Goals for WREC Study

To test the feasibility of the existing WREC to accommodate the established Exam School Program

To provide drawings, engineering narratives and diagrams to help get an ROM cost estimate for renovation/expansion

To propose a design intervention that helps to improve the public’s current perception of the building and to convey the opportunities and amenities of the building and site

To look at a renovation that aims to achieve the highest sustainability standards/ minimum of LEED Silver.
Infill & Addition Areas
Program Summary

Exam School: Grades 7-12 | Total Student Enrollment: 2000 | Total Required Program Area: 171,471 sq. ft.

Proposed Program for 2000 Student, 7-12 Exam School

Not for design -- conceptual program needs to be verified with BPS selected school program, BPS Academics, and school community.
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Existing Floor Plans

Test-Fit Program

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BASEMENT 36,096 GSF

LEVEL 1 56,692 GSF

LEVEL 2 39,874 GSF

LEVEL 3 56,534 GSF

LEVEL 4 28,933 GSF

LEVEL 5 19,469 GSF

EXISTING GROSS AREA 237,598 GSF
Summary of Added Areas

Total added areas in sequence

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Renovation and Expansion Axon View

Southwest Axon Enclosure Series

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KEY
- RECLAD FACADE
- EXPANSION
- GREEN ROOF
- ATRIUM
- DEMOLITION
- PHOTO-VOLTAIC PANELS

**New Three Story Addition**
- 24,249 GSF

**Potential New Two Story Addition**
- Currently not accounting for in plan test fits
- 21,553 GSF

**New Skylit Roof**
- (6) 4’x8’ Skylights

**Mechanical Screen**

**Courtyard Infill with Skylit Roof**
- (6) 4’x8’ Skylights
Reclad Facade
Southwest Axon Enclosure Series

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*SEE ELEVATIONS FOR AREAS
*SEE EXTERIOR NARRATIVE FOR MATERIALS
Demolition of Head Houses
Southwest Axon Enclosure Series

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Photo-voltaic Panels
Southwest Axon Enclosure Series

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Existing Axon View
Northeast Axon Enclosure Series
COURTYARD INFILL WITH SKYLIT ROOF
(6) 4’x8’ SKYLIGHTS

DEMO EXISTING MECHANICAL PENTHOUSES

NEW 3-STORY ADDITION
24,249 GSF

DEMO EXISTING GREENHOUSE

NEW EXPANSION TO ENCLOSE EXISTING BALCONY NEW GREENHOUSE

NEW EXPANSION ONTO EXISTING PATIO

NEW EXPANSION TO ENCLOSE EXISTING BALCONY

POTENTIAL NEW TWO STORY ADDITION (CURRENTLY NOT ACCOUNTING FOR IN PLAN TEST FITS)

KEY

RECLAD FACADE
EXPANSION
GREEN ROOF
ATRIUM
DEMOLITION
PHOTO-VOLTAIC PANELS
Existing Plans
Level 5 Floor Plan
Existing West Roxbury Plans

STAIR #2
WEST ROXBURY HIGH - LEVEL 5 FLOOR PLAN

STAIR #4
OPEN TO BELOW

STAIR #3
ELEV. #1

STAIR #1
351 SF
FOREIGN LANG.
830 SF
MATH
686 SF
BUSINESS
828 SF
HEALTH
419 SF

MATH
846 SF
HEALTH
418 SF
BUSINESS
828 SF
HEALTH
419 SF

CORRIDOR 1380 SF
STOR.
74 SF
34 SF
GIRLS
47 SF MEN
95 SF
48 SF

Reading Room 1369 SF

352 SF
CORRIDOR

Existing West Roxbury Plans

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DRAFT
Roof Plan
Existing West Roxbury Plans
Demo Plans - Annotated
REMOVALS LEGEND:

- REMOVE
- CUT OPENING IN FLOOR
- EXISTING WALL TO REMAIN

KEYED REMOVALS NOTES:

01 Remove plumbing fixtures
02 Remove partitions and doors
03 Remove CMU partitions
04 Remove exterior wall (not re-clad zone)
05 Remove stepped seating
06 Existing Cafeteria concrete floor to remain

* Not shown: Exterior masonry/windows to be re-clad - refer to elevations for areas and extents of re-clad (all brick & windows that are not getting an expansion). Re-cladding will require new structural supports - see enclosure narrative.
Level 1 Floor Plan
West Roxbury Demo Plans

REMOVALS LEGEND:

- REMOVE
- CUT OPENING IN FLOOR
- EXISTING WALL TO REMAIN

KEYED REMOVALS NOTES:

01 Remove plumbing fixtures
02 Remove partitions and doors
03 Remove CMU partitions at restroom
04 Remove exterior wall (not re-clad zone)
05 Remove stepped seating
06 Remove Built-in Millwork
07 Remove brick floor, stepped planters, and slab
08 Remove existing stair
09 Remove brick atrium wall/bracing at L1&2

* Not shown: Remove 1,200 Existing Lockers
* Not shown: Remove existing stair handrails
* Not shown: Remove all ACT ceiling and VCT floor (classrooms, library, admin)

* Not shown (all plans): Exterior masonry/ windows demo for re-cladding - refer to elevations for areas and extents of re-clad (all brick & windows that are not getting an expansion). Re-cladding will require new structural supports - see enclosure narrative.

Locker room walls (CMU) to remain, but fixtures, stall partitions, showers to be removed.
Level 2 Floor Plan
West Roxbury Demo Plans

REMOVALS LEGEND:
- REMOVE
- CUT OPENING IN FLOOR
- EXISTING WALL TO REMAIN

KEYED REMOVALS NOTES:

01 Remove plumbing fixtures
02 Remove partitions and doors
03 Remove CMU partitions at restroom
04 Remove exterior wall (not re-clad zone)
05 Remove stepped seating
06 Remove Built-in Millwork
07 Remove brick floor, stepped planters, and slab
08 Remove existing stair
09 Remove existing aluminum pool + liner
10 Remove acoustic wall tile and carpet floors
11 Remove brick atrium wall/bracing at L1&2

* Not shown: Remove 1,200 Existing Lockers
* Not shown: Remove existing stair handrails
* Not shown: Remove all ACT ceiling and VCT floor (classrooms, library, admin)
Level 3 Floor Plan

West Roxbury Demo Plans

REMOVALS LEGEND:

- REMOVE
- CUT OPENING IN FLOOR
- EXISTING WALL TO REMAIN

KEYED REMOVALS NOTES:

01 Remove plumbing fixtures
02 Remove partitions and doors
03 Remove CMU partitions at restroom
04 Remove exterior wall (not re-clad zone)
05 Remove stepped seating
06 Remove Built-in Millwork
07 Remove brick floor, stepped planters, and slab
08 Remove existing stair
09 Remove acoustic wall tile and damaged wood floor (~35%)

* Not shown: Remove 1,200 Existing Lockers
* Not shown: Remove existing stair handrails
* Not shown: Remove all ACT ceiling and VCT floor (classrooms, library, admin)
REMOVALS LEGEND:

- REMOVE
- CUT OPENING IN FLOOR
- EXISTING WALL TO REMAIN

KEYED REMOVALS NOTES:

01 Remove plumbing fixtures
02 Remove partitions and doors
03 Remove CMU partitions at restroom
04 Remove cantilevered greenhouse
05 Remove stepped seating
06 Remove Built-in Millwork
07 Remove Mechanical Penthouse - walls, units, roof, doors, concrete pads

* Not shown: Remove 1,200 Existing Lockers
* Not shown: Remove existing stair handrails
* Not shown: Remove all ACT ceiling and VCT floor (classrooms, library, admin)
Level 5 Floor Plan
West Roxbury Demo Plans

Removals Legend:
- REMOVE
- CUT OPENING IN FLOOR
- EXISTING WALL TO REMAIN

Keyed Removals Notes:
01 Remove plumbing fixtures
02 Remove partitions and doors
03 Remove CMU partitions at restroom
04 Remove cantilevered greenhouse
05 Remove stepped seating
06 Remove Built-in Millwork
07 Remove Mechanical Penthouse - walls, units, roof, doors, concrete pads

* Not shown: Remove 1,200 Existing Lockers
* Not shown: Remove existing stair handrails
* Not shown: Remove all ACT ceiling and VCT floor (classrooms, library, admin)
WEST ROXBURY HIGH - ROOF PLAN

REMOVALS LEGEND:

------ REMOVE

CUT OPENING IN FLOOR

EXISTING WALL TO REMAIN

KEYED REMOVALS NOTES:

01 Remove all roofs, ballasts, and coping
02 Remove Mechanical Penthouse - walls, units, roof, doors, concrete pads
Concept Plans - Annotated
West Roxbury Proposed Basement Floor Plan

Existing Building Program - Classrooms

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LEGEND:
- NEW WALL
- EXISTING WALL TO REMAIN
- ZONE OF BUILDING ADDITION

KEYED PLAN NOTES:
01 New plumbing fixtures
02 New partitions and doors
03 New sound attenuating acoustic partitions/doors
04 New polished concrete floor to match existing
05 New bleacher stair

*New handrails at all stairs
LEGEND:
- NEW WALL
- EXISTING WALL TO REMAIN
- ZONE OF BUILDING ADDITION

KEYED PLAN NOTES:
01 New plumbing fixtures
02 New partitions and doors
03 New sound attenuating acoustic partitions/doors
04 New polished concrete floor to match existing
05 New bleacher stair
06 New central social stair in existing opening
07 New storefront entrance
08 New pool (see owner-provided comparable)

*New handrails at all stairs

Locker room walls (CMU) to remain, but new fixtures, stall partitions, showers

West Roxbury Proposed Level 1 Floor Plan

Existing Building Program - Classrooms

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West Roxbury Proposed Level 2 Floor Plan

Existing Building Program - Classrooms

LEGEND:
- NEW WALL
- EXISTING WALL TO REMAIN
- ZONE OF BUILDING ADDITION

KEYED PLAN NOTES:
01 New plumbing fixtures
02 New partitions and doors
03 New sound attenuating acoustic partitions/doors
04 New polished concrete floor to match existing
05 New bleacher stair
06 New central social stair in existing opening
07 New built-in science lab counter and storage
08 New fume hood
09 New structure + floor infill + stepped lecture hall

*New handrails at all stairs

Locker room walls (CMU) to remain, but new fixtures, stall partitions, showers
LEGEND:
- NEW WALL
- EXISTING WALL TO REMAIN
- ZONE OF BUILDING ADDITION

KEYED PLAN NOTES:
01 New plumbing fixtures
02 New partitions and doors
03 New sound attenuating acoustic partitions/doors
04 New polished concrete floor to match existing
05 New bleacher stair
06 New central social stair in existing opening
07 New wood floor 35% to match existing

*New handrails at all stairs
West Roxbury Proposed Level 4 Floor Plan

Existing Building Program - Classrooms

LEGEND:
- NEW WALL
- EXISTING WALL TO REMAIN
- ZONE OF BUILDING ADDITION

KEYED PLAN NOTES:
01 New plumbing fixtures
02 New partitions and doors
03 New roof and skylights to enclose atriums
04 New mechanical penthouse

*New handrails at all stairs
West Roxbury Proposed Level 5 Floor Plan

Legend:
- NEW WALL
- EXISTING WALL TO REMAIN
- ZONE OF BUILDING ADDITION

Keyed Plan Notes:
01 New plumbing fixtures
02 New partitions and doors
03 New structure + floor infill at previous mezzanine
04 New mechanical penthouse

*New handrails at all stairs
West Roxbury Proposed Roof Plan
Existing Building Program - Classrooms

**Roof Components**
- Roof Photovoltaics - 20,000 SF
- Green Roof - 6,675 SF
- New Mechanical Area - 6,240 SF

NEW GREEN ROOF
PHOTOVOLTAICS
NEW SKYLIT COURTYARD
NEW GREEN ROOF
NEW SKYLIT COURTYARD
NEW GLASS AND STEEL ROOF
AT HYDROPONICS LAB
DEMO EXISTING MECHANICAL
ROOFTOP PENTHOUSE
DEMO EXISTING MECHANICAL
ROOFTOP PENTHOUSE
Interior Finishes Narrative

**GENERAL CLASSROOMS**

**LAB CLASSROOMS**
Flooring: VCT, Ceiling: concealed spline 2’x8’ ACT, Walls: GWB, Lighting: 8’ LED recessed/integrated into ceiling (3 zones) Audio Visual: Typical BPS Classroom allowance, Millwork (Chemistry only): plastic laminate bases with phenolic resin counters

**ART CLASSROOMS/MAKERSPACE**
Flooring: VCT, Ceiling: concealed spline 2’x8’ ACT, Walls: GWB, Lighting: 8’ LED recessed/integrated into ceiling (3 zones) Audio Visual: Typical BPS Classroom allowance, Millwork: plastic laminate bases with phenolic resin counters

**MUSIC AND PRACTICE ROOMS**

**OFFICES/ADMIN/ TEACHER’S WORKROOMS**

**RESTROOMS**
Flooring: epoxy, Ceiling: moisture resistant GWB, Walls: moisture resistant GWB and standard white subway tile to 48”, Lighting: 8’ LED, with alcove lighting at wall, electric hand dryers, trough sinks

**AUDITORIUM**
Flooring: carpet(broadloom), Ceiling: acoustic panelized wood ceiling, Walls: 50% new acoustical wall treatment, Lighting: cost/sf for lighting, theatrical lighting, and audio visual

**CAFETERIA**
Flooring: Grind + polish existing concrete, Ceiling: moisture resistant/kitchen grade concealed spline 2’x8’ ACT, walls: GWB

**GYMNASIUM**
Flooring: Sand and refinish existing wood flooring (assume 35% replacement), Ceiling: assume total repaint and acoustic treatment to 50% of exposed metal deck and trusses, Walls: repaint existing CMU block

**LOCKER ROOMS**
Flooring: existing to remain, Ceiling: repaint, Walls: Existing CMU to remain, repaint
Interior Finishes Narrative

**GENERAL**
All classroom doors to be painted wood and all remaining doors to be painted hollow metal. All new guard rails to be painted perforated metal.

**EXISTING EGRESS STAIRS**
Existing stairs to have new continuous handrails - to be painted metal, and new ADA striping.

**NEW BLEACHER STAIR AT SOUTH COURTYARD**
Steel frame, oak finish, and stainless steel handrails

**NEW CENTRAL SOCIAL STAIR**
Steel frame, oak finish, and stainless steel handrails

**NEW SCIENCE AMPHITHEATER STEPPED LECTURE HALL**
Shallow stepped lecture hall with steel frame, oak finish, and stainless steel handrails

**WAYFINDING**
New door signage on all doors and (2) directory wayfinding signs per floor

**ELEVATORS**
New interior stainless steel wall panels and rubber floors
Annotated Views + Exterior Narrative
Courtyard - Existing
South Atrium Section - Connect & Extend Cafeteria

Addition & Renovation Studies

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North Atrium Section - Science Amphitheater

Addition & Renovation Studies

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**Courtyard View - Materials**

Addition & Renovation Studies

- **Addition & Renovation Studies**
  - **New Drywall**
  - **New Metal Perforated Handrails**
  - **New Large-Format ACT Ceiling with Integrated Lighting**
  - **Retain Portions of Existing Courtyard Brick**
  - **New Wayfinding Throughout**
  - **Classrooms Extending into Atrium with New Structure & Glass**
  - **Retain Existing Brick Floor**
  - **Wood Social Stair**
  - **Wood Amphitheater Stair & Seating**
  - **Added Space & Access to Cafeteria**
  - **Views into Lab Spaces**
Exterior - Existing Entry View

Addition & Renovation Studies
Exterior - New Entry View

**Addition & Renovation Studies**

- **ADD ALT: 3-STORY ADDITION** 21,553 GSF
- **NEW LARGE CLERESTORY WINDOWS IN GYM**
- **NEW 3-STOREY ADDITION WITH LEARNING GREEN ROOF**
- **RECLAD INSULATED MASONRY WALLS**
- **NEW PHOTOVOLTAIC ARRAYS ON ROOF**
- **ALL NEW EXTERIOR WINDOWS**
- **MARSH BACKDROP LANDSCAPE ASSET**

**RECENTLY RENOVATED FIELDS & COURTS**

- **NEW 3-STORY ADDITION** 24,249 GSF
- **NEW ENERGY EFFICIENT FACADE 20-30% WINDOW AREA AVERAGE**
- **NEW LANDSCAPE RAMP AND ENTRY SEQUENCE**
- **NEW 3-STORY ADDITION 8,642 GSF**
- **PHOTOVOLTAIC PARKING CANOPY**

**NEW LARGE CLERESTORY WINDOWS IN GYM**

**NEW 3-STOREY ADDITION WITH LEARNING GREEN ROOF**

**RECLAD INSULATED MASONRY WALLS**

**NEW PHOTOVOLTAIC ARRAYS ON ROOF**

**ALL NEW EXTERIOR WINDOWS**

**MARSH BACKDROP LANDSCAPE ASSET**

**NEW LARGE CLERESTORY WINDOWS IN GYM**

**NEW 3-STOREY ADDITION WITH LEARNING GREEN ROOF**

**RECLAD INSULATED MASONRY WALLS**

**NEW PHOTOVOLTAIC ARRAYS ON ROOF**

**ALL NEW EXTERIOR WINDOWS**

**MARSH BACKDROP LANDSCAPE ASSET**
Exterior Narrative

1. ENTRANCE ADDITION A: (24,249 GSF) LVLS 1-3
Three story addition at south entrance to school. (extended height parapet for guardrail height at PV and green roof) Addition to be structurally isolated from existing building. Extent of existing masonry and glass facade covered by new addition to be removed (see elevations). Exterior concrete landscape entrance stairs to be removed.

Level 1: 2,264 sf of thermally broken, triple glazed curtain wall (at maker space and lab classroom) and 1,000 sf total of solid rain screen 300 sf w thermally broken, triple glazed, punched windows at admin/offices. Assume 333 sf of punched windows. Assume 367 sf of new storefront entrance.

Levels 2 and 3: 7,264 sf of thermally broken, triple glazed curtain wall with solid metal infill panels and custom fin extensions

Level 4: 2,454 sf of metal screening of mechanical equipment/penthouse

Assume 1 new flag pole and 6" high stainless steel letters for school signage.

2. CLASSROOM WING ADDITION B: (8,642 GSF) LVLS B-2
Three story addition to the right of the south entrance to school. Addition to be structurally isolated from existing building. Extent of existing masonry and glass facade covered by new addition to be removed.

Level B: 2,923 sf total of solid rain screen with 877 sf of thermally broken, triple glazed, punched windows at music rooms.

Levels 1 and 2: 5,846 sf of thermally broken, triple glazed curtain wall with solid metal infill panels and custom fin extensions.

3. CAFETERIA ADDITION: (2,984 GSF) LVL B
One story addition to extend out beneath the overhang at cafeteria - metal panel with 25% punched windows
4. HYDROPONICS LAB ADDITION: (2,736 GSF) LVL 3
One story addition which infills the existing exterior balcony at library. Extent of existing masonry and glass facade covered by new addition to be removed. Addition to have fully glazed walls and roof. (Similar to a green house)

5. BALCONY INFILL (1,750 GSF) LVL 3
One story addition which infills the existing exterior balcony. Extent of existing masonry and glass facade covered by new addition to be removed. Addition to have new brick facade and new thermally broken triple glazed windows.

6. SOUTH COURTYARD ENCLOSURE (2,009 GSF) LVLS B-3
Four story enclosure of the existing exterior courtyard. Remove all existing masonry benches and plantings with level one slab. New opening at level one concrete slab. Existing masonry facades to remain and be cleaned) all existing exterior windows to be removed. All existing structural steel at east wall to be exposed and painted with fire protective coating. 1,600 sf of new structurally glazed curtain wall to be added at new opening along east wall. All new guard rails to be perforated painted metal. Roof to be constructed of steel and 8 glass skylights.

7. NORTH COURTYARD ENCLOSURE
Similar to item 6 South Courtyard enclosure with the exception that level one slab remains and level two new slab added for tiered science amphitheater classroom

8. RE-CLADDING OF EXISTING MASONRY FACADE (SEE ELEVATIONS)
Remove existing masonry and add new building insulation, barriers and masonry (see wall section detail 3 within building envelope narrative).
ALTERNATE 01: re-clad with metal panel instead of new masonry

9. WINDOW REPLACEMENT (SEE ELEVATIONS)
Remove all existing windows and replace with thermally broken, triple glazed windows.

10. PHOTOVOLTAICS
Assume an allowance for 20,000 sf of PV on the roof AND 20,000 sf of PV canopy structure at lower parking.

11. GREEN ROOFS
Assume an allowance for 6,675 sf of green roof at additions 1 and 2. Given sectional challenges - also assume allowance for raised planters for 8 small trees.

12. ROOFS
Remove existing roof and ballasts and re-roof the with 3-ply modified bit roofing with metal coping at parapets

13. OTHER EXTERIOR SITE COMPONENTS
- assume allowance for concrete pad and 8' high screened enclosure for new electrical service. (See elec narrative)
- assume allowance for a % of site work disruption needed in order to provide new storm and groundwater management (given that we do not have civil engineer narrative, assume an allowance for this based on other projects) - we are in a 100 year flood plane and wetland and we are increasing the building student occupancy from 1200 to 2000.

Exterior Finishes Narrative
Addition & Renovation Studies
Elevation Areas - Reclad + New Additions
South Elevation Window Calculations

Existing Conditions Initial Analysis

Type 1: Brick Pattern Facade
Area of brick facade to be re-clad: approx. 6,473 sq. ft.
Area of brick removed for new addition: approx. 11,094 sq. ft.

Type 2A: Metal Siding
Area of metal siding: approx. 569 sq. ft.
Area of metal siding to be removed for new addition: approx. 1,338 sq. ft.

Type 2B: Metal Panels
Area of existing metal panels: approx. 491 sq. ft.

Type 3: Windows
Area of windows to be replaced on southern facade: approx. 1,082 sq. ft.
Area of windows removed for new addition: 1,345 sq. ft.

Type 4: Entry Points

Type 5: Demo for Addition

Area of southern facade: approx. 20,828 sq. ft.
Estimated North Elevation Window Calculations

Existing Conditions Initial Analysis

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Area of northern facade: approx. 20,828 sq. ft.

- **Type 1: Brick Pattern Facade**
  - Area of brick facade to be re-clad: approx. 17,024 sq. ft.

- **Type 2A: Metal Siding**
  - Area of metal siding: approx. 1,493 sq. ft.
  - Area of metal siding to be removed for new addition: approx. 1,493 sq. ft.

- **Type 3: Windows**
  - Area of windows to be replaced on southern facade: approx. 1,820 sq. ft.
  - Area of windows removed for new addition: approx. 551 sq. ft.

- **Type 4: Entry Points**

- **Type 5: Demo for Addition**

*Some window locations are approximated*
East Elevation Window Calculations

Existing Conditions Initial Analysis

Type 1: Brick Pattern Facade
Area of brick facade to be re-clad: approx. 19,682 sq. ft.
Area of brick removed for new addition: approx. 1,077 sq. ft.

Type 2A: Metal Siding
Area of metal siding: approx. 3,032 sq. ft.
Area of metal siding to be removed for new addition: approx. 0 sq. ft.

Type 2B: Metal Panels
Area of existing metal panels: approx. 292 sq. ft.
Area of existing metal panels to be removed for new addition: approx. 621 sq. ft.

Type 3: Windows
Area of windows to be replaced on southern facade: approx. 1,716 sq. ft.
Area of windows removed for new addition: 2,313 sq. ft.

Type 4: Entry Points

Type 5: Demo for Addition

Area of eastern facade: approx. 28,460 sq. ft.
West Elevation Window Calculations

Existing Conditions Initial Analysis

Area of western facade: approx. 21,307 sq. ft.

- **Type 1: Brick Pattern Facade**
  - Area of brick facade to be re-clad: approx. 17,939 sq. ft.
  - Area of brick removed for new addition: approx. 3,905 sq. ft.

- **Type 2A: Metal Siding**
  - Area of metal siding: approx. 1,866 sq. ft.
  - Area of metal siding to be removed for new addition: approx. 640 sq. ft.

- **Type 2B: Metal Panels**
  - Area of existing metal panels: approx. 0 sq. ft.
  - Area of existing metal panels to be removed for new addition: approx. 0 sq. ft.

- **Type 3: Windows**
  - Area of windows to be replaced on southern facade: approx. 351 sq. ft.
  - Area of windows removed for new addition: 575 sq.ft

- **Type 4: Entry Points**
  - Area of entry points: approx. 0 sq. ft.

- **Type 5: Demo for Addition**
  - Area of existing facade to be removed for new addition: approx. 0 sq. ft.
Southern Courtyard North Elevation Window Calculations

Existing Conditions Initial Analysis

Type 1: Brick Pattern Facade

Type 1A: Brick to remain
  Area of brick pattern facade to remain: approx. 1,058 sq. ft.

Type 3: Windows
  Area of windows to be replaced on southern facade: approx. 1,082 sq. ft.
  Area of windows removed for new addition: 1,345 sq. ft.

Area of southern courtyard north facade: approx. 1,760 sq ft.
Area of northern courtyard north facade: approx. 3,000 sq. ft.

- Type 1: Brick Pattern Facade
  Area of brick pattern facade to re-clad: approx. 935 sq. ft.

- Type 1A: Brick to remain
  Area of brick pattern facade to remain: approx. 937 sq. ft.

- Type 3: Windows
  Area of windows to replace on northern courtyard north facade: approx. 1,227 sq. ft.
Courtyards' East Elevation Window Calculations

Existing Conditions Initial Analysis

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Area of courtyards' east facade: approx. 13,977 sq ft.

- **Type 1A: Brick to remain**
  - Area of brick to remain: 3,628 sq ft.

- **Type 1: Brick Pattern Facade**
  - Area of brick pattern facade to re-clad: approx. 4,927 sq ft.

- **Type 2: Metal Siding**
  - Area of metal siding: approx. 2,223 sq ft.

- **Type 3: Windows**
  - Area of windows to replace on courtyards' east facade: approx. 3,134 sq ft.
Courtyards’ West Elevation Window Calculations

Type 1A: Brick to remain
Area of brick pattern facade to remain: approx. 2,483 sq. ft.

Type 1: Brick Pattern Facade
Area of brick pattern facade to re-clad: approx. 461 sq. ft.

Type 2: Metal Siding
Area of metal siding: approx. 2,870 sq. ft.

Type 3: Windows
Area of windows to replace on courtyards’ west facade: approx. 3,002 sq. ft.

Area of courtyards’ west facade: approx. 8,818 sq. ft.
**Exterior Envelope Area Totals Including Courtyards**

Total Area of Windows on All Facades: Approx. 19,543 sq. ft.
- Total area of windows to be replaced: Approx. 13,414 sq. ft.
- Total area of windows to be removed for the new addition: Approx. 6,129 sq. ft.

Total Area of Brick Pattern Facade: Approx. 97,752 sq. ft.
- Total area of brick facade to be reclad: Approx. 67,441 sq. ft.
- Total area of brick facade to be removed for the new addition: Approx. 16,076 sq. ft.
- Total area of brick facade to remain: 8,106 sq. ft.

Total Area of Metal Siding on All Facades: Approx. 14,528 sq. ft.
- Total area of metal siding to be removed for the new addition: Approx. 3,471 sq. ft.
- Total area of metal siding to remain: 11,057 sq. ft.

Total Area of Metal Panels on All Facades: Approx. 1,895 sq. ft.
- Total area of metal panels to be removed for the new addition: Approx. 621 sq. ft.
- Total area of metal panels to remain: 1,274 sq. ft.
Existing Conditions Documentation
Building Envelope
Existing Conditions Initial Analysis
Building Envelope
Existing Conditions Initial Analysis
Building Envelope
Existing Conditions Initial Analysis
Building Envelope
Existing Conditions Initial Analysis
Building Envelope
Existing Conditions Initial Analysis
Building Envelope - Lacking Continuous Insulation

Existing Conditions Initial Analysis

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Roof - Missing Coping

Existing Conditions Initial Analysis

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West Roxbury Educational Complex Final Report | 03.02.23
Roof - Pooling - Needs Sloped Insulation

Existing Conditions Initial Analysis
Interiors - Ceilings and Floors

Existing Conditions Initial Analysis
Interiors - Classrooms & Library
Existing Conditions Initial Analysis

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DRAFT
Inteors - Circulation
Existing Conditions Initial Analysis
Interiors - Gym & Pool

Existing Conditions Initial Analysis
Interiors - Auditorium

Existing Conditions Initial Analysis
Interiors
Existing Conditions Initial Analysis

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Building Systems
Existing Conditions Initial Analysis
Building Systems

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**Electrical Existing Conditions**

Electrical distribution equipment and components are expected to have a useful life of 30 years. Switchboards, Panelboards, transformers, generators, and wiring systems are typically serviceable for 10 to 20 years beyond this time if properly maintained and not subjected to repeated overloading or short-circuiting conditions.

The equipment observed by BLW that has past its useful life expectancy can still function properly, however determining the event of equipment failure due to conditions of normal use is unpredictable.

**Recommendations**

The main switchboard is original to the building, 47 years old and should be replaced.

The current plans for the building is anticipated to add to the building footprint, thus reducing the W/sqft available.

**Option #1:**
If the proposed mechanical and kitchen equipment systems are intended to reuse the existing natural gas service on site, based on the billing demand, the existing electrical service will be adequate for the building.

*New design:* New 4000A switchboard with metering section and distribution sections.

**Option #2:**
If the intent of the new design is creating an all-electric building, the service will approximate need to double to allow for 25 to 30W/sqft.

*New design:* (2) New 4000A switchboards with metering sections and distribution sections.
Power Distribution Existing

All power distribution originates from the main switchboard and feeds distribution and branch circuit panels located throughout the building. Transformation from 480V to 120/208V happens in both the main electric room and satellite electrical closets. Existing electrical condition drawings were not available at the time of survey to verify all panel locations; The power distribution is routed to multiple areas within the facility as follows:

- Mechanical penthouse
- Emergency Generator Room
- Multiple electrical closets

In general, the electrical distribution equipment in the building is predominantly from the original build in 1974 and over 44 years old. Over the years there have been several panel additions made to accommodate growing technology needs. These newer panels are from a variety of different time periods.

Recommendations

Approximately 75% of the buildings electrical panels including the motor control center is original to the building, 47 years old and should be replaced. Rather than band aid existing panels that still have some useful life remaining, it is recommended that for a complete building renovation, all panels and the motor control center be replaced.

Given the age of the building it is expected that cable and conduit throughout the building should be replaced as well.
Emergency Power Existing

The facility is currently served by one diesel gas emergency generator which serves Life Safety equipment and is located in the first floor emergency generator room. This generator is manufactured by Demco and was installed in 1974. The corresponding Automatic Transfer Switches (ATS), manufactured by Russ Electric, is also located within this room. There does not appear to be proper separation of life safety and normal power panelboards throughout the building. There is a remote tank located on the adjacent loading dock.

The generator has a continuous standby rating of 250kW/312.5kVA at 277/480V, 3 phase, 4 wire. Based on the kVA rating, this generator is capable of delivering 400A at 480V. The generator control panel indicates that generator has 638 hours of run time or approximately 13 hours per year. Which would be consistent with a system that has been exercised once a month.

The Russ Electric transfer switch is rated 400A and is of the same vintage as the generator, circa 1974.

Recommendations

The generator and all associated panelboards are original to the building, 47 years old and should be replaced.
**Lighting Existing**

The lighting system installed throughout the building consists predominantly of fluorescent lamp fixtures. There is a variety of utility strip, direct/indirect, pendant, and down light fixtures. Many fixture lenses were observed to be dirty, cracked and/or missing.

In most cases lighting fixtures are controlled via wall toggle switches, and in some cases ceiling mounted occupancy sensors (mostly in corridors). Emergency lighting is fed from the emergency generator and has been supplemented by battery units with dual heads in select areas. Exit signage also appears to be fed from the emergency generator but many more supplemental battery backup exit units were observed.

Exterior lighting fixtures surface mounted to walls are visible lens type which offer poor visual quality. Garage and exterior fixtures utilize inefficient High Intensity Discharge lamps, with undesirable lamp color temperatures. With the exception of the building wide lamp replacement to a more efficient T8 (22W), and some small scale lamp replacements to LED style, there does not appear to have been any major renovations to the lighting fixtures.

**Recommendations**

Dependent on PV/Sustainable Energy Strategies
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Vision of 21st Century Digital Learning:

The building has internet infrastructure for all classrooms and public spaces, including fiber backbone, switches, and wireless access points. The system is likely insufficient to support 1:1 or laptop based standardized testing. The building is flexible but not expandable. The building does not connect on multimedia platforms for cross disciplinary programming. Digital arts and media integral to more traditional STEM initiatives.

-2016 BPS Facilities Report
SMMA, MGT, WSP
Initial Assessment of Existing Conditions

Generally, good structural condition with observed minor issues, including (review of photos and site note is ongoing, so this list may increase):

- Minor cracking in concrete
- Minor cracking in the brick
- One large masonry crack in the library space.
- One location where we observed rusting of a steel beam.
- Potentially rusting of the metal deck above the gym space.
- “Squishy floor” at one balcony (most likely not structural)

We understand that the envelope has let some water into the building. We do not yet know the path of that infiltration and if it could have gotten to the existing perimeter steel (beams, cantilevers areas, hang lintels). Though we didn’t observe any issues, this condition could potentially stay hidden. I recommend that this be noted as a possible condition with an allowance and be further investigated in future design phases.

From the original drawings,

- We know the building is on pile. The pile construction was part of a separate set of drawings
- The existing floors are designed for 100psf live load
**Code: IEBC Work Area Level 3 Renovation**

- Two primary lateral structural code triggers are if the renovation modifies more than 30% of the structure or increases the *lateral load* by more than **10%**. Practically, the second trigger is if the renovation increases the *building load* by more than **10%** or increase its *wind area* by more than **10%**.

- A **vertical addition would likely trigger these.**

- If these are triggered, the building needs to be analyzed for current code lateral loads, which would result in a **lateral upgrade**.

- This work is possible, though costly. It would most likely mean adding braces and reinforcement of the foundations (which is further complicated since we are on piles)

- Added roof load of insulation will need to be considered as well
Accessibility

Existing Conditions Initial Analysis
Building Image
Existing Conditions Initial Analysis
Building Assets
Existing Conditions Initial Analysis