EngTech is a Multi-Discipline E/A Firm

Integrated Disciplines
- Architecture
- Structural Engineering
- Architectural Engineering
- Mechanical Engineering
- Electrical Engineering
- Forensics

Professional Services
- Building Assessments
- Energy Studies
- Master Planning
- Community Engagement
- Referendum Assistance
- Construction Drawings/Bid Sets
- Construction Administration
Class B School Experience

Rural School Clients

- Strasburg .......... 122 Students
- Montpelier .......... 102 Students
- Glen Ullin .......... 129 Students
- Drake-Anamoose .. 165 Students
- **Hope-Page .......... 170 Students**
- Mott-Regent ...... 209 Students
- Edgeley .......... 244 Students
- Beach .......... 266 Students
- Parshall .......... 277 Students
- LaMoure .......... 299 Students
- TGU ................. 330 Students
- Garrison ............ 347 Students
- Kidder County ...... 351 Students
- DLB Lakers ........ 645 Students

Small Town BIG Dreams
Tonight’s Discussion

• Assessment – What did we look at?
• Positive Takeaways
• Deficient Items Observed
• Building Condition / Building Systems
• Next Steps
• Questions / Discussion
Why do the assessment?

✓ Determine Expected Useful Life of Systems
✓ Determine Expected Useful Life of a Facility
✓ Prevent Costly Emergency Repairs = Save Money
✓ Level Resources/Expenses
✓ Prioritize for Funding
✓ Identify Issues to be considered with Educational Needs
Information Gathering

- Researched Historical Records
  - ✓ Square Footages/Ages of Facilities
  - ✓ Work Recently Done
  - ✓ Fire Marshal Reports*
  - ❑ Asbestos Reports

- Field Work
  - ✓ Toured Facilities
  - ✓ Photos of Existing Conditions
  - ❑ Roofing Report

- Conversations
  - ✓ Superintendent – Brad Callendar
  - ✓ Elementary Principal – Heidi Kingston
  - ✓ High School Principal – Angie Zerface
  - ✓ Facility Personnel – Mike Kingston & Steve Huscka
  - ✓ IT Coordinator – Brent Jacobson
  - ✓ Various staff conversations
Positive Takeaways

• Architectural / Site
  – Buildings are in average overall condition
    • Maintained well
  – Efficient layout
  – Good visual control
  – Secure main entrance door*
  – Building envelope*
  – No structural issues
  – Hope Science / FACS

• Mechanical
  – Doing the best to keep things going

• Electrical
  – Adequate electrical capacity (Hope)
  – IT Network – Good Coverage
  – Surveillance – Good Coverage
  – Fire Alarm – Good Coverage*
Hope Facility – High School

- 1961 Original Building (34,991 SF)
- 1980 Addition (5,936 SF)
- Greenhouse
- Total SF – 41,128
- 69 Students
Assessment Categories

• Architectural
  – Site (circulation, paving, drainage)
  – Envelope (exterior, windows)
  – Roof (type, age, condition)
  – Finishes (flooring, walls, ceilings)
  – Code Compliance (life safety, accessibility “ADA”)
  – Hazardous Materials
  – Safety / Security

• Mechanical / Plumbing
  – HVAC (boilers, AHUs, piping, ductwork, terminal units, controls)
  – Plumbing piping, fixtures
  – Design, Code issues, etc.

• Electrical
  – Electrical service
  – Power distribution (panels, breakers, etc.)
  – Lighting
  – Information Technology
  – Master Clock
  – Access Systems
  – Fire Alarm System
Hope – Site Conditions

Site parking, drive, sidewalks

Deteriorated sidewalk

Parking is not ADA compliant

Step at Stoop, Condenser on blocks
Hope – Roof/Envelope

EPDM & Ballast

Stucco Above Doors

Cracks

Deteriorated Sealant

Missing Sealant
Hope – Exterior Doors/Windows

Newer Entrance Doors

Original HM Frame / Door

Newer Windows
Hope – Interior Finishes

**Ceilings**
- 2x4 Ceiling Grid and Tile
- 2x2 Ceiling Grid and Tile
- Metal Ceiling Tile
- Exposed Structure

**Hard Flooring**
- 4+ types of VCT
- 4+ types of VAT
- Ceramic Tile
- 2 types of Epoxy
- Sealed Concrete

**Carpet**
- 13+ types
- Broadloom & Squares
Hope – Interior Finishes

Classroom Casework (Select rooms)

Frames / Original Wood Doors
Hope – FF&E

Markerboards

Classroom Furniture
Hope – Restrooms / Locker Rooms

Typical Restroom

Typical Locker Room
Hope – Potential Code Issues

Limited Fire Suppression System

Wood Framed Walls Not Allowed

Lack of Panic Hardware

Restricted Corridor Width
Hope – Accessibility Issues

Stage Access

Clear Floor Area / Grab Bar / Etc.

Room Signage

Door Widths / Clearances
Hope – Hazardous Materials

Pipe Insulation / Elbows

Vinyl Asbestos Tile

Adhesives

Vinyl Asbestos Tile
Hope – Safety / Security

Signage & video-intercom at main entry

Office location is not ideal

Video Surveillance
Hope – Mechanical/Plumbing

- HVAC Controls
- Heating Water Boilers
- Electric boiler
- Piping in tunnel with missing insulation
Hope – Mechanical/Plumbing

Classroom Ventilation Air Opening Covered

Cabinet Ventilator with Built-in Shelving

Shop sink with no plumbing drain pipe.

Wood blocking supporting toilet.
Hope – Electrical

Electrical Service (mostly original)

Lighting – 4-bulb T8 fluorescent troffers

Electrical Service

Fire Alarm (new, but obsolete)
Hope – Special Systems

Access Control

Master Clock (issues, being replaced)

Intercom / PA
(original speakers, limited phones)

Data Network
Questions about Hope Facility?
Page Facility - Elementary

- 1954 Original Building (8,406 SF)
- 1980 Addition (33,574 SF)
- Total SF – 41,980
- 88 Students - K-6
- 13 Students - PK
Page – District Owned Property
Page - Site Conditions

Site parking, drive, sidewalks

Parking is not ADA compliant

Sidewalk

Playground
Page – Roof/Envelope

Ballasted EPDM

Fully Adhered Single Ply (PVC)

Paint Issues

Sealant
Page – Exterior Doors/Windows

- Newer Aluminum Entrances
- Rusted Hinges
- Condensation / Frost
- Rotted Window Sashes
Page – Interior Finishes

**Ceilings**
- T&G Wood Deck
- 2’x4’ Acoustic Ceiling Tile
- 12”x12” Acoustic Ceiling Tile
- 12”x12” Metal Ceiling Tile

**Hard Flooring**
- 6+ types of VCT
- 6+ types of VAT
- Ceramic Tile
- Epoxy
- Sealed Concrete

**Carpet**
- 11+ types
  - Broadloom & Squares
Page – Interior Finishes

Classroom Casework (1954 Building) (Along exterior wall)

Kindergarten Room

Classroom Casework (1960 Addition) (Only along exterior wall)
Tables and Chairs

Flexibility
Page – Restrooms / Locker Rooms

Typical Restroom

Typical Locker Room
Page – Potential Code Issues

No Fire Suppression System

Wood Framed Walls Not Allowed

Gates in Corridors

Restricted Corridor Width / Combustibles (No lockers)
Page – Accessibility Issues

Stage Access

Lack of ADA Parking

Room Signage

Door Widths / Clearances
Pipe Insulation / Elbows

Vinyl Asbestos Tile

Adhesives

Sink Coatings
Signage & video-intercom at main entry

Lack of Secure Entrance; Inexpensive solution exists because of Office location.

Video Surveillance
Page – Mechanical/Plumbing

HVAC Controls

Steam Boiler

Electric Boiler

Piping with missing insulation.
Classroom Ventilation Air Opening Covered

Cabinet Ventilator with Built-in Shelving

AC Unit Improperly Supported.

No Ventilation Air in Workout Room
Page – Electrical

Electrical Service (mostly original)

Lighting – Suspended T8 fluorescents

Electrical Service

Fire Alarm (new, but obsolete)
Page – Special Systems

Access Control

Master Clock (issues, being replaced)

Intercom / PA (original speakers, limited phones)

Data Network
Questions about Page Facility?
Site / Architectural Recommendations

Hope

➢ Provide ADA complaint accessible parking
➢ Repair/replace deteriorated concrete walks.
➢ Perform minor grading around building.
➢ Provide code compliant roof access hatch and ladder.
➢ Tuckpoint deteriorated mortar / brick masonry.
➢ Roof maintenance / replacement.
➢ Remove/replace joint sealants at exterior.
➢ Replace majority of flooring throughout building.
➢ Replace suspended ATC grid and ceilings tiles throughout.
➢ Paint walls.
➢ Replace casework in classrooms.
➢ Replace visual display boards in classrooms.
➢ Replace original wood doors
➢ Repaint HM doors/frames.
➢ Remodel restrooms and locker rooms
➢ Review extent of kitchen equipment.
➢ Provide new room signage / wayfinding signage.
➢ Add interior vestibule doors.
➢ Asbestos abatement throughout the building.
➢ Address building code deficiencies.
➢ Safe, Secure Entrance through office.
➢ Paint exterior hollow metal doors and frames.
➢ New classroom furniture.
➢ Repair cracking at exterior plaster soffit. Paint.
➢ Add protective covering at greenhouse CMU foundation.
➢ Address grading issues at parking lot.
  ➢ Consider paving part of parking lot to address multiple issues (circulation, drainage, ADA).

Page

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➢ Provide new room signage / wayfinding signage.
➢ Add interior vestibule doors.
➢ Asbestos abatement throughout the building.
➢ Address building code deficiencies.
➢ Safe, Secure Entrance through office.
➢ Paint exterior steel lintels.
➢ Consider relocating playground to north side of building.
  ➢ This could allow for staff parking on the south side of the building and a bus lane.

EngTech
ENGINEERS * ARCHITECTS
FORENSIC EXPERTS
Hope

➢ Install HVAC system incorporating water source heat pumps with geothermal heating and cooling.
  • Remove fuel oil fired boilers and all associated piping.
  • Remove electric boiler and all associated piping.
  • Remove heat exchanger and all associated piping.
  • Replace Cabinet Unit Ventilators with water source heat pumps.
  • Replacing HVAC piping in tunnels.
  • Include a four-pipe HVAC piping system to accommodate both heating and cooling.
➢ Replace unit heaters in corridors and vestibules.
➢ Install Direct Digital Controls on any existing and new HVAC equipment.
➢ Remove all pneumatic controls.
➢ Provide proper ventilation air as required to areas which currently do not have ventilation.
➢ Install a chemical water treatment for HVAC heating water system.
➢ Replace all corroded plumbing piping, valving, deteriorated insulation and valving.
➢ Restroom Renovation
  • Replace sinks, toilets, urinals.
  • Install low-flow flush valves on toilets and urinals.
  • Replace plumbing piping and insulation.
➢ Gym - Replace HVAC units

Page

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➢ Restroom Renovation
  • Replace sinks, toilets, urinals.
  • Install low-flow flush valves on toilets and urinals.
  • Replace plumbing piping and insulation.
➢ Gym - Replace HVAC units
  ➢ Weight Room - Provide code required ventilation.
Electrical Recommendations

Hope

➢ Replace the electrical service entrance equipment with new 2000A main switch board to feed existing equipment downstream.
➢ Replace electrical panels original to 1961 building.
➢ Provide additional outlets to reduce reliance on extension cords and power strips.
➢ Upgrade all fluorescent lighting to LED fixtures.
   • Include lighting controls, dimmers, and zone controls.
➢ Install occupancy sensor to increase energy efficiency.
➢ Add additional telephones to classrooms/occupied spaces.
➢ Install cable tray for routing of data cabling.
➢ Consider installing access control card throughout.
➢ Consider adding audio enhancement equipment to all classrooms.
➢ Replace “rocker” switches with standard wall switches.
➢ Provide dedicated room for data equipment or provide equipment with secured boxes for protection.
➢ Replace exterior service equipment and weather head into building.

Page

➢ Replace the electrical service entrance equipment with new 1000A main switch board to feed existing equipment downstream.
➢ Replace circuit breaker panels more than 30 years old.
➢ Provide additional outlets to reduce reliance on extension cords and power strips.
➢ Upgrade all fluorescent lighting to LED fixtures.
   • Include lighting controls, dimmers, and zone controls.
➢ Install occupancy sensor to increase energy efficiency.
➢ Add additional telephones to classrooms/occupied spaces.
➢ Consider adding cable tray for routing of all data cabling.
➢ Consider installing access control card readers throughout.
➢ Consider adding audio enhancement equipment to all classrooms.*
➢ Install additional emergency lighting fixtures.
➢ Reinstall Telecom headend equipment in secured space with temperature controls.
➢ Install new functional stage lighting to eliminate use of cloth insulated wire.
Project Priorities

• **Address Critical Issues – Priority Levels 1 (0-2 yrs)**
  – Life Safety
  – Building Security
  – High Risk of Emergency Repair/Prevent Secondary Damage

• **Address End of Useful Life Issues – Priority Level 2 (3-5 yrs)**
  – Code Recommendations
  – Energy Efficiency Projects
  – End of Useful Life Items

• **Address Long Term Items – Priority Level 3 (6-10 yrs)**
  – Normal Wear and Tear – Ongoing
  – End of Useful Life Items

• Priorities should be discussed/revised
Hope

• **Critical Issues – 0-2 yrs**
  - Mechanical
    • Replace entire system (All Recommendations)
    • Address casework & flooring as required
  - Electrical
    • Replace Distribution/Breaker Panels
    • Replace Exterior Service Equipment
    • Add / Replace Receptacles/Switches
    • Add / Replace Phones and PA System
    • Dedicated Data Room
  - Exterior Envelope
    • Sealant, Tuckpointing, Painting, Grading, Roof Leaks
  - Accessibility
    • Parking, Room Signage*
  - Secure Entrance
    • Vestibule Doors
  - Roof /Asbestos Assessment

Page

• **Critical Issues – 0-2 yrs**
  - Mechanical
    • Replace entire system (All Recommendations)
    • Address casework & flooring as required
  - Electrical
    • Replace Distribution/Breaker Panels
    • Replace Exterior Service Equipment
    • Add / Replace Receptacles/Switches
    • Add / Replace Phones and PA System
    • Dedicated Data Room
    • Replace Stage Wiring / Lighting
    • Additional Emergency Lighting
  - Exterior Envelope
    • Sealant, Tuckpointing, Painting, Grading, Roof Leaks
      • Windows
  - Accessibility
    • Parking, Room Signage*
  - Secure Entrance
    • Vestibule Doors
  - Roof /Asbestos Assessment
• **End of Useful Life Issues – (3-5 yrs)**
  - Plumbing Replacement
  - Electrical
    - LED Lighting/Occupancy Sensors
    - Cable Tray
    - Access Control Throughout Building (Replace doors)
    - Audio Enhancement
  - Site Improvements
    - Parking Lot Improvements
    - Sidewalk
  - Accessibility
    - Restrooms
    - Other remaining items
  - Furniture

• **Long Term Items – 6-10 yrs**
  - Roof Replacement
    - Add Access Hatch/Ladder
  - Interior Finishes
    - Replace Misc. Kitchen Equipment
    - Replace Flooring, Ceilings, Paint
    - Replace Casework where needed
    - Asbestos Abatement*
    - Replace Markerboards

• **End of Useful Life Issues – (3-5 yrs)**
  - Plumbing Replacement
  - Electrical
    - LED Lighting/Occupancy Sensors
    - Cable Tray
    - Access Control Throughout Building (Replace doors)
    - Audio Enhancement
  - Site Improvements
    - Sidewalk
    - Relocate / Replace Playground
    - Address Site Circulation
  - Accessibility
    - Restrooms
    - Other remaining items

• **Long Term Items – 6-10 yrs**
  - Roof Replacement
    - Add Access Hatch/Ladder
  - Interior Finishes
    - Replace Misc. Kitchen Equipment
    - Replace Flooring, Ceilings, Paint
    - Replace Casework where needed
    - Asbestos Abatement*
    - Replace Markerboards
Thank You!
10 Year Capital Maintenance Plan

- Citizen’s Committee / Public Engagement
- Educational Adequacy
- Community Listening > Focus Groups
- Analyze Funding/Tax Impact
- Align Design w/Budget
- Board Recommendation > “Handshake”
- Public > “What do you think?”
- School Board Decision
- Voter Approval / Educate Public
- Successful Project