again for future solar project.	GOOD
FURNITURE	Furniture new as of 2014. There are a handful of areas where additional collaborative furniture and storage solutions should be added.	GOOD
ENVIRONMENT	Generally, all classrooms have access to natural light with views to nature. Water for cleanup is provided in many classrooms, with additional troughs in Grade Pods.	GOOD

GOOD	Most of criteria assessed was found to be acceptable and satisfied its purpose
MIXED	Some of the criteria assessed was found to be acceptable, while other criteria assessed was unacceptable and did not satisfy its purpose
POOR	Most of criteria assessed was found to be unacceptable and did not satisfy it's purpose

LAKE MILLS ELEMENTARY SCHOOL

EDUCATIONAL ADEQUACY PHOTOS



Playground not physically separated from bus lane



Classrooms With Exterior Views



4K Room



Typical classroom



Lack of building-wide storage



Entrance corridor could be better utilized



Staff support areas do not allow for entire building gatherings



Lack of dedicated student display

LAKE MILLS MIDDLE SCHOOL

EDUCATIONAL ADEQUACY SITE MAP



LAKE MILLS MIDDLE SCHOOL

EDUCATIONAL ADEQUACY MATRIX

EDUCATIONAL ADEQUACY MATRIX

LAKE MILLS MIDDLE SCHOOL

CRITERIA	OBSERVATION HIGHLIGHTS	EVALUATION
SITE	Site circulation for vehicle and bus traffic is mostly separated. There is poor defined site circulation for vehicle pick-up/drop-off. Bus pick up and drop off occurs on College St. and students enter at the main entrance. Vehicles use the front traffic loop as well as the side parking lot and use the main entry and a secondary entry that is staffed at drop-off and pick-up times. Visitor parking is at the main entrance and across the street. Staff parking is on the east side of the building. Service/delivery loading zone is at the northwest of the building. 7th and 8th grade enter through main entry. 5th and 6th grade enter in side entrance. There is adequate parking for after hour events. There is a baseball field, tennis court and playground and two outdoor recess areas. The baseball diamond is used by the High School. The tennis court is in disrepair. The outdoor play equipment is not utilized as much except for the swings. A single recess space rather than 2 separate zones, would allow for a single point of supervision. Site lacks a large hard surface play area. Overall, outdoor environments are adequate in physical size for learning, athletics, activity and play though would highly benefit from updated equipment and a design intent to develop and define these spaces.	MIXED
SAFETY	The main visitor entry has video-controlled access that allows the Main Office to see incoming visitors. Once allowed into the vestibule, visitors are required to enter the Main Office. Main Office staff must greet visitors, before they have access to student occupied spaces within the school. Once visitors are through the vestibule, they have access to the Cafeteria and main corridor. Other exterior entry points have various levels of security in place, with key fob access. After school events in the gym also use the main entry.	GOOD
SIZE & PROPORTION	Classroom square footage is small, particularly in eighth grade. Collaboration areas in neighborhoods are used for circulation mostly. There are no moveable walls between classrooms that allow for larger collaboration spaces. No small group instruction rooms in neighborhoods.	GOOD
SPACE TYPE & ADJACENCY	The building does not provide flexible learning spaces, or direct access from classrooms to different types of learning spaces to support multiple forms of learning. A lack of visual connectivity between spaces, and from learning spaces to limited common areas, further restricts learning options. Some resource spaces are located without consideration to adjacencies and a lack of transparency inside the building inhibits passive supervision between learning spaces, long and narrow corridors and multiple levels. Could use more privacy for health room. Could benefit from a large assembly space and more office meeting spaces. Large FACE classroom is not used for FACE, but rather a Foreign Language room and other support. Fifth grade does not use dedicated science room.	MIXED
EQUIPMENT & TECHNOLOGY	Most classrooms have 1 smartboard, along whiteboards and tackboards. Gym does not have a mounted projection screen.	GOOD
FURNITURE	Furniture varies. Either rectangular or metal tables and chairs or heavy sled style desks. Typically, furniture is heavy, bulky, and difficult to move/reconfigure for collaboration opportunities.	MIXED
ENVIRONMENT	Generally, core academic classrooms have access to natural light with views to nature. Building has been well maintained.	GOOD

GOOD	Most of criteria assessed was found to be acceptable and satisfied its purpose
MIXED	Some of the criteria assessed was found to be acceptable, while other criteria assessed was unacceptable and did not satisfy its purpose
POOR	Most of criteria assessed was found to be unacceptable and did not satisfy it's purpose

LAKE MILLS MIDDLE SCHOOL

EDUCATIONAL ADEQUACY SITE CONDITION PHOTOS



Playground



Tennis courts in need of repair



Small area of hardscape for playground activities



High School baseball field



East parking lot for parent drop-off/pick-up and staff parking



Students coming in from recess

LAKE MILLS MIDDLE SCHOOL

EDUCATIONAL ADEQUACY INTERIOR PHOTOS



Secure Entry for After Hour Events in Gym



5th grade curriculum does not use dedicated science lab



Heavy, non-flexible furniture in portions of the building



Lack of collaboration spaces supporting classrooms



Lack of privacy in health room



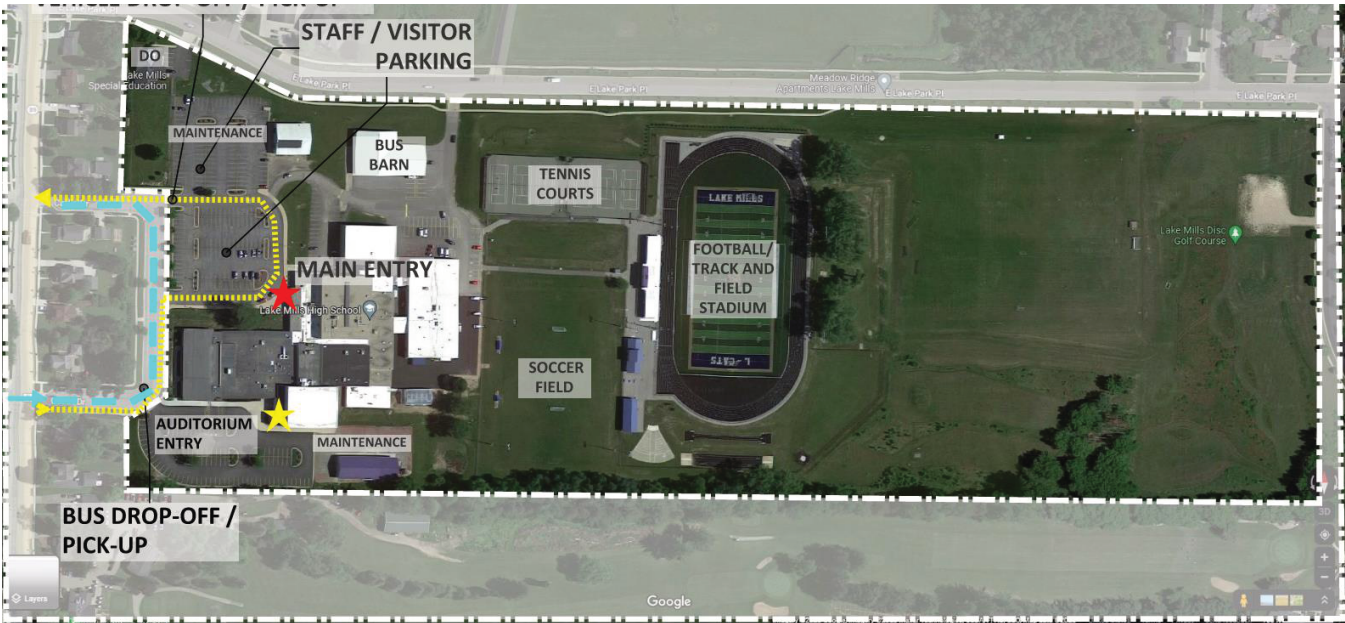
Lack of building-wide office and conference space: including space for traveling teachers



Space designed as FACE lab, but is currently under-utilized and functions as classroom

LAKE MILLS HIGH SCHOOL

EDUCATIONAL ADEQUACY SITE MAP



LAKE MILLS HIGH SCHOOL

EDUCATIONAL ADEQUACY MATRIX

EDUCATIONAL ADEQUACY MATRIX

LAKE MILLS HIGH SCHOOL

CRITERIA	OBSERVATION HIGHLIGHTS	EVALUATION
SITE	There is defined site circulation for vehicle pick-up/drop-off and bus pick-up/drop-off traffic. Vehicle pick-up/drop-off and bus pick-up/drop-off queue on the same traffic loop. Buses drop off/pick up in front of the main entry. Visitor and Staff parking is within the traffic loop on the west side of the site. Parking is adequate for students, staff, and events. There is traffic congestion on S. Main Street during drop-off and pick-up times. Outdoor environments include a football/track stadium, a soccer field, tennis courts, along with some undefined green space. Overall outdoor environments are adequate in physical size for learning, athletics, activity and play. Site also includes a bus barn and two maintenance buildings.	GOOD
SAFETY	The main visitor entry allows access to vestibule and then into Main Office, where visitors are required to check in with office staff. One concern is the fact that the main offices are separated in either side of the vestibule. Making communication in emergencies difficult. Once allowed into the vestibule, visitors are greeted and can enter the main corridor. Other exterior entry points have various levels of security in place, with key fob access. Auditorium doors are currently unlocked for COVID testing for the community, this area can be closed off to the rest of the school.	GOOD
SIZE & PROPORTION	Most classrooms are rectangular in shape. Square footage within classrooms is small and does not allow for a variety of configurations to use furniture to create zones/sub areas within classroom. Most learning spaces are tight for their function. Cafeteria is not large enough for lunch periods, students use hallways and stage in the gym during lunch. Entry lobby is very crowded before school. Auditorium brings in extra rows of chairs during performances to accommodate all patrons. Gym is used frequently and commonly practices are held till 9:00pm.	MIXED
SPACE TYPE & ADJACENCY	Older portions of the building do not provide flexible learning spaces, or direct access from classrooms to different types of learning spaces to support multiple forms of learning. A lack of visual connectivity between spaces, and from learning spaces to common areas, further restricts collaboration. Special ed spaces are isolated to a single corridor in the lower level and do not allow for the opportunity for teachers to collaborate.	MIXED
EQUIPMENT & TECHNOLOGY	Most classrooms have 1 smartboard, along whiteboards and tackboards. All conference rooms have smartboard or video displays, as well as white whiteboards and tackboards. Some kitchen equipment is original to the building.	GOOD
FURNITURE	Furniture varies. New furniture exists in the 2019 addition and renovation areas. Mostly rectangular tables with a mix of chair types, some metal and some plastic. Larger tables can be difficult to move/reconfigure for collaboration opportunities.	MIXED
ENVIRONMENT	The building is aging, and interiors show signs of wear, especially flooring materials in classrooms and corridors that were not renovated in 2019. Generally, all classrooms have access to natural light with views to nature. Some toilet rooms do not have proper clearances for accessibility. Neither of the gyms provide ADA seating.	MIXED

GOOD	Most of criteria assessed was found to be acceptable and satisfied its purpose
MIXED	Some of the criteria assessed was found to be acceptable, while other criteria assessed was unacceptable and did not satisfy its purpose
POOR	Most of criteria assessed was found to be unacceptable and did not satisfy its purpose

LAKE MILLS HIGH SCHOOL

EDUCATIONAL ADEQUACY INTERIOR PHOTOS



Main Entry to School during lunch



Cafeteria does not accommodate seating for all students during lunch



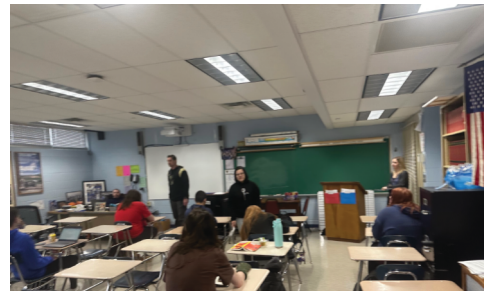
Under-utilized locker room and shower spaces could be repurposed



Therapy room is accessed through boys' locker room



Showers used as storage



Small classroom sizes



Multi-purpose room



Computer lab re-purposed as special ed room



five:

**BEST PRACTICES IN
EDUCATIONAL DESIGN**



BEST PRACTICES IN EDUCATIONAL DESIGN FOR MODERN LEARNING ENVIRONMENTS

The past several decades have seen incredible changes in the ways we learn and the ways we relate to the broader world. The information revolution and its impacts have also changed the skills necessary to compete in this new world. Educators of today are tasked with developing new 21st century skills in our students in order to allow them to successfully compete in this global environment. Some of these new skills include the ability to be:

- A Critical Thinker
- A Problem Solver
- An Innovator
- An Effective Communicator
- An Effective Collaborator
- A Self-Directed Learner
- Information and Media Literate
- Globally Aware
- Civically Engaged
- Financially and Economically Literate

Unfortunately, while our world has changed, our educational institutions are often some of the last places to reflect this change. We believe the learning facility and its infrastructure can play a significant role in helping educators to develop these necessary skills. The built environment can provide the context for these important functions with spaces that support integrated technology, dynamic collaboration, hands-on learning, flexibility, transparency, and private/public partnerships.

This document is a compilation of knowledge learned over many years of experience designing educational facilities at all levels, and from ongoing research into educational trends. The application of these principles can vary greatly but we believe the themes and objectives will remain fairly consistent. These best practices cover general recommendations and considerations for design in the areas of:

- **General Site Design**
- **Security and Safety**
- **Building Configuration and Adjacencies**
- **Main Office/Administration**
- **Student Services**
- **General Learning Environments**
- **Specialty Learning Areas**
- **Students with Disabilities**
- **Common Spaces**
- **Physical Education and Athletics**
- **Performance Spaces**

It is our hope that these best practices will serve to inform both private and public school districts as they seek to create dynamic and authentic learning environments that will impact our students and our future for years to come.

GENERAL SITE DESIGN

One of the most important aspects of school design is the layout and configuration of the site. How the site is used can have significant impacts on opportunities for physical activity, environmental studies, safety, and traffic flow. In rural or suburban environments where more space may be available, solutions can look very different than they might look in tight, urban sites:

Physical Site Attributes: The simplest sites are relatively flat with adequate area for play-fields, green space, parking, traffic circulations, and building additions. Wetlands or steep topography can become site assets, but can also create barriers for supervision, use, and site accessibility if not adequately accommodated.

Athletic Areas: Develop age-appropriate fields based on the athletic programs offered, physical education needs, and opportunities for community use. The site is often viewed as a community amenity, and opportunities to share the use of play fields with club sports, or park and recreational departments can help to strengthen community relationships and build good-will. Consider multi-use synthetic surfaces or other strategies to ensure that fields do not become one-dimensional.

Playgrounds (K-8): Playgrounds should consist of hard-surfaced areas, soft-surfaced areas with play structures, and green space. Hard-surfaced areas should be adequately sized for use in inclement weather conditions and should provide for a variety of both structured and non-structured activities. Dynamic play structures need to be age appropriate, and should be surrounded by soft-surfaced areas to minimize injuries. The environment should encourage physical, creative, and imaginative play. Consider incorporating natural elements like boulders and landforms into soft-surface areas to encourage student interaction with nature. Proximity to nature, including trees, garden beds, and landscaped areas should be encouraged.

Structured Outdoor Areas (9-12): For older students, this often takes the form of an outdoor “quad” or “green.” This space should provide an opportunity for student interaction in a natural setting, but should also include hard-surfaced areas that can be used in inclement weather. Inclusion of large trees, landscaped areas, and walls or boulders that encourage student to interact with each other and with their surroundings are encouraged. Best practice would also include a presentation area that can be used as an outdoor classroom.

Natural Areas: As awareness of global and environmental sustainability grows, there is an increased need for students to experience nature first hand. Care should be taken to place these natural areas where they can be easily observed and access can be adequately controlled. Natural prairie, woodlands, and wetland areas are significant assets if these areas can be incorporated into the curriculum and regularly utilized. Garden areas can also be a tremendous opportunity to encourage children to interact with nature and are often much easier to supervise. More and more studies are showing the positive benefits of environmental exposure for the health and well-being of both youth and adults.



SECURITY + SAFETY

As awareness of potential dangers continues to grow, design for security and safety has become paramount. It involves controlling traffic and pedestrian routes to minimize hazards, creating spaces that are deterrents to bullying and other unsafe student interactions, designing for direct and passive supervision, creating safe places for staff and guardian interactions, and creating barriers for potential intruders. It is important to note that no building is perfectly safe or perfectly secure from all threats. The level of safety and security must be carefully balanced with the other desired environmental attributes to develop a solution that best responds to overall priorities and goals. Some general best practices, however include:

Traffic Management: Pick-up and drop-off procedures are often one of the greatest causes of safety concerns on a school site. Guardian or student traffic should be separated completely from bus traffic. This generally requires separate drive lanes for buses and cars. In schools where a large percentage of students arrive by car, care must be taken to ensure adequate queuing distance is provided. Ideally pick-up and drop-off lanes will be one-way, oriented with sidewalks immediately to the passenger side of the vehicle, so students can enter or exit directly without crossing traffic. Most schools choose to directly facilitate the entire student pick-up procedure to ensure that students can be safely released to waiting vehicles without requiring guardians to leave the vehicle. This minimizes congestion, and expedites the process considerably.

Site Security: Consider enclosing areas of the site where students congregate. This is especially appropriate for lower grade levels, and in areas with close proximity to pedestrian or vehicular traffic. Enclosing the perimeter can help keep children in supervised areas, while deterring potential intruders.

Secure Entrance Procedures: All exterior doors should be locked and monitored by electronic door contacts and video surveillance. It is important, however, for visitors to feel welcome. This begins by creating a single, identifiable point of entry. Access is controlled seamlessly at this point so that potential disruptions or dangers can be addressed before contact is made with students or teachers. Consider use of safety-laminated glass to prevent break-ins or other security breaches. A receptionist should be able to observe visitors arriving before allowing the visitor to enter. Once inside the building, visitors should only have access to the reception area. When the reason for the visit is ascertained, if appropriate, the visitor can be released to other portions of the building.

Layers of Security: In the event of an intruder or safety concern, multiple barriers, or layers of security should be utilized to allow emergency personnel the time they need to respond. Typically, locked exterior doors provide the first layer of security. Locked doors from the reception area to the interior of the building form a second layer. Additional security doors between public areas of the facility (cafeteria/commons/gymnasium) and student learning environments should be able to lock electronically in an intruder situation for a third layer of security. In many cases, learning environments can be grouped to form learning neighborhoods which can be automatically locked down for a fourth layer of security. Finally, individual room doors can be locked to form the final barrier.

Transparency and Supervision: One of the most important aspects of safety and security is creating an open environment where nothing can be hidden from view. This leads to an expectation of observation from both staff and students. This level of direct and passive supervision is a major deterrent to bullying and other unsafe student interactions, as well as forming a deterrent for adult to child abuse. Finally, in the event of an intruder situation, the elimination of hiding places is key to a quick response from emergency personnel.



BUILDING CONFIGURATION + ADJACENCIES

There are virtually endless options for how a school can be configured, but most current strategies share themes of flexibility, transparency, and spaces that support differentiated learning. This section focuses on a few of the current trends in school organization, but ultimately all concepts must be evaluated based on their support of district goals and priorities:

Learning Neighborhood: This strategy attempts to group students together within the school to create smaller communities. This typically occurs by grade or age, but could also occur based on a subject area. The basic concept is to create a more intimate environment within the school where students and teachers with similar concerns can share common resources and spaces. Consider creating spaces appropriate to the types of instruction that will be provided. This may include large group areas for groups of 60 or more, areas for groups of 20-30, small group areas for 5-10 students, and spaces that can be used for one-on-one instruction or individual work. Access to these different types of spaces should allow students to work in environments most conducive to the work that they are doing or the type of instruction they are receiving. For teaching staff, consider creating shared office/work areas, and common storage areas to further encourage sharing of resources and day-to-day interaction. This can also greatly reduce clutter and maximize flexibility of learning spaces.

School within a School: The school within a school concept draws inspiration from the traditional one-room schoolhouse. Similar to the learning neighborhood strategy, this approach creates smaller, more intimate settings for students and teachers within a larger facility. These smaller communities, however, are organized to create a cross-section of the student body. The range of the cross section could vary from narrower groups of just a few grades, all the way to communities that include kindergarten through 12th grade. The goal of the cross-sectional approach is to encourage upward mobility. By bringing multiple levels together, students can naturally flex to ability groups that match their full potential, rather than being bound by their grade structure. This also opens opportunities for peer-to-peer mentoring as students of different ages and ability levels interact more closely with each other. As in the Learning Neighborhood concept, consider creating a variety of shared learning and resource areas, conducive to the types of activities that will occur in those spaces.

Learning Street: This concept expands on the idea of the circulation corridor, and turns it into a resource for learning. As a great urban street becomes a hub of activity in a community, the learning street becomes an extended common resource for the entire school. The corridor is widened and outfitted with comfortable furniture groupings that students are encouraged to use for socialization and interaction when appropriate. Interactive display boards and teaching walls are incorporated into the corridor so that teachers can utilize the space as break-out learning environments, or places for group work to occur. Transparency between principle learning environments and the learning street is necessary to ensure that the students can move freely between spaces while still being observed.

MAIN OFFICE + ADMINISTRATION

The Main office and administration area often serves as the front door of the building. This is where visitors are welcomed, where meetings are conducted, and where issues are resolved. It must be easy to locate, controlled, and functional. A few specific recommendations include:

Reception: The reception area should be secured as described in the safety and security section. It should have open views both to outside approaching visitors, and to inside approaching students or staff. There should be adequate space for visitors and students to wait and for reception staff to do their work. Ideally, work areas should be obscured from view to minimize clutter, but open enough to allow supervision of the reception area. Consider opportunities for branding and celebration of student work through digital displays.

Offices: Transparency and privacy should be carefully balanced in office areas. Staff should never be isolated with students or visitors, but casual supervision from other students or visitors should be blocked. Provisions should be made for private administration/guardian meetings either with small conference areas within each office, larger shared office areas, or a combination of both. Consider the possibility of creating open office areas to facilitate staff collaboration, with shared conference and meeting rooms.

Health: Health rooms require active supervision. This is simple if a full time nurse or attendant will always be in the health area, but in other circumstances requires supervision from the reception area. Again, privacy and transparency must be balanced.

Attendance: For larger schools, the attendance function often requires separate staff and separate office areas. If this is the case, the attendance area should be readily accessed by students and staff from within the building, and should maintain proximity with other office areas to allow for shared staff resources.

STUDENT SERVICES

Especially for older grade levels, student service areas provide space for students to meet with advisors, counselors, or mental health professionals, access career and college resources, or receive other needed supports.

Location: Student services should be centrally located, easily identifiable, and welcoming. It is important that the space should be designed as a resource for students, and should not carry any stigma associated with entering.

Career Center: The front door to student services may enter directly into a career center. This is often a location for students to access resources, conduct research, or work on career and college applications. It often doubles as a waiting area for students who may be meeting with staff as well. It should be comfortable, welcoming, open, and supervised. Consider creating a presentation area that can be used by college or job recruiters as well.

Offices: Offices should be designed to accommodate private staff work, as well as meeting with students. Again, privacy and transparency must be carefully balanced to avoid isolating staff with students, but still allow for students to receive services discretely when necessary. Consider creating shared conference rooms for larger meetings, IEP's or student/guardian meetings. Access to discretely located toilet facilities is recommended for students who may need to compose themselves or deal with embarrassing personal situations.



GENERAL LEARNING ENVIRONMENTS

As the goals and objectives for 21st Century Learning have changed, the design of the physical environment needs to change as well. While variations on design concepts are almost limitless, some general design themes have begun to emerge. Modern learning environments need to be flexible, adaptable, collaborative, and transparent, with seamless technology. Student need to learn in places that are bright, filled with natural light, comfortable, and stimulating. Some best practices include designing learning spaces for:

Flexibility and Adaptability: The one constant of modern learning environments seems to be that everything changes. Building flexibility into the space allows for multiple forms of teaching and multiple types of activities. Lightweight furniture that can roll or move easily allows students to constantly reconfigure their environments. Consider movable glass walls or sound-resistive dividers that can allow spaces to be used for small group exercises, or opened up for large group instruction. Consider foregoing the heavy, load-bearing concrete block partitions of the past for lightweight stud walls that can be easily deconstructed and relocated or reconfigured as space needs change.

Collaboration: Modern learning environments have moved away from individual teachers who own their own individual classrooms. Instead, the environment is generally composed of a variety of interwoven spaces, which vary in size and amenities depending on their use. Students move freely from small group rooms to large group instruction areas, or learning commons. The variety of spaces can help facilitate a move towards a more collaborative, project-based learning environment. Teachers are also encouraged to collaborate, and shared amenities like office spaces, work areas, and storage space can help to create the desired communal atmosphere.

Creativity: 21st Century Learning has moved from a teacher-based model to a student-based learning model. Curriculum is differentiated based on student need, and students are expected to take more control of their own learning. The environment can serve as a tool to empower students and facilitate this shift. Creating an atmosphere that is inspiring, creative, colorful, and comfortable encourages ownership and self-determination. Access to resources like water, physical manipulatives, building supplies, and tools can also help to infuse a hands-on, maker culture within a school.

Transparency and Light: There is a growing body of evidence linking natural light to improved student performance. But transparency is about more than just bringing natural light in. It is about creating connectivity between spaces. Visual connections help to facilitate the collaborative community needed for today's learners. Visual connections also allow for the necessary supervision required for students to work more independently and as groups. The open environment that transparency creates ensures that students and staff alike are less isolated and more aware of the needs of others.

Seamless Technology: Technology should no longer be limited to specific rooms or areas of a building. Learning happens everywhere, and technology is an integral part of that learning. Create information systems that support and encourage the use of personal devices. Interactive technology solutions allow students to move content seamlessly from their individual devices to shared displays, or presentation areas. Consider creative solutions for device charging and electrical access.



SPECIALTY LEARNING AREAS

The basic themes described in general learning environments apply to almost every space where learning happens. But some spaces have more specific needs as well. Some of these needs are outlined by space type below:

Science: As in other learning environments, the themes are flexibility and transparency. Traditionally, science equipment needs (gas, water, casework, hoods) led to spaces that were inefficient and could be used for only one purpose. Today's labs can be much more flexible. Consider placing gas and water services at the perimeter of the room or minimizing the equipment to small islands only. Flexible work surfaces, then, can be reconfigured for either lab or lecture formats, making the space much more usable for a wide range of functions. Consider the use of movable walls between rooms to allow for smaller or larger group formats. This can also allow lab areas to be shared more directly by multiple users. As STEM or STEAM and other multi-disciplinary approaches continue to grow in popularity, consider common resource areas, and breakout spaces that encourage cross-disciplinary work.

Art: Great art spaces need the traditional amenities of wide, deep sinks for cleanup, ample natural light (ideally north facing) and access to equipment for the various art media (kilns, paint hoods, pottery wheels, soldering booths, grinding wheels, etc). Modern art programs need to take advantage of computer based software, and electronic resources as well. Consider opportunities to share amenities with technical education spaces, including metal working and welding capabilities, wood-working tools, 3D printers, and software applications. The amenities of the art room can also be utilized by other programs to assist in project-based, or maker opportunities. Transparency between art rooms and adjacent spaces can aid in creating a more collaborative environment. Mobile furniture and technology can create more flexibility within the space.

Music: Music spaces must be customized to some extent for their specific uses in terms of space, storage, and acoustical needs. Some flexibility, however can be maintained by the use of portable risers, movable band shells, and modern audio capabilities. Proximity to performance spaces is often important and music spaces can often double as green rooms. In some cases, band rooms can also serve as remote orchestra pits for performances. Consider the use of the music spaces themselves as small performance venues when appropriate.

Family and Consumer Science (FCS): While traditional home economics focused on atomic age home-making skills, modern programs are designed to create career pathways. Physical environments should be designed to reflect real world professional environments. Culinary arts spaces should replicate restaurant kitchens. Fashion Design should happen in a design studio. Consider other career paths like food science, and interior design. Again, collaboration and sharing of resources between departments should be encouraged.

STUDENTS WITH DISABILITIES

Education for students with disabilities was largely non-existent in public schools before 1975 and the passage of the Education for All Handicapped Children Act (EHA) and the Individuals with Disabilities Education Act (IDEA). Since then, strategies and programs have seen substantial improvements. Amendments to the IDEA in 2004 mandated Individualized Education Plans (IEP's) and ensured that students with disabilities are placed in the least restrictive environments possible. The goal is generally inclusion, or to provide specialized education alongside a student's peers. The physical design of both general learning environments, and specialized learning environments can serve an important role in allowing for the effective implementation of these ideas. The learning environment should empower individuals with disabilities to reach their fullest potential and should reinforce the value of each unique individual regardless of their specific abilities. Some best practices for this include:

Variety of Spaces: The first learning environment for a student with disabilities should be the principle learning environment of the student's peers. If these principle learning spaces are designed to allow for differentiated, student-centered learning, this becomes especially enabling for those with the greatest needs. Learning environments that include breakout work areas, small group rooms, and meeting spaces allow for students to work within the environment that best support their needs without the potential stigma of withdrawing from their peers. These types of spaces also enable teachers and specialists to provide specific intervention or assistance within the primary learning environment. In many cases the specialist is able to come to the student, instead of requiring the student to come to them.

Surroundings that Calm: All students need quiet and space for introspection, and all learning environments should be designed to allow for this to some extent. For some students, however, it may become necessary to withdraw more completely. Often, this setting is a separate learning space designed for fewer children and less distractions. These spaces can provide more intimate settings with alcoves or personal pods that can be used to create personal space. Full spectrum, color changing LED lights can be used to create calming effects. Avoid the use of fluorescent lighting which can be prone to flickering or buzzing. These distractions can be very severe for those with autism spectrum disorders. The use of sensory spaces where students can calm themselves with tactile sensory stimulation is also encouraged. Sensory spaces are often separate and distinct rooms, but sensory features can also be incorporated into other learning environments. It should be noted that sensory rooms are not "time-out" rooms and should not be used as such.

Life Skills Training: Part of the IEP for each student involves transition goals for post-secondary training, education, employment, and independent living. While detailed plans are usually not developed until age fourteen, transitional skills training may be appropriate beginning with much younger children. Students should have access to real world work and living amenities appropriate to their age and abilities. Kitchen, laundry, bedroom, and other apartment type settings can be incorporated into the design of spaces to assist in the development of these skills.

Discrete Personal Assistance: For some students, specific goals and training may be needed in the areas of toiletry and personal hygiene. These students may find themselves particularly subject to embarrassment in peer situations. Provisions for bathing and toileting should be easily accessed and discretely located. Provide toilet and shower facilities with ample room for changing tables and personal assistance.

COMMON SPACES

Some of the most underutilized spaces in traditional schools have been the common spaces. Corridors were pathways to get from point A to point B, cafeterias were places in which food was consumed, and libraries were places where books were viewed and stored. With careful design, these areas can become active learning environments, places where students can congregate and socialize, places where knowledge is disseminated, and where student achievements are celebrated. The effective use of these spaces, again, involves the themes of flexibility, creativity, and transparency.

Corridors (Learning Streets): As the need for differentiated learning has increased, corridors have often had to serve the role of de-facto breakout space. Students use the corridor for makeup tests, for reading groups, or for socialization. It has been said that in many schools the corridor is the only space that students feel belongs to them (teachers own the classrooms). It is time for the design of the corridor to reflect this reality. By widening the corridors and providing appropriate flexible furniture groupings, the corridor can become a learning street. Windows between the principle learning environment and the corridor allow for supervision, enabling the corridor to function as a regular breakout space. Digital displays can be used to share information, celebrate student achievements, and highlight student work. Socialization and informal learning opportunities should be encouraged.

Cafeteria (Student Commons): With the correct design, a cafeteria can be so much more than a lunch room. In fact, some schools are now eliminating the lunchroom altogether and serving food in classrooms, or learning neighborhoods. If a central cafeteria is maintained, however, best practice is to open the space up to the rest of the school, allowing it to serve as a hub for student activity throughout the day. Breakout groups, club activities, presentations, and class exercises can all happen in this space. For older students especially, the commons can be a place for studying and independent work as well. Consider snack and beverage options which could be facilitated by culinary arts, business, or students with disabilities programs.

Library (Media Center / Information Commons): The information revolution has had one of the most profound impacts on the library. While the library used to be the place where information was received, much of this information is now available digitally anywhere and at any time. As a response to this, the library can be thought of now as an information commons. Rather than a place to GET information, it is a place to USE and process that information. As a result, the physical environment of the library needs to be much more open and collaborative. Consider creating comfortable furniture grouping for individual study or small group work. Glass conference rooms can be used for larger groups, noisier activities, or for quiet study. Consider opportunities for presentation areas within the space. The information commons is usually the place to go for technology related questions, and may house student-staffed help centers. The environment should be comfortable and student-centered. Conceptually, the information commons may be viewed as an extension of the student commons. Provide opportunities for interactive displays, access to electricity for charging personal devices, and video and sound production equipment. Coffee, juice, or healthy snacking may be encouraged.



PHYSICAL EDUCATION + ATHLETICS

Growing emphasis on healthy living and lifestyle choices have brought renewed attention in recent years to spaces for physical activity. Indoor physical education and athletic programs often utilize the same spaces, but serve very different purposes. While athletics may only impact a narrow portion of the student body, physical education should affect all students. Look for opportunities to infuse activity and healthy living into all aspects of school design. Depending on the needs of the school, the types of spaces provided may vary greatly, but a few recommendations for specific spaces include:

Gymnasiums: The size, number, and features of a gymnasium depend largely on the activities that will happen in a space. If the gym will also serve as a performance space, this can further complicate the design. A large percentage of a school's design budget will often be spend on gymnasiums, so consider making these spaces as multi-functional as possible. Consider both P.E. and athletic needs. Create spaces that are filled with light for physical activity during the day. Adequate clearances are needed around the perimeter and to the ceiling for the activities that will occur in the space. Look for opportunities to allow for community use, and partnerships with outside groups. Consider positioning the gym so that it can be separated from academic areas to allow for maximum after-hours use. For competition gymnasiums proximity to common areas is often needed during events. Rather than a separate area dedicated to the gymnasium, consider combining this space with other common areas, so that it can be utilized throughout the day.

Fitness Areas: Fitness centers should be designed for the entire student body, and not just for athletic programs. With this broader focus, more emphasis is often placed on aerobic and cardiovascular training rather than weight training alone. The fitness center should be designed to serve as a station for physical education during the day. Before and after-hours use by the entire student body, and potentially the broader community, should also be considered.

Locker Facilities: Locker facilities should be designed for privacy and flexibility. At younger age levels, showers are much less necessary than in years past. At all levels, when showers are provided, individual showers rather than group shower areas should be used. Consider providing options for private changing areas as well, to help create a more inclusive environment. For team locker rooms, consider flexible designs that allow usages to change from season to season. Consider the possibility that locker rooms may need to be able to switch from one gender to the other, depending on seasonal needs for male and female athletics.



PERFORMANCE SPACES

Performance venues can vary greatly based on the needs of the specific school. While small performance areas for class events can often be incorporated into the learning environment, larger venues for holiday programs, dramatic performances or community events may often be needed. A few things to consider:

Type of Performance: The attributes of the space needed for a school assembly are drastically different than those needed for dramatic production. For elementary schools and general assemblies, portable stages and rented equipment can sometimes be the most flexible and cost-effective solutions. For frequent dramatic productions, however, the needs are more substantial. Consider the number of audience members that should be accommodated carefully, as this will have a major impact on the size of the space. If a fly space is to be provided, the height necessary for the fly space must also be considered. For full dramatic performances, stage construction areas, green rooms, and orchestra pits should all be considered. Recent advances in technology may allow for a remote orchestra pit if space is constrained, rather than a full orchestra pit. Full acoustic modeling and design should be considered.

Frequency of Use: A full dramatic performance venue is a significant resource investment for a school district. To justify this expenditure, performance spaces need to be well-utilized. Design spaces for maximum flexibility. Consider using the venue for student assemblies, video productions, and community events. Stage construction areas can be shared with construction technology spaces. Pursue community partnerships. Shared resources and shared uses benefit both the district and the community, and can help build good will. Community support of the arts is critical to the success of the program.



CONCLUSION

As school districts seek to understand and continue to improve the building conditions and create environments appropriate for the education of today's students, it is our hope that this document will provide some context for that process. While there are certainly many design possibilities and circumstances that are not covered here, we believe the themes presented will prove useful. Strive to create schools that make learning relevant. Create spaces that are safe, flexible, transparent, and collaborative. Provide environments that are comfortable, bright, filled with natural light, and inspiring. Put students first. Our future depends on it



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