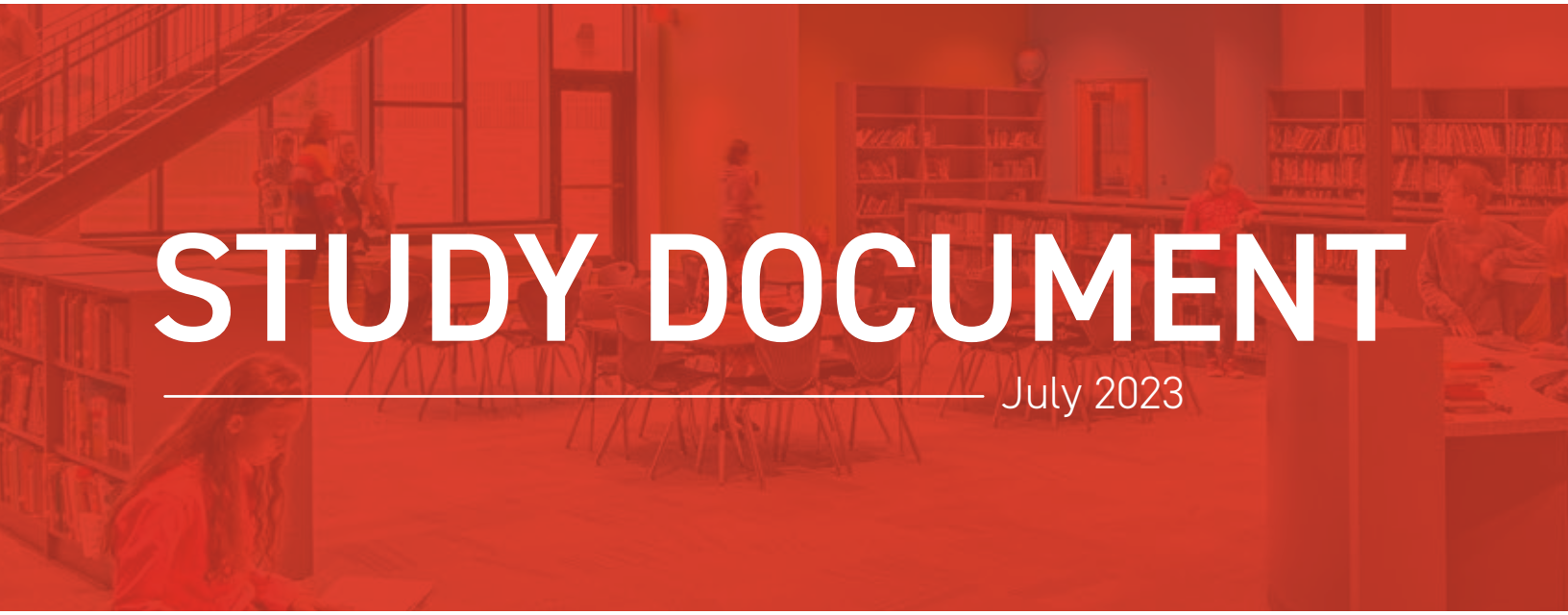
Sparta Area School District

District-wide Facilities Study

DRAFT



STUDY DOCUMENT

July 2023

BRAYARCHITECTS

BRAYARCHITECTS

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SPARTA AREA SCHOOL DISTRICT

Administration Team // Sparta, Wisconsin

SPARTA AREA SCHOOL DISCTRICT

Board of Education // Sparta, Wisconsin

BRAY ASSOCIATES - ARCHITECTS, INC.

Bray Team // Davenport • Moline • Milwaukee • Sheboygan

FREDERICKSEN ENGINEERING, INC

HVAC + Mechanical Engineering Team // Mequon, Wisconsin

MSA PROFESSIONAL SERVICES, INC.

Electrical + Plumbing Team // Milwaukee, Wisconsin

document introduction

FIRM INTRODUCTION

Bray Architects was founded in 1962 and after leadership by two generations of the Bray family, ownership was transitioned to Matthew Wolfert, Stephen Kuhnen, and Ronet Rodewald. Under their leadership, Bray Architects has grown into an architecture and interior design firm focusing on various project types ranging in size from $100,000 to $175 million.

Bray Architects has evolved into a diverse group of specialists focusing almost exclusively on the planning and design of PreK-12 education projects. We are guided by the idea that public architecture and public buildings must above all function well, put the user at the center of the design, and connect those users to their communities.

HOW TO USE THE FACILITIES STUDY DOCUMENT

This document reflects observations made by Bray Architects and their consulting engineers surrounding the conditions of any building(s) and associated systems at the time of initial building walk-throughs. Observations include what can be visibly seen at the time of the walk-through, and do not include analysis of any buried, hidden or structural elements that would require partial demolition, extensive investigation or additional testing.

assessment: process

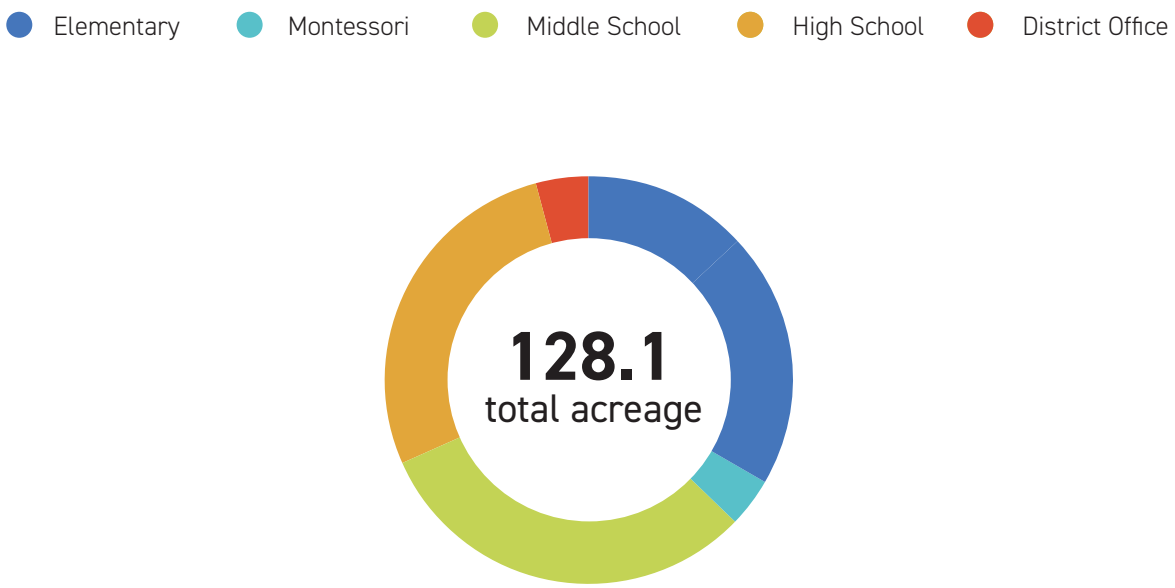
Observations are given an assessment of "Good / Fair / Poor" that is based on both generalized and numerical criteria and can be established at the individual, categorical, building and District-wide level. This assessment assists in providing a high-level identification of the overall condition of each element, as well as identifying which elements have the most need. While such assessment does not include prioritization of identified needs, it may be used by the District as a tool for making such decisions once needs are identified.

Below is the defined criteria for each level of assessment:

GOOD	No visible damage, wear or need for repair; no replacement required.
FAIR	Some visible damage, wear or need for repair; no immediate replacement required.
POOR	Substantial visible damage, wear or need for repair, or identified as containing potential asbestos; most pressing replacement needed.

It is important to note that any and all observations are not a direct reflection of the maintenance teams or their work. Even with proper maintenance, it is inevitable that buildings and their associated systems will wear with time and use.

district-owned property + boundaries map



elementary school

1. Southside Early Learning Center (17.0)
2. Herrman Elementary (26.0)

montessori school

3. Sparta Montessori (4.8)

middle school

4. Meadowview Middle School (39.8)

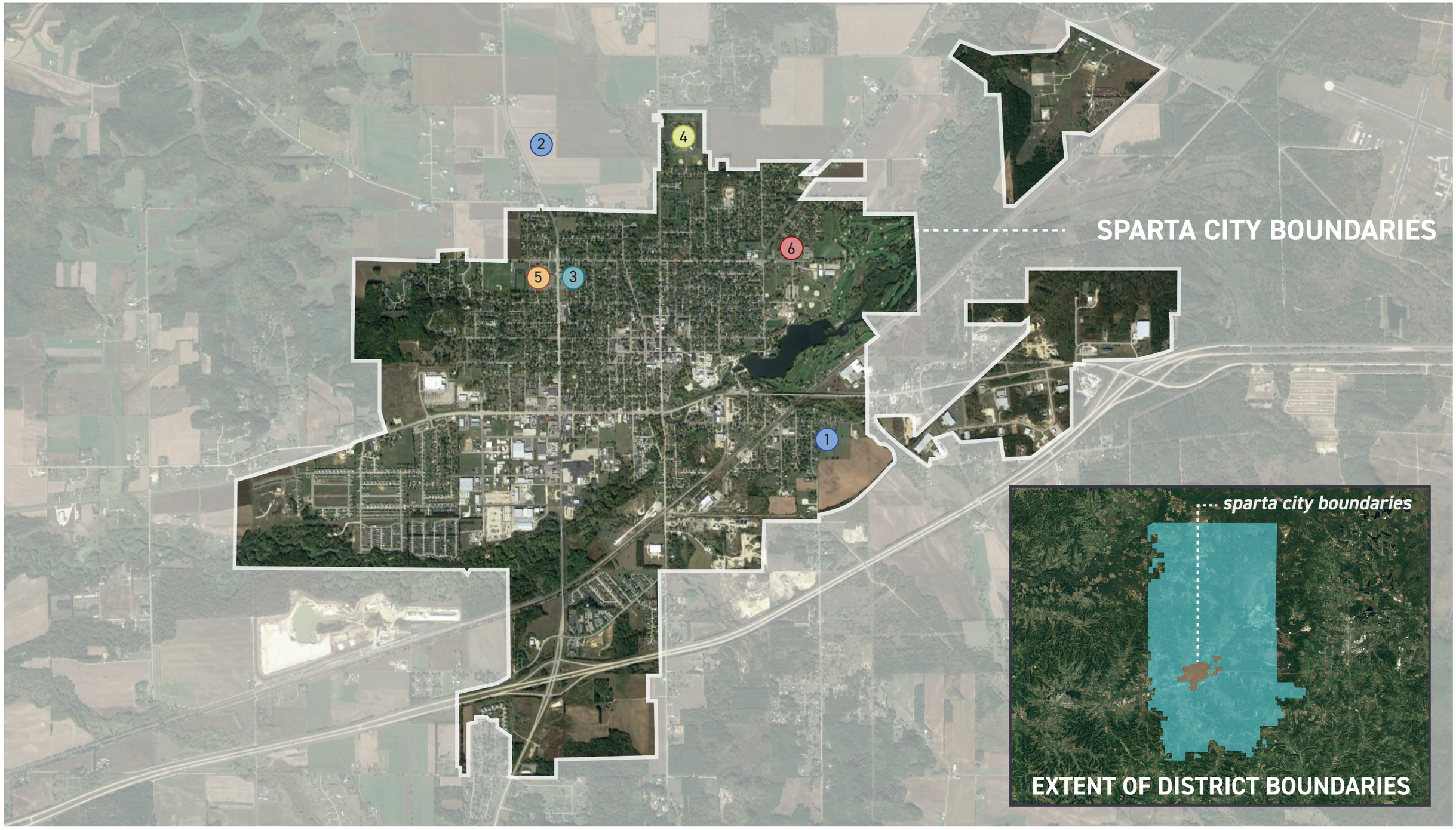
high school

5. Sparta High School (35.2)

district office

6. District Office (5.3)

district-owned property + boundaries map



01

Original Date of Construction

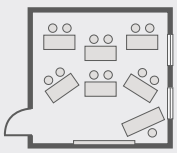
1965

As of 2023: 58 years old

Square Footage

51,930 Sq. Ft.

Average Core Classroom
Size Comparison



933 sq. ft.

Recommended Size

1st -12th: 900 sq. ft.
Kindergarten: 1200 sq. ft.

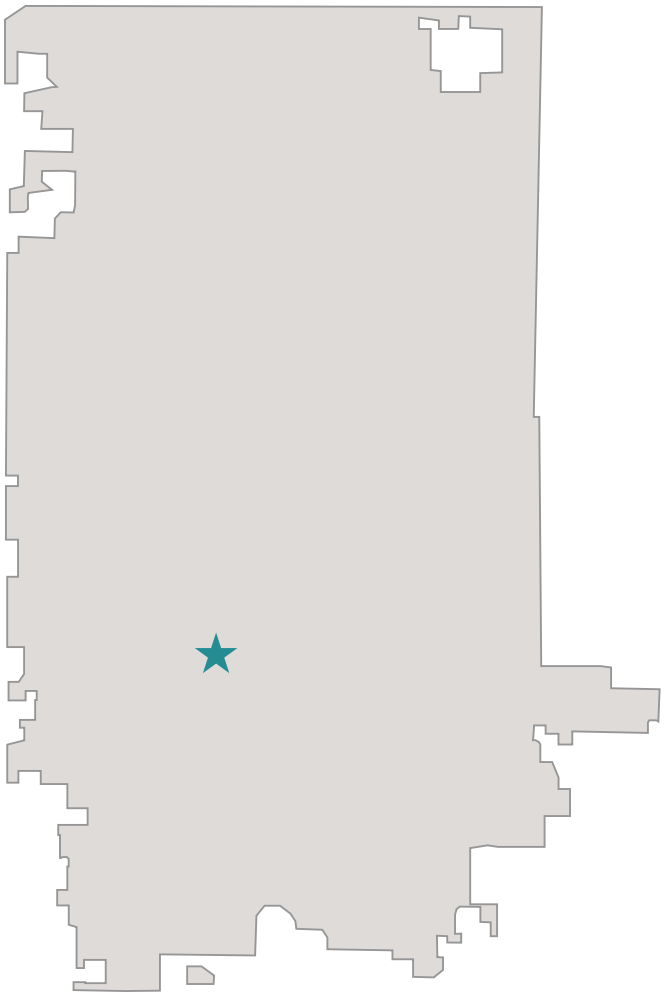
southside early learning center

SUMMARY

Southside Early Learning Center provides a comprehensive program for PreK-Kindergarten students.

Address: 1023 Walrath St, Sparta, WI 54656
Grades Served: PreK-Kindergarten
Site Size: 17.0 acres
Parking: 77 stalls

southside early learning center



School Location in Sparta Area School District Boundaries.

KEY TAKEAWAYS

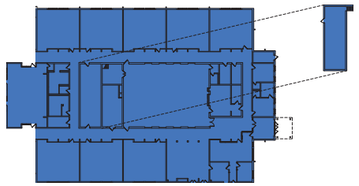
- The school is located on the northwest corner of the parcel.
- There is access to the paved parking lot via Walrath Street.
- A majority of the site is green space and athletic fields.

PARCEL DIVISION

southside early learning center site map

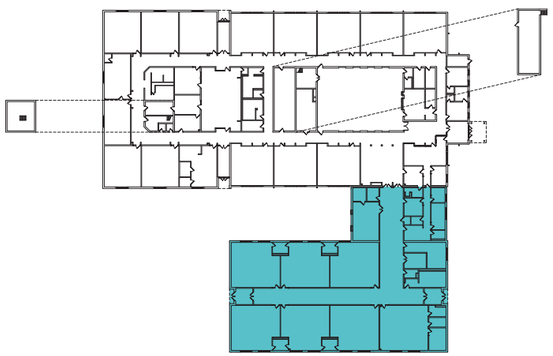
N

southside early learning center building evolution

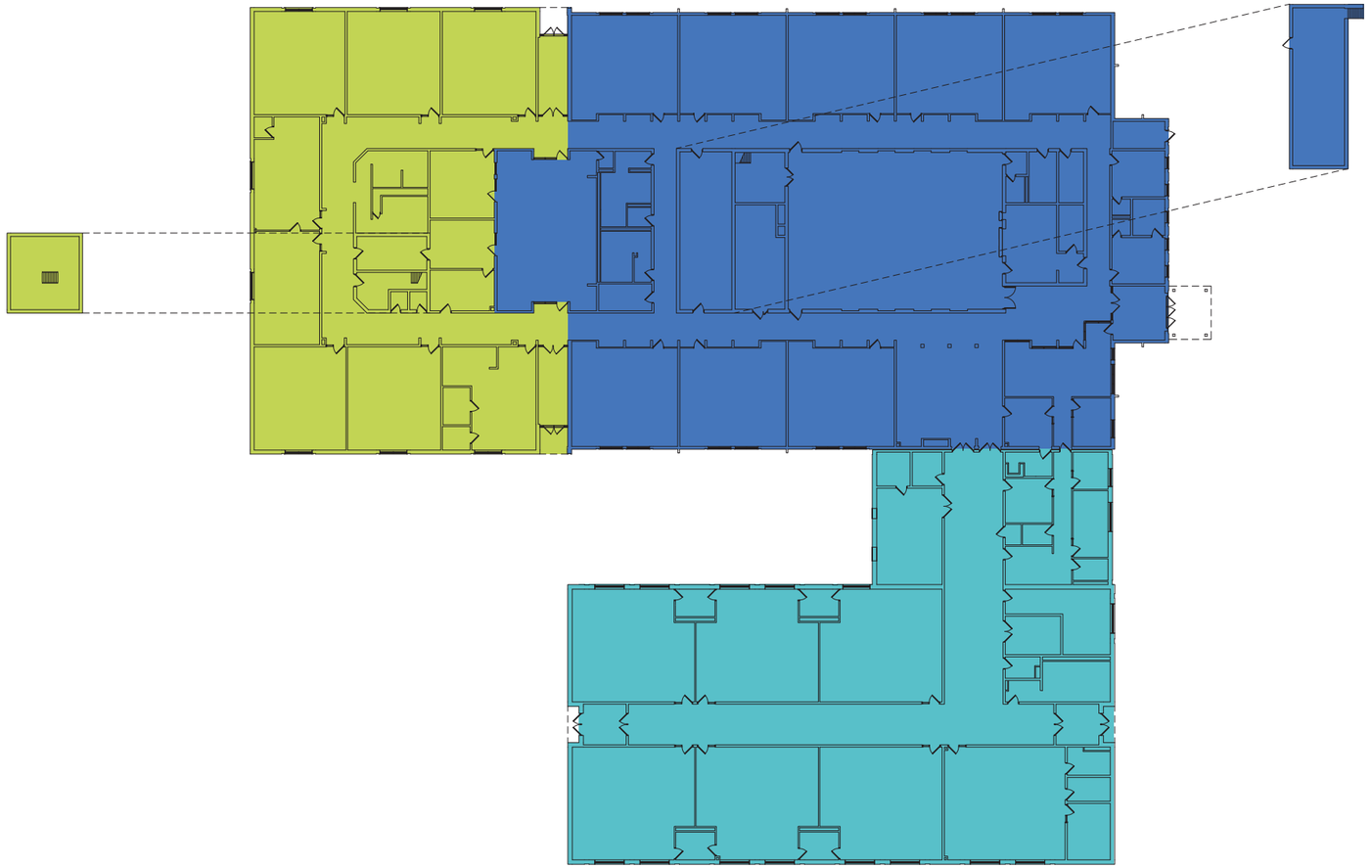


1965 - Original Building

1990 - Academic Addition



2019 - Academic Addition



N

southside early learning center floor plan | first floor

N

southside early learning center building systems summary

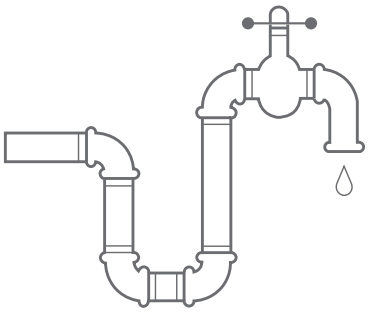
Good Condition
No visible damage, wear or need for repair; no replacement needed.

Fair Condition
Some visible damage, wear or need for repair; no immediate replacement required.

Poor Condition
Substantial visible damage, wear or need for repair, or identified as containing potential asbestos; most pressing replacement needed.

Plumbing
Condition Overview

Replace Water Service



PLUMBING

Domestic Water System	■	
Water Service	●	Piping is at the end of it's expected service life
Water Distribution Piping	◪	Piping in 1965 portions of building are at the end of expected service life. Piping in 1990 and 2019 portions of building are assumed to be in fair condition
Water Softening System	○	
Fire Sprinkler System	○	
Sanitary System	■	
Sanitary Waste System	◪	1965 portion of building is in poor condition. 1990 and 2019 portion of building are in fair condition
Sanitary Drain, Waste + Vent Piping	◪	1965 portion of building is in poor condition. Piping is at the end of expected life cycle. 1990 and 2019 portion of building are in fair condition
Acid Waste Piping + Basin	○	
Interceptors	○	
Storm System	■	
Storm System	◪	
Storm Waste Piping	●	Piping in 1965 portion of building at the end of expected service life
Sump Pump	○	
Natural Gas System	□	

* See appendix for full engineer reports + additional information.

southside early learning center building systems summary

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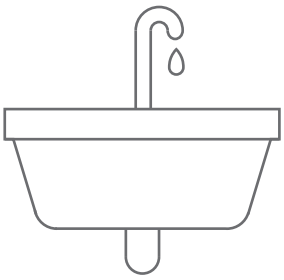
Plumbing
Condition Overview

Replace Classroom, General + Art Room Sinks



PLUMBING

Plumbing Equipment	■	
Water Heater	●	Each building addition has its own electric water heater. These water heaters are either in fair or good working condition
Circulator Pump	○	
Hot Water System	○	
Plumbing Fixtures	■	
Water Closets	●	
Urinals	●	
Lavatories	●	
Drinking Fountains	●	
Classroom Sinks	●	
General Sinks	●	
Art Room Sinks	○	
Emergency Eyewash Stations	○	

* See appendix for full engineer reports + additional information.

southside early learning center building systems summary

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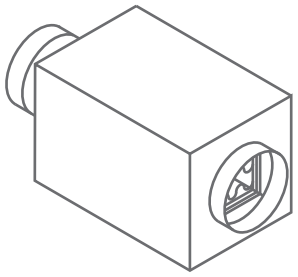
Substantial visible damage, wear or need for repair, or identified as containing potential asbestos; most pressing replacement needed.

Mechanical Condition Overview

Replace 1950's Air Handling Unit + Older Trane AC System



MECHANICAL

Heating	■	
Boiler Plant	●	The boilers were installed in 2009 and 2019 are all in good condition. The boilers have an estimated 20-year life expectancy
Pumps	●	The pumps were installed in 2009 and 2019 are all in good condition. The pumps have an estimated 25-year life expectancy
Ventilation + A/C Systems	■	
Air Handling Units	●	Air handling units that serve the classrooms in the west end of the building appear to be original from the 1950s and are in poor condition despite maintenance
Air Conditioning Systems	●	The condensing units installed in 2019 are in excellent condition. The older Trane unit that serves one of the older air handling units appears to be at least 25 years old
Rooftop Units	●	The packaged rooftop units were installed in 2019 and are in good condition. The packaged rooftop unit has an estimated life expectancy of 20 years
Control Systems	■	The building is served by a Siemens/Desigo digital control system

* See appendix for full engineer reports + additional information.

southside early learning center building systems summary

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Electrical
Condition Overview

Mix Of Interior + Exterior
Lighting Conditions

ELECTRICAL

Electrical Service		
Utility Service		Existing main electric service is in good working condition
Distribution Panelboard		Existing main distribution panelboard is in good working condition
Panelboards		Panelboards do not have arc flash labels. Handwritten directories throughout building
Light Fixtures + Controls		
Interior Lighting		Mix of lighting conditions
Corridor Lighting		Corridor has been upgraded to LED
Exit Lights		Mix of lighting conditions
Exterior Lighting		Mix of lighting conditions
Wiring Devices		Consistent with building age. Wear and tear on wiring devices and plates
Clock System		
Data / Telephone		

* See appendix for full engineer reports + additional information.

southside early learning center building systems summary

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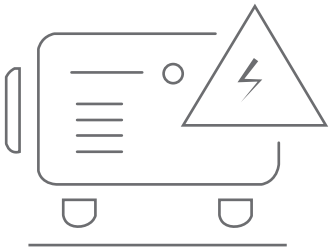
Poor Condition
Substantial visible damage, wear or need for repair, or identified as containing potential asbestos; most pressing replacement needed.

Life Safety
Condition Overview

Add Back Up Generator +
Upgrade Egress Lighting to Code



LIFE SAFETY

Emergency Generator	☐	
Emergency Egress Lighting		Egress lighting likely not code compliant
Fire Alarm System		
Public Address System		
Access Control		
Security System		

* See appendix for full engineer reports + additional information.

southside early learning center interior analysis

KEY TAKEAWAYS

- Majority of the casework located in the 1965 and 1990 addition are in fair condition due to some staining and worn finish. There are a few instances of casework in poor condition due to sagging doors, staining, and scratching.
- Wood doors located in the 1965 and 1990 addition are in fair condition due to staining, scratching, and worn finish.
- Majority of the concrete block walls located in the building are in fair condition due to minor scratching.

WALLS

- W1 Concrete Block
- W2 Gypsum
- W3 Tile
- W4 Concrete
- W5 Vinyl Base
- W6 Tile Base
- W7 Partition Wall

DOORS

- D1 Wood Door w/ Hollow Metal Frame
- D2 Hollow Metal Door w/ Hollow Metal Frame

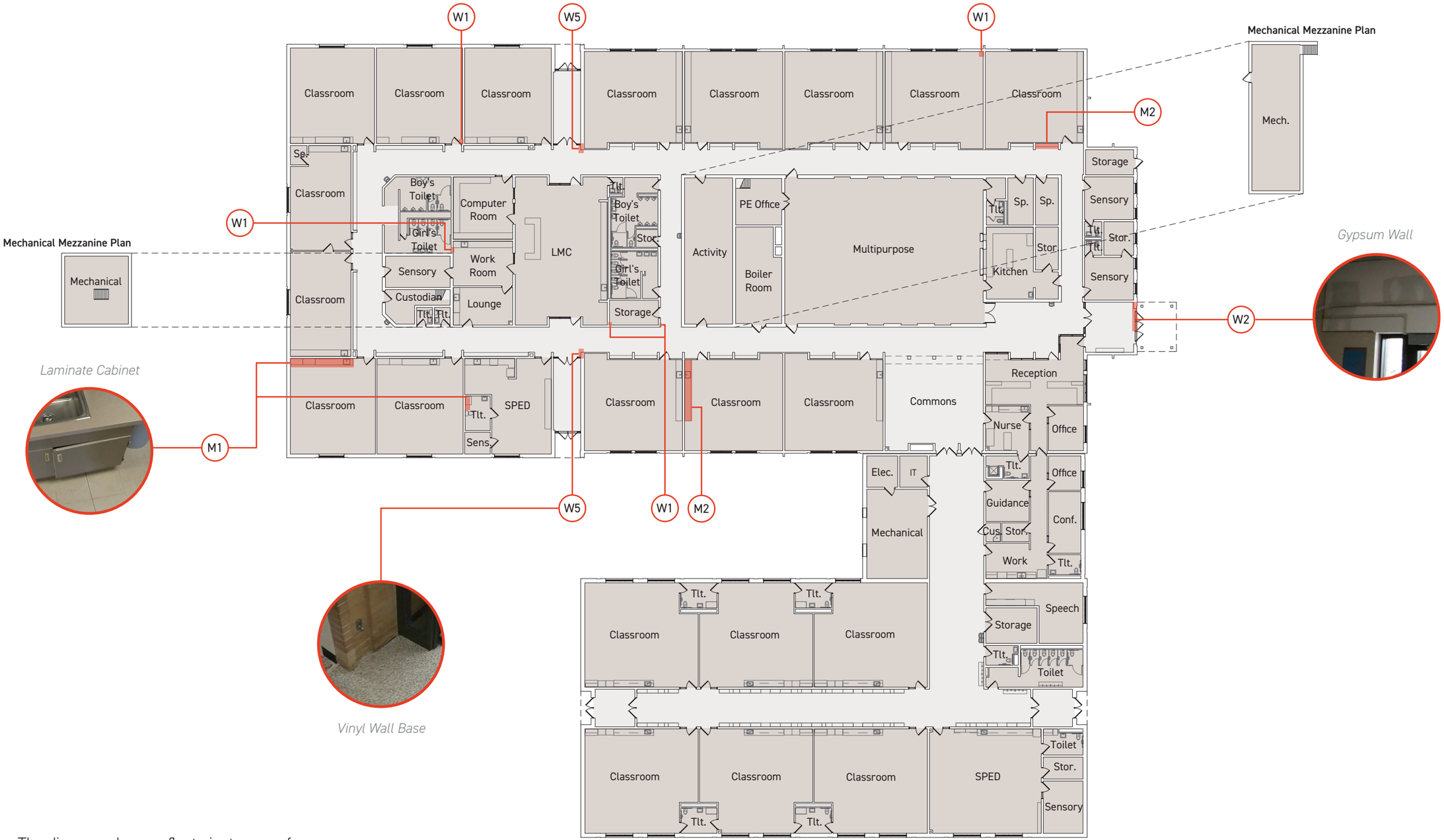
OPENINGS

- O1 Aluminum Overhead Coiling Window
- O2 Wood Framed Interior Window
- O3 Laminate Interior Window Sill

MISCELLANEOUS

- M1 Laminate Casework
- M2 Wood Casework
- M3 Coat Shelves + Hooks
- M4 Cubbies
- M5 Laminate Toilet Partitions
- M6 Composite Toilet Partitions

southside early learning center interior identifications + analysis | first floor



***Note:** The diagram above reflects instances of materials in poor condition, but does not reflect the material's overall condition.

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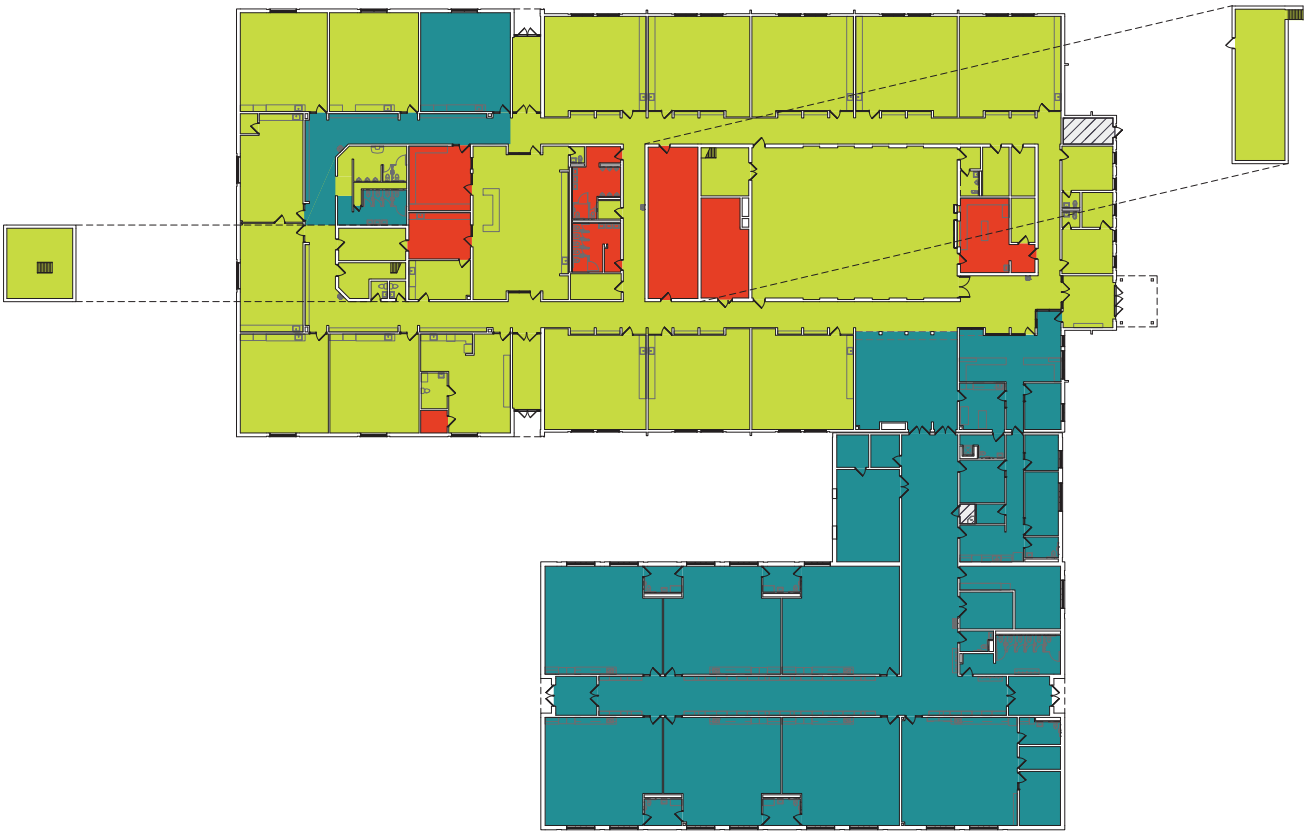
southside early learning center ceiling analysis



First Floor

KEY TAKEAWAYS

- Materials identified as potentially containing asbestos are considered to be in poor condition.
- Spline ceilings are identified as a potential asbestos containing material.
- Most concrete ceilings are in fair condition due to minor cracking.

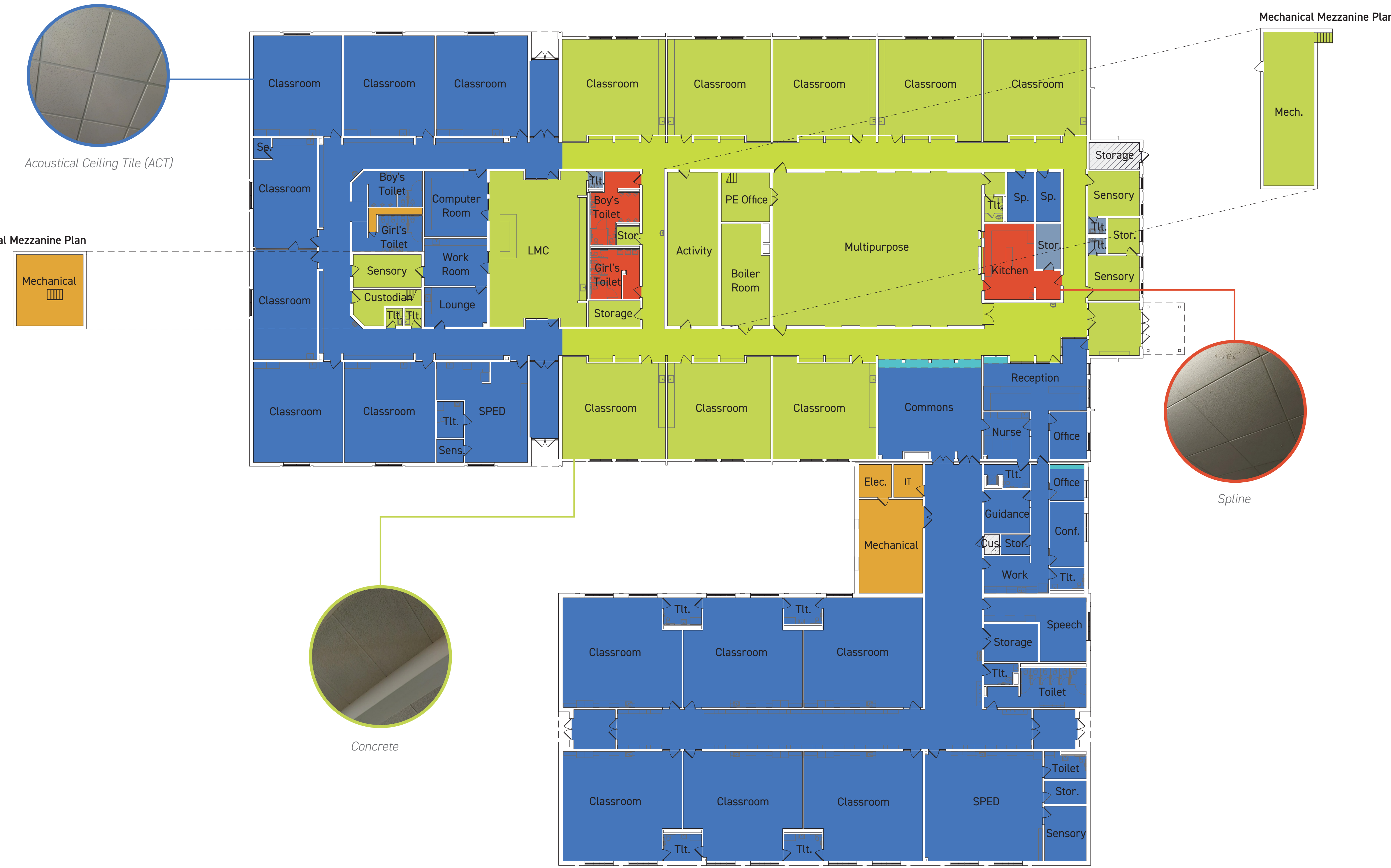
HIGHLIGHT

of ceilings were identified as potentially containing asbestos

OVERALL CEILING CONDITION

Good	No visible damage
Fair	Some visible damage
Poor	Substantial visible damage

southside early learning center ceiling material identification



Materials Key

- Acoustical Ceiling Tile
- Plaster
- Gypsum
- No Data
- Concrete
- Exposed Metal Deck
- Spline

Potential of Asbestos Containing Materials

Asbestos is a material that was used in the construction industry, most commonly between 1960 - 1990. **There was no asbestos testing performed for this assessment.** Observations and assumptions were made based on common older building materials that typically have been identified to containing asbestos.

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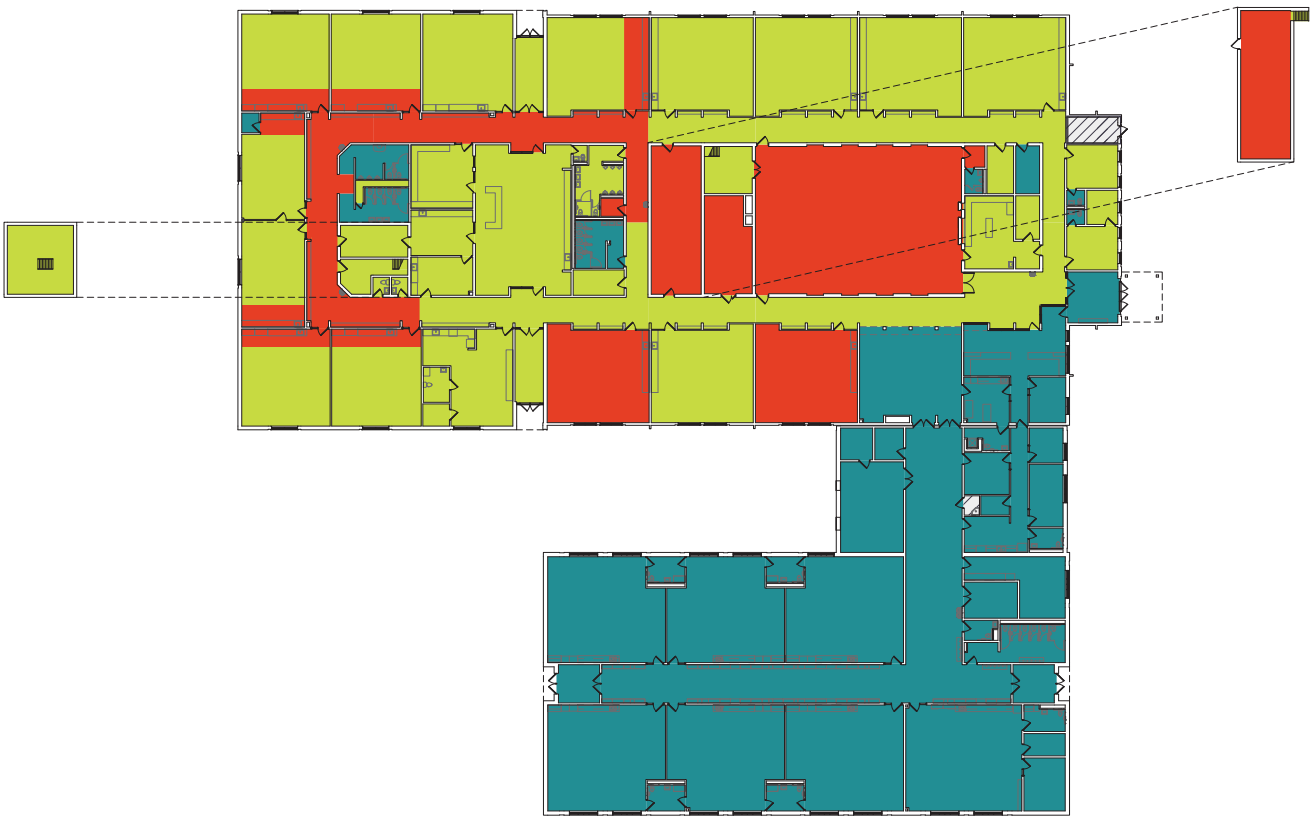
southside early learning center flooring analysis



First Floor

KEY TAKEAWAYS

- Materials identified as potentially containing asbestos are considered to be in poor condition.
- Majority of the flooring located in the 1965 and 1990 addition are in fair or poor condition.
- There are no instances of tile flooring in poor condition.
- Concrete flooring located in the boiler room is in poor condition due to staining, cracking, and scratching.

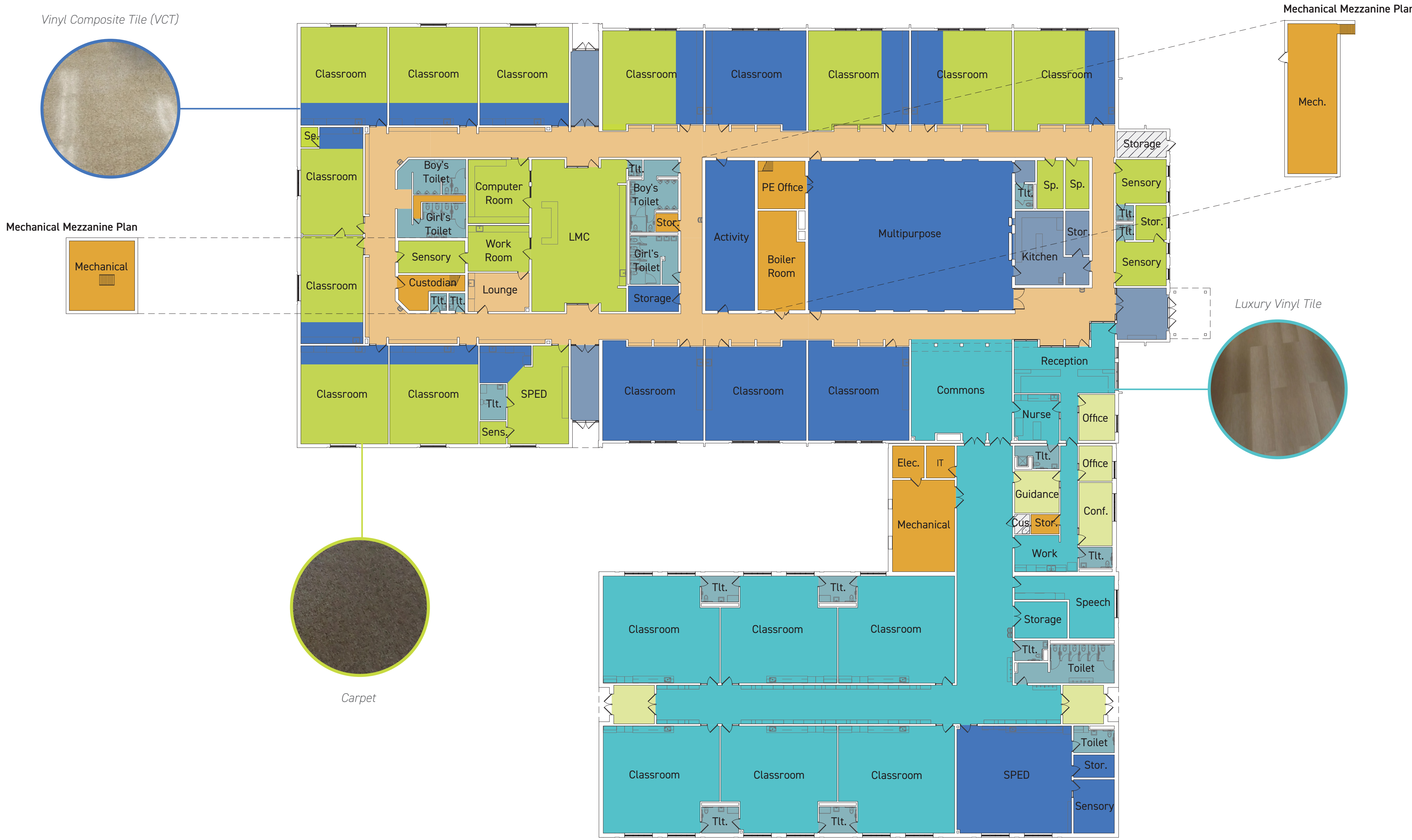
HIGHLIGHT

of floors were identified as potentially containing asbestos

OVERALL FLOORING CONDITION

Good	No visible damage
Fair	Some visible damage
Poor	Substantial visible damage

southside early learning center flooring material identification



Materials Key

- Vinyl Composite Tile
- Luxury Vinyl Tile
- Carpet
- Concrete
- Quarry Tile
- Tile
- Carpet Tile
- Resin
- No Data

Potential of Asbestos Containing Materials

Asbestos is a material that was used in the construction industry, most commonly between 1960 - 1990. **There was no asbestos testing performed for this assessment.** Observations and assumptions were made based on common older building materials that typically have been identified to containing asbestos.

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southside early learning center exterior analysis

KEY TAKEAWAYS

- There is effervesce present on the bottom of the brick wall located on the 2019 addition adjacent to the playground.
- Majority of metal lintels located above windows on the 1990 addition are in poor condition due to rusting.
- Brick walls and sills are in poor condition due to staining on a majority of the 1965 and 1990 addition.
- Majority of metal awnings are in poor condition due to staining and rusting.

WALLS

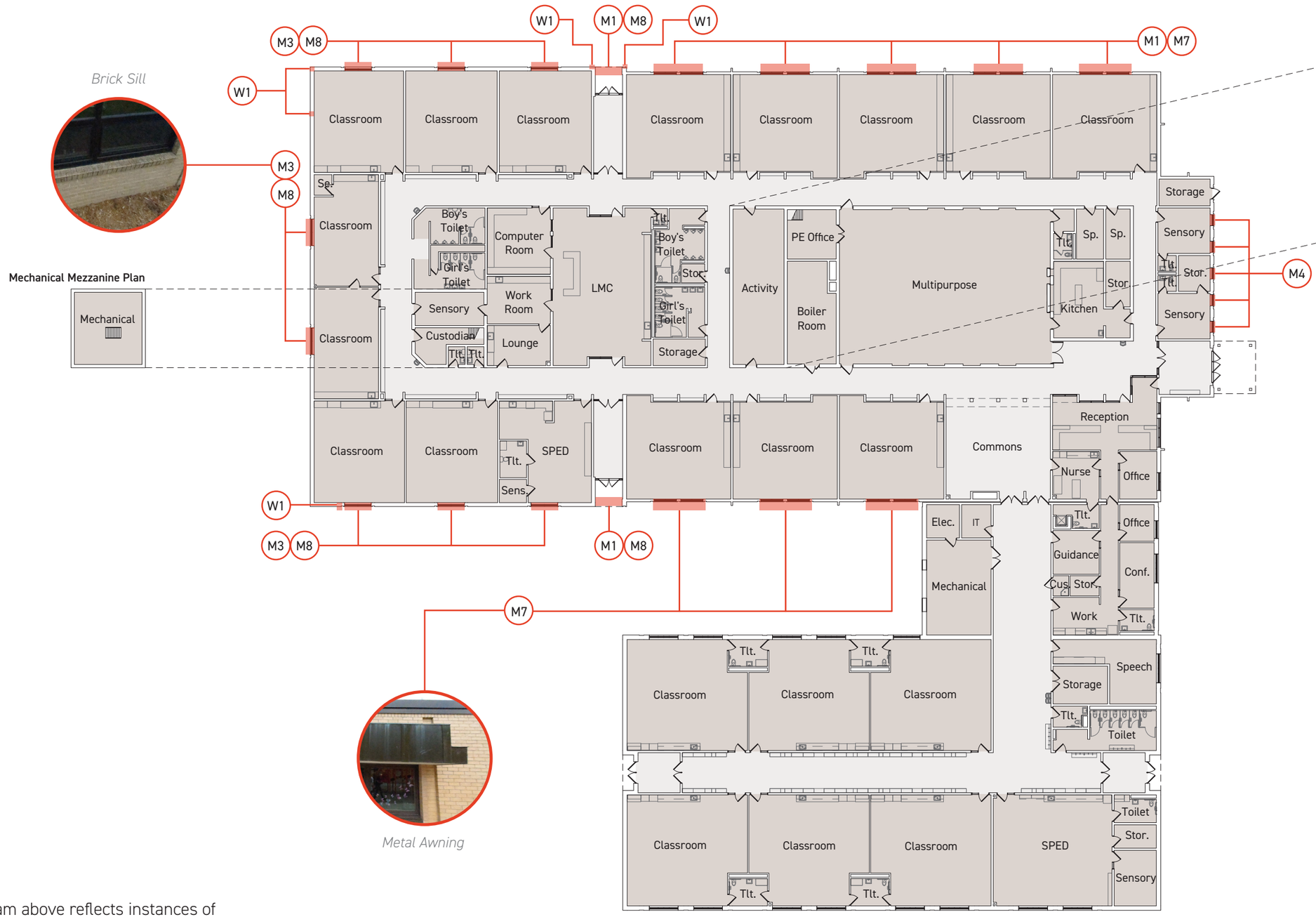
- W1 Brick
- W2 Concrete Block

MISCELLANEOUS

- M1 E.F.I.S Soffit
- M2 Metal Coping
- M3 Brick Sill
- M4 Stone Sill
- M5 Aluminum Sill
- M6 Gutter
- M7 Metal Awning
- M8 Metal Lintel

southside early learning center exterior identifications + analysis

Brick Sill



Metal Awning

***Note:** The diagram above reflects instances of materials in poor condition, but does not reflect the material's overall condition.

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southside early learning center exterior door analysis

No.	Door Type / Door Frame
A	Aluminum / Aluminum Storefront
B	Aluminum / Aluminum Storefront
C	Aluminum / Aluminum Storefront
D	Aluminum / Aluminum Storefront
E	Aluminum / Aluminum Storefront
F	Hollow Metal / Hollow Metal

KEY TAKEAWAYS

- Door F is in poor condition due to scratching and rusting.
- Majority of aluminum doors with aluminum storefront frames are in fair condition due to scratching or fading.

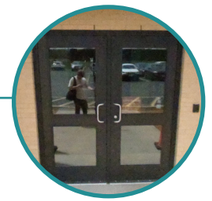
MOST COMMON EXTERIOR DOOR

Aluminum Door(s) with Aluminum Storefront Frame

OVERALL EXTERIOR DOOR CONDITION

Good	No visible damage
Fair	Some visible damage
Poor	Substantial visible damage

southside early learning center exterior door identification + analysis



Aluminum Doors with Alumnium Storefront

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southside early learning center exterior window analysis

No.	Frame Type / Glass Type
1	Aluminum / Double Pane
2	Aluminum / Double Pane
3	Aluminum / Double Pane
4	Aluminum / Double Pane
5	Aluminum / Double Pane
6	Aluminum / Double Pane
7	Aluminum / Double Pane
8	Aluminum / Double Pane
9	Aluminum / Double Pane
10	Aluminum / Double Pane
11	Aluminum / Double Pane
12	Aluminum / Double Pane
13	Aluminum / Double Pane
14	Aluminum / Double Pane
15	Aluminum / Double Pane
16	Aluminum / Double Pane
17	Aluminum / Double Pane
18	Aluminum / Double Pane
19	Aluminum / Double Pane
20	Aluminum / Double Pane
21	Aluminum / Double Pane
22	Aluminum / Double Pane
23	Aluminum / Double Pane
24	Aluminum / Double Pane
25	Aluminum / Double Pane
26	Aluminum / Double Pane
27	Aluminum / Double Pane
28	Aluminum / Double Pane
29	Aluminum / Double Pane
30	Aluminum / Double Pane
31	Aluminum / Double Pane
32	Aluminum / Double Pane

KEY TAKEAWAYS

- Aluminum frame windows with double paned glass located on the 2019 addition are in good contition.
- Aluminum frame windows with double paned glass located on the 1965 and 1990 addition are in fair condition due to fading.

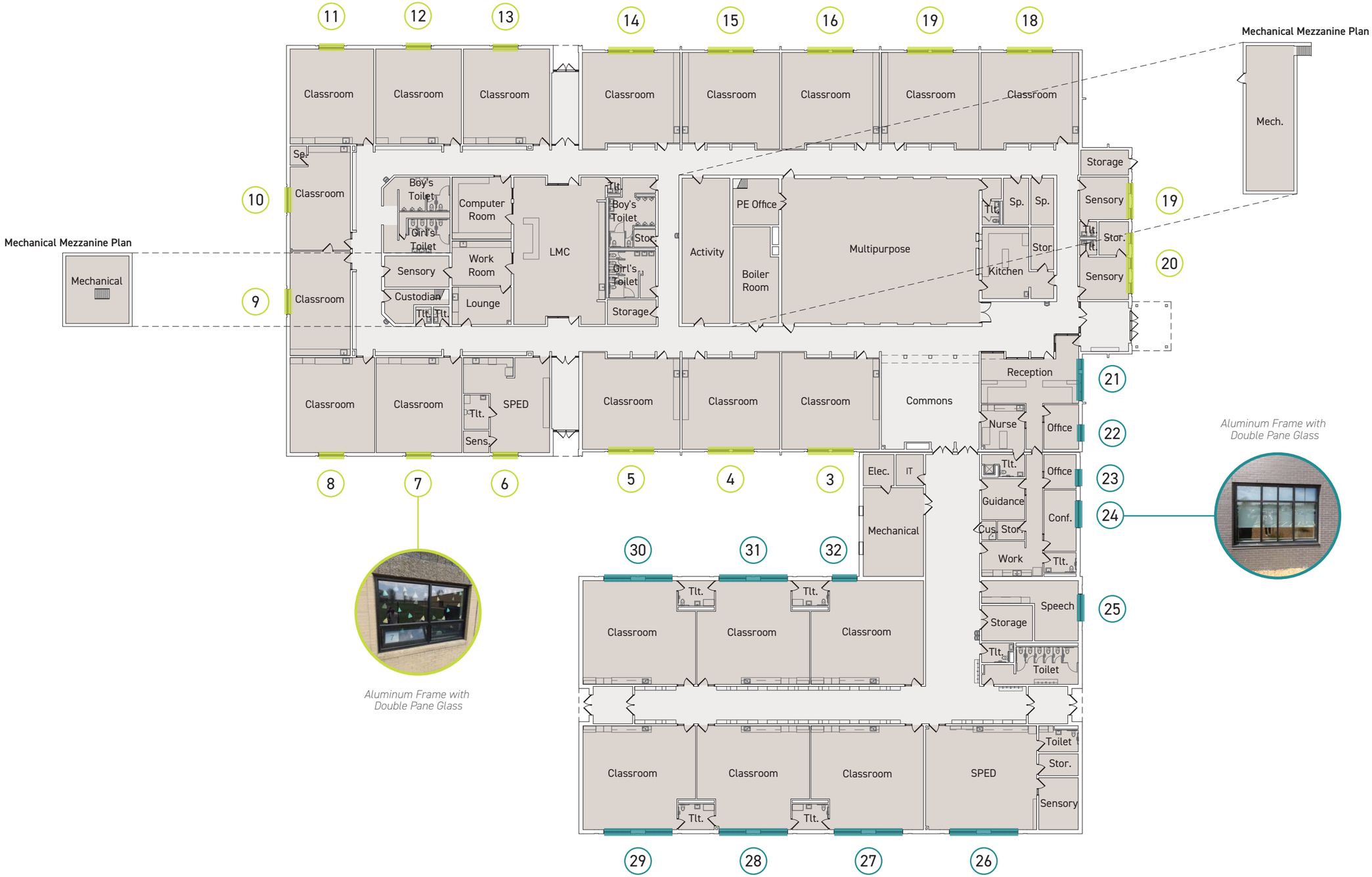
MOST COMMON EXTERIOR WINDOW

Aluminum Frame with Double Pane Glass

OVERALL EXTERIOR WINDOW CONDITION

Good	No visible damage
Fair	Some visible damage
Poor	Substantial visible damage

southside early learning center exterior window identification + analysis



southside early learning center roof identification

OVERALL CONDITION RATING

ROOF TIMELINE

1 = Built-up-Roof w/Gravel, Unknown Installation

2 = Built-up-Roof w/Gravel, Unknown Installation

3 = Built-up-Roof w/Gravel, Unknown Installation

4 = Built-up-Roof w/Gravel, Unknown Installation

5 = Fully Adhered EPDM, Unknown Installation

6 = Fully Adhered EPDM, Unknown Installation

7 = Standing Seam Metal, Unknown Installation

ROOF ASSESSMENT

= Good (>15 Years of Life Expectancy Remaining)

= Fair (5-15 Years of Life Expectancy Remaining)

= Poor (<5 Years of Life Expectancy Remaining)

*Assessment of "Good/Fair/Poor" based on information provided in third party report, information supplied by the District, and industry standard roof life expectancies.

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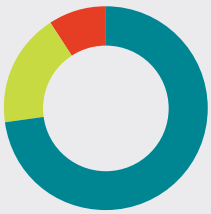
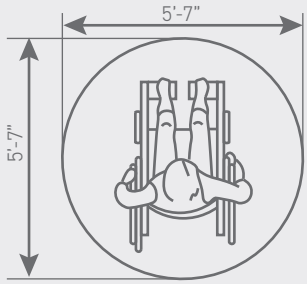
southside early learning center ada conditions + assessment

Overall Condition Rating:

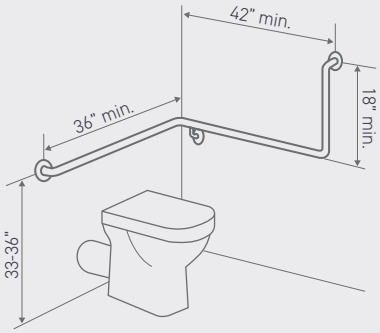


Most Concerning Item That Does Not Meet Code Requirements:



Not providing at least 5'-7" clearance space for a wheelchair to turn around.

Most Frequently Occurring Item That Does Not Meet Code Requirements:



Not providing at proper grab bars at ADA accessible toilet.

GENERAL ASSESSMENT OF ADA CONDITIONS

- **Building Entrance Accessibility**
- **ADA Parking Stalls**
- **Accessible Routes of Travel**
  - Ramps
  - Lifts
  - Elevators
- **Railings**
  - Ramp Railings
  - Stair Railings
- **Door Hardware**
- **Door Clearances**
  - Push / Pull
  - Thresholds
  - Maneuvering
- **Toilet Rooms**
  - 5'-0" Wheelchair Clearance
  - ADA Accessible Stall
  - Unisex Toilet Room
  - Grab Bars
  - Showers
- **Protruding Objects**
- **Drinking Fountains**
- **Casework**
  - Transaction Counters
  - Workstations Counters
  - Counters with Sinks

southside early learning center ada conditions + assessment | first floor

Color Key

- **Accessible Routes of Travel**
  1. Ramps
  2. Lifts
  3. Elevators
- **Railings**
  4. Ramps
  5. Stairs
- **Door Hardware**
  6. Door Hardware
- **Door Clearances**
  7. Push / Pull
  8. Thresholds
  9. Maneuvering
- **Toilet Rooms**
  10. 5'-0" Wheelchair Clearance
  11. ADA Accessible Stall
  12. Unisex Toilet Room
  13. Grab Bars
  14. Showers
- **Protruding Objects**
  15. Protruding Objects
- **Casework**
  16. Transaction Counter
  17. Workstation Counters
  18. Counters with Sinks

southside early learning center summary

ITEMS IN POOR CONDITION

Substantial visible damage, wear or need for repair, or identified as containing potential asbestos

- Domestic water system
- Sanitary System
- Interior wall repair at select/identified areas
- Ceiling replacement at select/identified areas
- Flooring replacement at select/identified areas
- Casework at identified areas
- Potential asbestos remediation
- ADA improvements at identified areas
- Exterior doors at identified areas
- Exterior wall repair at select/identified areas

ITEMS IN FAIR CONDITION

Some visible damage, wear or need for repair

- Storm system
- Plumbing fixtures
- Light fixtures and controls
- Mechanical control systems
- Wiring devices
- Ceiling replacement at identified areas
- Flooring replacement at identified areas
- Exterior doors at identified areas
- Exterior windows at identified areas

ITEMS IN GOOD CONDITION

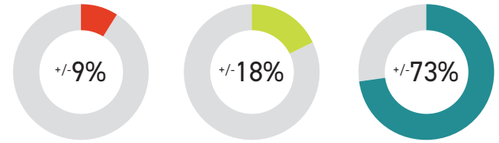
No visible damage, wear or need for repair

- Plumbing equipment
- Boiler plant and pumps
- HVAC systems
- Electrical service and panelboards
- Clock system and data/telephone
- Fire alarm and public address system
- Access control and security system
- Exterior doors at identified areas
- Exterior windows at identified areas

+ OVERALL BREAKDOWN

Ceiling

Accessibility



Flooring

Plumbing

Exterior Doors

Mechanical

Exterior Windows

Electrical

Roof

Life Safety

02

sparta montessori

Original Date of Construction

1951

As of 2023: 72 years old

SUMMARY

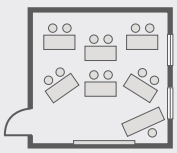
Sparta Montessori provides a comprehensive program for PreK, Kindergarten-6th grade students.

Address: 429 N Black River St, Sparta, WI 54656
Grades Served: PreK, K-6th Grades
Site Size: 4.8 acres
Parking: 55 stalls

Square Footage

38,635 Sq. Ft.

Average Core Classroom
Size Comparison

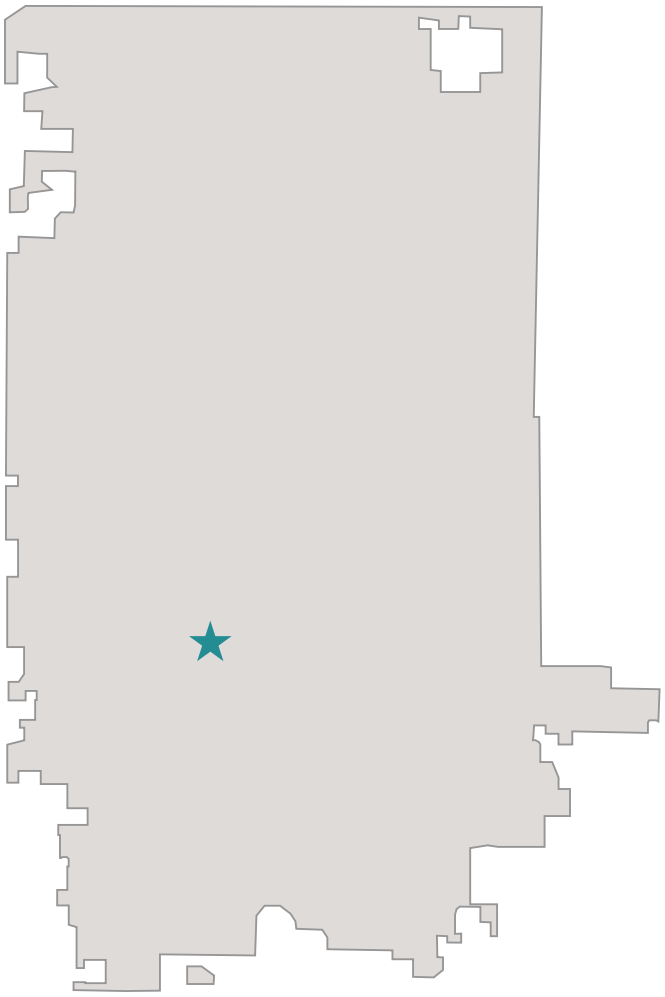


1320 sq. ft.

Recommended Size

1st -12th: 900 sq. ft.
Kindergarten: 1200 sq. ft.

sparta montessori



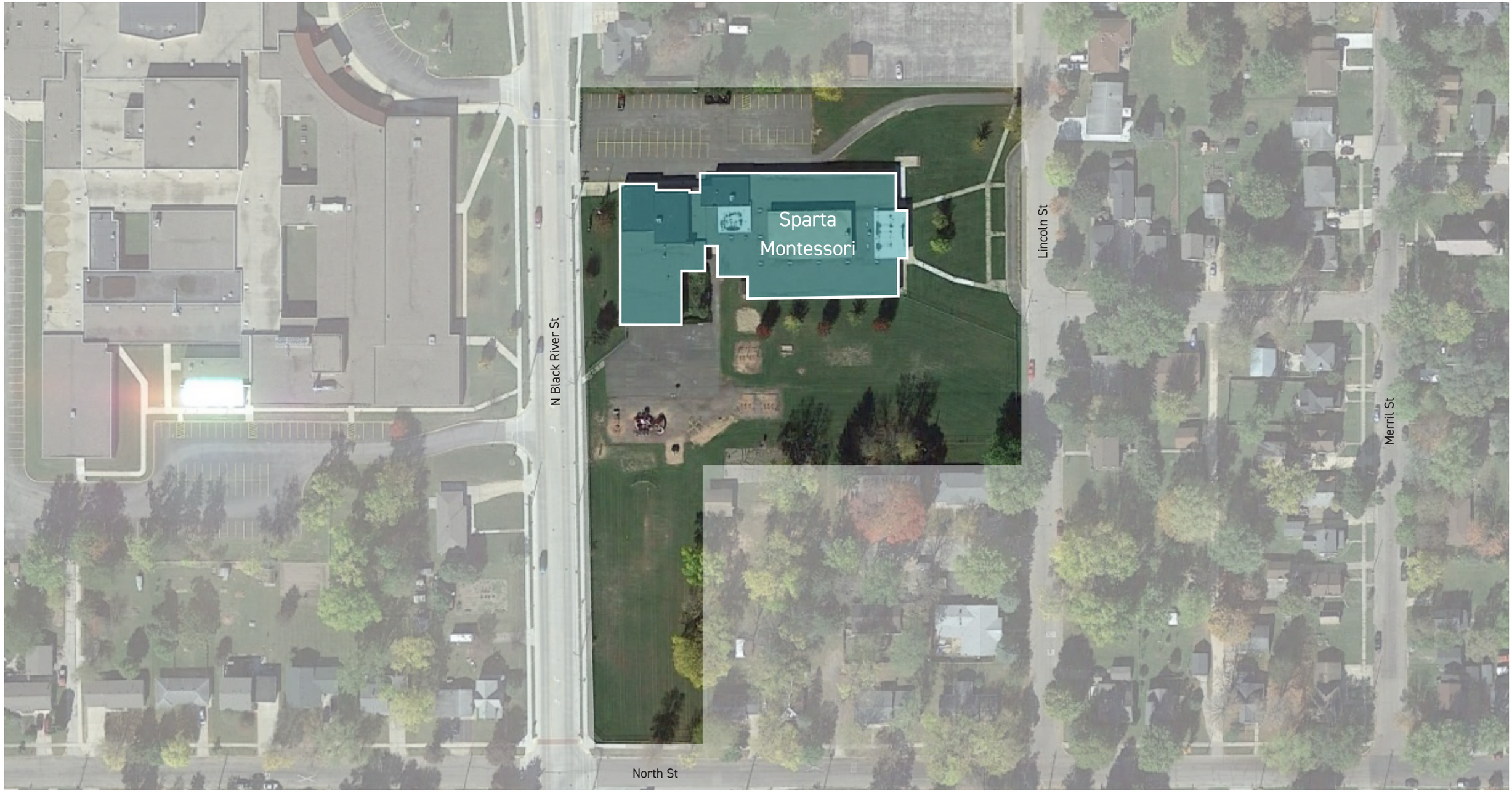
School Location in Sparta Area School District Boundaries.

KEY TAKEAWAYS

- There is parking located on the north end of the site.
- Sparta High School resides directly west of Sparta Montessori School.
- Around half of the site is occupied by green space and athletic fields.

PARCEL DIVISION

sparta montessori site map



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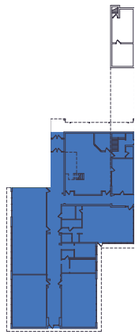
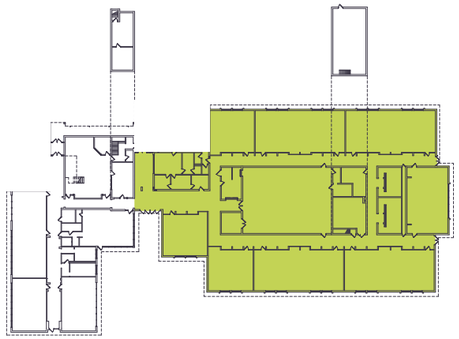
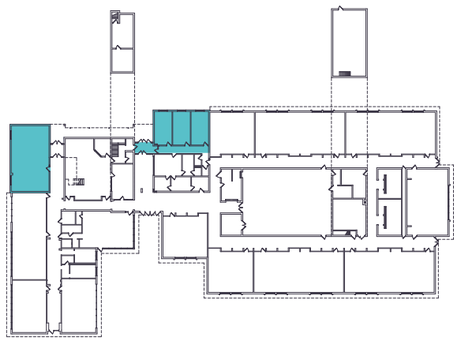
sparta montessori building evolution



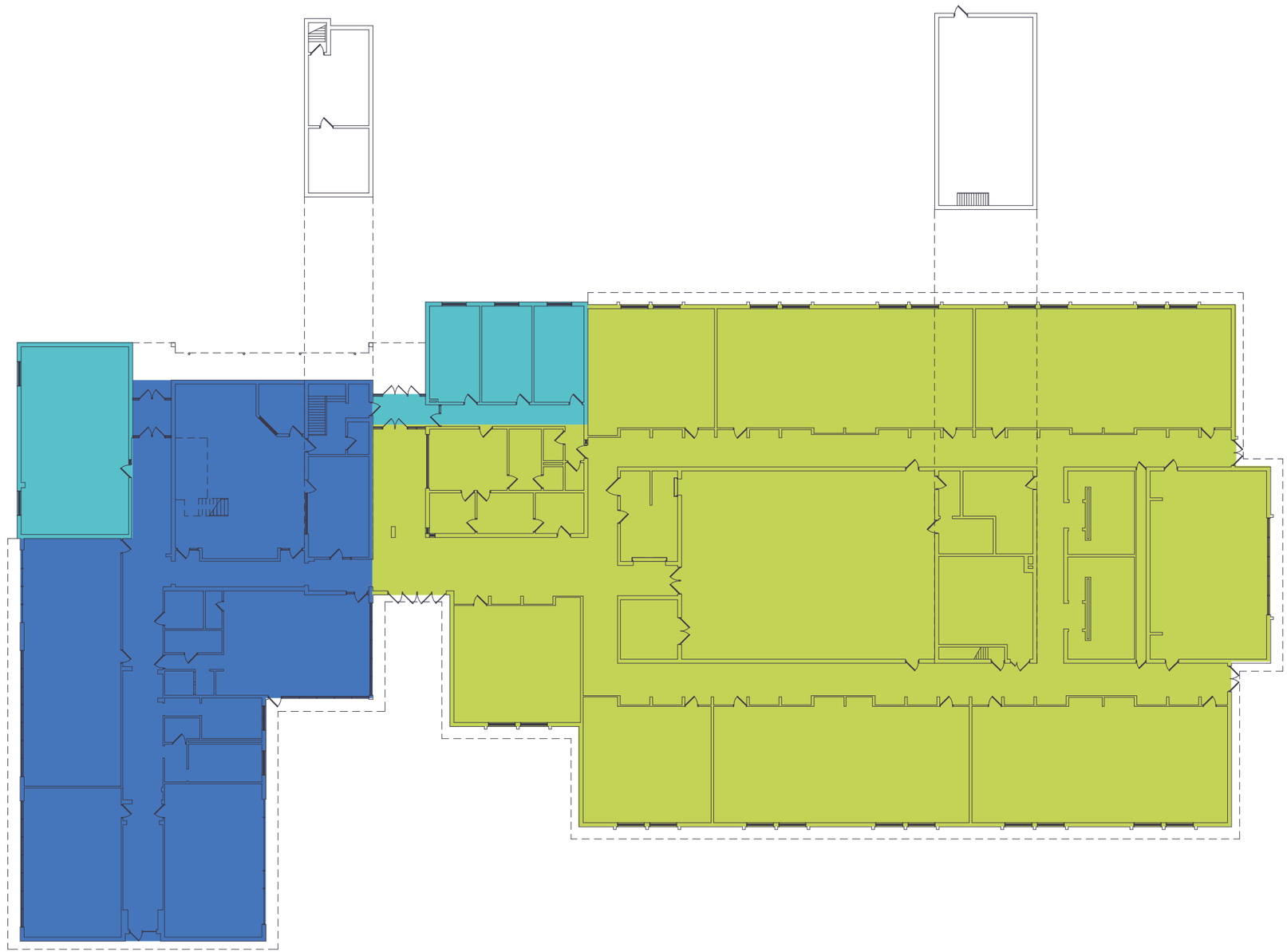
1951 - Original Building



1965 - Academic Addition



1990 - Office and Academic Addition



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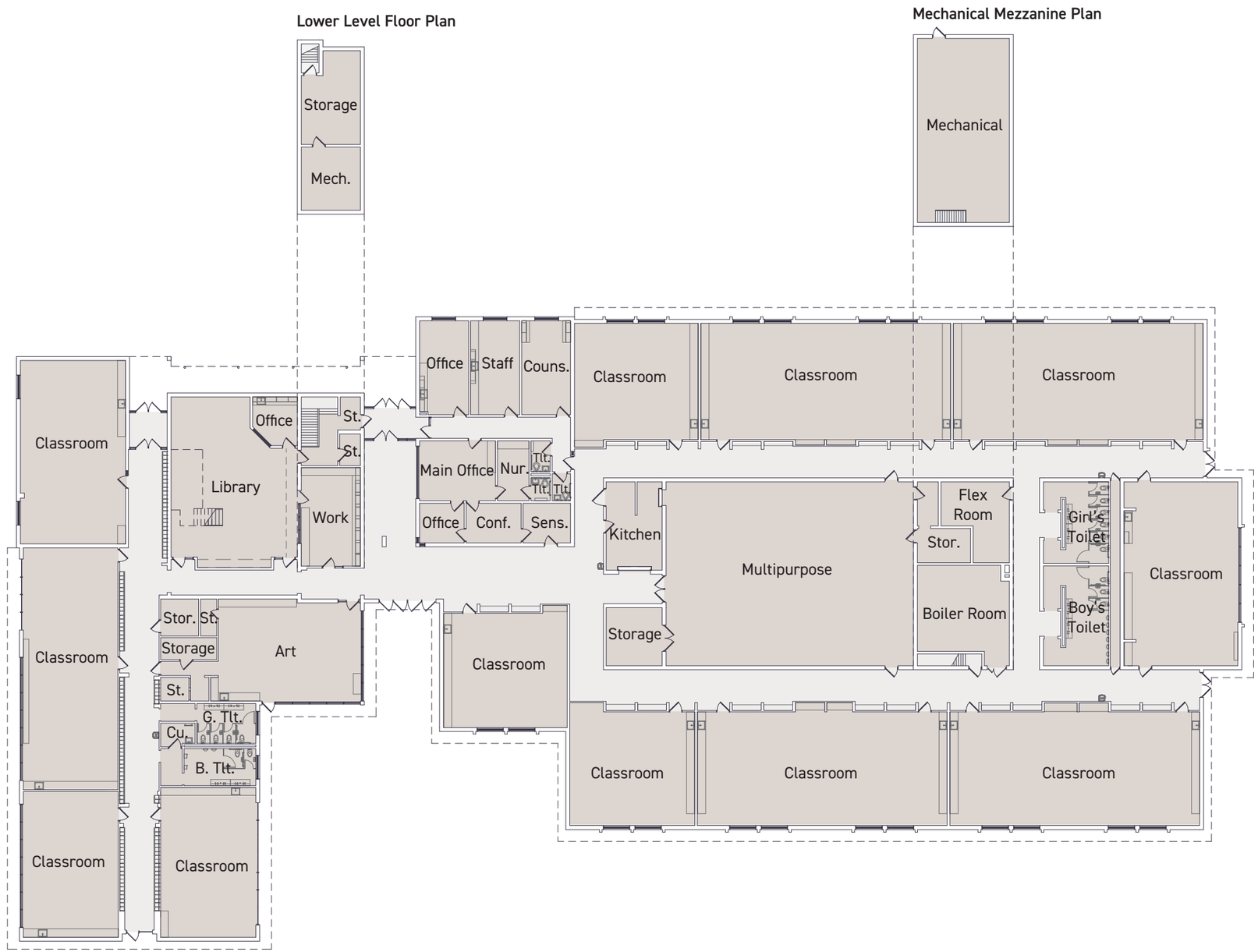
sparta montessori floor plan | first floor



N

sparta montessori building systems summary

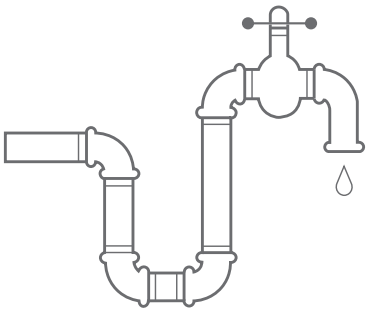
Good Condition
No visible damage, wear or need for repair; no replacement needed.

Fair Condition
Some visible damage, wear or need for repair; no immediate replacement required.

Poor Condition
Substantial visible damage, wear or need for repair, or identified as containing potential asbestos; most pressing replacement needed.

Plumbing
Condition Overview

Replace Water Service



PLUMBING

Domestic Water System	■	
Water Service	●	Piping at the end of expected life cycle
Water Distribution Piping	◪	1952 and 1965 piping at the end of expected life cycle
Water Softening System	○	
Fire Sprinkler System	○	
Sanitary System	■	
Sanitary Waste System	◪	
Sanitary Drain, Waste + Vent Piping	◪	1951 and 1965 piping is at the end of expected life cycle
Acid Waste Piping + Basin	○	
Interceptors	●	
Storm System	■	
Storm System	◪	
Storm Waste Piping	◪	1951 and 1965 piping is at the end of expected life cycle
Sump Pump	●	
Natural Gas System	□	

* See appendix for full engineer reports + additional information.

sparta montessori building systems summary

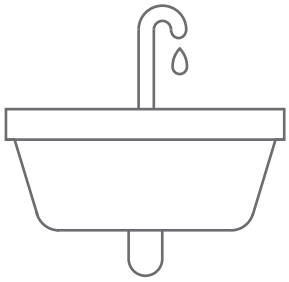
Good Condition
No visible damage, wear or need for repair; no replacement needed.

Fair Condition
Some visible damage, wear or need for repair; no immediate replacement required.

Poor Condition
Substantial visible damage, wear or need for repair, or identified as containing potential asbestos; most pressing replacement needed.

Plumbing
Condition Overview

Replace Classroom Sink
Water Fountains



PLUMBING

Plumbing Equipment	■	
Water Heater	●	Three electric water heaters in good condition
Circulator Pump	○	
Hot Water System	○	
Plumbing Fixtures	■	
Water Closets	●	
Urinals	●	
Lavatories	●	
Drinking Fountains	●	
Classroom Sinks	●	
General Sinks	●	
Art Room Sinks	●	
Emergency Eyewash Stations	○	

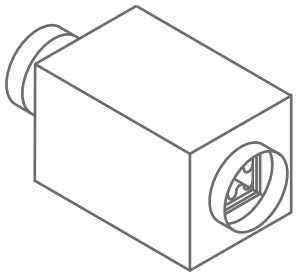
* See appendix for full engineer reports + additional information.

sparta montessori building systems summary

- **Good Condition**
  No visible damage, wear or need for repair; no replacement needed.
- **Fair Condition**
  Some visible damage, wear or need for repair; no immediate replacement required.
- **Poor Condition**
  Substantial visible damage, wear or need for repair, or identified as containing potential asbestos; most pressing replacement needed.

Mechanical Condition Overview

Replace Both 1990 Air Handling Units For Gym + Front Office



MECHANICAL

Heating	■	
Boiler Plant	●	The boilers were installed in 2009 and are in good condition. The boilers have an estimated 20-year life expectancy
Pumps	●	The pumps were installed in 2009 and are in good condition. The pumps have an estimated 25-year life expectancy
Ventilation + A/C Systems	■	
Air Handling Units	●	The air handling unit that serves the gym is original from 1990 and is in satisfactory condition. Air handling units have an estimated 30-year life expectancy
Air Conditioning Systems	●	The condensing units installed in 2009 are in good condition. Condensing units have an estimated 25-year life expectancy
Rooftop Units	●	Rooftop unit serving office is original to 1990 addition and in marginal condition. Unit serving Library was installed within the last 10 years and is in good condition
Control Systems	■	The building is served by a Siemens/Desigo digital control system

* See appendix for full engineer reports + additional information.

sparta montessori building systems summary

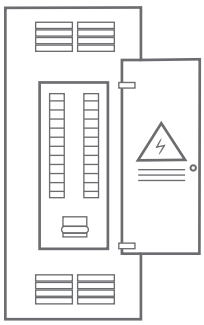
Good Condition
No visible damage, wear or need for repair; no replacement needed.

Fair Condition
Some visible damage, wear or need for repair; no immediate replacement required.

Poor Condition
Substantial visible damage, wear or need for repair, or identified as containing potential asbestos; most pressing replacement needed.

Electrical Condition Overview

Replace ITE Type Panelboards



ELECTRICAL

Electrical Service		Main electric service does not have surge protective device
Utility Service		
Switchboard		
Distribution Panelboards		Main electric service fusible switch consistent with building age
Panelboards		Majority of panelboards are 50 years old with minimal space for additional breakers. These panelboards are at the end of useful service life. 1990 portion panelboards in good condition
Light Fixtures + Controls		
Interior Lighting		Mix of lighting conditions
Corridor Lighting		Mix of lighting conditions
Exit Lighting		Mix of lighting conditions
Exterior Lighting		Mix of lighting conditions
Wiring Devices		Wear and tear on wiring devices and plates
Clock System		
Data / Telephone		

* See appendix for full engineer reports + additional information.

sparta montessori building systems summary

Good Condition
No visible damage, wear or need for repair; no replacement needed.

Fair Condition
Some visible damage, wear or need for repair; no immediate replacement required.

Poor Condition
Substantial visible damage, wear or need for repair, or identified as containing potential asbestos; most pressing replacement needed.

Life Safety
Condition Overview

Add Back Up Generator +
Upgrade Egress Lighting to Code

LIFE SAFETY

Emergency Generator	☐	
Emergency Egress Lighting	■	Egress lighting likely not code compliant
Fire Alarm System	■	
Public Address System	■	Intercom system head end is Rauland system
Access Control	■	
Security System	■	

* See appendix for full engineer reports + additional information.

sparta montessori interior analysis

KEY TAKEAWAYS

- Majority of wood casework is in poor condition due to staining, scratching, and worn finish.
- Majority of wood doors with hollow metal frames are in poor conditon due to wood chipping, staining, and wear.
- Wood panels located in the original building section are in poor condition due to wood spliting in corners and cracks.
- There is an instance of vinyl base located in the art room in poor condition due to wearing and peeling.

WALLS

- W1 Concrete Block
- W2 Gypsum
- W3 Tile
- W4 Concrete
- W5 Wood Panel
- W6 Brick
- W7 Vinyl Base
- W8 Tile Base

DOORS

- D1 Wood Door w/ Hollow Metal Frame
- D2 Hollow Metal Door w/ Hollow Metal Frame
- D3 Aluminum Door w/ Aluminum Storefront
- D4 Wood Door w/ Wood Frame

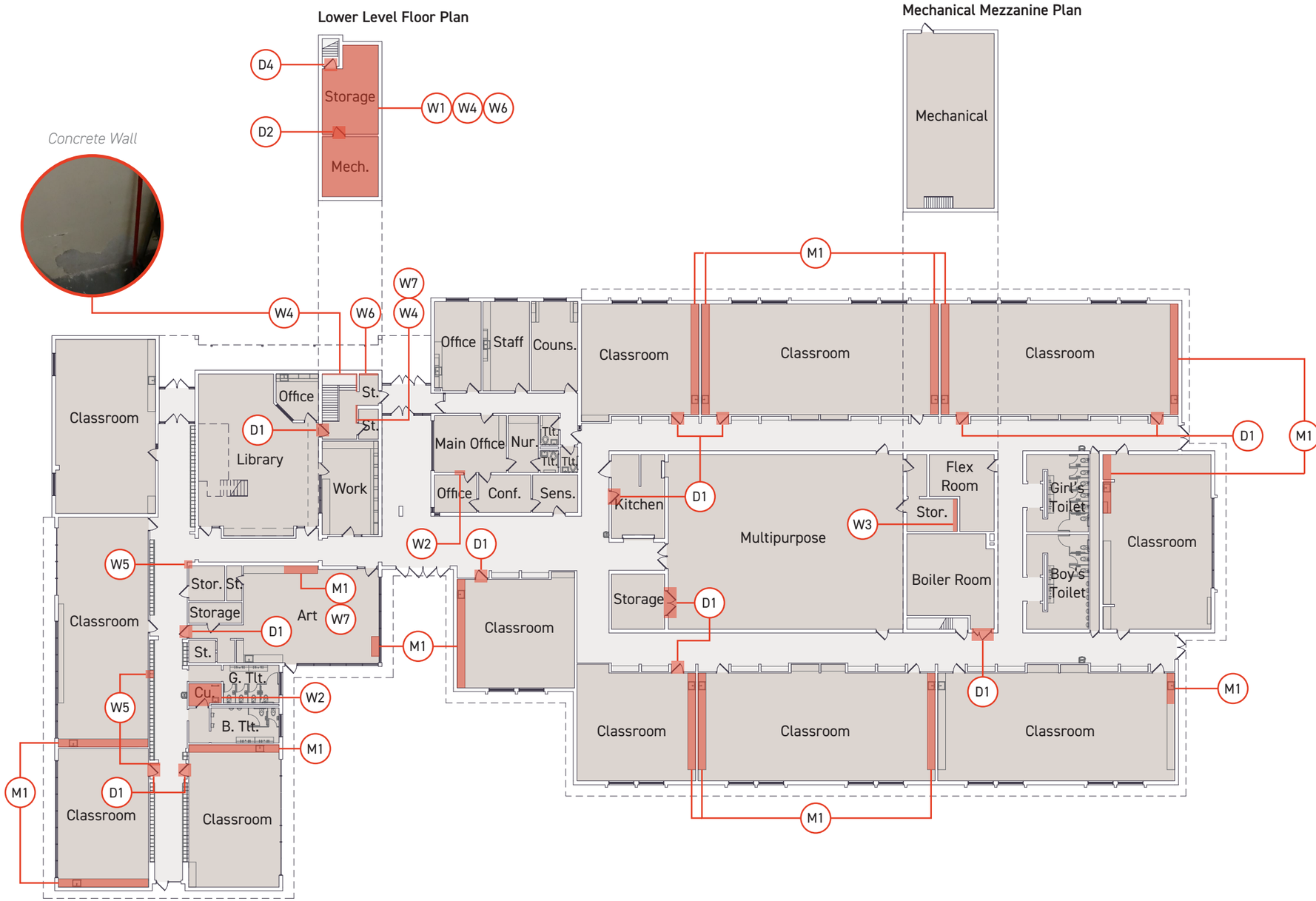
OPENINGS

- 01 Aluminum Overhead Coiling Window
- 02 Hollow Metal Framed Interior Window
- 03 Laminate Interior Window Sill
- 04 Wood Framed Interior Window

MISCELLANEOUS

- M1 Wood Casework
- M2 Laminate Casework
- M3 Metal Lockers
- M4 Composite Toilet Partitions
- M5 Wood Railing

sparta montessori interior identifications + analysis | first floor



Wood Casework

***Note:** The diagram above reflects instances of materials in poor condition, but does not reflect the material's overall condition.

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sparta montessori ceiling analysis

First Floor

KEY TAKEAWAYS

- Materials identified as potentially containing asbestos are considered to be in poor condition.
- Spline ceilings are identified as a potential asbestos containing material.
- The gypsum ceiling found in the original building portion bathrooms is in poor condition due cracking and paint peeling off.
- The acoustical ceiling tile (ACT) found in the library is in poor condition due to staining.

HIGHLIGHT

of ceilings were identified as potentially containing asbestos

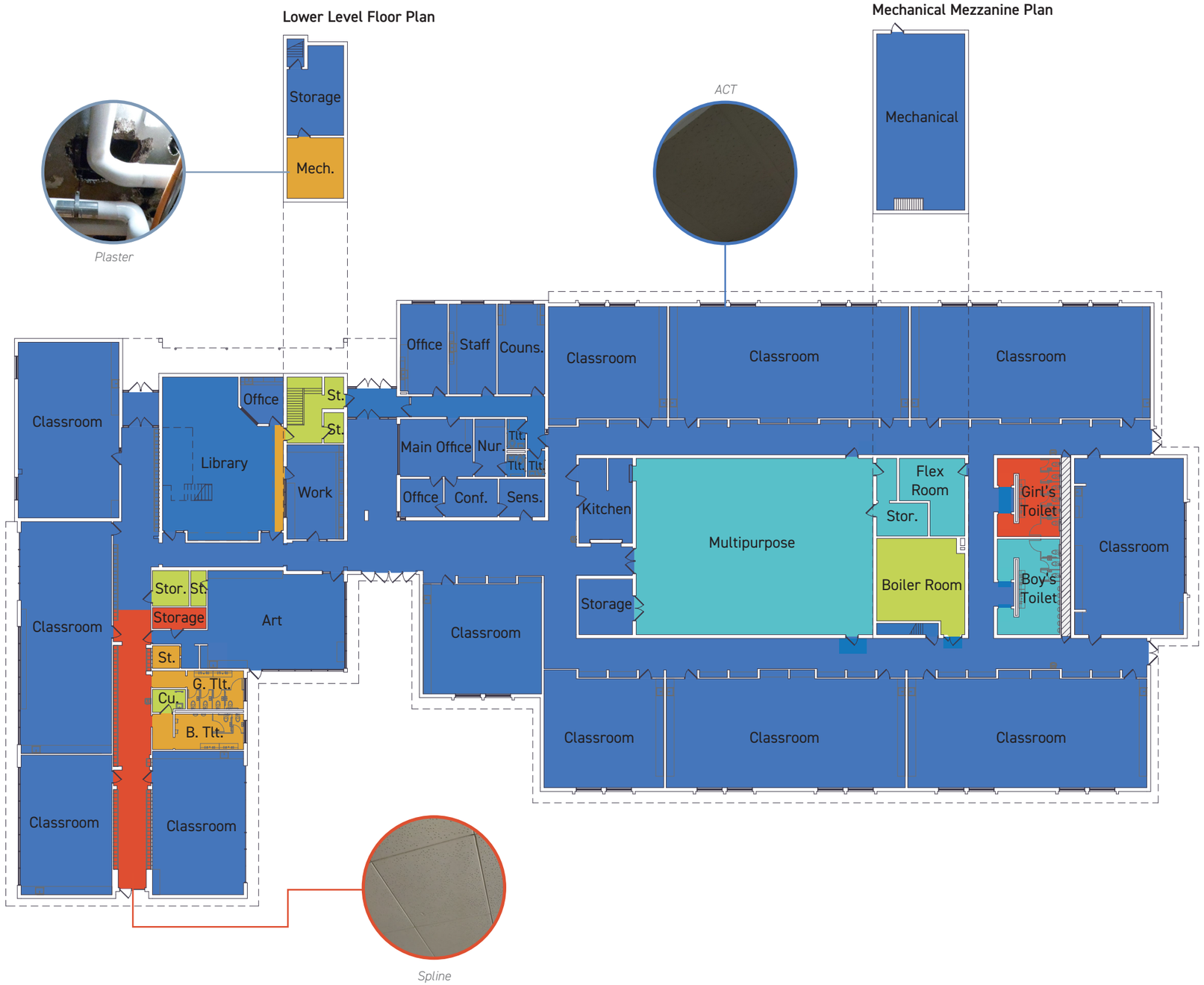
OVERALL CEILING CONDITION

Good	No visible damage
Fair	Some visible damage
Poor	Substantial visible damage

sparta montessori ceiling material identification

Materials Key

- Acoustical Ceiling Tile
- Gypsum
- Concrete
- Spline
- Plaster
- No Data



Potential of Asbestos Containing Materials

Asbestos is a material that was used in the construction industry, most commonly between 1960 - 1990. **There was no asbestos testing performed for this assessment.** Observations and assumptions were made based on common older building materials that typically have been identified to containing asbestos.

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sparta montessori flooring analysis

First Floor

KEY TAKEAWAYS

- Materials identified as potentially containing asbestos are considered to be in poor condition.
- Concrete flooring found in janitorial spaces is in poor condition due to cracking, staining, and paint peeling off.
- Epoxy hallway flooring found 1960's addition is in poor condition due to cracking and staining.

HIGHLIGHT

of floors were identified as potentially containing asbestos

OVERALL FLOORING CONDITION

Good	No visible damage
Fair	Some visible damage
Poor	Substantial visible damage

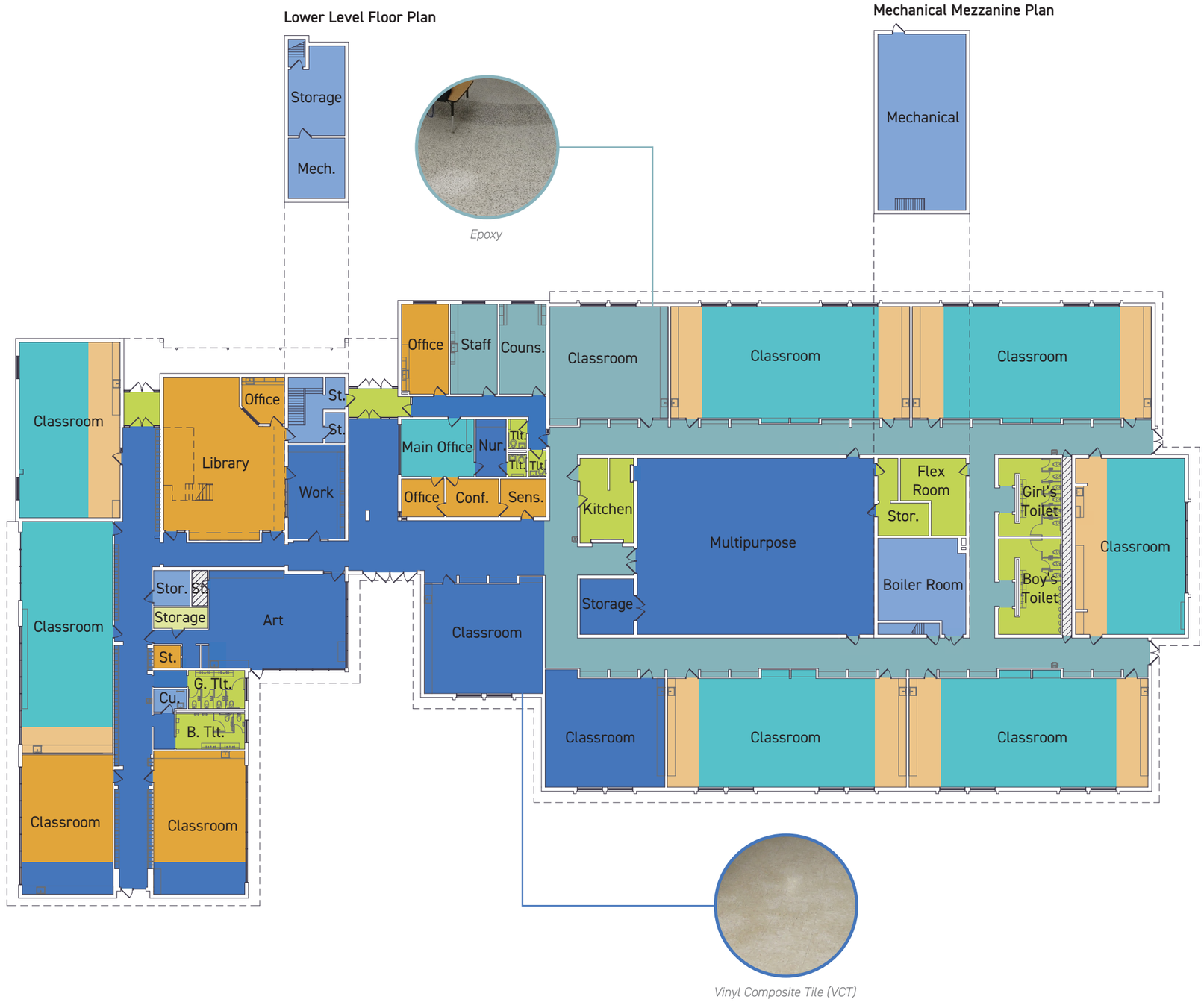
sparta montessori flooring material identification

Materials Key

- Vinyl Composite Tile
- Carpet Tile
- Tile
- Carpet
- Concrete
- Epoxy
- Linoleum
- Luxury Vinyl Tile
- No Data

Potential of Asbestos Containing Materials

Asbestos is a material that was used in the construction industry, most commonly between 1960 - 1990. **There was no asbestos testing performed for this assessment.** Observations and assumptions were made based on common older building materials that typically have been identified to containing asbestos.



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sparta montessori exterior analysis

OVERALL CONDITION RATING & KEY TAKEAWAYS

- Metal awnings located on the portion of the building facing the parking lot are in poor condition due to peeling pant, rusting, and excessive wear.
- There are instances of metal lintels located above doors and windows in poor condition due to rusting.
- Brick around the building shows occasional chiping and cracking.
- Downspouts on the portion of the building facing the playground are in poor condition due to denting and wear.

WALLS

- W1 Brick
- W2 Concrete Block
- W3 Concrete Foundation
- W4 Precast Concrete
- W5 Wood Paneling
- W6 Aluminum Siding

MISCELLANEOUS

- M1 Metal Soffit
- M2 Metal Coping
- M3 Metal Lintel
- M4 Metal Fence
- M5 Wood Deck
- M6 Gutter + Downspouts
- M7 Metal Awning

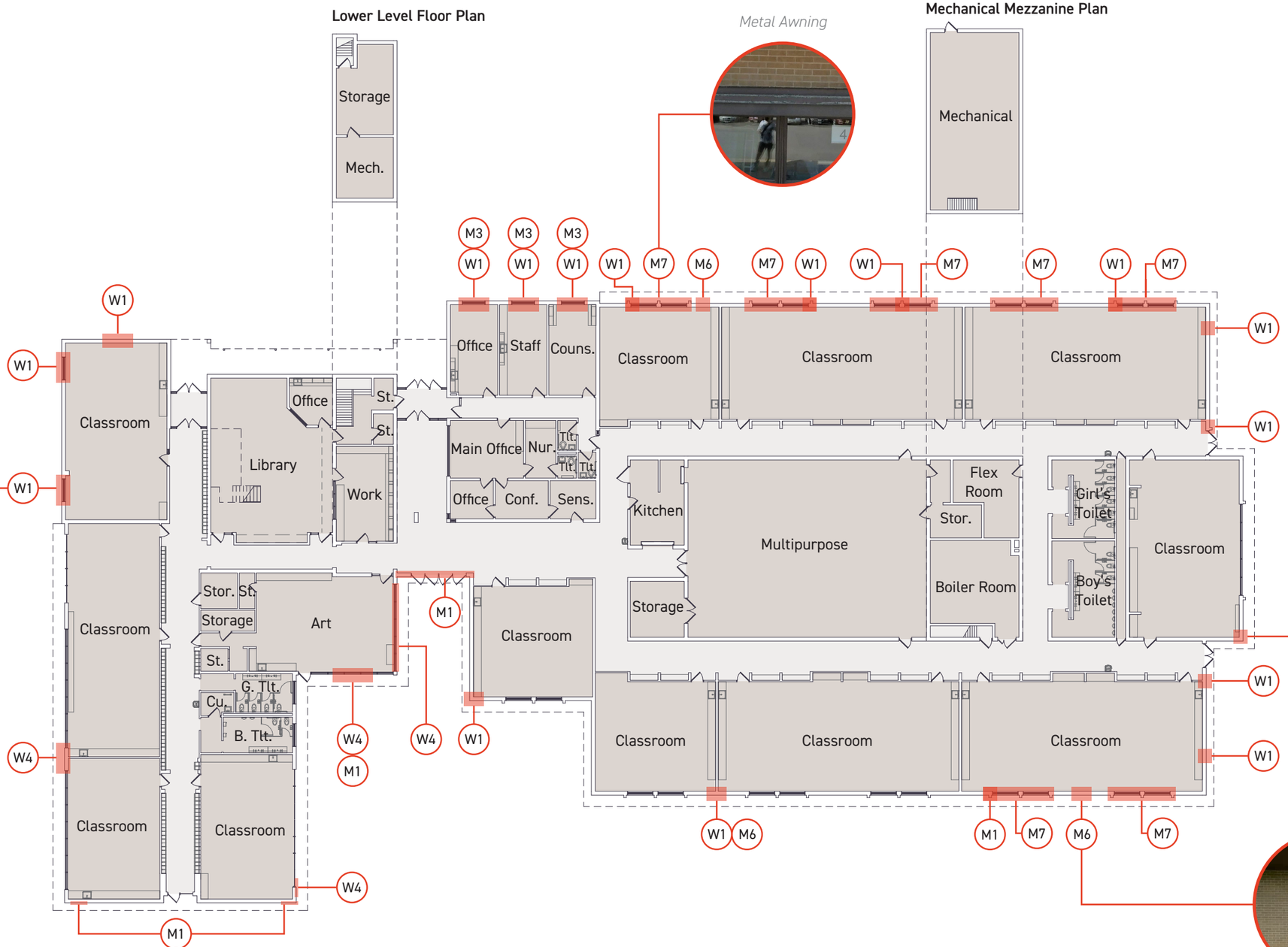
sparta montessori exterior identifications + analysis

Lower Level Floor Plan

Mechanical Mezzanine Plan

Brick

Metal Awning



Gutter + Downspout

***Note:** The diagram above reflects instances of materials in poor condition, but does not reflect the material's overall condition.

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sparta montessori exterior door analysis

No.	Door Type / Door Frame
A	Aluminum / Aluminum Storefront
B	Aluminum / Aluminum Storefront
C	Hollow Metal / Hollow Metal
D	Hollow Metal / Hollow Metal
E	Hollow Metal / Hollow Metal
E2	Wood / Wood
F	Aluminum / Aluminum Storefront

KEY TAKEAWAYS

- Door D is in poor condition due to rusting and discoloration.
- Door E2 is in poor condition due to cracking, peeling paint, and single paned glass.
- Aluminum doors with aluminum storefront framing are in fair condition due to minor scratching and fading.

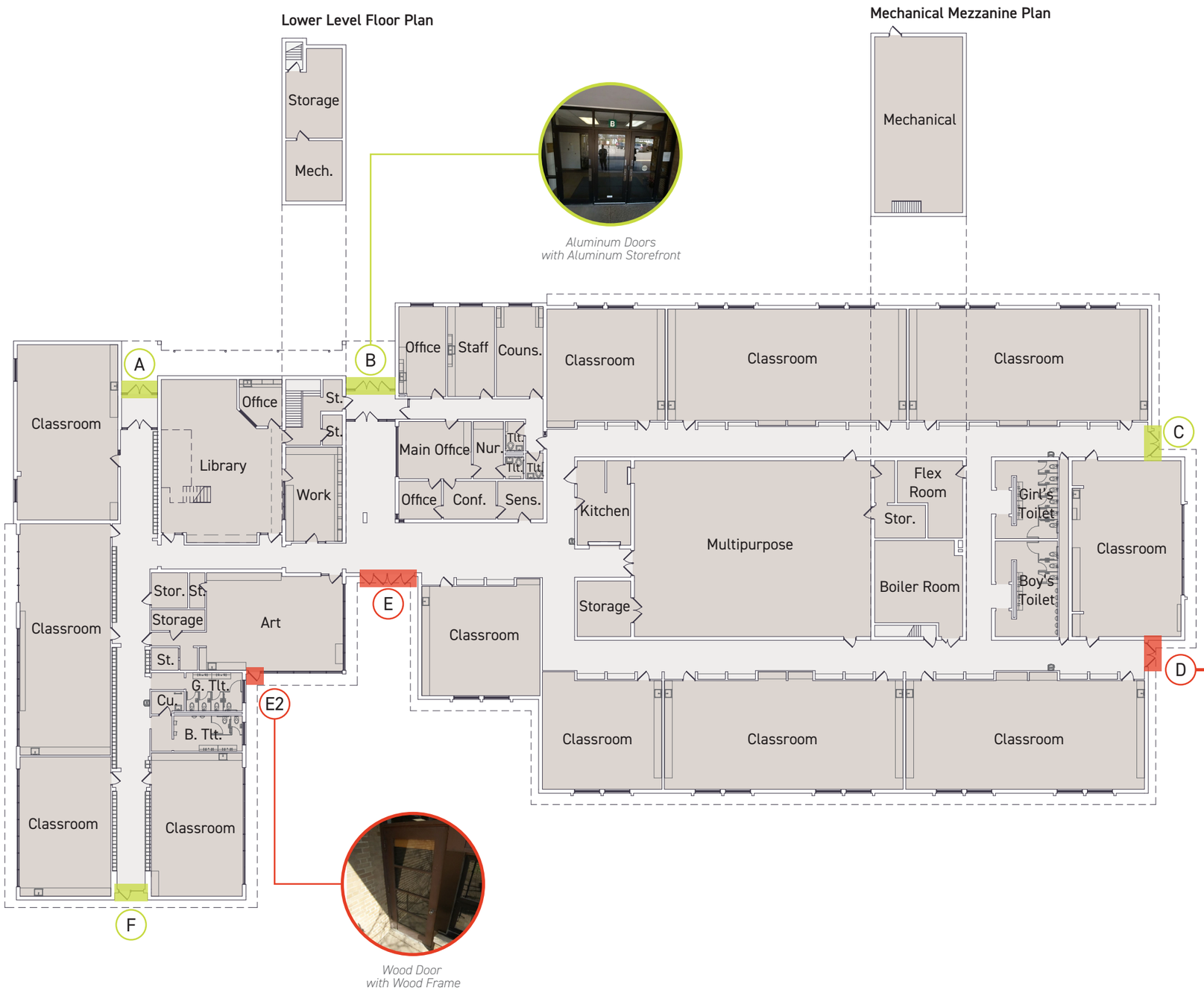
MOST COMMON EXTERIOR DOOR

Aluminum Door(s) with Aluminum Storefront Frame

OVERALL EXTERIOR DOOR CONDITION

Good	No visible damage
Fair	Some visible damage
Poor	Substantial visible damage

sparta montessori exterior door identification + analysis



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sparta montessori exterior window analysis

No.	Frame Type / Glass Type
1	Aluminum / Double Pane
2	Aluminum / Double Pane
3	Aluminum / Double Pane
4	Aluminum / Double Pane
5	Aluminum / Double Pane
6	Aluminum / Double Pane
7	Aluminum / Double Pane
8	Aluminum / Double Pane
9	Aluminum / Double Pane
10	Aluminum / Double Pane
11	Aluminum / Double Pane
12	Aluminum / Double Pane
13	Aluminum / Double Pane
14	Aluminum / Double Pane
15	Aluminum / Double Pane
19	Aluminum / Double Pane
20A	Aluminum / Double Pane
20B	Aluminum / Double Pane
20C	Aluminum / Double Pane
20D	Aluminum / Double Pane
21	Aluminum / Double Pane
22	Aluminum / Double Pane
23	Aluminum / Double Pane
24	Aluminum / Double Pane
26	Aluminum / Double Pane
27	Aluminum / Double Pane

KEY TAKEAWAYS

- Majority of the aluminum frame windows with double pane glass are in fair condition due to fading.
- Windows 26 and 27 are in good condition due to little wear and fading.

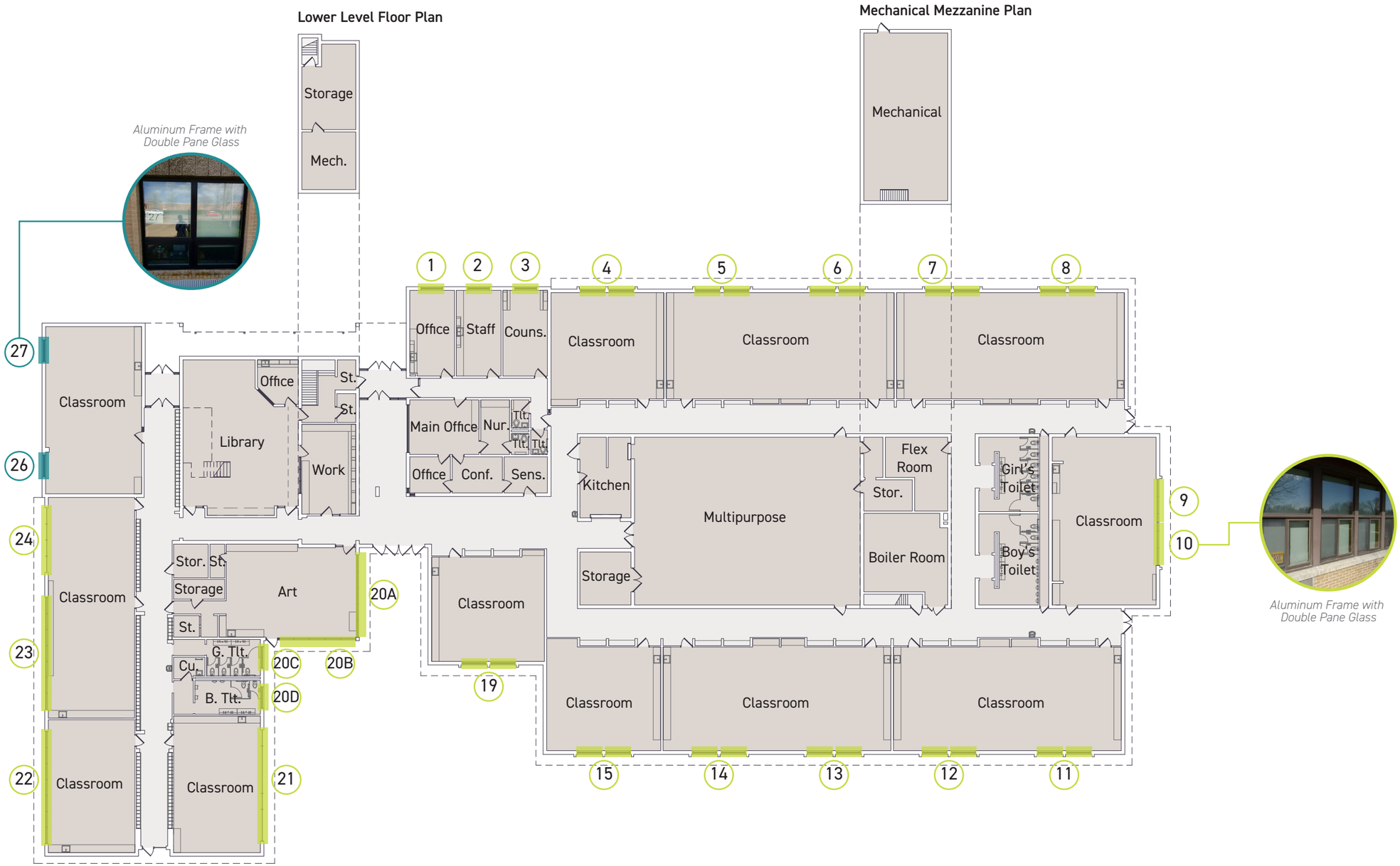
MOST COMMON EXTERIOR WINDOW

Aluminum with Double Pane Glass

OVERALL EXTERIOR WINDOW CONDITION

Good	No visible damage
Fair	Some visible damage
Poor	Substantial visible damage

sparta montessori exterior window identification + analysis



sparta montessori roof identification

OVERALL CONDITION RATING

25%

0%

75%

ROOF TIMELINE

1 = Built-up-Roof w/ Gravel, Unknown Installation

2 = EPDM Membrane, Uknown Installation

3 = EPDM Membrane, Uknown Installation

4 = Fully Adhered EPDM, Uknown Installation

5 = Built-up-Roof w/ Gravel, Unknown Installation

6 = Mechanically Attached EPDM, Unknown Install.

7 = Built-up-Roof w/ Gravel, Unknown Installation

8 = Fully Adhered EPDM, Uknown Installation

9 = Fully Adhered EPDM, Uknown Installation

10 = Built-up-Roof w/ Gravel, Unknown Installation

ROOF ASSESSMENT

= Good (>15 Years of Life Expectancy Remaining)

= Fair (5-15 Years of Life Expectancy Remaining)

= Poor (<5 Years of Life Expectancy Remaining)

*Assessment of "Good/Fair/Poor" based on information provided in third party report, information supplied by the District, and industry standard roof life expectancies.

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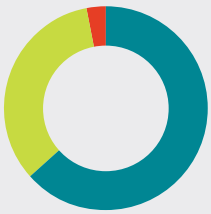
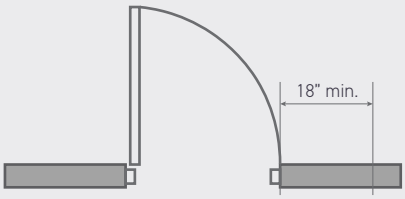
sparta montessori ada conditions + assessment

Overall Condition Rating:

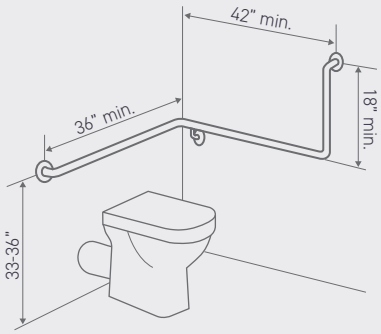


Most Concerning Item That Does Not Meet Code Requirements:



Not providing at least 18" minimum clearance required on the pull side of the door, parallel to doorway.

Most Frequently Occurring Item That Does Not Meet Code Requirements:

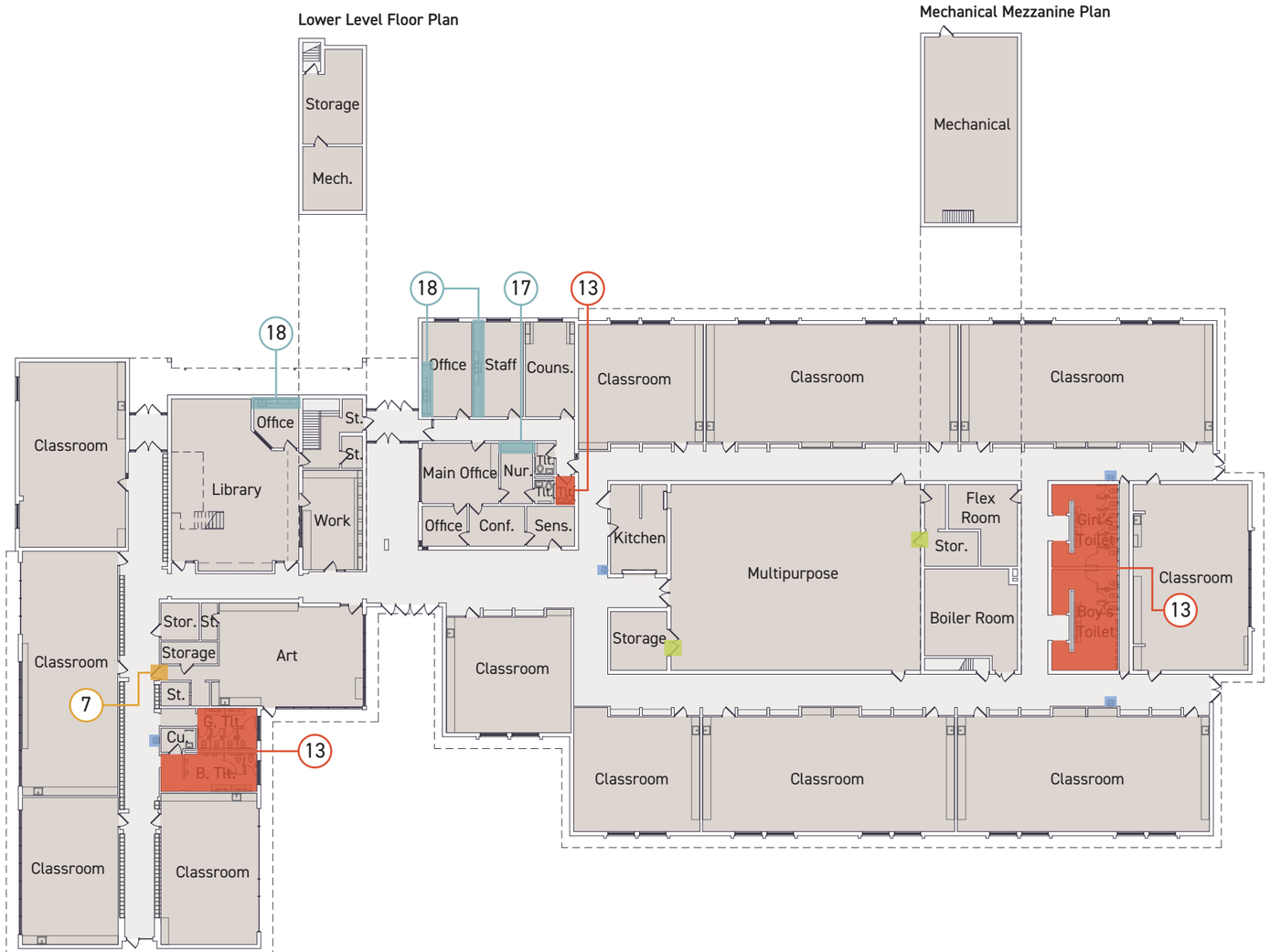


Not providing proper grab bars at ADA accessible toilets

GENERAL ASSESSMENT OF ADA CONDITIONS

- **Building Entrance Accessibility**
- **ADA Parking Stalls**
- **Accessible Routes of Travel**
  - Ramps
  - Lifts
  - Elevators
- **Railings**
  - Ramp Railings
  - Stair Railings
- **Door Hardware**
- **Door Clearances**
  - Push / Pull
  - Thresholds
  - Maneuvering
- **Toilet Rooms**
  - 5'-0" Wheelchair Clearance
  - ADA Accessible Stall
  - Unisex Toilet Room
  - Grab Bars
  - Showers
- **Protruding Objects**
- **Drinking Fountains**
- **Casework**
  - Transaction Counters
  - Workstations Counters
  - Counters with Sinks

sparta montessori ada conditions + assessment | first floor



Color Key

- **Accessible Routes of Travel**
  1. Ramps
  2. Lifts
  3. Elevators
- **Railings**
  4. Ramps
  5. Stairs
- **Door Hardware**
  6. Door Hardware
- **Door Clearances**
  7. Push / Pull
  8. Thresholds
  9. Maneuvering
- **Toilet Rooms**
  10. 5'-0" Wheelchair Clearance
  11. ADA Accessible Stall
  12. Unisex Toilet Room
  13. Grab Bars
  14. Showers
- **Protruding Objects**
  15. Protruding Objects
- **Casework**
  16. Transaction Counter
  17. Workstation Counters
  18. Counters with Sinks

N

sparta montessori summary

ITEMS IN POOR CONDITION

Substantial visible damage, wear or need for repair, or identified as containing potential asbestos

- Domestic water system
- Sanitary system
- Plumbing fixtures
- Distribution panelboards
- Interior wall repair at select/identified areas
- Ceiling replacement at select/identified areas
- Flooring replacement at select/identified areas
- Casework at identified areas
- Exterior doors at identified areas
- Exterior wall repair at identified areas
- Potential asbestos remediation
- ADA improvements at identified areas

ITEMS IN FAIR CONDITION

Some visible damage, wear or need for repair

- Storm system
- Plumbing equipment
- HVAC control systems
- Electrical service
- Panelboards
- Light fixtures and controls
- Wiring devices
- Emergency egress lighting
- Ceiling replacement at select/identified areas
- Flooring replacement at select/identified areas
- Exterior doors at identified areas
- Exterior windows at identified area

ITEMS IN GOOD CONDITION

No visible damage, wear or need for repair

- Boiler plant and pumps
- HVAC systems
- Clock system and data/telephone
- Fire alarm and public address system
- Access control and security system
- Exterior windows at identified areas

+ OVERALL BREAKDOWN

Ceiling

Accessibility

Flooring

Plumbing

Exterior Doors

Mechanical

Exterior Windows

Electrical

Roof

Life Safety

03

Original Date of Construction

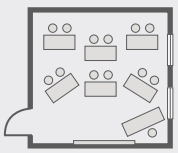
2002

As of 2023: 21 years old

Square Footage

223,350 Sq. Ft.

Average Core Classroom
Size Comparison



866 sq. ft.

Recommended Size

1st -12th: 900 sq. ft.
Kindergarten: 1200 sq. ft.

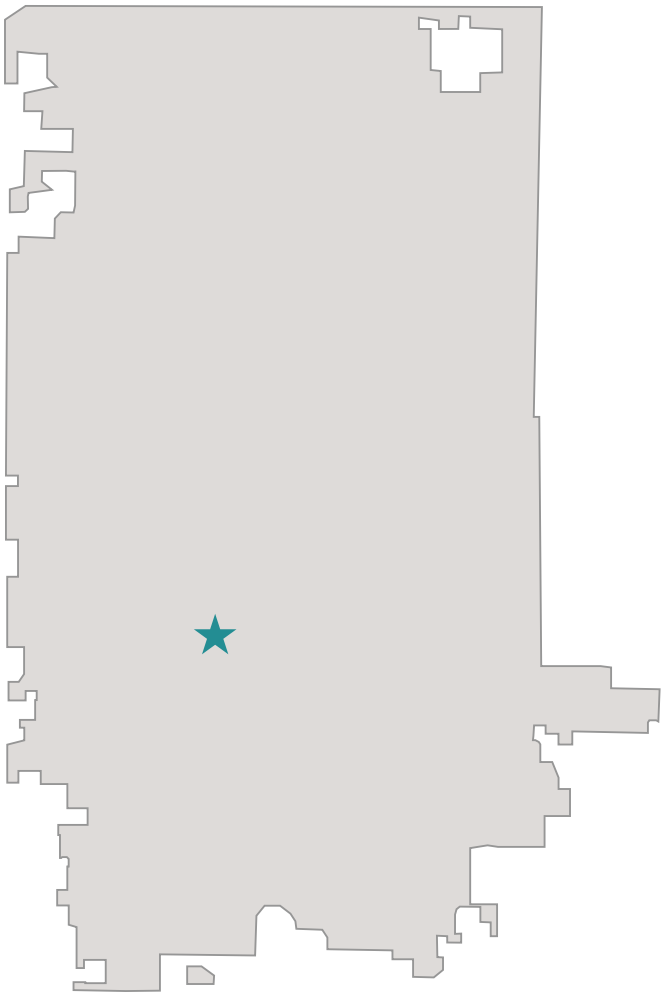
meadowview middle school

SUMMARY

Meadowview Middle School provides a comprehensive program for 5th-8th grade students.

Address: 1225 N Water St, Sparta, WI 54656
Grades Served: 5th-8th Grades
Site Size: 38.9 acres
Parking: 290 stalls

meadowview middle school



School Location in Sparta Area School District Boundaries.

KEY TAKEAWAYS

- There are athletic fields located at both the north and south ends of the parcel.
- A majority of the parking is located west of the building.
- There is access to parking from both N Water St and Meadowview Ln.

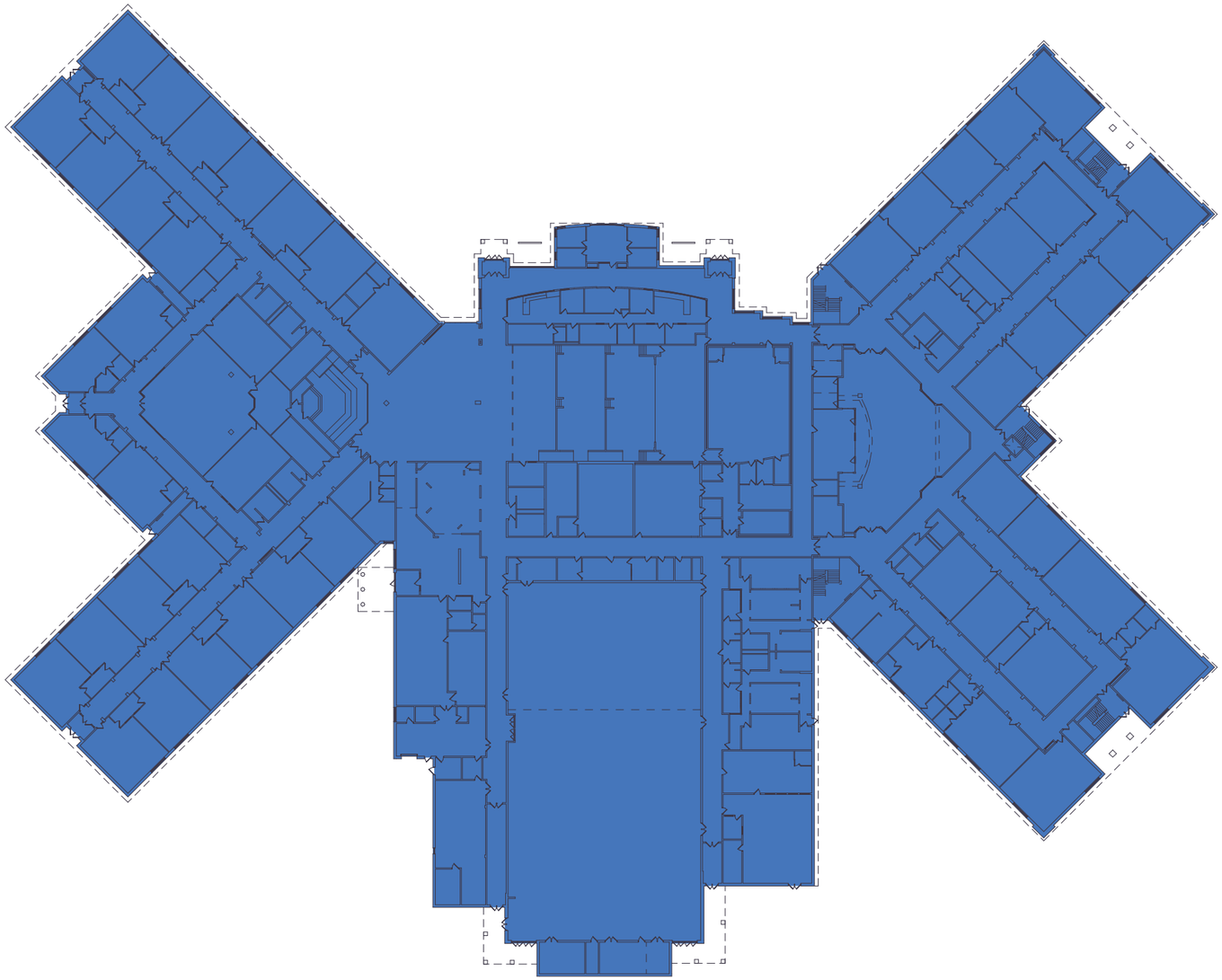
PARCEL DIVISION

- Building
- Playgrounds
- Paved Area
- Athletic Fields
- Green space

meadowview middle school site map

N

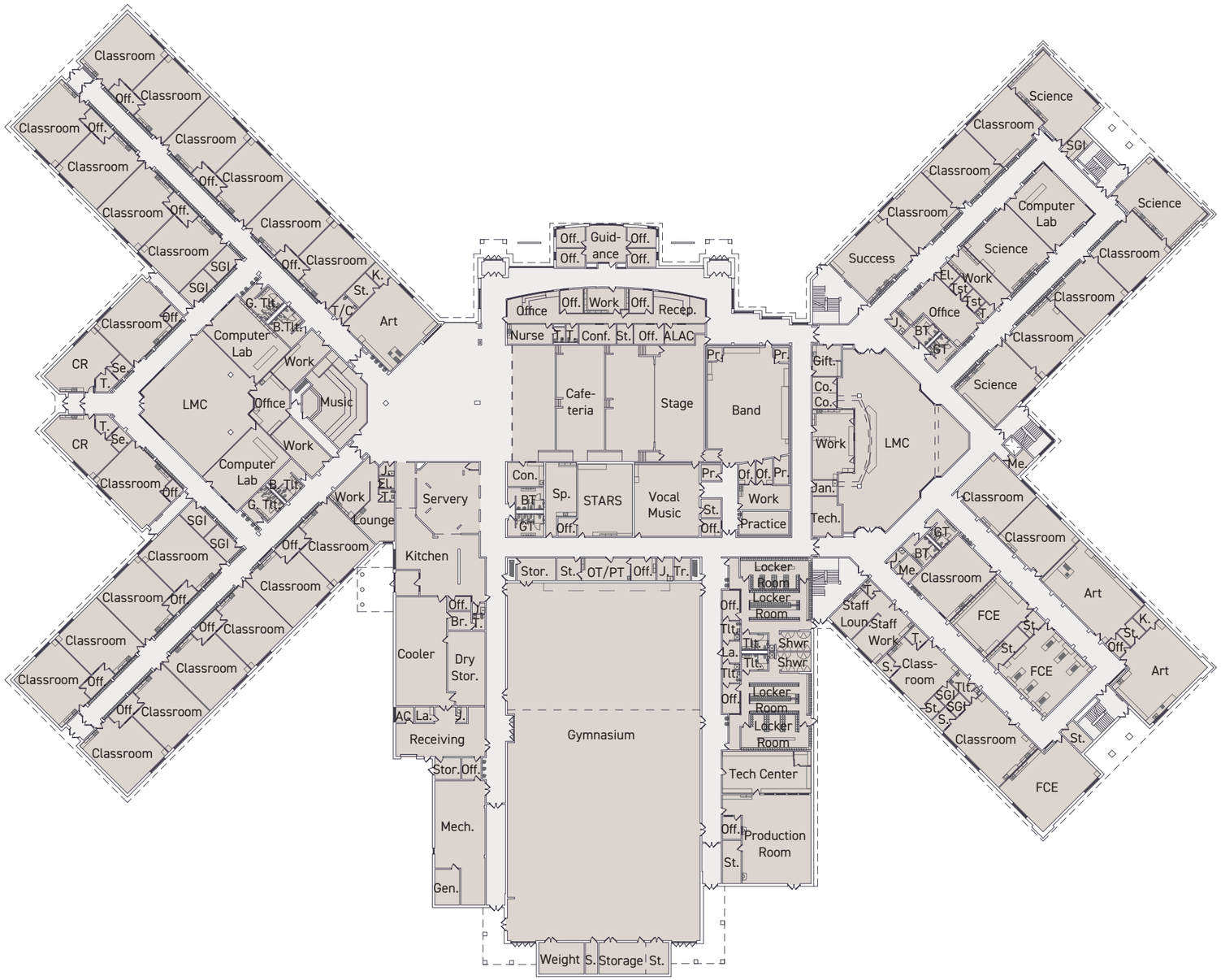
meadowview middle school building evolution



2002 - Original Building

N

meadowview middle school floor plan | first floor



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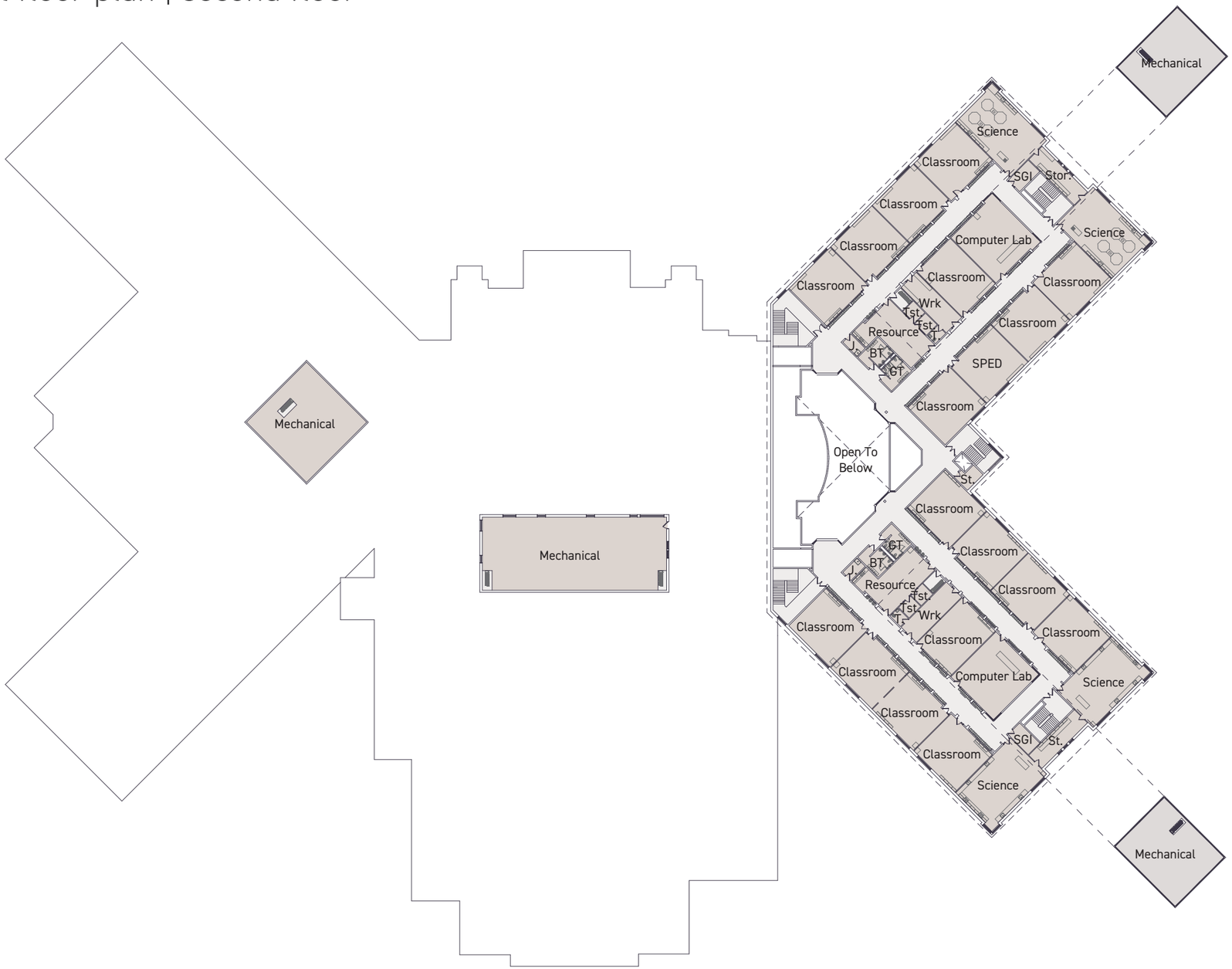
meadowview middle school floor plan | second floor



N

meadowview middle school building systems summary

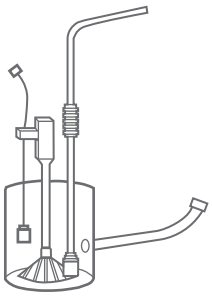
Good Condition
No visible damage, wear or need for repair; no replacement needed.

Fair Condition
Some visible damage, wear or need for repair; no immediate replacement required.

Poor Condition
Substantial visible damage, wear or need for repair, or identified as containing potential asbestos; most pressing replacement needed.

Plumbing
Condition Overview

Continued Maintenance on
Existing Sump + Pump System



PLUMBING

Domestic Water System	■	
Water Service	●	
Water Distribution Piping	●	Copper piping appears to be in fair condition
Water Softening System	○	
Fire Sprinkler System	○	
Sanitary System	■	
Sanitary Waste System	●	
Sanitary Drain, Waste + Vent Piping	●	
Acid Waste Piping + Basin	○	
Interceptors	●	
Storm System	■	
Storm System	●	
Storm Waste Piping	●	
Sump Pump	●	
Natural Gas System	■	

* See appendix for full engineer reports + additional information.

meadowview middle school building systems summary

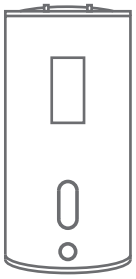
Good Condition
No visible damage, wear or need for repair; no replacement needed.

Fair Condition
Some visible damage, wear or need for repair; no immediate replacement required.

Poor Condition
Substantial visible damage, wear or need for repair, or identified as containing potential asbestos; most pressing replacement needed.

Plumbing
Condition Overview

Replace Existing Water Heater System



PLUMBING

Plumbing Equipment		
Water Heater		Corrosion present on piping. Storage tank connection appears to be corroded and leaks
Circulator Pump		
Hot Water System		
Plumbing Fixtures		
Water Closets		
Urinals		
Lavatories		
Drinking Fountains		
Classroom Sinks		
General Sinks		
Art Room Sinks		
Emergency Eyewash Stations		

* See appendix for full engineer reports + additional information.

meadowview middle school building systems summary

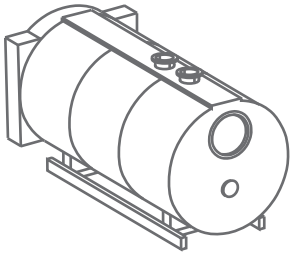
Good Condition
No visible damage, wear or need for repair; no replacement needed.

Fair Condition
Some visible damage, wear or need for repair; no immediate replacement required.

Poor Condition
Substantial visible damage, wear or need for repair, or identified as containing potential asbestos; most pressing replacement needed.

Mechanical Condition Overview

Replace Energy Inefficient Boilers + Pumps, Flip Coil Positions on Air Handling Units



MECHANICAL

Heating		
Boiler Plant		Boilers were installed in 2001 and are in good condition. The boilers have an estimated 25-year life expectancy. The existing boilers are energy inefficient
Pumps		Pumps were installed in 2001 and appear to be in good condition. The pumps have an estimated 25-year life expectancy. The existing pumping system is energy inefficient
Ventilation + A/C Systems		
Air Handling Units		Air handling units have heating and cooling coils installed in the wrong order, preventing dehumidification control sequences from being implemented. Units have 30 yr life expectancy
Air Conditioning Systems		Original chillers replaced in 2022 with two new units which are in excellent condition Chilled water pumps installed in 2001 appear to be in good condition with 25 yr life expectancy
Rooftop Units		The unit serving the office area is original from 2001 and is in satisfactory condition. The packaged rooftop unit has an estimated life expectancy of 20 years
Control Systems		The building is served by both Trane and Siemens/Desigo digital controls

* See appendix for full engineer reports + additional information.

meadowview middle school building systems summary

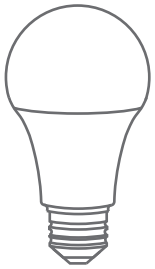
Good Condition
No visible damage, wear or need for repair; no replacement needed.

Fair Condition
Some visible damage, wear or need for repair; no immediate replacement required.

Poor Condition
Substantial visible damage, wear or need for repair, or identified as containing potential asbestos; most pressing replacement needed.

Electrical
Condition Overview

Install surge protection +
replace damaged wiring devices



ELECTRICAL

Electrical Service	■	
Utility Service	●	Main electric service does not have a surge protective device
Switchboard	●	
Panelboards	■	
Light Fixtures + Controls	■	
Interior Lighting	●	Mix of lighting conditions
Corridor Lighting	●	Mix of lighting conditions
Lighting Controls	●	Mix of lighting controls
Exterior Lighting	●	Mix of lighting conditions
Wiring Devices	■	Devices vary in age and condition and generally show signs of wear and tear
Clock System	■	
Data / Telephone	■	Abandoned phone cabling throughout building

* See appendix for full engineer reports + additional information.

meadowview middle school building systems summary

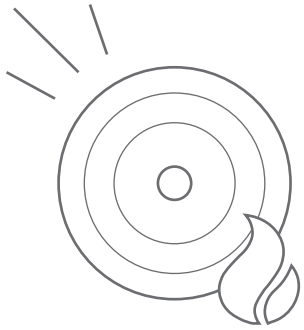
Good Condition
No visible damage, wear or need for repair; no replacement needed.

Fair Condition
Some visible damage, wear or need for repair; no immediate replacement required.

Poor Condition
Substantial visible damage, wear or need for repair, or identified as containing potential asbestos; most pressing replacement needed.

Life Safety
Condition Overview

Replace Existing Public Address System + Fire Alarm System



LIFE SAFETY

Emergency Generator		
Emergency Egress Lighting		Interior and exterior egress lighting to emergency generator not code compliant
Fire Alarm System		20 year old system likely not code compliant
Public Address System		System original to building construction with volume control issues in some spaces
Access Control		
Security System		

* See appendix for full engineer reports + additional information.

meadowview middle school interior analysis

KEY TAKEAWAYS

- Majority of casework located within the classrooms appear to be fair condition, except a few instances of peeling laminate or missing handles.
- Terrazzo base is overall in poor condition due to many instances of cracking, crumbling, and chipping.
- There are instances of concrete block wall in poor condition due to cracking.
- Majority of the gypsum walls located throughout the building are in fair condition, except a few instances that are in poor condition due to cracking and chipping of paint, exposed corner bead, and/or visible drywall sheet seams.

WALLS

- W1 Concrete Block
- W2 Gypsum
- W3 Tile
- W4 Concrete
- W5 Vinyl Base
- W6 Tile Base
- W7 Terrazzo Base
- W8 Brick
- W9 Expoxy Base

DOORS

- D1 Wood Door w/ Hollow Metal Frame
- D2 Hollow Metal Door w/ Hollow Metal Frame
- D3 Hollow Metal Door w/ HM Storefront
- D4 Wood Door w/ HM Storefront

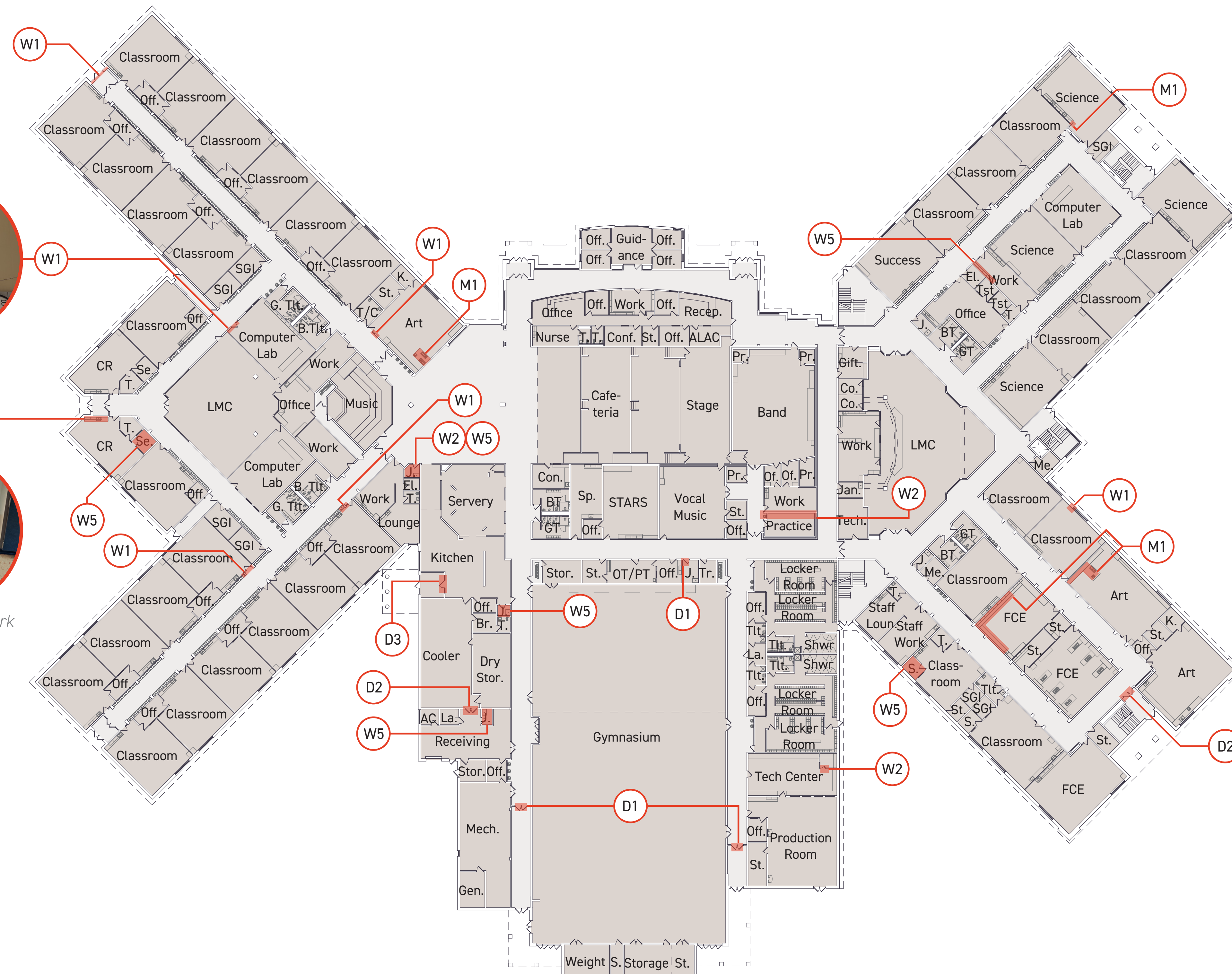
OPENINGS

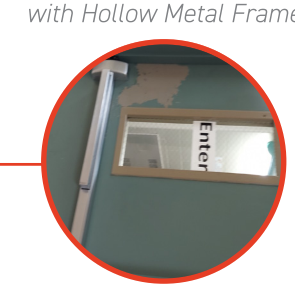
- O1 Aluminum Overhead Coiling Gate
- O2 Hollow Metal Framed Interior Window
- O3 Laminate Interior Window Sill
- O4 Wood Framed Interior Window

MISCELLANEOUS

- M1 Laminate Casework
- M2 Metal Lockers
- M3 Wood Bleachers
- M4 Composite Toilet Partitions
- M5 Partition Wall

meadowview middle school interior identifications + analysis | first floor

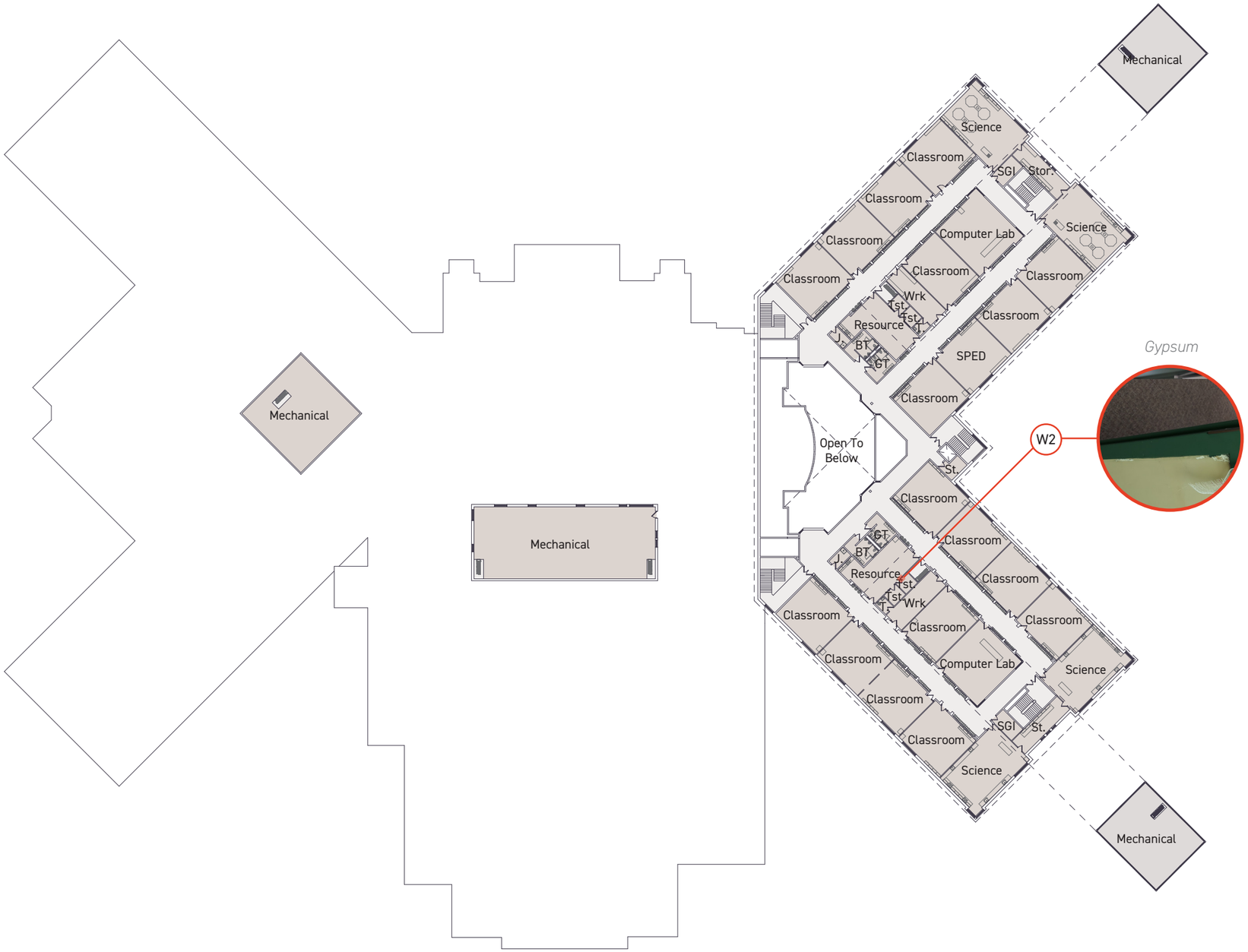




***Note:** The diagram above reflects instances of materials in poor condition, but does not reflect the material's overall condition.

N

meadowview middle school interior identifications + analysis | second floor



***Note:** The diagram above reflects instances of materials in poor condition, but does not reflect the material's overall condition.

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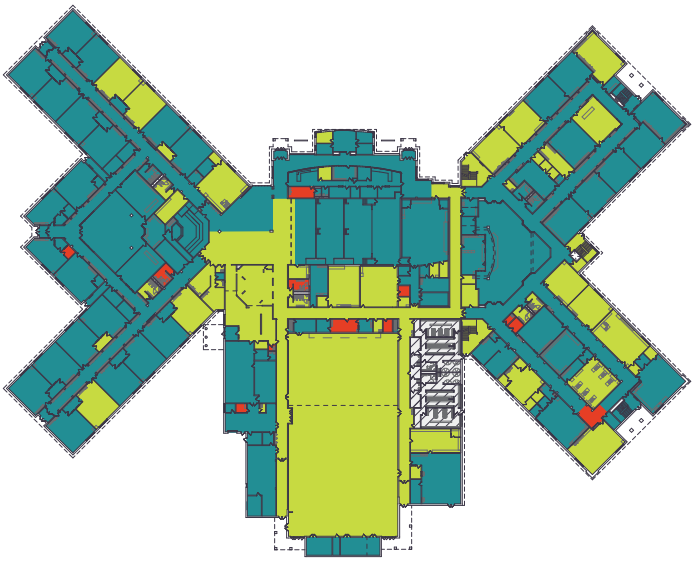
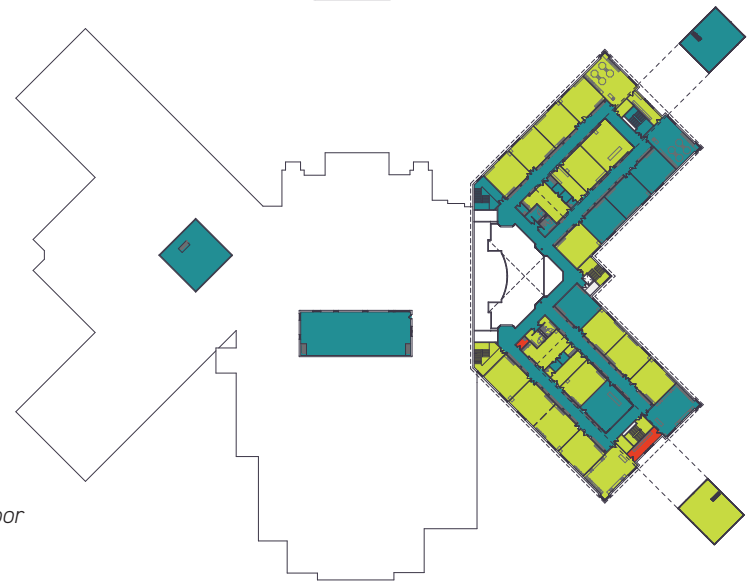
meadowview middle school ceiling analysis



First Floor



Second Floor

KEY TAKEAWAYS

- Materials identified as potentially containing asbestos are considered to be in poor condition.
- Spline ceilings are identified as a potential asbestos containing material.
- Majority of acoustical ceiling tile is in fair condition due to minor staining and cracking.
- Concrete ceiling located in the gymnasium is in fair condition due to some cracking and wearing.

HIGHLIGHT

of ceilings were identified as potentially containing asbestos

OVERALL CEILING CONDITION

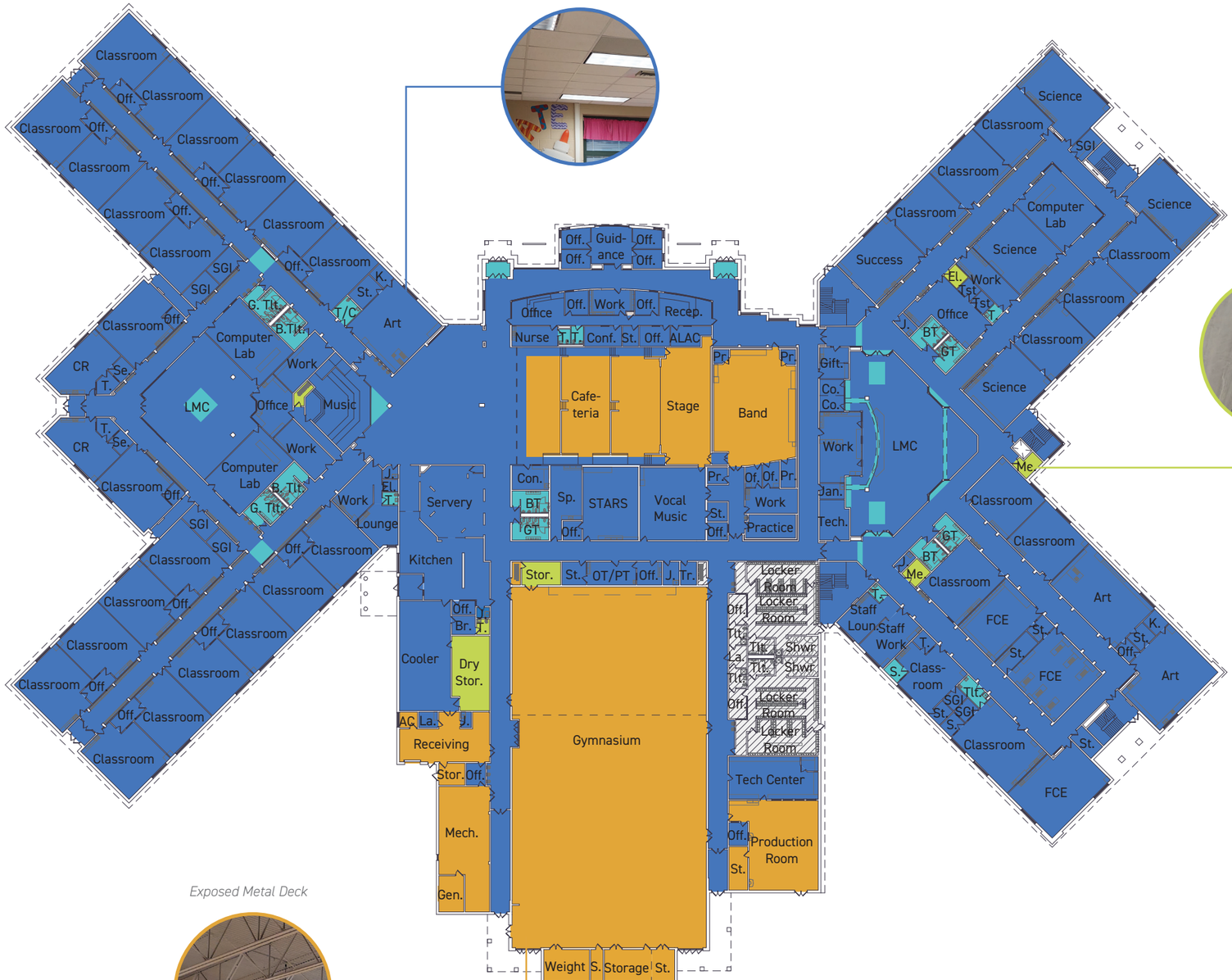
Good	No visible damage
Fair	Some visible damage
Poor	Substantial visible damage

meadowview middle school ceiling material identification | first floor

Materials Key

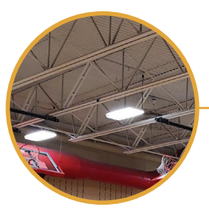
- Acoustical Ceiling Tile
- Gypsum
- Concrete
- Exposed Metal Deck
- No Data

Acoustical Ceiling Tile (ACT)



Concrete

Exposed Metal Deck



Potential of Asbestos Containing Materials

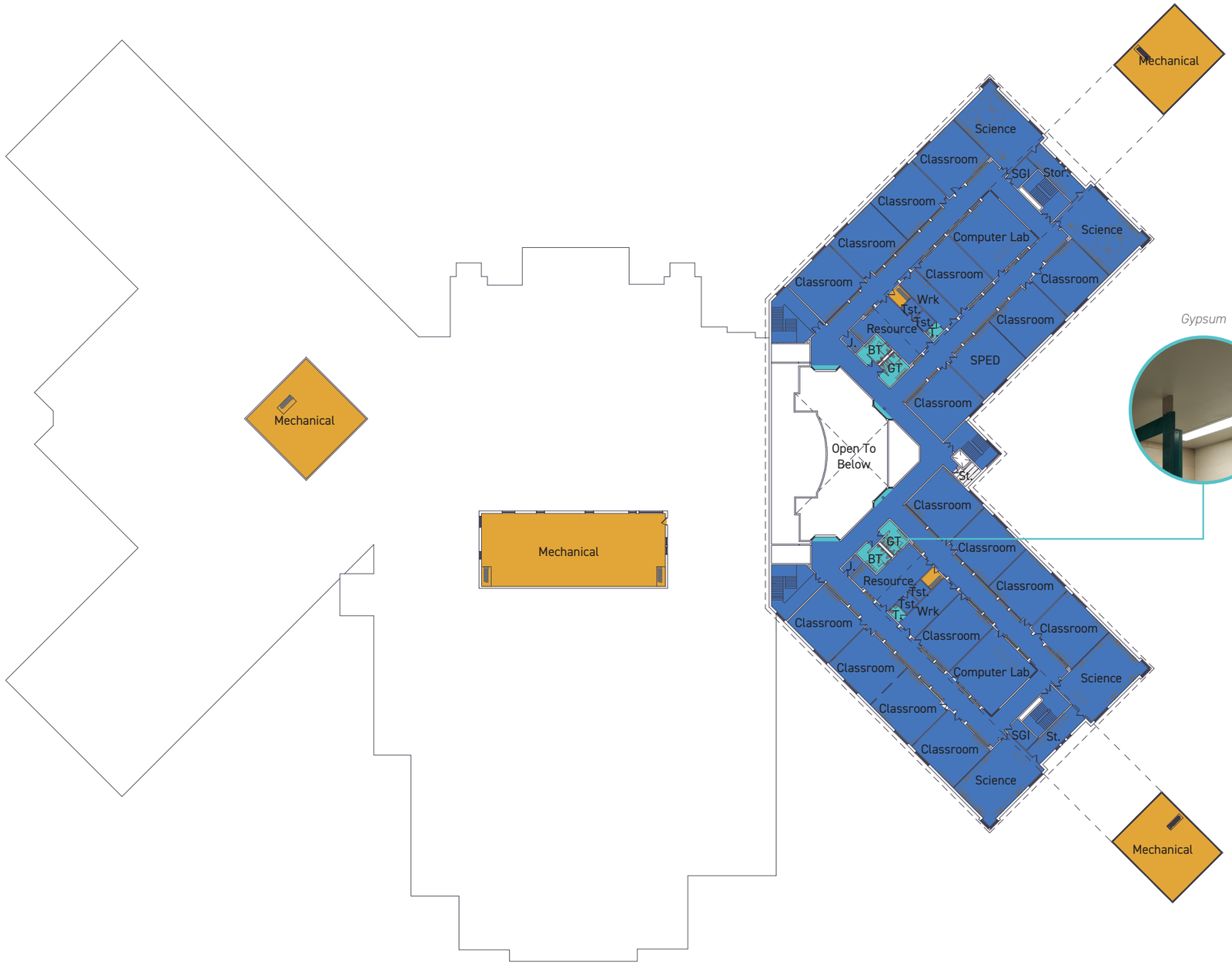
Asbestos is a material that was used in the construction industry, most commonly between 1960 - 1990. **There was no asbestos testing performed for this assessment.** Observations and assumptions were made based on common older building materials that typically have been identified to be containing asbestos.

N

meadowview middle school ceiling material identification | second floor

Materials Key

- Acoustical Ceiling Tile
- Gypsum
- Concrete
- Exposed Metal Deck
- No Data



Gypsum

Potential of Asbestos Containing Materials

Asbestos is a material that was used in the construction industry, most commonly between 1960 - 1990. **There was no asbestos testing performed for this assessment.** Observations and assumptions were made based on common older building materials that typically have been identified to be containing asbestos.

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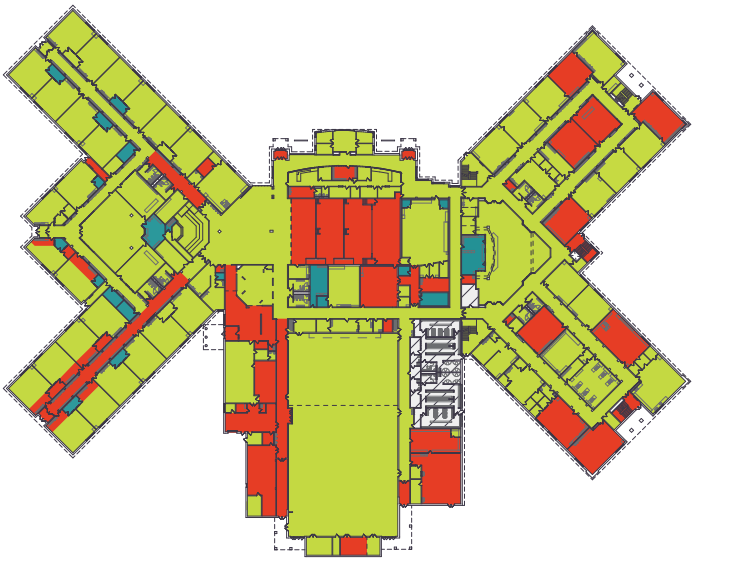
meadowview middle school flooring analysis



First Floor

Second Floor

KEY TAKEAWAYS

- Materials identified as potentially containing asbestos are considered to be in poor condition.
- 9" x 9" vinyl tile flooring is identified as potential asbestos tile.
- Majority of terrazzo flooring located throughout the building is in fair condition, but there are some instances of cracking.
- Rubber flooring located on the stairs are in fair condition due to minor wearing.

HIGHLIGHT

of floors were identified as potentially containing asbestos

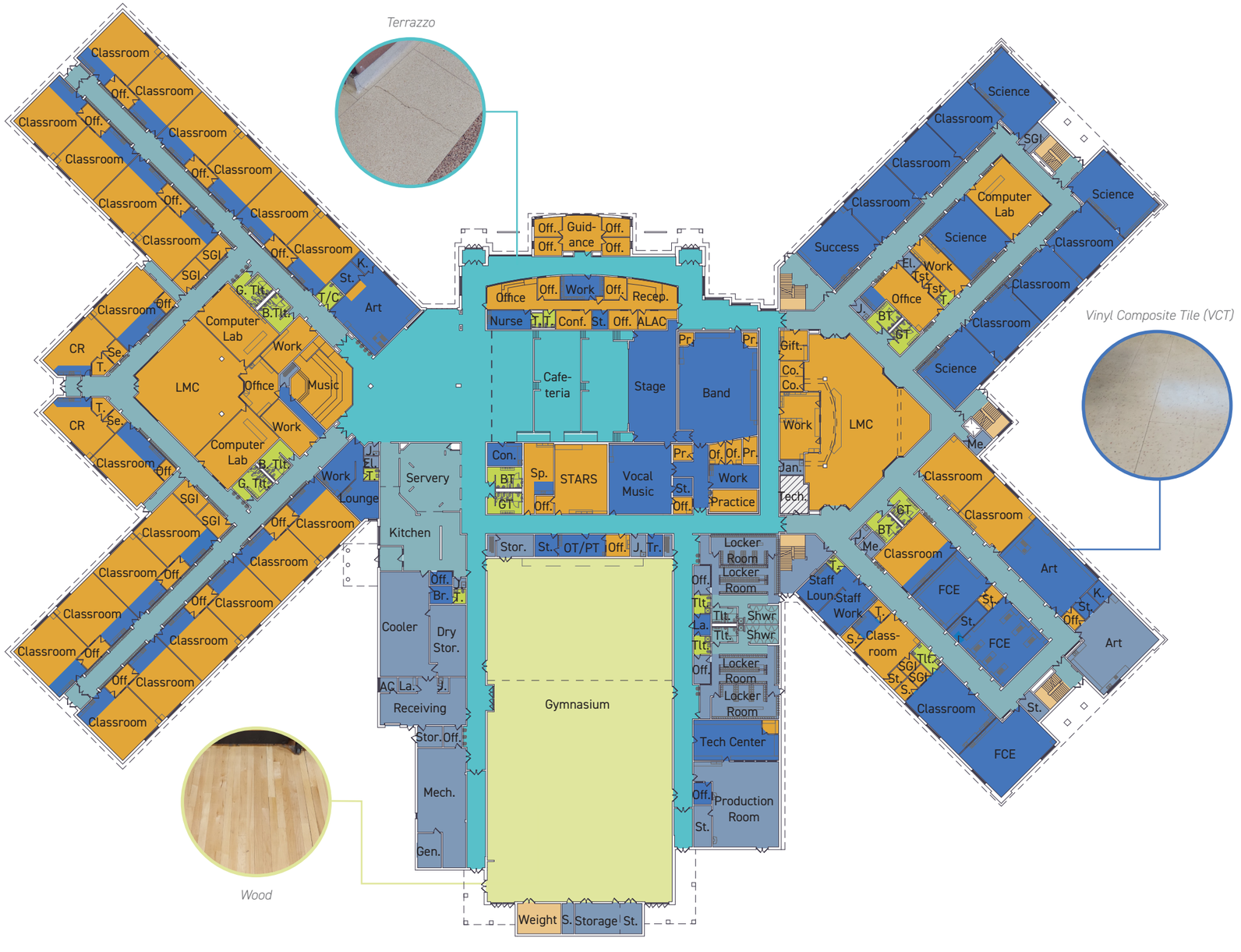
OVERALL FLOORING CONDITION

Good	No visible damage
Fair	Some visible damage
Poor	Substantial visible damage

meadowview middle school flooring material identification | first floor

Materials Key

- Vinyl Composite Tile
- Terrazzo
- Tile
- Carpet
- Potential Asbestos Tile
- Concrete
- Epoxy
- Wood
- Rubber
- No Data


Terrazzo
Vinyl Composite Tile (VCT)
Wood
Classroom
Off.
Computer Lab
Work
Office
Music
LMC
CR
Se.
T.
G. Tlt.
B. Tlt.
Art
K.
St.
T/C
SGI
Servery
Kitchen
Lounge
Cooler
Dry Stor.
Receiving
Stor.
Mech.
Gen.
Br.
AC
La.
J.
Guid-ance
Recep.
Nurse
T.T.
Conf.
ALAC
Cafe-teria
Stage
Band
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BT
GT
Sp.
STARS
Vocal Music
Of.
Practice
Gymnasium
Weight
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Storage
Locker Room
Tech Center
Production Room
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Shwr
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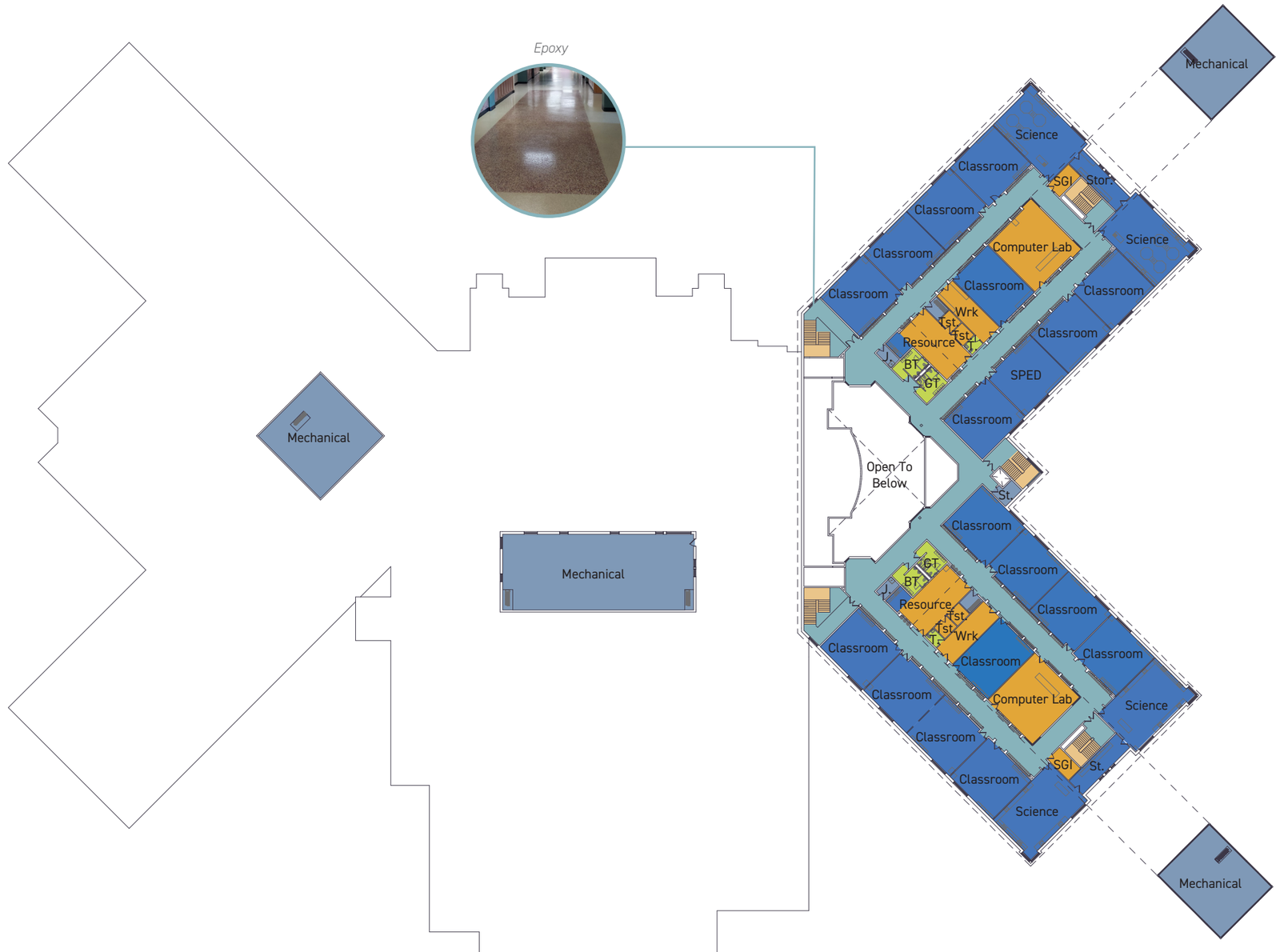
Tech.
Staff Loun.
Staff Work
Class-room
Success
Science
El.
Tst.
Me.
FCE
Gym
Gym
Gym

meadowview middle school flooring material identification | second floor

Materials Key

- Vinyl Composite Tile
- Terrazzo
- Tile
- Carpet
- Potential Asbestos Tile
- Concrete
- Epoxy
- Wood
- Rubber
- No Data



Potential of Asbestos Containing Materials

Asbestos is a material that was used in the construction industry, most commonly between 1960 - 1990. **There was no asbestos testing performed for this assessment.** Observations and assumptions were made based on common older building materials that typically have been identified to containing asbestos.

N

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meadowview middle school exterior analysis

KEY TAKEAWAYS

- Majority of metal downspouts are in poor condition due to denting and staining.
- Metal flashing located under brick walls is in poor condition due to many instances of denting and peeling sealant.
- There are some instances of brick in poor condition due to staining and crumbling.
- Majority of hollow metal structure is in poor condition due to rusting and worn paint.

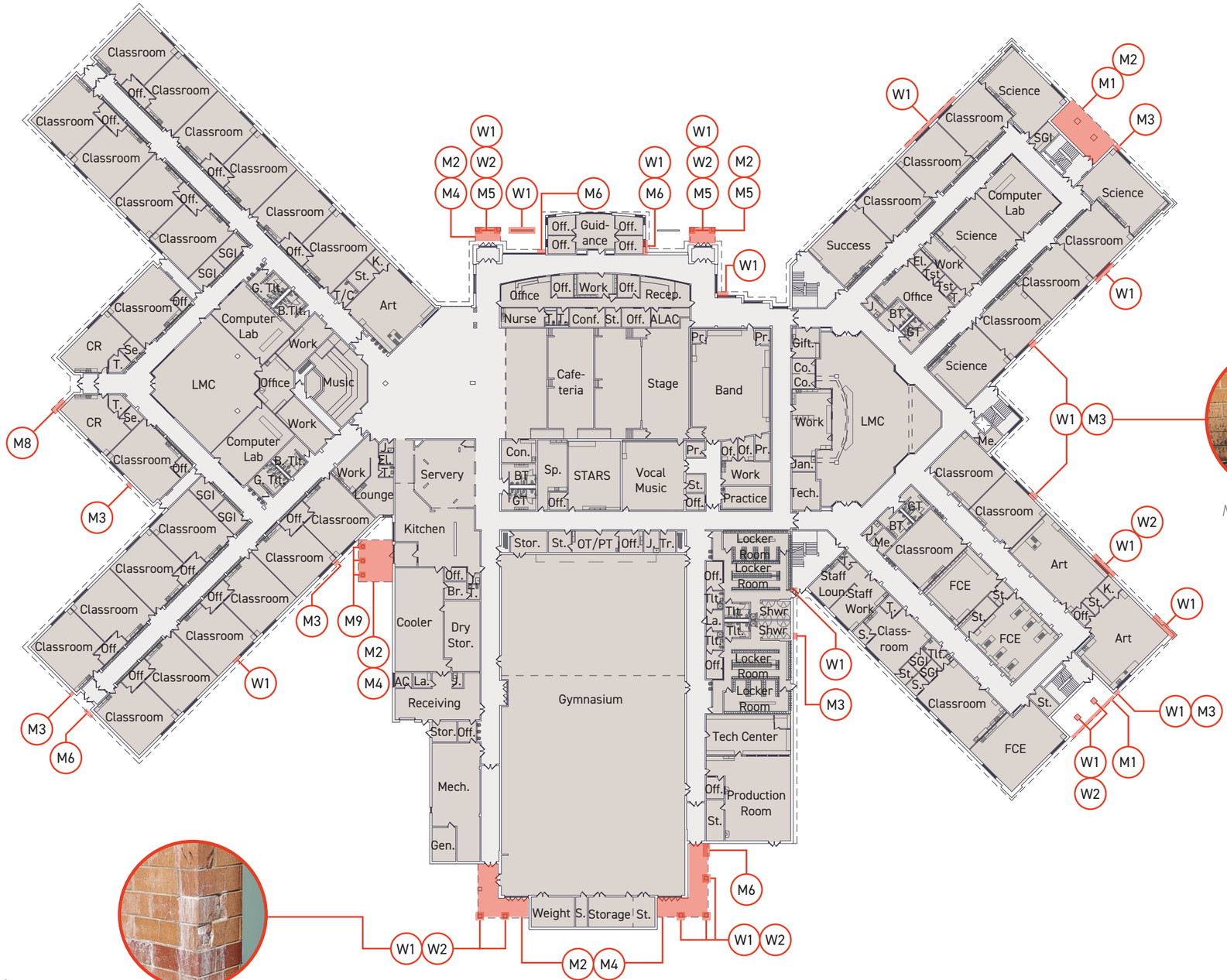
WALLS

- W1 Brick
- W2 Concrete Foundation

MISCELLANEOUS

- M1 Metal Lintel
- M2 Metal Soffit
- M3 Metal Downspout
- M4 Hollow Metal Structure
- M5 Metal Flashing
- M6 Metal Coping
- M7 Plastic Bench
- M8 Metal Bench
- M9 Concrete Footing

meadowview middle school exterior identifications + analysis


Classroom
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Classroom

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meadowview middle school exterior door analysis

No.	Door Type / Door Frame
A	Hollow Metal / Hollow Metal Storefront
B	Hollow Metal / Hollow Metal Storefront
C	Hollow Metal / Hollow Metal
D	Hollow Metal / Hollow Metal
E	Hollow Metal / Hollow Metal
F	Hollow Metal / Hollow Metal
G	Hollow Metal / Hollow Metal
H	Hollow Metal / Hollow Metal
J	Hollow Metal / Hollow Metal
K	Hollow Metal / Hollow Metal
L	Hollow Metal / Hollow Metal
M	Hollow Metal / Hollow Metal
N	Hollow Metal / Hollow Metal
O	Hollow Metal / Hollow Metal
P	Hollow Metal / Hollow Metal
P2	Hollow Metal / Hollow Metal
Q	Hollow Metal / Hollow Metal
Q2	Rolling Metal Door
R	Hollow Metal / Hollow Metal
S	Hollow Metal / Hollow Metal
T	Hollow Metal / Hollow Metal
U	Hollow Metal / Hollow Metal
V	Hollow Metal / Hollow Metal
W	Hollow Metal / Hollow Metal

KEY TAKEAWAYS

- There are instance of hollow metal doors in poor condition due to chipping paint, fading, and rusting.
- Majority of hollow metal doors with hollow metal frames are in fair condition due to paint scratching and/or fading.

MOST COMMON EXTERIOR DOOR

Hollow Metal Door(s) with Hollow Metal Frame

OVERALL EXTERIOR DOOR CONDITION

Good	No visible damage
Fair	Some visible damage
Poor	Substantial visible damage

meadowview middle school exterior door identification + analysis

Hollow Metal Doors with Hollow Metal Frame

Hollow Metal Door with Hollow Metal Frame

Hollow Metal Doors with Hollow Metal Frame

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meadowview middle school exterior window analysis

No.	Frame Type / Glass Type
1	Aluminum / Double Pane
2	Aluminum / Double Pane
3	Aluminum / Double Pane
4	Aluminum / Double Pane
5	Aluminum / Double Pane
6	Aluminum / Double Pane
7	Aluminum / Double Pane
8	Aluminum / Double Pane
9	Aluminum / Double Pane
10	Aluminum / Double Pane
11	Aluminum / Double Pane
12	Aluminum / Double Pane
13	Aluminum / Double Pane
14	Aluminum / Double Pane
15	Aluminum / Double Pane
16	Aluminum / Double Pane
17	Aluminum / Double Pane
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21	Aluminum / Double Pane
22	Aluminum / Double Pane
23	Aluminum / Double Pane
24	Aluminum / Double Pane
25	Aluminum / Double Pane
26	Aluminum / Double Pane
27	Aluminum / Double Pane
28	Aluminum / Double Pane
29	Aluminum / Double Pane
30	Aluminum / Double Pane
31	Aluminum / Double Pane

KEY TAKEAWAYS

- All of the aluminum framed windows with double pane glass are in fair condition due to fading, minor instances of scratching or denting, and worn sealant.

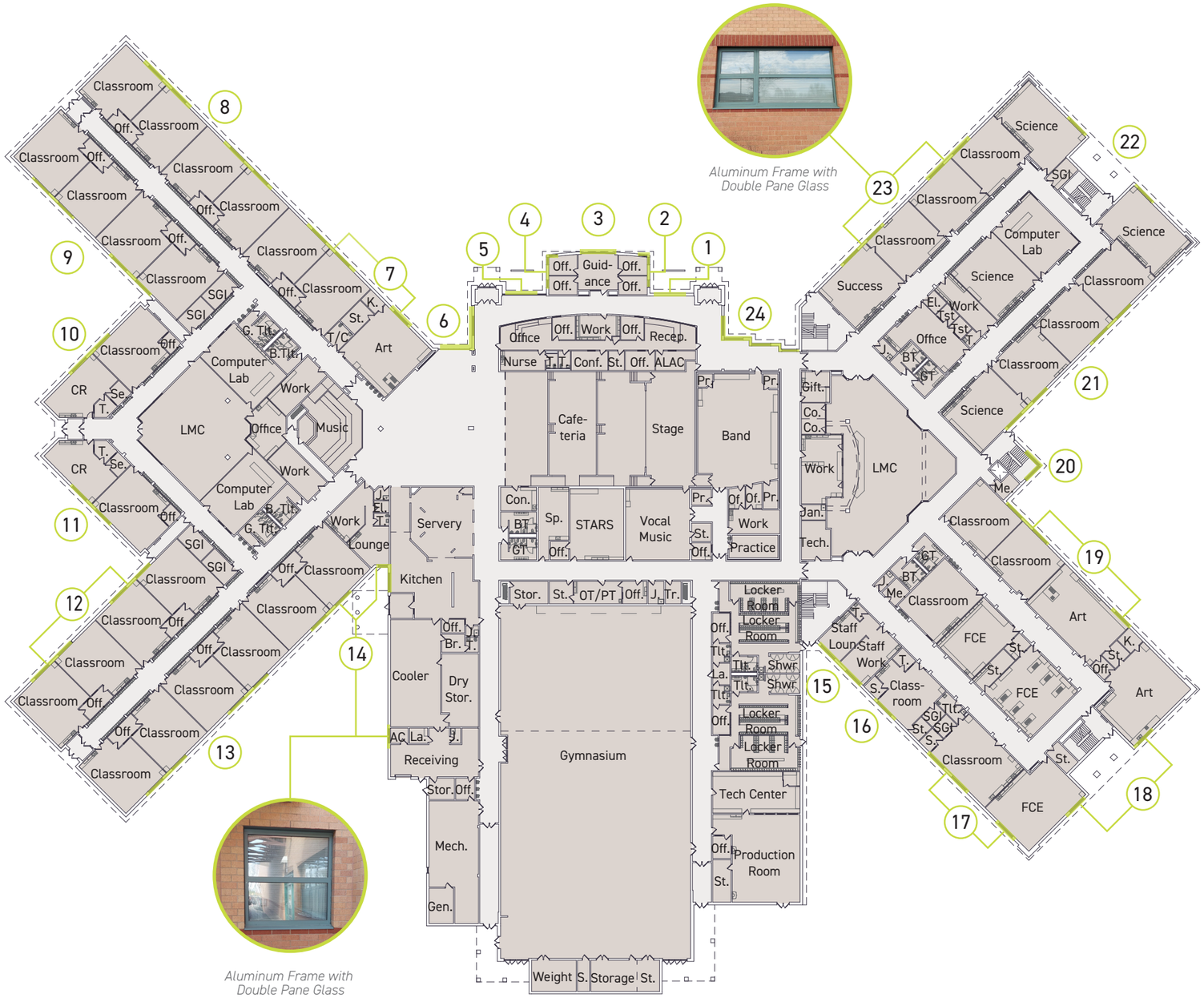
MOST COMMON EXTERIOR WINDOW

Aluminum with Double Pane Glass

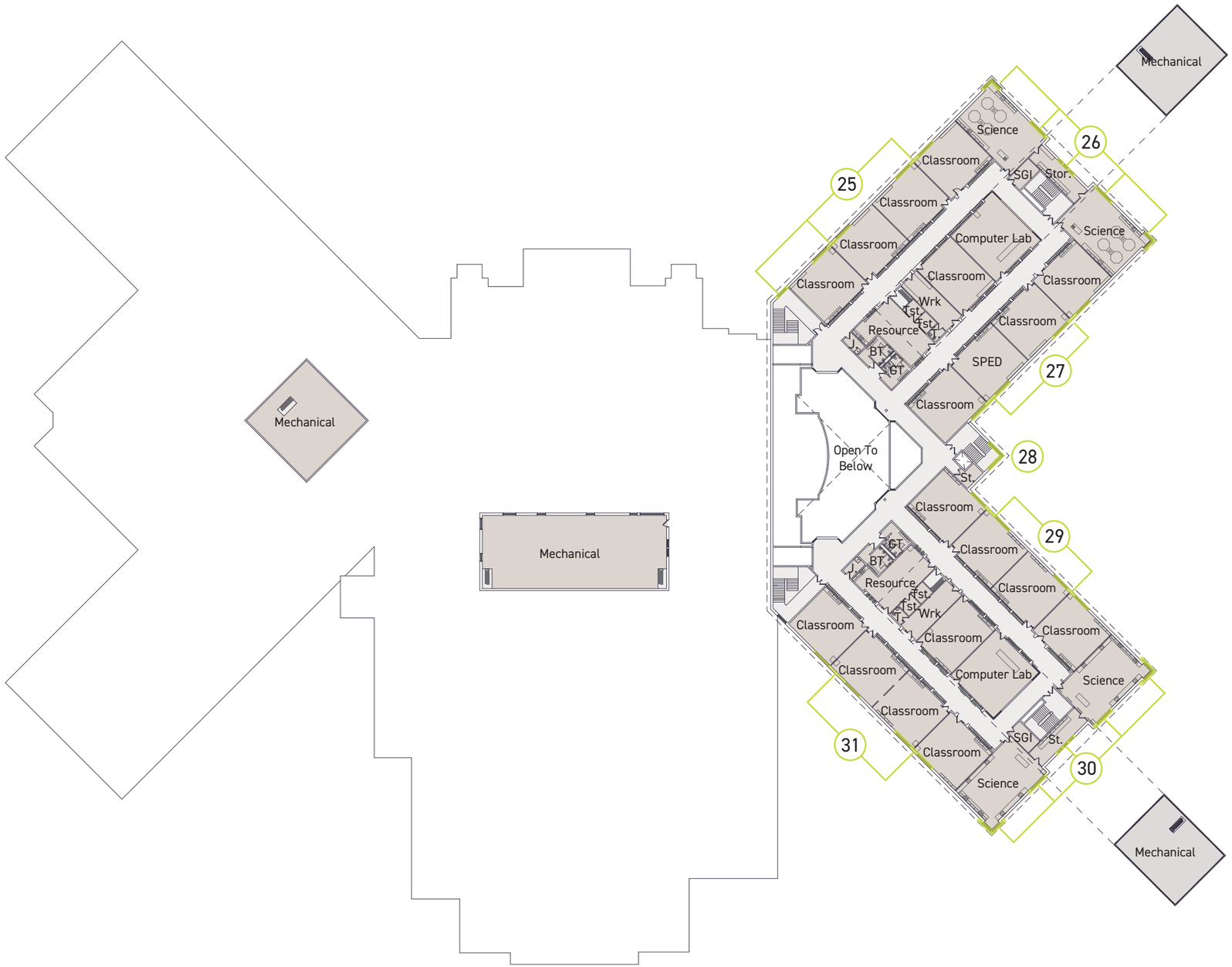
OVERALL EXTERIOR WINDOW CONDITION

Good	No visible damage
Fair	Some visible damage
Poor	Substantial visible damage

meadowview middle school exterior window identification + analysis | first floor



meadowview middle school exterior window identification + analysis | second floor



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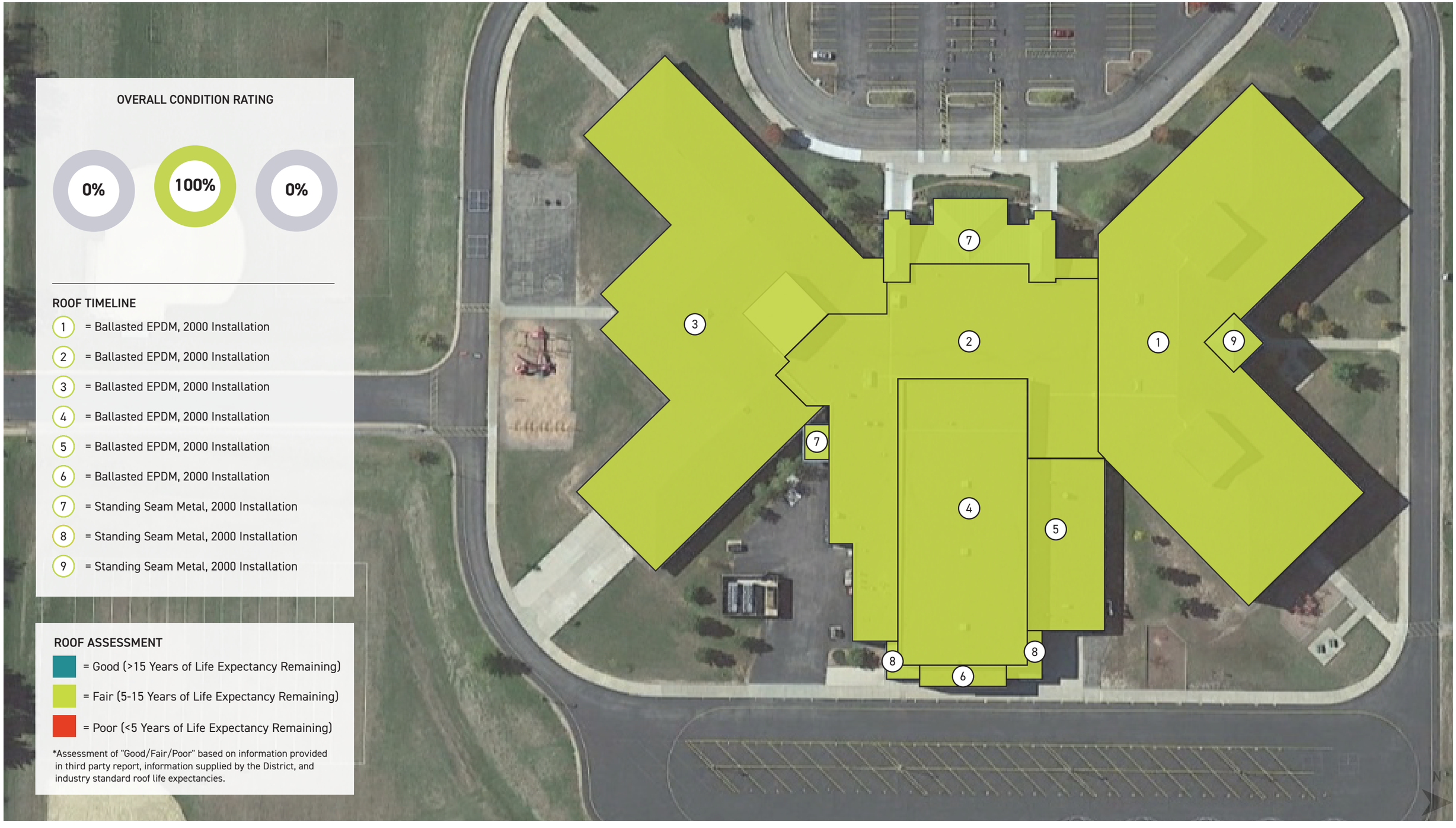
meadowview middle school roof identification



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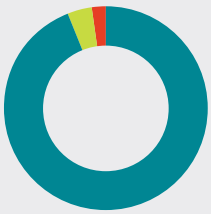
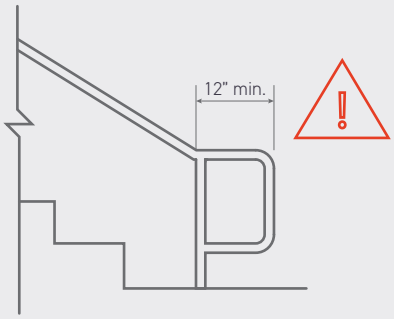
meadowview middle school ada conditions + assessment

Overall Condition Rating:

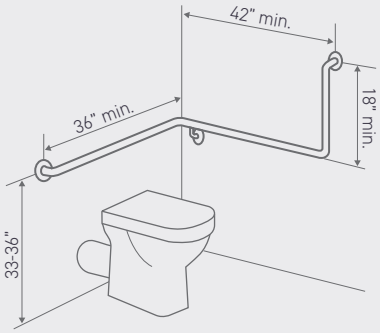


Most Concerning Item That Does Not Meet Code Requirements:



Not providing ADA compliant railings at stairs

Most Frequently Occurring Item That Does Not Meet Code Requirements:

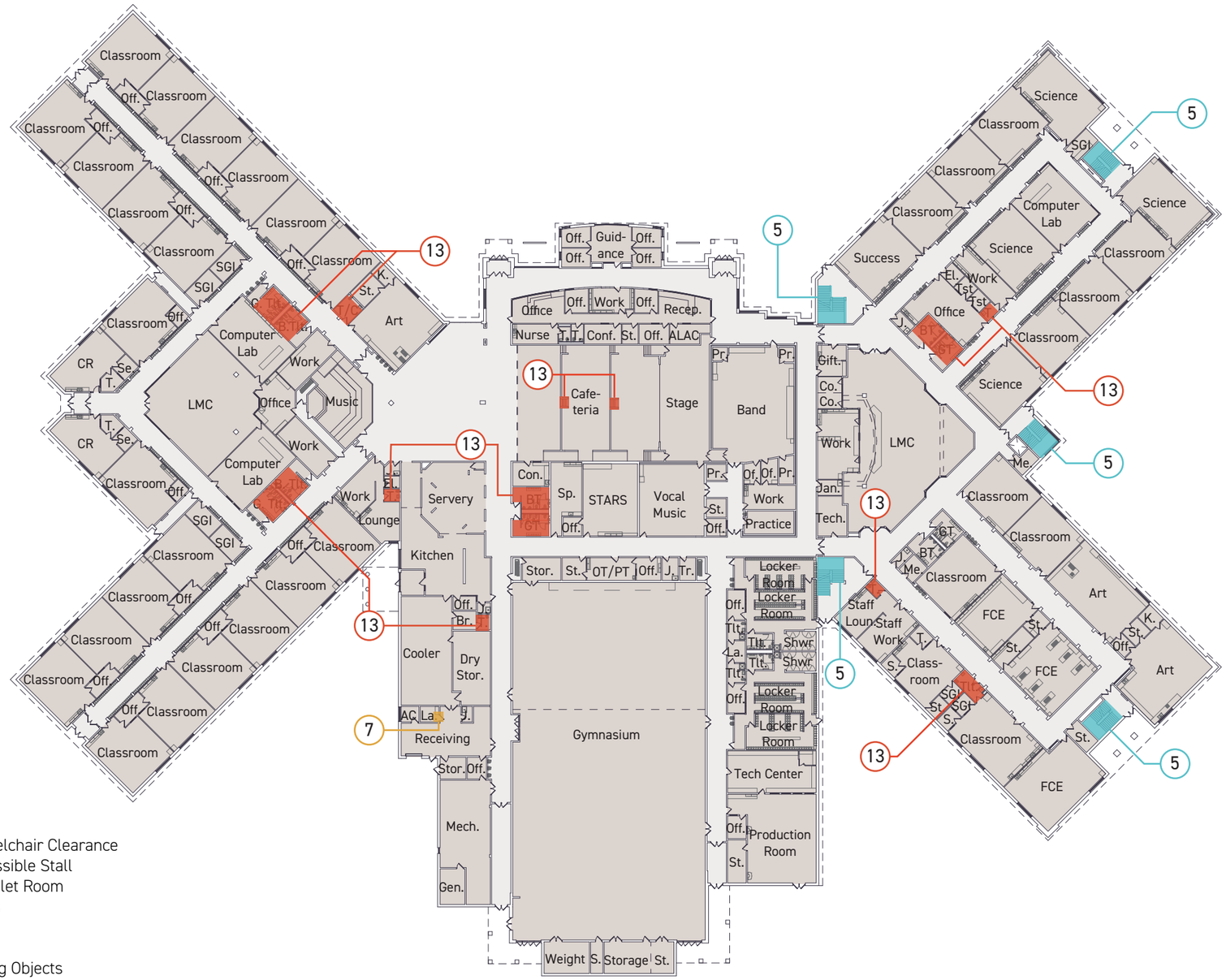


Not providing at proper grab bars at ADA accessible toilet.

GENERAL ASSESSMENT OF ADA CONDITIONS

- **Building Entrance Accessibility**
- **ADA Parking Stalls**
- **Accessible Routes of Travel**
  - Ramps
  - Lifts
  - Elevators
- **Railings**
  - Ramp Railings
  - Stair Railings
- **Door Hardware**
- **Door Clearances**
  - Push / Pull
  - Thresholds
  - Maneuvering
- **Toilet Rooms**
  - 5'-0" Wheelchair Clearance
  - ADA Accessible Stall
  - Unisex Toilet Room
  - Grab Bars
  - Showers
- **Protruding Objects**
- **Drinking Fountains**
- **Casework**
  - Transaction Counters
  - Workstations Counters
  - Counters with Sinks

meadowview middle school ada conditions + assessment | first floor

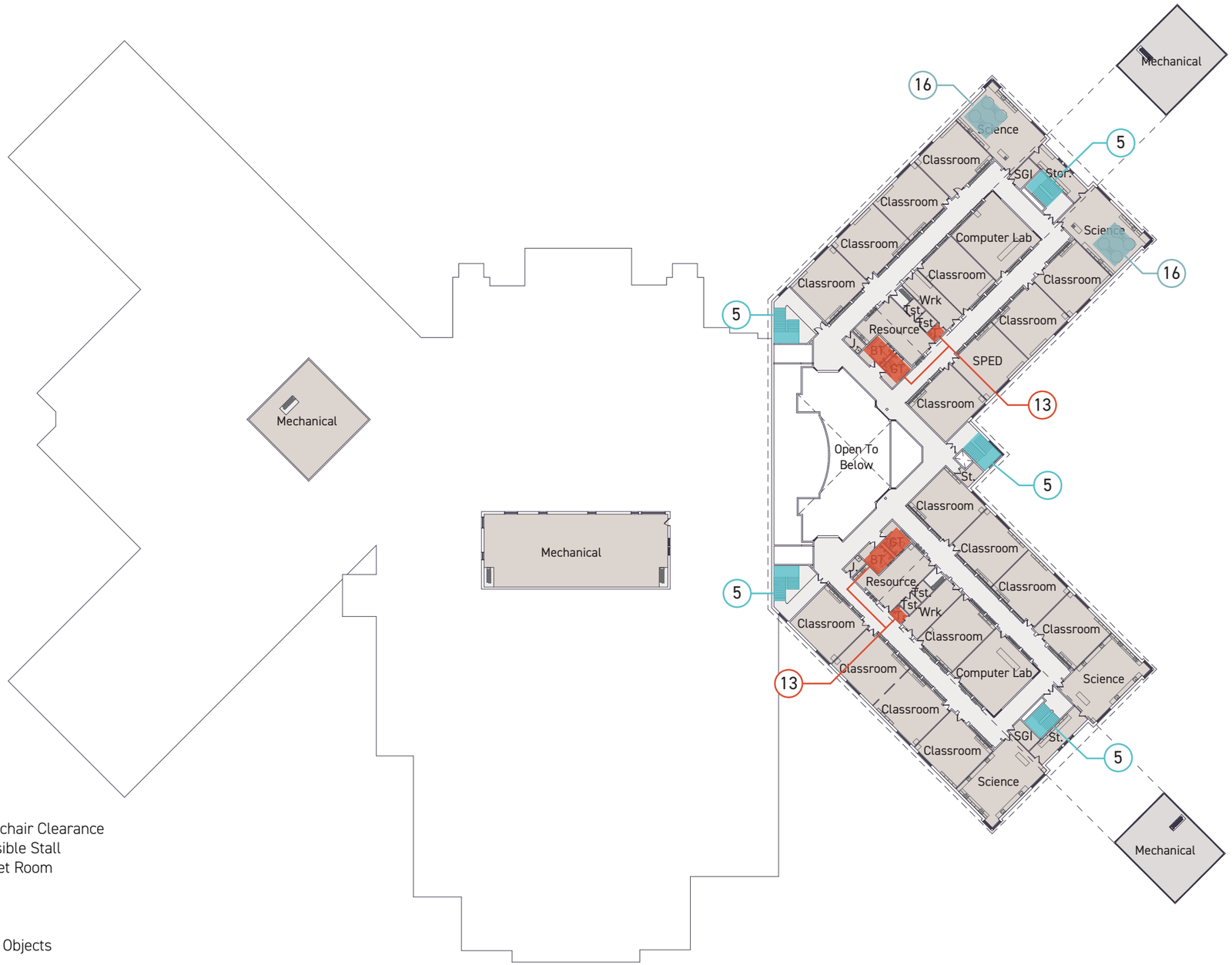


Color Key

- **Accessible Routes of Travel**
  1. Ramps
  2. Lifts
  3. Elevators
- **Railings**
  4. Ramps
  5. Stairs
- **Door Hardware**
  6. Door Hardware
- **Door Clearances**
  7. Push / Pull
  8. Thresholds
  9. Maneuvering
- **Toilet Rooms**
  10. 5'-0" Wheelchair Clearance
  11. ADA Accessible Stall
  12. Unisex Toilet Room
  13. Grab Bars
  14. Showers
- **Protruding Objects**
  15. Protruding Objects
- **Casework**
  16. Transaction Counter
  17. Workstation Counters
  18. Counters with Sinks

N

meadowview middle school ada conditions + assessment | second floor



Color Key

- **Accessible Routes of Travel**
  1. Ramps
  2. Lifts
  3. Elevators
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  13. Grab Bars
  14. Showers
- **Protruding Objects**
  15. Protruding Objects
- **Casework**
  16. Transaction Counter
  17. Workstation Counters
  18. Counters with Sinks

N

meadowview middle school summary

ITEMS IN POOR CONDITION

Substantial visible damage, wear or need for repair, or identified as containing potential asbestos

- Interior wall repair at select/identified areas
- Ceiling replacement at select/identified areas
- Flooring replacement at select/identified areas
- Casework at identified areas
- Exterior doors at identified areas
- Exterior wall repair at select/identified areas
- Exterior fixtures at identified areas
- Potential asbestos remediation
- ADA improvements at identified areas

ITEMS IN FAIR CONDITION

Some visible damage, wear or need for repair

- Domestic water system
- Sanitary system
- Storm system
- Natural gas system
- Plumbing equipment and fixtures
- HVAC and control systems
- Lighting fixtures, controls, and wiring devices
- Clock system and data/telephone
- Emergency egress lighting
- Fire alarm and public address system
- Ceiling replacement at identified areas
- Flooring replacement at identified areas
- Exterior doors at identified areas
- Exterior windows at identified areas

ITEMS IN GOOD CONDITION

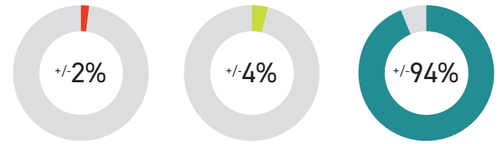
No visible damage, wear or need for repair

- Boiler plant and pumps
- Electrical service and panelboards
- Emergency generator
- Access control and security system
- Exterior doors at identified areas

+ OVERALL BREAKDOWN

Ceiling

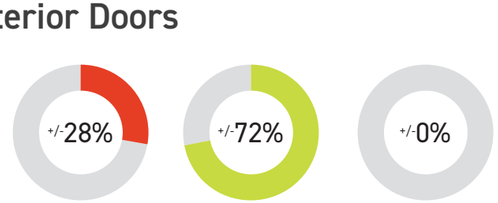
Accessibility



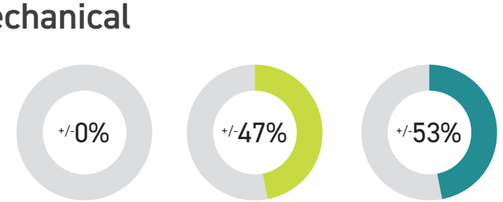
Flooring

Plumbing

Exterior Doors



Mechanical



Exterior Windows

Electrical

Roof

Life Safety

04

sparta high school

Original Date of Construction

1962

As of 2023: 61 years old

SUMMARY

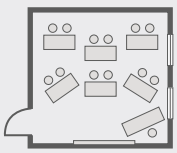
Sparta High School provides a comprehensive program for 9th-12th grade students.

Address: 506 N Black River St, Sparta, WI 54656
Grades Served: 9th-12th Grades
Site Size: 35.2 acres
Parking: 363 stalls

Square Footage

250,400 Sq. Ft.

Average Core Classroom
Size Comparison

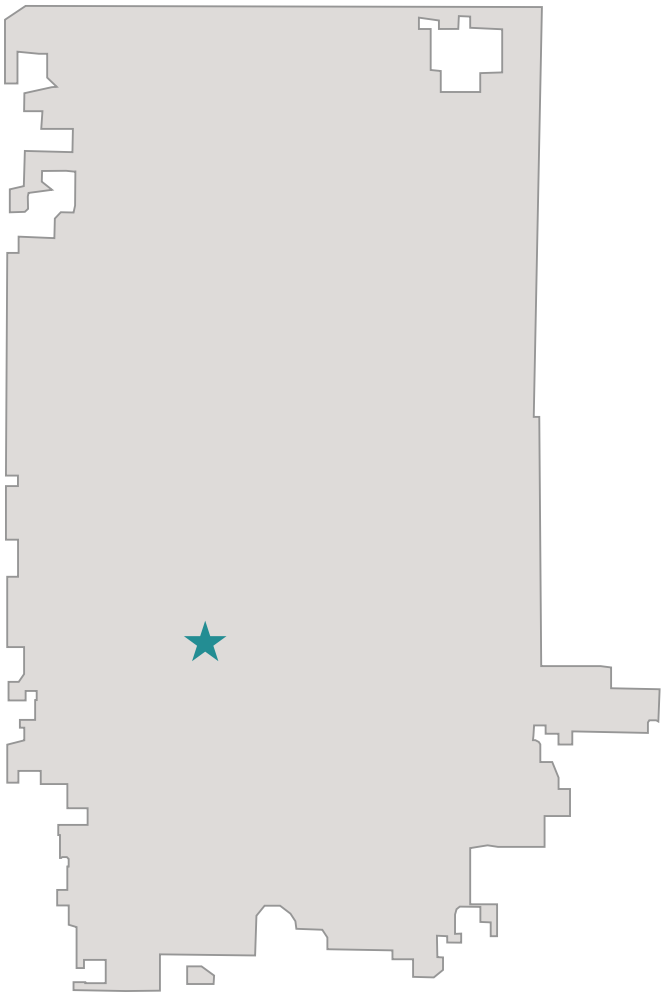


939 sq. ft.

Recommended Size

1st -12th: 900 sq. ft.
Kindergarten: 1200 sq. ft.

sparta high school



**School Location in Sparta Area School District Boundaries.*

KEY TAKEAWAYS

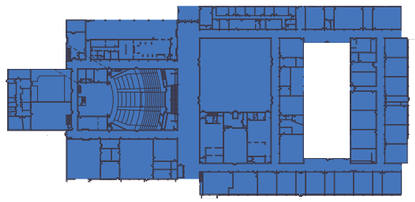
- Sparta High School is located on the East side of the parcel.
- There is parking surrounding each side of the school on the site.
- Athletic fields include a track, football field, soccer field, and baseball diamond.

PARCEL DIVISION

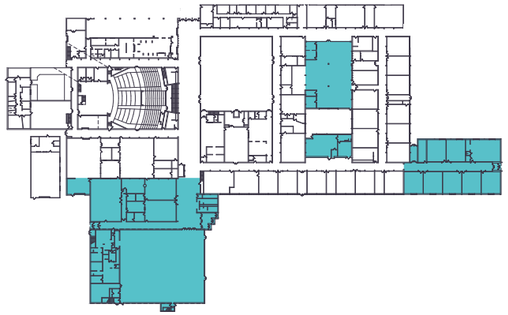
- Building
- Playgrounds
- Paved Area
- Athletic Fields
- Green space

sparta high school site map

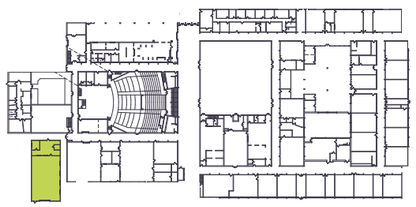
sparta high school building evolution



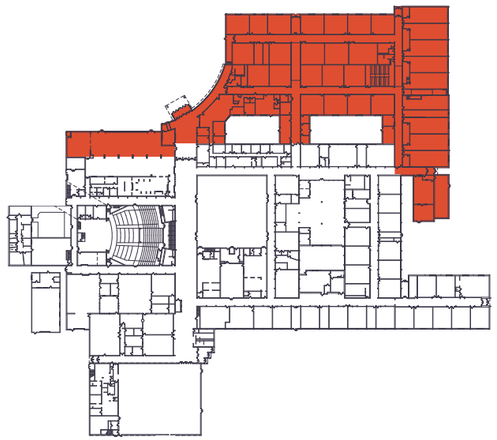
1962 - Original Building



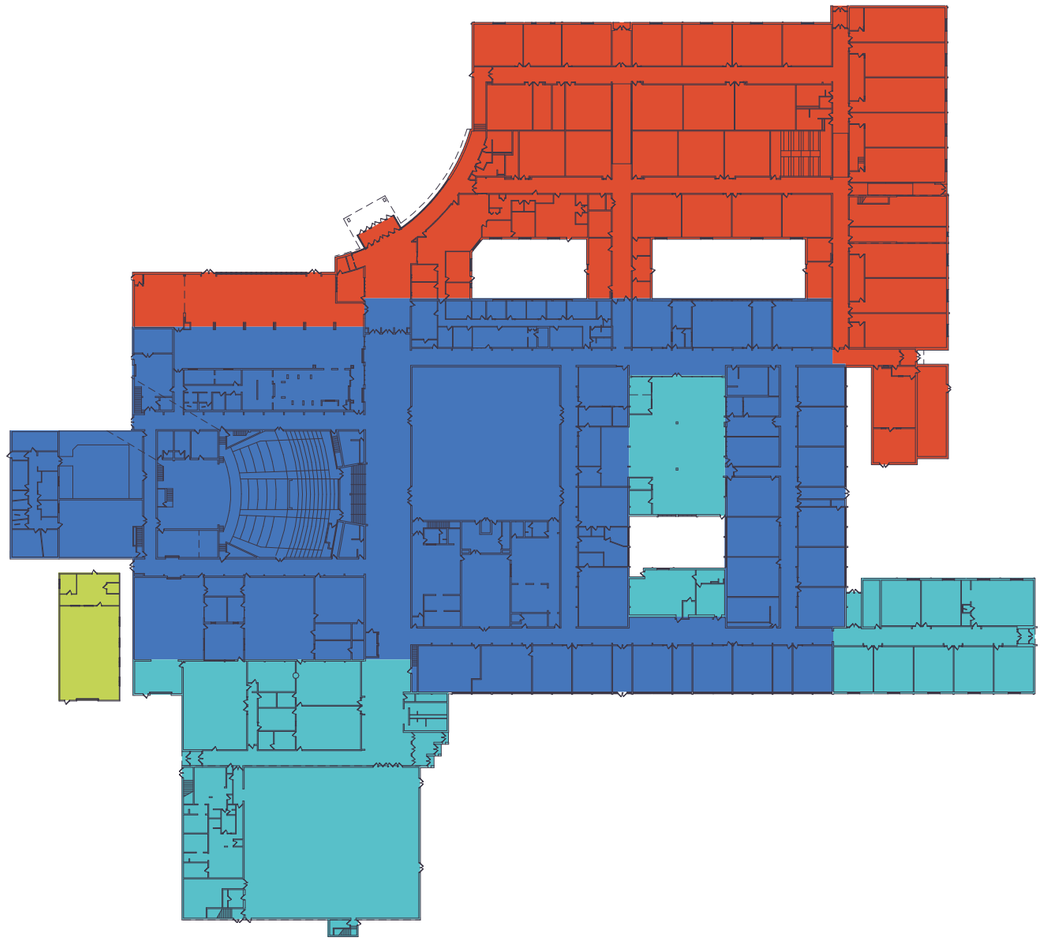
1990 - Gymnasium + Academic Addition



1974/1976 - Industrial Arts Addition



2002 - Academic Addition



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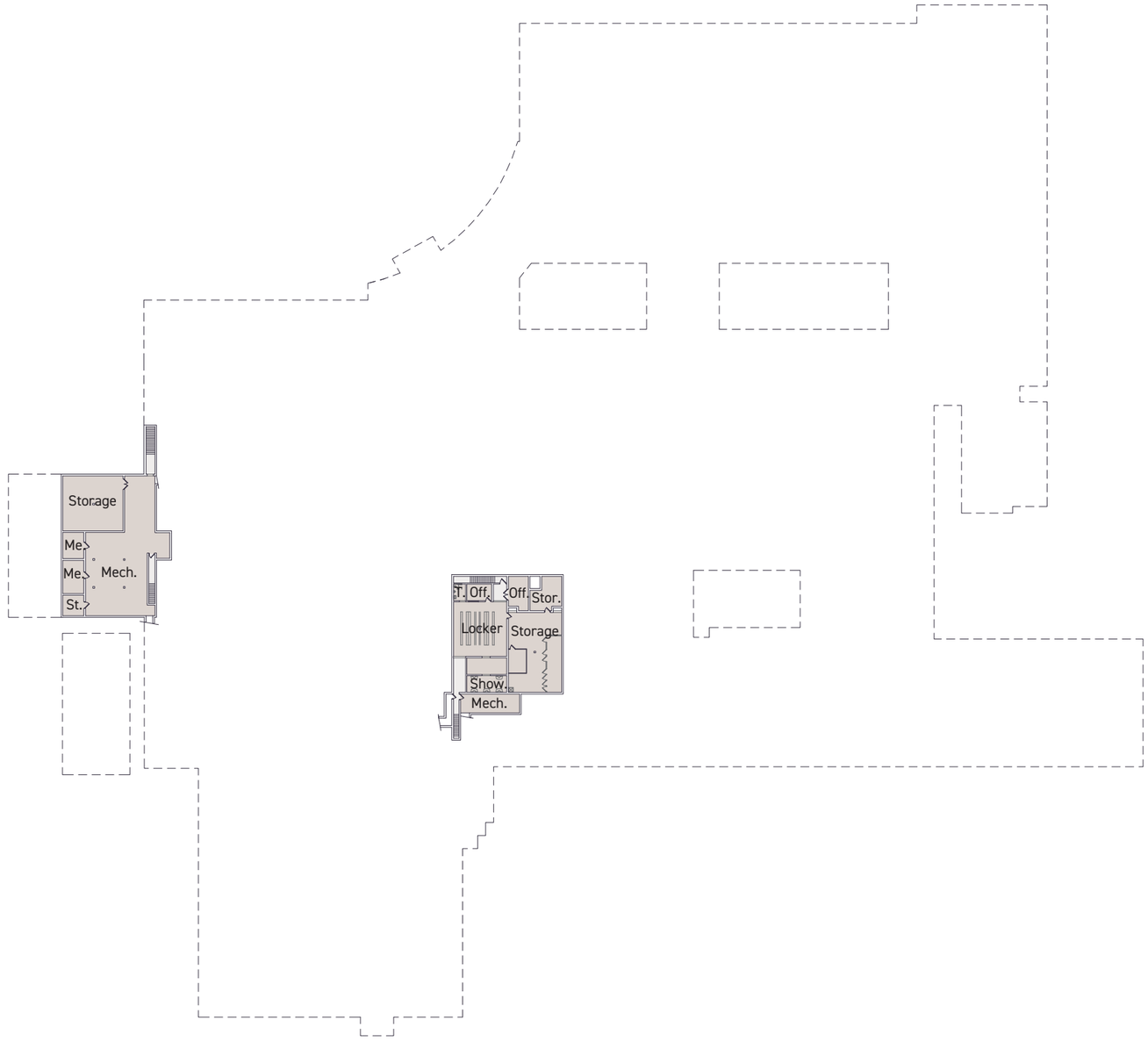
sparta high school floor plan | lower level



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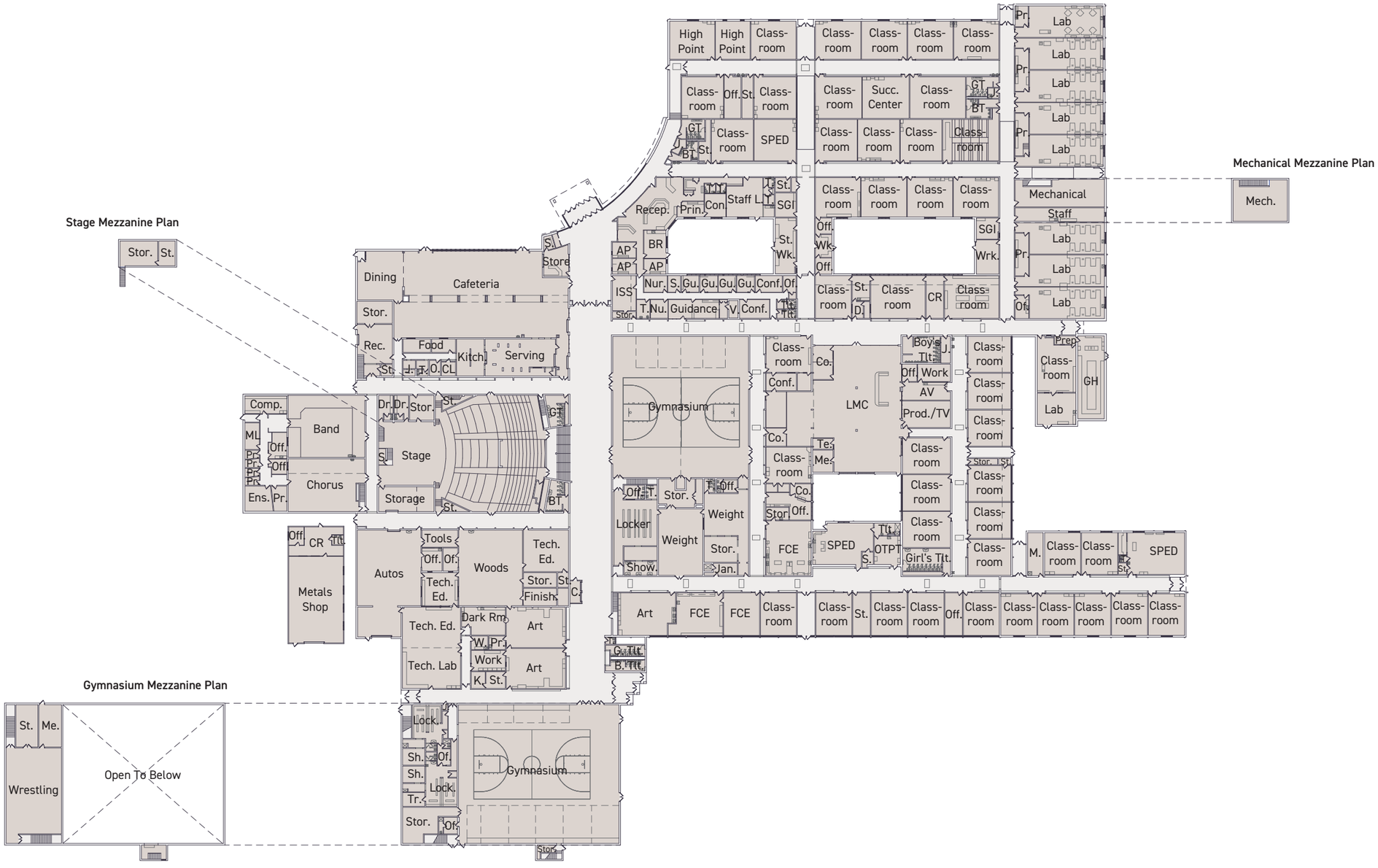
sparta high school floor plan | first floor



N

sparta high school building systems summary

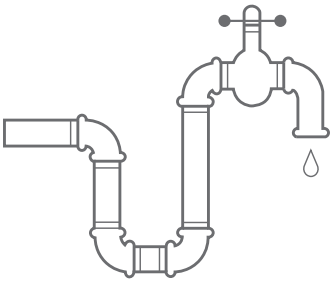
Good Condition
No visible damage, wear or need for repair; no replacement needed.

Fair Condition
Some visible damage, wear or need for repair; no immediate replacement required.

Poor Condition
Substantial visible damage, wear or need for repair, or identified as containing potential asbestos; most pressing replacement needed.

Plumbing
Condition Overview

Replace Original 1962
Water Service



PLUMBING

Domestic Water System	■	
Water Service	◪	4" piping in 1962 portion of building is reaching the end of expected service life 4" piping in 2000 portion of building is ductile iron with corrosion at meter
Water Distribution Piping	◪	Piping nearing end of expected service life
Water Softening System	○	
Fire Sprinkler System	○	
Sanitary System	■	
Sanitary Waste System	●	
Sanitary Drain, Waste + Vent Piping	◪	1962 portion of building is reaching end of expected service life
Acid Waste Piping + Basin	●	
Interceptors	●	
Sump Pump	●	
Storm System	■	
Storm System	●	
Storm Waste Piping	◪	Drain piping in original building portion is reaching end of expected life cycle
Sump Pump	○	
Natural Gas System	■	

* See appendix for full engineer reports + additional information.

sparta high school building systems summary

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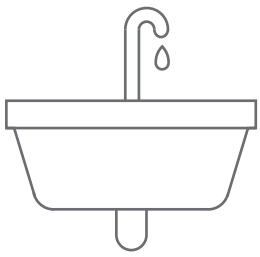
Some visible damage, wear or need for repair; no immediate replacement required.

Poor Condition
Substantial visible damage, wear or need for repair, or identified as containing potential asbestos; most pressing replacement needed.

Plumbing
Condition Overview

Replace Fixtures With
Future Remodel



PLUMBING

Plumbing Equipment		
Water Heater		
Circulator Pump		
Hot Water System		
Plumbing Fixtures		
Water Closets		
Urinals		
Lavatories		
Drinking Fountains		Bottle fillers recently added
Classroom Sinks		
General Sinks		
Art Room Sinks		
Emergency Eyewash Stations		Fixtures appear to only receive cold water, not tempered water

* See appendix for full engineer reports + additional information.

sparta high school building systems summary

Good Condition
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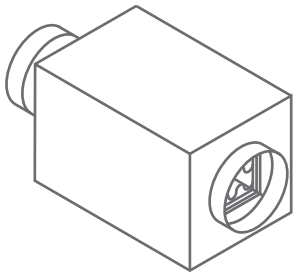
Fair Condition
Some visible damage, wear or need for repair; no immediate replacement required.

Poor Condition
Substantial visible damage, wear or need for repair, or identified as containing potential asbestos; most pressing replacement needed.

Mechanical Condition Overview

Replace 1962 Air Handling Units + Fix Coil Order



MECHANICAL

Heating		
Boiler Plant		The boilers were installed in 2016 and are in good condition. The boilers have an estimated 25-year service life
Pumps		The pumps were installed in 2016 and are in good condition. The pumps have an estimated 25-year service life
Ventilation + A/C Systems		
Air Handling Units		1962 units are in need of replacement. 1990 units are at the end of service life. 2000 units have heating & cooling coils in wrong order preventing dehumidification control sequences
Air Conditioning Systems		Chiller replaced in 2022 with two units in excellent condition. Expected service life 25 years Chilled water pumps installed in 1999 in good condition. Expected service life 25 years
Control Systems		Building is served by both Trane and Siemens/Desigo digital controls

* See appendix for full engineer reports + additional information.

sparta high school building systems summary

Good Condition
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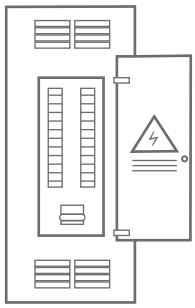
Fair Condition
Some visible damage, wear or need for repair; no immediate replacement required.

Poor Condition
Substantial visible damage, wear or need for repair, or identified as containing potential asbestos; most pressing replacement needed.

Electrical Condition Overview

Replace Existing Panelboards



ELECTRICAL

Electrical Service		
Utility Service		Existing main electric services in good condition. Adequate service capacity for each electric service in the building
Switchboard		
Panelboards		Kinney panelboards in 1962 portion of building have reached end of expected service life Panelboards throughout building lack arc flash warning labels. Directories are hand written
Light Fixtures + Controls		
Interior Lighting		Mix of lighting conditions
Corridor Lighting		All corridor lighting has been upgraded to LED
Lighting Controls		Mix of lighting controls.
Exterior Lighting		All exterior lighting has been upgraded to LED
Wiring Devices		Damaged wiring devices and plates
Clock System		System has been upgraded in the last 5 years
Data / Telephone		

* See appendix for full engineer reports + additional information.

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Fair Condition
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Poor Condition
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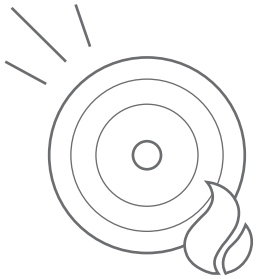
Life Safety Condition Overview

Replace Existing Fire Alarm System



LIFE SAFETY

Emergency Generator		Existing generator and transfer switches are code complaint and in good condition
Emergency Egress Lighting		Emergency generator does not have code compliant interior/exterior egress lighting
Fire Alarm System		20+ year old system is likely not code compliant
Public Address System		Existing Bogen IP is in good condition
Access Control		Existing DSX door access control system in good condition
Security System		

* See appendix for full engineer reports + additional information.

sparta high school interior analysis

KEY TAKEAWAYS

- Majority of the metal lintels located in the original 1962 building are in poor condition due to rusting and staining.
- The wood doors with hollow metal frames are in fair condition overall, but there are many instances of poor condition due to scratching, denting, and fading.
- Majority of the gypsum walls located throughout the building are in fair condition, except a few instances that are in poor condition due to cracking and chipping of paint.
- There are few instances of concrete block in poor condition due to chipping, cracking, and scratching.
- The concrete block above the windows in the south portion of the 1990 addition are in poor condition due to cracking.

WALLS

- W1 Concrete Block
- W2 Gypsum
- W3 Tile
- W4 Brick
- W5 Wood Panel
- W6 Metal Panel
- W7 Acoustic Panel
- W8 Vinyl Base
- W9 Tile Base
- W10 Terrazzo Base
- W11 Resin Base
- W12 Metal Base

DOORS

- D1 Hollow Metal Door w/ Hollow Metal Frame
- D2 Wood Door w/ Hollow Metal Frame
- D3 Wood Door w/ Wood Frame
- D4 Aluminum Door w/ Aluminum Frame

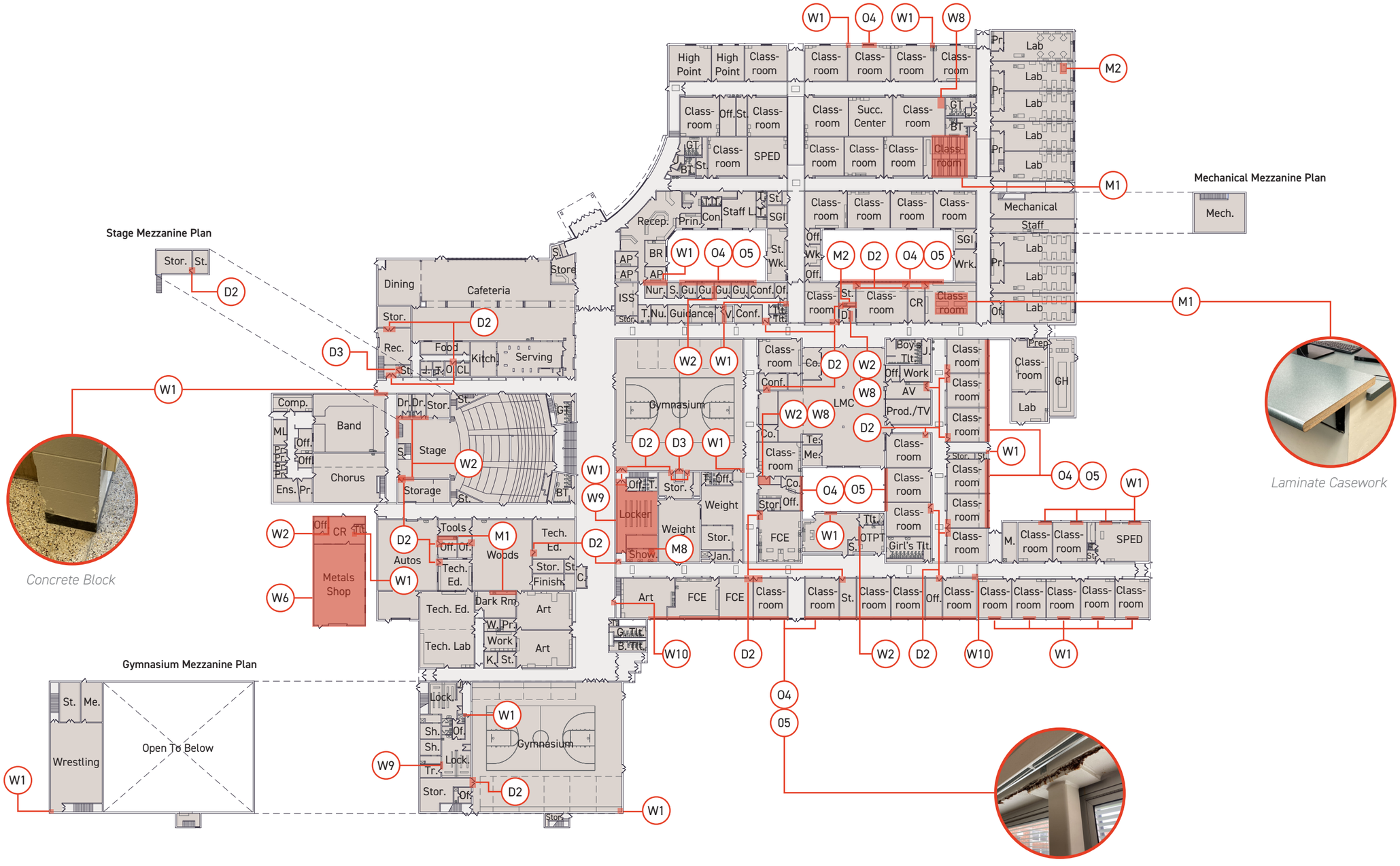
OPENINGS

- 01 Hollow Metal Framed Interior Window
- 02 Aluminum Framed Interior Window
- 03 Aluminum Overhead Coiling Opening
- 04 Laminate Interior Window Sill
- 05 Metal Lintel

MISCELLANEOUS

- M1 Laminate Casework
- M2 Wood Casework
- M3 Composite Toilet Partitions
- M4 Metal Lockers
- M5 Bleachers
- M6 Wall Partitions
- M7 Locker Room Benches
- M8 Shower Bench

sparta high school interior identifications + analysis | lower level



Concrete Block

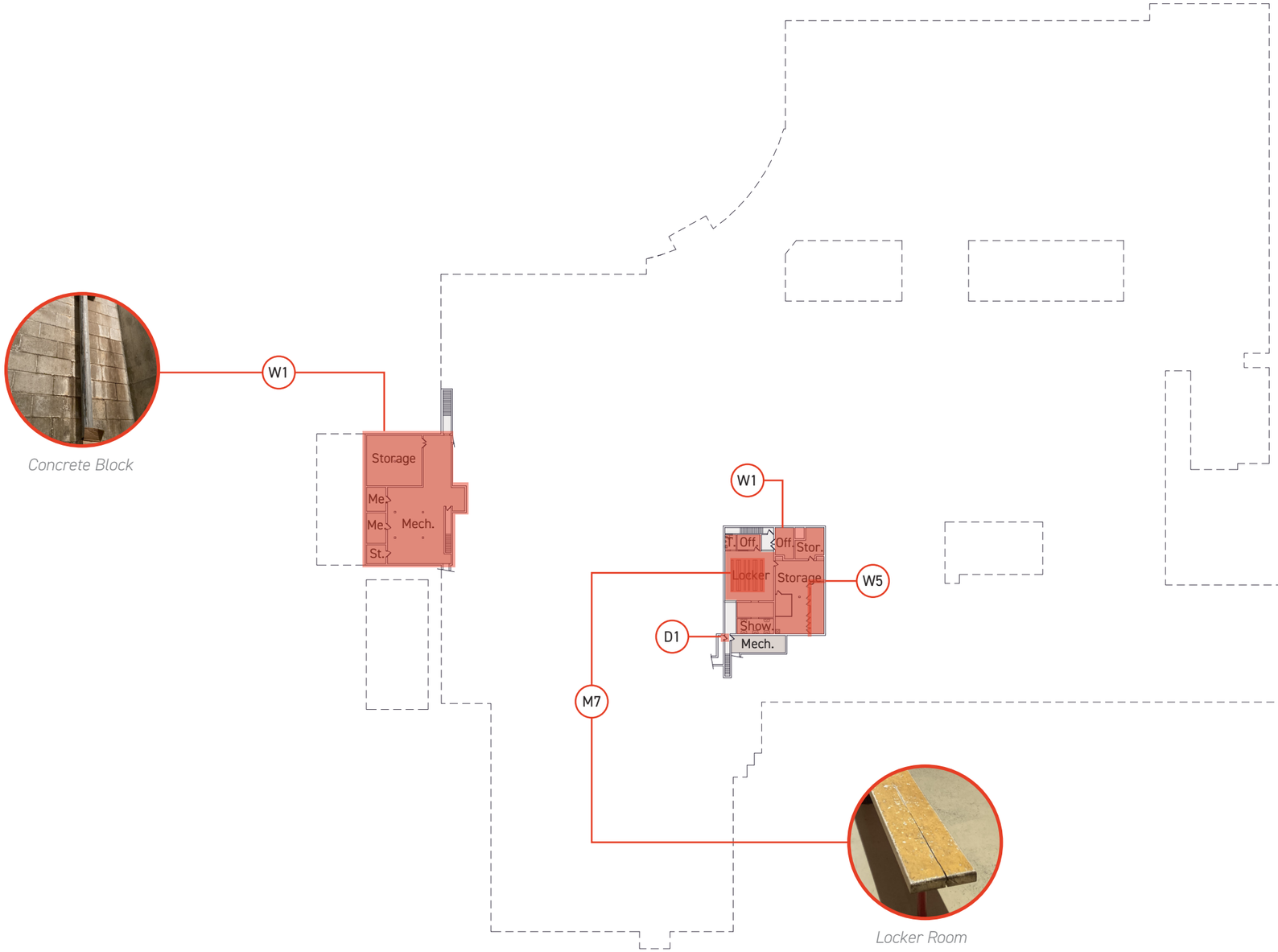
Laminate Casework

Metal Lintel

***Note:** The diagram above reflects instances of materials in poor condition, but does not reflect the material's overall condition.

sparta high school interior identifications + analysis | first floor

Concrete Block



Locker Room Benches

***Note:** The diagram above reflects instances of materials in poor condition, but does not reflect the material's overall condition.

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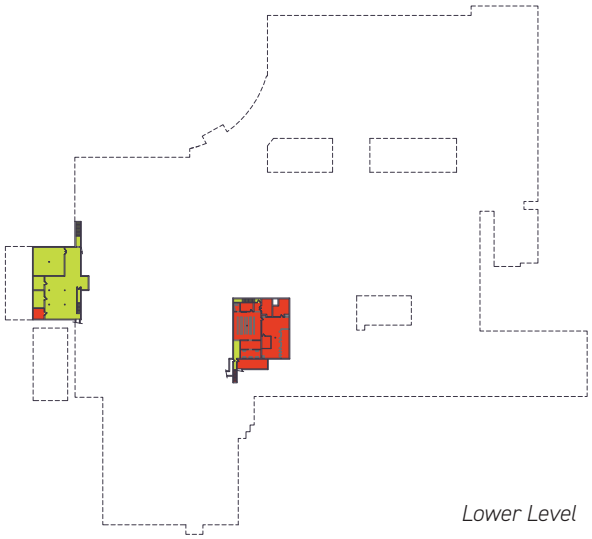
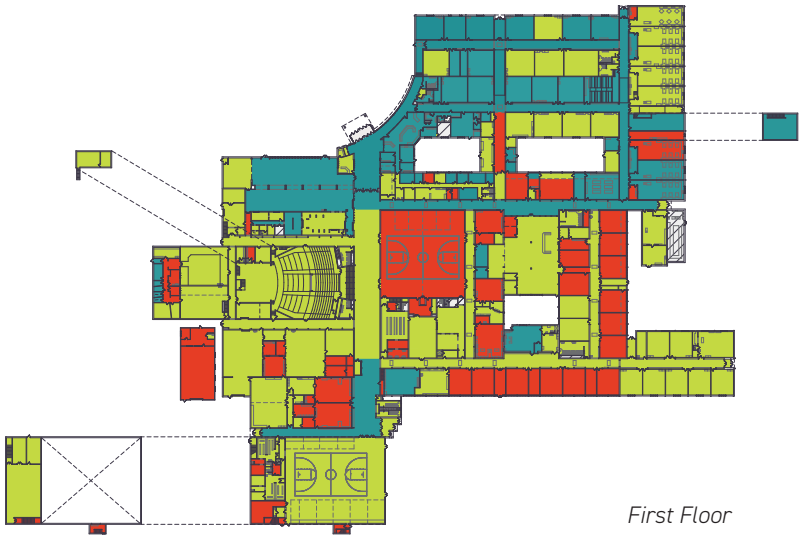
sparta high school ceiling analysis



Lower Level



First Floor

KEY TAKEAWAYS

- Materials identified as potentially containing asbestos are considered to be in poor condition.
- Spline ceilings are identified as a potential asbestos containing material.
- Majority of acoustical ceiling tile located in the north side of the school are in good condition due to few instances of staining or warping.
- Majority of classrooms with concrete ceilings are in poor condition due to cracking.

HIGHLIGHT

of ceilings were identified as potentially containing asbestos

OVERALL CEILING CONDITION

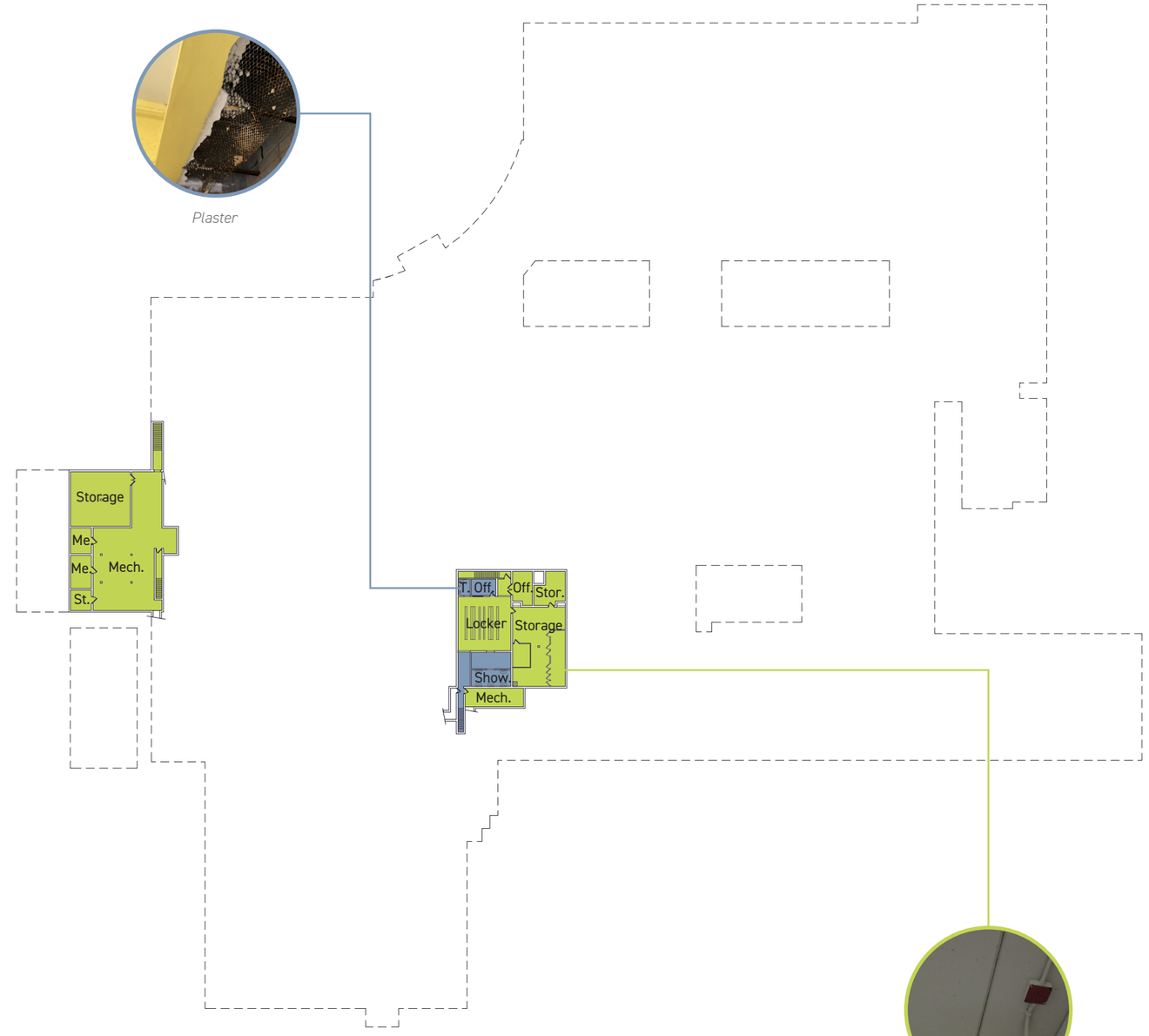
Good	No visible damage
Fair	Some visible damage
Poor	Substantial visible damage

sparta high school ceiling material identification

Materials Key

- Concrete
- Plaster

Plaster



Concrete

Potential of Asbestos Containing Materials

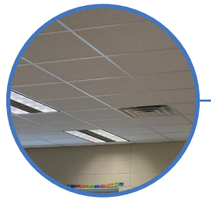
Asbestos is a material that was used in the construction industry, most commonly between 1960 - 1990. **There was no asbestos testing performed for this assessment.** Observations and assumptions were made based on common older building materials that typically have been identified to containing asbestos.

N

sparta high school ceiling material identification

Materials Key

- Acoustical Ceiling Tile
- Gypsum
- Concrete
- Exposed Metal Deck
- Spline
- Plaster
- No Data



Acoustical Ceiling Tile (ACT)

Stage Mezzanine Plan

Mechanical Mezzanine Plan

Gymnasium Mezzanine Plan

Exposed Metal Deck

Spline

Potential of Asbestos Containing Materials

Asbestos is a material that was used in the construction industry, most commonly between 1960 - 1990. **There was no asbestos testing performed for this assessment.** Observations and assumptions were made based on common older building materials that typically have been identified to containing asbestos.

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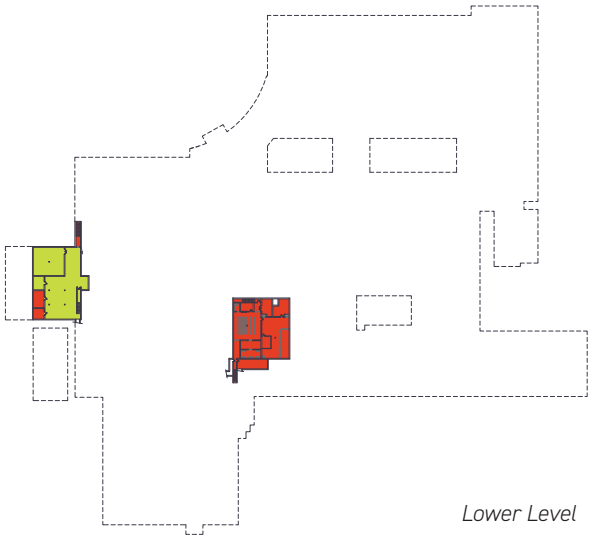
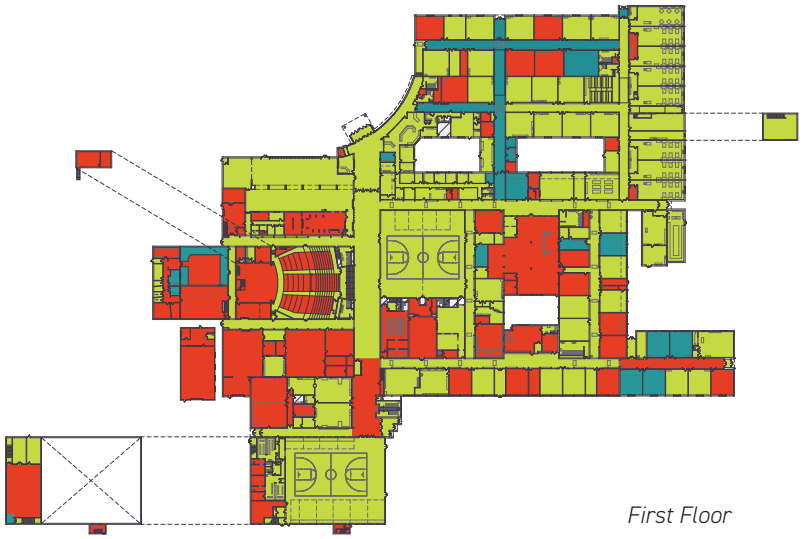
sparta high school flooring analysis



Lower Level



First Floor

KEY TAKEAWAYS

- Materials identified as potentially containing asbestos are considered to be in poor condition.
- 9" x 9" vinyl tile flooring is identified as potential asbestos tile.
- There are instances of concrete flooring located in the lower level that are in poor condition due to cracking and staining.
- Majority of VCT flooring is in fair condition due to minor scratching and wear.

HIGHLIGHT

of floors were identified as potentially containing asbestos

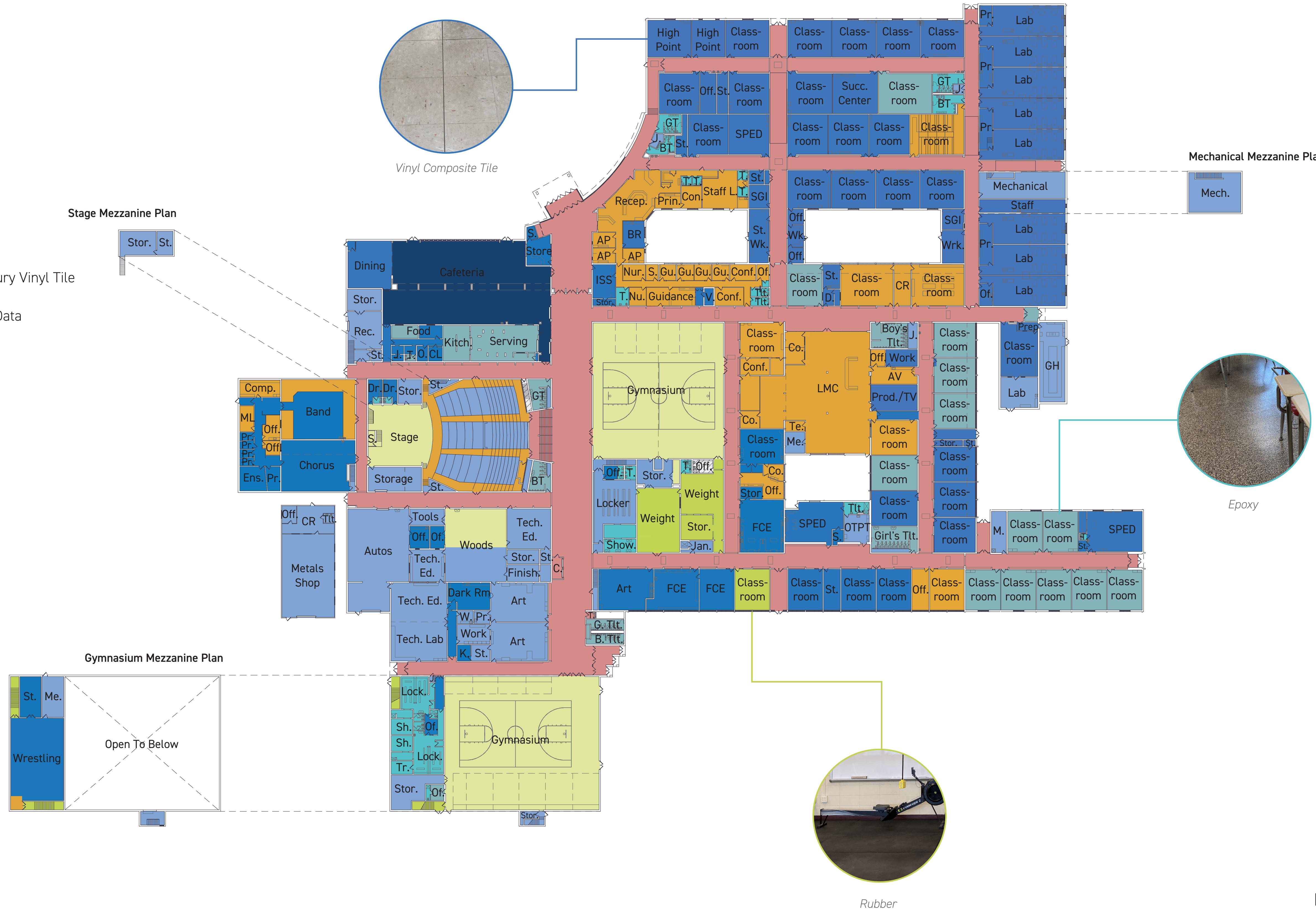
OVERALL FLOORING CONDITION

Good	No visible damage
Fair	Some visible damage
Poor	Substantial visible damage

sparta high school flooring material identification

Materials Key

- Vinyl Composite Tile
- Tile
- Rubber
- Carpet
- Concrete
- Epoxy
- Wood
- Terrazzo
- Luxury Vinyl Tile
- No Data



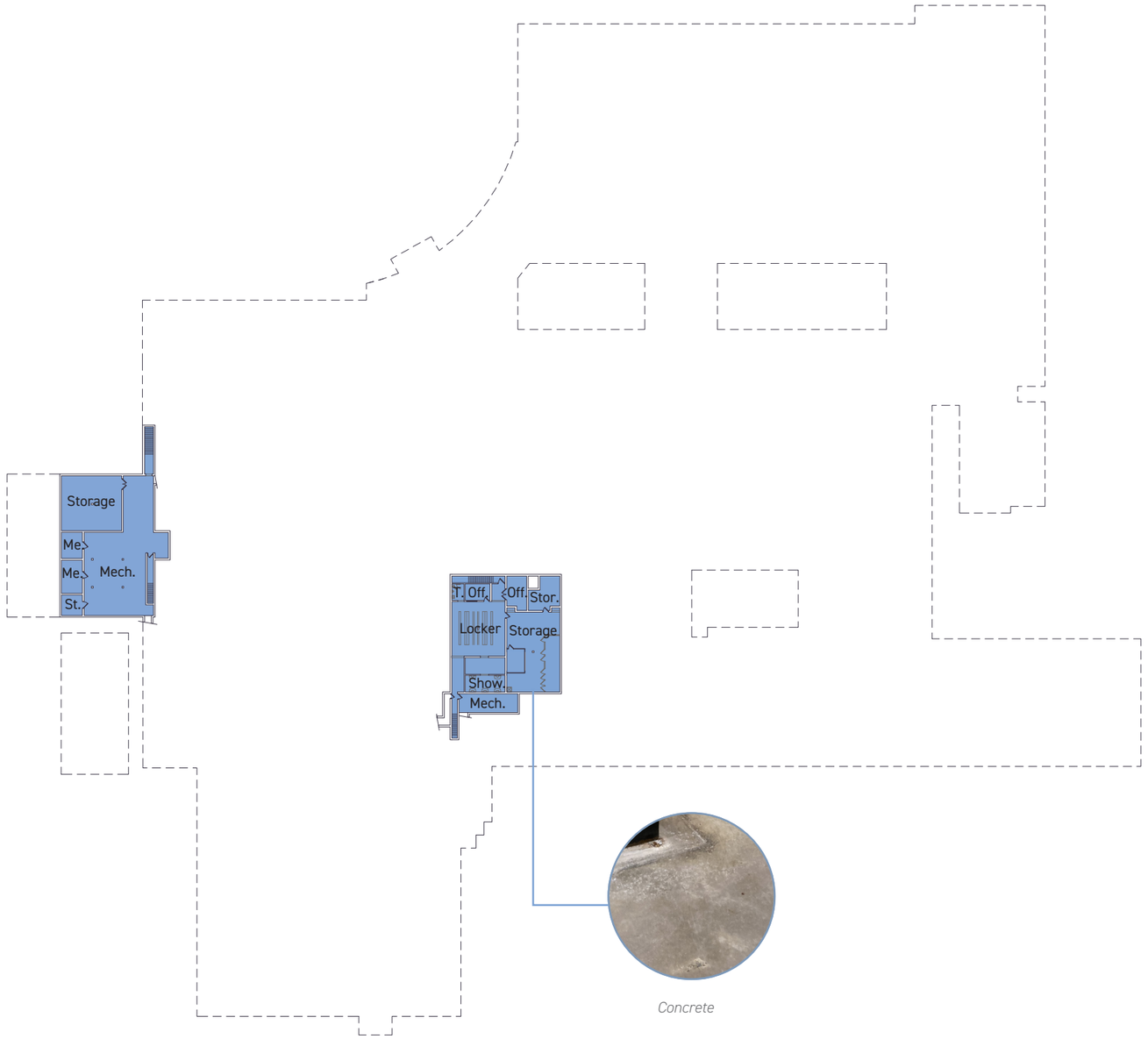
Potential of Asbestos Containing Materials

Asbestos is a material that was used in the construction industry, most commonly between 1960 - 1990. **There was no asbestos testing performed for this assessment.** Observations and assumptions were made based on common older building materials that typically have been identified to containing asbestos.

sparta high school flooring material identification

Materials Key

- Concrete



Concrete

Potential of Asbestos Containing Materials

Asbestos is a material that was used in the construction industry, most commonly between 1960 - 1990. **There was no asbestos testing performed for this assessment.** Observations and assumptions were made based on common older building materials that typically have been identified to containing asbestos.

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sparta high school exterior analysis

KEY TAKEAWAYS

- Brick work contains cracking and chipping sporadically throughout exterior. Brick work on southwest side on original building portion shows signs of bowing/bulging.
- Majority of the metal lintels located above the doors and windows are in poor condition due to rusting.
- Concrete columns and stacked concrete blocks are in poor condition due to cracking and crumbling.
- Corrugated metal facade of the industrial arts building shows excessive denting, scratching, and puncturing.

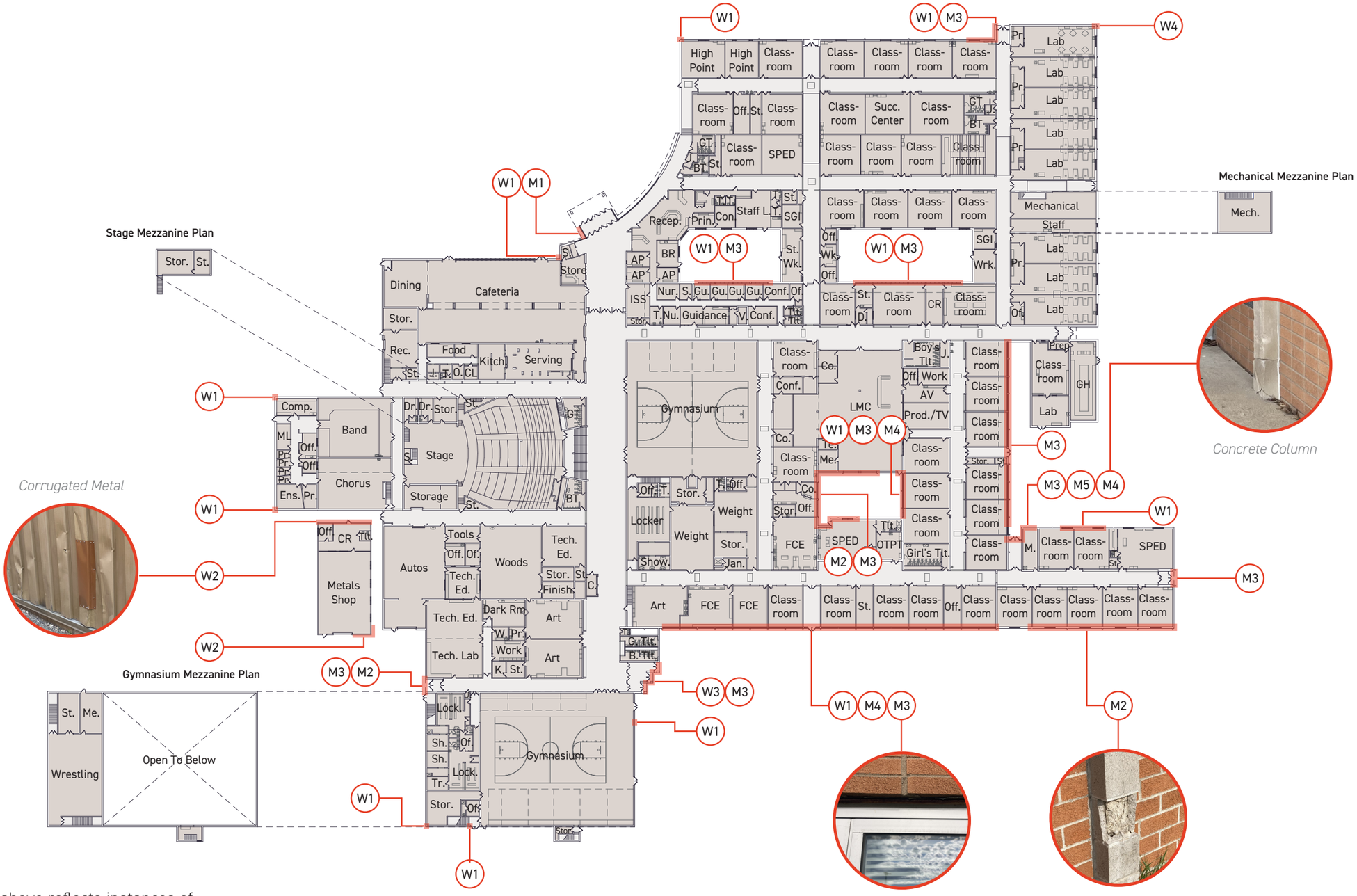
WALLS

- W1 Brick
- W2 Corrugated Metal
- W3 Concrete Block
- W4 Concrete Foundation

MISCELLANEOUS

- M1 Metal Fascia
- M2 Stacked Concrete Block
- M3 Metal Lintel
- M4 Concrete Column
- M5 Gutter
- M6 Green House Sheeting
- M7 EIFS Soffit
- M8 Metal Coping

sparta high school exterior identifications + analysis



***Note:** The diagram above reflects instances of materials in poor condition, but does not reflect the material's overall condition.

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sparta high school exterior door analysis

No.	Door Type / Door Frame
A	Hollow Metal / Store Front
B	Hollow Metal / Hollow Metal
C	Hollow Metal / Storefront
D	Hollow Metal / Storefront
E	Hollow Metal / Hollow Metal
F	Hollow Metal / Hollow Metal
G	Aluminum / Aluminum
H	Hollow Metal / Hollow Metal
I	Hollow Metal / Hollow Metal
J	Aluminum / Aluminum Storefront
K	Aluminum / Aluminum Storefront
L	Hollow Metal / Hollow Metal
N1	Aluminum / Aluminum Storefront
N2	Aluminum / Aluminum Storefront
N3	Aluminum / Aluminum Storefront
O	Hollow Metal / Hollow Metal
P	Hollow Metal / Hollow Metal
P2	Hollow Metal / Hollow Metal
Q	Hollow Metal / Hollow Metal
R	Aluminum / Aluminum Storefront
S	Hollow Metal / Hollow Metal
T	Aluminum / Aluminum Storefront
T2	Rolling Metal
U	Hollow Metal / Hollow Metal
V	Hollow Metal / Hollow Metal
907	Hollow Metal / Hollow Metal
W	Hollow Metal / Hollow Metal
X	Hollow Metal / Hollow Metal
Y	Hollow Metal / Hollow Metal
Y1	Rolling Metal
Y2	
Z	Hollow Metal / Hollow Metal
Z1	Hollow Metal / Hollow Metal
Z2	Hollow Metal / Hollow Metal

KEY TAKEAWAYS

- The gymnasium exterior doors are in fair or poor condition due to rusting, staining, denting, or peeling of paint.
- Door I is in poor condition due to paint peeling, rusting, and broken glazing.
- Majority of hollow metal doors with hollow metal framing are in fair condition due to scratching of paint or fading of color.

MOST COMMON EXTERIOR DOOR

Hollow Metal Door(s) with Hollow Metal Frame

OVERALL EXTERIOR DOOR CONDITION

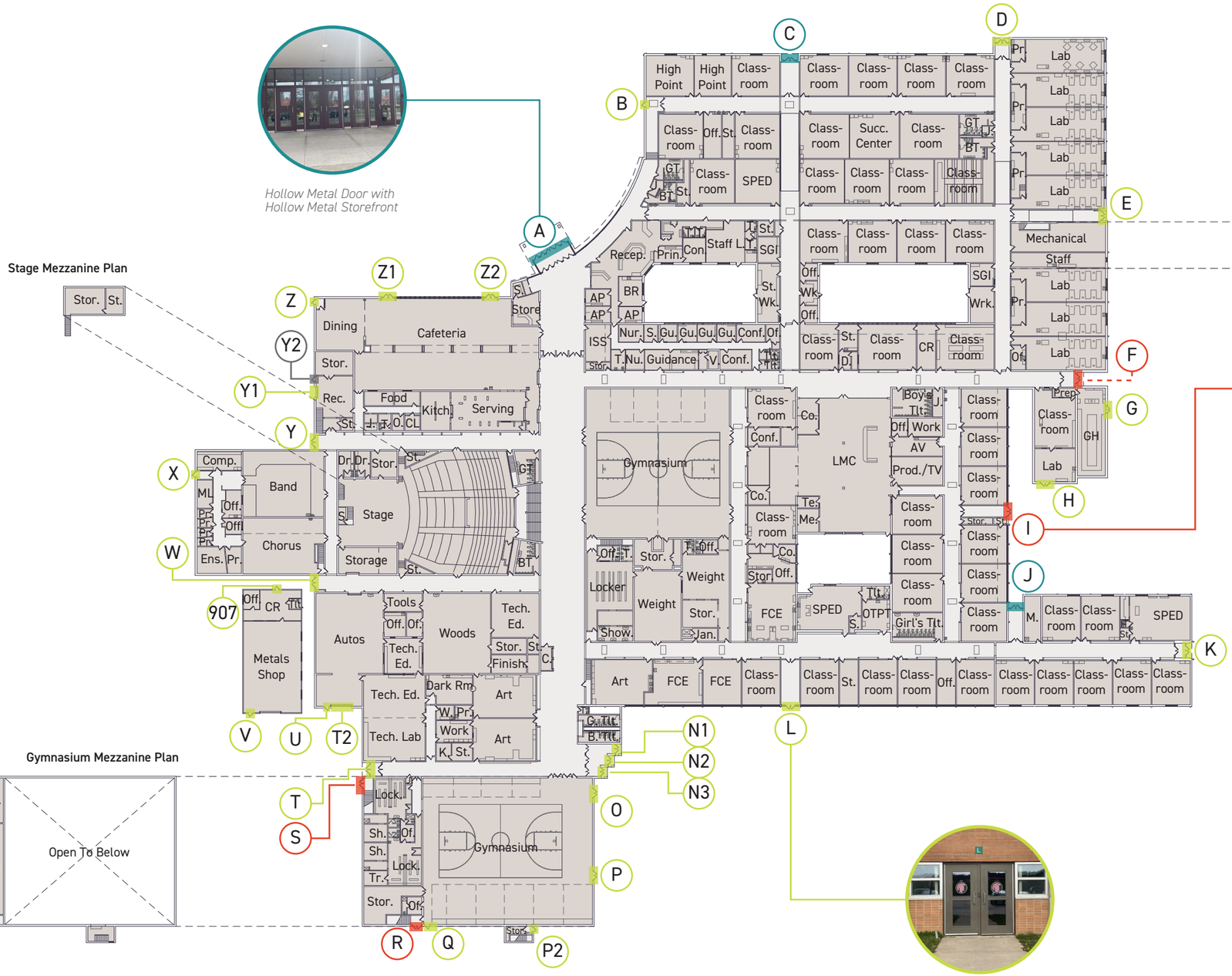
Good	No visible damage
Fair	Some visible damage
Poor	Substantial visible damage

sparta high school exterior door identification + analysis

Hollow Metal Door with Hollow Metal Storefront

Hollow Metal Doors with Hollow Metal Frame

Hollow Metal Doors with Hollow Metal Frame



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sparta high school exterior window analysis

No.	Frame Type / Glass Type
1	Aluminum / Aluminum Storefront
2	Aluminum / Aluminum Storefront
3	Aluminum / Double Pane
4	Aluminum / Double Pane
5	Aluminum / Double Pane
6	Aluminum / Double Pane
7	Aluminum / Double Pane
8	Aluminum / Double Pane
9	Aluminum / Double Pane
10	Aluminum / Double Pane
11	Aluminum / Double Pane
12	Aluminum / Double Pane
13	Aluminum / Double Pane
14	Aluminum / Double Pane
15	Aluminum / Double Pane
16	Aluminum / Double Pane
17	Aluminum / Double Pane
18	Aluminum / Double Pane
19	Aluminum / Double Pane
20	Aluminum / Double Pane
21	Aluminum / Double Pane
22	Aluminum / Double Pane
23	Aluminum / Double Pane
24	Aluminum / Double Pane
25	Aluminum / Double Pane
26	Aluminum / Double Pane
27	Aluminum / Double Pane
28	Aluminum / Double Pane
29	Aluminum / Double Pane

KEY TAKEAWAYS

- Majority of the aluminum framed windows with double pane glass are in fair condition with slight wear and occasional rusting.
- There is an instance at windows 7 where a crack is visible.

MOST COMMON EXTERIOR WINDOW

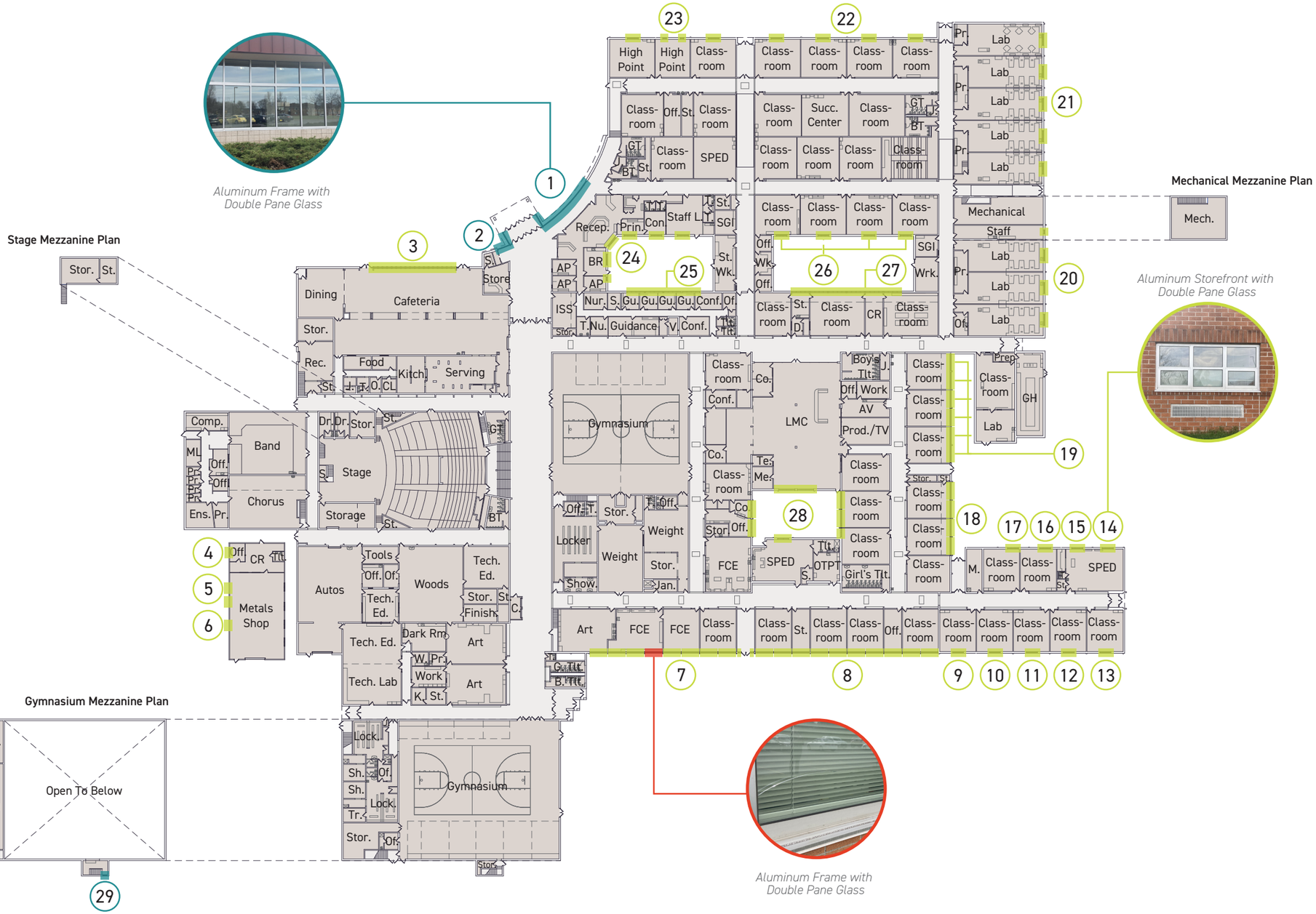
Aluminum with Double Pane Glass

OVERALL EXTERIOR WINDOW CONDITION

Good	No visible damage
Fair	Some visible damage
Poor	Substantial visible damage

sparta high school exterior window identification + analysis

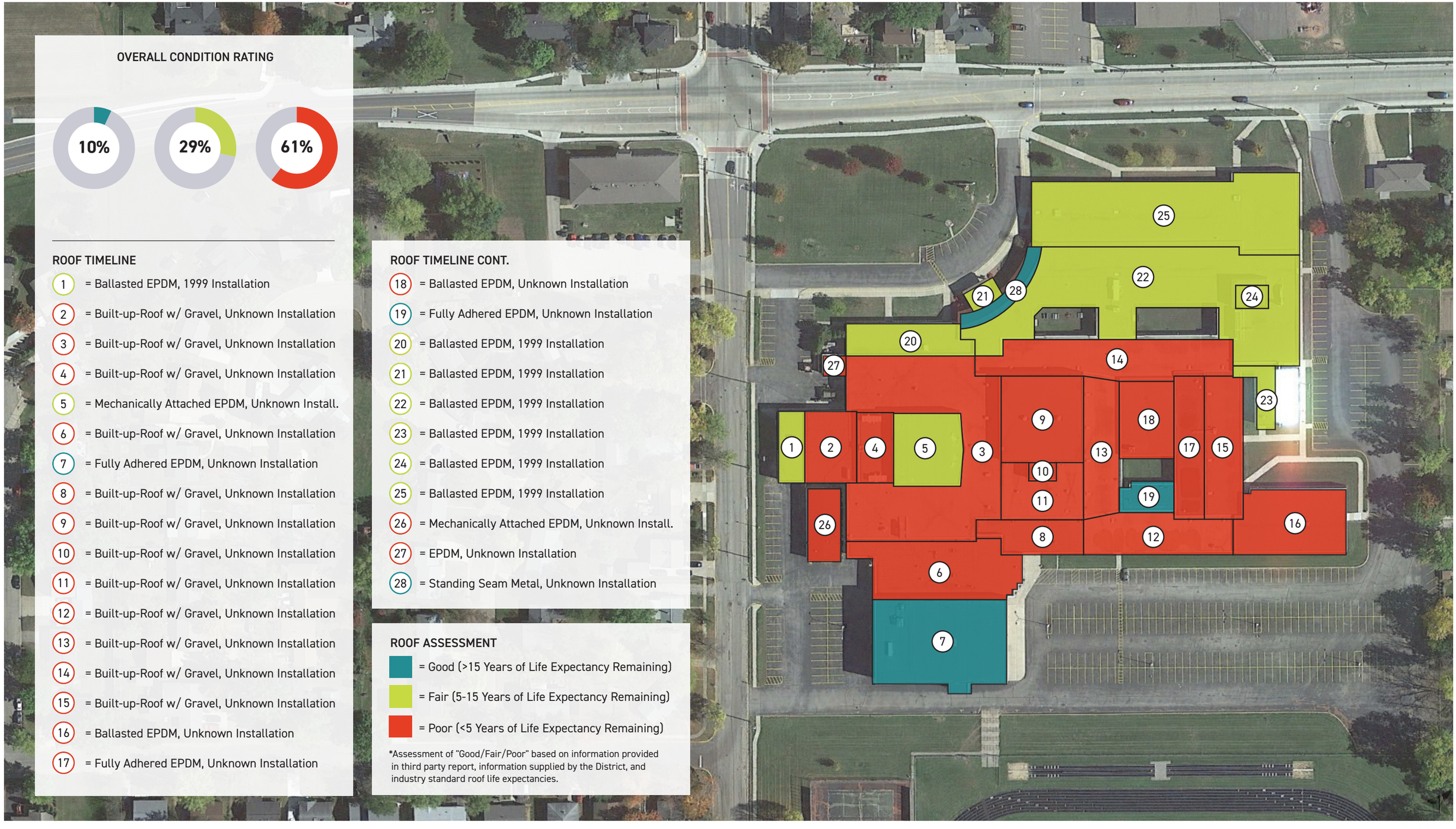
Aluminum Frame with Double Pane Glass



Aluminum Frame with Double Pane Glass

N

sparta high school roof identification



OVERALL CONDITION RATING

ROOF TIMELINE

1 = Ballasted EPDM, 1999 Installation

2 = Built-up-Roof w/ Gravel, Unknown Installation

3 = Built-up-Roof w/ Gravel, Unknown Installation

4 = Built-up-Roof w/ Gravel, Unknown Installation

5 = Mechanically Attached EPDM, Unknown Install.

6 = Built-up-Roof w/ Gravel, Unknown Installation

7 = Fully Adhered EPDM, Unknown Installation

8 = Built-up-Roof w/ Gravel, Unknown Installation

9 = Built-up-Roof w/ Gravel, Unknown Installation

10 = Built-up-Roof w/ Gravel, Unknown Installation

11 = Built-up-Roof w/ Gravel, Unknown Installation

12 = Built-up-Roof w/ Gravel, Unknown Installation

13 = Built-up-Roof w/ Gravel, Unknown Installation

14 = Built-up-Roof w/ Gravel, Unknown Installation

15 = Built-up-Roof w/ Gravel, Unknown Installation

16 = Ballasted EPDM, Unknown Installation

17 = Fully Adhered EPDM, Unknown Installation

ROOF TIMELINE CONT.

18 = Ballasted EPDM, Unknown Installation

19 = Fully Adhered EPDM, Unknown Installation

20 = Ballasted EPDM, 1999 Installation

21 = Ballasted EPDM, 1999 Installation

22 = Ballasted EPDM, 1999 Installation

23 = Ballasted EPDM, 1999 Installation

24 = Ballasted EPDM, 1999 Installation

25 = Ballasted EPDM, 1999 Installation

26 = Mechanically Attached EPDM, Unknown Install.

27 = EPDM, Unknown Installation

28 = Standing Seam Metal, Unknown Installation

ROOF ASSESSMENT

= Good (>15 Years of Life Expectancy Remaining)

= Fair (5-15 Years of Life Expectancy Remaining)

= Poor (<5 Years of Life Expectancy Remaining)

*Assessment of "Good/Fair/Poor" based on information provided in third party report, information supplied by the District, and industry standard roof life expectancies.

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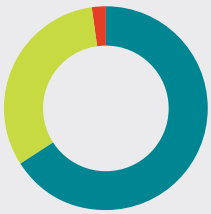
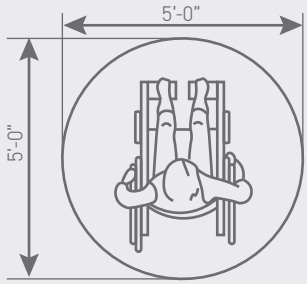
sparta high school ada conditions + assessment

Overall Condition Rating:

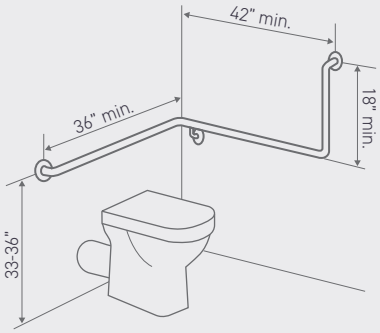


Most Concerning Item That Does Not Meet Code Requirements:



Not providing at least 5'-0" clearance space for a wheelchair to turn around.

Most Frequently Occurring Item That Does Not Meet Code Requirements:

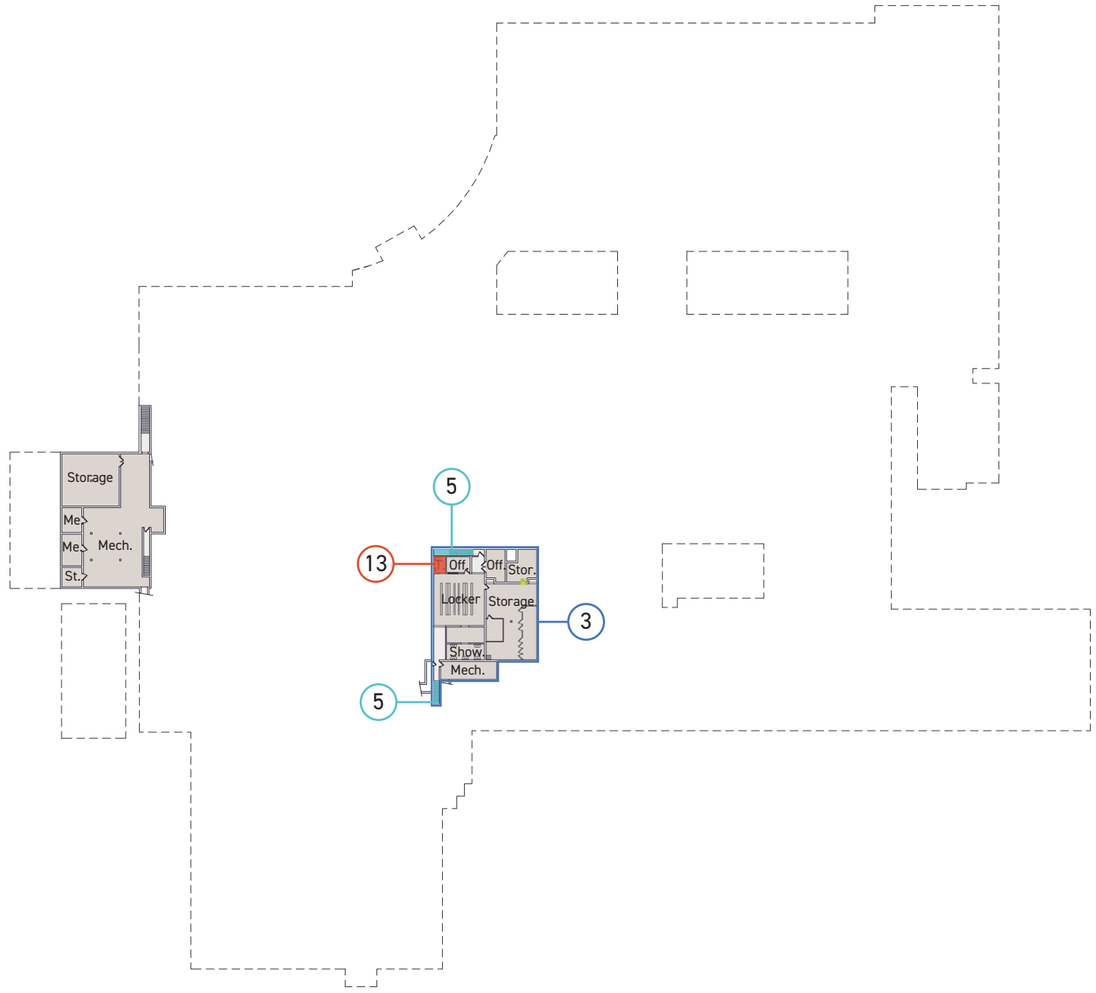


Not providing at proper grab bars at ADA accessible toilet.

GENERAL ASSESSMENT OF ADA CONDITIONS

- **Building Entrance Accessibility**
- **ADA Parking Stalls**
- **Accessible Routes of Travel**
  - Ramps
  - Lifts
  - Elevators
- **Railings**
  - Ramp Railings
  - Stair Railings
- **Door Hardware**
- **Door Clearances**
  - Push / Pull
  - Thresholds
  - Maneuvering
- **Toilet Rooms**
  - 5'-0" Wheelchair Clearance
  - ADA Accessible Stall
  - Unisex Toilet Room
  - Grab Bars
  - Showers
- **Protruding Objects**
- **Drinking Fountains**
- **Casework**
  - Transaction Counters
  - Workstations Counters
  - Counters with Sinks

sparta high school ada conditions + assessment | lower level



Color Key

- **Accessible Routes of Travel**
  1. Ramps
  2. Lifts
  3. Elevators
- **Railings**
  4. Ramps
  5. Stairs
- **Door Hardware**
  6. Door Hardware
- **Door Clearances**
  7. Push / Pull
  8. Thresholds
  9. Maneuvering
- **Toilet Rooms**
  10. 5'-0" Wheelchair Clearance
  11. ADA Accessible Stall
  12. Unisex Toilet Room
  13. Grab Bars
  14. Showers
- **Protruding Objects**
  15. Protruding Objects
- **Casework**
  16. Transaction Counter
  17. Workstation Counters
  18. Counters with Sinks

N

sparta high school ada conditions + assessment | first floor

Color Key

- **Accessible Routes of Travel**
  1. Ramps
  2. Lifts
  3. Elevators
- **Railings**
  4. Ramps
  5. Stairs
- **Door Hardware**
  6. Door Hardware
- **Door Clearances**
  7. Push / Pull
  8. Thresholds
  9. Maneuvering
- **Toilet Rooms**
  10. 5'-0" Wheelchair Clearance
  11. ADA Accessible Stall
  12. Unisex Toilet Room
  13. Grab Bars
  14. Showers
- **Protruding Objects**
  15. Protruding Objects
- **Casework**
  16. Transaction Counter
  17. Workstation Counters
  18. Counters with Sinks

N

sparta high school summary

ITEMS IN POOR CONDITION

Substantial visible damage, wear or need for repair, or identified as containing potential asbestos

- Domestic water service
- Interior wall and door repair at select/identified areas
- Ceiling replacement at select/identified areas
- Flooring replacement at select/identified areas
- Casework at identified areas
- Exterior doors at identified areas
- Potential asbestos remediation
- ADA improvements at identified areas
- Exterior wall repair at select/identified areas

ITEMS IN FAIR CONDITION

Some visible damage, wear or need for repair

- Sanitary system
- Storm system
- Natural gas system
- Plumbing equipment and fixtures
- HVAC and control systems
- Panelboards
- Light fixtures, controls, and wiring devices
- Data/telephone
- Ceiling replacement at select/identified areas
- Flooring replacement at select/identified areas
- Exterior doors at identified areas
- Exterior windows at identified areas

ITEMS IN GOOD CONDITION

No visible damage, wear or need for repair

- Boiler plant and pumps
- Electrical service
- Clock system
- Emergency generator
- Public address system
- Access control and security system
- Exterior doors at identified areas
- Exterior windows at identified areas

+ OVERALL BREAKDOWN

Ceiling

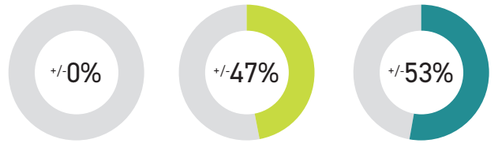
Accessibility

Flooring

Plumbing

Exterior Doors

Mechanical



Exterior Windows

Electrical

Roof

Life Safety

05

district office

Original Date of Construction

1925

As of 2023: 98 years old

SUMMARY

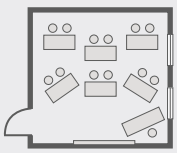
The Sparta Area School District Office provides office space for the administrative team.

Address: 900 E Montgomery St, Sparta, WI 54656
Site Size: 5.3 acres
Parking: 40 stalls

Square Footage

37,480 Sq. Ft.

Average Core Classroom
Size Comparison

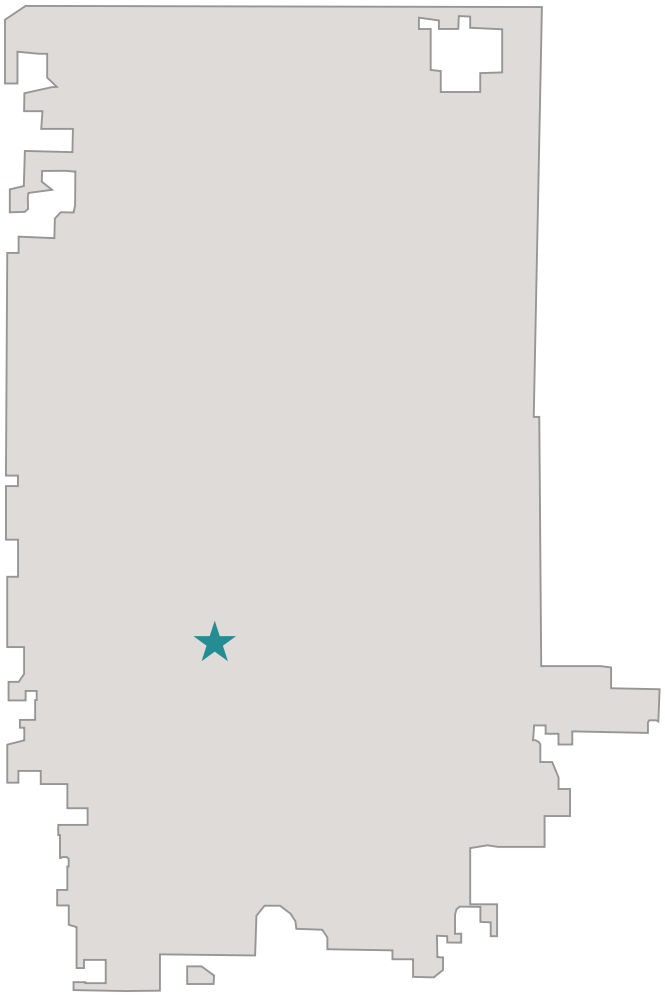


787 sq. ft.

Recommended Size

1st -12th: 900 sq. ft.
Kindergarten: 1200 sq. ft.

district office



School Location in Sparta Area School District Boundaries.

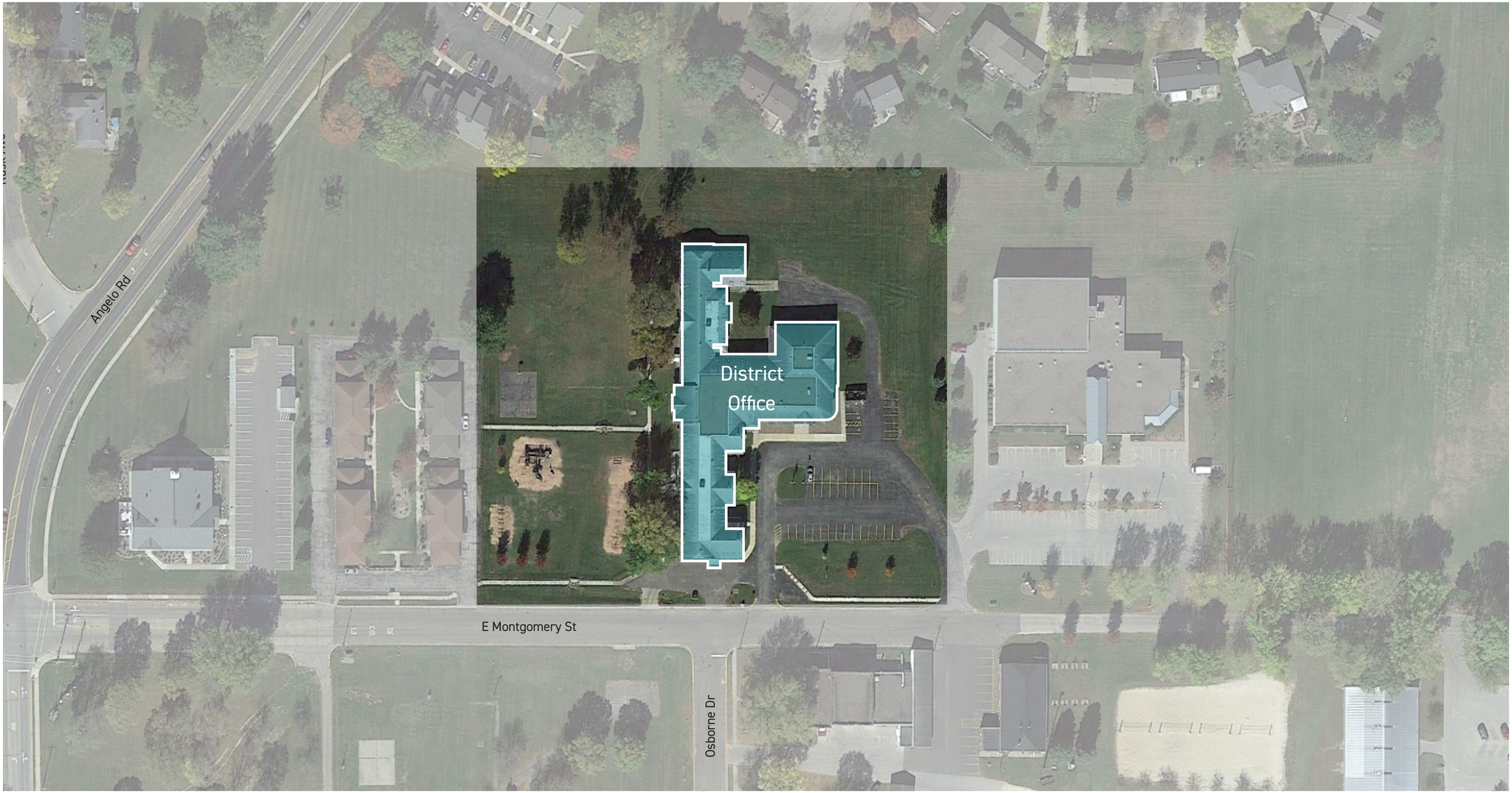
KEY TAKEAWAYS

- The parking is located on the south side corner of the site.
- E Montgomery St provides the only access to the building.

PARCEL DIVISION

- Building
- Playgrounds
- Paved Area
- Athletic Fields
- Green space

district office site map



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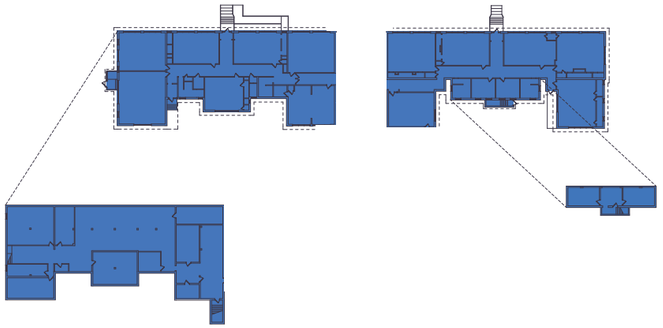
district office building evolution

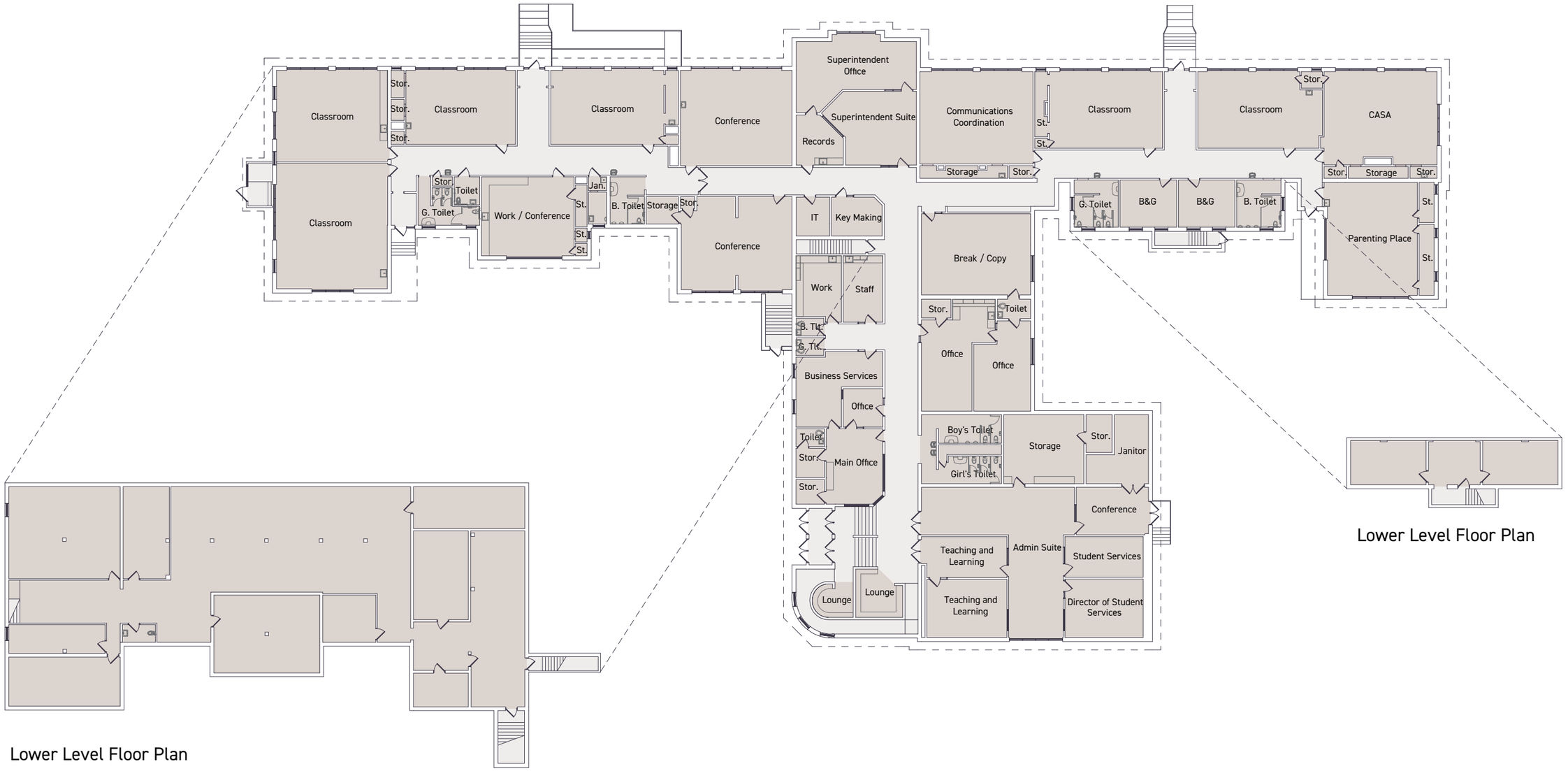


1925-1927 - Original Buildings

1990 - Academic Addition

N

district office floor plan | first floor



N

district office building systems summary

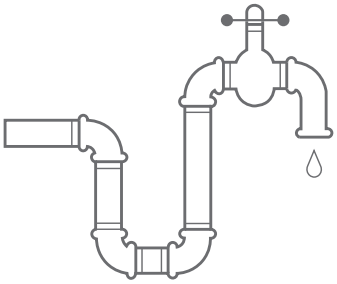
Good Condition
No visible damage, wear or need for repair; no replacement needed.

Fair Condition
Some visible damage, wear or need for repair; no immediate replacement required.

Poor Condition
Substantial visible damage, wear or need for repair, or identified as containing potential asbestos; most pressing replacement needed.

Plumbing
Condition Overview

Replace Water Service + Replace Original Water Distribution Piping



PLUMBING

Domestic Water System	■	
Water Service	●	Existing water service dates back to original building construction with copper piping installed downstream in 1990. Original water service likely in very poor condition
Water Distribution Piping	◪	Distribution piping is mix of copper, galvanized steel, CPVC, black steel, and PEX piping. Piping is not adequately supported or insulated. If original piping is present it's in poor condition
Water Softening System	○	
Fire Sprinkler System	○	
Sanitary System	■	
Sanitary Waste System	◪	
Sanitary Drain, Waste + Vent Piping	◪	Original piping is past its expected life cycle
Acid Waste Piping + Basin	○	
Interceptors	●	
Storm System	■	
Storm System	◪	
Storm Waste Piping	◪	Original piping is past its expected life cycle
Sump Pump	●	
Natural Gas System	□	

* See appendix for full engineer reports + additional information.

district office building systems summary

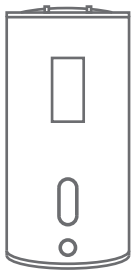
Good Condition
No visible damage, wear or need for repair; no replacement needed.

Fair Condition
Some visible damage, wear or need for repair; no immediate replacement required.

Poor Condition
Substantial visible damage, wear or need for repair, or identified as containing potential asbestos; most pressing replacement needed.

Plumbing
Condition Overview

Replace Water Heater in 1990
Addition Janitor Room



PLUMBING

Plumbing Equipment	■	
Water Heater	●	Water heating equipment consists of three electric tank type heaters. Tank in 1990 addition janitor room original to addition construction and near end of expected service life
Circulator Pump	○	1990 Portion of building uses temperature maintenance through heat trace
Hot Water System	○	
Plumbing Fixtures	■	
Water Closets	●	
Urinals	●	
Lavatories	●	
Drinking Fountains	●	
Classroom Sinks	○	
General Sinks	●	
Art Room Sinks	○	
Emergency Eyewash Stations	○	

* See appendix for full engineer reports + additional information.

district office building systems summary

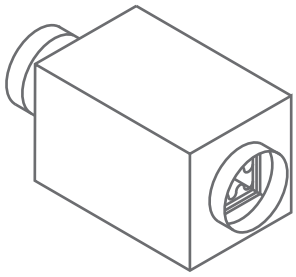
Good Condition
No visible damage, wear or need for repair; no replacement needed.

Fair Condition
Some visible damage, wear or need for repair; no immediate replacement required.

Poor Condition
Substantial visible damage, wear or need for repair, or identified as containing potential asbestos; most pressing replacement needed.

Mechanical Condition Overview

Replace Air Handling Units + Condensing Unit from 1990



MECHANICAL

Heating	■	
Boiler Plant	●	The boilers were installed in 2009 and are in good condition. The boilers have an estimated 20-year life expectancy
Pumps	●	The pumps were installed in 2009 and are in good condition. The pumps have an estimated 25-year life expectancy
Ventilation + A/C Systems	■	
Air Handling Units	●	Air handling units that serve the classroom spaces and the main offices were installed in 1990 and appear to be in satisfactory condition. Units have 30-year life expectancy
Air Conditioning Systems	●	Condensing unit serving office installed in 1990. Unit in marginal condition. Units that service residential furnaces were installed in 2021. Units has 20 year life expectancy
Control Systems	■	The building is served by an older Siemens Apogee digital control system with some standalone electric thermostats to control cabinet heaters and convectors

* See appendix for full engineer reports + additional information.

district office building systems summary

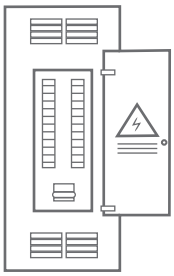
Good Condition
No visible damage, wear or need for repair; no replacement needed.

Fair Condition
Some visible damage, wear or need for repair; no immediate replacement required.

Poor Condition
Substantial visible damage, wear or need for repair, or identified as containing potential asbestos; most pressing replacement needed.

Electrical
Condition Overview

Replace 50 yr Old
Panelboard + Cloth Wiring



ELECTRICAL

Electrical Service		Service locations lack surge protective device
Utility Service		Service capacity appears to be limited due to the 400 amp service capacity
Switchboard		Existing switchboards are in good condition. No room for additional breakers
Panelboards		Old Square D, Cutler-Hammer load centers, and 50 year old Benjamin Starrett panel board are at the end of service life. Panel boards have hand written directories. No arc flash labels
Light Fixtures + Controls		
Interior Lighting		Throughout the facility the light fixtures have been upgraded to LED flat panel type fixtures within the last 5 years
Corridor Lighting		All corridor lighting has been upgraded to LED
Exit Lighting		All exit lighting has been upgraded to LED
Exterior Lighting		All exterior lighting has been upgraded to LED
Wiring Devices		Cloth wiring present throughout building. Wear and tear on wiring devices and plates
Clock System		
Data / Telephone		

* See appendix for full engineer reports + additional information.

district office building systems summary

Good Condition
No visible damage, wear or need for repair; no replacement needed.

Fair Condition
Some visible damage, wear or need for repair; no immediate replacement required.

Poor Condition
Substantial visible damage, wear or need for repair, or identified as containing potential asbestos; most pressing replacement needed.

Life Safety
Condition Overview

Add Back Up Generator +
Upgrade Egress Lighting to Code

LIFE SAFETY

Emergency Generator	☐	Facility does not have a generator and uses battery backup exit lights
Emergency Egress Lighting	■	Egress lighting likely not code compliant
Fire Alarm System	■	
Public Address System	■	Intercom system head end is Rauland system installed within the last 5 years. There is a mix of speakers of differing age and type throughout the building.
Access Control	■	
Security System	■	

* See appendix for full engineer reports + additional information.

district office interior analysis

KEY TAKEAWAYS

- Majority of walls and doors in the 1990 academic addition are in fair condition, due to minor scratching and denting.
- Plaster walls located in closets from the 1927 original building are in poor condition due to staining, cracking, and peeling.
- Majority of the wood framed interior openings from the 1927 original building are in fair to poor condition due to scuffing, scratching, and worn finish.
- Majority of concrete block walls and wooden doors located in the southern lower level are in poor condition due to staining and cracking. Wood panel walls are in fair condition due to minor scratching and worn finish.

WALLS

- W1 Concrete Block
- W2 Gypsum
- W3 Tile
- W4 Concrete
- W5 Plywood
- W6 Wood Panel
- W7 Vinyl Base
- W8 Tile Base
- W9 Plaster
- W10 Brick
- W11 Wood Base
- W12 Terrazzo Base

DOORS

- D1 Wood Door w/ Hollow Metal Frame
- D2 Hollow Metal Door w/ Hollow Metal Frame
- D3 Aluminum Door w/ Aluminum Storefront
- D4 Wood Door w/ Wood Frame

OPENINGS

- O1 Aluminum Framed Interior Window
- O2 Laminate Interior Window Sill
- O3 Wooden Interior Window Sill
- O4 Hollow Metal Framed Interior Window
- O5 Wood Framed Interior Opening

MISCELLANEOUS

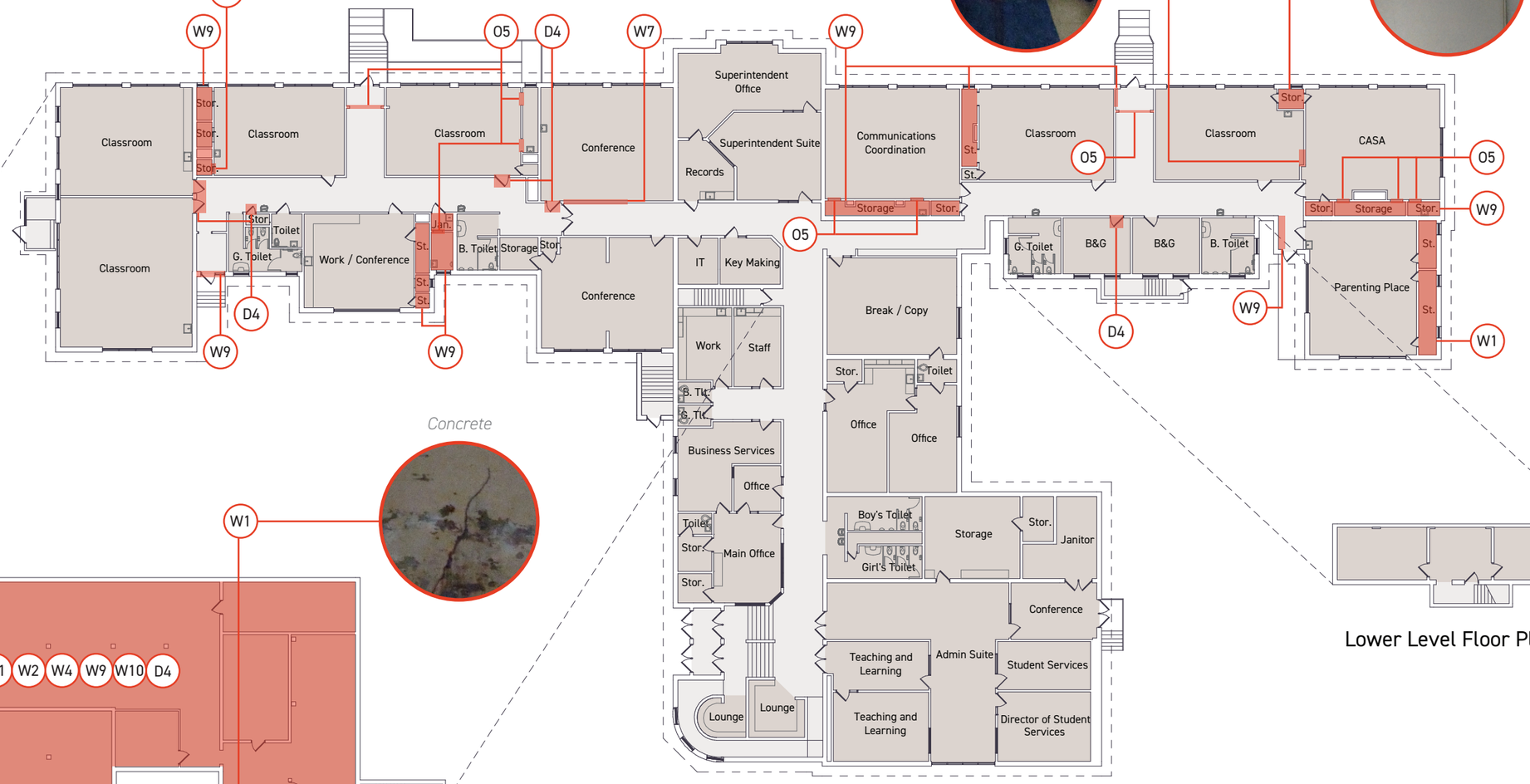
- M1 Laminate Casework
- M2 Coat Shelves + Hooks
- M3 Composite Toilet Partitions
- M4 Tall Storage Cabinets

district office interior identifications + analysis | first floor

Wood Framed Interior Opening

Vinyl Base

Plaster



Lower Level Floor Plan

Lower Level Floor Plan

***Note:** The diagram above reflects instances of materials in poor condition, but does not reflect the material's overall condition.

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district office ceiling analysis

First Floor

KEY TAKEAWAYS

- Materials identified as potentially containing asbestos are considered to be in poor condition.
- Spline ceilings are identified as a potential asbestos containing material.
- There are some instances of acoustical ceiling tile in poor condition due to staining and warping.
- Majority of plaster ceilings located in closets are in poor condition due to cracking, staining, and peeling.

HIGHLIGHT

of ceilings were identified as potentially containing asbestos

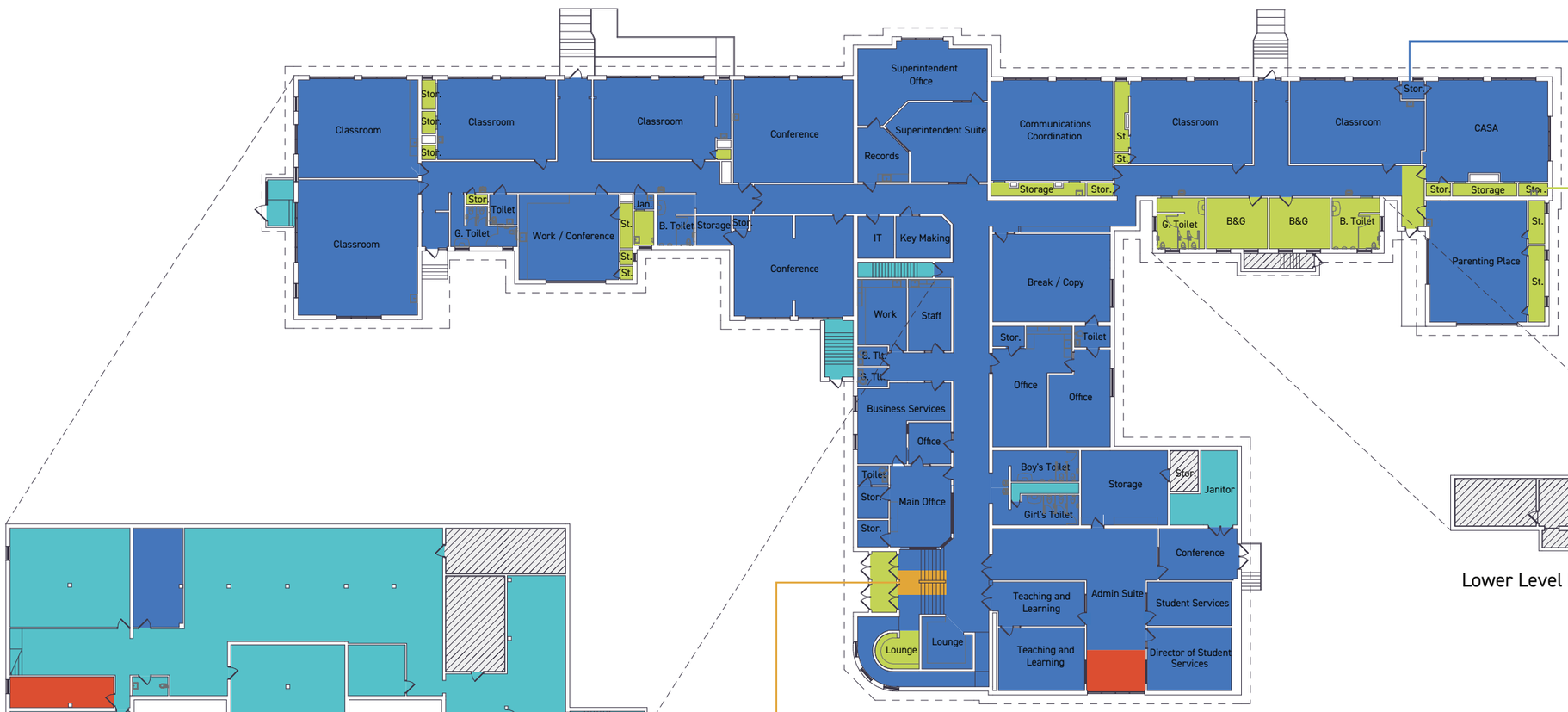
OVERALL CEILING CONDITION

Good	No visible damage
Fair	Some visible damage
Poor	Substantial visible damage

district office ceiling material identification

Materials Key

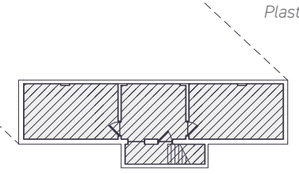
- Acoustical Ceiling Tile
- Concrete
- Plaster
- Spline
- Wood
- No Data



Lower Level Floor Plan

Acoustical Ceiling Tile (ACT)

Plaster



Lower Level Floor Plan

Wood

Potential of Asbestos Containing Materials

Asbestos is a material that was used in the construction industry, most commonly between 1960 - 1990. **There was no asbestos testing performed for this assessment.** Observations and assumptions were made based on common older building materials that typically have been identified to containing asbestos.

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district office flooring analysis

First Floor

KEY TAKEAWAYS

- Materials identified as potentially containing asbestos are considered to be in poor condition.
- Carpet flooring located in classrooms is in poor condition due to staining and wearing.
- Terrazzo flooring located in hallways and restrooms are in poor condition due to cracking and staining.
- Concrete flooring located in the janitor's room is in poor condition due to cracking, crumbling, and staining.

HIGHLIGHT

of floors were identified as potentially containing asbestos

OVERALL FLOORING CONDITION

Good	No visible damage
Fair	Some visible damage
Poor	Substantial visible damage

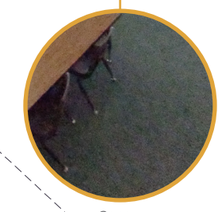
district office flooring material identification

Materials Key

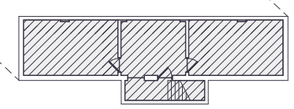
- Vinyl Composite Tile
- Carpet Tile
- Rubber
- Carpet
- Concrete
- Epoxy
- Wood
- Terrazzo
- Tile
- No Data

Lower Level Floor Plan

Terrazzo



Carpet



Lower Level Floor Plan

Carpet Tile

Potential of Asbestos Containing Materials

Asbestos is a material that was used in the construction industry, most commonly between 1960 - 1990. **There was no asbestos testing performed for this assessment.** Observations and assumptions were made based on common older building materials that typically have been identified to containing asbestos.

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district office exterior analysis

KEY TAKEAWAYS

- Majority of metal railings are in poor condition due to rusting.
- Some areas of brick, typically located lower on the wall, are in poor condition due to staining, cracking and crumbling.
- The wood trim located on the western side of the building is in poor condition due to cracking and peeling.
- Majority of metal lintels located above the windows are in poor condition due to rusting and staining.

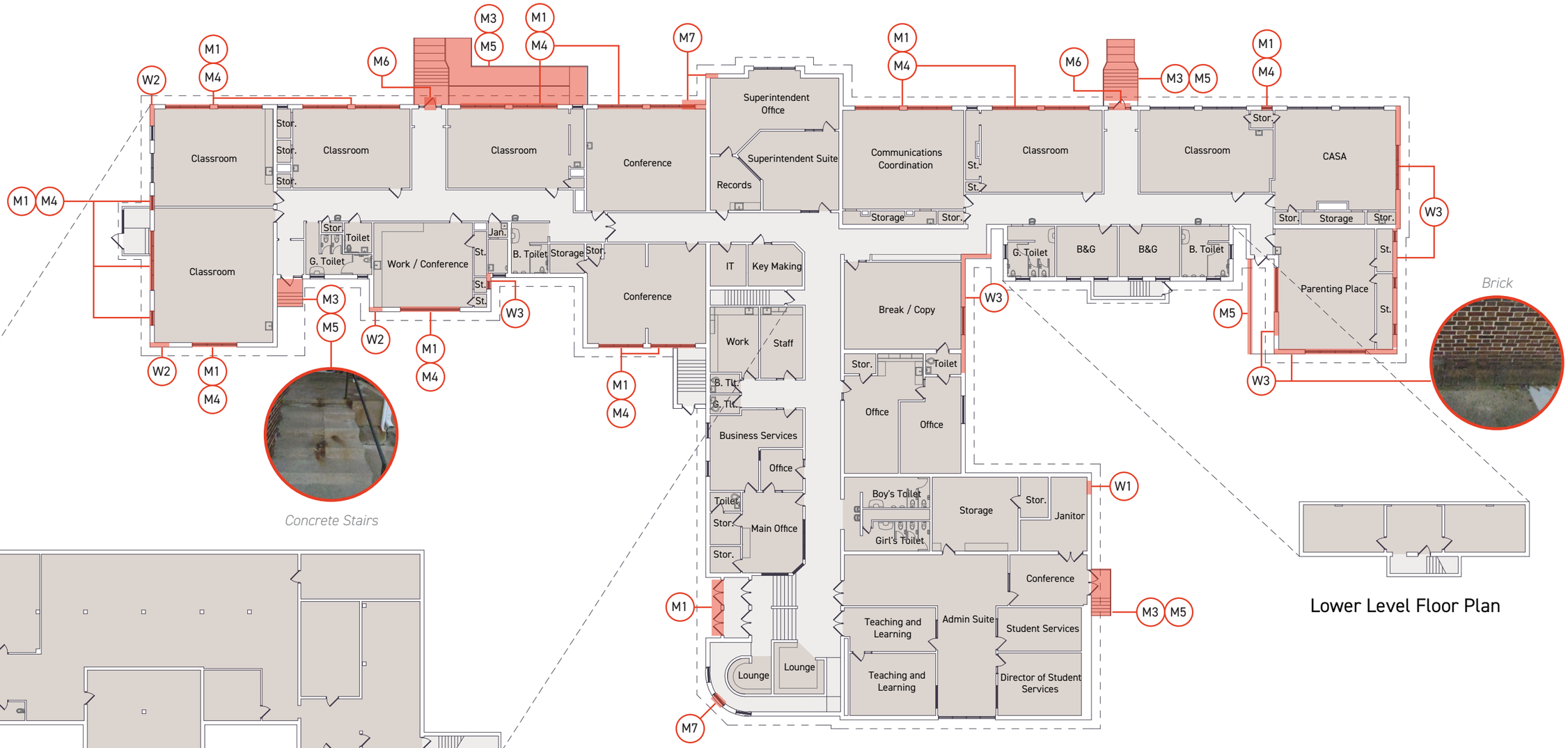
WALLS

- W1 Concrete Block
- W2 Concrete Foundation
- W3 Brick
- W4 Vinyl

MISCELLANEOUS

- M1 Metal Lintel
- M2 Vinyl Soffit
- M3 Concrete Stairs
- M4 Cast Stone Sill
- M5 Metal Railing
- M6 Wood Trim
- M7 Metal Coping

district office exterior identifications + analysis



Concrete Stairs

Brick

Lower Level Floor Plan

Lower Level Floor Plan

***Note:** The diagram above reflects instances of materials in poor condition, but does not reflect the material's overall condition.

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district office exterior door analysis

No.	Door Type / Door Frame
A	Aluminum / Aluminum Storefront
B	Hollow Metal / Hollow Metal
C	Aluminum / Aluminum
D	Aluminum / Aluminum
E	Hollow Metal / Hollow Metal
F	Hollow Metal / Hollow Metal
G	Hollow Metal / Hollow Metal
H	Hollow Metal / Hollow Metal

KEY TAKEAWAYS

- Door E is in poor condition due to rusting and discoloration.
- Majority of hollow metal doors are in fair condition due to minor wearing.

MOST COMMON EXTERIOR DOOR

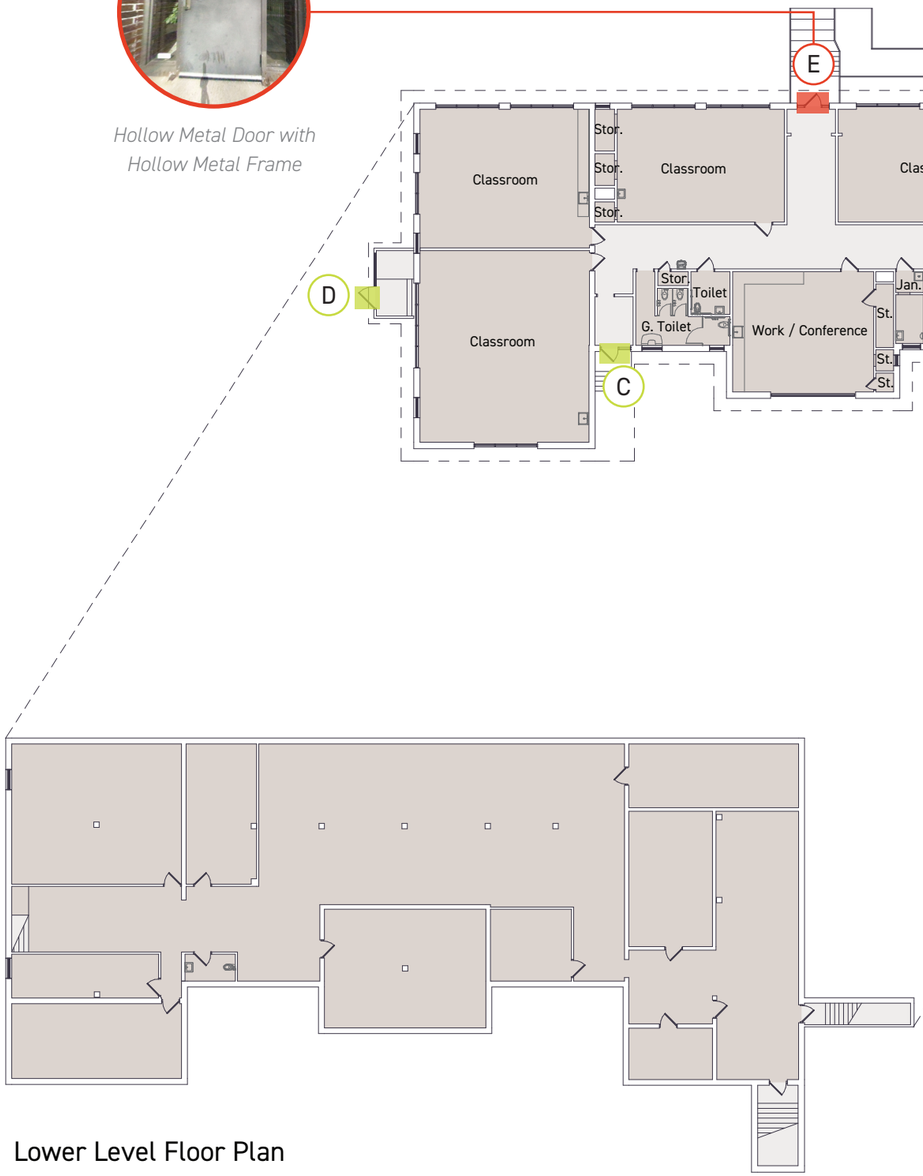
Hollow Metal Door(s) with Hollow Metal Frame

OVERALL EXTERIOR DOOR CONDITION

Good	No visible damage
Fair	Some visible damage
Poor	Substantial visible damage

district office exterior door identification + analysis

Hollow Metal Door with Hollow Metal Frame



Lower Level Floor Plan

Lower Level Floor Plan

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district office exterior window analysis

No.	Frame Type / Glass Type
9	Aluminum Clad Wood / Double Pane
101	Aluminum Clad Wood / Double Pane
102	Aluminum Clad Wood / Double Pane
103	Aluminum Clad Wood / Double Pane
104A	Aluminum Clad Wood / Double Pane
104B	Aluminum Clad Wood / Double Pane
104C	Aluminum Clad Wood / Double Pane
104D	Aluminum Clad Wood / Double Pane
105A	Aluminum Clad Wood / Double Pane
105B	Aluminum Clad Wood / Double Pane
105C	Aluminum Clad Wood / Double Pane
106A	Aluminum Clad Wood / Double Pane
106B	Aluminum Clad Wood / Double Pane
106C	Aluminum Clad Wood / Double Pane
106D	Aluminum Clad Wood / Double Pane
107A	Aluminum Clad Wood / Double Pane
107B	Aluminum Clad Wood / Double Pane
108A	Aluminum Clad Wood / Double Pane
108B	Aluminum Clad Wood / Double Pane
109A	Aluminum Clad Wood / Double Pane
110	Aluminum Clad Wood / Double Pane
111A	Aluminum Clad Wood / Double Pane
111B	Aluminum Clad Wood / Double Pane
112A	Aluminum Clad Wood / Double Pane
112B	Aluminum Clad Wood / Double Pane
113A	Aluminum Clad Wood / Double Pane
113B	Aluminum Clad Wood / Double Pane
114A	Aluminum Clad Wood / Double Pane
115	Aluminum Clad Wood / Double Pane
116A	Aluminum Clad Wood / Double Pane
116B	Aluminum Clad Wood / Double Pane
116C	Aluminum Clad Wood / Double Pane
117A	Aluminum Clad Wood / Double Pane
117B	Aluminum Clad Wood / Double Pane
117C	Aluminum Clad Wood / Double Pane
118A	Aluminum Clad Wood / Double Pane
118B	Aluminum Clad Wood / Double Pane
118C	Aluminum Clad Wood / Double Pane
118D	Aluminum Clad Wood / Double Pane
119A	Aluminum Clad Wood / Double Pane
119B	Aluminum Clad Wood / Double Pane
120	Aluminum Clad Wood / Double Pane
121	Aluminum Clad Wood / Double Pane
122	Aluminum Clad Wood / Double Pane
123	Aluminum Clad Wood / Double Pane

KEY TAKEAWAYS

- Majority of windows in poor condition are due to staining and cracking.
- Window 111B is in poor condition due to broken glass.

MOST COMMON EXTERIOR WINDOW

Aluminum with Double Pane Glass

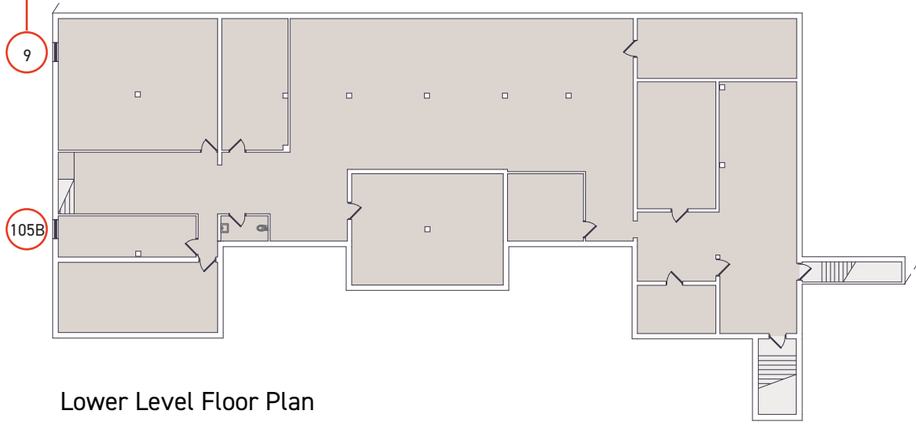
OVERALL EXTERIOR WINDOW CONDITION

Good	No visible damage
Fair	Some visible damage
Poor	Substantial visible damage

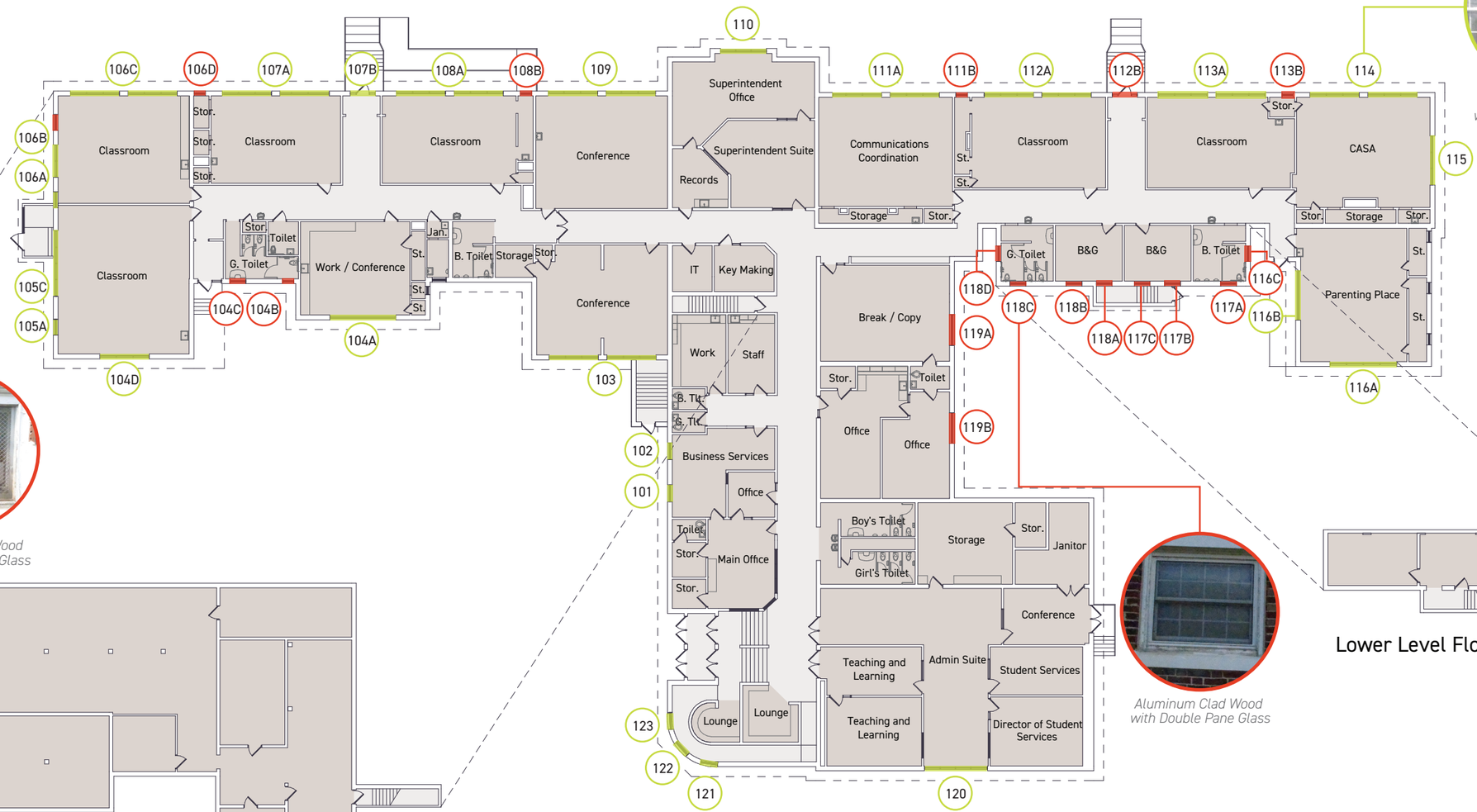
district office exterior window identification + analysis

Aluminum Clad Wood with Double Pane Glass

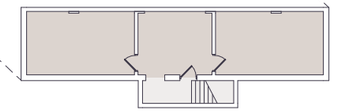
Aluminum Clad Wood with Double Pane Glass



Lower Level Floor Plan



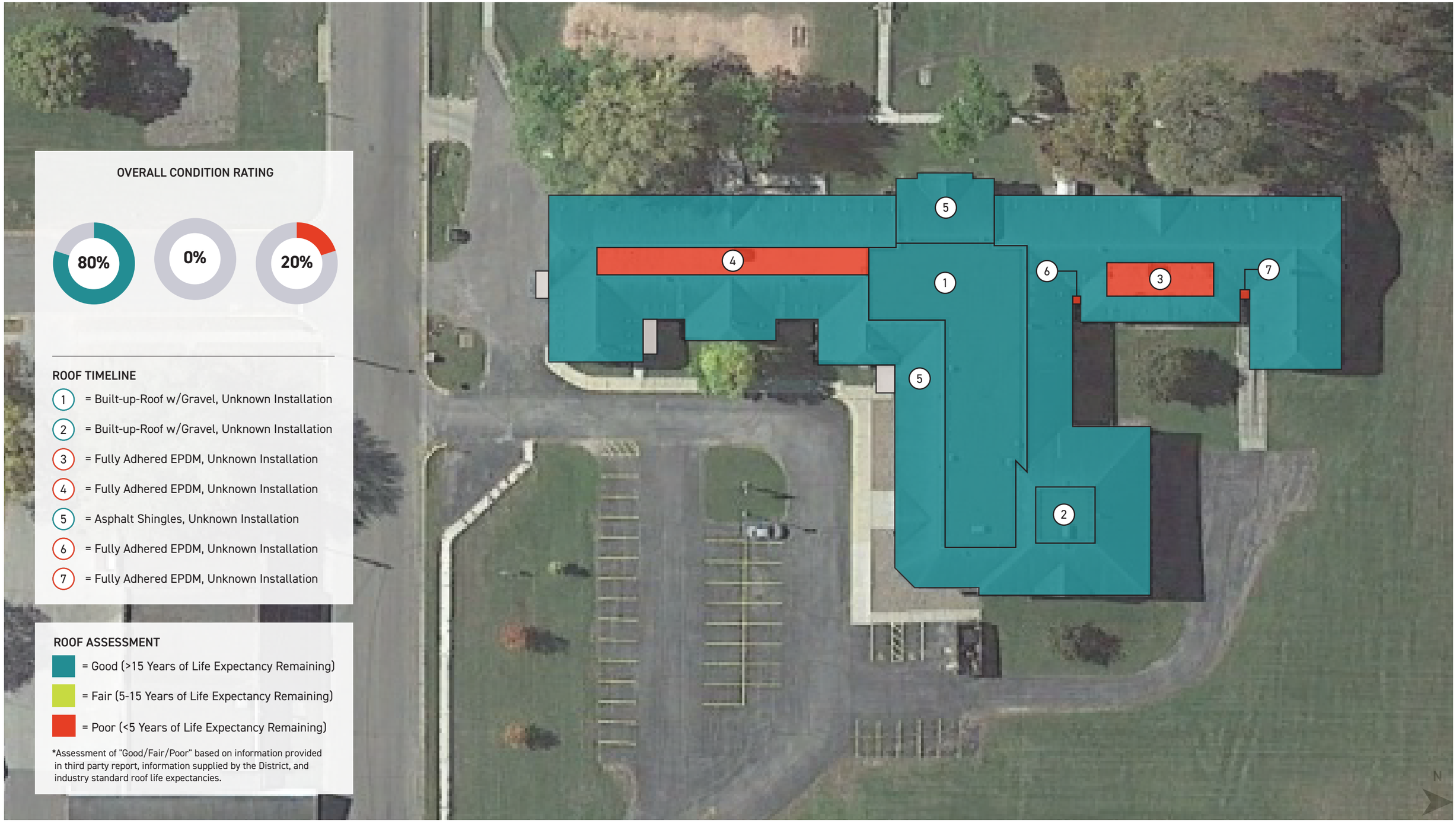
Aluminum Clad Wood with Double Pane Glass



Lower Level Floor Plan

N

district office roof identification



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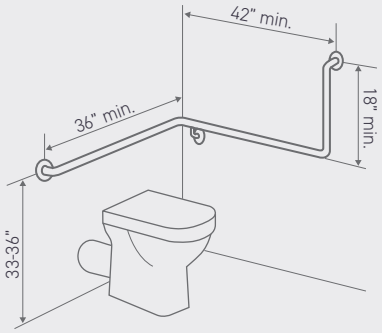
district office ada conditions + assessment

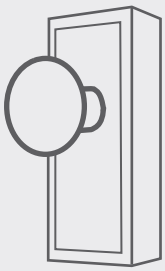
Overall Condition Rating:

Most Concerning Item That Does Not Meet Code Requirements:



Not providing at proper grab bars at ADA accessible toilet.

Most Frequently Occurring Item That Does Not Meet Code Requirements:

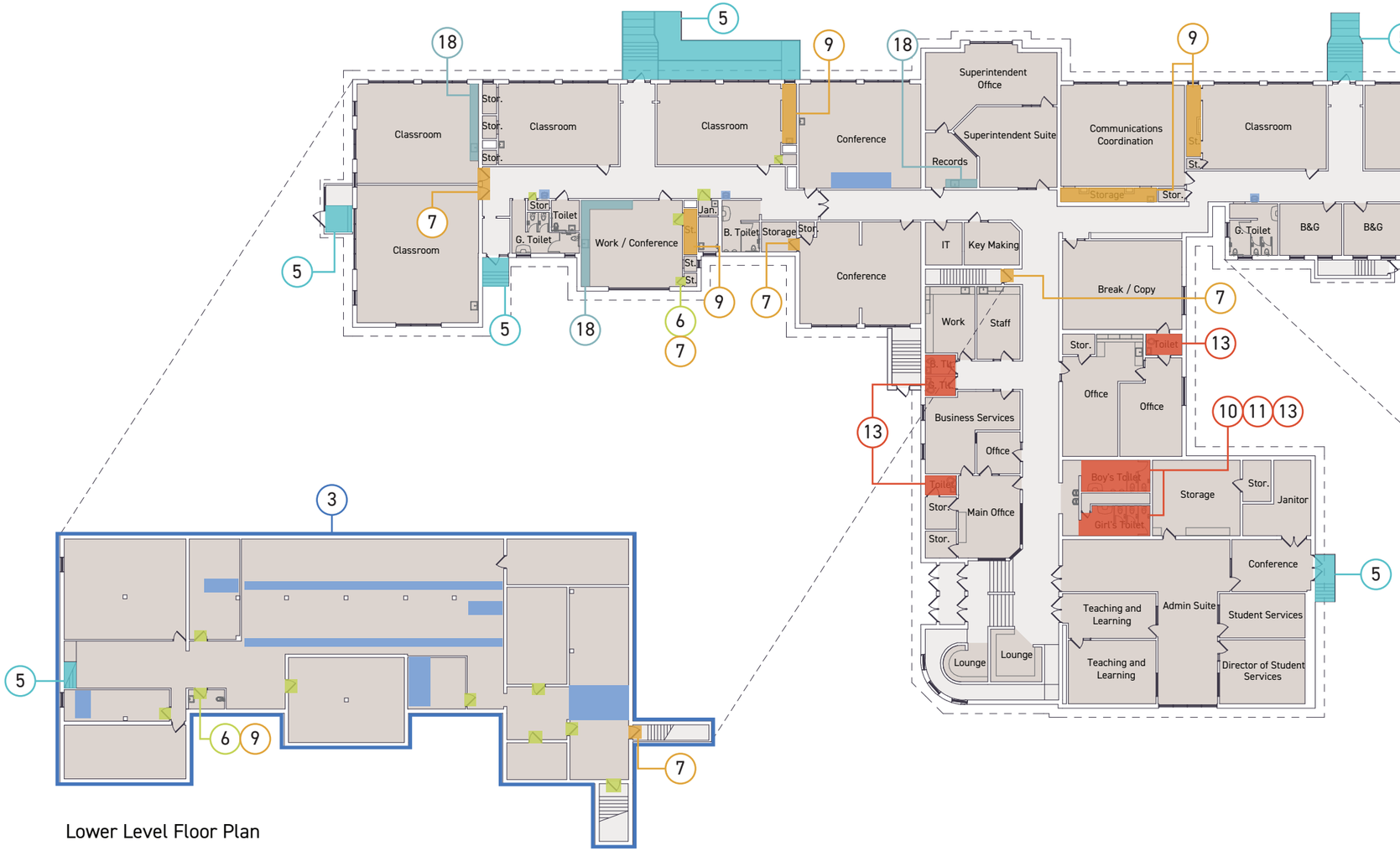


Door hardware is not ADA compliant

GENERAL ASSESSMENT OF ADA CONDITIONS

- **Building Entrance Accessibility**
- **ADA Parking Stalls**
- **Accessible Routes of Travel**
  - Ramps
  - Lifts
  - Elevators
- **Railings**
  - Ramp Railings
  - Stair Railings
- **Door Hardware**
- **Door Clearances**
  - Push / Pull
  - Thresholds
  - Maneuvering
- **Toilet Rooms**
  - 5'-0" Wheelchair Clearance
  - ADA Accessible Stall
  - Unisex Toilet Room
  - Grab Bars
  - Showers
- **Protruding Objects**
- **Drinking Fountains**
- **Casework**
  - Transaction Counters
  - Workstations Counters
  - Counters with Sinks

district office ada conditions + assessment | first floor



Color Key

- **Accessible Routes of Travel**
  1. Ramps
  2. Lifts
  3. Elevators
- **Railings**
  4. Ramps
  5. Stairs
- **Door Hardware**
  6. Door Hardware
- **Door Clearances**
  7. Push / Pull
  8. Thresholds
  9. Maneuvering
- **Toilet Rooms**
  10. 5'-0" Wheelchair Clearance
  11. ADA Accessible Stall
  12. Unisex Toilet Room
  13. Grab Bars
  14. Showers
- **Protruding Objects**
  15. Protruding Objects
- **Casework**
  16. Transaction Counter
  17. Workstation Counters
  18. Counters with Sinks

N

district office summary

ITEMS IN POOR CONDITION

Substantial visible damage, wear or need for repair, or identified as containing potential asbestos

- Domestic water system
- Sanitary system
- Interior wall and door repair at select/identified areas
- Ceiling replacement at select/identified areas
- Flooring replacement at select/identified areas
- Exterior doors at identified areas
- Exterior windows at identified area
- Potential asbestos remediation
- ADA improvements at identified areas
- Exterior wall repair at select/identified areas

ITEMS IN FAIR CONDITION

Some visible damage, wear or need for repair

- Storm system
- Plumbing equipment and fixtures
- HVAC control systems
- Electrical service and panelboards
- Wiring devices
- Emergency egress lighting
- Public address system
- Ceiling replacement at select/identified areas
- Flooring replacement at select/identified areas
- Exterior doors at identified areas
- Exterior windows at identified area

ITEMS IN GOOD CONDITION

No visible damage, wear or need for repair

- Boiler plant and pumps
- HVAC system
- Light fixtures and controls
- Clock system and data/telephone
- Fire alarm system
- Access control and security system
- Exterior doors at identified areas

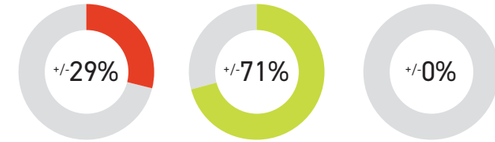
+ OVERALL BREAKDOWN

Ceiling

Accessibility

Flooring

Plumbing

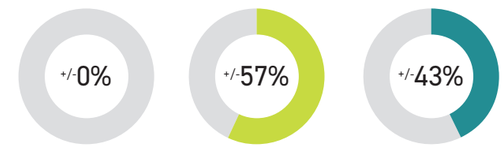


Exterior Doors

Mechanical

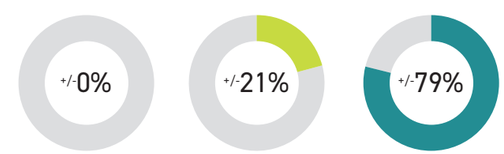
Exterior Windows

Electrical



Roof

Life Safety



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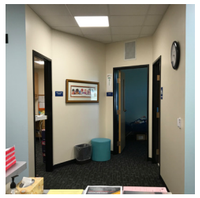
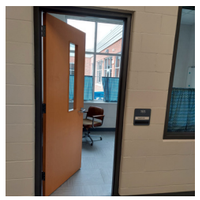
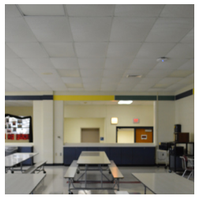
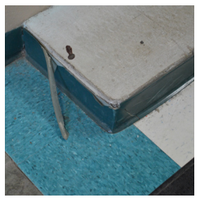
appendix

REFERENCE PAGES

The following pages are examples of images used as a reference to determine whether a material / object is in good, fair, or poor condition.

The images used in the appendix are **not** specific to the school district identified in this study. The images shown on the following pages have been chosen from a variety of past studies to better help represent a range of materials / objects in good, fair, and poor conditions.

building interior

	GOOD	FAIR	POOR
	No visible damage, wear or need for repair; no replacement required.	Some visible damage, wear or need for repair; no immediate replacement required.	Substantial visible damage, wear or need for repair, or identified as containing potential asbestos; most pressing replacement needed.
INTERIOR WALLS (interior walls, partition walls, acoustical wall panels)			
WINDOW INTERIOR & INTERIOR OPENINGS (interior side of exterior windows, interior storefront, borrowed lites, transaction windows, interior window sills)			
INTERIOR DOORS (classroom doors, storage doors, rolling/coiling doors)			
CEILINGS (ceilings, clouds, ceiling-applied acoustical panels)			
FLOORING (flooring, base, stair treads)			
MISCELLANEOUS (casework, fixed furniture/tables/ seating, curtains, railings)			

building exterior /envelope

GOOD	FAIR	POOR
No visible damage, wear or need for repair; no replacement required.	Some visible damage, wear or need for repair; no immediate replacement required.	Substantial visible damage, wear or need for repair, or identified as containing potential asbestos; most pressing replacement needed.

EXTERIOR WALLS
(exterior walls, foundation walls, wall paneling, wall accents)

WINDOWS & STOREFRONT
(windows, storefront, transaction windows, window sills, window screens, window security screens)

EXTERIOR DOORS
(exterior doors, storefront, storage doors, rolling/coiling doors)

ROOF
(roof*, roof edge, roof soffit)

*typically included with documentation or summarization of a third party report, but not included in assessment.

MISCELLANEOUS
(exterior railing, grilles/vents, building-mounted accessories)

site development

GOOD	FAIR	POOR
No visible damage, wear or need for repair; no replacement required.	Some visible damage, wear or need for repair; no immediate replacement required.	Substantial visible damage, wear or need for repair, or identified as containing potential asbestos; most pressing replacement needed.

ASPHALT/PAVING
(hard surface areas, hard surface play areas, parking lots, drop-off/ pick-up lanes, driveways, walking paths, tennis courts)

SITE CONCRETE
(sidewalks, stairs, ramps, stoops, retaining walls)

GREENSPACE
(greenspace, athletic fields, practice fields, gardens)

PLAYGROUND
(playground equipment, basketball hoops, playground surface and border)

MISCELLANEOUS
(fencing, gates, flag poles, bollards, bike racks, school signage, benches, picnic tables)

appendix

ENGINEERING REPORTS

The following pages include the original plumbing, mechanical, electrical, and life safety reports provided by Fredericksen Engineering, Inc, MSA Professional Services, Inc, and [civil engineer].

Plumbing System Review:

The following report is the result of a site visit by Ben Nerat of MSA Professional Services, Inc. that occurred on April 5, 2023. Site observations, existing plan review and interviews with staff were all used in the preparation of this report.

The original building was constructed in 1965 with renovations and additions in 1990 and 2019.

Domestic Water

Observations

A. The building is fed by a 3" water service with a 2" water meter in the boiler room. The visible portion of the water service appears to be galvanized steel or ductile iron, and is reaching the end of its expected life cycle.
B. The domestic water distribution piping appears to be copper except in the 2019 addition where the plans indicate CPVC. The piping in the 1965 portions of the building are reaching the end of their expected life cycles. The piping in the 1990 and 2019 portions of the building are assumed to be in fair condition.
C. Water pressure appears to be adequate.
D. Most of the distribution piping appears to be below the floor.
E. This building does not have a fire protection sprinkler system.

Recommendations

A. We recommend that, in areas of future renovation, water mains in the 1965 portions of the building are replaced with new copper tubing. This may require extensive floor opening and patching.
B. We recommend replacing the existing 3" water service with a new water service.
C. If this building will require fire protection sprinklers in the future, a new 6" combination water service will be required.

Sanitary

Observations

A. This building is served by a gravity drained system which discharges to the street. The visible sanitary piping in the original building appears to be cast iron. The piping above the floor was a mix of PVC, cast iron, and what appeared to be galvanized steel.
B. No issues were reported with the system, but the piping in the 1965 portions of the building are reaching the end of their expected life cycles.
C. No grease trap was in the kitchen, but we are told that no cooking takes place here.

Recommendations

A. We recommend that the owner has the 1965 portions of the building drain system located below finished floor investigated with a sewer camera. The investigation should include a report with a complete existing drain system layout, pipe sizes, and specific and local recommendations for any issues encountered. This will be required for any future remodel work to commence.
B. If in the future any grease producing cooking is done in the kitchen, we recommend that a grease interceptor is installed to meet current code requirements.

Storm Piping

Observations

A. The storm drainage system consists of roof drains with interior storm conductors. Storm piping in the building was not visible except in the 2019 addition where it appears to be PVC.
B. No issues were reported with the system, but the piping in the 1965 portions of the building are reaching the end of their expected life cycles

Recommendations

A. We recommend that the owner has the complete building drain system located below finished floor investigated with a sewer camera. The investigation should include a report with a complete existing drain system layout, pipe sizes, and specific and local recommendations for any issues encountered. This will be required for any future remodel work to commence.

Plumbing Equipment

Observations

A. The original building, 1990 addition, and 2019 addition appeared to each have their own electric water heater. These appeared to be in fair working condition.
B. The original building and the 1990 additions did not appear to be any hot water recirculation system. The 2019 addition has a single loop system.

Recommendations

A. We recommend continued maintenance of the existing water heaters and the existing sump system.
B. If any remodeling takes place, a hot water recirculation system will need to be installed to be within 2’ of any sinks and within 25’ of anything else.

Plumbing Fixtures

Observations

A. The building has a mix of floor and wall mount water closets with sensor flush valves. These fixtures appear to be in fair to good working condition.
B. The building has a mix of wall mounted lavatories with sensor faucets and wash fountains with sensor faucets. These fixtures appear to be in fair to good working condition.
C. The building has floor mount urinals with sensor operated flush valves. These fixtures appear to be in fair working condition.
D. Sinks in the building are drop in stainless steel basins with manual faucets. These fixtures appear to be in fair working condition.
E. Water coolers were wall mounted units with bottle filters. These fixtures appear to be in good working condition.

Recommendations

A. Provide continued maintenance on all fixtures.
B. Replace fixtures where future remodels take place.

Plumbing System Review:

The following report is the result of a site visit by Ben Nerat of MSA Professional Services, Inc. that occurred on April 5, 2023. Site observations, existing plan review and interviews with staff were all used in the preparation of this report.

The original building was constructed in 1951 with renovations and additions in 1965 and 1990

Domestic Water

Observations

A. The building is fed by a 2" water service with a 2" water meter in the boiler room. The visible portion of the water service appears to be galvanized steel, and is reaching the end of its expected life cycle.
B. The domestic water distribution piping appears to be copper. The piping in the 1951 and 1965 portions of the building are reaching the end of their expected life cycles. The piping in the 1990 portion of the building is assumed to be in fair condition.
C. Water pressure appears to be adequate.
D. Most of the distribution piping appears to be below the floor.
E. This building does not have a fire protection sprinkler system.

Recommendations

A. We recommend that all water mains in the 1951 and 1965 portions of the building are replaced with new copper tubing. This may require extensive floor opening and patching.
B. We recommend replacing the existing 2" water service with a new water service.
C. If this building will require fire protection sprinklers in the future, a new 6" combination water service will be required.

Sanitary

Observations

A. This building is served by a gravity drained system which discharges to the street. The visible sanitary piping in the original building appears to be cast iron. The piping above the floor was a mix of PVC, cast iron, and what appeared to be galvanized steel.
B. No issues were reported with the system, but the piping in the 1951 and 1965 portions of the building are reaching the end of their expected life cycles
C. An existing grease trap was in the kitchen.
D. An above floor sump and pump system was located in the basement. This is assumed to be in place to lift the drain water from the 1990 addition.

Recommendations

A. We recommend that the owner has the 1951 and 1965 portions of the building drain system located below finished floor investigated with a sewer camera. The investigation should include a report with a complete existing drain system layout, pipe sizes, and specific and local recommendations for any issues encountered. This will be required for any future remodel work to commence.
B. We recommend continued, regular maintenance of the existing sump pump and grease trap.

Storm Piping

Observations

A. The storm drainage system consists of roof drains with interior storm conductors. Storm piping in the building was not visible.
B. No issues were reported with the system, but the piping in the 1951 and 1965 portions of the building are reaching the end of their expected life cycles

Recommendations

A. We recommend that the owner has the complete building drain system located below finished floor investigated with a sewer camera. The investigation should include a report with a complete existing drain system layout, pipe sizes, and specific and local recommendations for any issues encountered. This will be required for any future remodel work to commence.

Plumbing Equipment

Observations

A. The 1990 addition had two electric tank type water heaters in the basement. It appear in good condition.
B. The original building had a single electric tank type water heater in the boiler room. It appeared to be in good condition.
C. There did not appear to be any hot water recirculation system.
D. The basement had a sump pump system. It is unclear if it is for drain tile, or local floor drains. No issues were reported with this system.

Recommendations

A. We recommend continued maintenance of the existing water heaters and the existing sump system.
B. If any remodeling takes place, a hot water recirculation system will need to be installed to be within 2’ of any sinks and within 25’ of anything else.

Plumbing Fixtures

Observations

A. The building has mix of floor mount tank toilets and wall mount water closets with sensor flush valves. These fixtures appear to be in fair working condition.
B. The building has a mix of wall mounted lavatories with sensor faucets and wash fountains with sensor faucets. These fixtures appear to be in fair working condition.
C. The building has floor mount urinals with sensor operated flush valves. These fixtures appear to be in fair working condition.
D. Sinks in the building are drop in stainless steel basins with manual faucets. Some of the classroom sinks have drinking fountains. These fixtures appear to be in poor working condition.
E. Water coolers were wall mounted units with bottle filters. These fixtures appear to be in good working condition.

Recommendations

A. Provide continued maintenance on all fixtures.
B. Replace fixtures where future remodels take place.

Plumbing System Review:

The following report is the result of a site visit by Ben Nerat of MSA Professional Services, Inc. that occurred on April 5, 2023. Site observations, existing plan review and interviews with staff were all used in the preparation of this report.

The original building was constructed in the 2001.

Domestic Water

Observations

A. The building is fed by both a 4" water service with a 4" water meter in the boiler room.
B. The domestic water piping in the appears to be copper. The piping appears to be in fair working condition.
C. Water pressure appears to be adequate.
D. This building does not have a fire protection sprinkler system.

Recommendations

A. If a fire protection sprinkler system is required in the future, a new 6" minimum water service will be required.

Sanitary

Observations

A. This building is served by a gravity drained system which discharges to the street. Sanitary piping was not visible but is assumed to be cast iron or PVC.
B. No issues were reported with this system.
C. There are two acid neutralization basins located in the north wings. No issues were reported with these systems.
D. The kitchen is served by an exterior grease trap. No issues were reported with this system.

Recommendations

A. We recommend continued, regular maintenance of the existing grease trap and acid neutralization basins.

Storm Piping

Observations

A. The storm drainage system consists of roof drains with interior storm conductors. Storm piping was not visible but is assumed to be cast iron or PVC.
B. A drain sump and pump system was located below a ladder. No issues were reported with this system.

Recommendations

A. We recommend continued maintenance on the existing sump and pump system.

Plumbing Equipment

Observations

A. Water heating equipment for the entire building are two atmospheric vent boilers with a large storage tank located in the boiler room. Hot water is recirculated by pumps. The water is heated to 140 degrees and mixed down to 115 by two thermostatic mixing valves. The boilers have corroded piping in the distribution system and the storage tank appears to be corroded at its connection point.
B. Next to the main hot water system is a booster heater assumed to be for use for the kitchen.
C. The shop has a small air compressor on wheels to serve the compressed air needs in the shop.

Recommendations

A. We recommend replacement of the existing main hot water system with a new, high efficiency system.

Plumbing Fixtures

Observations

A. The building has mix of floor mount and wall mount water closets with manual and sensor operated flush valve. These fixtures appear to be in fair working condition.
B. The building has wash fountains in the multi-stall restrooms and wall mount lavatories with manual faucets in the private restrooms. These fixtures appear to be in fair working condition.
C. The building has a mix of floor mount urinals with flush valves. These fixtures appear to be in fair working condition.
D. General use sinks in the building are drop-in stainless-steel basins with manual faucets. These fixtures appear to be in fair working condition.
E. Group showers in the locker rooms are multi-user wall showers with privacy panels. These fixtures appear to be in fair working condition.
F. Water coolers were wall mounted units. Some have been recently replaced to include bottle fillers.
G. The emergency fixtures appeared to be in fair working condition, but some did not appear ready to use due to items being stored on top of and/or in front of the emergency fixtures.

Recommendations

A. Provide continued maintenance on all fixtures.
B. Replace fixtures where future remodels take place.
C. We recommend clearing the space around the emergency fixtures to allow for easy use in an emergency.

Plumbing System Review:

The following report is the result of a site visit by Ben Nerat of MSA Professional Services, Inc. that occurred on April 5, 2023. Site observations, existing plan review and interviews with staff were all used in the preparation of this report.

The original building was constructed in the 1962 with additions/renovations in 1990 and 2000.

Domestic Water

Observations

A. The building is fed by two 4" water services with 4" water meters. One in the 1962 basement and the other in a closet in the 2000 addition.
B. The visible domestic water distribution piping appears to be copper. The piping in the 1962 portion of the building is reaching the end of its expected life cycle.
C. Water pressure appears to be adequate.
D. This building does not have a fire protection sprinkler system.

Recommendations

A. We recommend that the original 1962 water service and domestic water distribution mains are replaced as they are reaching the end of their expected life cycle.
B. If a fire protection sprinkler system is required in the future, a new 6" minimum water service would be required.

Sanitary

Observations

A. This building is served by a gravity drained system which discharges to the street. The visible sanitary piping in the 1962 building appears to be cast iron, the piping above the floor was a mix of PVC, cast iron, and galvanized steel. It is assumed that the 2000 additions piping systems are of cast iron and PVC material. No issues were reported with these systems, but the original building's drain piping is reaching the end of its expected life cycle.
B. The kitchen does have a grease trap, but it appears to only serve the dish washer and not the pot sink.
C. The acid neutralization basin is installed in the mechanical room. No issues were reported with that system.
D. A sump and pump systems were located in the original buildings basements. The sewage ejector system for the locker rooms appears to be original. No issues were reported with these systems.

Recommendations

A. We recommend that the owner has the complete building drain system located below finished floor in the original building investigated with a sewer camera. The investigation should include a report with specific and local recommendations for any issues encountered.
B. We recommend continued, regular maintenance of the existing sump pumps and grease trap.

Storm Piping

Observations

A. The storm drainage system consists of roof drains with interior storm conductors. Storm visible piping in the building appears to be cast iron. No issues were reported with these systems, but the original building's drain piping is reaching the end of its expected life cycle.

Recommendations

A. We recommend that the owner has the complete building drain system located below finished floor in the original building investigated with a sewer camera. The investigation should include a report with specific and local recommendations for any issues encountered.

Plumbing Equipment

Observations

A. Multiple electric and gas tank water heaters were located throughout the building. The water heaters encountered appeared to be in fair to good condition.
B. The shop area has an air compressor to support the shop.
C. The weld shop area appeared to have hard piped systems for oxygen and acetylene gas systems.

Recommendations

A. We recommend continued maintenance of the existing water heaters and the existing air compressor.

Plumbing Fixtures

Observations

A. The building has mostly wall mount water closets with sensor operated flush valves. These fixtures appear to be in fair working condition.
B. The building has sensor operated wash fountains in most restrooms. These fixtures appear to be in fair working condition.
C. The building has a mix of floor mount urinals with sensor operated flush valves. These fixtures appear to be in fair working condition.
D. General use sinks in the building are drop-in stainless-steel basins with manual faucets. These fixtures appear to be in fair working condition.
E. Group showers were multi-user wall mounted units. These appear to be in poor condition.
F. The ADA showers were built in to the group shower areas and appear to be in poor condition.
G. Showers in the locker rooms below the gym were not functional and in poor condition.
H. Water coolers were wall mounted units. Many have been recently replaced so as to include bottle fillers. These appear to be in fair to good condition.

Recommendations

A. Provide continued maintenance on all fixtures.

B. Replace fixtures where future remodels take place.
C. Replace showers with new.

Plumbing System Review:

The following report is the result of a site visit by Ben Nerat of MSA Professional Services, Inc. that occurred on April 5, 2023. Site observations, existing plan review and interviews with staff were all used in the preparation of this report.

The original building was constructed in 1925/1927 with renovations and additions in 1990.

Domestic Water

Observations

A. The building is fed by both a 2" water service with a 2" water meter basement. Based on the 1990 plans, it appears as though the existing water service remained in place during the 1990 addition and new copper piping was installed downstream. It is unclear what the condition of the existing service piping is in. If it is the original water service, it is likely in very poor condition. No issues were reported with this system.
B. The visible domestic water distribution piping was a mix of many different types of piping. Copper, galvanized steel, CPVC, black steel, and PEX piping were all visible. Much of the piping did not appear to be adequately supported or insulated. The original piping, if still in place, is likely in very poor condition and it looks like spot repairs were made. The 1990 portion of the piping is likely in fair condition.
C. There was at least one sand filter installed. It appeared to be in good condition.
D. Water pressure appears to be adequate, but the pipes do not appear to be adequately sized in accordance with current plumbing code.
E. This building does not have a fire protection sprinkler system.

Recommendations

A. We recommend that all original water distribution piping is replaced.
B. We recommend replacing the existing 2" water service with a new water service.
C. If this building will require fire protection sprinklers in the future, a new 6" combination water service will be required.

Sanitary

Observations

A. This building is served by a gravity drained system which discharges to the street. Sanitary piping appears to be a mix of cast iron and PVC piping. No issues were reported with this system, but the original cast iron piping is past its expected life cycle.
B. A sump and pump system was located in the basement. This is assumed to be in place to lift the drain water from the basement. No issues were reported with this system.
C. A grease trap was located in the kitchen. It serves a single compartment of the 3 compartment sink. No issues were reported with this system.

Recommendations

A. We recommend that the owner has the original building's drain systems located below finished floor investigated with a sewer camera. The investigation should include a report with a complete existing drain system layout, pipe sizes, and specific and local recommendations for any issues encountered. This will be required for any future remodel work to commence.
B. We recommend continued, regular maintenance of the existing sump pump and grease trap.

Storm Piping

Observations

A. This building is served by a gravity drained system which discharges to the street. Sanitary piping appears to be a mix of cast iron and clay tile piping. No issues were reported with this system, but the original piping is past its expected life cycle.

Recommendations

A. We recommend that the owner has the original building's drain systems located below finished floor investigated with a sewer camera. The investigation should include a report with a complete existing drain system layout, pipe sizes, and specific and local recommendations for any issues encountered. This will be required for any future remodel work to commence.

Plumbing Equipment

Observations

A. Water heating equipment for the building consists of three electric tank type heaters. One for each of the original buildings, and one for the 1990 addition. The two which were observed appeared to be in fair condition, but the one located in the 1990 addition janitor room appeared to be original from when the addition was built and will likely require replacement soon.
B. The hot water distribution system did not appear to have any recirculation pumps and associated piping. The 1990 portion of the building appeared to have temperature maintenance provided by heat trace.

Recommendations

A. We recommend replacement of the electric water heater in the 1990 portion of the building.
B. If any remodeling takes place in the original buildings, a hot water recirculation system will need to be installed to be within 2' of any sinks and within 25' of anything else.
C. If any remodeling takes place in the 1990 addition, a hot water recirculation system or additional heat trace will need to be installed to be within 2' of any sinks and within 25' of anything else.

Plumbing Fixtures

Observations

A. The building has mix of floor mount water closets with tanks, manual flush valves, and sensor operated flush valves. These fixtures appear to be in fair working condition with the exception of the one observed in the basement which is in poor condition.

B. The building has a mix of wall mounted lavatories and wash fountains with sensor faucets. These fixtures appear to be in fair working condition.
C. The building has wall mount urinals with sensor operated flush valves. These fixtures appear to be in fair working condition.
D. General sinks in the building are drop in stainless steel basins with manual faucets. These fixtures appear to be in fair working condition.
E. Water coolers were single wall mounted units some with bottle fillers. These fixtures appear to be in fair- good working condition.

Recommendations

A. Provide continued maintenance on all fixtures.
B. Replace fixtures where future remodels take place.

HVAC

The following report is the result of a site visit by Randy All of Fredericksen Engineering, Inc. that occurred on April 5, 2023. Site observations and interviews with staff were used in the preparation of this report.

Heating, Ventilation and Air Conditioning Systems

A. Existing Data

1. The building is served by two separate hot water boiler plants of similar design. The original building is served by four (4) Weil McLain sealed combustion boilers each rated at approximately 365,000 btu gross output. The 2019 addition is served by two (2) Weil McLain sealed combustion boilers each rated at approximately 269,000 btu gross output.
2. Both hot water pumping systems are primary-secondary variable flow arrangements with a constant speed primary pump serving each boiler and a variable speed system pump with a full stand-by pump. The 2019 boiler system also contains a solution of 30% propylene glycol for freeze protection.

3. The entire building is air conditioned by multiple outdoor air-cooled condensing units that are piped to direct-expansion cooling coils located within their respective indoor air handling units and unit ventilators, and also by two (2) packaged rooftop units.
4. The building is ventilated by multiple indoor air handling units, classroom unit ventilators, and packaged rooftop units. The air handling units serving the west end of the original building and the classroom unit ventilators serving the classrooms in the original building are all constant volume units. The packaged rooftop units serving the gym and the sensory areas are constant volume. The air handling units serving the 2019 addition are variable air volume (VAV) units.
5. The building is controlled by a Siemens/Desigo digital control system.

B. Observations

1. The boilers serving the original building were installed in 2009. The boilers serving the 2019 addition are now 3 years old and are in excellent condition. The boilers have all been well maintained. Their ASHRAE service life expectancy is 20-25 years.
2. The hot water system pumps are also from 2009 and 2019 and appear to be in good condition. Their ASHRAE service life expectancy is approximately 20-25 years.
3. The outdoor condensing units vary in age. The older Trane unit that serves one of the air handling units in the original building mechanical penthouse appears to be at least 25 years old based on its

exterior appearance and lack of any unit data plates. All of the other units were installed in 2019 and are in excellent condition. The ASHRAE service life expectancy for these condensing units is approximately 20-25 years.

4. The indoor air handling units serving the classroom spaces in the west end of the original building appear to be original from the 1950s. All other air handling units were installed in 2019 and are in excellent condition. Their ASHRAE service life expectancy is approximately 30-35 years.
5. The packaged rooftop units were installed in 2019 (one unit set at grade) and are in excellent condition. Their ASHRAE service life expectancy is approximately 15-20 years.
6. The classroom unit ventilators were installed in 2019 and are in excellent condition. Their ASHRAE service life expectancy is approximately 20-25 years.
7. The Siemens digital control system was installed/upgraded in 2019 and is in good operational condition.

C. Recommendations

1. Continue with preventive maintenance on all equipment to maximize life expectancies.
2. Plans should be made for the removal and replacement of the 1950s air handling units with high-efficiency units including direct-drive fans, variable air volume (VAV) control, and variable frequency drives to control fan motor speed. At that time, the existing hot water booster coils would be removed and replaced with hot water reheat VAV boxes to provide individual room control. The older Trane outdoor condensing unit serving one of these two (2) units would also be replaced.

HVAC

The following report is the result of a site visit by Randy All of Fredericksen Engineering, Inc. that occurred on April 5, 2023. Site observations and interviews with staff were used in the preparation of this report.

Heating, Ventilation and Air Conditioning Systems

A. Existing Data

1. The building is served by a hot water boiler plant consisting of four (4) Weil McLain sealed combustion boilers each rated at approximately 365,000 btu gross output.
2. The hot water pumping system is a primary-secondary variable flow arrangement with a constant speed primary pump serving each boiler and a variable speed system pump with a full stand-by pump.
3. The entire building is air conditioned by multiple outdoor air-cooled condensing units that are piped to direct-expansion cooling coils located within their respective unit ventilators and also by two (2) packaged rooftop units.

4. The building is ventilated by an indoor air handling unit, classroom unit ventilators, and packaged rooftop units. The air handling unit serving the gym is a heating-only, constant volume unit. The packaged rooftop units serving the library and the office area are both single-zone, constant volume units.
5. The building is controlled by a Siemens/Desigo digital control system.

B. Observations

1. The boilers were installed in 2009 and appear to be in good condition. The boilers have all been well maintained. Their ASHRAE service life expectancy is 20-25 years.
2. The hot water system pumps are also from 2009 appear to be in good condition. Their ASHRAE service life expectancy is approximately 20-25 years.

3. The outdoor condensing units were installed in 2009 and are in good condition. The ASHRAE service life expectancy for these condensing units is approximately 20-25 years.
4. The indoor air handling unit serving the gym was installed in 1990 and appears to be in satisfactory condition. Its ASHRAE service life expectancy is approximately 30-35 years.
5. The packaged rooftop units were installed at different times. The office area unit appears to be original from 1990 and has exceeded its useful service life expectancy. The library unit appears to be a newer unit from within the last 10 years and is in good condition. Their ASHRAE service life expectancy is typically about 15-20 years.

6. The classroom unit ventilators were installed in 2009 and are in good condition. Their ASHRAE service life expectancy is approximately 20-25 years.
7. The Siemens digital control system was installed in 2009 and is in good operational condition. It was more recently upgraded to the Siemens Desigo operating system.

C. Recommendations

1. Continue with preventive maintenance on all equipment to maximize life expectancies.
2. Plans should be made for the removal and replacement of the 1990 air handling unit with a high-efficiency unit with a direct-drive fan, variable air volume (VAV) control, and a variable frequency drive to control fan motor speed.
3. Plans should be made to replace the packaged rooftop unit serving the office area. This unit is currently 33 years old and has far exceeded its life expectancy.

HVAC

The following report is the result of a site visit by Randy All of Fredericksen Engineering, Inc. that occurred on April 5, 2023. Site observations and interviews with staff were used in the preparation of this report.

Heating, Ventilation and Air Conditioning Systems

A. Existing Data

1. The building is served by a hot water boiler plant consisting of three (3) Unilux boilers each rated at approximately 2,500,000 btu gross output.
2. The hot water pumping system is a single-circuit constant flow arrangement with a constant speed system pump with a full stand-by pump.
3. The entire building is air conditioned by two (2) 150-ton Airstack outdoor air-cooled chillers that are piped to cooling coils located within individual air handling units. The chilled water pumping system is a primary-secondary variable flow system with a single chiller pump and a single system pump.

4. The building is ventilated by indoor air handling units, energy recovery ventilators, and a packaged rooftop unit. A gas-fired makeup air unit provides makeup air for the kitchen exhaust hoods. The air handling units consist of both constant volume and variable air volume (VAV) units. The packaged rooftop unit serving the office area is a variable air volume unit. The energy recovery ventilators are constant volume units that provide a constant flow of outside air and exhaust air to the various areas of the building.
5. The constant volume air handling units utilize duct-mounted hot water booster coils for additional zone control. The VAV air handling units utilize a combination of standard VAV boxes and fan-powered VAV boxes for zone control. Standard VAV boxes modulate the total airflow to a space while fan-powered VAV boxes only modulate the supply air taken from the system duct main while using recirculated air to maintain a constant total airflow to the space served.

6. The majority of the building is controlled by a Trane digital control system. The front office area was changed over to a Siemens/Desigo digital control system in 2016.

B. Observations

1. The boilers are original to the building from 2001 and appear to be in good condition. The boilers have all been well maintained. Their ASHRAE service life expectancy is 25-30 years.

2. The hot water system pumps are also from 2001 and appear to be in good condition. However, they are nearing the end of their ASHRAE service life expectancy of approximately 20-25 years.
3. The air-cooled chillers were recently installed in 2022 to replace the previous units and are in brand-new condition. The ASHRAE service life expectancy for these chillers is approximately 25-30 years.

4. The chilled water system pumps are original from 2001 and appear to be in good condition. However, they are nearing the end of their ASHRAE service life expectancy of approximately 20-25 years.
5. Both the hot water and chilled water systems contain a glycol solution for freeze protection.
6. The indoor air handling units and energy recovery ventilators are original from 2001. All units have been well maintained and are in good condition. The heating and cooling coil positions in the air handling units were provided with the heating coil first in the airstream which prohibits the units from being able to run a dehumidification control sequence when needed. The ASHRAE service life expectancy for these units is approximately 30-35 years.
7. The air handling units were retrofitted with GPS bipolar ionization systems in 2020 to help kill airborne viruses and bacteria.

8. The packaged rooftop unit is original from 2001 and appears to be in satisfactory condition. This unit is a standard-grade Trane unit with an ASHRAE service life expectancy of about 15-20 years.
9. The Trane and Siemens digital control systems were installed at different times, but both systems are in good operational condition. However, operating a building with two different control systems is not ideal.

C. Recommendations

1. Continue with preventive maintenance on all equipment to maximize life expectancies.
2. Plans should be made for the removal and replacement of the packaged rooftop unit serving the office areas as it has exceeded its expected service life.
3. The hot water boilers and pumps are now 22 years old and the system is very energy inefficient compared to newer systems. Plans should be made for the removal of the existing boilers and pumps and replacing them with high-efficiency condensing boilers and a variable flow pumping system. Replacing the boilers will increase the boiler thermal efficiency from its current 83% efficiency to 95% efficiency. The variable flow pumping system will improve the pumping system energy efficiency by 35-50% overall.
4. The heating and cooling coil positions in the 2000 air handling units should be flipped to enable the units to provide dehumidification control when required.
5. We recommend upgrading the building automation system to a single head-end software system for improved user operability and management of the HVAC systems. Since the majority of the district has upgraded to the Siemens/Desigo system, the existing Trane software should be eliminated, and the Trane BACnet

controllers mapped into the Desigo system with new graphics. However, due to the age of the Trane controllers, they may not be utilizing the BACnet protocol. If they are not, they will require replacement with new BACnet controllers.

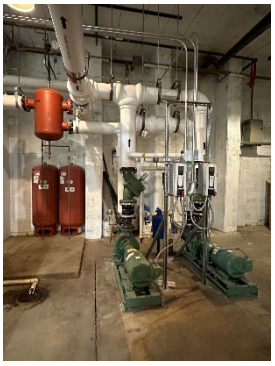
HVAC

The following report is the result of a site visit by Randy All of Fredericksen Engineering, Inc. that occurred on April 5, 2023. Site observations and interviews with staff were used in the preparation of this report.

Heating, Ventilation and Air Conditioning Systems

A. Existing Data

1. The building is served by a hot water boiler plant consisting of four (4) Laars sealed combustion boilers each rated at approximately 1,883,000 btu gross output.
2. The hot water pumping system is a primary-secondary variable flow arrangement with a constant speed primary pump serving each boiler and a variable speed system pump with a full stand-by pump.
3. The entire building is air conditioned by two (2) 150-ton Multi-Stack Airstack outdoor air-cooled chillers that are piped to cooling coils located within individual air handling units. The chilled water pumping system is a primary-secondary variable flow system with a single chiller pump and a single system pump.



4. The building is ventilated by indoor and outdoor air handling units, classroom unit ventilators, and packaged rooftop units. The air handling units consist of both constant volume and variable volume units. The packaged rooftop units serving the 1990 addition and the 2000 unit serving the computer lab are all single-zone, constant volume units.
5. The building is controlled by both Trane and Siemens/Desigo digital control systems. The Trane system serves the 2000 addition while the Siemens system serves the older areas of the building.

B. Observations

1. The boilers were installed in 2016 and are in good condition. The boilers have all been well maintained. Their ASHRAE service life expectancy is 20-25 years.
2. The hot water system pumps are also from 2016 and appear to be in good condition. Their ASHRAE service life expectancy is approximately 20-25 years.
3. The air-cooled chillers were recently installed in 2022 to replace the previous unit and are in brand-new condition. The ASHRAE service life expectancy for these chillers is approximately 25-30 years.
4. The chilled water system pumps are from 2000 and appear to be in good condition. However, they are nearing the end of their ASHRAE service life expectancy of approximately 20-25 years.

5. The indoor and outdoor air handling units vary in age ranging from installation dates of 1962 to 2000. All units have been well maintained, but the older 1962 units are in need of replacement and the 1990 units are near the end of their expected service life. The heating and cooling coil positions in the 2000 air handling units were provided with the heating coil first in the airstream which prohibits the units from being able to run a dehumidification control sequence when needed. The ASHRAE service life expectancy for these units is approximately 30-35 years.
6. The air handling units were retrofitted with GPS bipolar ionization systems in 2020 to help kill airborne viruses and bacteria.
7. The packaged rooftop units serving the 1990 addition were replaced in 2016. These units are higher-grade Aaon units and are in good condition. Their ASHRAE service life expectancy is typically about 20-25 years.
8. The 2000 packaged rooftop unit serving the computer lab is a standard-grade unit and is now 23 years old. Its ASHRAE service life expectancy is 15-20 years.
9. The classroom unit ventilators were installed in 2016 to replace the original 1990 units and are in good condition. Their ASHRAE service life expectancy is approximately 20-25 years.
10. The gas-fired makeup air unit that serves the welding shop is no longer operable. The shop currently opens the overhead door when the welding exhaust system is in operation.
11. The wood shop dust collector is of an older vintage. While the exact age is not known, the dust collector and exhaust fan assembly are in marginal condition.
12. The Trane and Siemens digital control systems were installed at different times, but both systems are operating with current software. Both systems are in good operational condition. However, operating a building with two different control systems is not ideal.

C. Recommendations

1. Continue with preventive maintenance on all equipment to maximize life expectancies.
2. Plans should be made for the removal and replacement of the 1962 and 1990 air handling units with high-efficiency units with direct-drive fans, variable air volume (VAV) control, and variable frequency drives to control fan motor speed.
3. The heating and cooling coil positions in the 2000 air handling units should be flipped to enable the units to provide dehumidification control when required.
4. Plans should be made for the eventual replacement of the wood shop dust collector and exhaust fan.
5. Plans should be made for the replacement of the 2000 packaged rooftop unit serving the computer lab.
6. We recommend upgrading the building automation system to a single head-end software system for improved user operability and management of the HVAC

systems. Since the majority of the district has upgraded to the Siemens/Desigo system, the existing Trane software should be eliminated, and the Trane BACnet controllers mapped into the Desigo system with new graphics.

HVAC

The following report is the result of a site visit by Randy All of Fredericksen Engineering, Inc. that occurred on April 5, 2023. Site observations and interviews with staff were used in the preparation of this report.

Heating, Ventilation and Air Conditioning Systems

A. Existing Data

1. The building is served by a hot water heating system consisting of four (4) Weil McLain sealed combustion boilers each rated at approximately 289,000 btu gross output.
2. The hot water pumping system is a primary-secondary variable flow arrangement with a constant speed primary pump serving each boiler and a variable speed system pump with a full stand-by pump.
3. The office areas and a large conference room are all air conditioned by multiple outdoor air-cooled condensing units that are piped to direct-expansion cooling coils located within their respective indoor air handling units, fan coils, and furnaces.

4. The building is ventilated by multiple indoor air handling units, horizontal unit ventilators, and residential furnaces. The air handling units are constant volume units. The furnaces that serve the student services area are residential-grade gas-fired constant volume units. The horizontal unit ventilators serve the lower level storage areas and are also constant volume.
5. The constant volume air handling units that serve the classroom spaces and main office area also utilize wall-mounted hot water fin pipe radiation for zone control.
6. The majority of the building is controlled by an older Siemens Apogee digital control system with some standalone electric thermostats that serve terminal heating units like cabinet heaters and convectors. The residential furnaces and indoor fan coils are controlled by programmable electronic thermostats.

B. Observations

1. The boilers were installed in 2009 as part of a steam to hot water conversion project. The boilers have been well maintained. Their ASHRAE service life expectancy is 20-25 years.
2. The hot water system pumps are also from 2009 and appear to be in good condition. Their ASHRAE service life expectancy is approximately 20-25 years.
3. The outdoor condensing units vary in age. The larger Trane unit that serves the main office air handling unit was installed in 1990 and is in

marginal condition. The Trane units that serve the residential furnaces and the Mitsubishi units that serve the indoor fan coils were all installed in 2021 and are in excellent condition. The ASHRAE service life expectancy for these condensing units is approximately 20-25 years.

4. The indoor air handling units serving the classroom spaces and the main office were installed in 1990 and appear to be in satisfactory condition. Their ASHRAE service life expectancy is approximately 30-35 years.
5. The residential furnaces and indoor fan coils were installed in 2021 and are in excellent condition. Their ASHRAE service life expectancy is approximately 15-20 years.
6. The Siemens digital control system was installed in 2009 and is in good operational condition. The programmable thermostats were installed in 2021 and are in excellent condition.

C. Recommendations

1. Continue with preventive maintenance on all equipment to maximize life expectancies.
2. Plans should be made for the removal and replacement of the 1990 air handling units with high-efficiency units including direct-drive fans, variable air volume (VAV) control, and variable frequency drives to control fan motor speed. At that time, hot water reheat VAV boxes would be installed to provide individual room control in conjunction with the existing fin pipe radiation. The outdoor condensing unit serving the main office air handling unit would also be replaced, and the air handling unit serving the classroom areas would be served by a new outdoor condensing unit to provide cooling to the classroom areas.
3. Plans should be made to upgrade the older Siemens control system with the newer Siemens/Desigo system to be consistent with the rest of the district. At that time, the standalone electric thermostats and controls serving the cabinet heaters and convectors would be replaced with new digital sensors and control components tied back to the central BAS.

Electrical System Review:

The following report is the result of a site visit by Mike Pasineau of MSA Professional Services, Inc. that occurred on April 5, 2023. Site observations, existing plan review and interviews with staff were all used in the preparation of this report.

The original building was constructed in 1965 with renovations and additions in 1990 and 2019.

Main Electrical Service

Observations

A. The main electrical service for this facility is a 120/208 volt, 3-phase, 4-wire, 1200 amp service fed from a pad mounted transformer and wall mounted C/T and Meter cabinet located on the west side of the building. The main service panelboard is a Square D I-Line type distribution panelboard. This distribution panelboard was installed in 2019 and is in good working condition.

B. The main electric service does have a surge protective device.

C. The serving utility is Xcel Energy.

Recommendations

A. The existing main electric service and distribution panelboard are in good working condition and can remain. It appears that there is adequate service capacity. Add to the existing electric service as necessary.

B. If a large building addition is constructed or construction is located at the service location, a new larger service or service relocation may be required.

Panelboards

Observations

A. There are a variety of panelboards throughout this facility which all appear to have been installed within the last 30 years. The building consists of numerous, Cutler-Hammer PB and PH type panelboards original to the 1990 renovation project and Square D NQ type panelboards original to the 2019 renovation and addition project. All panelboards throughout the facility appear to be in good working condition and most panels throughout the building have room for additional breakers.

B. Panelboards throughout the building do not have Arc Flash Warning Labels indicating available fault current at each panelboard, approach boundary restrictions and flash boundary restrictions.

C. Many panelboards throughout the facility have hand-written circuit directories.

Recommendations

A. The Square D and Cutler-Hammer type panelboards appear to be in good working condition, in general have room for additional breakers and can remain. Add to the existing panelboards as necessary.

B. Complete an Arc Flash Study of the existing electrical system and add arc flash labels to all electrical panelboards. This will increase the safety of personnel maintaining or operating equipment along with occupants in the vicinity of the equipment.

C. Provide type-written directories for all electrical panelboards throughout the building to prevent loss of information.

Generator

Observations

A. This facility does not have a generator.

Recommendations

A. One option is to continue to use battery backup exit lights and egress fixtures.

B. Another option would be to consider adding a new generator and remove battery backup exit lights and egress lighting, provide power to data closets, phones, keyless entry, coolers and freezers as well as circulation pumps on boilers. Provide complete, new, code approved egress lighting paths throughout the facility.

Interior and Exterior Lighting

Observations

A. In the older portion of the building, there is a mixture of T8 Fluorescent type fixtures and LED type light fixtures. There are T8 Fluorescent type light fixtures in the classrooms and private spaces and LED flat panel type light fixtures in the corridors.

B. In the 2019 addition, all light fixtures original to the addition are LED type light fixtures with all new lighting controls

C. All exterior wall packs and site lighting currently consists of old HID and high pressure sodium type light fixtures.

D. Classrooms contain zoned switching with manual lever switches.

Recommendations

A. A possible upgrade to all LED interior lighting should be considered with all new occupancy controls and 0-10v dimming.

B. We did not verify shared neutral loads on LED or any existing circuits. This should be done by a qualified electrician prior to adding any additional LED lighting. We would recommend a separate neutral be installed on any shared neutral loads.

Emergency Lighting

Observations

A. Egress lighting is accomplished thru battery backup bug-eye type.

B. The exit lights are a mixture of LED and fluorescent type.

C. We did not verify full egress compliance during our walk through but assume some areas could use upgraded egress lighting to comply with current codes

Recommendations

A. See recommendations from generator section.

B. Add egress lighting for both the interior and exterior to comply with current codes.

Wiring Devices

Observations

A. The receptacles and switches are commercial grade 15 and 20 amp with a mix of plastic and stainless steel plates. The devices vary in age and condition and for the most part show signs of general wear and tear.

Recommendations

A. Replace wiring devices and plates that are damaged.

B. Add additional receptacles and circuits as necessary.

C. We did not verify shared neutral loads on any existing circuits; this should be done by a qualified electrician prior to adding any additional devices. We would recommend a separate neutral be installed on any shared neutral loads or add multipole breakers to bring the circuiting up to code.

D. We did not verify if circuits contained independent grounding conductors. This should be done by a qualified electrical contractor or at a minimum verify grounding continuity in all circuits. It was common in schools in Wisconsin to use the conduit as a grounding system on some older facilities. Over time the conduit may have disconnected causing ungrounded circuit conditions. We always recommend a separate grounding conductor be installed in every conduit.

Fire Alarm System

Observations

A. The fire alarm is a Johnson Controls addressable system that was installed as part of the 2019 addition and renovation project. The owner indicated the fire alarm system is in good operating condition and has had minimal issues. The fire alarm control panel is located in the first floor custodian's office.

B. There are pull stations by all exterior doors.

C. There are horn/strobe devices in all public spaces including corridors, classrooms, LMC, etc.

D. There are strobe devices in private spaces including offices and toilet rooms.

E. There is full smoke detector coverage throughout the facility.

Recommendations

A. Continue to test the existing fire alarm system and add devices to the system as necessary.

Clock System

Observations

A. The existing clock system contains battery powered GPS Rauland clocks. The clocks are synchronized to a Sapling wireless head end located in the 2nd floor mezzanine.

Recommendations

A. The existing clock system was installed within the last 5 years, is in good working condition and can remain. Add clocks to the existing system as necessary.

Public Address System

Observations

A. The intercom system head end is a Rauland system that was installed within the last 5 years. The system head end is located in the main office.

B. Numerous types of speakers are located throughout the facility of different ages and types. We noted a number of round flush mounted ceiling speakers located throughout the building, but many of the old wall and ceiling mounted speakers still remain throughout the facility.

Recommendations

A. The existing Rauland head end is in good working condition and can remain. Continue to add additional speakers to the existing intercom head end as necessary.

B. We recommend the replacement of the old intercom speakers with new analog speakers and wiring.

Data

Observations

A. One MDF data rack in a room located in the technology room located in the center of the building. The MDF data closet is fed with fiber.

B. The data system consists of CAT6 type data cable which is routed to patch panels in the data racks.

C. The building has wireless access points.

D. The facility contains a Shortel IP phone system and is in good working condition.

E. Through random sampling of data cable, we found CAT6 non-plenum rated cabling throughout the building.

Recommendations

A. Additional CAT6 cable can be added to rooms as needed.

B. Remove all abandoned phone cabling throughout the entire facility.

C. If a portion of the building were converted from non-plenum ceiling to plenum ceiling, all non-plenum data cabling would need to be replaced with plenum rated cabling.

Keyless Entry System

Observations

A. There is a DSX security door access control system in the facility that serves a majority of the exterior doors around the perimeter of the facility. This system appears to be in good working order and staff indicated there are no known issues with their existing system.

B. There is a video intercom system at the main office exterior entry.

Recommendations

Expand the existing door access control system as required.

CCTV System

Observations

A. There is an existing VI Monitor IP based Security system with Axis cameras.

B. There appears to be adequate coverage through both the interior and exterior of the facility.

Recommendations

A. Add additional IP cameras as required.

Electrical System Review:

The following report is the result of a site visit by Mike Pasineau of MSA Professional Services, Inc. that occurred on April 5, 2023. Site observations, existing plan review and interviews with staff were all used in the preparation of this report.

The original building was constructed in 1951 with renovations and additions in 1965 and 1990.

Main Electrical Service

Observations

A. The main electrical service for this facility is a 120/208 volt, 3-phase, 4-wire, 600 amp service fed from a pole mounted transformer located on the north side of the building. The C/T and meter are located inside the building adjacent to the main service disconnect. The main service disconnect is a Bulldog fusible switch and is more than 50 years old. The fusible switch feeds a siemens distribution panel.

B. The main electric service does not have a surge protective device.

C. The serving utility is Xcel Energy.

Recommendations

A. The existing main electric service fusible switch should be replaced based on its age and condition. We recommend providing a new 120/208 volt, I-Line distribution panel with a 600A main breaker to serve as the main service disconnect.

B. If a large building addition is constructed or construction is located at the service location, a new larger service or service relocation may be required.

C. Consider adding a surge protective device for the main electrical service. This will provide protection from incoming surges such as lightning.

Panelboards

Observations

A. There are a variety of panelboards throughout this facility with many of them being very old. The building consists of numerous, old, ITE type panelboards. These panelboards are over 50 years old and have minimal space for additional breakers. These panelboards have reached the end of their useful life.

B. The remaining panelboards throughout the facility are Square D NQOD type which are original to the 1990 renovation project, in general have room for additional breakers and are in good working condition.

C. Panelboards throughout the building do not have Arc Flash Warning Labels indicating available fault current at each panelboard, approach boundary restrictions and flash boundary restrictions.

D. Many panelboards throughout the facility have hand-written circuit directories.

Recommendations

A. The old ITE type panelboards have reached the end of their useful life and should be replaced based on their age and condition.

B. The newer Square D NQOD type panelboards appear to be in good working condition, in general have room for additional breakers and can remain. Add to the existing panelboards as necessary.

C. Complete an Arc Flash Study of the existing electrical system and add arc flash labels to all electrical panelboards. This will increase the safety of personnel maintaining or operating equipment along with occupants in the vicinity of the equipment.

D. Provide type-written directories and engraved panelboard labeling for all electrical panelboards throughout the building to prevent loss of information.

Generator

Observations

A. This facility does not have a generator.

Recommendations

A. One option is to continue to use battery backup exit lights and egress fixtures.

B. Another option would be to consider adding a new generator and remove battery backup exit lights and egress lighting, provide power to data closets, phones, keyless entry, coolers and freezers as well as circulation pumps on boilers. Provide complete, new, code approved egress lighting paths throughout the facility.

Interior and Exterior Lighting

Observations

A. Throughout the facility, a majority of the light fixtures are T8 fluorescent type light fixtures.

B. Staff indicated that (9) classrooms have been updated to LED flat panel type fixtures.

C. Light fixtures in in the remaining classrooms, library, and gymnasium are T8 fluorescent type fixtures.

D. All exterior wall packs and site lighting currently consists of old HID and high pressure sodium type light fixtures.

E. Classrooms contain zoned switching with manual lever switches.

Recommendations

A. A possible upgrade to all LED interior lighting should be considered with all new occupancy controls and 0-10v dimming.

B. We did not verify shared neutral loads on LED or any existing circuits. This should be done by a qualified electrician prior to adding any additional LED lighting. We would recommend a separate neutral be installed on any shared neutral loads.

Emergency Lighting

Observations

A. Egress lighting is accomplished thru battery backup bug-eye type fixtures with very limited coverage.

B. The exit lights are a mixture of LED and incandescent type and a number of them appear to be damaged.

Recommendations

A. See recommendations from generator section.

B. Add egress lighting for both the interior and exterior to comply with current codes.

C. Replace damaged exit lights as necessary.

Wiring Devices

Observations

A. The receptacles and switches are commercial grade 15 and 20 amp with a mix of plastic and stainless steel plates. The devices vary in age and condition and for the most part show signs of general wear and tear.

Recommendations

A. Replace wiring devices and plates that are damaged.

B. Add additional receptacles and circuits as necessary.

C. We did not verify shared neutral loads on any existing circuits; this should be done by a qualified electrician prior to adding any additional devices. We would recommend a separate neutral be installed on any shared neutral loads or add multipole breakers to bring the circuiting up to code.

D. We did not verify if circuits contained independent grounding conductors. This should be done by a qualified electrical contractor or at a minimum verify grounding continuity in all circuits. It was common in schools in Wisconsin to use the conduit as a grounding system on some older facilities. Over time the conduit may have disconnected causing ungrounded circuit conditions. We always recommend a separate grounding conductor be installed in every conduit.

Fire Alarm System

Observations

A. The fire alarm is a Johnson Controls addressable system that was installed within the last 5 years. The owner indicated the fire alarm system is in good operating condition and has had minimal issues. The fire alarm control panel is located in the first floor main electrical room.

B. There are pull stations by all exterior doors.

C. There are horn/strobe devices in all public spaces including corridors, classrooms, LMC, etc.

D. There are strobe devices in private spaces including offices and toilet rooms.

E. There is full smoke detector coverage throughout the facility.

Recommendations

A. Continue to test the existing fire alarm system and add devices to the system as necessary.

Clock System

Observations

A. The existing clock system contains battery powered GPS Rauland clocks. The clocks are synchronized to a Sapling wireless head end located in the main data room.

Recommendations

A. The existing clock system was installed within the last 5 years, is in good working condition and can remain. Add clocks to the existing system as necessary.

Public Address System

Observations

A. The intercom system head end is a Rauland system that was installed within the last 5 years. The system head end is located in the main office.

B. Numerous types of speakers are located throughout the facility of different ages and types. We noted a number of round flush mounted ceiling speakers located throughout the building, but many of the old wall mounted speakers still remained throughout the facility.

Recommendations

A. The existing Rauland head end is in good working condition and can remain. Continue to add additional speakers to the existing intercom head end as necessary.

B. We recommend the replacement of the old intercom speakers with new analog speakers and wiring.

Data

Observations

A. One MDF data rack in a room located near the main entrance serves the entire building. The MDF data closet is fed with fiber.

B. The data system consists of CAT6 type data cable which is routed to patch panels in the data racks.

C. The building has wireless access points.

D. The facility contains a Shortel IP phone system and is in good working condition.

E. Through random sampling of data cable, we found CAT6 plenum and non-plenum rated cabling throughout the building.

Recommendations

A. Additional CAT6 cable can be added to rooms as needed.

B. Remove all abandoned phone cabling throughout the entire facility.

C. If a portion of the building were converted from non-plenum ceiling to plenum ceiling, all non-plenum data cabling would need to be replaced with plenum rated cabling.

Keyless Entry System

Observations

A. There is a DSX security door access control system in the facility that serves approximately 50 percent of the exterior doors around the perimeter of the facility. This system appears to be in good working order and staff indicated there are no known issues with their existing system.

B. There is a video intercom system at the main office exterior entry.

Recommendations

A. Expand the existing door access control system as required.

CCTV System

Observations

A. There is an existing VI Monitor IP based Security system with Axis cameras.

B. There appears to be adequate coverage through both the interior and exterior of the facility.

Recommendations

A. Add additional IP cameras as required.

Electrical System Review:

The following report is the result of a site visit by Mike Pasineau of MSA Professional Services, Inc. that occurred on April 5, 2023. Site observations, existing plan review and interviews with staff were all used in the preparation of this report.

The original building was constructed in the 2001.

Main Electrical Service

Observations

A. The main electric service is original to the 2001 building construction. The service is 277/480 volt, 3-phase, 4-wire, 3000 amp and is fed from a pad mounted utility transformer located on the east side of the building. The C/T is located in the main electrical room adjacent to the service switchboard. The service switchboard is a Siemens SB3 type switchboard and appears to be in good working condition.

B. The main electric service does not have a surge protective device.

C. The serving utility is Xcel Energy.

Recommendations

A. The existing main electric service and switchboard are in good working condition and can remain. It appears that there is adequate service capacity on the electric service in the building. Add to the existing electric service as necessary.

B. If a large building addition is constructed or construction is located at the service location, a new larger service or relocation may be required.

C. Consider adding a surge protective device for the main electrical service. This will provide protection from incoming surges such as lightning.

Panelboards

Observations

A. There are a variety of panelboards throughout this facility with all of them being original to the 2001 building construction. The building consists of Siemens S4 distribution type panelboards as well as Siemens S2, S3 and S3 type branch panelboards. All panels throughout the facility appear to be in good working condition and in general have room for additional breakers.

B. Panelboards throughout the building do not have Arc Flash Warning Labels indicating available fault current at each panelboard, approach boundary restrictions and flash boundary restrictions.

C. All panelboards throughout the facility have type-written circuit directories and engraved panelboard labeling.

Recommendations

A. The newer Siemens distribution and branch type panelboards are in good working condition, in general have room for additional breakers and can remain. Add to the existing panelboards as necessary.

B. Complete an Arc Flash Study of the existing electrical system and add arc flash labels to all electrical panelboards. This will increase the safety of personnel maintaining or operating equipment along with occupants in the vicinity of the equipment.

Generator

Observations

A. The emergency generator is a Kohler 277/480 volt, 3-phase, 4 wire, natural gas fired 100kW unit. This generator is original to the building. This generator is regularly tested, and the owner indicated it is in good working condition. The generator set is pad mounted inside the building adjacent to the electrical room. The generator is separated from the main electric service and boilers in the building.

B. There are (2) transfer switches present in the facility. (1) transfer switch is for life-safety loads and (1) is for non-life-safety loads and appear to be in good working condition. The transfer switches and their associated panelboards are separated from boilers and main electrical equipment.

Recommendations

A. The existing standby generator and transfer switches are in good working condition, are compliant to today's code requirements and have adequate capacity for the facility. Continue providing routine testing and service to the generator and transfer switches.

Interior and Exterior Lighting

Observations

A. Throughout the facility, there is a mixture of LED light fixtures and T8 fluorescent lighting fed at 277 volts.

B. All light fixtures in the cafeteria have been upgraded to LED fixtures.

C. The light fixtures in corridors throughout the building currently have a mixture of LED flat panels and T8 fluorescent lighting. The owner indicated that by the end of this year, all corridors throughout the facility will have been updated to LED.

D. Light fixtures in classrooms, library, and gymnasium are T8 fluorescent type fixtures.

E. All exterior wall packs and site lighting currently consists of old HID type light fixtures.

F. Old occupancy sensors are present in classroom spaces.

G. Classrooms contain zoned switching with manual lever switches.

H. Corridor and LMC lighting are controlled from (1) keyed light switch for the entire building. The owner.

Recommendations

A. A possible upgrade to all LED interior lighting should be considered with all new occupancy controls and 0-10v dimming.

B. We did not verify shared neutral loads on LED or any existing circuits. This should be done by a qualified electrician prior to adding any additional LED lighting. We would recommend a separate neutral be installed on any shared neutral loads.

Emergency Lighting

Observations

A. Emergency lighting and exit lighting is accomplished through the backup generator.

B. We did not verify full egress compliance during our walk through but assume some areas could use upgraded egress lighting to comply with current codes.

Recommendations

A. See recommendations from generator section.

B. Add interior and exterior egress lighting to the emergency generator to comply with current codes.

Wiring Devices

Observations

A. The receptacles and switches are commercial grade 15 and 20 amp with a mix of plastic and stainless steel plates. The devices vary in age and condition and for the most part show signs of general wear and tear.

Recommendations

A. Replace wiring devices and plates that are damaged.

B. Add additional receptacles and circuits as necessary.

C. We did not verify shared neutral loads on any existing circuits; this should be done by a qualified electrician prior to adding any additional devices. We would recommend a separate neutral be installed on any shared neutral loads or add multipole breakers to bring the circuiting up to code.

D. We did not verify if circuits contained independent grounding conductors. This should be done by a qualified electrical contractor or at a minimum verify grounding continuity in all circuits. It was common in schools in Wisconsin to use the conduit as a grounding system on some older facilities. Over time the conduit may have disconnected causing ungrounded circuit conditions. We always recommend a separate grounding conductor be installed in every conduit.

Fire Alarm System

Observations

A. The fire alarm is a Simplex 4010 addressable system and appears to be original to the 2001 building construction. The owner indicated the fire alarm system is in good operating condition and has had minimal issues. The fire alarm control panel is located in the first floor main electrical room.

B. There are pull stations by all exterior doors.

C. There are horn/strobe devices in all public spaces including corridors, classrooms, LMC, etc.

D. There are strobe devices in private spaces including offices and toilet rooms.

E. There are smoke detectors are present in sections of the building, but not throughout the facility.

Recommendations

A. At the time of installation, the system was likely code compliant. However, there have been code updates since this fire alarm system has been installed. Consider replacing the existing addressable system head end and all devices to a new, code approved voice addressable fire alarm system throughout the entire facility.

Clock System

Observations

A. The existing clock system contains battery powered GPS Primex clocks. The clocks are synchronized to a Primex wireless head end located in the second floor mezzanine.

Recommendations

A. The existing clock system was installed within the last 5 years, is in good working condition and can remain. Add clocks to the existing system as necessary.

Public Address System

Observations

A. The intercom system head end is a Simplex system and is original to the 2001 building construction. The system head end is located in the first floor MDF data room.

B. A majority of the speakers located throughout the facility are round, flush mounted speakers in the ceiling grid. The remaining speakers throughout the building are surface wall mounted speakers.

C. Staff indicated that they are having issues with the existing intercom system and do not have the ability to create additional zones. Staff indicated that volume control is an issue in some spaces.

Recommendations

A. We recommend the replacement of the old intercom system with new speakers, wiring and head end. The system head end should be IP based with standard analog speakers. Upgrading this system will allow for greater safety in annunciation and allow for zoned and emergency paging.

Data

Observations

A. The MDF data rack is located adjacent to the LMC on the first floor. There are remote wall mounted switches located in all classrooms throughout the building. The MDF data closet is fed with fiber and fiber is used to connect all switches throughout the building.

B. The data system consists of a mixture of CAT5, CAT5E and CAT6 type data cable which is routed to patch panels in the data racks.

C. The building has wireless access points.

D. The facility contains a Shortel IP phone system and is in good working condition.

E. Through random sampling of data cable, we found CAT5 and CAT6 plenum and non-plenum rated cabling throughout the building.

Recommendations

A. Additional CAT6 cable can be added to rooms as needed.

B. Consider upgrading all data cabling throughout the facility to CAT6 data cable. This will increase the speed of the network and future proof wireless technology.

C. Remove all abandoned phone cabling throughout the entire facility.

D. If a portion of the building were converted from non-plenum ceiling to plenum ceiling, all non-plenum data cabling would need to be replaced with plenum rated cabling.

Keyless Entry System

Observations

A. There is a DSX security door access control system in the facility that serves approximately 50 percent of the exterior doors around the perimeter of the facility. This system appears to be in good working order and staff indicated there are no known issues with their existing system.

B. There is a video intercom system at the main office exterior entry.

Recommendations

A. Expand the existing door access control system as required.

CCTV System

Observations

A. There is an existing VI Monitor IP based Security system with Axis cameras.

B. There appears to be adequate coverage through both the interior and exterior of the facility.

Recommendations

A. Add additional IP cameras as required.

Electrical System Review:

The following report is the result of a site visit by Mike Pasineau of MSA Professional Services, Inc. that occurred on April 5, 2023. Site observations, existing plan review and interviews with staff were all used in the preparation of this report.

The original building was constructed in the 1962 with additions/renovations in 1990 and 2000.

Main Electrical Service

Observations

A. The High School building is fed by two main electric services which were part of two different renovation projects. One electric service was installed within the last 5 years. This service is a 277/480 volt, 3-phase, 4-wire, 1600 amp and is fed from a pad mounted utility transformer and pad mounted combination CT and meter cabinet located on the west side of the building. The service switchboard is a GE Spectra Series type switchboard with a PowerBreak II Main RELT switch. The service switchboard was installed within the last 5 years and appears to be in good condition.

B. The additional electric service was installed as part of the 2000 renovation project. This service is a 277/480 volt, 3-phase, 4-wire, 1600 amp and is fed from a pad mounted utility transformer on the east side of the building and the C/T located in the main electrical room adjacent to the service switchboard. The service switchboard is a Square D QED-2 type switchboard. The service switchboard appears to be in good working condition.

C. The main electric services do not have a surge protective device.

D. The serving utility is Xcel Energy.

Recommendations

A. The existing main electric services and switchboards are in good working condition and can remain. It appears that there is adequate service capacity for each electric service in the building. Add to the existing electric service as necessary.

B. If a large building addition is constructed or construction is located at the service location, a new larger service or relocation may be required.

C. Consider adding a surge protective device at each electric service location. This will provide protection from incoming surges such as lightning.

Panelboards

Observations

A. There are a variety of panelboards throughout this facility with many of them being original to the 1962 building construction. Many of the existing panelboards throughout the older portion of the building consist of old Kinney panelboards. These panelboards are over 50 years old and have minimal space for additional breakers. These panelboards have reached the end of their useful life.

B. The remaining panelboards throughout the facility are original to the 1990 and 2000 addition and remodel projects as well as an electrical service upgrade project completed within the last 5 years. These panelboards are Square D NQOD, Square D NQ, Square D NF and Square D I-Line type panelboards. These panels in general are in good working condition.

C. Panelboards throughout the building do not have Arc Flash Warning Labels indicating available fault current at each panelboard, approach boundary restrictions and flash boundary restrictions.

D. A majority of the panelboards throughout the building have hand-written circuit directories.

Recommendations

A. The old Kinney type panelboards original to the 1962 construction have reached the end of their useful life and should be replaced based on their age and condition.

B. The newer Square D NQOD, NQ, NF and I-Line type panelboards are in good working condition, in general have room for additional breakers and can remain. Add to the existing panelboards as necessary.

C. Complete an Arc Flash Study of the existing electrical system and add arc flash labels to all electrical panelboards. This will increase the safety of personnel maintaining or operating equipment along with occupants in the vicinity of the equipment.

D. Provide type-written directories and engraved panelboard labeling for all electrical panelboards throughout the building to prevent loss of information.

Generator

Observations

A. The emergency generator is a Detroit Diesel Spectrum 277/480 volt, 3-phase, 4 wire, natural gas fired 100kW unit. This generator was installed as part of the 2000 addition and renovation project. This generator is regularly tested, and the owner indicated it is in good working condition. The generator set is pad mounted on the northeast side of the facility.

B. There are (3) transfer switches present in the facility. (1) transfer switch is for life-safety loads and (2) are for non-life-safety loads and appear to be in good working condition. The transfer switches and their associated panelboards are separated from boilers and main electrical equipment.

Recommendations

A. The existing standby generator and transfer switches are in good working condition, are compliant to today's code requirements and have adequate capacity for the facility. Continue providing routine testing and service to the generator and transfer switches.

Interior and Exterior Lighting

Observations

A. Throughout the facility, there is a mixture of LED light fixtures and T8 fluorescent lighting.

B. The light fixtures in corridors throughout the building have all been updated to flat panel LED fixtures. The fixtures are recessed in grid in the newer portion of the building and surface mounted in the older portion of the building.

C. Light fixtures in classrooms, library, and gymnasium are T8 fluorescent type fixtures.

D. All exterior lighting has recently been upgraded to LED, including parking lots.

E. Old occupancy sensors are present in classroom spaces.

F. Classrooms contain zoned switching with manual lever switches.

G. Corridors and exterior lighting are controlled thru the building automation system.

Recommendations

A. A possible upgrade to all LED interior lighting should be considered with all new occupancy controls and 0-10v dimming.

B. We did not verify shared neutral loads on LED or any existing circuits. This should be done by a qualified electrician prior to adding any additional LED lighting. We would recommend a separate neutral be installed on any shared neutral loads.

Emergency Lighting

Observations

A. Emergency lighting and exit lighting is accomplished through the backup generator.

B. We did not verify full egress compliance during our walk through but assume some areas could use upgraded egress lighting to comply with current codes.

Recommendations

A. See recommendations from generator section.

B. Add exterior egress lighting to emergency generator to comply with current codes.

Wiring Devices

Observations

A. The receptacles and switches are commercial grade 15 and 20 amp with a mix of plastic and stainless steel plates. The devices vary in age and condition and for the most part show signs of general wear and tear.

Recommendations

A. Replace wiring devices and plates that are damaged.

B. Add additional receptacles and circuits as necessary.

C. We did not verify shared neutral loads on any existing circuits; this should be done by a qualified electrician prior to adding any additional devices. We would recommend a separate neutral be installed on any shared neutral loads or add multipole breakers to bring the circuiting up to code.

D. We did not verify if circuits contained independent grounding conductors. This should be done by a qualified electrical contractor or at a minimum verify grounding continuity in all circuits. It was common in schools in Wisconsin to use the conduit as a grounding system on some older facilities. Over time the conduit may have disconnected causing ungrounded circuit conditions. We always recommend a separate grounding conductor be installed in every conduit.

Fire Alarm System

Observations

A. The fire alarm is a Simplex 4010 addressable system and appears to be original to the 2000 addition and renovation project. The owner indicated the fire alarm system is in good operating condition and has had minimal issues. The fire alarm control panel is located in the first floor gymnasium storage room.

B. There are pull stations by all exterior doors.

C. There are horn/strobe devices in all public spaces including corridors, classrooms, LMC, etc.

D. There are strobe devices in private spaces including offices and toilet rooms.

E. There are smoke detectors are present in sections of the building, but not throughout the facility.

Recommendations

A. At the time of installation, the system was likely code compliant. However, there have been code updates since this fire alarm system has been installed and the fire alarm system is over 20 years old. Consider replacing the existing addressable system head end and all devices to a new, code approved voice addressable fire alarm system throughout the entire facility.

Clock System

Observations

A. The existing clock system contains battery powered GPS Sapling clocks. The clocks are synchronized to a Sapling head end.

Recommendations

A. The existing clock system was installed within the last 5 years, is in good working condition and can remain. Add clocks to the existing system as necessary.

Public Address System

Observations

A. The intercom system head end is a Bogen IP system and was installed within the last 5 years. The system head end is located in the first floor main office area.

B. Numerous types of speakers are located throughout the facility of different ages and types. Many of the speakers throughout the building have been updated to round, flush mounted speakers in lay-in grid as well as surface wall mounted speakers. There are also many old flush and surface wall mounted speakers.

Recommendations

A. The existing Bogen IP head end is in good working condition and can remain. Continue to add additional speakers to the existing intercom head end as necessary.

B. We recommend the replacement of the old intercom speakers with new analog speakers and wiring.

Data

Observations

A. The MDF data rack is located adjacent to the library on the first floor. There are remote wall mounted switches located in all classrooms throughout the building. The MDF data closet is fed with fiber and fiber is used to connect all switches throughout the building.

B. The data system consists of CAT6 type data cable which is routed to patch panels in the data rack.

C. The building has wireless access points.

D. The facility contains a Shortel IP phone system and is in good working condition.

E. Through random sampling of data cable, we found CAT6 non-plenum rated cabling throughout the building.

Recommendations

A. Additional CAT6 cable can be added to rooms as needed.

B. Remove all abandoned phone cabling throughout the entire facility.

C. If a portion of the building were converted from non-plenum ceiling to plenum ceiling, all non-plenum data cabling would need to be replaced with plenum rated cabling.

Keyless Entry System

Observations

A. There is a DSX security door access control system in the facility that serves a majority of the exterior doors around the perimeter of the facility.

B. There is a video intercom system at the main office exterior entry.

Recommendations

A. Expand the existing door access control system as required.

CCTV System

Observations

A. There is an existing VI Monitor IP based Security system with Axis cameras.

B. There appears to be adequate coverage through both the interior and exterior of the facility.

Recommendations

A. Add additional IP cameras as required.

Electrical System Review:

The following report is the result of a site visit by Mike Pasineau of MSA Professional Services, Inc. that occurred on April 5, 2023. Site observations, existing plan review and interviews with staff were all used in the preparation of this report.

The original building was constructed in 1925/1927 with renovations and additions in 1990.

Main Electrical Service

Observations

A. The main electrical service for this facility is a 120/208 volt, 3-phase, 4-wire, 400 amp service fed from a pad mounted transformer and wall mounted C/T and meter cabinet located on the south side of the building. The main service panelboard is a Square D I-Line type distribution panelboard installed during the 1990 addition and renovation project and appears to be in good working condition.

B. The main electric service does not have a surge protective device.

C. The serving utility is Xcel Energy.

Recommendations

A. The existing main electric service and distribution panelboard appear to be in good working condition and can remain, however there is no room for additional breakers in the distribution panel. The service capacity appears to be limited due to the 400 amp service capacity.

B. If a building addition is constructed or construction is located at the service location, a new larger service or service relocation may be required.

C. Consider adding a surge protective device for the main electrical service. This will provide protection from incoming surges such as lightning.

Panelboards

Observations

A. There are a variety of panelboards throughout this facility and many of them appear to have been installed within the last 30 years. The building consists of numerous, Square D NQ and NQOD type panelboards throughout the building. There are also a number of Square D QO Loadcenters and Cutler-Hammer Loadcenters that appear to be very old and are reaching the end of their useful lives. There is also a Benjamin-Starrett type panelboard that is more than 50 years old and has reached the end of its useful life.

B. Panelboards throughout the building do not have Arc Flash Warning Labels indicating available fault current at each panelboard, approach boundary restrictions and flash boundary restrictions.

C. Many panelboards throughout the facility have hand-written circuit directories.

Recommendations

A. The old Square D and Cutler-Hammer loadcenters and Benjamin-Starrett panelboard have reached the end of their useful lives and should be replaced based on their age and condition.

B. The newer Square D NQ and NQOD type panelboards appear to be in good working condition, in general have room for additional breakers and can remain. Add to the existing panelboards as necessary.

C. Complete an Arc Flash Study of the existing electrical system and add arc flash labels to all electrical panelboards. This will increase the safety of personnel maintaining or operating equipment along with occupants in the vicinity of the equipment.

D. Provide type-written directories and engraved panelboard labeling for all electrical panelboards throughout the building to prevent loss of information.

Generator

Observations

A. This facility does not have a generator.

Recommendations

A. One option is to continue to use battery backup exit lights and egress fixtures.

B. Another option would be to consider adding a new generator and remove battery backup exit lights and egress lighting, provide power to data closets, phones, keyless entry, coolers and freezers as well as circulation pumps on boilers. Provide complete, new, code approved egress lighting paths throughout the facility.

Interior and Exterior Lighting

Observations

A. Throughout the facility the light fixtures have been upgraded to LED flat panel type fixtures. These fixtures were replaced within the last 5 years and are in good working condition.

B. All exterior wall packs and site lighting currently consists of old HID and high pressure sodium type light fixtures.

C. Classrooms contain zoned switching with manual lever switches.

D. Numerous areas in the old portion of the building still contain very old push button type switching.

Recommendations

A. The LED flat panel type fixtures were recently replaced, are in good working condition and can remain.

B. The old push button type switching should be replaced based on its age and condition.

C. We did not verify shared neutral loads on LED or any existing circuits. This should be done by a qualified electrician prior to adding any additional LED lighting. We would recommend a separate neutral be installed on any shared neutral loads.

Emergency Lighting

Observations

A. Egress lighting is accomplished thru battery backup bug-eye type fixtures.

B. A majority of the exit lighting has been upgraded to LED exits.

C. We did not verify full egress compliance during our walk through but assume some areas could use upgraded egress lighting to comply with current codes

Recommendations

A. See recommendations from generator section.

B. Add egress lighting for both the interior and exterior to comply with current codes.

Wiring Devices

Observations

A. The receptacles and switches are commercial grade 15 and 20 amp with a mix of plastic and stainless steel plates. The devices vary in age and condition and for the most part show signs of general wear and tear.

B. We noticed when opening junction boxes that old cloth wiring is present in the facility.

Recommendations

A. Replace wiring devices and plates that are damaged.

B. Add additional receptacles and circuits as necessary.

C. We recommend the replacement of the old cloth branch circuit wiring and feeders as it is susceptible to damage from rodents, bugs, etc. Replacing the old cloth wiring will minimize the risk of exposed wiring throughout the facility.

D. We did not verify shared neutral loads on any existing circuits; this should be done by a qualified electrician prior to adding any additional devices. We would recommend a separate neutral be installed on any shared neutral loads or add multipole breakers to bring the circuiting up to code.

E. We did not verify if circuits contained independent grounding conductors. This should be done by a qualified electrical contractor or at a minimum verify grounding continuity in all circuits. It was common in schools in Wisconsin to use the conduit as a grounding system on some older facilities. Over time the conduit may have disconnected causing ungrounded circuit conditions. We always recommend a separate grounding conductor be installed in every conduit.

Fire Alarm System

Observations

A. The fire alarm is a Simplex addressable system that was installed within the last 5 years. The owner indicated the fire alarm system is in good operating condition and has had minimal issues. The fire alarm control panel is located in the lower level adjacent to the main electrical panel.

B. There are pull stations by all exterior doors.

C. There are horn/strobe devices in all public spaces including corridors, classrooms, LMC, etc.

D. There are strobe devices in private spaces including offices and toilet rooms.

E. There is full smoke detector coverage throughout the facility.

Recommendations

A. Continue to test the existing fire alarm system and add devices to the system as necessary.

Clock System

Observations

A. The existing clock system contains battery powered GPS Rauland clocks. The clocks are synchronized to a Sapling wireless head end located in the main office.

Recommendations

A. The existing clock system was installed within the last 5 years, is in good working condition and can remain. Add clocks to the existing system as necessary.

Public Address System

Observations

A. The intercom system head end is a Rauland system that was installed within the last 5 years. The system head end is located in the main office.

B. Numerous types of speakers are located throughout the facility of different ages and types. We noted a number of round flush mounted ceiling speakers located throughout the building, but many of the old wall mounted speakers still remained throughout the facility.

Recommendations

A. The existing Rauland head end is in good working condition and can remain. Continue to add additional speakers to the existing intercom head end as necessary.

B. We recommend the replacement of the old intercom speakers with new analog speakers and wiring.

Data

Observations

A. The MDF data rack is located in the first floor data room. There are remote wall mounted switches located in all classrooms throughout the building. The MDF data closet is fed with fiber and fiber is used to connect all switches throughout the building.

B. The data system consists of CAT6 type data cable which is routed to patch panels in the data rack.

C. The building has wireless access points.

D. The facility contains a Shortel IP phone system and is in good working condition.

E. Through random sampling of data cable, we found CAT6 non-plenum rated cabling throughout the building.

Recommendations

A. Additional CAT6 cable can be added to rooms as needed.

B. Remove all abandoned phone cabling throughout the entire facility.

C. If a portion of the building were converted from non-plenum ceiling to plenum ceiling, all non-plenum data cabling would need to be replaced with plenum rated cabling.

Keyless Entry System

Observations

A. There is a DSX security door access control system in the facility that serves approximately 50 percent of the exterior doors around the perimeter of the facility. This system appears to be in good working order and staff indicated there are no known issues with their existing system.

B. There is a video intercom system at the main office exterior entry.

Recommendations

A. Expand the existing door access control system as required.

CCTV System

Observations

A. There is an existing VI Monitor IP based Security system with Axis cameras.

B. There appears to be adequate coverage through both the interior and exterior of the facility.

Recommendations

A. Add additional IP cameras as required.

SPARTA AREA SCHOOL DISTRICT

2023 Roof Reviews

Sparta High School
Montessori School
Meadowview Middle School
District Office
Southside Elementary

Prepared By:

Mr. Tim Pekron, RRC
Senior Consultant
2400 Prior Avenue North
St. Paul, MN 55113

Office: 651-639-0644
Email: timp@roofspec.com

Roof Spec, Inc.
2400 Prior Avenue North
St. Paul, MN 55113
www.roofspec.com

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All information is submitted as the confidential property of our clients. Any copies or extractions are reserved pending our written approval.

Executive Summary:

In June of 2023 RSI performed Roof Evaluations of the Sparta High School, District Center, Meadow View Middle School, Montessori and Southside Elementary. The purpose of these evaluations was to identify the existing roof system components, evaluate the remaining service life of the in place roof system, identify any required maintenance and provide a budget for any repair or replacement. Infrared moisture surveys were also performed to identify any suspect areas of wet insulation within the roof system. In roof sections were there were no original drawings or background information available, core was taken to verify the existing roof system components. Core samples were taken and repaired by Interstate Roofing.

In general, the majority of the roof systems observed were in fair to poor condition with an anticipated remaining service life of 1-5 years. The attached Roof Information Summary indicates the roof type, estimated remaining service life and a five year budget forecast that includes costs for repair and replacement. Roof replacement was prioritized by considering overall roof condition, estimated annual maintenance costs and wet insulation within the roof system.

Individual reports are provided that include a summary of the available background information for each facility including existing roof system information, field observations of defects observed and conclusions/recommendations summarizing the condition and remaining service life of each roof section. A detailed breakdown of the maintenance/replacement cost is also provided within the individual reports.

Sparta Schools Roof Information Summary

Facility	Sections	Square Feet	Roof Type
High School	2,4,6,8,9, 10, 15	46,819	Built up Roof
	3, 11, 12, 13, 14	62,487	Built up Roof
	1, 20, 21, 22, 23, 24 & 25	70,919	Ballasted EPDM
	7	16,124	Fully Adhered EPDM
	5	7,504	Mechanically Attached EPDM
	16, 18	16,574	Ballasted EPDM
	17	6,405	Fully Adhered EPDM
	19	1,989	Fully Adhered EPDM
	26	3,539	Mechanicaly Attached EPDM
	27	725	EPDM
	28	2,092	Standing Seam Sheet Metal
High School Total		**235,177**	
Montessori	1, 5, 7, 10	31,607	Built up Roof
	2, 3	3,112	Fully Adhered EPDM
	4, 8, 9	5,462	Fully Adhered EPDM
	6	451	Mechanically Attached EPDM
Montessori Total		**40,632**	
Meadowview	1, 2 ,3 ,4 ,5 ,6	168,185	Ballasted EPDM
	7, 8, 9	9,184	Standing Seam Sheet Metal
Meadowview Total		**177,369**	
District Office	1 & 2	6,011	Built Up Roof
	3, 4, 6 & 7	1,899	Fully Adhered EPDM
	5	23,014	Asphalt Shingles
District Office Total		**30,924**	
Southside	1, 2, 3, 4	34,056	Built up Roof
	5, 6	16,207	Fully Adhered EPDM
	7	240	Standing Seam Sheet Metal
Southside Total		**50,503**	

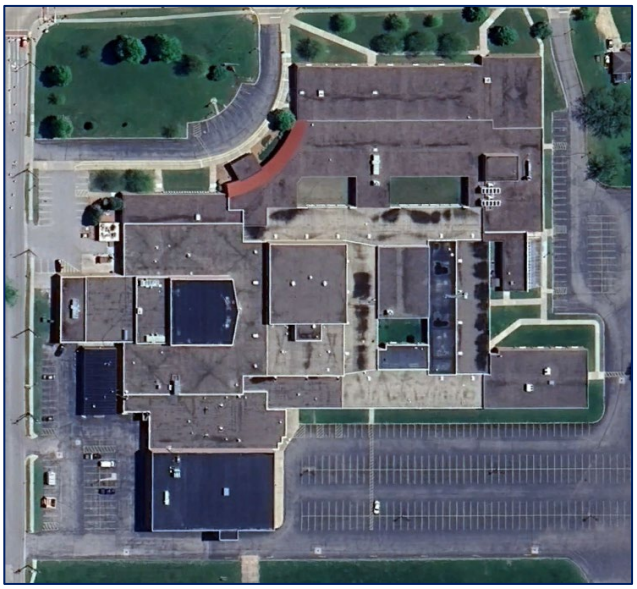
Remaining Svs Life	2023 Estimated Maintenance Cost
2-4 years	$9,500
1-2 years	$16,000
3-5 years	$5,000
5+ years	$3,000
5+ years	$0
1-2 years	$8,000
1-2 years	$1,000
5+ years	$0
2-3 years	$1,000
2-3 years	$500
5+ years	$0
	$44,000
2-4 years	$13,000
1-2 years	$1,000
10+ years	$500
1 year	$500
	$15,000
4-6 years	$10,000
5+ years	$2,000
	$12,000
5+ years	$1,000
1-2 years	$1,000
10+ years	$0
	$2,000
4-6 years	$15,000
10+ years	$0
10+ years	$0
	$15,000

Facility	Roof Sections	2024
High School	2, 3, 4, 6	$1,400,000
	8, 9, 10, 11, 13, 14	$5,000
	12, 15, 16, 17, 18, 19	$5,000
	1, 26, 20, 27, 21, 28	$1,000
	22 ,23 ,24, 25	$5,000
Montessori	1, 5, 7, 10	$5,000
	4, 8 & 9	$0
	2, 3 & 6	$120,000
Meadowview	1, 2, 3, 4, 5, 6	$10,000
	7, 8, 9	$2,000
District Office	1 & 2	$0
	3,4,6 & 7	$75,000
	5	$0
Southside	1, 2, 3, 4	$3,000
	5, 6	$0
	7	$0
		$1,631,000

ar Budget Forecast

2025	2026	2027	2028
$0	$0	$0	$0
$1,200,000	$0	$0	$0
$5,000	$1,260,000	$0	$0
$1,000	$1,000	$420,000	$0
$5,000	$10,000	$10,000	$1,600,000
$5,000	$8,000	$930,000	$0
$0	$0	$0	$0
$0	$0	$0	$0
$4,000	$4,000	$4,000	$4,000
$1,000	$1,000	$1,000	$1,000
$0	$0	$500	$500
$0	$0	$0	$0
$1,000	$1,000	$1,500	$1,500
$3,000	$3,000	$3,000	$3,000
$0	$0	$0	$0
$0	$0	$0	$0
$1,225,000	$1,288,000	$1,370,000	$1,610,000

SPARTA HIGH SCHOOL

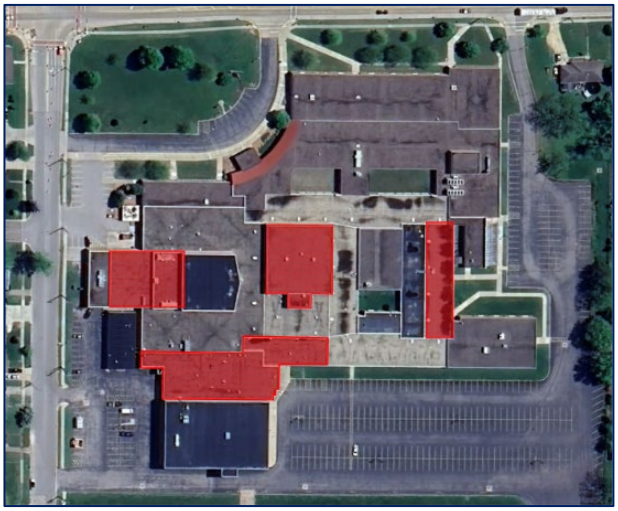


Background Information:

The roof of the High School is separated into multiple roof sections via elevation changes and roof control joints. These areas are labeled 1-27 on the attached roof plan. The main portion of the High School was constructed in 1962 with a large addition completed in 1999. There also appears to be several small additions, however no original plans are available. The original roof system is present on the 1999 addition and some of the smaller additions, however the majority of the original roofs have been replaced at some point in the past. There are no plans for roof replacement available.

Based on our field observations and core cuts, there are ten different roof systems/eras of construction. Our Field Observations, Conclusions/Recommendations and Budget Forecast is separated per each roof system.

ROOF SECTIONS 2, 4, 6, 8, 9, 10 & 15:



Field Observations:

The roof system within these sections consists of a gravel surfaced built up roof. A core sample was taken within Roof Section 6 and indicated that the existing built up roof membrane was installed over ½" wood fiber insulation, 4" of polyisocyanurate insulation, ½" gypsum sheathing and a metal roof deck. The insulation was observed to be wet at the core location. Based on the original building drawings there are both metal and concrete roof decks within these sections. (Refer to photograph #1).

Drainage is accomplished via a combination of tapered insulation and structural slope to internal roof drains. Where present, overflow drainage is provided via perimeter overflow scuppers. The total roof area of all sections is approximately 46,819 square feet. Refer to photographs #2 - #7 for overviews of the subject roof areas.

Photograph # 1

Photoaraph # 2

Photoaraph # 3

Photograph # 4

Photograph # 5

Photograph # 6

Photograph # 7

At random locations throughout all roof sections erosion of the aggregate surfacing and asphalt flood coat was observed. At isolated locations the fiberglass roofing felts were exposed and are beginning to deteriorate. (Refer to photograph #8).

Photograph # 8

The base flashing at the roof to wall transition to the parapet consists of a granular surfaced modified bitumen membrane with an aluminum coating. At isolated locations openings in the flashing joints were observed. (Refer to photograph #9).

Photograph # 9

At isolated locations the coping cap was indented and is allowing moisture to enter beneath the coping cap. (Refer to photograph #10).

Photograph # 10

Damaged masonry was observed at the corner of the gym wall section (Section 7) and beneath the access ladder. Repairs have been performed with sealant. (Refer to photograph #11 and #12).

Photograph # 11

Photograph # 12

Within Section 6 a large section of the gravel surfacing was brushed back. This appears to have been done in an attempt to locate a leak however no repairs were observed. (Refer to photograph #13).

Photograph # 13

Flashing for the duct penetrations within Section 6 is accomplished with a square to round metal flashing and roof curb around the penetration. Insufficient flashing height is present at the curb and the metal flashing at the square to round is damaged and in poor condition. Extensive repairs have been performed with sealant. (Refer to photograph #14).

Photograph # 14

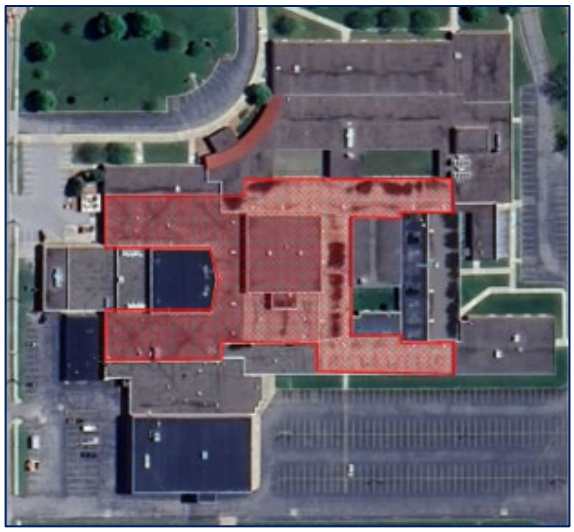
At several locations the roof drains were installed at the intersection of the roof to wall. This type of drain requires the lead flashing and clamping ring of the drain to be installed at a 90 degree angle. It is difficult to provide the necessary compression at the clamping ring with this detail. There is evidence of repair at the majority of these drain locations. (Refer to photograph #15).

Photograph # 15

At the scupper within Section 10 it was observed that the modified bitumen membrane used to strip in the scupper flange had completely delaminated. The top edge of the scupper flange is exposed and potentially allowing moisture to enter the roof system and/or interior. (Refer to photograph #16).

Photograph # 16

ROOF SECTIONS 3, 11, 12, 13 & 14:



The roof system within these sections consists of a gravel surfaced built up roof. A core sample was taken from within section 13. The existing built up membrane was installed over ½" wood fiber insulation, 5' of polyisocyanurate insulation and a concrete roof deck. The built up roof membrane consisted of a base ply, modified bitumen cap sheet and gravel surfacing. The roof insulation was dry at the core location. Based on the original drawings there are both metal and concrete decks within these roof sections. (Refer to photograph #17).

Photograph # 17

Drainage for all roof sections is accomplished via a combination of tapered insulation and structural slope to internal roof drains. Where present, overflow drainage is provided via perimeter overflow scuppers. The total roof area of all sections is approximately 62,487 square feet. Refer to photograph for #18 - #22 for overviews of the referenced roof areas.

Photograph # 18

Photograph # 19

Photograph # 20

Photograph # 21

Photograph # 22

There is a history of leakage within these roof sections, primarily in Section 14. Membrane repairs we noted within both Sections 13 and 14. The gravel surfacing was brushed back in these areas and cracks were observed in the embedded gravel. It appears that the cap sheet beneath the gravel has begun to curl or separate at the edge. Mastic has been applied to the edges on the cap sheet as a repair. (Refer to photograph 23 and 24).

Photograph # 23

Photograph # 24

Membrane blisters were wide spread throughout all roof sections. It appears that the cap sheet is separating from the base ply. The aggregate surfacing has eroded at these locations and the membrane is beginning to deteriorate. These blisters are also susceptible to physical damage from foot traffic on the roof. (Refer to photograph #25 and #26).

Photograph # 25

Photograph # 26

At random roof drain locations, the drain strainers were either missing or damaged. (Refer to photograph #27).

Photograph # 27

The sheet metal coping cap at the transition between roof areas was indented and is allowing water to enter beneath the coping cap. (Refer to photograph #28).

Photograph # 28

The plumbing vents wrapped in lead flashing that stripped into the roof membrane. At isolated locations, this lead flashing has deteriorated and can potentially allow moisture to enter the roof system. (Refer to photograph #29).

Photograph # 29

The skylights located throughout all roof sections remain in fair condition. Isolated condensation and cracking were observed. Repairs have been made with sealant. (Refer to photograph #30).

Photograph # 30

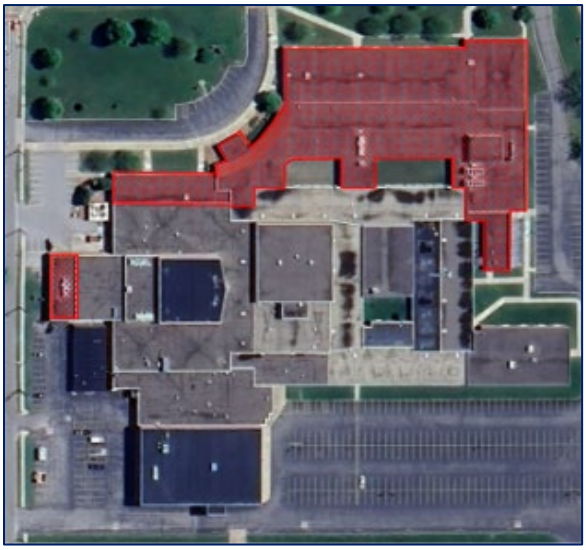
Several of the roof drains were installed at the intersection of the roof to wall. This type of drain requires the lead flashing and clamping ring of the drain to be installed at a 90 degree angle. It is difficult to provide the necessary compression at the clamping ring with this detail. There is evidence of repair at the majority of these drain locations. (Refer to photograph #31).

Photograph # 31

At isolated locations, pitch pans were installed at pipes/conduits that penetrate the roof. The pourable sealer within these pith pans has separated from the pipe and can potentially allow moisture to enter the roof system. (Refer to photograph #32).

Photograph # 32

ROOF SECTIONS 1, 20, 21, 22, 23, 24 & 25:



The roof system within these sections appears to be the original from the 1999 addition. The existing roof system consists of a ballasted EPDM membrane. A core cut taken from within section 22 indicated the EPDM membrane was installed over 4" of polyisocyanurate insulation and a metal roof deck. (Refer to photograph #33).

Photograph # 33

Drainage is accomplished via a structural slope to internal roof drains. Overflow draining is provided via a combination of overflow scuppers and allowing the water to overflow the perimeter drip edge. The total of all roof sections is approximately 70,919 square feet. Refer to photographs #34 - #37).

Photograph # 34

Photograph # 35

Photograph # 36

Photograph # 37

The overflow scuppers at sections where roof parapets are present consist of a PVC pipe installed through the parapet and flashed with an EPDM pipe boot. The elevation above the roof and size of these overflows does not appear adequate to meet current code. (Refer to photograph #38).

Photograph # 38

Within Section 20, it was observed that the base termination had failed at the wall transition. Bridging of the membrane was occurring and the top edge of the membrane was open allowing for moisture to enter behind the membrane. Typically, a termination bar would be installed along the top horizontal edge of the membrane to prevent this from occurring. (Refer to photograph #39).

Photograph # 39

At random locations the aggregate surfacing was brushed bask and the membrane seam reviewed. The majority of the seams have been stripped in with additional EPDM membrane. It is unknown if this was done as a repair of part of the original construction. In general, the field seams were in good condition. At one location within Section 20 the ballast had been removed from around a seam in a possible repair. (Refer to photograph #40).

Photograph # 40

Pavers were installed as a walkway from the penthouse to roof top equipment. These pavers are crumbling and in deteriorated condition. (Refer to photograph # 41).

Photograph # 41

At the coping to wall intersection within Section 23 deteriorated sealant was observed along the top horizontal edge of the metal. (Refer to photograph #42).

Photograph # 42

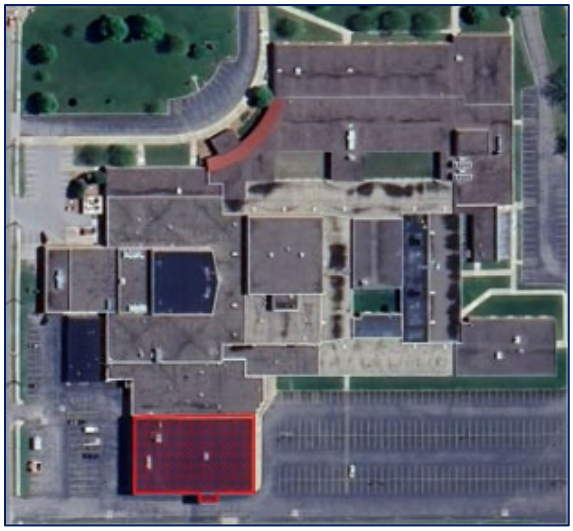
A tear in the membrane was observed at the parapet within Section 24. This is allowing moisture to enter the wall and building and the wood blocking is beginning to deteriorate at this location. (Refer to photograph #43).

Photograph # 43

Membrane bridging is begging to occur at the majority of the roof to wall transitions. As the roof system ages and contraction of the membrane cause the base termination to fail, the membrane tents or bridges and placing stress on the flashing and seams. Repairs have been completed at several roof to wall locations. At one location with Area 25 an open flashing joint was observed at a repair. (Refer to photograph #44).

Photograph # 44

SECTION 7:



The roof system within this section consists of a fully adhered 60 mil EPDM membrane. A core taken with the roof indicated that the membrane was installed over ½" wood fiber, 4.5" of expanded polystyrene insulation and a metal deck. The insulation was wet at the core location. (Refer to photograph #45).

Photograph # 45

Drainage for the roof section is accomplished via a structural slope to internal roof drains with overflow accomplished via adjacent overflow scuppers. The total roof area is approximately 16,284 square feet. Refer to photograph #46 for an overview for an overview of the roof area.

Photograph # 46

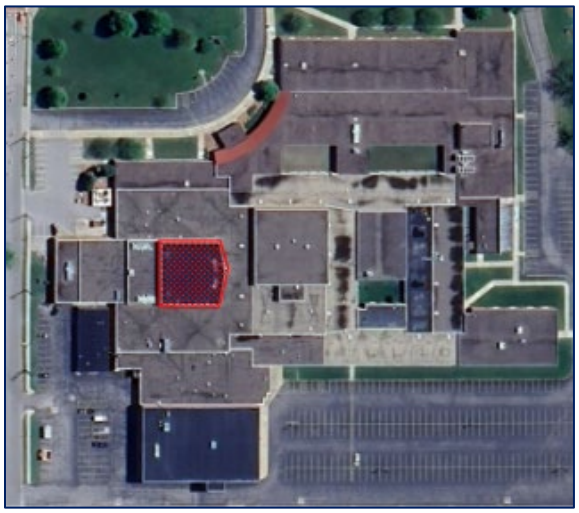
In general, the membrane is in good condition, however it was observed in one area that the insulation was poorly bonded to the substrate and was cupping beneath the membrane. (Refer to photograph #47).

Photograph # 47

Minor bridging of the membrane is beginning to occur at the roof to wall transition. At isolated locations, openings in the vertical flashing joints were observed. (Refer to photograph #48).

Photograph # 48

SECTION 5:



The roof system consists of a mechanically attached reinforced EPDM membrane. A core taken with this section indicated the membrane was installed directly over the original fully adhered membrane. Existing insulation consisted of 1/3" wood fiber insulation, 5" of expanded polystyrene insulation, ½" gypsum sheathing and a metal roof deck. (Refer to photograph #49).

Photograph # 49

Drainage is accomplished via a combination of structural slope and tapered insulation to internal roof drains. No method of overflow drainage was observed. The total roof area is approximately 7,504 square feet. Refer to photograph #50 for an overview of the roof area.

Photograph # 50

In general, the roof system is in good condition and no defects were observed. It was noted that the roof hatch with the roof area is in poor condition and does not appear to be in use. (Refer to photograph #51).

Photograph # 51

SECTIONS 16 AND 18:

The existing roof system with Sections 16 & 18 consists of a ballasted EPDM membrane. A core was taken within Section 18 and the ballasted membrane is installed over 5" of expanded polystyrene insulation, 1" perlite insulation and a metal roof deck. (Refer to photograph #52).

Photograph # 52

Drainage for both sections is accomplished via a structural slope to internal roof drains with perimeter overflow scuppers. The total roof area of both sections is approximately 16,574 square feet. Refer to photographs #53 and #54 for overviews of the roof sections.

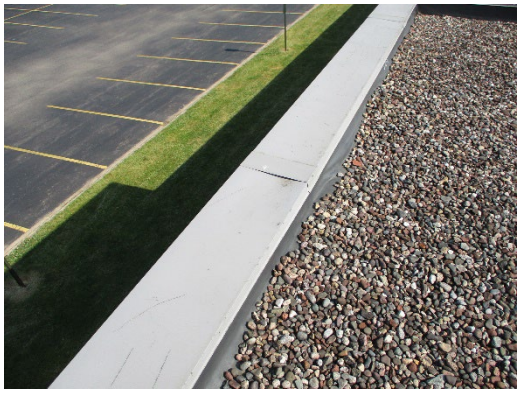
Photograph # 53

Photograph # 54

There several areas in the perimeter coping where scratches or abrasions were observed and the adjacent prefinished metal coating is beginning to delaminate. Refer to photograph #55).

Photograph # 55

Additional there were random locations where the cover plate had separated from the coping. Some of these areas were repaired with sealant. (Refer to photograph #56).



Photograph # 56

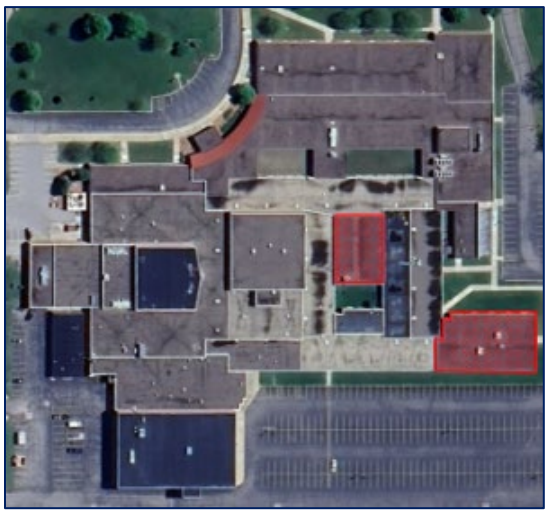
The base termination at the transition of the membrane to interior surface of the parapet wall has begun top fail at random locations and moderate to severe bridging was observed. This bridging is placing stress on the flashing seams and some evidence of repair was observed. (Refer to photograph #57).

Photograph # 57

At isolated locations the ballast was brushed back and the seam assembly examined. Minor delamination of the field seams is beginning to occur and there is evidence of seam repair at isolated locations. (Refer to photograph #58).

Photograph # 58

SECTION 17:



Photograph # 59

The roof section within Section 17 consisted of a fully-adhered EPDM membrane. A core cut performed within the section indicated that the existing EPDM was installed over 4½" polyisocyanurate insulation mopped in place to a concrete roof deck. Refer to photograph #59).

Drainage is accomplished via a combination of tapered insulation and structural slope to internal roof drains and perimeter scuppers. Drainage is generally poor and evidence of ponded water was visible throughout the roof membrane. Refer to photographs #60 and #61 for overviews of the roof area.

Photograph # 60

Photograph # 61

In general, the membrane is in poor condition. Delamination of the seams was beginning t occur at several locations throughout the roof area. (Refer to photographs #62 and #63)

Photograph # 62

Photograph # 63

SECTION 19:

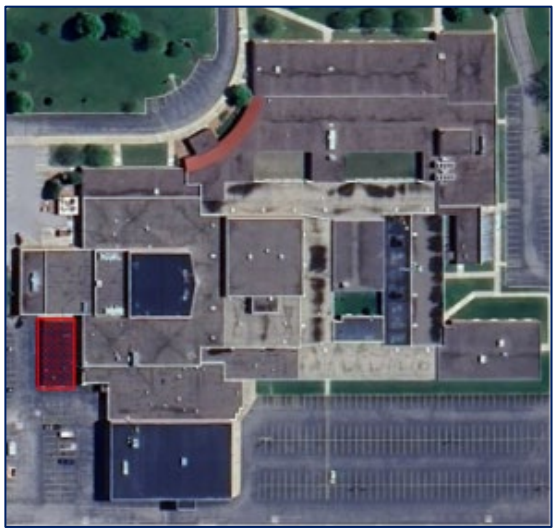
The existing roof system consists of a fully-adhered EPDM membrane. A core was taken within this section and indicated that the EPDM membrane is installed over approximately 6.5" of polyisocyanurate insulation and a metal roof deck. (Refer to photograph #64).

Photograph # 64

Drainage is accomplished via a structural slope to internal roof drains. In general, the roof system is in good condition. Refer to photograph #65 for an overview of the roof section.

Photograph # 65

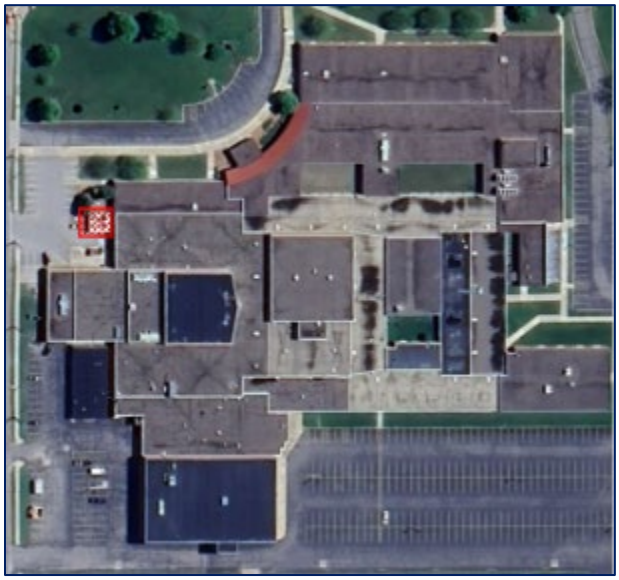
SECTION 26:



Photograph # 66

Section 26 consists of a metal sided out building with a mechanically attached EPDM roof. No roof access was available and the roof was viewed from the adjacent roof section. The roof appears in fair condition. (Refer to photograph #66).

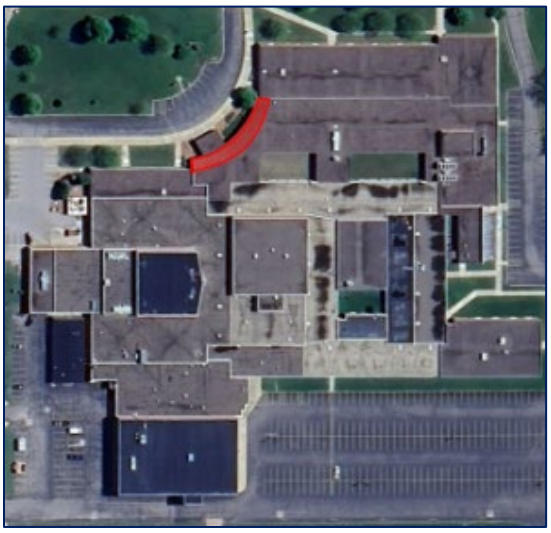
SECTION 27:



Photograph # 67

Section 27 consists of a freezer type building added onto the main structure. No access was available and the roof was viewed from above. The existing roof system consists of a single ply membrane of unknown type and appears in fair condition. (Refer to photograph #67).

SECTION 28:



The roof system with Section 28 consisted of a standing seam sheet metal roof system and was in good condition. (Refer to photograph #68).

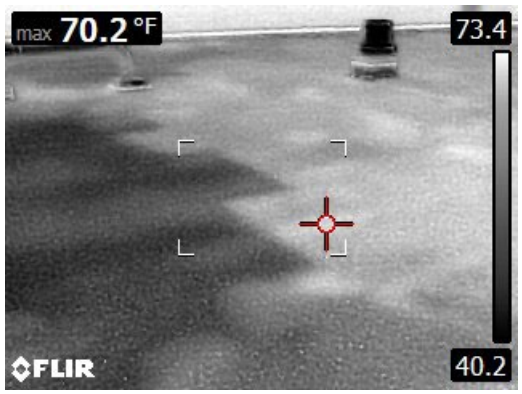
Photograph # 68

Infrared Survey:

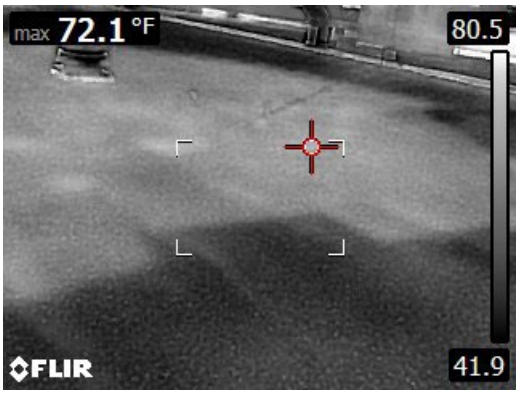
On the evening of June 7, 2023 RSI was onsite to perform an infrared moisture to document any suspect wet insulation within the roof system. Moisture retained in roof system insulation decreases its thermal resistance and increases the heat storage capacity of the insulation. These thermal anomalies are then visible on the roof using infrared imaging.

Daytime temperatures the day of the survey were in the low 80's with clear skies. The moisture survey was performed after sunset. Winds were light with a temperature of approximately 60 degrees Fahrenheit and the surface of the membrane was dry at the time of the survey. The moisture survey was performed with a handheld FLIR E5 infrared imaging camera. The roof was physically walked in a grid pattern and infrared photographs taken of any anomalies observed. Due to the size and thickness of the aggregate, infrared scans are effective on ballasted EPDM roof systems and these sections were not included in the survey.

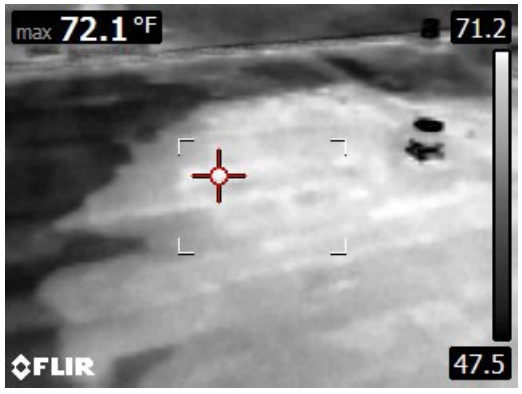
Throughout the majority of the roof sections, we noted no anomalies that were consistent with the presence of wet insulation. One large area of wet insulation was observed with Section 6. The wet insulation beneath the membrane retains more heat that the adjacent area and shows up as white on the infrared camera. The staggered board pattern of the insulation below is visible. This area was painted on the roof and the approximate location is indicated on the roof plan. Refer to photographs #69 - #72).



Photograph # 69



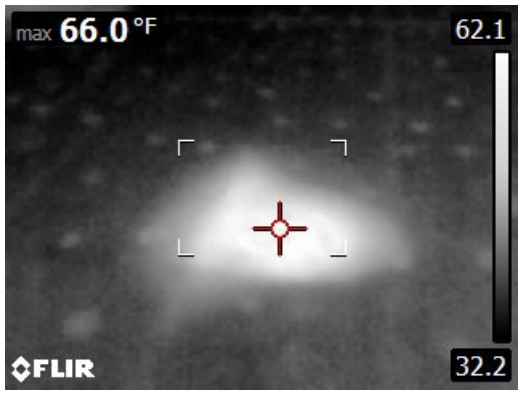
Photograph # 70



Photograph # 71

Photograph # 72

An additional small area of wet insulation was observed within Section 7. The area was found beneath a repair in the membrane this repair was likely performed without replacing the underlying wet insulation. Refer to photographs #73 and #74).



Photograph # 73

Photograph # 74

<u>Conclusions/Recommendations:</u>

The majority of the roof sections surveyed on the high school are in poor condition and will require replacement in the next 1-5 years. The conclusions below are separated by roof type/era of construction. The 2023 budget forecast is also separated to match these sections. The roof replacement budget beginning in 2024 is based on combining roof sections for efficiency and phasing the project so the work can be completed in a single construction season.

The budget forecast includes a replacement cost that is based on reusing the existing insulation, installing additional insulation to provide positive drainage and meet energy code and a roof membrane with a typical service life of 20+ years. The specific type of roof system will depend on the capacity of the existing structure and will need to be determined at the time of the design.

Roof Sections 2, 4, 6, 8, 9, 10 & 15:

In general, all roof sections are in fair to poor condition. The membrane blisters and exposed areas of membrane are typical for a roof system of this age and indicate the roof is approaching the end of its anticipated service life. With the maintenance outlined in our budget forecast we anticipate the roof should have a remaining service life of 2-4 years. Due to the presence of wet insulation, it may be necessary to replace Section 6 at an earlier date.

Other items that affect overall roof performance and that have been included in the budget include:

- Raising the existing through wall flashing at in the masonry at the gym wall.
- Repairing damaged masonry at the gym wall.
- Replace existing drain bowls and relocate through wall drains away from the wall.
- Raise/modify existing roof top equipment and support curbs to accommodate new roof insulation thickness.
- Install new OSHA compliant roof access ladders.

Roof Sections 3, 11, 12, 13 &14:

The widespread blistering of the membrane, curling of the edges of the underlying cap sheet and history of leakage indicate the roof system within these sections has reached the end of its effective service life. Any extensive preventive maintenance will only minimally extend the life of the roof and is not likely to be cost effective. Based on this we recommend the roof within these sections be replaced in the next 1-2 years.

- Replace existing drain bowls and relocate through wall drains away from the wall.
- Raise/modify existing roof top equipment and support curbs to accommodate new roof insulation thickness.
- Replace existing skylights.

Roof Sections 1, 20, 21, 22, 23, 24 & 25:

In general, the roof system is in fair condition for its age and no leaks have been reported. Based this, it is our opinion that the roof sections could achieve an additional 4-6 years of effective service life with routine maintenance.

- Replace existing drain bowls and relocate through wall drains away from the wall.
- Raise/modify existing roof top equipment and support curbs to accommodate new roof insulation thickness.
- Enlarge existing overflow scuppers
- Install walkway to access roof to equipment.

Roof Section 7:

The fully-adhered EPDM membrane within Section 7 is in generally good condition. The area of poorly bonded insulation is a potential concern and should continue to be monitored. Additionally, the area of wet insulation and minor repair should be performed. With maintenance the roof system should achieve an additional 5+ years of effective service life.

Roof Section 5:

The reinforced EPDM roof system within this area remains in fair condition. However, it should be noted that membrane was installed over the original EPDM membrane and roof system. Although the membrane appears in generally good condition, this type if installation is not typical and creates the potential for condensation between membrane layers and makes locating leaks when the occur extremely difficult. It is out opinion that the roof section could achieve and additional 5+ years of effective service life; however, should continue be monitored for any additional maintenance due to its unique construction.

Roof Sections 16 and 18:

The existing ballasted EPDM within these sections is in poor condition. The bridging of the base termination observed at the roof-to-wall transition is typical for a roof system of this age. These roof sections are approaching the end of their effective service life and with maintenance could achieve and additional 1-2 years of service life.

Roof Section 17:

The fully-adhered EPDM membrane within Section 17 is in poor condition. Poor drainage and seam delamination as well as multiple repairs indicate that the roof section is approaching the end of its intended service life. We recommend remedial maintenance continue to be performed as necessary and the roof system be replaced within the next 1-2 years.

Roof Section 19:

In general, the fully-adhered EPDM membrane within Section 19 is in good condition. With routine maintenance, this section should achieve an additional 5+ years of effective service life.

Roof Sections 26 and 27:

Access was not available to the freezer roof areas for the metal sided out building. Based on our visual observations, these roofs appear to be in fair to poor condition and are likely approaching the end of their anticipated service life. We recommend these roof sections be replaced in conjunction with the adjacent roof replacements within the next 2-3 years.

Roof Section 28:

The standing seam metal roof within Section 28 is in generally good condition. With maintenance, this section could achieve an additional 5+ years of effective service life. However, based on the roof systems age, we recommend that consideration be given to replacing the metal panels while replacing the adjacent ballasted EPDM roof sections.

Budget Forecast:

Sparta High School - 2023

Sections 2, 4, 6, 8, 9, 10-15

- Resurface areas of eroded flood coat/exposed membrane.
- Install plastic cement and fabric at open flashing joints.
- Install new drain lead, stripping plies and reinstall clamping ring at roof-to-wall drain locations.
- Install modified bitumen flashing at scupper in Section 10.

TOTAL **$9,500**

Sections 3, 11, 12, 13 and 14

- Resurface exposed areas of membrane/cap sheet.
- Replace damaged drain strainers.
- Repair damaged plumbing vent flashing.
- Install new drain lead, stripping plies and reinstall clamping ring at roof-to-wall drain locations.
- Top off pitch pans with additional pourable sealer.

TOTAL **$16,000**

Sections 1, 20, 21, 22, 23, 24 and 25

- Install new base termination and membrane at roof-to-wall transition within Section 20.
- Install uncured EPDM flashing at various open flashing locations.

TOTAL **$5,000**

Section 7

- Repair openings in flashing with uncured EPDM.
- Replace section of wet insulation.

TOTAL **$3,000**

Section 5

- No estimated 2023 maintenance required

Sections 16 - 18

- Install new base termination and membrane at severely bridged areas of roof-to wall transition.

TOTAL **$8,000**

Section 17

- Remedial maintenance

TOTAL **$1,000**

Section 19

- No maintenance anticipated

Section 26

- Remedial repairs as necessary. $1,000

TOTAL **$1,000**

Section 27

- Remedial repairs as necessary $500

TOTAL **$500**

Section 28

- No estimated 2023 maintenance required

Sparta High School - 2024

Sections 2, 3, 4 and 6 Roof Replacement

- Estimated Cost $1,400,000

TOTAL **$$1,400,000**

Remaining Roof Sections

- Estimated Cost remedial maintenance until roof replacement occurs. $16,000

TOTAL **$16,000**

Sparta High School - 2025

Sections 8, 9, 10, 11, 13 and 14 Roof Replacement

- Estimated Cost $1,285,000

TOTAL **$1,285,000**

Remaining Roof Sections

- Estimated Cost for remedial maintenance until roof replacement occurs. $11,000

TOTAL **$11,000**

Sparta High School - 2026

Sections 12, 15, 16, 17, 18 and 19 Roof Replacement

- Estimated Cost $1,260,000

TOTAL **$1,260,000**

Remaining Roof Sections

• Estimated Cost for remedial maintenance until roof replacement occurs.	$11,000
TOTAL	**$11,000**

Sparta High School - 2027

Sections 1, 26, 20, 27, 21 and 28 Roof Replacement

• Estimated Cost	$420,000
TOTAL	**$420,000**

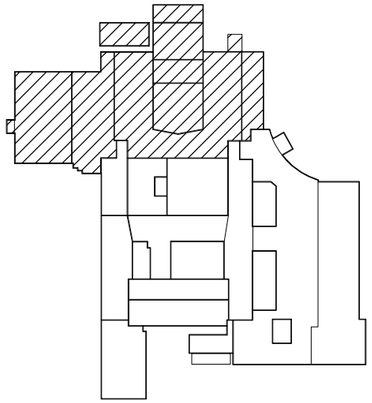
Remaining Roof Sections

• Estimated Cost for remedial maintenance until roof replacement occurs.	$10,000
TOTAL	**$10,000**

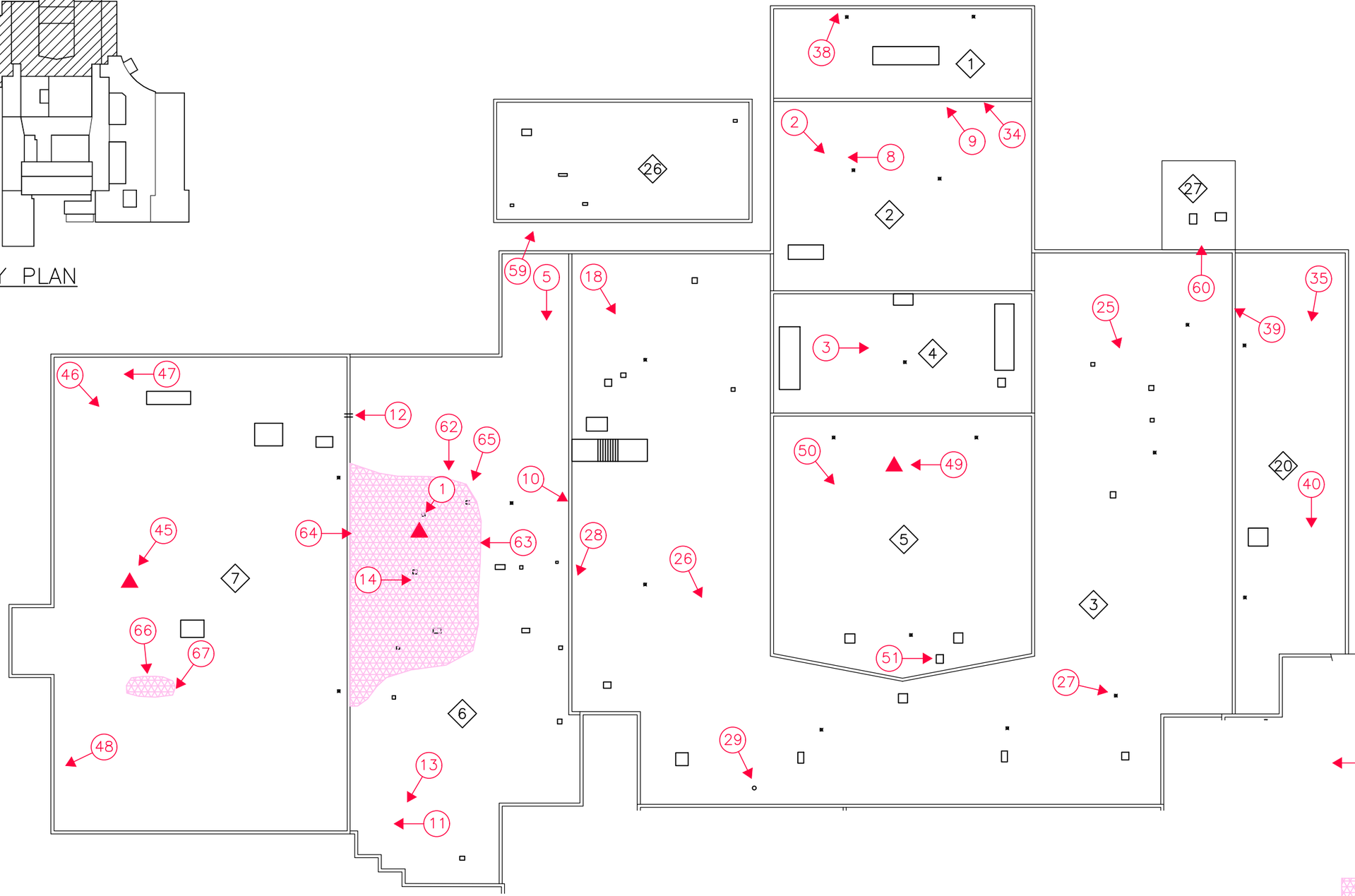
Sparta High School - 2028

Sections 22, 23, 24 and 25 Roof Replacement

• Estimated Cost	$1,600,000
TOTAL	**$1,600,000**



KEY PLAN



- (#) – EXTERIOR PHOTOGRAPH
- (X) – ROOF AREA
- ▲ – ROOF CORE LOCATION
- ▨ – APPROXIMATE AREA OF WET INSULATION

N

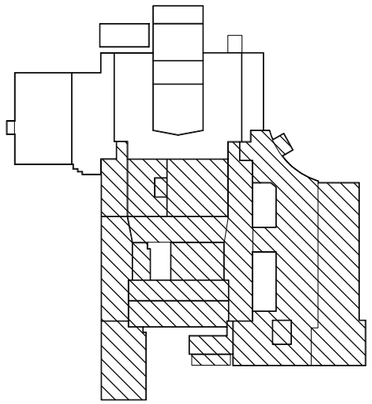
PARTIAL ROOF PLAN 1

SCALE: NTS

SPARTA SCHOOLS
HIGH SCHOOL

ROOF SPEC INC.
2400 Prior Ave. N.
St. Paul, MN 55113
(651) 639-0644

23-13838-01
5/18/2023



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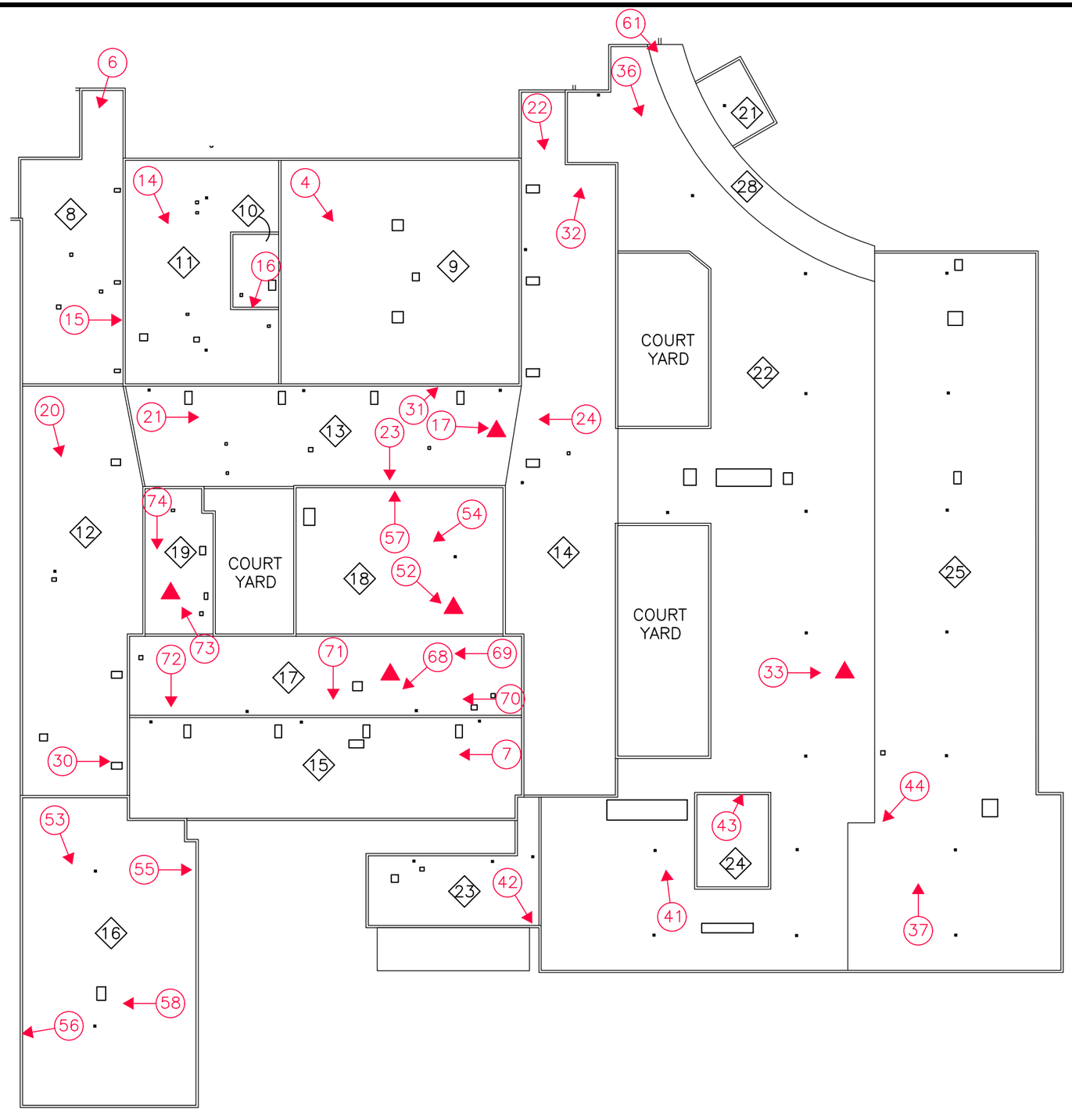


PARTIAL ROOF PLAN 2

SPARTA SCHOOLS
HIGH SCHOOL

N

– EXTERIOR PHOTOGRAPH

– ROOF AREA

– ROOF CORE LOCATION

ROOF SPEC INC.
2400 Prior Ave. N.
St. Paul, MN 55113
(651) 639-0644

SCALE: NTS

23-13838-01
5/18/2023

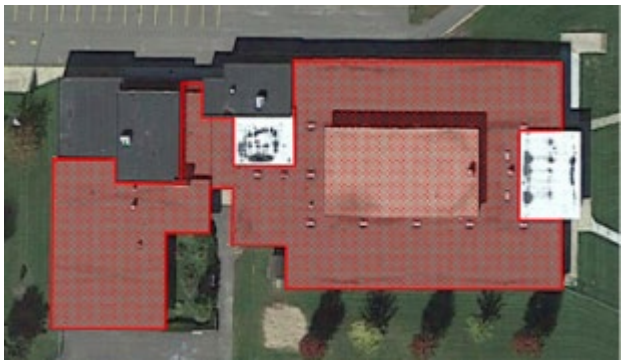
MONTESSORI SCHOOL

Background Information:

The roof of the Sparta Montessori is separated into multiple sections via elevation changes and roof control joints. These sections are labeled 1-10 on the attached Roof Plan. There are no original building plans or roof replacement plans available. The date of the original building construction and any roof replacements or building additions is unknown.

A renovation has recently been completed that include installing HVAC units and conduit that rest directly on the roof membrane. Based on our field observations and core cuts, there are four different roof systems/eras of construction present. Our Field Observations, Conclusions/Recommendations and Budget Forecast is separated per each roof system.

Roof Sections 1, 5, 7 & 10



Field Observations:

Photograph # 1

The roof system with these sections consists of gravel surfaced built up roof. A core sample was taken within Roof Section #1 and indicated that the built up roof system was installed over ½" wood fiber insulation, 2 ½" polyisocyanurate insulation and a lightweight concrete or gypsum roof deck. The built up membrane appears to gravel surfacing over a cap sheet and base ply. The insulation was observed to be wet at the core cut location. (Refer to photograph #1).

Drainage is accomplished via a combination of structural slope and tapered insulation to internal roof drains with perimeter overflow scuppers. The total roof area of all section is approximately 31,607 Square feet. (Refer to photographs #2 - #5).

Photograph # 2

Photograph # 3

Photograph # 4

Photograph # 5

In general, the roof membrane is in fair condition. Extensive blistering is occurring throughout all roof sections. It appears that the cap sheet is separating from the base ply. At random locations these blisters have been damaged or broken and are potentially allowing moisture into the roof system. (Refer to photographs #6 - #9).

Photograph # 6

Photograph # 7

Photograph # 8

Photograph # 9

The base flashing at the perimeter and roof to wall transitions consists of an aluminum coated modified bitumen flashing. At isolated locations this flashing membrane is no longer bonded to the substrate and blistering is beginning to occur. Refer to photographs #10 and #11).

Photograph # 10

Photograph # 11

Portions of Roof Section #10 drain via scupper and downspout that discharge onto the membrane in Section #1. No splash blocks were installed at the discharge locations and erosion of the aggregate surfacing was observed. (Refer to photograph #12).

Photograph # 12

At isolated plumbing vents is was observed that the lead portion of the two piece flashing was deteriorated and could potentially allow moisture to enter the roof system. (Refer to photographs #13 and 14).

Photograph # 13

Photograph # 14

Facility personnel have reported leaks beneath the roof to wall transition between Sections 1 & 10. There were no visible defects observed in the roof in this location, however there was a roof to wall drain observed in the vicinity of the leak location. These types of drains have a history of being problematic where the clamping ring transitions from the roof to the wall. Repairs have been performed at this condition at several other district buildings. (Refer to photograph #15).

Photograph # 15

The masonry at the chimney within Section 10 was spalled and severely deteriorated. The stone coping was also damaged and debris is present on the roof membrane. (Refer to photograph #16).

Photograph # 16

Roof Sections 2 & 3

The roof system within these sections consisted of a coated EPDM membrane. A core sample take within Section 2 indicated that the EPDM roof membrane was installed over 2" polyisocyanurate insulation, 1 ½" wood fiber insulation, an asphalt vapor retarder and a concrete roof deck. Moisture was observed in the insulation at the core location. (Refer to photograph #17).

Photograph # 17

Drainage for both roof sections was accomplished with internal roof drains with a perimeter drip edge for overflow. The total area of both roof sections is approximately 3,112 Square feet. Refer to photographs #18 and #19 for overviews of the roof section.

Photograph # 18

Photograph # 19

The coating applied to the EPDM membrane is in poor condition and delaminating throughout the majority of the roof areas. (Refer to photograph #20).

Photograph # 20

Delamination of the field and factory seams was also observed at random locations throughout the field of the roof. (Refer to photographs #21 and #22).

Photograph # 21

Photograph # 22

The sealant applied to the top horizontal edge of the termination bar at the roof to wall transition within Section 3 has begun to deteriorate. (Refer to photograph #23).

Photograph # 23

Roof Sections 4, 8 & 9:

The existing roof system with these sections consists of a 90 mil fully adhered EPDM membrane. The roof appears to be recently installed and is likely covered under a manufacturer's warranty. Based on this no core was taken. Drainage is accomplished via tapered insulation to internal roof drains with either adjacent overflow drains or scuppers. The total of all roof sections was 5,462 Square feet. Refer to photographs #24 and #25 for overviews of the roof areas.

Photograph # 24

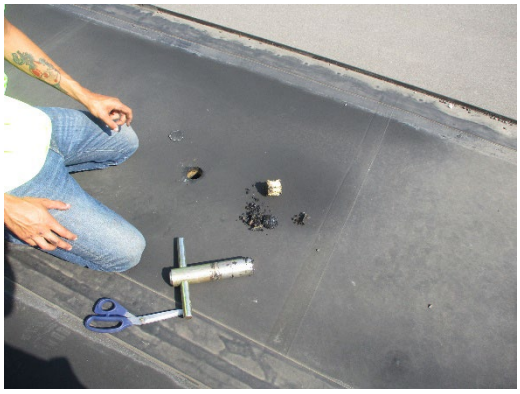
Photograph # 25

In general, the membrane is in good condition. Minor ponding was visible within section 4 and an opening in the flashing membrane was observed adjacent to the scupper. (Refer to photograph #26).

Photograph # 26

Roof Section 10:

The existing roof system within Section 10 consists of a mechanically attached EPDM membrane. A core sample indicated the underlying insulation consisted of 2" polyisocyanurate insulation, a gravel surfaced built up roof and a wood deck. The insulation was saturated at the core location. (Refer to photograph #27).



Photograph # 27

The roof is in poor condition and ponded water and delaminated seams were observed. Drain openings were also less than 2" and not likely to be functional. (Refer to photograph #28).

Photograph # 28

Deteriorated sealant was observed above the termination bar. Damaged masonry was also observed adjacent to the roof to wall transition. (Refer to photograph #29).

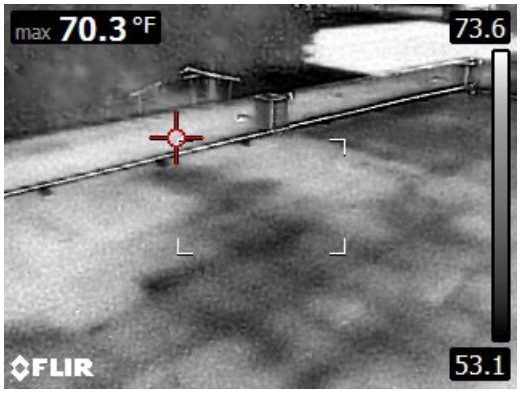
Photograph # 29

Infrared Survey:

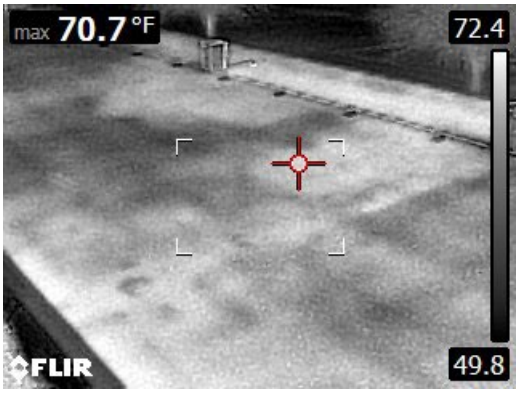
On the evening of June 8, 2023 RSI was onsite to perform an infrared moisture to document any suspect wet insulation within the roof system. Moisture retained in roof system insulation decreases its thermal resistance and increases the heat storage capacity of the insulation. These thermal anomalies are then visible on the roof using infrared imaging.

Daytime temperatures the day of the survey were in the mid 80's with clear skies. The moisture survey was performed after sunset. Winds were light with a temperature of approximately 65 degrees Fahrenheit and the surface of the membrane was dry at the time of the survey. The moisture survey was performed with a handheld FLIR E5 infrared imaging camera. The roof was physically walked in a grid pattern and infrared photographs taken of any anomalies observed.

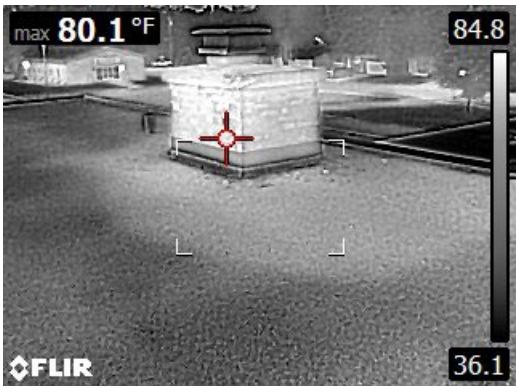
Throughout the majority of the built up roof sections, we noted no anomalies that were consistent with the presence of wet insulation. One large area of wet insulation was observed with Section 1. An additional small area of suspect wet was observed adjacent to the chimney within Section 10. The wet insulation beneath the membrane retains more heat that the adjacent area and shows up as white on the infrared camera. The staggered board pattern of the insulation below is visible. This area was painted on the roof and the approximate location is indicated on the roof plan. Refer to photographs #30, #31 & #32).



Photograph # 30

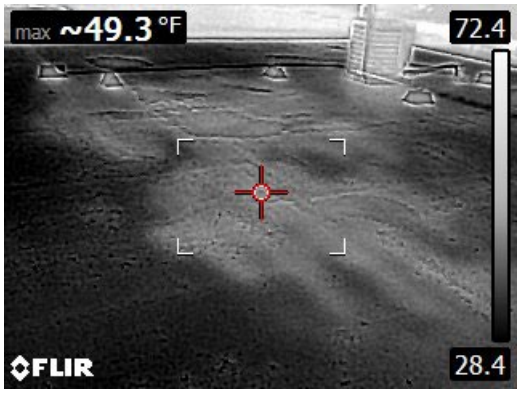


Photograph # 31

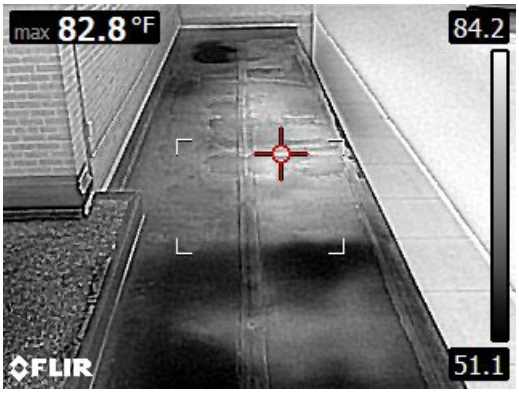


Photograph # 32

Wet insulation was also observed within a portion of Section 2 and all of Section 6. (Refer to photographs #33 and #34).



Photograph # 33



Photograph # 34

Conclusions/Recommendations:

The conclusions below are separated by roof type/era of construction. The 2023 budget forecast is also separate to match these sections. The roof replacement budget beginning in 2024 is based on combining roof sections for efficiency and phasing the project so the work can be completed in a single construction season.

Roof Sections 1, 5, 7 & 10:

In general, the roof system within these sections is in fair to poor condition. The membrane blisters and wet insulation observed indicate that the roof is approaching the end of its service life. With the maintenance outlined in our budget forecast the roof could achieve an additional 2-4 years of effective service life. The blisters in the membrane are susceptible to damage from roof top traffic and care should be taken when performing any maintenance on the roof.

The cause of the reported leakage at the gym wall transition between Sections 1 & 10 was not determined. Although likely the roof drain adjacent to the leak location, it may be possible that moisture is entering through the wall or adjacent roof. If leaks persist after drain repair, we recommend a water test be performed with a spray bar apparatus to isolate the source of the leak.

The roof replacement budget provided for these roof sections includes setting rooftop equipment on new support curbs, modify rooftop conduit as necessary to accomplish work and skylight replacement.

Roof Sections 2 & 3:

The roof system within Sections 2 & 3 is in poor condition. The delaminated coating, delaminating field and factory seams and wet insulation indicate the roof has reached the end of its effective service life. We recommend the roof within these sections be replaced within the next 1-2 years. Until reroofing is accomplished we recommend remedial maintenance be performed as necessary to address leakage.

Roof Sections 4, 8 & 9:

The fully adhered EPDM roof system in these sections appears to have been recently installed and is in good condition. With the minor repairs outlined in our budget forecast, the roof should achieve an additional 10+ years of effective service life.

Roof Section 6:

The roof system within this section is in poor condition and should be replaced with the 1-2 years. Remedial repairs should be performed as necessary until reroofing is completed.

Budget Forecast:

Montessori School - 2023

Sections 1, 5, 7 - 10

- Spud back gravel and install modified bitumen membrane over broken blister formations.
- Resurface membrane at downspout locations.
- Replace portion of plumbing vent flashing.
- Install new lead and stripping plies at gym wall roof drain.

TOTAL **$13,000**

Sections 2 and 3

- Remedial maintenance

TOTAL **$1,000**

Sections 4, 8, and 9

- Install uncured EPDM at opening in scupper flashing.

TOTAL **$500**

Section 6

- Remedial maintenance.

TOTAL **$500**

Montessori School - 2024

Sections 2, 3 and 6 Roof Replacement

• Estimated Cost	$120,000
TOTAL	**$120,000**

Remaining Roof Sections

• Remedial maintenance as necessary.	$5,000
TOTAL	**$5,000**

Montessori School - 2025 - 2026

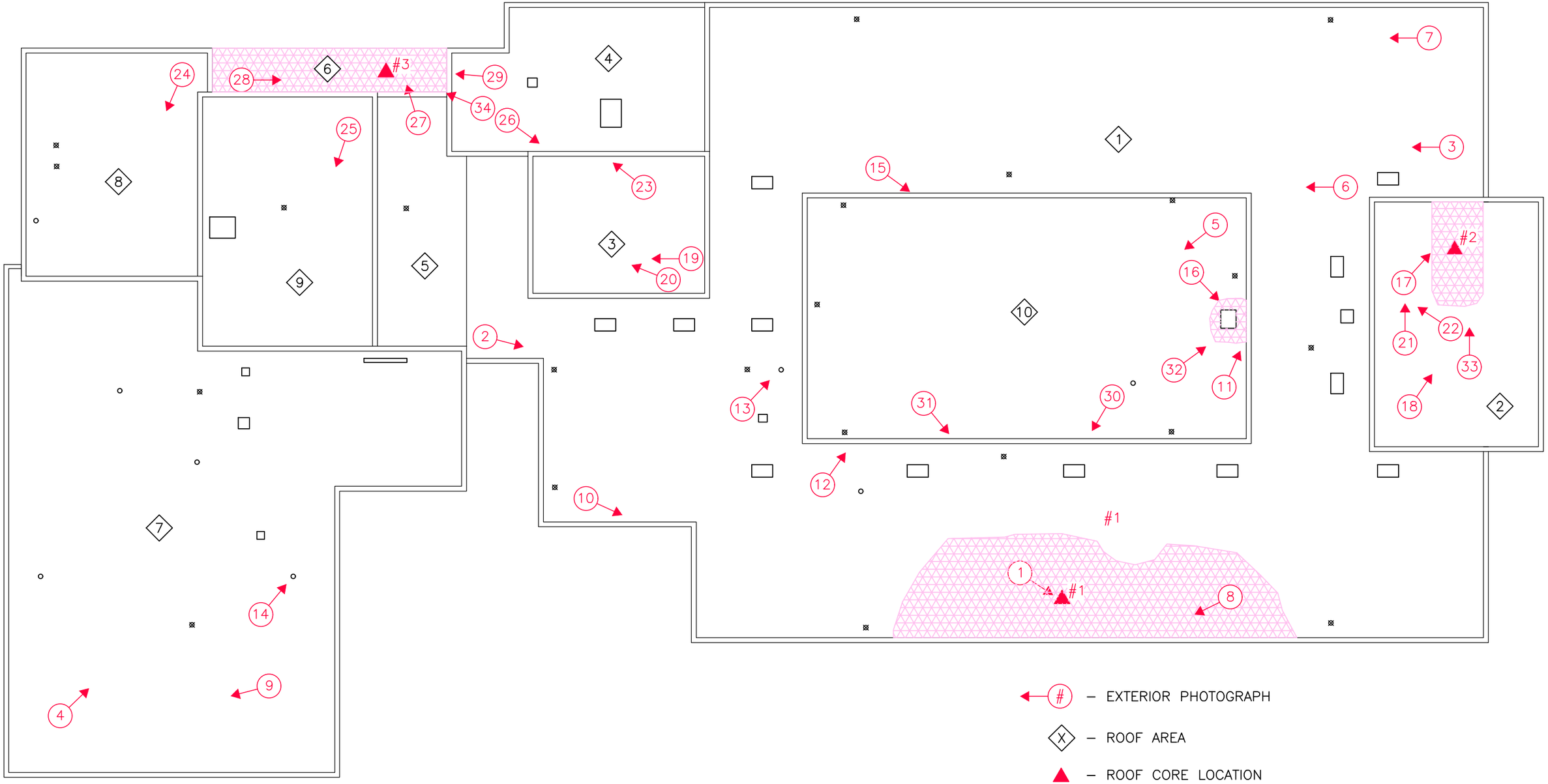
All Sections

• Estimated Cost for annual remedial maintenance until roof replacement occurs.	$13,000
TOTAL	**$13,000**

Montessori School - 2027

Sections 1, 5, 7 and 10 Roof Replacement

• Estimated Cost	$948,210
TOTAL	**$948,210**



ROOF PLAN

SPARTA SCHOOLS
MONTESSORI SCHOOL

N

— EXTERIOR PHOTOGRAPH

X — ROOF AREA

— ROOF CORE LOCATION

— SUSPECTED WET INSULATION

SCALE: NTS

23–13838–01
5/18/2023

ROOF SPEC INC.
2400 Prior Ave. N.
St. Paul, MN 55113
(651) 639–0644

MEADOWVIEW MIDDLE SCHOOL

Background Information:

The roof of Meadowview Middle School is separated into multiple sections via elevation changes. These sections are labeled 1- 7 on the attached Roof Plan. All roof sections appear to be original construction and were installed in approximately 2000. A Ballasted EPDM roof system was installed on the low slope sections with standing seam sheet metal installed at several of the smaller steep sloped roof sections.

Drainage for Roof Sections 1, 3 and 5 was accomplished via a 2" per foot structural slope to a perimeter drip edge with gutters present at isolated locations. Drainage for Roof Sections 2, 4 and 6 was accomplished via a ¼" per foot structural slope to internal roof drains with overflow drainage provided with perimeter overflow scuppers. Overflow drainage was not observed on the penthouse roof areas. Drainage for the standing seam sheet metal sections, 2, 4 and 6 was provided with a 3" per foot structural slope to perimeter drip edges with gutters installed at random locations. Information available and original construction drawings indicates the roof membrane was installed over 4" polyisocyanurate insulation in Sections 1, 3 and 5 and tapered in Sections 2, 4 and 6 over a metal roof deck.

The total of all roof sections was approximately 168,185 square feet. Refer to photographs #1 - #6 for overviews of the roof sections.

Photograph # 1

Photograph # 2

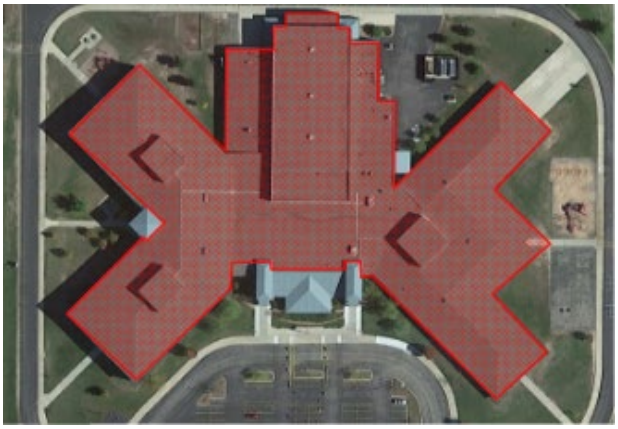
Photograph #3

Photograph #4

Photograph #5

Photograph #6

Field Observations:



Photograph # 7

Ballasted EPDM Sections 1 - 6:

In general, the ballasted EPDM roof system is in fair to good condition. At random locations, the aggregate ballast was brushed back and the seam assemblies examined. At several seam location, it appears the existing seam has been stripped in with an additional 6” wide self-adhering membrane. No seam delamination was noted and the seams appeared to be in generally good condition.

Photograph # 8

It was observed at isolated locations that the base termination of the membrane had failed at the roof-to-wall transition causing membrane bridging to occur. This bridging then places stress on the adjacent flashing and seam assemblies. (Refer to photographs #7 - #9).

Photograph # 9

Uncured EPDM flashing was used at the corner of the various roof curbs and wall flashings. At isolated locations, openings were visible and the uncured flashing that could allow moisture to enter into the roof system. (Refer to photographs #10 and #11).

Photograph # 10

Photograph # 11

At random locations throughout the roof, it was observed that the drain strainers were displaced and no longer installed over the drain bowl assembly. Further, it was also observed that vegetation had accumulation around several roof drains and was obstructing roof drainage. (Refer to photographs #12 and #13).

Photograph # 12

Photograph # 13

Walkways were provided throughout all roof areas via concrete pavers. These pavers are spalled and deteriorated in high traffic locations such as roof access ladders and adjacent to rooftop equipment. (Refer to photographs #14 and #15).

Photograph # 14

Photograph # 15

At the coping to wall air section between Sections 3 and 5, the sheet metal coping is not terminated into the surface of the concrete block. Multiple repairs have been performed with sealant at this location. (Refer to photograph #16).

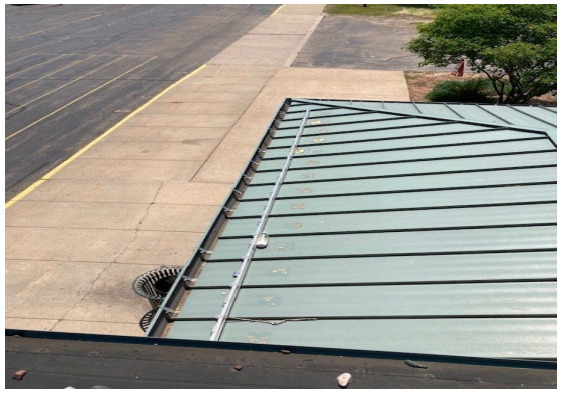
At one location at the perimeter of Section 4, it appears that contraction of the sheet metal coping has caused the coping to pull loose from the cover plate expensing the membrane at the top of the parapet wall. (Refer to photographs #17).

Photograph # 16

Photograph # 17

Sheet Metal at Roof Sections 7, 8 and 9:

In general, the standing seam metal roof sections installed at the various entryways to the building are in good condition. Snow retention was provided by a combination of a snow rail attached to the ribs in the standing seam metal panels as well as snow retention devices that were adhered in sealant to the face of the panel. At multiple locations, we noted that the snow retention devices were missing and no longer adhered to the surface of the metal panels. This creates the potential during snow and ice build up to damage the perimeter gutter or to fall below. Refer to photographs #18 and #19).



Photograph # 18

Photograph # 19

<u>Conclusions/Recommendations:</u>

In general, the ballasted EPDM roof system is in fair to good condition. The typical service life of a ballasted EPDM membrane is 20 years. Although the existing roof system is approximately 20 years old, the excellent drainage provided will enhance the remaining service life of the roof. With the maintenance outlined in our budget forecast, the roof should achieve an additional 4-6 years of effective service life. Consideration should be given to begin phasing in roof replacement beginning in 2029.

The standing seam sheet metal roof areas were also found to be in good condition and with maintenance, should achieve an additional 5+ years of effective service life.

Budget Forecast:

Meadowview Middle School - 2023

Sections Ballasted EPDM Sections 1 - 6:

- At severely bridged membrane location, cut the existing membrane, install new termination strip and new EPDM membrane.
- Reinstall all drain strainers over drain bowls and clean vegetation from all roof drains.
- At open flashing corners, install additional uncured EPDM membrane.
- Install sheet metal insert and reglet at the coping cap intersection between Sections 4 and 5.
- Replace severely damaged pavers at roof access ladder and adjacent to equipment.

Sheet Metal at Roof Sections 7, 8 and 9:

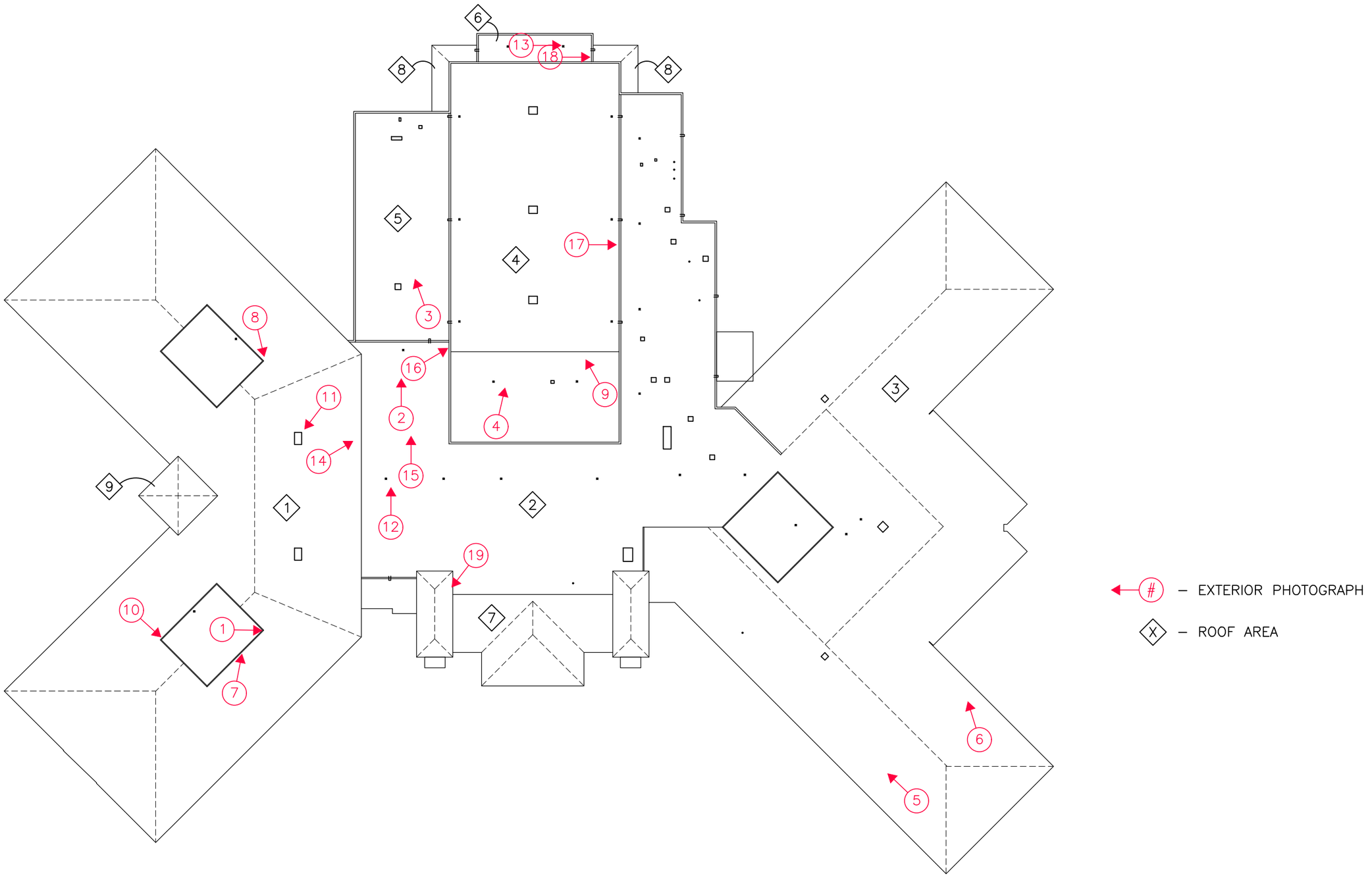
- Replace missing snow retention devices.

TOTAL **$12,000**

Meadowview Middle School - 2024 - 2028

All Roof Sections

- Estimated remedial maintenance. $5,000 /annually



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ROOF PLAN

SPARTA SCHOOLS
MEADOWVIEW MIDDLE SCHOOL

SCALE: 1"=60'-0"

ROOF SPEC INC.
2400 Prior Ave. N.
St. Paul, MN 55113
(651) 639-0644

23-13838-01
5/18/2023

DISTRICT OFFICE

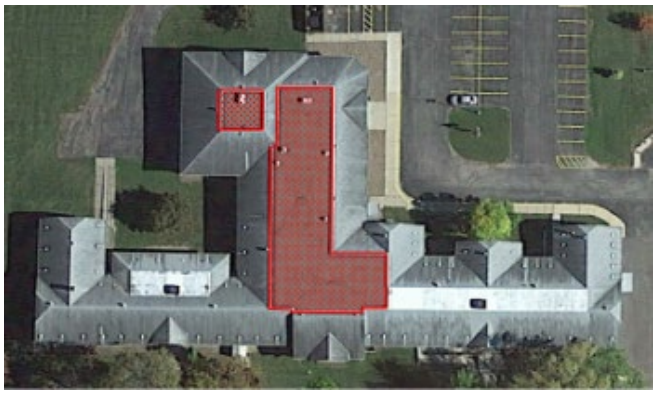
Background Information:

The roof for the District Office is separated into multiple sections via elevation changes. These sections are labeled 1-5 on the attached Roof Plan. The center portion of the building appears to have been part of a 1990 addition, however the existing roof construction does not appear to be original. There are no original buildings or roof replacement plans available. Based on our field observations and core cuts, there are three distinct roof systems/eras of construction present. Our Field Observation, Conclusions/Recommendations and Budget Forecast is separated per each roof system.

Field Observations:

Roof Sections 1 & 2:

Roof Sections 1 & 2 consist of a gravel surfaced built up roof system. Drainage is accomplished via tapered insulation to internal roof drains. There was no overflow drainage observed. Due to the high temperature at the time of the survey and heavy flood coat, it was not possible to take a core of this roof section. The total area of both roof section was found to be approximately 6,011 square feet. Refer to photographs #1 and #2 for overviews of the roof sections.



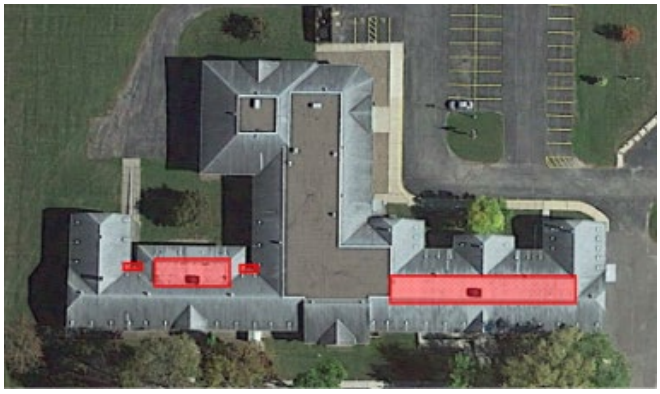
Photograph # 1

Photograph # 2

In general, the roof system is in good condition. It was observed that drain strainers were missing at two locations within Section 1. (Refer to Photograph #3).

Photograph # 3

Roof Sections 3, 4, 6 & 7:



The roof within these sections consists a fully adhered EPDM with a reflective coating installed of the majority of the roof area. A core sample take within Section 3 indicated that the EPDM membrane was installed over 2" of polyisocyanurate insulation, a built up roof system and a wood deck. The insulation was wet at the core location. Refer to photograph #4).

Drainage for all roof sections is accomplished via a structural slope to a combination of perimeter drip edges and gutters. The total of all roof areas was approximately 1,900 square feet. Refer to Photographs #5 - #7).

Photograph # 4

Photograph # 5

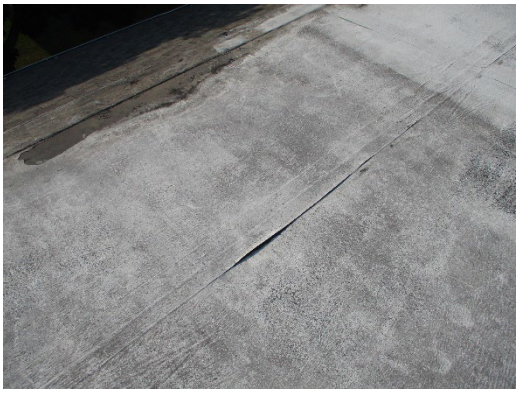
Photograph # 6

Photograph # 7

In general, the roof is in poor condition. Widespread delamination of the reflective coating was noted throughout all roof sections. (Refer to photograph #8).

Photograph # 8

Delamination of the field and factory seams was observed at random locations throughout all roof sections. (Refer to photograph #9).

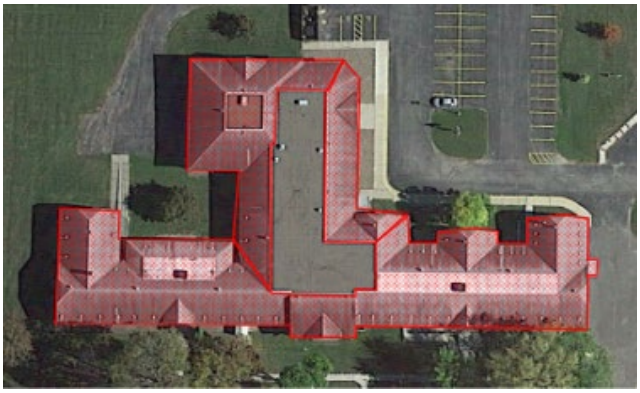


Photograph # 9

The uncured membrane used to strip in the gutter flange within Sections 6 & 7 was splitting and allowing moisture to enter beneath the flange. (Refer to photograph #10).

Photograph # 10

Roof Section #5:



Roof Section #5 include all steep slope roof sections. These sections include a combination of the original building construction and the 1990 addition. Dimensional asphalt shingles were installed; however, these do not appear to be original construction. Drainage is accomplished via a 6" per structural slope to perimeter gutters and downspouts. There was minimal intake ventilation observed at the soffits. Exhaust ventilation was provided with gravity vents half way up the roof slope and turbine vent along the peak of the roof. The shingles are in generally good condition. (Refer to photographs #11 and #12).

Photograph # 11

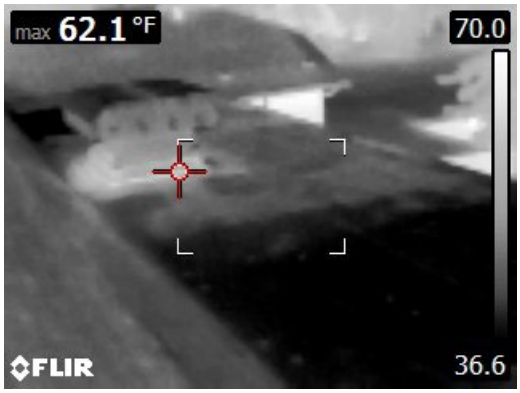
Photograph # 12

Infrared Survey:

On the evening of June 8, 2023 RSI was onsite to perform an infrared moisture to document any suspect wet insulation within the roof system. Moisture retained in roof system insulation decreases its thermal resistance and increases the heat storage capacity of the insulation. These thermal anomalies are then visible on the roof using infrared imaging.

Daytime temperatures the day of the survey were in the mid 80's with clear skies. The moisture survey was performed after sunset. Winds were light with a temperature of approximately 65 degrees Fahrenheit and the surface of the membrane was dry at the time of the survey. The moisture survey was performed with a handheld FLIR E5 infrared imaging camera. The roof was physically walked in a grid pattern and infrared photographs taken of any anomalies observed.

We noted no anomalies within Sections 1 & 2 that were consistent with the presence of wet insulation. One area of wet insulation was observed within Section 3. The wet insulation beneath the membrane retains more heat that the adjacent area and shows up as white on the infrared camera. This area was painted on the roof and the approximate location is indicated on the roof plan. (Refer to photographs #13 and #14).



Photograph # 13

Photograph # 14

Conclusions/Recommendations:

Sections 1 & 2:

The built up roof system within Sections 1 & 2 is in good condition. No blistering of the membrane or erosion of the asphalt flood coat was observed. The flashings are also well bonded to the substrate and in good condition. With routine maintenance the roof should achieve an additional 5+ years of effective service life.

Sections 3, 4, 6 & 7:

The EPDM roof system in these sections is in poor condition. The erosion of the reflective coating, delaminated seams and wet insulation all indicate that the roof reached the end of its effective service life. We recommend these sections be replaced in the next 1-2 years. Remedial maintenance should be performed as necessary until roof replacement is completed.

Section 5:

The shingles with these roof sections are in generally good condition. With maintenance these areas should achieve an additional 5+ years of effective service life.

BUDGET FORECAST:

District Office - 2023

Sections 1 and 2

• Replace missing drain strainers.	$1,000
TOTAL	**$1,000**

Sections 3, 4, 6 – 7

• Perform remedial repairs with uncured EPDM as necessary.	$1,000
TOTAL	**$1,000**

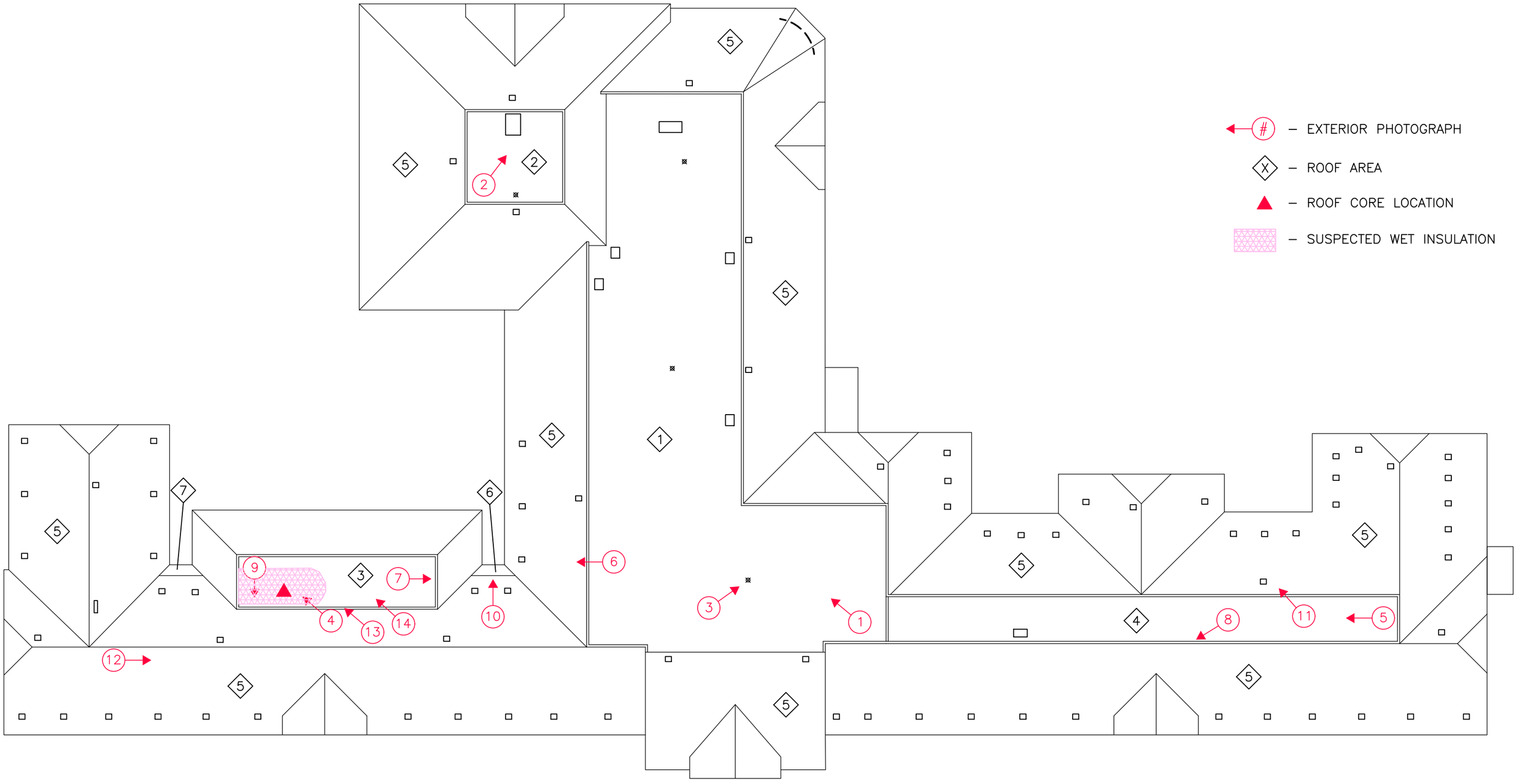
District Office - 2024

Sections 3, 4, 6 and 7 Roof Replacement

• Estimated Cost	$75,000
TOTAL	**$75,000**

District Office – 2025 - 2028

• Remedial maintenance as necessary	$2,000
TOTAL	**$2,000**



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ROOF PLAN

SPARTA SCHOOLS
DISTRICT OFFICE

SCALE: 3/64" = 1'–0"

ROOF SPEC INC.
2400 Prior Ave. N.
St. Paul, MN 55113
(651) 639–0644

23–13838–01
5/18/2023

SOUTHSIDE ELEMENTARY LEARNING CENTER

Background Information:

The roof for the Southside Learning Center is separated in multiple sections via elevation changes and control joints. These sections are labeled 1-6 on the attached Roof Plan. There are no existing plans available for Sections 1-4. The in place built up roof does not appear to be original construction, but the date of installation is unknown. Sections 5 & 6 were part of the 2019 addition. Our Field Observations, Conclusions/Recommendations and Budget Forecast are separated by roof system.

ROOF SECTIONS 1-4:

Field Observations:

The roof system within these sections consists of a gravel surfaced built up roof. A core cut was taken from within Section 3. The built up membrane was installed over ½" wood fiber insulation, 4" of polyisocyanurate insulation, ½' gypsum sheathing and a metal roof deck. Based on our interior observations, Sections 1 and 2 are concrete deck. The insulation was observed to be wet at the core location. (Refer to photograph #1).

Drainage is accomplished via a combination of tapered insulation and structural slope to internal roof drains with overflow drainage provided with perimeter overflow scuppers. The total area of all sections was 34,056 square feet. Refer to photographs #2 - #5).

Photograph # 1

Photograph # 2

Photograph # 3

Photograph # 4

In general, the built-up roof membrane is in fair condition. At isolated locations, blisters were observed in the membrane. The aggregate surfacing is beginning to erode at some of these blister locations. (Refer to photographs #6 and #7).

Photograph # 5

Photograph # 6

Photograph # 7

As part of the 2019 addition, new rooftop mechanical equipment was added throughout the majority of these roof sections. Several of the HVAC units for this work rest on supports that rest on the roof membrane with electrical conduit and pipe supports running across the roof. New penetrations for the piping for this equipment were flashed with a pitch pan. At random pitch pan locations, the pourable sealer has either settled or is beginning to split around the penetration location. (Refer to photographs #8 and #9).

Photograph # 8

Photograph # 9

Facility personnel reported a history of leakage occurring at the transition between Roof Sections 1 and 3. It was also related that during the winter months, the area fills with snow and the leakage has primarily been associated with melting snow. Refer to photograph #10 for an overview of the leak area.

Photograph # 10

Two roof drains are located in the area where the leakage has been reported that are of a through wall type drain construction. These drains typically rely on a clamping ring turned at a 90° angle to provide compression for the lead drain flashing. These drains have a history of being problematic and there is evidence of repair at these drain locations. Additionally, evidence of erosion of the aggregate surfacing, deteriorated membrane and membrane repair were observed adjacent to the drain locations. (Refer to photographs #11 and #12).

Photograph # 11

Photograph # 12

There also appears to be recent repairs performed with sealant along the top horizontal edge of the metal flashing at the insert to the masonry wall. It was observed at one location that the corner of this flashing is open allowing moisture to enter behind the metal flashing. (Refer to photographs #13 and #14).

Photograph # 13

Photograph # 14

There are multiple skylights located throughout the roof area. These skylights appear to be in fair to poor condition with condensation and evidence of repair noted at various skylight locations. (Refer to photographs #15 and #16).

Photograph # 15

Photograph # 16

Section 2 drains onto Section 3 via perimeter scuppers and downspouts. At some of the downspout locations, pavers have been installed but other locations where pavers are missing erosion of the aggregate flood coat is beginning to occur. (Refer to photograph #17).

Photograph # 17

The base flashings throughout all roof sections consist of what appears to be a modified bitumen membrane and aluminum coating. In general, these flashings are in fair to good condition. Within Section 3, the base flashing was extended up over the top of the perimeter parapet. Areas of poor adhesion were visible and isolated area of open flashing joints on the roof side were also observed. (Refer to photographs #18 and #19).

Photograph # 18

Photograph # 19

Within Section 2, there is an obsolete chimney with a galvanized cap installed over the top portion of the chimney. The masonry is in poor condition and several cracks were observed within the masonry and stone coping. (Refer to photographs #20 and #21).

Photograph # 20

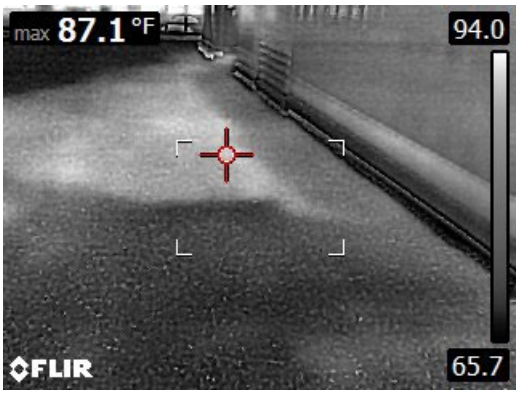
Photograph # 21

At the intersection of the sheet metal wall panels to penthouse louvers between Roof Sections 3 and 4, openings were noted at the corners of the flashing that can allow for moisture to enter behind the sheet metal counterflashing. (Refer to photographs #22 and #32).

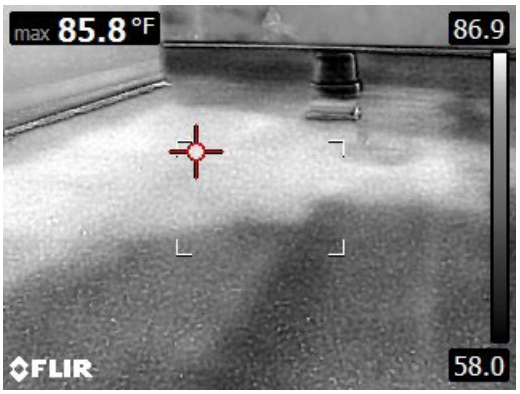
Photograph # 22

Photograph # 23

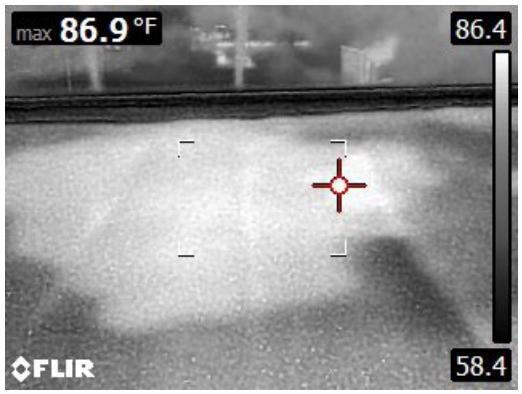
On the evening of June 22, 2023, RSI was onside to perform an infrared moisture survey to document any suspect insulation within the roof system. Moisture retained by the roof insulation decreases its thermal resistance and increases the heat storage capacity of the insulation. These thermal anomalies are then visible on the roof using infrared imaging. Daytime temperatures at the time of the survey were in the low 90's with clear skies. The moisture survey was performed after sunset. Winds were light with a temperature of 75° F and the surface of the membrane was dry at the time of the survey. The moisture survey was performed with a handheld FLIR E5 infrared imaging camera. The roof was physically walked in a grid pattern and infrared photographs taken of any anomalies observed. Throughout the majority of the roof sections, we noted no anomalies that were consistent with the presence of wet insulation. Two areas of wet insulation were observed within Section 3. Wet insulation beneath the membrane retains more heat in the adjacent area and shows up as white on the infrared camera. These areas were painted on the roof and the approximate location is indicated on the roof plan. (Refer to infrared photographs #24 – 27).



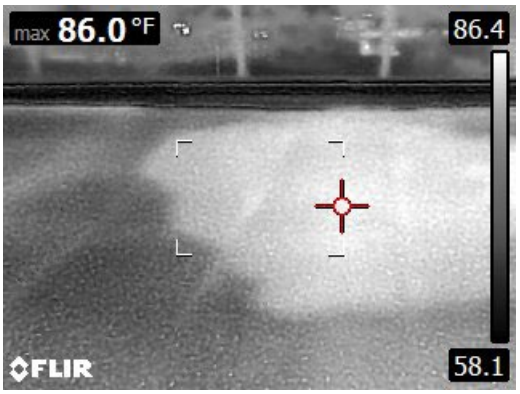
Photograph # 24



Photograph # 25



Photograph #26



Photograph #27

Roof Sections 5 and 6:

The roof system within these sections consists of a fully-adhered EPDM membrane. These roof section appear to be installed as part of the 2019 addition. Cores were not performed in these roof section due to the likelihood of their being covered under manufacturers warranty. Based on the information available and the existing construction documents, the existing roof system consists of a fully adhered EPDM membrane over a combination of flat and tapered polyisocyanurate insulation and a metal roof deck. Drainage is accomplished via structural slope and/or tapered insulation to interior roof drains with adjacent overflow roof drains. The total of both roof sections was found to be approximately 16,207 sq. ft. (Refer to photographs #28 - #31).

Photograph # 28

Photograph # 29

Photograph #30

Photograph #31

The membrane is less than 5 years old and is in generally good condition. It was however noted at random locations throughout the field of both roof sections that the membrane sheet is no longer bonded to the underlying insulation. (Refer to photographs #32 and #33).

Photograph # 32

Photograph # 33

Roof Section 7:

Roof Section 7 consists of a standing metal roof system installed over the stand alone entrance canopy. The roof drains onto the surface of the built-up roof within Section 1. In general, this roof system is in good condition. (Refer to photograph #34).

Photograph # 34

Conclusions/Recommendations:

Roof Sections 1 - 4:

In general, the aggregate surface built-up roof system within these section remains in fair condition. The membrane blisters observed as well as the wet insulation and history of leakage indicate the roof is nearing the end of its effective service life. With maintenance the roof system could achieve additional 4-6 years of effective service life.

We were unable to determine the specific cause of the leakage at the time of our inspection. We recommend that the lead flashing at the roof drains be replaced in the leak area as well as installing modified bitumen cap sheet over deteriorated areas of membrane. Additionally, the sheet metal counterflashing should be secured and sealant applied to the top horizontal edge of the sheet metal insert. If leaks continue to persist, we recommend water testing be performed at the wall to isolate the specific source of the moisture entry.

Roof Sections 5 and 6:

In general, the fully-adhered roof system within these sections is in good condition and with maintenance should achieve 10+ years of effective service life. The poor adhesion of the membrane to the surface of the underlying insulation is a potential concern for the long term performance of the roof system and should be continued to be monitored.

Roof Section 7:

The standing seam metal roof over the canopy is in good condition and requires no maintenance at this time.

Budget Forecast:

Southside Elementary Learning Center - 2023

Sections 1 – 4

- Replace lead flashing at drain bowls.
- Repair membrane in leak location area.
- Install sealant at sheet metal flashing inserts.
- Top off all pitch pans with additional two part pourable sealer.
- Install concrete paver or splash pans at downspout discharge location.
- Apply plastic cement and fiberglass reinforcement fabric to open joints in the flashing.
- Install sealant at the sheet metal to louver intersection.

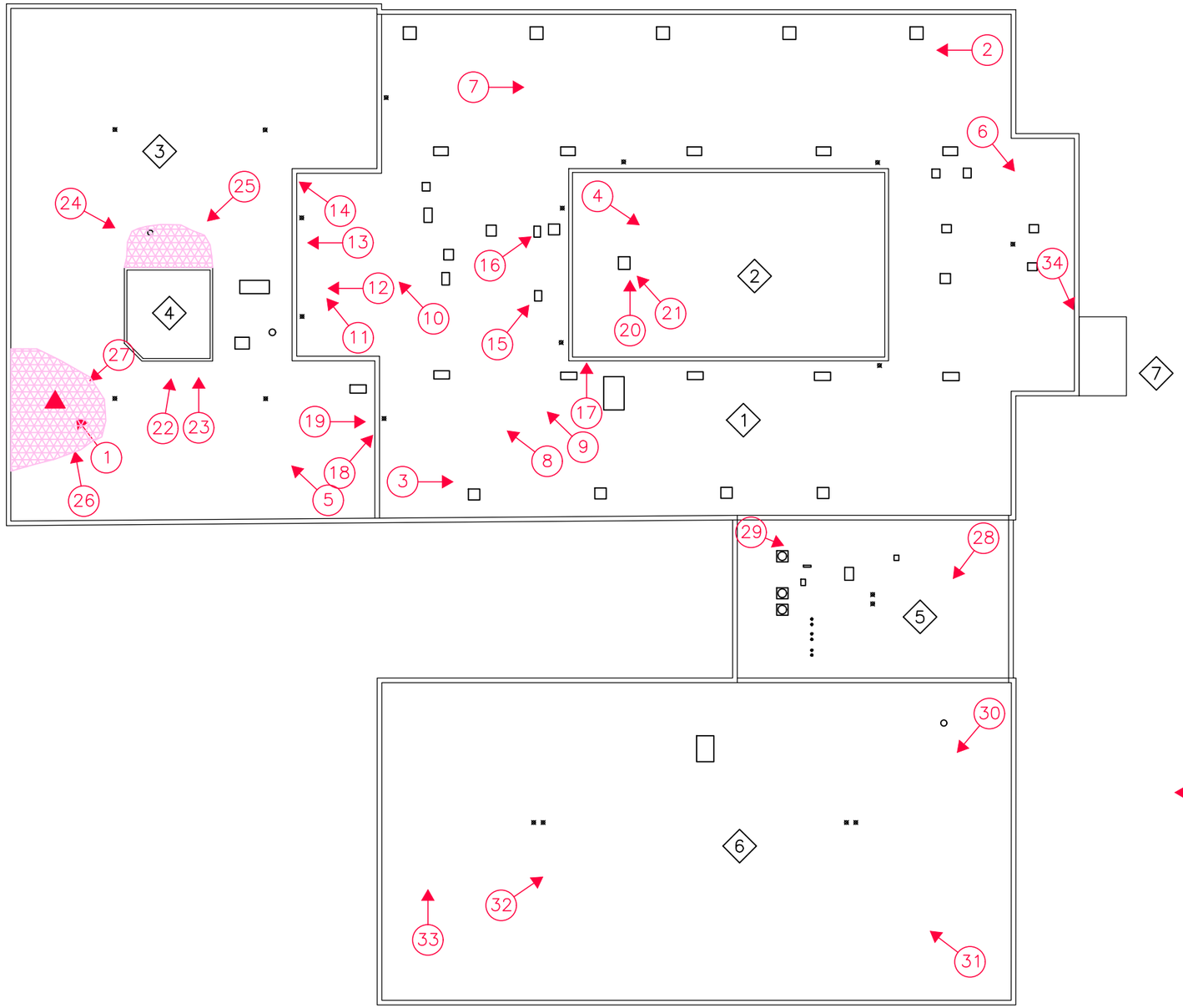
TOTAL **$15,000**

Southside Elementary Learning Center – 2024 - 2028

All Sections

- Remedial maintenance as required until roof replacement is completed.

TOTAL **$3,000/annually**



– EXTERIOR PHOTOGRAPH

– ROOF AREA

– ROOF CORE LOCATION

– SUSPECTED WET INSULATION

N

ROOF PLAN

SCALE: 1/32" = 1'–0"

SPARTA SCHOOLS
SOUTHSIDE ELEMENTARY LEARNING CENTER

ROOF SPEC INC.
2400 Prior Ave. N.
St. Paul, MN 55113
(651) 639–0644

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