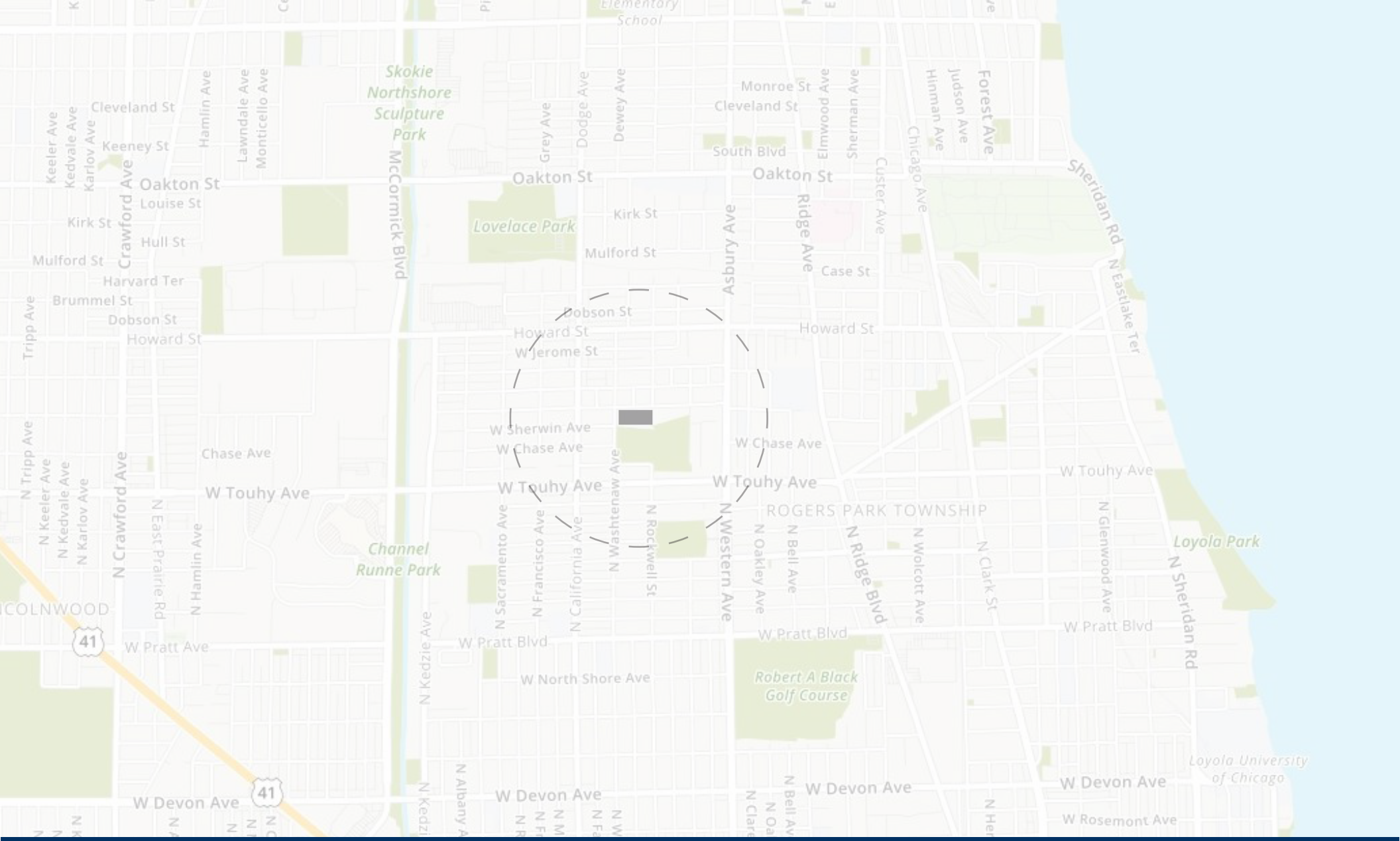

LEGATARCHITECTS

SUSTAINABILITY | PERFORMANCE | DESIGN

PROJECT # IN18-0032

PHILIP ROGERS ELEMENTARY CONCEPTS + ASSESSMENT

DRAFT REPORT

OCTOBER 5, 2018

Philip Rogers Elementary School

7345 N. Washtenaw
Chicago, IL 60645

PUBLIC BUILDING COMMISSION of Chicago

Chicago Public Schools

PROJECT TEAM

LEGAT ARCHITECTS

SUSTAINABILITY | PERFORMANCE | DESIGN

DESIGN ARCHITECTS
Legat Architects
651 W. Washington Blvd. Suite One
Chicago. IL 60661

Patrick Brosnan - Principal in Charge
Tom Kikta - Project Manager
Loren Johnson- Project Architect
Grant Ley / Itzi Velazquez - Project Designer
Mallory Rabeneck - Project Associate

DAVID MASON + ASSOCIATES

Structural Engineers
464 North Milwaukee Avenue
Chicago, Illinois 60654

GASPEREC ELBERTS CONSULTING

CIVIL ENGINEERING
9501 West Devon Ave. Suite 702
Rosemont, IL 60018

site landscape architecture urban design

LANDSCAPE ARCHITECTS
888 S. Michigan Ave. Suite 1000
Chicago, IL 60605

MEPIS®

Mechanical/Electrical/Plumbing/Fire Protection
36 S. Wabash Ave. Suite 310
Chicago, IL 60603

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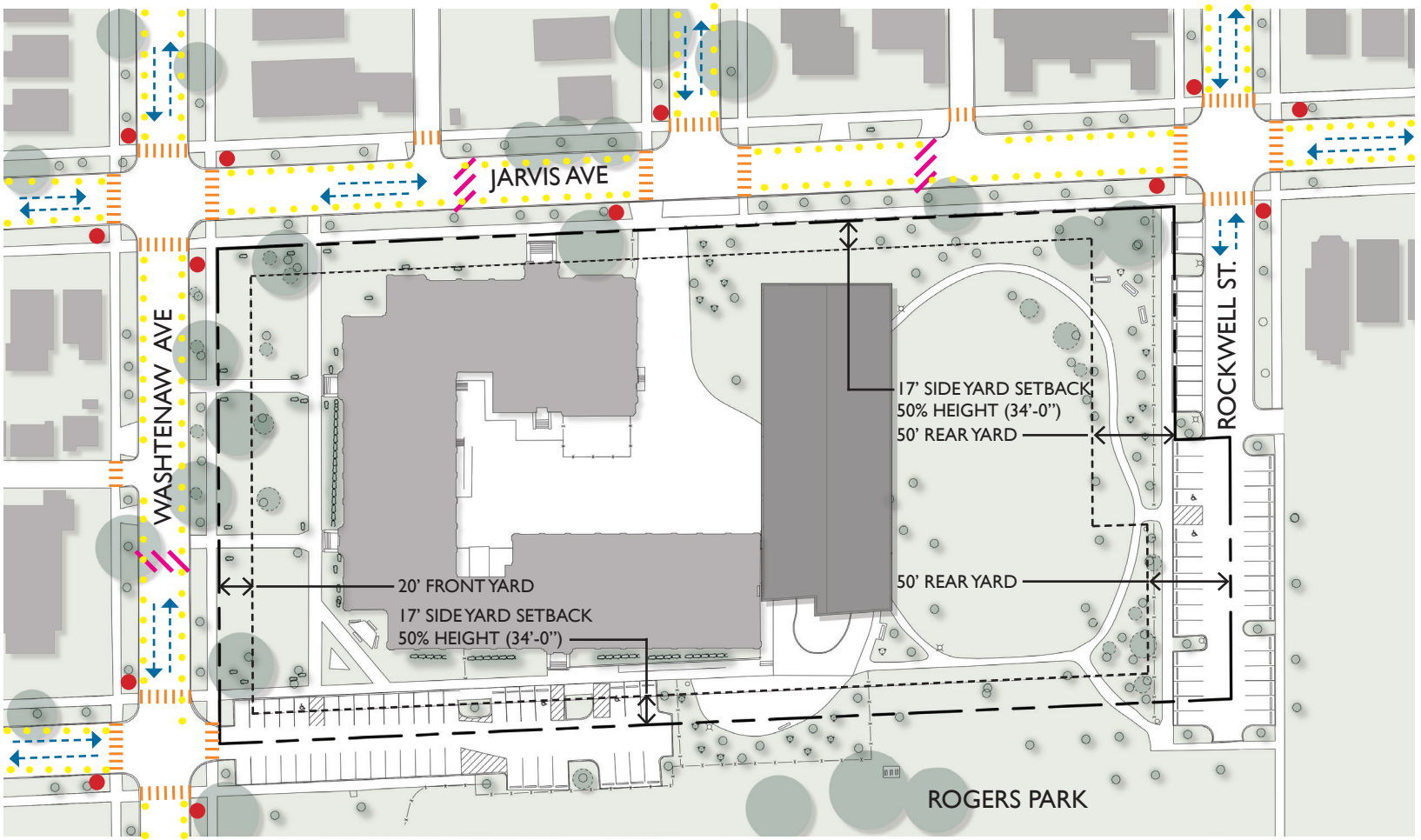
Philip Rogers
Elementary School

CONCEPTS

I PROJECT

SITE ANALYSIS



PROPERTY LINE
SITE SETBACKS
PARKING
STOP SIGNS
SPEED BUMPS
GENERAL TRAFFIC
CROSSINGS
PROPOSED ANNEX
SINGLE HOMES DWELLINGS
MULTI-FAMILY DWELLINGS
TOPOGRAPHIC CHARACTERISTICS

0 25 50 100 200

SPACE PROGRAM

TEACHING STATIONS	DESIGN	ACTUAL
(6) TYPICAL 720 SF ACADEMIC CLASSROOM	4560	5408
(1) NEW CLUSTER PROGRAM	760	778
(1) PULL-OUT SPACE FOR INDIVIDUAL STUDENTS WITH SPECIAL NEEDS	760	750
(2) SCIENCE CLASSROOMS WITH STORAGE	2160	2208
(1) MUSIC ROOM WITH STORAGE	1520	1626
(1) DRAMA CLASSROOM WITH STORAGE	1080	1125
(1) ADDITIONAL STORAGE IN LIEU OF KILN, ADJ TO ART ROOM	90	0
TOTAL	10930	11895

ADMINISTRATION CENTER	DESIGN	ACTUAL
(1) ADMINISTRATIVE REMOTE FROM OFFICE	150	170
(1) FACULTY WORK ROOM / RESOURCES ROOM (NOT CONTIGUOUS WITH ADMIN CENTER)	450	480
TOTAL	600	650

DINING CENTER / MULTI-PURPOSE ROOM	DESIGN	ACTUAL
(1) STUDENT DINING ROOM	3720	3508
(1) HYBRID KITCHEN	1000	1680
(1) SERVERY (HOUSES TWO SERVING LINES)	890	Part of Kitchen SF
(1) KITCHEN OFFICE	100	158
(2) KITCHEN STAFF TOILETROOMS: MEN & WOMEN / UNISEX	150	119
(2) KITCHEN STAFF LOCKERS	300	100
(1) RECYCLING	100	410
(1) STORAGE	200	157
(1)DINING STORAGE	500	321
TOTAL	6960	6453

BUILDING SUPPORT	DESIGN	ACTUAL
(2) MAIN ENTRANCE VESTIBULE / ANNEX LINK	1560	1297
(1.5) 150' LONG CORRIDOR WITH LOCKERS 15' WIDE	3375	4161
(1) TOILET ROOMS: BOYS, GIRLS STAFF/UNISEX & JANITORS CLOSET	760	792
(1) TOILET ROOMS: BOYS, GIRLS STAFF/UNISEX	690	792
(2) STAIRS	800	702
(1) MECH ROOMS	1110	825
(1) MDF	280	272
(1) ELECTRICAL ROOM	300	0
TOTAL	8875	8841

ALLOCATION SUMMARY	Column1	Column2
PROGRAM TOTAL @ 80%	27365	27839
ENVELOPE, PARTITION & SHAFTS @ 20%	5473	
TOTAL BUILDING AREA	32838	30960

AREA CALCS

BUILDING AREA DIAGRAMS AND AREA CALCS

PBC CPS – ROGERS ELEMENTARY SCHOOL

Gross Square Footage Calculations

First Floor Area Gross: 15,480 SF

Second Floor Area Gross: 15,480 SF

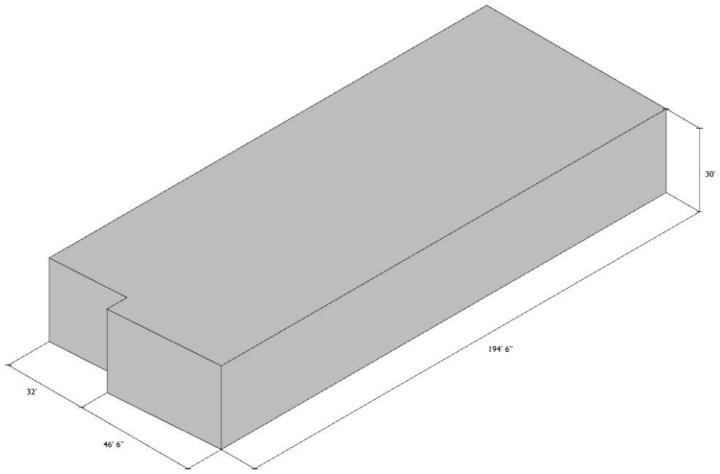
Usable Square Footage Calculations

First Floor Usable: 11,972 SF = 77% efficient

Second Floor Usable: 12,759 SF = 82% efficient

Enclosed Volume = 456,503 ft^3

Exterior Surface Area = 30,571 SF (not including floor slab or faces connected to existing)



LEED

LEED v4 for BD+C: Schools

Project Checklist

Project Name: Rogers Elementary School
Date: 10.05.201

Y	?	N			
			Credit	Integrative Process	1

9	4	11	Location and Transportation	15
		10	Credit	LEED for Neighborhood Development Location	15
	1		Credit	Sensitive Land Protection	1
	2		Credit	High Priority Site	2
4			Credit	Surrounding Density and Diverse Uses	5
4			Credit	Access to Quality Transit	4
		1	Credit	Bicycle Facilities	1
	1		Credit	Reduced Parking Footprint	1
1			Credit	Green Vehicles	1

9	0	2	Sustainable Sites	12
Y			Prereq	Construction Activity Pollution Prevention	Required
Y			Prereq	Environmental Site Assessment	Required
1			Credit	Site Assessment	1
1			Credit	Site Development - Protect or Restore Habitat	2
1			Credit	Open Space	1
3			Credit	Rainwater Management	3
2			Credit	Heat Island Reduction	2
1			Credit	Light Pollution Reduction	1
		1	Credit	Site Master Plan	1
		1	Credit	Joint Use of Facilities	1

8	0	1	Water Efficiency	12
Y			Prereq	Outdoor Water Use Reduction	Required
Y			Prereq	Indoor Water Use Reduction	Required
Y			Prereq	Building-Level Water Metering	Required
2			Credit	Outdoor Water Use Reduction	2
5			Credit	Indoor Water Use Reduction	7
1			Credit	Cooling Tower Water Use	2
		1	Credit	Water Metering	1

15	0	6	Energy and Atmosphere	31
Y			Prereq	Fundamental Commissioning and Verification	Required
Y			Prereq	Minimum Energy Performance	Required
Y			Prereq	Building-Level Energy Metering	Required
Y			Prereq	Fundamental Refrigerant Management	Required
4			Credit	Enhanced Commissioning	6
10			Credit	Optimize Energy Performance	16
		1	Credit	Advanced Energy Metering	1
		1	Credit	Demand Response	2
		3	Credit	Renewable Energy Production	3
1			Credit	Enhanced Refrigerant Management	1
		1	Credit	Green Power and Carbon Offsets	2

7	0	2	Materials and Resources	13
Y			Prereq	Storage and Collection of Recyclables	Required
Y			Prereq	Construction and Demolition Waste Management Planning	Required
4			Credit	Building Life-Cycle Impact Reduction	5
		2	Credit	Building Product Disclosure and Optimization - Environmental Product Declarations	2
1			Credit	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
1			Credit	Building Product Disclosure and Optimization - Material Ingredients	2
1			Credit	Construction and Demolition Waste Management	2

14	0	0	Indoor Environmental Quality	16
Y			Prereq	Minimum Indoor Air Quality Performance	Required
Y			Prereq	Environmental Tobacco Smoke Control	Required
Y			Prereq	Minimum Acoustic Performance	Required
1			Credit	Enhanced Indoor Air Quality Strategies	2
2			Credit	Low-Emitting Materials	3
1			Credit	Construction Indoor Air Quality Management Plan	1
2			Credit	Indoor Air Quality Assessment	2
1			Credit	Thermal Comfort	1
2			Credit	Interior Lighting	2
3			Credit	Daylight	3
1			Credit	Quality Views	1
1			Credit	Acoustic Performance	1

1	0	0	Innovation	6
			Credit	Innovation	5
1			Credit	LEED Accredited Professional	1

4	0	0	Regional Priority	4
1			Credit	Regional Priority: Specific Credit	1
1			Credit	Regional Priority: Specific Credit	1
1			Credit	Regional Priority: Specific Credit	1
1			Credit	Regional Priority: Specific Credit	1

67	4	22	TOTALS	Possible Points:	110

Certified: 40 to 49 points, **Silver:** 50 to 59 points, **Gold:** 60 to 79 points, **Platinum:** 80 to 110

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SUSTAINABILITY | PERFORMANCE | DESIGN

PUBLIC BUILDING COMMISSION of Chicago

Chicago Public Schools

Philip Rogers
Elementary School

CONCEPTS

2 ZONING

ZONING ANALYSIS

PROJECT NAME: Rogers Elementary School Annex
PROJECT ADDRESS: 7345 N. Washtenaw Ave.
WARD: 50 - Debra L Silverstein

Zoning Information			Underlying Zone	Proposed Project	Notes
Zoning District:			RS-3	Change	
Residential Units:			N/A	N/A	
Off-Street Parking Spaces: (17-10-0101-B(1)a) (17-10-0207)			Existing 21 spaces also see automobile parking below (req'd 8x18 w/ 22' aisle per 17-10-1001	Need FTE from CPS. Assume total 20 spaces. Verify with CPS.	**MAY NEED ZONING RELIEF** Need FTE from CPS
Maximum F.A.R.: (17-2-0304-A)			Max FAR: 0.90	Existing FAR: 0.33 Proposed: .52	Need Updated Survey Site Area: 176,769 SF per boundary survey in transfer package (2009) Existing building to remain: 59,511 Proposed Annex: 32,838
Floor Area Ratio of Public & Civic Uses 17-13-1003-C			The Zoning Administrator is authorized to approve an administrative adjustment to allow any permitted Public and Civic use in an R district to exceed the applicable FAR by up ton 10% over the otherwise applicable maximum.	Does not exceed the max FAR	No adjustment required
Minimum Lot Area (MLA): (17-2-0301-A)			2,500 SF	Complies, No Change	
Automobile Parking: (17-10-0101-B(1)a) (17-10-0207) (17-10-0601) prohibited in front 20'			parking/loading stds apply when existing nonresidential bldg/use is expanded or enlarged by 15% or more (25% for uses in excess of 50yr s old). Applies to addition of floor area, seating capacity, employees or other measurement use d for off-street parking & loading req'mts 1 per 3 empl. + adtnl. determined by DZ/LUP	Existing parking is 21 spaces including 3 accessible, proposed is same.	Need FTE from CPS Parking does not appear to exceed zoning requirements. Parking may impede on side setback if accessed from a front yard permitted driveway per 17-10-0601
Bicycle Parking: Table (17-10-0207)			min. 1 per 10 off-street parking spaces req'd; 2'Wx6'Lx7'H ea.; may use up to (2) req'd parking spaces per 17-10-0302-C	XX existing, ?	A minimum of 5 will be provided to meet code requirement regardless of final FTE
Loading Berths: (17-10-1101)			0-24,999 GSF = 0 25,000-199,999 GSF = (1)10'x50' for buildings over 50,000 SF	(1) 10'x50' Loading Berth required, existing complies	No need for Zoning Relief Existing/New is located at the center of the site at the building "service courtyard". Need confirmation of placement from CPS
Uses: (17-2-0207)			Schools Permitted By Right (Existing)	No Change	
Setbacks	Front: (17-2-0305)	N. Washtenaw Ave.	set back distance equal to the avg front yd depth on nearest 2 lots on either side of the subject lot, excl lot w/least front yd depth by right: lesser of: 20' or 16% lot depth	Existing: approx. 75'	Note: new parking cannot encroach in front-yard
	Side: (17-2-0309)	Sherwin	greater of: 15' or 50% building height	Existing: approx. 41'	
	Side: (17-2-0309)	Jarvis	greater of: 15' or 50% building height	Proposed Building Height 33', required setback is 16'-6"; Annex location complies	No need for Zoning Relief
	Rear: (17-2-0306-C)	Rockwell	20' (per 17-2-0309-C for through-lot)	Proposed rear yard setback: 210'-0"	No need for Zoning Relief
Other Setbacks, Admin. Adjustment 17-13-1003-I			The Zoning Administrator is authorized to approve an administrative adjustment to permit a reduction of up to 50% in the depth of any setback required by the applicable zoning district regulations when such reduction would match the predominate yard depth of existing buildings on the block.		No need for Zoning Relief
Site Coverage (if applicable):				59,511 / 33% existing 92,349 / 52% proposed	
Height: (17-2-03011-A)			No Maximum Requirement (principal non-residential bldg)	Underside of roof structure: Existing Bldg Ht: 31'-6" Proposed Bldg Ht: 32'-7"	
Open Space: (17-2-0307)			Greater of: 400SF/DU or 6.5% Lot Area	Existing: XX% open space Proposed: XX% open space	
Green Roof / Features:			Green roof required	White reflective roof proposed	**To Be Confirmed**
Total Project Costs:				TBD (EST. $8.5M)	
Construction Jobs Created:					
No. Permanent Jobs Created:					
Reason for PD: (mandatory, elective, why)			17-8-0506; site exceeds 2 acres requiring PD subject to Zoning Administrator review of exception 17-8-0515-C(1); when determined that modification of existing development will have no adverse effect to neighborhood, traffic, bulk, scale, other measurable impacts	Request PD waiver for 17-8-0506. Schedule requires construction start Fall 2019	**PD WAIVER REQUESTED**
Questions / Zoning Issues:					
Other Concerns, Info, Notes:					

CODE ANALYSIS

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Building Code Narrative

TO	Team	FROM	Loren Johnson
ORGANIZATION	Legat Architects	RE	**Code Narrative**
PROJECT TITLE	Rogers Elementary Annex	PROJECT NO.	[PROJECT_NUMBER]
CC		DATE	10.03.2018

Chicago Building Code

1. 13-56-100 Occupancy Classification
   a. Class C, Assembly Units
   b. Class C-3, Schools
   c. Type 1A Schools - kindergarten and elementary schools
2. Construction Type
   a. Type 1B, Fire Resistive
3. Fire resistance requirements
   a. Subject to the provisions of Chapter 15-8, combustible material may be used in buildings of fire- resistive construction for the following purposes: Doors, door frames and bucks; *Windows and window frames; Interior trim, including grounds and furring; Finished flooring and sleepers; Frames, platforms and aprons of exterior show windows at street level; Handrails; Interior wall and ceiling finishes; Roof insulation; Exterior wall finishes, when in compliance with Sections 15-8-080 through 15-8-086.*
   b. Exterior Bearing Walls: 3 hours
      i. 2 hours: when exterior walls face a street, public open space, yard or court not less than 30 feet in width
   c. Exterior Nonbearing Wall, Outside exposure: 2 hours
   d. Exterior Nonbearing Wall, Inside exposure: 2 hours
   e. Interior Bearing Wall: 3 hours
   f. Interior Nonbearing Walls/Partitions: 1 hour
      i. At locations which require a higher rating: dependent on use
   g. Exterior Columns: 3 hours
      i. None: when building has automatic sprinkler system as defined in Chapter 15-16 & does not exceed 55 feet in height, or if column is outside building envelope, faces a public way of not less than 30 feet in width, and does not support exterior floors or walkway intended for normal human occupancy
   h. Interior Columns
      i.
   i. Beams, Girders, Trusses
      i.
   j. Floor Construction

      i.
   k. Roof Construction
      i.
4. 13-84-020 Capacity of Schools
   a. The total capacity of a school shall be determined in accordance with the occupancy content factors established in Section 13-56-310, except that rooms not used or used only occasionally by students shall not be included in computing each total capacity. Such rooms and spaces include the following:
      i. Assembly rooms and gymnasiums;
      ii. Cafeterias and lunchrooms;
      iii. Locker, toilet and storage rooms;
      iv. Corridors and other circulation space;
      v. Service and equipment rooms.
5. 13-56-310 Assembly units and open air assembly units – Occupancy content.
   a. For assembly units and open air assembly units, the occupancy content shall be based on the capacity of the rooms or spaces used for assembly purposes and shall be determined as follows:
   b. (a) In rooms or spaces with fixed seating, the occupancy content shall be the actual number of seats provided. When no divisions between seats are provided, fixed seating shall be computed at 18 inches per person.
   c. (b) In rooms or spaces without fixed seating, the occupancy content shall be determined by the dividing of the net floor area (excluding the areas occupied by elevators, toilet rooms, stairways, other shaft enclosures, and by permanent fixtures such as bowling alleys, bars, cigar counters, exit facilities, entrance vestibules, lunch counters and serving spaces for same, etc.) by the floor area per person established in the following table:
   d. Occupancy Floor Area Per Person
   e. (1) School classrooms (other than open plan schools) and recreation rooms 20 sq. ft.
   f. (2) Open plan schools, school laboratories and shops 30 sq. ft.
   g. (3) Museums, libraries and similar uses 20 sq. ft.
   h. (4) Restaurants 15 sq. ft.
6. (5) Other assembly uses 6 sq. ft.
7. (6) Exhibition areas 20 sq. ft.
8. (7) Day care center – Class I 35 sq. ft.
9. 13-56-310 Occupant Load
   a. In rooms or spaces without fixed seating, the occupancy content shall be determined by the dividing of the net floor area (excluding the areas occupied by elevators, toilet rooms, stairways, other shaft enclosures, and by permanent fixtures such as bowling alleys, bars, cigar counters, exit facilities, entrance vestibules, lunch counters and serving spaces for same, etc.) by the floor area per person established in the following:

      i. School classrooms (other than open plan schools) and recreation rooms: 20 sq. ft./person
   b. Occupant Load Calculation
      i. First Floor: 2,953 NSF / 20 SF/person = **148 people**
      ii. Second Floor: 7,608 NSF / 20 SF/person = **381 people**
      iii. Total Occupant Load: **529 people**
10. 13-84-030 Frontage requirements
   a. Every assembly unit shall have frontage upon one or more open spaces consisting of streets not less than 30 feet wide or public alleys or other open spaces not less than ten feet wide which lead directly to a street.
      i. Type I schools – 501 feet or less – Street, one side – Street or open space, one side
      ii. Type I schools – 501 to 1000 – Street, one side – Street or open space, two sides
      iii. Type I schools – 1001 to 2500 – Street, two sides – Street or open space, one sides
11. 13-84-050 Special enclosures and separations
   a. The floor construction and enclosing partitions of assembly rooms having a capacity exceeding 300 persons shall be of construction providing fire resistance of not less than **two hours**. ***(Dining Room)***
   b. The floor construction and enclosing partitions of assembly rooms having a capacity not exceeding 300 persons shall be of construction providing fire resistance of not less than **one hour**.
   c. Partitions, floor constructions and ceiling construction enclosing all public corridors of assembly units shall be of construction providing fire resistance of not less than **one hour.**
12. 13-84-140 Planning requirements for Type I schools.
   a. Every Type I school shall comply with the following planning requirements:
   b. Basement Rooms. No floor of a classroom or study room shall be located more than two feet below the building grade adjacent to such rooms except rooms used for shops and other vocation classes.
   c. Fire Department Access Requirements. Excluding exterior wall areas of auditoriums, assembly halls, field houses, gymnasiums, swimming pools and theater areas, ***exterior wall areas in Type I schools which exceed 100 linear feet without windows, doorways, or other openings shall be provided with fire department access panels at each floor level spaced at intervals not exceeding 50 feet. Such access panels shall be not less than 32 inches wide and 48 inches high with the bottom of the access panel not over 32 inches above the floor.*** Panels shall be constructed of materials and installed in such a manner to be readily removed by the fire department. Their construction and installation shall be approved by the fire commissioner.
13. 13-160-140 Maximum Travel Distance
   a. Assembly units (except open plan schools):

      i. Grade and non-grade floors: **150 ft.** (No travel distance increases are permitted due to 13-160-150)
14. 13-160-160 Maximum distance from end of corridor.
   a. The maximum travel distance to an exit from the end of a corridor shall be not more than 50 percent of the travel distance permitted in Sections 13-160-140 and 13-160-150, ***except that in Type I schools, such distance shall not exceed 20 feet,*** and in the case of nursing homes and sheltered care facilities as defined in Section 13-4-010 and as further defined by the rules and regulations promulgated by the board of health under the authority, as applicable, of Section 4-6-090 , Section 4-6-100 or Section 4-6-110 , there shall be an exit at the end of each corridor.
15. 13-160-040 Exit Types Above or below grade
   a. Exits from a story above or below grade shall consist of interior stairways except as otherwise required in this section.
16. 13-160-190 Unit of Exit Width
   a. 22 inches (add 12 inches for ½ unit)
17. 13-84-180 Width of exits
   a. Capacity of stairs and other vertical exits: **100 persons per unit of exit width**
   b. Capacity of doorways, corridors, and horizontal exit connections: **115 persons per unit of exit width**
   c. Exit Width Calculation:
      i.
18. Loading Berths
   a.
19. Parking Requirements
   a.

ATTACHMENTS None

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PUBLIC BUILDING COMMISSION of Chicago

Chicago Public Schools

Philip Rogers
Elementary School

CONCEPTS

ARCHITECTURAL

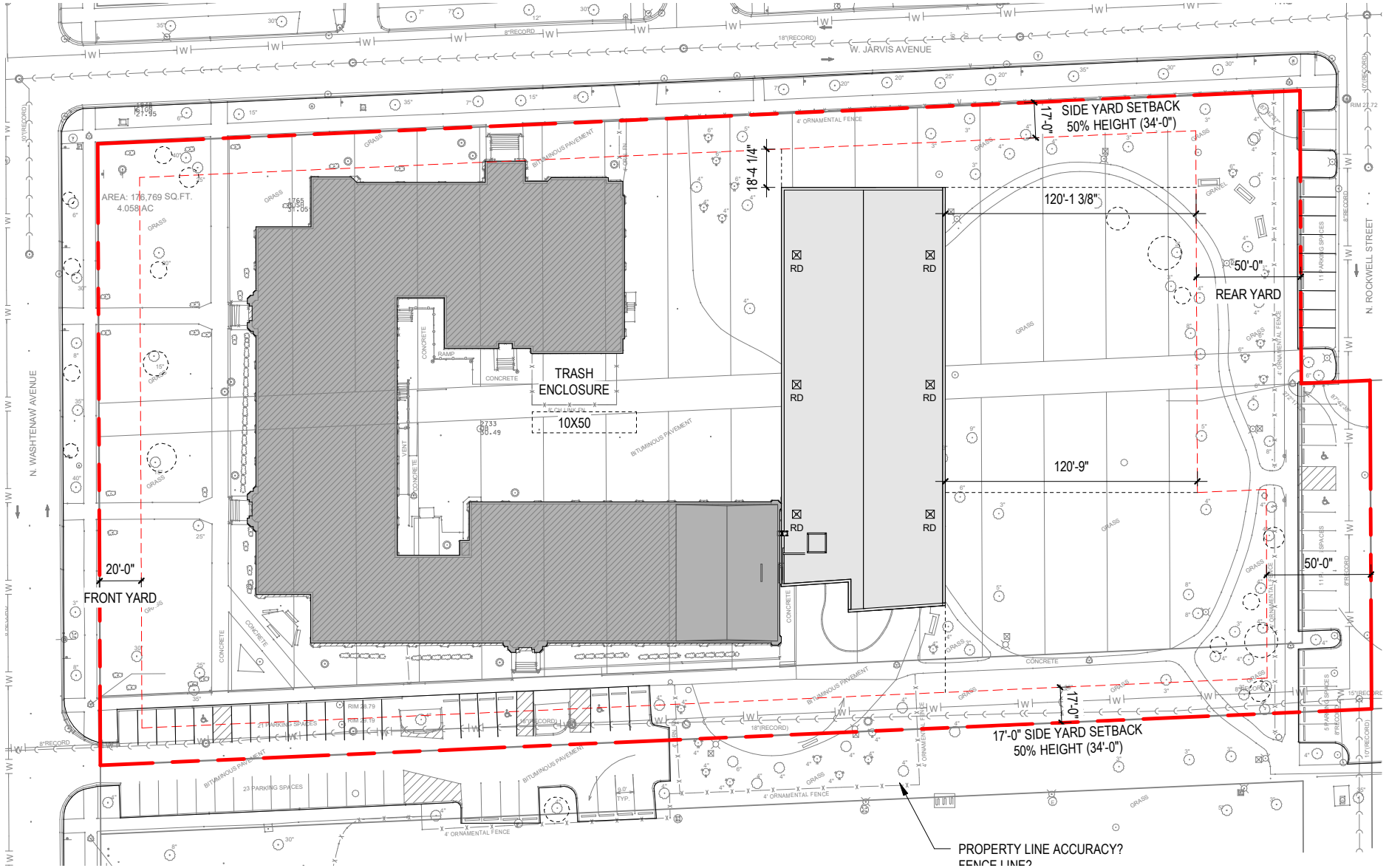
CONFIRMATION

Legat Architects has reviewed the Key Date Schedule provided by the Public Building Commission of Chicago (PBC), dated October 3, 2018, and find no objections. It is our understanding that 100% Schematic Design shall be submitted to the PBC on November 21, 2018, with interim completion dates as follows:

- Concept Design and Assessment: October 5, 2018.
- 60% Schematic Design (for aide in development of the CM RFP): Mid-October (exact date to be determined).

Legat Architects has reviewed all documents distributed by the PBC and Chicago Public Schools (CPS) related to Rogers Elementary School, including existing building drawings and assessment reports, design guidelines and standards, draft program and test fit, standard specifications etc., and will, to the best of our ability, provide a new annex and renovation of the existing facility conforming to said documents. Although several divisions of the CPS standard specifications are still in development, Legat Architects will incorporate the updated standards as they become available.

SITE PLAN



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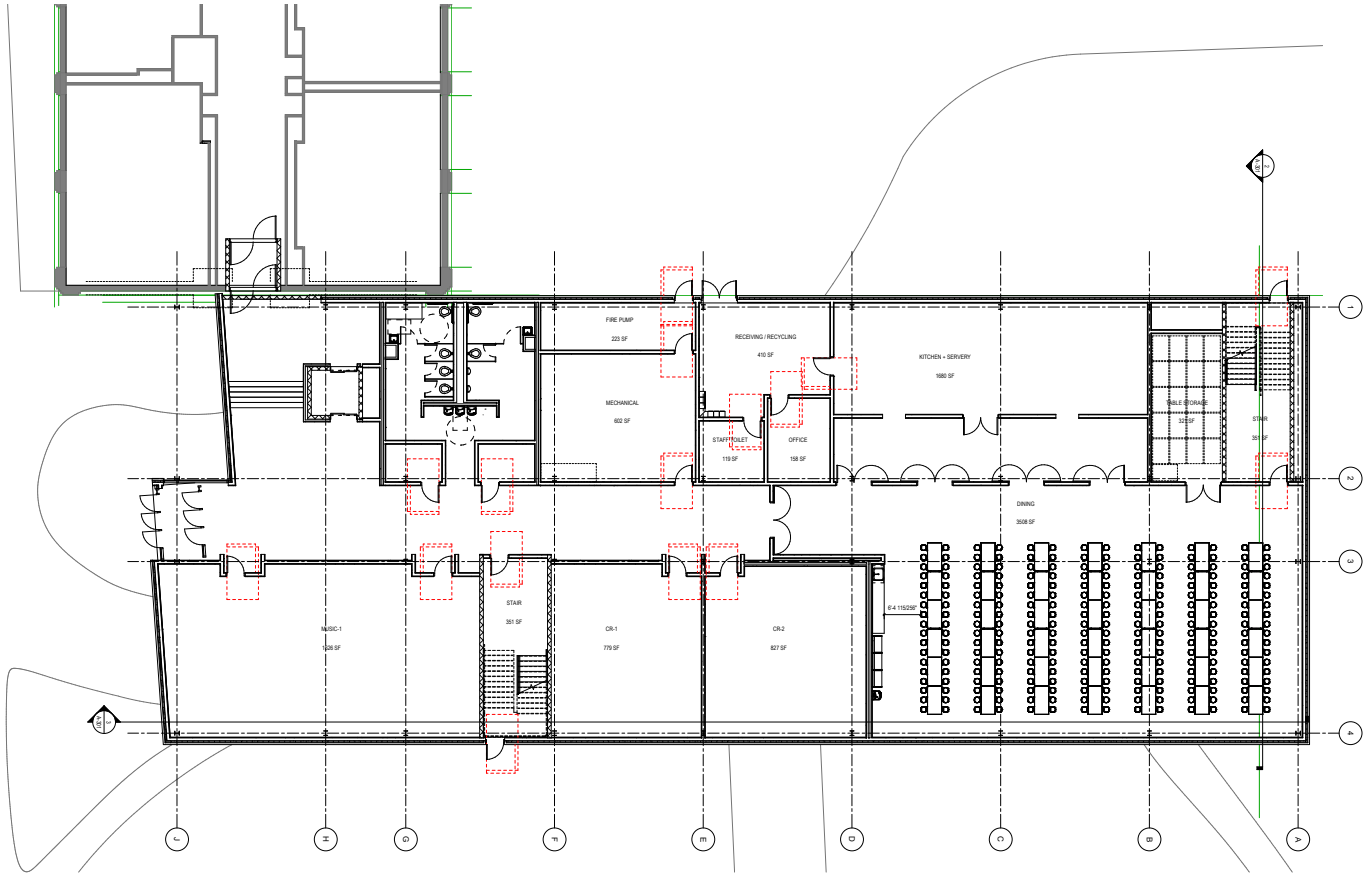
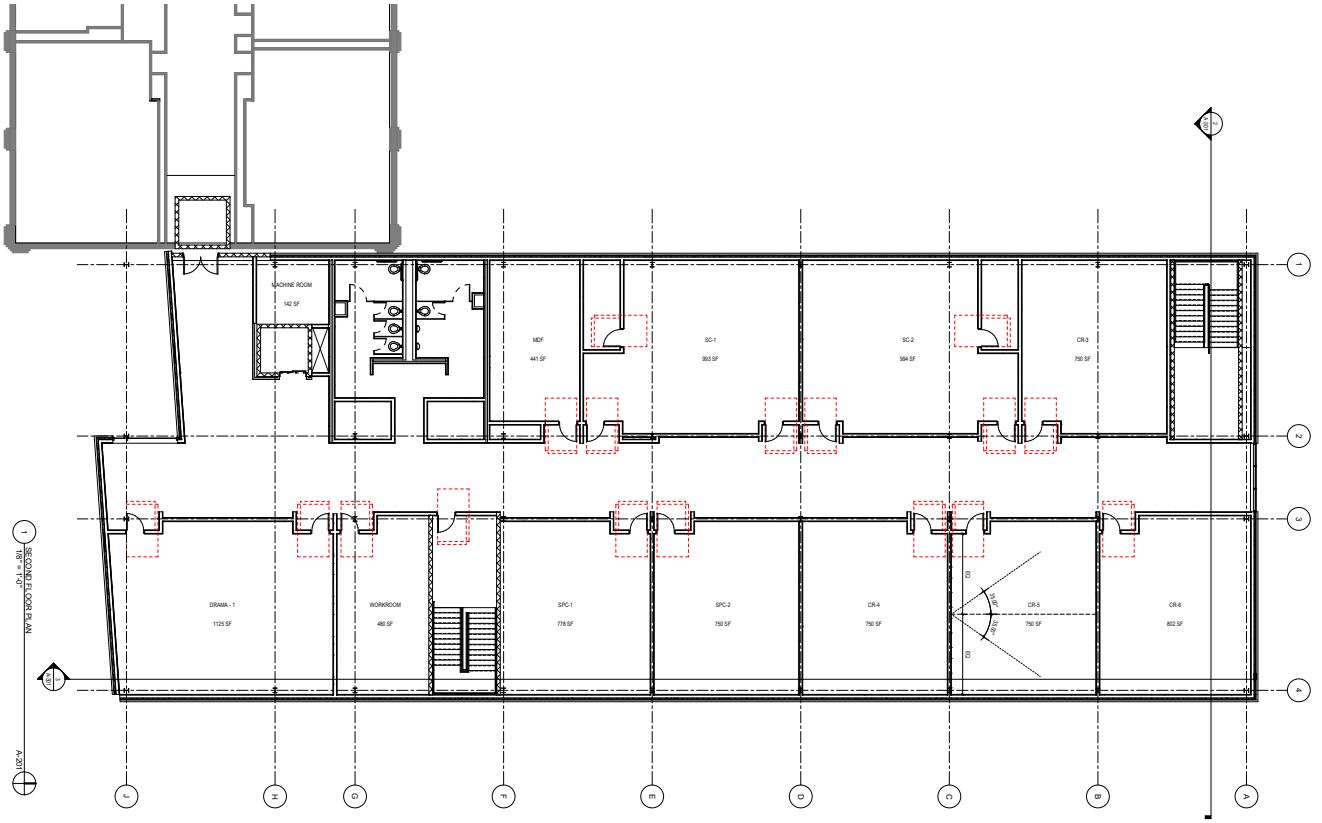
PUBLIC BUILDING COMMISSION of Chicago

Chicago Public Schools

FLOOR PLAN


FIRE PUMP
223 SF
MECHANICAL
602 SF
RECEIVING / RECYCLING
410 SF
STAFF TOILET
119 SF
OFFICE
158 SF
KITCHEN + SERVERY
1680 SF
TABLE STORAGE
STAIR
DINING
3508 SF
STAIR
351 SF
MUSIC-1
CR-1
779 SF
CR-2
827 SF
E 4 115/256"

FLOOR PLAN



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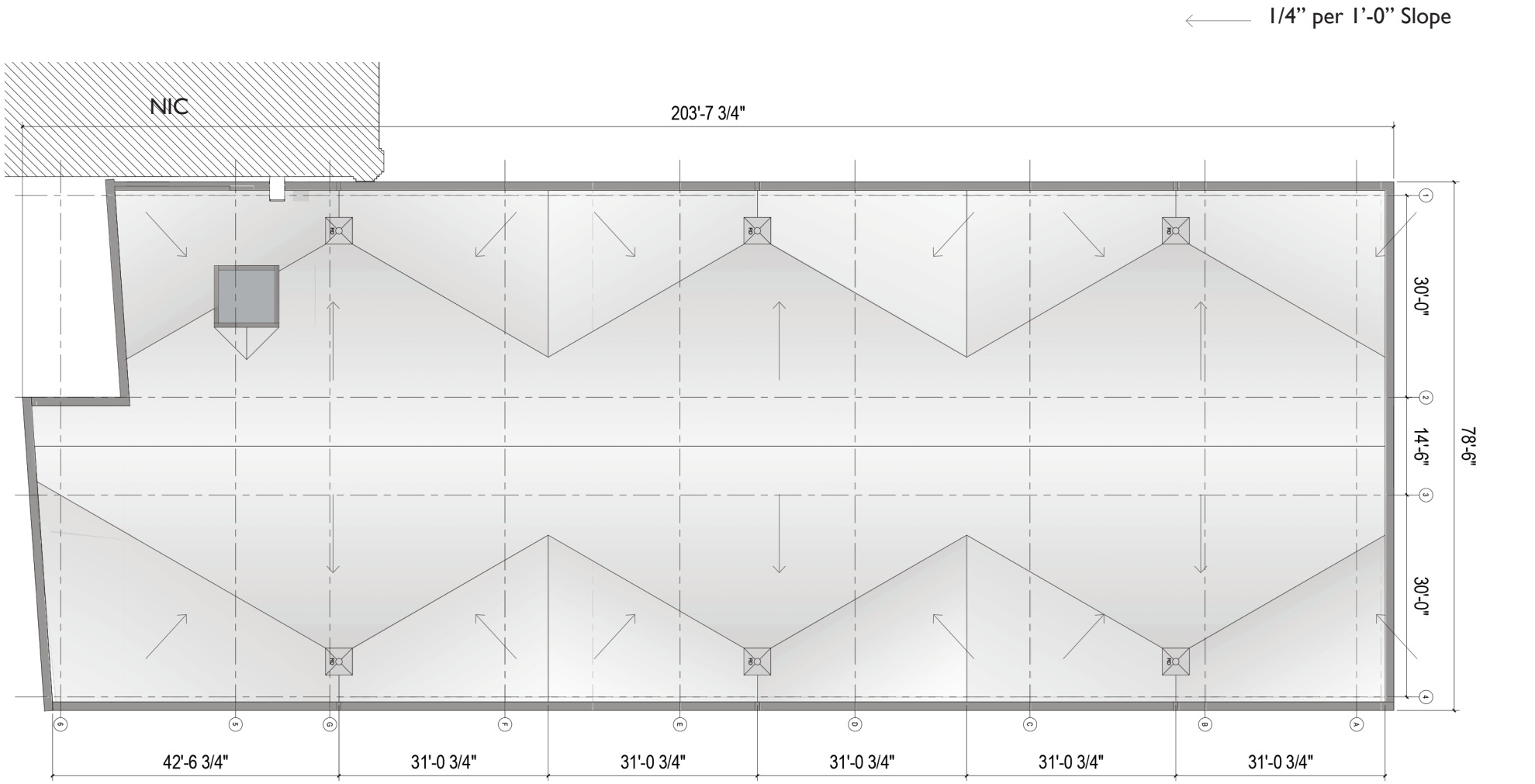
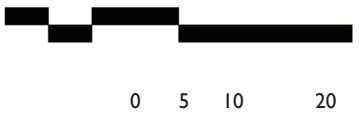
SUSTAINABILITY | PERFORMANCE | DESIGN

PUBLIC BUILDING COMMISSION of Chicago

Chicago Public Schools

ROOF PLAN


1/4" per 1'-0" Slope
NIC
203'-7 3/4"
30'-0"
14'-6"
30'-0"
78'-6"
42'-6 3/4"
31'-0 3/4"
31'-0 3/4"
31'-0 3/4"
31'-0 3/4"
31'-0 3/4"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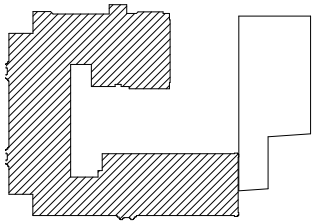
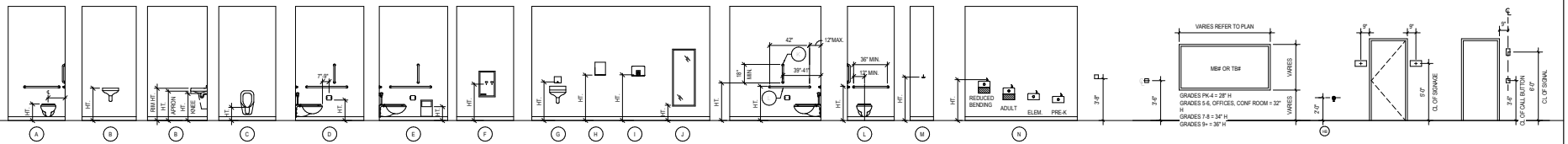

KEY PLAN

TYPICAL MOUNTING HEIGHTS

TYPICAL MOUNTING HEIGHTS

NOTE: NOT ALL FIXTURES, EQUIPMENT, ACCESSORIES, AND DEVICES SHOWN BELOW ARE APPLICABLE FOR THIS PROJECT



TOILET ACCESSORIES SCHEDULE & STANDARD MOUNTING HEIGHTS

A — WATER CLOSET
PRE-K ADA HEIGHT: 15" A.F.F. TO TOP OF SEAT
CENTERLINE: 12"
ELEMENTARY ADA HEIGHT: 15" A.F.F. TO TOP OF SEAT
CENTERLINE: 15"
ADULT ADA HEIGHT: 18" A.F.F. TO TOP OF SEAT
CENTERLINE: 18" (THIS IS A FIXED DIMENSION THAT DOES NOT ALLOW FOR CONSTRUCTION TOLERANCE)
STANDARD HEIGHT: 15" A.F.F. TO TOP OF SEAT

B — LAVATORY
PRE-K ADA HEIGHT: 31" A.F.F. MAX. RIM HEIGHT
KNEE SPACE: PARALLEL APPROACH
ELEMENTARY ADA HEIGHT: 31" A.F.F. MAX. RIM HEIGHT
KNEE SPACE: 24" A.F.F. MIN.
BOTTOM OF APRON: 27" A.F.F. MIN.
STANDARD ELEMENTARY HEIGHT: 27" A.F.F. RIM HEIGHT
ADULT ADA HEIGHT: 34" A.F.F. MAX. RIM HEIGHT
KNEE SPACE: 27" A.F.F. MIN.
BOTTOM OF APRON: 29" A.F.F. MIN.
STANDARD ADULT HEIGHT: 34" A.F.F. RIM HEIGHT

C — URINAL
ELEMENTARY ADA HEIGHT: 17" A.F.F. MAX. TO RIM
ADULT ADA HEIGHT: 17" A.F.F. MAX. TO RIM
STANDARD HEIGHT: 24" A.F.F. MAX. TO RIM

D — TOILET PAPER DISPENSER
PRE-K ADA HEIGHT: 31" A.F.F. MAX. TO OUTLET OF THE DISPENSER
ELEMENTARY ADA HEIGHT: 37" A.F.F. MAX. TO OUTLET OF THE DISPENSER
ADULT ADA HEIGHT: 47" A.F.F. MAX. TO OUTLET OF THE DISPENSER
STANDARD HEIGHT: 32" A.F.F. MAX. TO OUTLET OF THE DISPENSER

E — SANITARY NAPKIN DISPOSAL
18" A.F.F. TO THE OPENING (RECOMMENDED DIMENSION)
15" A.F.F. MIN. ALLOWABLE DIMENSION

F — SANITARY NAPKIN DISPENSER
44" A.F.F. TO THE HIGHEST OPERABLE PART (RECOMMENDED DIMENSION)
48" A.F.F. MAX. ALLOWABLE DIMENSION

G — SOAP DISPENSER (OVER SINK)
PRE-K ADA HEIGHT: 36" A.F.F. TO HIGHEST OPERABLE PART
ELEMENTARY ADA HEIGHT: 40" A.F.F. TO HIGHEST OPERABLE PART
STANDARD ELEMENTARY ALIGN BOTTOM WITH BOTTOM OF MIRROR
ADULT ADA HEIGHT: 44" A.F.F. TO HIGHEST OPERABLE PART (RECOMMENDED DIMENSION)
48" MAX. ALLOWABLE DIMENSION

H — PAPER TOWEL DISPENSER
PRE-K ADA HEIGHT: 36" A.F.F. TO HIGHEST OPERABLE PART
ELEMENTARY ADA HEIGHT: 40" A.F.F. TO HIGHEST OPERABLE PART
ADULT ADA HEIGHT: 47" A.F.F. TO HIGHEST OPERABLE PART (RECOMMENDED DIMENSION)
48" MAX. ALLOWABLE DIMENSION
STANDARD HEIGHT: 46" A.F.F. TO THE BOTTOM

I — HAND DRYER
PRE-K ADA HEIGHT: 36" A.F.F. TO HIGHEST OPERABLE PART
ELEMENTARY ADA HEIGHT: 40" A.F.F. TO HIGHEST OPERABLE PART
ADULT ADA HEIGHT: 47" A.F.F. TO HIGHEST OPERABLE PART (RECOMMENDED)
48" MAX. ALLOWABLE DIMENSION
STANDARD HEIGHT: BOTTOM AT 40" A.F.F.

J — FULL-LENGTH MIRRORS
(ADA) ALL AGES 15" A.F.F. TO BOTTOM OF REFLECTIVE SURFACE (RECOMMENDED DIMENSION)
35" MAX. ALLOWABLE DIMENSION
STANDARD ABOVE LAVATORY: BOTTOM OF MIRROR AT SINK 1" ABOVE BACKSPLASH OR NO LESS THAN 5" ABOVE LAVATORY SURFACE

K — VERTICAL GRAB BAR
PRE-K HEIGHT: 25" A.F.F. TO BOTTOM OF BAR (RECOMMENDED DIMENSION)
ELEMENTARY HEIGHT: 30" A.F.F. TO BOTTOM OF BAR (RECOMMENDED DIMENSION)
ADULT: HEIGHT: 40" A.F.F. TO BOTTOM OF BAR (RECOMMENDED DIMENSION)
39"-41" ALLOWABLE DIMENSION

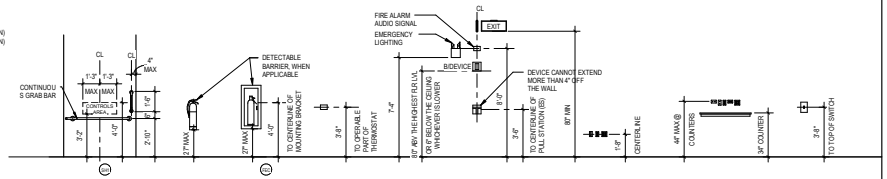
L — SIDE WALL/REAR WALL GRAB BAR
PRE-K HEIGHT: 20" A.F.F. TO TOP OF BAR
ELEMENTARY HEIGHT: 25" A.F.F. TO TOP OF BAR
ADULT HEIGHT: 35" A.F.F. TO TOP OF BAR (RECOMMENDED DIMENSION)
33"-36" ALLOWABLE DIMENSION

M — COAT HOOKS
PRE-K HEIGHT: 35" A.F.F. TO TOP
ELEMENTARY HEIGHT: 40" A.F.F. TO TOP
ADULT HEIGHT: 47" A.F.F. TO TOP (RECOMMENDED DIMENSION)
48" MAX. ALLOWABLE DIMENSION

N — DRINKING FOUNTAINS
PRE-K ADA HEIGHT: 27" A.F.F. MAX. TO SPOUT
ELEMENTARY ADA HEIGHT: 30" A.F.F. MAX. TO SPOUT
STANDARD ELEMENTARY HEIGHT: 30" A.F.F. MAX. TO SPOUT
ADULT ADA HEIGHT: 36" A.F.F. MAX. TO SPOUT
REDUCED BENDING HEIGHT: 42" A.F.F. TO SPOUT (RECOMMENDED DIMENSION)
38" A.F.F. MIN - 43" A.F.F. ALLOWABLE DIMENSION

MAXIMUM REACH DEPTH AND HEIGHT

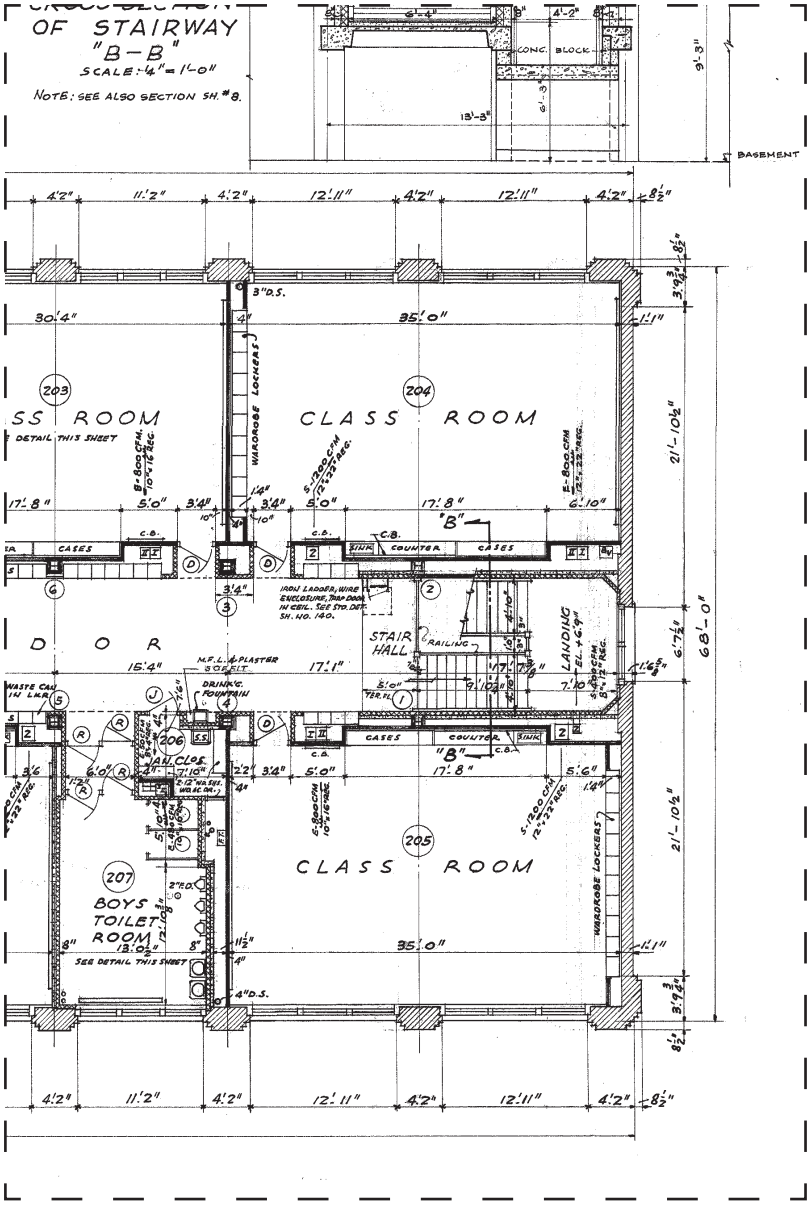
MAXIMUM REACH DEPTH	5 INCH	2 INCH	5 INCH	6 INCH	9 INCH	11 INCH
MAXIMUM REACH HEIGHT	48 INCH	46 INCH	42 INCH	40 INCH	36 INCH	34 INCH



Philip Rogers
Elementary School

FACILITY ASSESSMENT

3 ENVIRONMENTAL



3- 1.1

Given the age of the original building and subsequent additions (1936, 1952, 1954) and no environmental reports, it is likely that the following building materials are or may be at risk of containing lead or asbestos. See Figures 3-1.1, 3-2.1, and 3-2.2

- Paint (corridor walls)
- Vinyl tile mastic / asphalt paper (corridor floor)
- Duct and pipe elbows (basement and above-ceiling interstitial spaces
- Pack insulation, hangers, or adhesive at exterior decorative sheet metal.
- Ceiling tile and plaster
- Roof membrane and flashings

We recommend these areas and others where existing materials are likely to be disturbed to be tested by a qualified Environmental consultant.

This summary is only an assumption of potential likelyhood and all environmental items should be followed up on by a qualified Environmental consultant.

ENVIRONMENTAL - OBSERVATION

3- 2.1

At the basement level there are multiple asbestos warning notices on entrance doors, pipe insulation, and equipment insulation. We did not locate any environmental reports in the legacy documentation.

3- 2.2

Given the age and construction of the building, there is likely asbestos in the mastic below the vinyl tile in the corridors and lead paint on the interior walls.

Philip Rogers
Elementary School

FACILITY ASSESSMENT

4 CIVIL

CIVIL - SUMMARY

4- 1.1

The existing school is bounded by Jarvis Avenue to the north, Washtenaw Avenue to the west, Chicago Park District property to the south and Rockwell Street to the east. The existing site contains a three- story school building, HMA parking lot, rubberized playground and a grass playfield. An HMA parking lot is located south of the existing building. The property line between Rogers Elementary School and the Chicago Park District is roughly in the center of the parking lot. The portion of the parking lot located on school property contains 3 Handicap Spaces and 18 regular spaces. A separate parking lot is located on school property adjacent to Rockwell Street and contains 2 Handicap spaces and 12 regular spaces. Access to the main parking area is provided via Washtenaw Avenue. The existing school is handicap accessible via the main doors on the west side of the school and via the entrance at the southeast corner of the building.

Per conversations with the school staff, the sewer south of the building beneath the HMA parking lot has been repaired numerous times. The existing HMA parking lot is deteriorated with various cracks and areas where the asphalt is broken up. We are of the opinion the current condition of the parking lot is due to poor drainage in the east-west direction.

CIVIL - OBSERVATION

4- 2.1

In Figure 4- 2.1, the existing parking lot contains a total of 21 parking spaces (including 3 handicap spaces). The proposed FTE for the site is 70. The parking required for the site based on current zoning requirements is 1 space for every 3 employees plus additional parking and drop-off spaces as determined by Department of Zoning and Land Use. Therefore, the total parking required upon completion of construction is 23 spaces. The parking located adjacent to Rockwell Street must be used to comply with the onsite parking requirements.

4- 2.2

4- 2.3

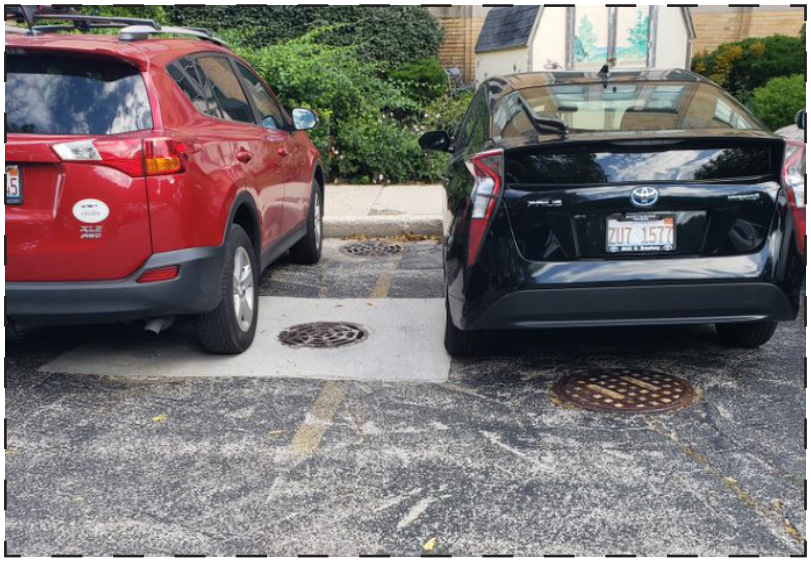
In Figure 4- 2.2, the existing sidewalk along the north side of the parking lot that provides handicap accessibility from the parking lot is not compliant for pedestrians walking in the east-west direction. Either the sidewalk should be removed and replaced to meet ADA requirements, or a sign should be added at the southwest corner of the existing sidewalk directing handicap pedestrians north to the sidewalk in the center of the block.

In Figure 4- 2.3, the existing handicap parking spaces at the east side of the main parking lot do not meet ADA standards. The cross slope of the spaces is above 2%. The handicap spaces should be relocated, or the area should be re-constructed to meet current ADA standards.

CIVIL - OBSERVATION

4- 3.1

In Figure 4- 3.1, the existing sidewalk along the north side of the northeast corner of the site (southwest corner of intersection of Jarvis Avenue and Rockwell Street) has numerous cracks and chips. The detectable warnings at the various corners are also substandard or in need of repair. Please note these areas are within Chicago Department of Transportation Right-of-Way.



4- 3.2

In Figure 4- 3.2, per conversations with school staff, the existing sewer line that runs along the south property line has been repaired in the past due to either the sewer collapsing or site blockage. We recommend televising the existing sewer to identify areas that should be removed and replaced.

CIVIL - OBSERVATION

4- 4.1

4- 4.2

In Figures 4- 4.1 and 4- 4.2, the existing parking lot south of the school has numerous cracks and areas where the asphalt has deteriorated completely. We recommend removing and replacing the existing parking lot. A barrier curb and gutter (depressed curb and gutter adjacent to ADA parking spaces) should be installed to facilitate drainage in the east west direction. The existing sidewalk may need to be removed and replaced due to the installation of the barrier curb and gutter. This work will need to be coordinated with the Chicago Park District due to proximity of the property line.

Philip Rogers
Elementary School

FACILITY ASSESSMENT

5 LANDSCAPE

LANDSCAPE - SUMMARY

Memorandum

10.05.2018

Project name: Rogers Elementary School
Project number: 8409

Subject: Landscape Narrative

Applicable Codes and Standards

1. Chicago Landscape Ordinance
   a. The Landscape Ordinance defines standards for parkway planting, as well as screening and interior landscape requirements for parking lots.
2. CDOT Street and Site Plan Design Standards and Rules and Regulations for Construction in the Public Way
   a. CDOT standards describe the construction of hardscape improvements within the right of way, including curbing, vehicular pavements, sidewalks, and associated details.
3. City of Chicago Sustainable Development Policy
   a. Outlines requirements for the city's sustainable site features if required. Further coordination with design team will be required to determine what points will be pursued.
4. US Green Building Council LEED Standards
   a. Outlines targets for sustainable building design if required.

Program Areas

1. Streetscape
   a. Streetscape will be required to meet the City of Chicago Landscape Ordinance and CDOT Street and Site Plan Design Standards. Street tress will be required approximately every 25' O.C. along Jarvis Ave. All street trees will be required to be a minimum 2-1/2" caliper. Approximately 1 tree will be required within the sodded parkway along Jarvis Ave.
2. Parking Lot
   a. All Vehicular Use Areas (VUA) will be required to meet the City of Chicago Landscape Ordinance.
   b. A 7' wide perimeter landscaped setback adjacent to the public ROW is required, including a continuous shrub hedge in front of a 4' high ornamental fence along 85th Street. Trees are required within setback at one per 25' of linear frontage.
   c. Internal landscape area equal to 7.5% of VUA is required to be provided for parking lots between 4,500 to 30,000 square feet of area. This applies to the full parking lot and VUA including the addition and existing parking lot.
   d. Trees are required within internal landscape area equal to one per 125 square feet exclusive of any trees required for landscape setback. Existing trees may count towards total tree requirement.
   e. Hose bibs area required every 100' throughout perimeter landscape area.
3. Playground
   a. A fully accessible playground meeting ADA and MOPD guidelines and requirements is to be provided south of proposed annex to replace existing playground disturbed by proposed annex.
   b. Protective rubber play surfacing will be installed within all play equipment fall-zones.

site design group, ltd.
888 south michigan avenue #1000
chicago, illinois 60605
tel 312.427.7240 fax 312.427.7241
www.site-design.com

4. Existing Field
   a. The adjacent existing field will need to be restored wherever impacted by construction activities.
   b. New concrete circulation path to be provided around field to connect existing path disturbed by proposed annex building.
   c. New or relocated exterior lighting to be provided around circulation path to replace any disturbed by proposed annex building.
   d. New landscaping to be provided around proposed annex. Landscape to include foundation plantings of shrubs and perennials/groundcover/ornamental grasses as well as some additional landscaping around proposed annex including trees, shrubs and perennials/ groundcover/ornamental grasses.
5. Plantings
   a. All plantings in VUA will be native or adaptive species of shrubs and perennials.
   b. All plantings outside of sodded areas to be native or adaptive shrubs, ornamental grasses, perennials, and groundcover.
   c. All sodded areas to have minimum 9" depth of planting soil.
   d. All perennials, groundcover, and ornamental grasses to have minimum 12" depth of planting soil.
   e. All shrubs to have minimum 24" depth of planting soil.
   f. All trees to have minimum 36" depth of planting soil.
   g. All planting areas outside of sod and fescue sod to have 3" shredded hardwood mulch. Trees in sodded areas to have 5' diameter of shredded hardwood mulch.
6. Trash Enclosure
   a. If existing trash enclosure is not adequate in size to accommodate proposed annex's trash needs or there is not a collection interior to building, a 6' high masonry trash enclosure is required. Trash enclosure is to fully enclose the required amount of dumpsters and other trash collection bins. Trash enclosure to include opaque metal, lockable gates. Provide bollards to protect gates. Vines to be planted at base of trash enclosure where adjacent to planting.

The site is comprised of a parking lot to the south, open lawn to the east with various species of trees throughout as well as some circulation paths, and a paved courtyard within the current wings of the school building which will become further enclosed with the new addition. The asphalt parking lot is largely in poor to fair condition, and is especially poor along the southern edge where the asphalt is deteriorated. The lawn is largely in fair condition around the perimeter of the site, with the exceptions typically being along the edge of pavement and especially within the winding circulation path that is used as the school's athletic field for recess/gym class. The paved courtyard is in fair condition, consisting of asphalt, some parking, a trash enclosure and some fenced in storage.

5- 1.1

LANDSCAPE - OBSERVATION

5 - 2.1

In Figure 5- 2.1, the parking lot asphalt pavement is deteriorated along the southern edge of parking lot. The remaining asphalt pavement appears to be near the end of its useful life and could use replacement. If parking lot pavement is replaced, parking lot will need to be reviewed to confirm it meets storm water regulations and landscape ordinance. Parking space requirements needs to be confirmed; Building Engineer mentioned south parking lot is shared with CPD.

5- 2.2

5- 2.3

In Figure 5- 2.2, the storage shed at community garden between school building and parking lot to the south appears to be leaning posing potential safety issue.

In Figure 5- 2.3, gap in ROW will require installation of one shade tree in ROW due to project proximity.

5 - 3.1

In Figure 5- 3.1, the Kitchen Community Garden shade structure is missing its fabric. The painted graphics as well as adjacent graphics are nearly completely faded away.

5 - 3.2

In Figure 5- 3.2, the Kitchen Community Garden planters are low on soil and are missing mulch.

LANDSCAPE - OBSERVATION

5 - 4.1

In Figure 5- 4.1, the open field east of proposed Annex is well used and needs new sod or seed. All improvements due to Annex addition such as updated circulation and additional landscape will require new sod adjacent to areas of work.

5- 4.2

5- 4.3

In Figure 5- 4.2, the site circulation and lighting will need to be updated due to Annex addition.

In Figure 5- 4.3, the paved interior space created by building wings is currently used as service space and storage with some parking. With Annex addition this space will be more fully enclosed with the only opening being to the north. Is there any program planned for this area?

Philip Rogers
Elementary School

FACILITY ASSESSMENT

6 STRUCTURAL

STRUCTURAL - SUMMARY

6- 1.1

6- 1.2

DMA Structural conducted a visual structural assessment of Philip Rogers Elementary School. The building structure was observed in the basement, first floor, second floor and at exterior walls. All exposed structural elements were observed to be in excellent condition. There were no visible signs (e.g. floor slopes, wall cracking, out of plumb construction) of damage to the main structural framing system which include the 1937 original school building and multiple additions at various vintages. In general, the original building and its additions have been well maintained over the years, and structurally, there are no areas of concern or elements in need of repair.

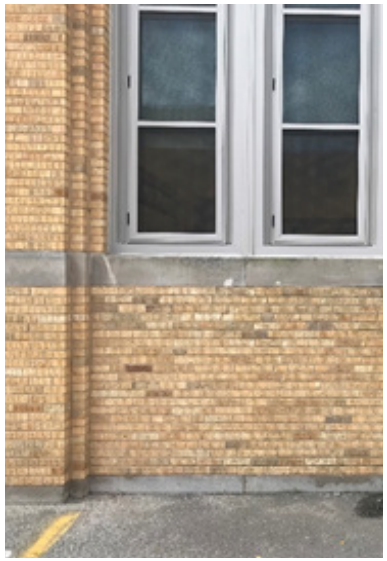
Figures 6-1.1 and 6-1.2 illustrate the condition of the exposed bottom side of the original first floor concrete slabs and joists construction. Aside from non-structural / cosmetic defects mostly present from within the furnace room, there are no signs of structural damage or deterioration to any structural elements. No cracking, abnormal deflection or damage to the structure is evident.

STRUCTURAL - OBSERVATION

6- 2.1

6- 2.2

6- 2.3



6- 2.4

The new annex is proposed to connect to the exposed east face of the1951 Southeast Addition; thus, this was an area of focus during the building assessment. There were no visible signs of structural damage or abnormalities within the stairwell (see Figure 6- 2.1), at the floor lines, nor along the exterior façade (see Figure 6- 2.2). Studying existing documentation on the school, the drawings appear to match the observable condition with no apparent inconsistencies. The planned partial demolition of the stairwell and subsequent width of exterior wall is achievable without impacting the main structural framing system.

Another area requiring architectural modifications (not pictured) and repurposing is the converted Faculty Room and Gym Storage/Office. There are no structural implications in converting this space as proposed.

Per Figure 6-2.3, there are some observable exterior features in need of improvement. These include exterior stairs and doors which have been weathered over time. None of these are problematic to the structure.

Per Figure 6-2.4, the exterior non-load bearing brick veneer has been maintained for the life of the building as evident by local caulking, grouting and brick replacement. Overall exposed brick, windows, sills, etc., appear to be in good shape without requiring any immediate repairs for the structural integrity.

Philip Rogers
Elementary School

FACILITY ASSESSMENT

7 ARCHITECTURAL

ARCHITECTURAL - GOALS

October 05, 2018

Design Goals
The goal of the new annex at Rogers Elementary School is to address overcrowding challenges of the existing school and the Rogers Park context. Functionally, the project provides new classrooms and space for dining hall, kitchen and servery, operations support, and playground. Work at the existing building will be limited to transforming the existing kitchen into a faculty workroom and storage area. Additional stormwater control functionality of the site is addressed.

The overall plan for the school addresses its context by formalizing the relationship between the school campus and the adjacent Rogers Park. The plan calls for developing an aesthetic for the new building which complements the historic nature of the campus (1936 original school and 1952-1954 additions). The facade on the new building design will be sympathetically designed to consider the scale, massing, color, and materials of the existing buildings. In particular, the original building and additions contains intricate brick and stonework integrated into the overall exterior envelope, which the new annex will respond to. Access to daylighting and views have been integrated into the design of the building with all classrooms having large windows with park-facing views. All student spaces including classrooms, dining room, library, and communicating link have visual access to outdoors.

Exterior Envelope Design Values
This project utilizes a durable, cost effective exterior envelope with thermal values meeting or exceeding current applicable energy code, including a glazing system with high-performing solar heat gain values without adding additional costs.

Glazing Systems
Storefront Basis of Design - EFCO Series 406 2x6 ½
IGU, Basis of Design Guardian SNX 62/27 SHGC: 27
AW-60 Performance grade aluminum architectural awning window integrated into storefront system
Exterior Solar Shading Mullion Extensions – 10" (REFER TO EXTERIOR ELEVATIONS)
Projection Factor = 0.09 (A/B)

Wall System – Basis of Design – UL Design Number V424
Non-Bearing Wall Interior Rating – 1 Hr.
Non-Bearing Wall Exterior Rating – 2 Hr.
Envelope Wall R-Value – 16.37 min.

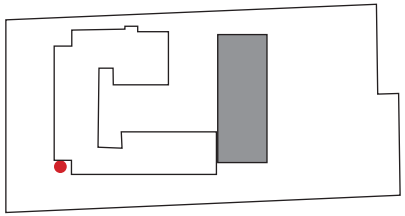
4" Brick
1 1/2" Air space
2 1/2" Expanded Polystyrene
Fluid Applied Air and Vapor Barrier
5/8" Exterior Sheathing
6" Cold Formed Metal Framing (no insulation)
5/8" Interior GWB

Roof System
EPDM Roofing Membrane
1/2" Substrate board
2 Layers polyisocyanurate insulation (R30) min
Base ply / temporary roof
5/8" roof substrate board
1 1/2" galvanized roof deck
Structurally Sloped Bar Joist framing

ARCHITECTURAL - OBSERVATION - EXTERIOR / GROUNDS

7 - 2.1

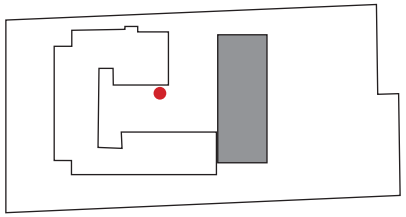
Existing gas service is located inside a chain-link fence enclosure at the southwest corner of the existing building. Location and review of the available survey documents indicate supply and service lines should not be impacted by the scope of work.



7 - 2.2

Existing 960 square foot trash enclosure contains an approximately 36 yard trash compactor, three (3) 6 yard recycling dumpsters, and an open space for storage of exterior maintenance supplies.

Appears to require additional space to accommodate additional capacity from the annex.



7 - 3.1

Figure 7-3.1 shows the roof of the existing building. Roof appears to be constructed of built-up modified bitumen in decent shape. Legacy documents from CPS show roof was last replaced in 2002.

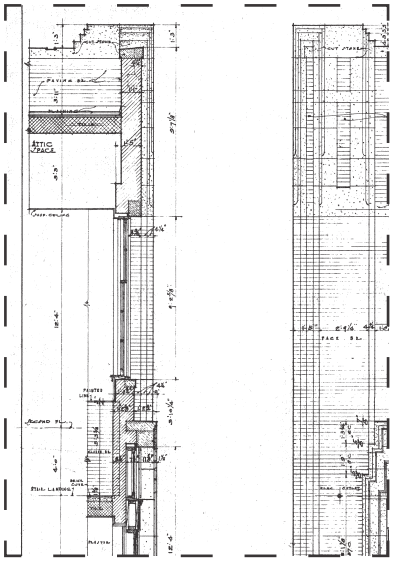
7 - 3.2

Figure 7-3.2 shows the area indicated by CPS as the preferred area of connection between the existing and the new annex.

The existing ramp, handrail, exterior door, window, exterior surface mounted lights, and roof-mounted light will be demolished during the course of construction of the annex.

Appears to require additional space to accomodate additional capacity from the annex.

ARCHITECTURAL - OBSERVATION - INTERIOR / ATTIC

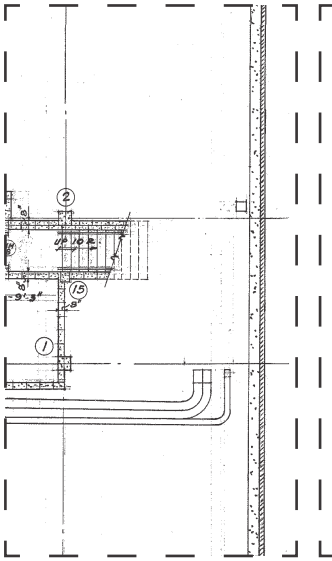


7 - 4.1

7 - 4.2

View from the interior of the attic indicates exposed structural clay masonry at the interior surface of the roof. Legacy documents confirm the construction of the roof. Note that this is the construction at the original building circa 1937, not the later addition which the annex will be connecting to.

ARCHITECTURAL - OBSERVATION - INTERIOR / BASEMENT



7 - 5.1

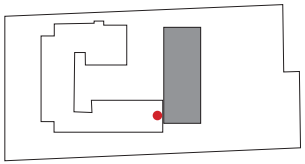
7 - 5.2

7 - 5.3

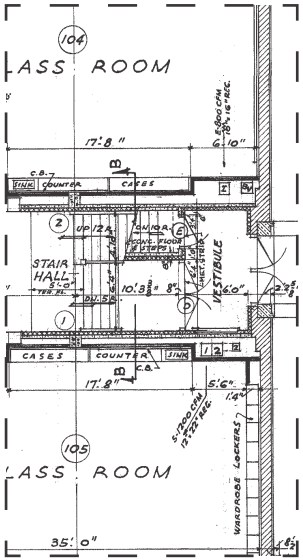
Figures 7-5.1 and 7-5.2 show the existing access to the basement which will be impacted by the construction of the link.

Existing doors, devices, cabinet heater, piping, ducting, emergency lighting, terrazzo flooring, and stairwell will be demolished or abandoned in place during construction.

Legacy drawings show mechanical piping running beneath this stairwell as well as piping and ductwork feeding the cabinet heater located on the first floor vestibule.



ARCHITECTURAL - OBSERVATION - INTERIOR / FIRST FLOOR

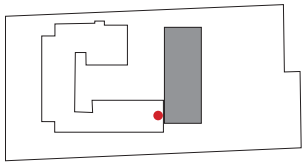


7 - 6.1

7 - 6.2

Figures 7-6.1 and 7-6.2 show the existing point of egress which will be demolished during the course of construction. Of note is the access to the basement which will need to be considered during the design process.

Existing doors, devices, cabinet heater, piping, ducting, emergency lighting, terrazzo flooring, and stairwell will be demolished or abandoned in place during construction.



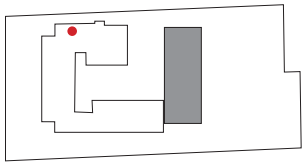
The existing first and second floor slabs will be connected to the new four-hour fire rated vestibule that will be inserted into this existing construction.

7 - 6.3

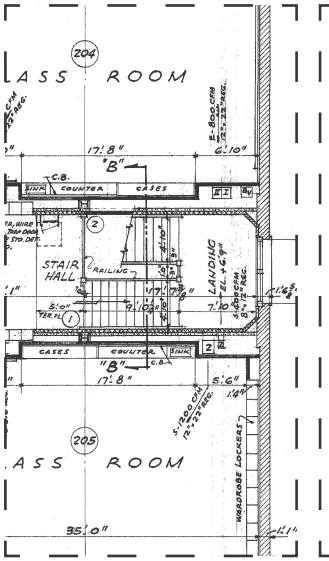
7 - 6.4

Existing kitchen was updated pproximately 2-3 years ago with new serving line equipment, replacing the original 1950's-era equipment. The current equipment is to be disconnected by the GC and removed by CPS Nutritional Services.

There is existing ductwork that provides ventilation to the exterior. This ductwork with be demolished or abandoned in place.



ARCHITECTURAL - OBSERVATION - INTERIOR / SECOND FLOOR



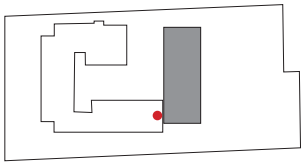
7 - 7.1

7 - 7.2

Figures 7-7.1 and 7-7.2 show the existing window which will be demolished during the course of construction.

Existing doors, devices, cabinet heater, piping, ducting, emergency lighting, terrazzo flooring, and stairwell will be demolished or abandoned in place during construction.

The existing first and second floor slabs will be connected to the new four-hour fire rated vestibule that will be inserted into this existing construction.



7 - 7.3

Of note is the roof access ladder, which is located adjacent to this stairwell. This access should be maintained or replaced in case of demolition.

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Philip Rogers
Elementary School

FACILITY ASSESSMENT

8 FIRE PROTECTION

FIRE PROTECTION - SUMMARY

8- 1.1

There is no existing fire protection service in either the main building or the annex space. We recommend to provide sprinkler coverage and accounting for the existing building load when sizing and selecting the new combined incoming water service and fire pump.

FIRE PROTECTION- OBSERVATION

8- 2.1

8- 2.2

No sprinkler system in the existing building

Fire panel is newer than 2000

Philip Rogers
Elementary School

FACILITY ASSESSMENT

9 PLUMBING

PLUMBING - SUMMARY

The existing building has what appears to be an existing 4" cold water service coming into the building. Exact size could not be determined due to thickened insulation with likely asbestos. There is a gate valve on the drop and no water meter on this main cold water line. There is no existing backflow preventer. Downstream of this are multiple taps from this existing cold water main. The first in sequence is a 2" cold water which is the dedicated main for the irrigation system. The subsequent taps are for plumbing fixtures in the adjacent powder room. The cold water service main then penetrated the adjacent wall and goes into the existing domestic water booster pump. This appears to be fairly new and in fairly good condition. The existing duplex sewage ejectors have been replaced, per the building engineer's direction.

The irrigation system is protected by a reduced pressure zone backflow preventer. Per the building engineer, the irrigation system's external components (lawn sprinkler and associated piping) does not work. This is likely due to negligence on piping winterization. The exact location of underground ruptured lines or the extent is unknown. The internal building components appear to be in good condition.

The existing water heater system has (2) gas fired, tank type water heater, complete with master thermostatic mixing valve, hot water recirculation and recirculating pump. The existing water heater system to remain. Building engineer stated that there were no existing drawings available. The pipe sizes and revisions performed on both the water heaters and recirculating system were not provided. The master thermostatic mixing valve is operating at roughly 98 deg. F. Recommend increasing to 110 deg.F. The hot water outlet temperature at both water heaters appears to be excessively high. At the time of site survey, temperature readouts at both units appears to be 210 deg.F. Refer to images attached. Recommend inspection of thermostat and reduction of temperature of water heaters and/or replace thermostats if faulty.

The existing kitchen has a (3) compartment sink hard piped into an adjacent sanitary drop. There is no existing floor mounted grease trap. There is an existing dipper well with associated underground cold water and sanitary connection. All associated kitchen fixtures and piping will be demolished.

The underground sanitary system would be existing to remain in the main building.

To accommodate the additional loads for the annex building, we recommend the following:

Provide a new combined incoming domestic water/fire protection service into the new addition. This would serve the domestic water load of the new addition. The domestic water service would have a new water meter and dual check backflow preventer. The fire protection service would split inside the building and will be proceeded by a dual check backflow preventer with integral meter. The hot water service will be provided by a new high efficiency gas fired tank type water heater with master thermostatic mixing valve and recirculation system.

A new underground sanitary piping system will be provided and tie into the existing sewer. Kitchen grease waste will be treated with local grease interceptors.

The new fire pump will be sized to accommodate potential future extension for sprinkler coverage of the existing building. Sprinkler design and layout of the new addition would be the base scope of design.

PLUMBING - OBSERVATION

9- 2.1

Figure 9- 2.1 shows the existing incoming water service. Recommend reworking service entry by replacing main gate valve and installed domestic water meter. Also recommend installing dual check backflow preventer. Asbestos abatement will be required.

9- 3.1

9- 3.2

Figure 9- 3.1 shows the existing water heater service and associated gate valve.

Figure 9- 3.2 shows the existing domestic water booster pump to remain. Unit appears to be in good condition.

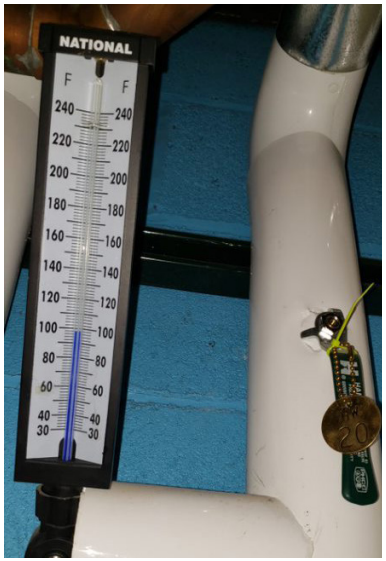
9- 3.3

9- 3.4

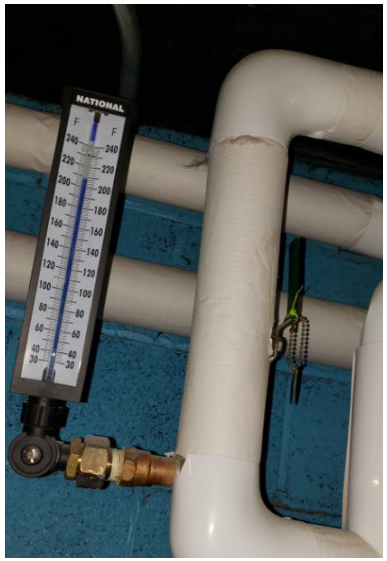
Figure 9- 3.3 shows the existing duplex sewer ejector to remain. Unit appears to be in good condition.

Figure 9- 3.4 shows the existing master thermostatic mixing valve with hot water outlet thermometer.

PLUMBING - OBSERVATION



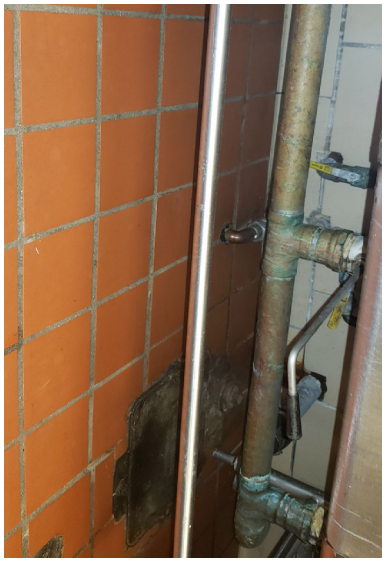
9- 4.1



9- 4.2

Figure 9- 4.1 shows the outlet temperature thermometer of master thermostatic mixing valve.

Figure 9- 4.2 shows the outlet temperature thermometer of gas fired water heater.



9- 4.3

9- 4.4

Figure 9- 4.3 shows the existing (3) compartment sink sanitary piping.

Figure 9- 4.4 shows the existing dipper well connections, indicating the underground cold water and hub outlet discharge.

Philip Rogers
Elementary School

FACILITY ASSESSMENT

10 MECHANICAL

MECHANICAL - SUMMARY

Ventilation for the original building is via five air handling units (AHUs); three of the units are located in the basement of the building and the other two near the Gym/Auditorium. The three AHUs in the basement serve the main building classrooms, offices, corridors, etc., while the other two AHUs serve the Gym and Auditorium. Each AHU is built similarly and include the following: pre-filters (30% filtration), large high-volume low speed utility fans, and steam heating coils. The AHUs are original to the building and have not been upgraded (other than maintenance and repairs) since construction. Based on experience with previous CPS school of similar construction, the airflow from the AHUs is distributed through zone dampers to each classroom. The zone dampers are located in the supply air discharge of the AHU and are pneumatically controlled. There are also two supply air tunnels. At each tunnel there are steam heating boxes, with pneumatic actuators, which are utilized to heat the air supplied to the spaces. Pneumatic thermostats in each classroom control these zone dampers and actuators. Per the building engineer, the majority of the pneumatic actuators do not work and have to be manually operated. The attic space is used to relieve the air from the building by means of similar duct risers at each classroom and are gravity relief, no fans are used. The toilet rooms are exhausted to the outdoors by roof mounted exhaust fans which are original to the building. The existing AHUs and exhaust fans are existing to remain and would not be used or extended to serve the new Annex.

Heating for the original building is via two natural gas fired steam boilers (~3000 MBH) located in the boiler room. The steam is generated by the boilers at 5 lb of steam pressure which is distributed to the AHUs and perimeter radiators throughout the original building. According to the building engineer; only one boiler operates at a time, but on occasion both boilers have run to maintain building temperature during severe winter conditions. The boilers appear original to the building and per the building engineer, they are older than 20 years; assumed to be from the 1950's. The existing boilers are existing to remain and would not be used or extended to serve the new Annex.

There is no central cooling system or cooling plant serving the original building. Cooling is provided by window AC units at each classroom. The units are installed and removed as required throughout the cooling season. The only central cooling provided is to the exiting MDF room in the 2nd floor. The MDF room has a wall mounted split air conditioning unit with a remote condenser located on the roof above.

The incoming natural gas service to the building is medium pressure at 2 psi from the utility. The gas meter is located on the exterior of the building, just east of N Washtenaw Ave. Natural gas is distributed to the steam boilers, domestic water heaters, and kitchen. A pressure reducer is provided either at the equipment level or at the basement mechanical room to reduce the pressure of the incoming natural gas service before connecting to the equipment. The existing incoming natural gas is existing to remain and would be used and extended to serve the new Annex.

Controls are pneumatic with two compressors. Per the building engineer, one compressor is approximately 5 years old, while the other is much older and often trips and fails to operate. A Johnson Control panel was also installed; however, the building engineer does not have information on what the system controls or how it operates. The existing controls are existing to remain and would not be used or extended to serve the new Annex.

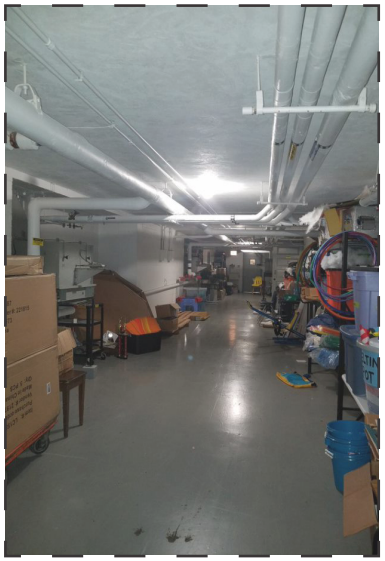
MECHANICAL - OBSERVATION

10- 2.1

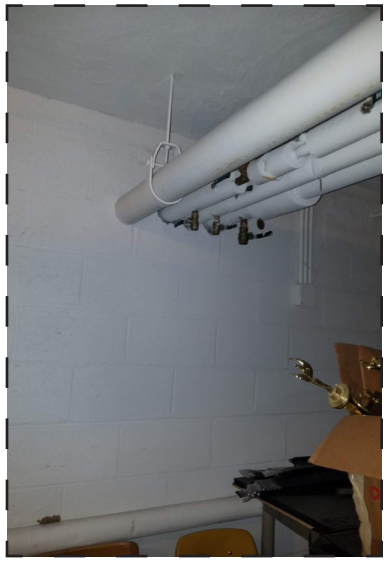
10- 2.2

Figure 10- 2.1 shows the existing AHU supply fan. Typical for all AHU's. Fans appear in good physical condition. Recommend inspecting all AHU fan bearing and belts; re-grease and/or replace as necessary.

Figure 10- 2.2 shows the existing AHU air filters. Typical for all AHU's. Suggest all AHU filters are inspected and replaced as required. Verify operation of smoke detectors.



10- 2.3



10- 2.4

Figure 10- 2.3 shows the existing AHU supply air tunnel. These tunnels are utilized to supply clean conditioned air to the spaces above (classrooms, offices, corridors, etc.). However, during the walkthrough and as seen on the picture; the tunnels are being utilized as storage. It is recommended to have all miscellaneous items removed from all tunnels.

Figure 10- 2.4 shows the existing supply air tunnel wall penetrations. Wall penetrations at the tunnels are recommended to be sealed air tight as to avoid air leaks.

10- 3.1

10- 3.2

Figure 10- 3.1 shows the existing supply air tunnel heating boxes. Typical for both tunnels. It is recommended that a functional test of the tunnel boxes be performed to determine the operation of the units and any maintenance repairs required. It is understood, per the building engineer, that the majority of the pneumatic controls do not operate properly and have to be manually adjusted.

Figure 10- 2.2 shows the existing AHU steam heating coil and bypass damper. The coil is from one of the AHUs located in the mechanical room above the Auditorium. The coil appears to be missing a few connections/circuits. It is recommended that a functional test of the heating coil be performed to determine coil capacity and operation.

10- 3.3

10- 3.4

Figure 10- 2.3 shows the existing AHU zone damper and actuator. It is recommended that a functional test of the zone dampers be performed to determine the operation of the units and any maintenance repairs required. It is understood, per the building engineer, that the majority of the pneumatic controls do not operate properly and have to be manually adjusted.

Figure 10- 2.4 shows the existing roof mounted gravity relief vent. Although these vents have no moving parts, they are aged and trusted in a few areas. Recommend inspecting each vent thoroughly and replacing/repairing as needed.

MECHANICAL - OBSERVATION

10- 4.1

10-4.2

Figure 10- 4.1 shows the existing roof mounted exhaust fans. It is recommended that a functional test of the fans be performed to determine the operation of the units and any maintenance repairs required.

Figure 10- 4.2 shows the existing pneumatic compressor; near boiler room. It is recommended that a functional test of the compressor be performed to determine the operation of the unit and any maintenance repairs as required. It would also be recommended to replace the original building pneumatic controls with DDC and include the systems with the new Annex.

10- 4.3

10-4.4

Figure 10- 4.3 shows the existing "newer" pneumatic compressor. It is recommended that a functional test of the compressor be performed to determine the operation of the unit and any maintenance repairs required. It would also be recommended to replace the original building pneumatic controls with DDC and include the systems with the new Annex.

Figure 10- 4.4 shows the existing steam boiler. The steam boilers serve only the existing building. It would not be recommended to extend the steam service to the new Annex. It would be recommended that these boilers be replaced with more efficient condensing boilers to produce heating hot water. This upgrade would include replacing the steam piping and steam heating coils in the existing AHUs, as well as the radiant heaters in the building with hot water units.

10- 5.1

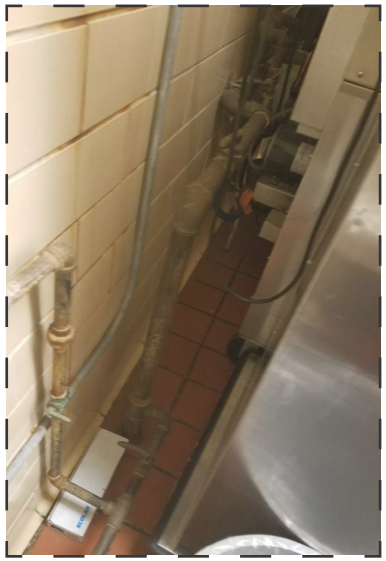
10- 5.2

10- 5.3

Figure 10- 5.1 shows the existing condensate receiver and chemical feed system.

Figure 10- 5.2 shows the existing incoming natural gas service and meter. Tags on the incoming natural gas service indicate the pressure at 2 psi.

Figure 10- 5.3 shows the existing natural gas pressure reducer and distribution main.



10- 5.4

10- 5.5

Figure 10- 5.4 shows the existing natural gas service to kitchen.

Figure 10- 5.5 shows the existing building controller. Per the building engineer, it is unknown what this controller function is and what it controls. It is recommended that a functional test of the controller be performed to determine the operation and function of the controller.

MECHANICAL - OBSERVATION

10- 6.1

Figure 10- 6.1 shows the existing kitchen exhaust hood.

10- 6.2

Figure 10- 6.2 shows the original Building AHU steam condensate traps; typical for existing all AHUs. Recommend inspecting all steam traps and replace as required. Steam traps can often fail, resulting in steam loss and energy loss.

Philip Rogers
Elementary School

FACILITY ASSESSMENT

11 ELECTRICAL

ELECTRICAL - SUMMARY - POWER NORMAL

The existing building is served by an open-delta configuration of two pole-mounted transformers in the alley across the street from the main entrance: one is a 167kVA center-tapped that also shares loads with the nearby houses, the other is a 25kVA that provides the three-phase power to the building. From these transformers the building has two separate service drops: a 240/120V single-phase service for lighting and receptacle loads, and a 240V delta 3-phase service for motor and mechanical loads.

The switchboard receives these two services with two separate 600A circuit breakers without a tie section. These serve separate ends of the switchboard. Internal to the switchboard are two automatic transfer switches that provides separate power to the fire alarm system and the emergency lighting riser.

Per ComEd data, the single-phase service has a maximum demand of 104kVA and the three-phase service has a maximum demand of 74kVA. Derating for open delta configurations, the maximum rated kVA is 43.5kVA for the three-phase configuration. Thus, the incoming service is severely undersized. The single-phase demand is also quite high considering that the transformer serves the three-phase system loads in addition, and may be overloaded when considering the demand loads for the other houses served.

The incoming services are only rated to 400A (single 500kcmil feeder), undersized for the main breakers. The equipment on the switchboard are extremely old (dating back to the 50s generally) and the construction is that one must enter the enclosure to access the bussing, which can be extremely dangerous with the switchboard energized. There is also very limited room for expansion of the switchboard.

The branch distribution panels in the building appear to have been replaced in the relatively recent past and are generally in decent condition. It is a mixture of fused-based and circuit-breaker-based panelboards. The fused-based panels have fewer moving parts, which helps insulate the system from aging issues so long as regular maintenance is performed on the switches. Phased replacement of the fuses as part of a maintenance program is strongly recommended. Newer panelboards are in good shape and should be maintained as expected to maximize useful life. Older panelboards appear to be in decent condition overall, but still require additional maintenance to maintain functionality for the short-term; these older panels should undergo a phased replacement.

The building currently has an elevator. A new ADA lift is proposed for the new annex. As the building does not presently have emergency power for elevator lifts, CPS should determine if use of normal power is acceptable, so long as the elevator controller has means to lower lift to first floor in event of power outage. Otherwise, additional system upgrades may be necessary. See "Power-Emergency" for additional emergency power information.

The existing building has a kitchen and food-servery that is anticipated to be converted to storage and office space. The new annex is anticipated to include a new kitchen, food service and dining room.

The panels have permanent marker notes denoting the high-leg from the delta system; however, these appear to be inconsistent, with some panels stating "B-Phase" and others "C-Phase". For a high-leg delta system, the typical convention is to have the B-Phase as the "high" phase. Panels whose high phase is "C" should have their feeders rotated to ensure that they follow the proper convention. Three-phase panels should also have the high-leg marked on a permanent nameplate or sticker.

ELECTRICAL - SUMMARY - POWER NORMAL

Given the issues with the incoming service switchboard, we strongly recommend for its replacement and upgrade to a larger size. Since the incoming service is presently tied into the nearby houses, the best recommendation would be to provide a new service drop from the same alley. There are two broad options with regards to this new service.

Option #1: provide for a new center-tapped closed-delta power system. This arrangement would maintain the existing building's topology, limiting the amount of additional downstream work that would be required. The new switchboard will only have one single service drop to serve all existing and new systems, simplifying the arrangement and decreasing the replacement costs. However, a 240/120V closed-delta system is not within present CPS standards; a grandfathering of the existing topology will need to be acceptable to use this option. Using a 240 to 208/120V transformer to power the annex is an ideal solution to help achieve balancing of the loads in the new annex. This overall option, however, may require a larger transformer size to handle the imbalance on the single-phase loads.

Option #2: provide for a new 208Y/120V power system. This arrangement will be more aligned with current CPS specifications, with the serious drawback that line-to-line voltages will be reduced. As the existing loads in the building are sized for a 240V line-to-line arrangement, decreasing this voltage to 208V will require upsizing of downstream equipment and feeders—especially for motors and lighting loads—which will increase the amount of work that will be required. Unless a full-scale replacement of the system is desired, this may be cost-prohibitive to CPS, although this may be mitigated by the smaller service achievable with a more balanced system. The same concept of a single service-drop and new switchboard remains common to both options.

Regardless of option chosen, a short-circuit study should be performed on the existing building and checked with the anticipated service upgrades to determine the extent of additional panel replacements that may be required.

All new service options should be coordinated with the mechanical design for any significant changes to the existing mechanical systems and their required electrical loads, as this may increase or decrease the existing power requirements on top of the additional requirements for the annex.

The alley with the current service is the only viable present source for power service to the building. As a new annex service would require both a new transformer bank and routing of new feeders around the existing building, the associated costs would be better served by upgrading the existing service—which is necessary as it is—and serving the new annex directly from there. Should CPS rather forego changes to the existing service, the following option would be anticipated:

Option #3: Provide a new 208/120V service via a new pad-mounted transformer to be located on site. A new 5kV service would need to be brought in via ComEd to serve the transformer. This option maintains the existing building's electrical distribution in its entirety and keeps the annex electrically separated. However, additional concrete-encased ductwork will be required, and the use of a pad-mounted transformer may interfere with the intended aesthetics of the space. This option also precludes any work to be done on the existing service, against recommendations for replacement and upgrade. This option will not be considered for the initial SD phase, but shall still be noted here for reference in the event that CPS finds this option to be preferred.

11- 1.1

In Figure 11- 1.1, the existing switchboard with two services and two internal transfer switches. One service is a 240V center-tapped open delta system, the other is a 240/120V single-phase system. The equipment is aged—originally from the 1950s—and the main breakers are oversized for the 240V delta system, with the system itself having limited room for expansion. Full replacement is recommended.

11- 1.2

In Figure 11- 1.2, the existing switchboard interior. Note that one needs to walk inside the enclosure to access the bussing and connections, creating a safety hazard. This along with the other noted system issues leads us to recommend the switchboard's replacement.

ELECTRICAL - OBSERVATION - POWER NORMAL

11- 2.1

In Figure 11- 2.1, the existing open-delta service by means of a single 25kVA transformer (for providing the 3-phase power) and a single 167kVA center-tapped transformer for the building's single-phase loads (and 3-phase power). The 167kVA transformer also serves power to the nearby houses along this alleyway. While we recommend service upgrades for the school, we understand that a separate transformer bank will be required to avoid bringing the nearby houses offline.

11- 2.2

In Figure 11- 2.2, the existing distribution panel marked with "C-Phase" as the high-leg. Other panels in this building have same, others have "B-Phase" as the high-leg. The system should only have one single high-leg and per convention this should be the B-Phase. Panels with the "C-Phase high" marking should have the feeders rechecked and rotated such that they are "B-Phase high", with the marking being with a permanent nameplate or sticker.

ELECTRICAL - OBSERVATION - POWER NORMAL

11- 3.1

In Figure 11- 3.1, the existing distribution panel marked with "B-Phase" as the high-leg. Other panels in this building have same, others have "B-Phase" as the high-leg. The system should only have one single high-leg and per convention this should be the B-Phase. Panels with the "B-Phase high" marking should have the feeders rechecked to ensure this, with the marking being with a permanent nameplate or sticker.

11- 3.2

In Figure 11- 3.2, the typical fused power panel. No major work beyond standard maintenance should be required if there are no known issues.

ELECTRICAL - OBSERVATION - POWER NORMAL

11- 4.1

In Figure 11- 4.1, the typical newer breaker-based power panel. No major work beyond standard maintenance should be required if there are no known issues.

11- 4.2

In Figure 11- 4.2, the typical older breaker-based power panel. No major work should be required if there are no known issues beyond standard maintenance and testing at this time; however, phased replacement should be considered as part of the long-term plans for the building.

ELECTRICAL - SUMMARY - POWER EMERGENCY

Per Chicago Code, the school requires a System II emergency power system that consists of a normal power source and at least one auxiliary source that is independent of utility power (e.g. approved battery units or a generator); CPS standards are to use individual battery units for emergency lights under this system for elementary schools.

The building has an emergency system that consists of an automatic transfer switch with a separate utility drop acting as the auxiliary source. As the emergency loads are all single-phase, each utility drop is dependent on the single 167kVA transformer. With both drops landing on the same switchboard, there is no true auxiliary source, with the transfer switches being mostly redundant. Along with the switchboard, the transfer switches are also very aged.

This "emergency" system serves the fire alarm system and the emergency lights via separate feeders (and separate transfer switches). The fire alarm system has a battery backup sized presently sized per code for the system in place. Emergency lighting and exit signs are fed from the same local lighting circuit ahead of any switches; emergency lights have a battery pack. This topology is code-compliant and within CPS standards. It is not certain that these battery packs are rated for 4-hour runtime per Chicago Code; however, these fixtures were aged, with some possibly not operable. The exit signs appear to have hard-wire connections but do not appear to have a battery backup. We strongly recommend their replacement with CPS's current standard compliant fixture to coincide with the anticipated annex construction.

With a battery system backup, the emergency lights and fire alarm will already be on System II emergency power. We do, however, recommend a separate service drop for the fire alarm system and/or any additional standby loads required to coincide with the service upgrades. With the replacement of the switchboard, the existing transfer switches will also be removed. They should either be replaced if additional standby loads are desired; otherwise, the concept should be abandoned as the battery packs provide the necessary final reserve source and transferring mechanism.

The new annex will use CPS standard EBU's and Exit Signs with 4-hour battery packs in line with the existing code-required System II emergency lighting.

The existing building does not presently have a fire pump. Per Chicago Building Code, a building of this type will require a fire pump. Current programming is to have a fire pump present in the new annex building, presumably sized to back-serve the existing structure as well. This proposed fire pump shall have a separate service drop directly from the utility transformer.

ELECTRICAL - OBSERVATION - POWER EMERGENCY

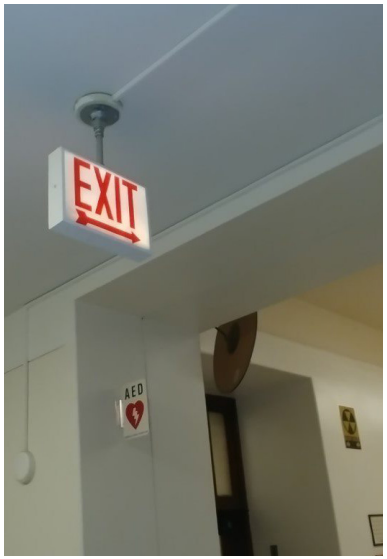
11- 6.1

11- 6.2

11- 6.3

In Figures 11- 6.1 and 11- 6.2, the switchboard bay has two internal automatic transfer switches fed from each of the two services. One serves the fire alarm system via the switchboard-attached "Ryan Fuse box", the other serves the emergency lighting riser via a 100A breaker. As the two emergency systems use 120V connections, they effectively use the same transformer source and given their use in the same switchboard, the transfer switches are effectively redundant in this setup.

Figure 11-6.3, addresses the emergency lighting riser panel. The panels should be cleaned with minor maintenance to close openings, check connections and otherwise ensure proper functioning.



11- 6.4

11- 6.5

Figure 11- 6.4, addresses the typical existing exit sign. These signs are aged with some seeing reduced illumination if not burned out completely. Some do not appear to have a battery-pack final reserve required per code. We recommend their one-for-one replacement with code-required 4-hour battery pack to a CPS standard exit sign to coincide with the ones to be installed in the new annex.

Figure 11- 6.5, addresses the typical existing emergency battery unit light. These EBU's should be regularly tested to confirm useful function. Ideally, all EBU's should be replaced one-for-one with a CPS standard EBU to coincide with the ones to be installed in the new annex.

ELECTRICAL - SUMMARY - LIGHTING

11- 7.1

The existing building uses fluorescent lighting throughout the interior, likely majority T8 lamps with possible T12 lamps scattered about. The existing fixtures are for the most part aged. The building has no system of lighting controls beyond toggle switches.

We recommend a phased replacement of the existing building fixtures with new LED equal to those of current CPS standards, as well as providing new lighting controls compliant with present energy codes. Beyond providing energy savings, it will help preserve a common aesthetic between the existing school building and the new annex.

Existing site lighting consists of building-attached lights and pole-fixtures. Most if not all these fixtures appear to be HID type. There is at least one lighting control panel serving the exterior lights, with one of them being destroyed by a downstream fault. With the construction of the new annex and the need for more centralized lighting controls, we recommend that the exterior lighting be integrated into the new lighting control system, with replacement of the lights to new LED.

New external building-attached lighting should be installed on the new annex where required and as desired by CPS for safety and security. Additional site poles should be installed in concert with the proposed new playground. All new site lighting should be connected to the lighting control system for time scheduling with optional photocell override.

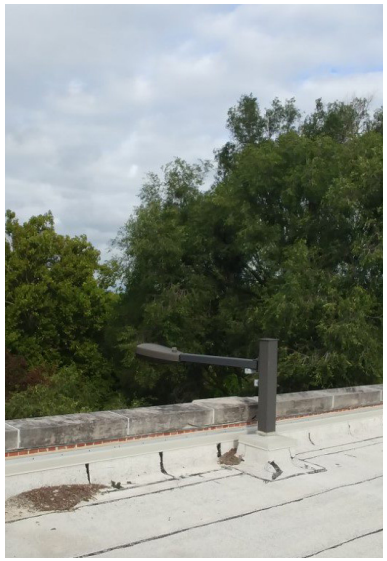
Refer to the "Power-Emergency" section for discussion of exit signs and battery packs.

ELECTRICAL - OBSERVATION - LIGHTING

11- 8.1

Figure 11- 8.1 shows the typical existing lights within the building. Generally, the lights are fluorescent (typically T8, though there may be some T12 lamps present). There are no lighting controls beyond toggle switches except for those in the restrooms.
To provide a common lighting standard to the building in coordination with the new annex construction, we recommend replacement of the existing lights with new LED-type of a standard CPS fixture, along with the installation of lighting controls in line with current energy codes and standards.

11- 8.2



11- 8.3

Figure 11- 8.2 shows existing lighting controls for exterior lighting. Controller appears to have been shorted—possibly due to a ground-fault in one of the lighting branch feeders—and is inoperable. Replacement of the feeders and controller is required. New lighting and controls should be coordinated with the anticipated annex work to be performed.

Figure 11- 8.3 shows the typical building-attached exterior light. Fixtures should be replaced with LED and their controls integrated into a common system with the new annex.

ELECTRICAL - SUMMARY - IT/AV/MISC. LOW VOLTAGE

11- 9.1

The basement has a telecom service box near the electrical switchboard. Upgrades may or may not be required, depending on the existing capacity and whether CPS wants the annex to have a sub-service or its own separate service for IT loads.

The building has a single MDF room on the first floor to serve all the building's current IT loads. The space appears to be well-cooled and of sufficient power and spatial capacity to meet present needs. The new annex will require its own IT closet; it is still to be determined whether this will be an IDF fed from this room or will be its own MDF.

Security systems include limited access control and security cameras at select locations. CPS should consider where additional security items would be desired and incorporate them into the building's upgrades. Cameras and building access control should be provided to the annex per CPS standards.

The existing public address (PA) system is old and is presently slated for replacement in concert with the new annex construction.

The building does not presently have a Kronos system; its clocks either use a simple hard-wired connection or a battery for power without any common systems connection. A new Kronos system is recommended, which shall include both the main building and the annex.

ELECTRICAL - OBSERVATION - IT/AV/MISC. LOW VOLTAGE

11- 10.1

11- 10.2

Figure 11- 10.1 addresses the telecom service entrance. CPS should confirm existing capacity and its ability to handle the additional loads to the annex, unless the annex is to have a separate service drop.

Figure 11- 10.2 addresses the existing first floor MDF room. The closet itself is inconveniently within a classroom, but otherwise appears to be in good working condition without noted issues. CPS should determine if this shall sub-feed the annex's IDF room, become a sub-service to a new MDF room in the annex, or keep the two IT services separate.

11- 10.3

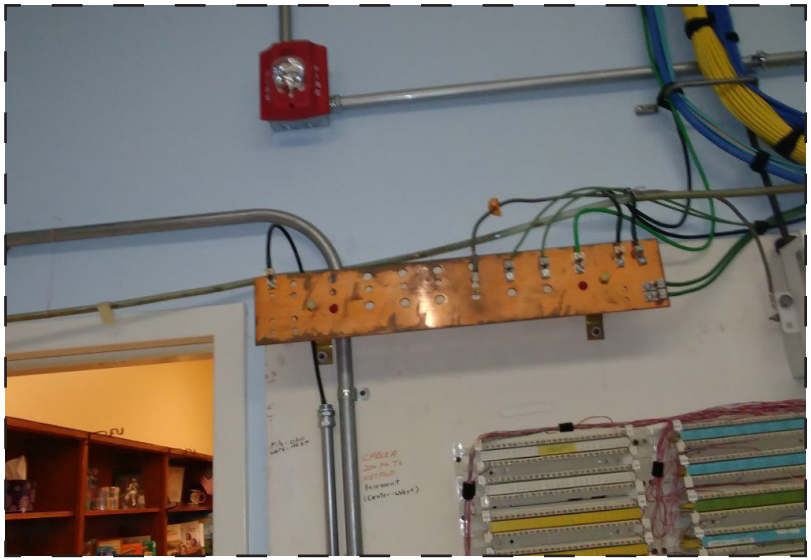
11- 10.4

11- 10.5

Figure 11- 10.3 addresses the typical PA speaker. The PA system is old. Its replacement is strongly recommended, with sufficient power and capacity to serve the new annex along with the existing building.
Figure 11- 10.4 addresses the typical security camera. Quantities and locations of existing cameras are limited and equipment is aged. CPS should consider long-term plans for the building and anticipated security needs and accordingly provide upgrades to the security systems (including aforementioned cameras as well as items such as access control).

Figure 11- 10.5 addresses the typical clock. The building clocks are not connected to a Kronos system, instead having separate power via hard-wired connection or battery. A new Kronos system is strongly recommended.

ELECTRICAL - SUMMARY - GROUNDING & LIGHTING PROTECTION

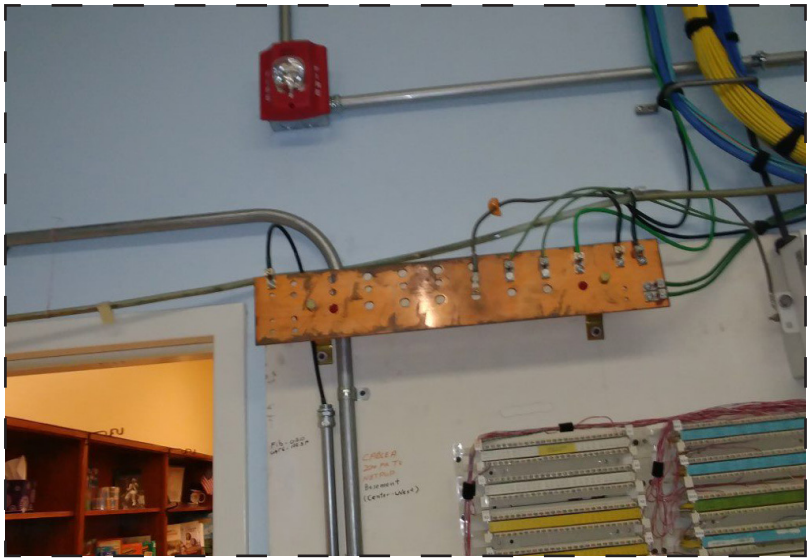


11- 11.1

The building appears to have some degree of grounding, as the MDF room has a grounding bus. With the limited ability to open equipment during survey the team could not ascertain whether the building is fully grounded. Further assessment of the building's electrical distribution is encouraged.

The building has some degree of lighting protection, as the boiler stack has several lightning rods that go to ground. No other items on the roof were bonded together, although their quantity was limited. The annex will significantly change the footprint of the building, which will change its lightning risk. A risk assessment is encouraged to determine if additional protection is appropriate; if so, such work should be considered during the annex construction.

ELECTRICAL - OBSERVATION - GROUNDING & LIGHTING PROTECTION



11- 12.1

Figure 11- 12.1, shows the ground bus bar with connections in the MDF room.

11- 12.2

In Figure 11- 12.2, the boiler stack has lightning rods along the top, with a bonding wire going from the rods to ground along the side of the building.

ELECTRICAL - SUMMARY - FIRE ALARM

The school currently has a city of Chicago approved Class-1 Fire Alarm System. The system consists of heat detectors, elevator recall smoke detectors, audio and visual notification and duct smoke detectors and other auxiliary devices for HVAC fan shutdown and elevator recall. The addressable fire alarm control panel (FACP) by Gamewell FCI is located in the main administrative office. Chicago approved tabular Fire alarm annunciator panel (FAAP) is located in the main entrance vestibule. Pull-stations with tamper guards are installed at each exit on the first floor. They are also installed at each stair on the basement and second floors. Visual alarms are installed in every classroom and toilet rooms. Audio/visual alarms are installed throughout the building in corridors. Notification devices are being served by notification appliance circuit expander (NAC) panels. There are two NAC panels installed and are activated by the fire alarm control panel in alarm conditions. There are currently no door hold open devices installed.

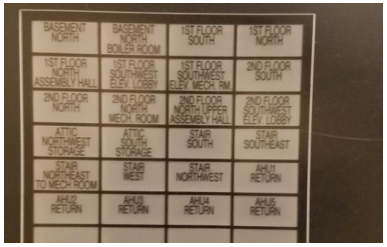
The system was installed in 2012 and appears to be in a perfectly working condition. At the time of the survey, there were no trouble or supervisory alarms indicated on the control panel. According to the building engineer, the school has not had any nuisance alarms.

Both the fire alarm control panel and the annunciator panel have sufficient capacity to support new addressable initiating and notification devices to be installed in the annex. Some modifications will be required to both panels to accommodate the new annex. A new NAC panel shall be installed to serve new notification devices in the annex. Proposed installation of a sprinkler system in the new annex will require a separate supervisory control panel and annunciator that will monitor the tamper valves. New waterflow switches and the fire pump shall be interconnected to the building's main fire alarm control panel. New door hold open devices shall be installed and be tied to the main FACP, as well as the new smoke, heat, duct smoke detectors and pull-stations.

CPS should consider upgrading the existing system to include voice capability. Voice capability will allow the school to announce emergency related information to occupants other than just a fire. It can be used to announce adverse weather conditions and other dangerous situations, such as, an active shooter on site and provide instructions on the best course of action. Another benefit of the said upgrade is that it will eliminate the need to install a stand-alone supervisory system for the sprinkler tamper valves.

ELECTRICAL - OBSERVATION - FIRE ALARM

11- 14.1



11- 14.2

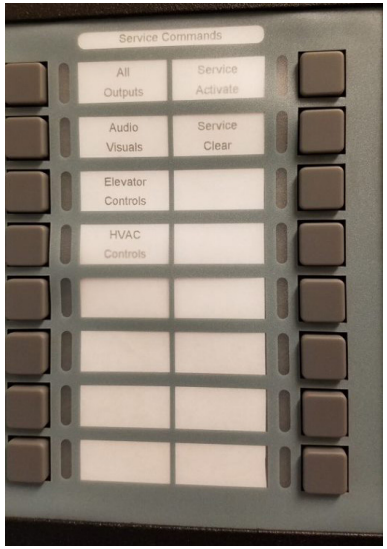
11- 14.3

Figure 11- 14.1 shows that the City of Chicago approved required city tie box. The city tie box is used to send alarm signals to the fire department.

Figure 11- 14.2 addresses the fire alarm annunciator panel indicating detection zones and it is mounted at a city approved location. Currently there are 24 active fire alarm zones. The FAAP has sufficient capacity to add 16 new zones.

Figure 11- 14.3 shows the fire alarm control panel located inside the main administrative office. System manufacturer is Gamewell FCI and parts were provided by an authorized distributor, Affiliated Fire Systems. The panel is in good working condition.

11- 14.4



11- 14.5

Figure 11- 14.4 shows the fire alarm control panel located inside the main administrative office. System manufacturer is Gamewell FCI and parts were provided by an authorized distributor, Affiliated Fire Systems. The panel is in good working condition.

Figure 11- 14.5 shows the addressable switch module installed on the fire alarm control panel. It is used to provide by-pass keys, which can be used during the testing of the system. Additional keys can be programmed for the new annex.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THANK YOU