

Dirksen Elementary School Annex

8601 N. Foster Avenue
Chicago, IL 60656

Conceptual Design Submission
October 05, 2018



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DATE:	October 5, 2018
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EXISTING CONDITIONS ASSESSMENT

Dirksen Elementary School Annex

Architectural, Civil, Landscape, Mechanical, Electrical and Plumbing

10.05.2018

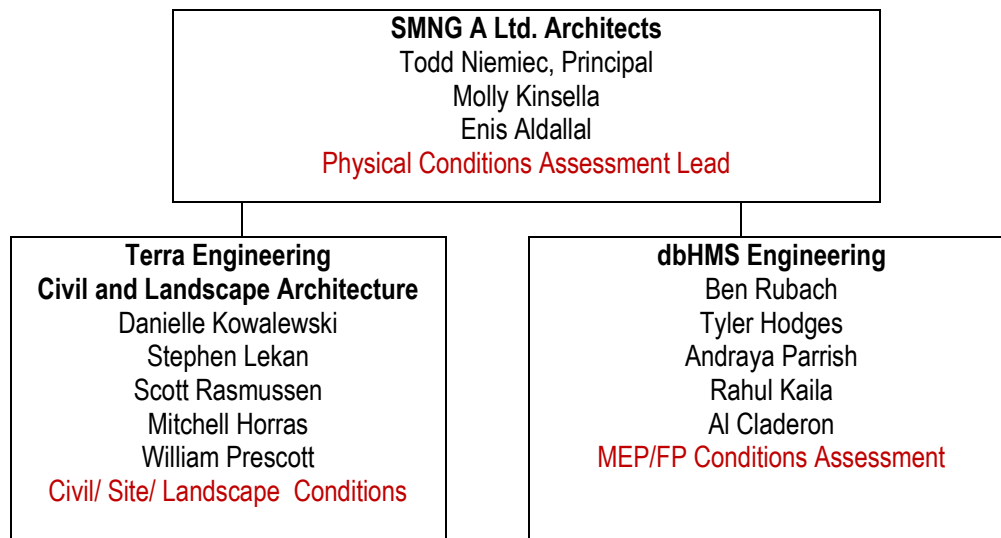
Assessment Summary

Everett McKinley Dirksen Elementary School is a neighborhood school located on the northwest side of Chicago. Its existing facilities include a one story building with mezzanine, two mobile units to accommodate increased student population, existing parking lot, garden and interior courtyard. Chicago Public Schools has proposed a new three-story annex to the existing building for an anticipated student capacity of 1200 students.

The Public Building Commission of Chicago has engaged SMNG A Architects and their consultant team to evaluate the existing site and structure to ensure that the proposed improvements interface efficiently and effectively with the existing conditions. Additional observations have been provided in this summary in order to identify deficiencies that may impact the proposed scope of work or that may be impacted by the proposed scope.

Assessment Methodology

The assessment team and personnel for this effort were organized as follows:



The assessment focused primarily on the evaluation of the physical conditions of the facility and grounds. It did not include an evaluation of existing space and program uses, or feedback from the existing staff and students.

Observations

Site observations were performed on September 20, 2018 with a focus on the readily visible physical conditions and existing infrastructure, including:

- **Site Conditions**
Review of the condition of paving, grading, drainage, building access, landscape, fencing and visible utility connections.
- **Architectural Conditions**
Review of path of travel elements, visible building envelope systems (masonry, fenestration) and limited accessibility items. The site review did not include roof observations other than those visible from grade. Per communication with the PBC and CPS, roof assessment reports are in progress by others.
- **Mechanical, Electrical & Plumbing (MEP) System Conditions**
Review of mechanical, electrical, plumbing and fire alarm systems condition.

Due-Diligence

Due-diligence / documentation review was performed to supplement the on-site observations. These included a review of the archive drawings provided by CPS and a preliminary review of applicable codes, including:

- A. Chicago Building Code
- B. Illinois Accessibility Code
- C. Chicago Zoning Ordinance

Limitations

This assessment was not an exhaustive investigation. The assessment did not include any destructive or non-destructive testing of materials and assemblies, testing of equipment, subsurface investigation, or roof investigation. The assessment was limited to readily visible equipment and systems to provide a basic assessment of the buildings materials and systems.

Historic drawings and documents related to the building, site and systems made available were not comprehensive or conclusive in all cases, and these systems may have been subsequently modified. Environmental reports were not furnished by CPS or the PBC, and environmental observations, testing or inspections were not performed.

The site review occurred for the most part while the building was fully occupied by students and staff. As such, most classrooms, toilet rooms, and offices were not individually investigated. Rather, observations were made on the overall condition of the building materials and assemblies.

Site Summary

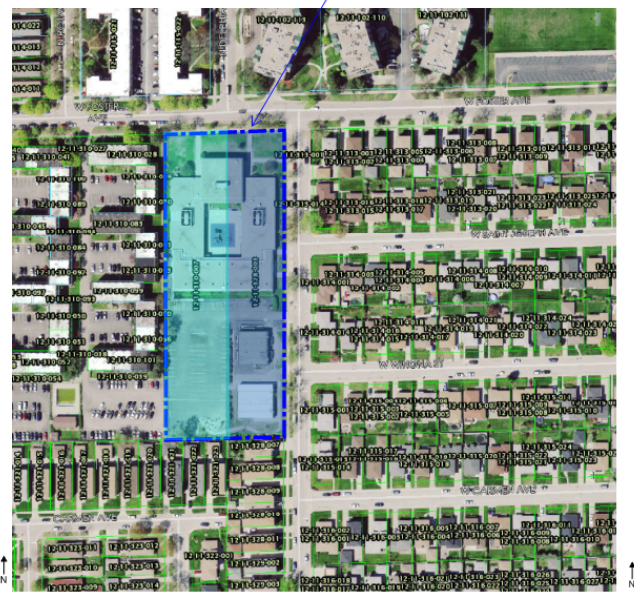
Everett McKinley Dirksen Elementary Schools is located on a 3.43 acre property at 8601 West Foster Avenue in Chicago, Illinois, 60656. The neighborhood is in the NW corner of Chicago bounded to the west by the Cook County Forest Preserves Catherine Chevalier Woods and to the north and south by the Village of Norridge. The neighborhood is primarily residential with multi-family residences to the north and west and single family residences to the east and south. Commercial activity is located two blocks to the east at W. Foster and N. Cumberland Avenues.

O'Hare International Airport is located approximately two miles to the west. Acoustical upgrades were provided in 1971 and were visible at the existing ceiling/ roof assembly. The acoustical impact of this proximity will be a critical for the new annex exterior envelope and associated costs.

The site and existing building itself straddles two existing zoning designations, RS-2 and RS-3, with RS-2 having more restricted bulk/ area requirements. The site additionally straddles two property parcels oriented in the north-south orientation.



ZONING MAP OF EXISTING DIRKSEN ES
not to scale
(Printed from City of Chicago Dept of Zoning Map, 09.12.2018)



PROPERTY MAP OF EXISTING DIRKSEN ES
not to scale
(Printed from Cook County Pin Map, 09.12.2018)

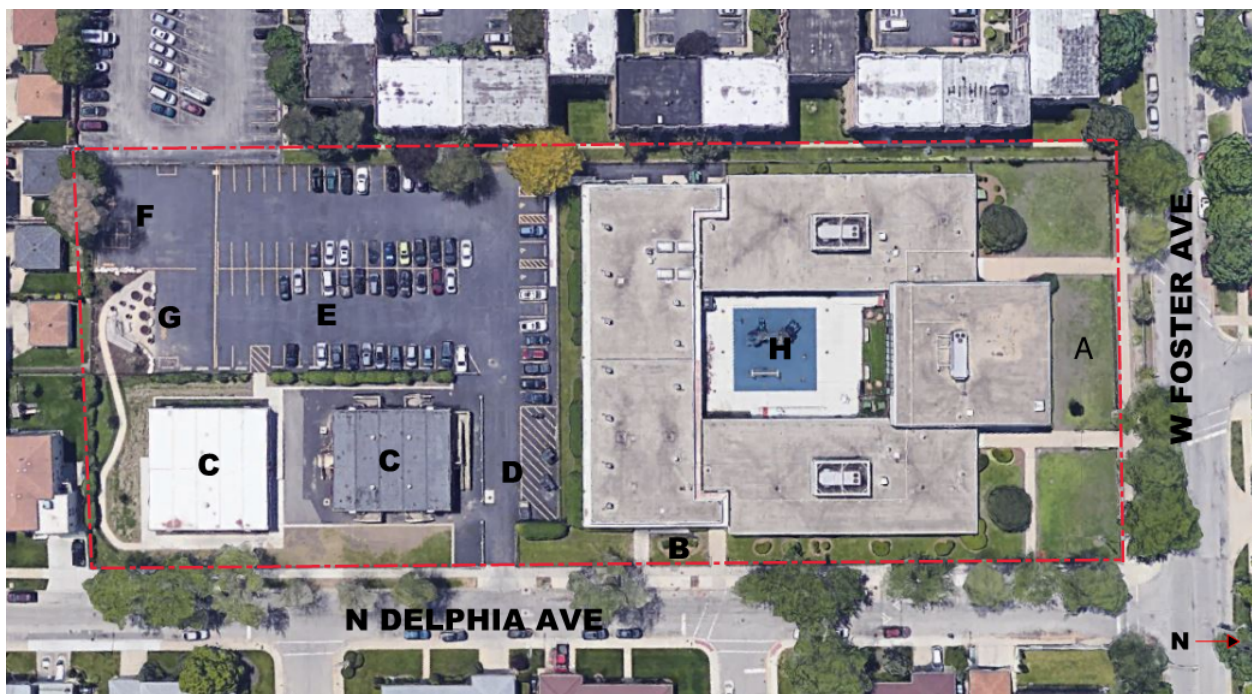
Importantly the site is only adjacent to the public right of way on two sides, i.e., along W. Foster and N. Delphia Avenues and is immediately adjacent, without alleys, to existing residential properties to the west and south. Two primary consequences of this siting are:

1. the limited access to emergency vehicles. As required per Chicago Building Code CBC 13-84-030 Frontage Requirements. The projected new occupancy for the existing school with new annex is 1200, which will result in an approximate code defined occupancy of 2300 occupants. As such, per CBC 13-84-030, two street frontages are required and one 'open space' frontage is required for a total of three frontages.
2. limited student drop-off and pick-up access. The majority of students arrive to and from school via car from their caretakers. Limited street frontage limits the options for sequencing the resulting quantity of cars and students at the start and end of the school day.

The existing site includes three primary buildings structures, the one story with mezzanine elementary and two modular units. Gross square footage is as follows:

- Existing one-story elementary school with mezzanine: 45,934 GSF
- Existing Modular Unit North: 3,400 GSF
- Existing Modular Unit South: 4,200 GSF

The existing school building is located on the north half of the site and is symmetrically oriented towards Foster Avenue. There are two front entry vestibules centered on either side of the large Gym volume. Additional entry and exit doors are located on the east and west elevations. Per discussion on site with the Principal, the staff typically use the west entry and the Kindergarten students use the east entry. The existing building includes a central courtyard which contains play equipment for the 2-5 year age group, paving, two electrical transformers and perimeter plantings.



Site Aerial

The site further includes the following:

- A- Open sodded 'yards' along the front Foster Avenue elevation with ornamental fencing and gates
- B- Sod and tree plantings along the East elevation
- C- Two modular units south of the school building adjacent to N. Delphia Avenue
- D- Asphalt-paved area for three waste compactors (not enclosed) along the building's south elevation
- E- Asphalt-paved parking for 78 vehicles including 5 ADA stalls
- F- Asphalt-paved playlot along the south property line
- G- Learning garden and path along the south edge
- H- Courtyard with Playground

The south modular unit, learning garden, and asphalt-paved area were provided after 2011, the date of the latest survey.

The latest survey is dated 2011 and was issued prior to the installation of the south modular unit, learning garden, electrical transformer at the southwest corner of the school building, and asphalt-paved play area.

Preliminary Zoning Findings

Pending receipt of a new survey, the following preliminary zoning findings are listed below. See also Preliminary Zoning Matrix dated 10.05.2018.

- The site is located in two residential zoning districts, RS-2 and RS-3.
- School Use is permitted for both districts.
- Per CZO (17-8-0506) project parameters meet mandatory Planned Development thresholds, i.e., a PD review and approval is required for development of land to be used for schools, safety services and other governmental buildings on sites with a net site area of 2 acres or more.
- Per CZO (17-8-515) Expansions of Existing Development, part B, proposed expansions of any other existing development that will result in an increase in building height, lot area or number of dwelling units shall be reviewed and approved in accordance with the Planned Development procedures (18-13-0600) if the expanded development meets the threshold for a mandatory planned development. The existing building height is 22'-4" (+/-). An annex that exceeds this height encroaches more than 50% into the required setbacks of the existing zoning district will meet the threshold for a mandatory Planned Development.
- The existing Floor Area Ratio (FAR) is acceptable. The FAR based on the proposed CPS program is approximately 0.71 and exceeds the RS-2 zoning threshold. The FAR is based on preliminary floor area quantities and will require confirmation when floor areas are further developed.
- The minimum required off-street parking is required to be 1 space for 3 full time employees in both RS-2 and RS-3. Based on a preliminary FTE of 90, thirty spaces are required. Exceptions will require specific review in the Planned Development application. Additionally, the parking may not encroach within a side setback of 50% of the building height, or approximately 22'-0" based on a projected three-story annex.
- The minimum off-street loading required is (1)10'x50' space based on a projected square footage threshold as outlined in CZO (17-10-1101). An exception to this requirement will also review specific review and approval in the Planned Development application.
- The proposed three-story annex may also likely encroach on the rear (50'-0") and side setbacks (50% of building height) and rear open space.

Based on the above, a Planned Development application and approval is required to fulfill the proposed CPS program for the new annex and maintain the existing two modular units throughout the duration of the new annex construction.

Building Organization

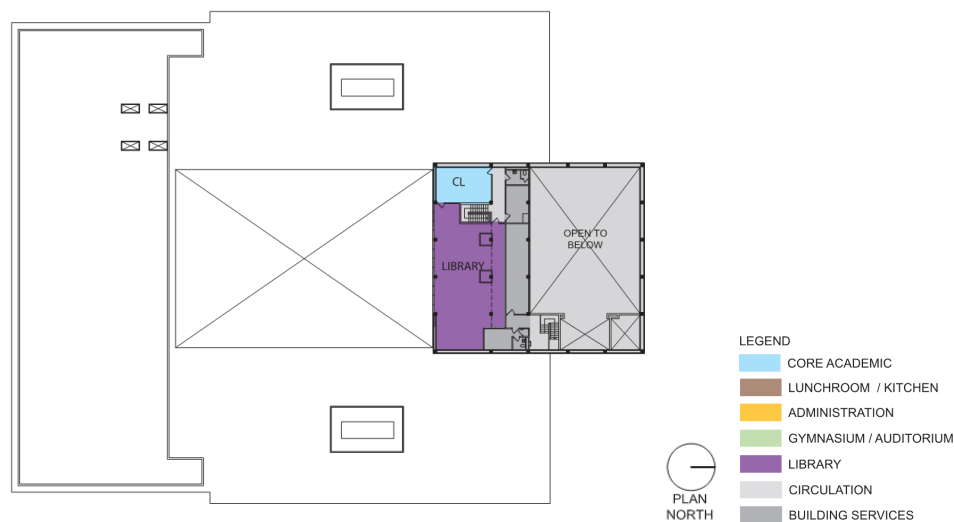
The existing school building is a one-story structure with mezzanine and is organized as a square of four wings surrounding a central exterior courtyard. The north, east, and west wings were constructed in 1970; the south wing was constructed in 1972 and fully enclosed the courtyard. The resulting circulation is one central loop through each wing.

The administrative offices are located at the northeast corner, adjacent to Foster and N. Delphia Avenues. Classrooms flank double-loaded corridors along the east, south, and west wings. The north wing includes a large central volume with a Dining Room, Faculty Lounge and Kitchen and double-height Gym on the First Floor. Above the Dining Room and Kitchen is a small Library with south exposure and two offices, a small classroom, single user toilet room, and Engineer's Office with no natural light. A long attic space between the Library and double-height Gym is used as a mechanical room. Access to the 2nd Floor is provided by two stairs, remotely located, but not fully enclosed nor of adequate width to occupant a large student occupant load. There is no elevator access.

First Floor Plan



Second Floor Plan



First Floor: 42,350 GSF

- 23 Classrooms including (2) Kindergarten classrooms with a small toilet room and storage room each
- Administrative: Main Office, (3) Counseling Offices, Safe
- Gym, Stage, Gym Office, Gym Storage
- Dining Room, Kitchen, Faculty Room, Kitchen Office, Kitchen Storage
- Switchgear Room, Fire Alarm Room, (1) Mechanical Room, (3) Electrical Rooms, MDF Rm, Water Service
- (3) Janitor Closets, (6) group toilet rooms - (3) Boys and (3) Girls; (6) Staff Toilets
- (2) Waste Rooms with direct exterior access and miscellaneous storage rooms

Mezzanine: 3,567 GSF

- (1) Library
- (1) Small Classroom (no natural light)
- (1) Office
- (1) Staff Toilet
- (1) Engineer Office and closet
- (1) Mechanical Attic

Total: 45, 917 GSF

Building Construction

1971 Construction (North, East, and West Wings):

The structure consists of:

- continuous cast-in-place concrete foundation walls and footings;
- 1st Floor concrete structural slab;
- steel frame of columns (typically 8WFs), girders and steel bar joist mezzanine floor framing and roof framing;
- Concrete-filled mezzanine floor deck;
- steel roof deck, 1-1/2 th.

Exterior wall and roof envelopes include:

- exterior face brick solidly grouted to concrete masonry unit back-up construction exterior walls;
- fire-proofing at steel column enclosures and framing supporting mezzanine flooring;
- aluminum curtain wall with glazing and porcelain enamel panels at top and bottom units;
- modified bitumen roofing over 1" thick continuous insulation and tapered insulation at the perimeter;
- aluminum fascia and gravel stop roof perimeter;
- mansard perimeter structure composed of aluminum facing, plywood substrate, and steel battens and framing anchored into the building's primary frame.
- See also the 2018 Roof and Envelope Repair Order of Magnitude provided to the SMNG A team by the Chicago Public Schools.

Interior partitions are typically concrete masonry units with glazed tile or plaster finish. Ceilings are dropped acoustical grid and tile.

1972 Construction (South Wings):

The structure consists of:

- Concrete masonry unit foundation walls;
- cast in place concrete footings, grade beams, 1st Fl structural slab and perimeter stairs
- steel HSS columns and girders
- steel space frame roof structure with metal decking
- perimeter steel frame angles support roof edge

Exterior wall and roof envelopes include:

- exterior face brick solidly grouted over 8" thick concrete masonry unit exterior walls

- exterior face brick with concrete masonry unit back-up construction exterior walls;
- aluminum curtain wall with glazing and porcelain enamel panels at top and bottom units;
- 4-ply modified bitumen roofing over continuous insulation;
- aluminum fascia and gravel stop perimeter;
- See also the 2018 Roof and Envelope Repair Order of Magnitude provided to the SMNG A team by the Chicago Public Schools.

Interior partitions in this wing are constructed from porcelain panels. Ceilings are dropped acoustical grid and tile.

Existing Façade and Roof Envelope

Please reference the 2018 Roof and Envelope Repair Order of Magnitude provided to the SMNG A team by the Chicago Public Schools.

Accessibility

There appeared to have been ADA upgrades within the past twenty years. These included installation of automatic door operation at the main and southwest entries and revised ADA toilet stalls in the group toilet rooms. Given the apparent date of these upgrades, the toilet rooms most likely do not meet current ADA standards. We have requested archive drawings from this scope of work.

Additionally:

- There is no vertical accessible access to the mezzanine spaces, including the Library, Counseling Office, Language Classroom, and toilet room.
- Numerous classrooms do not have ADA compliant maneuvering space and/or hardware at the classroom entries and operable windows.
- There is no ADA compliant interior room signage.

Architecture Observation Photos



Photo 1

View of main entry on W. Foster Ave. looking South. Front yard at the East part is used as playlot for 2nd and 3rd graders. The grass is requiring special level of regular maintenance and seasonal seeding as a result of students' daily use for playing, per conversation with building staff.



Photo 2

View of main entry on W. Foster looking South. Note that paving up to this main entry had been replaced for ADA upgrades, per conversation with building staff. This entry includes an automatic operated door and iPhone system.



Photo 3

View of main entry on W. Foster Ave. looking Southwest. Note that exterior wall has signs of water leaking/migration issues which could tell some issues either with roofing or parapet.



Photo 4

View of Northeast corner of the building showing the poor condition of sheet metal coping and soffit in conjunction with the glazing system.



Photo 5

View of exit 5 on East used for kindergarten students drop off and pickup. Note that the entry's immediate paving has been adjusted for ADA upgrades. This entry includes an iPhone system.



Photo 6

View of Southeast corner of the building showing the security camera as well the alarm bell.



Photo 7

View of South glazing system at the south classrooms corner. Note the screened fan coil with poor condition of weather and acoustical insulation, per conversation with building staff.



Photo 8

View of the glazing system on east where it had poor retrofit of screening which compromises the weather tightness of the system as well as the operational aspect.



Photo 9

View from Southwest looking North shows west entry had been altered for ADA upgrades. This entry is adjacent to the second, existing transformer on the West side of the building.



Photo 10

View of entry 4 on the West, the entry includes an automatic operated door and AIPhone system; with metal screening for security purposes, per conversation with building staff.



Photo 11
View of the West storage` doors and second transformer



Photo 12
View of the main office from the East corridor looking east



Photo 13
View of the main entry (Northeast) from the corridor



Photo 14
View of the main entry (Northeast) from the corridor



Photo 16
View of girls toilet room on East



Photo 15
View of the dining room



Photo 17
View of the kitchen's server entry from North Corridor looking South



Photo 18
View of the staff Men's toilet room on the West.



Photo 20
View inside classroom 118 on Southwest



Photo 19
View inside computer classroom 123. Note the lack of natural ventilation and any means of mechanical return air or exhaust system. Severe Indoor Air Quality issues take place when the space is fully occupied, per building staff. Existing skylights are also causing water leaking issues constantly.



Photo 21
View inside classroom 130. Note the encased fan coil unit with poor installation condition. The wall insulation adjacent to unit is torn apart causing weather tightness issues around the year.



Photo 22

View inside the first floor` plenum space where an additional hard ceiling assembly was installed between the acoustical ceiling and roof decking to provide firm acoustical insulation, per building staff.



Photo 24

View inside West stair (mezzanine level) leading directly to library on mezzanine level. Walls and guard walls were entirely built out of glazed masonry units.



Photo 23

View inside West stair (first level) leading to library on mezzanine level. Stair is constructed of metal stringers and treads/risers flights



Photo 25

View inside the library on mezzanine level where students were on session. The corridor adjacent to library show signs of water leakage (note acoustical tiles ceiling) from roof. It also shows lack of electrical receptacles as few power cords were crossing on the floor surface causing a tripping hazard for occupants of all ages.



Photo 26
View inside East stair hallway leading to
multipurpose space, the stage, and to the mezzanine
level.

Mechanical, Electrical and Plumbing System Descriptions

Mechanical

Utilities

- The building is served by a 4" Gas service which was added as a part of 1999 renovation. The outdoor meter is located at the north side of the building which is connected to the People's Gas main in Foster Ave (see photo M1). The gas load was sized for 2,400 CFH @ 7" w.c. This includes 1,600 CFH for heating, 500 CFH for water heating, and 300 CFH for kitchen equipment.

Main Systems

- The mechanical systems for the building are divided into four sections. The west, east and north wings of the building are each served by their own gas-fired packaged rooftop unit, while the south wing is served by unit ventilators with electric heat and direct expansion (DX) cooling coils served by individual rooftop condensing units (see photo M2). Each rooftop unit is controlled via a single zone thermostat control in the building engineer's office.
 - Roof Top Unit A was installed as part of 1999 renovation. It serves the classrooms and offices in the east wing of the building. The unit supplies 12,000 CFM of air with 4,000 CFM outdoor air. The heating coil is a gas coil with a 423 MBH output and a 79% AFUE rating. The cooling coil is DX with a capacity of 30 tons and an EER of 9.1. The unit shows wear commensurate with its age without any noteworthy damage. Roof top units typically have a lifespan of 20 to 25 years, so it likely has at most 5 years of useful life remaining.
 - Roof Top Unit B was installed as part of 1999 renovation. It serves the classrooms and offices in the west wing of the building. The unit supplies 11,250 CFM of air with 4,000 CFM outdoor air. The heating coil is a gas coil with a 423 MBH output and a 79% AFUE rating. The cooling coil is DX with a capacity of 30 tons and an EER of 9.1. The unit shows wear commensurate with its age without any noteworthy damage. Roof top units typically have a lifespan of 20 to 25 years, so it likely has at most 5 years of useful life remaining.
 - Roof Top Unit C was installed as part of 1999 renovation. It serves the north wing of the building including the gymnasium and cafeteria. The unit supplies 15,000 CFM of air with 5,500 CFM outdoor air. The heating coil is a gas coil with a 423 MBH output and a 79% AFUE rating. The cooling coil is DX with a capacity of 40 tons and an EER of 9.0. The unit shows wear commensurate with its age without any noteworthy damage. Roof top units typically have a lifespan of 20 to 25 years, so it likely has at most 5 years of useful life remaining.
 - The south wing of the building was built a year after the original building and is served by unit ventilators. There is one unit ventilator for each of the 11 classrooms in this area (see photo M6). Each unit ventilator has 20 KW of electric heating and has a DX cooling coil connected to a 3-ton rooftop condensing unit. Each one brings in 1,250 cfm of outdoor air, and has a rooftop relief vent (see photo M3). The unit ventilators have local packaged controls within each classroom.
- The building has 13 rooftop exhaust fans. 11 of the fans serve toilets, the switchboard room, and the kitchen (see photo M4). The remaining 2 exhaust fans are general exhaust fans drawing from the east and west hallway outside of the toilet room. These serve the classrooms in those wings via transfer grilles between the hallway and the classrooms. The exhaust fans total 22,350 cfm and the fan motors total 5.6 HP.

Distribution

- When the RTUs were replaced in the 1999 renovation, the existing ductwork was maintained.
- This ductwork has electric reheat coils for each zone.
- Each RTU gets return air through a return plenum over the corridor.

- Existing gas distribution comes into the building from the gas meter at the north, then is piped to the rooftop where it runs to each of the RTUs. Gas is piped down from the roof to each of the water heater rooms and the kitchen from directly above each of those locations.

Terminal Equipment

- Supply air to the classrooms is provided via two equally sized sidewall diffusers (see photo M5) with one electric reheat coil per classroom.
- A small amount of air is supplied directly to the corridors via ceiling diffusers and no reheat coil.
- Each smaller office and room has its own supply diffuser with a reheat coil.
- Fifteen (15) electric unit heaters are located in the building corridors and vestibules.
- Each toilet room has a unit heater in the space and is connected to an exhaust fan on the roof. There are 6 individual toilet rooms, and 3 larger boy's and girl's toilet rooms with a shared exhaust.

Issues

- Unit ventilators are 3 to 4 years old and are out of warranty. These are very problematic for building staff who have been replacing parts as they fail.
- Several of the unit heaters in the building are no longer operational
- Existing building roof replacement will affect several pieces of mechanical equipment. Refer to the Order of Magnitude Scope and Estimate report for detailed list of which items are being replaced or reinstalled. All equipment which is to be re-installed after roof replacement shall be tested before removal to confirm that it is operating properly. In general, the 12 condensing units and 13 exhaust fans are to be re-installed, while the packaged rooftop units are being replaced.

Electrical

Utilities

- Main Electrical Service
 - The building has three separate electrical services.
 - Service #1 is an underground feed to supply 208/120V power to existing main building. (3) separate meters and fused disconnect switches located in main electrical room feed the main switchboard rated at 2000A, 208/120V, 3-phase, 4-wire.
 - Service #2 is an underground feed to supplies 480V power to feed existing main building mechanical loads. The main 480V switchboard is rated at 1600A, 480V, 3-phase, 3-wire.
 - Service #3 is an underground feed to supplies 208/120V power to existing main building addition area. The main switchboard is rated at 1200A, 3-phase, 4-wire.
- Outdoor Equipment
 - Existing pad mounted compartmental switchgear located at northwest corner of building exterior feeds (2) outdoor pad mounted transformers for Service #1 and Service #2.
 - Service #1 transformer is rated 208/120V, 3-phase, 4-wire and located in building center courtyard area
 - Service #2 transformer is rated 480V, 3-phase, 3-wire and located in building center courtyard area
 - Service #3 transformer is rated 208/120V outdoor pad mounted transformer and located at southwest corner of building exterior to feed main building addition area.
- Emergency Electrical Service
 - There are two emergency power systems to the building.
 - Emergency Service #1 is via a secondary tap at 208/120V transformer for Service #1 and feeds an EM service meter, disconnect switch, transfer switch, and emergency power distribution panel. The emergency distribution branch panel supplies power to lights and exit signs in the main building.
 - Emergency Service #2 is via a secondary tap at 208/120V transformer for service #3 and feeds an EM service meter, disconnect switch, and emergency power distribution. The emergency

distribution branch panel supplies emergency power to lights and exit signs in the main building addition area.

Main Systems

- Fire Alarm System #1
 - The fire alarm control panel (FACP) for this system is located in electrical room of the main building. The system controls notification and detection devices throughout the main building. The system is not addressable. The fire alarm annunciator panel (FAAP) is located at the building main entrance.
- Fire Alarm System #2
 - The fire alarm control panel (FACP) for this system is located in electrical room in the main building addition area. This system controls notification and detection devices throughout the main building addition area. The system is not addressable.
- HVAC and Plumbing Electrical Power
 - All 480V loads (air handling units, water heaters, exhaust fans, etc) are fed from Service #2 main switchboard and distribution panels HH-A, HH-B, and HH-C. These branch circuit panels feed heating and cooling equipment located in the offices and classrooms throughout the building.

Telecommunications

- The main MDF room is located in the main building addition area.
- MDF room equipment and A/C unit fed from panel RP-1C (225A, 120/208V, 3-phase, 4-wire) located in the MDF room.

General Power and Lighting Systems

- Branch circuit panels located in the corridors feed classroom and corridor lighting throughout the building.
- Issues
- Main electrical rooms are being used for storage. All items in these areas should be removed from blocking access to the electrical equipment.
- The fire alarm system does not meet CPS standard.
- The building has two separate fire alarm systems.
- Location of new annex will block access to the existing transformer for Service #3.

Plumbing

Utilities

- Water
 - There is an existing 6-inch domestic water service entering into the existing building from West Foster Avenue.
 - The incoming service enters into water meter room and then connects to the 4-inch water meter assembly. (see photo P1)
- Sewer
 - The building has two existing 5-inch sanitary lines exiting the building to West Foster Avenue.
 - The building has two existing two 8-inch storm lines exiting the building to West Foster Avenue.

Main Systems

- Building domestic water system is distributed by city pressure.
- Hot water is provided by three gas fired domestic hot water (Lochinvar) and water booster heater next to gas water heater in the kitchen. The water heaters appear to be in good condition. (Manufacture – Lochinvar). (see photo P3, P4, & P5)

Distribution

- Domestic water piping distribution runs through ceiling. Incoming pipe material for domestic cold-water line to water meter was galvanized and transition to Copper for distribution to bathroom group and fixtures.
- All sewer lines are routed underground and exit the building to West Foster Avenue and are typically cast iron where observable.
- All vent pipes are routed through the ceiling and terminate above the roof.
- Existing roof drains appears to be in good condition. There were no reported or observable problems regarding water pooling on the roof.

Terminal Equipment

- All Plumbing fixtures were in good condition and all appeared to be functional.
 - Existing water closet and urinals are manual flush-valve type. (see photo P2)
 - All lavatories, mop sinks, classroom and kitchen sinks are manual type faucets.
 - Existing floor drains in mechanical room and restrooms were in good condition. (see photo P5)
 - Existing drinking fountain were bi-level ADA height fountains and appear to be in good condition.

Mechanical, Electrical, Plumbing Observation Photos



Photo M1



Photo M2



Photo M3



Photo M4



Photo M5



Photo M6



Photo E1



Photo E2



Photo E3



Photo E4



Photo E5



Photo E6



Photo E7



Photo E8



Photo E9



Photo E10



Photo E11



Photo P1



Photo P2



Photo P3



Photo P4

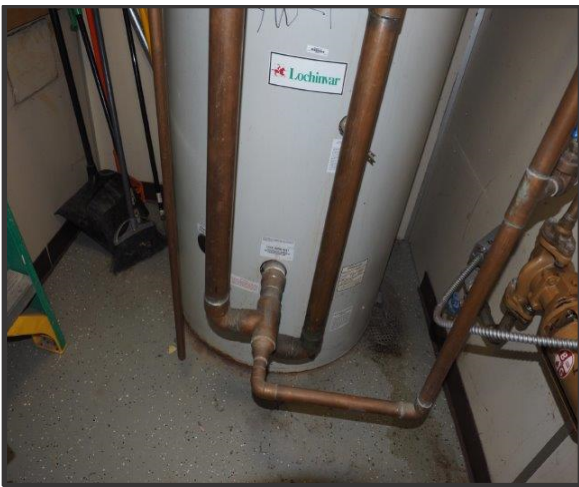


Photo P5



Photo P6

Civil and Landscape Descriptions and Observation Photos

1. Project Summary

A. Existing Parcel

1. The referenced project is located at the Southwest corner of the intersection of W Estes Avenue and N Sacramento Avenue. The project encompasses roughly 3.84 acres. The site is comprised of an existing asphalt parking lot and play lot, single-story school building, playground area and lawn areas covering roughly 50% of the proposed project site. Some interior and perimeter landscaping exist on site.

2. Pavement

A. On Site

1. Existing pavement on site includes asphalt pavement parking lot and a large play asphalt pavement area to the south and west of the existing school. The parking lot was recently restored and re striped and is in good condition. The play area asphalt has longitudinal cracking but seems to be in fair condition.



2. It is anticipated that all existing pavement on site will be removed for the proposed improvements.

B. Right of way

1. The existing right of way concrete sidewalk is in fair condition. Some panels have experienced large cracking/heaving and need replacement. ADA ramps crossing N Sacramento Ave from W Estes Ave to W Lunt Ave are in good condition and seem to be compliant. Ramps compliance will need to be verified upon receipt of Survey topographic information.
2. It is anticipated that curb to curb resurfacing of N Sacramento Ave from E Estes to W Lunt will be required by the Office of Underground.

3. Curbs / Walls

A. On Site

1. There are multiple curbs / walls on site. There is a large curb 12" + at the west side of the play area. Reasoning behind the curb is not clear. The curb was installed after the adjacent asphalt pavement. The curb is in great condition.



There are segmented block walls along the eastern property line. Many portions of the wall are falling over, and the wall is in a general bad condition.



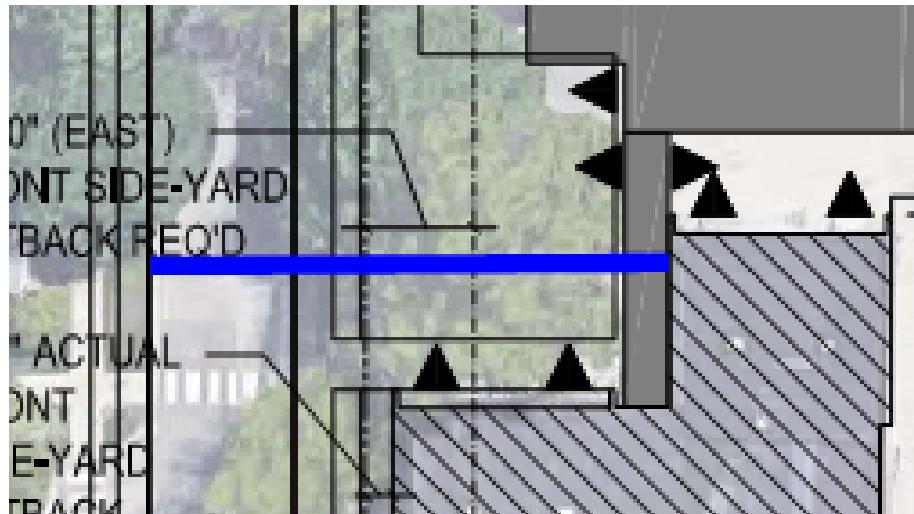
2. It is anticipated to remove portions of the curb at the westside of the play lot. It is anticipated that the segmented block wall will be removed where it conflicts with proposed improvement and repaired elsewhere.

B. Right of way

1. The property only abuts one right of way, N Sacramento Ave. This B.12 curb and gutter are in fair condition. There are low spots that were observed holding water.



2. All curb and gutter adjacent to the new annex will need to be verified, using survey topographic information, against the City of Chicago Department of Transportation requirements. It is anticipated that curb and gutter will need to be replaced to meet CDOT requirements.
4. Utilities – All Utilities described herein need to be verified with survey utility data and Office of Underground Coordination.
- A. Sewer – On Site
1. Existing sewer connection is to N Sacramento Ave. at the existing parking lot entrance. Connection point was determined based on as built drawings. Further investigation and verification via survey utility information is needed to determine condition of sewer pipes and structures. No on-site detention has been observed or documented.
 2. It is anticipated that the existing connection at the north side of the building will be reused. All other sewers will be removed as part of the development. The existing building sanitary and storm services are anticipated to be rerouted as part of the proposed development.
- B. Sewer – Right of Way
1. N Sacramento Ave has a 30" diameter brick sewer running south to north about 9' below grade (DWM Sewer atlas 41-1-31). Sewer pipe size, condition, location, and inverts are to be verified via survey utility data.
- C. Water – On Site
1. The existing water service is a 4" service connecting the east side of N Sacramento Ave.



2. It is anticipated that the existing water service will need to be terminated during the proposed development. A new water service will be provided to serve the new annex and existing building.

D. Water – Right of Way

1. Water pavement markings were observed on site. City water line is anticipated to be located in the parkway on the east side of N Sacramento Ave.
2. Water pipe size, condition, location, and inverts to be verified via survey utility data and OUC water atlas.

E. Electric – On Site

1. The existing electric service is at the north side of the building. The service enters the boiler room at the northwest corner of the existing building. Drawings E-2, date 10-30-56, Sheet Title “Electrical” shows the existing connection location. Service comes from pole mounted overhead lines north of parking lot pavement.
2. Existing Electrical service is anticipated to remain.

F. Electric – Right of Way

1. Location is unknown at this time. Survey and OUC information required.

G. Gas – On Site

1. Gas service is also located at the northwest corner of the building. Service is shown on HV2 drawing from 10-30-56, Sheet title “Heating and Ventilating.”
2. Existing gas service is anticipated to remain. Existing oil storage tank located west of the boiler room at the building exterior is shown on drawing HV2. Environmental coordination for tank removal maybe required if tank exist.

H. Gas – Right of Way

1. Location is unknown at this time. Survey and OUC information required.

I. Landscape – Site

1. The existing trees along the south side of the playground area will need to be removed for the development of the new building annex.
2. The existing trees and vegetation along the south property line is in good to poor condition. It is anticipated that the ash trees, poor quality plant materials and underbrush will be removed. Tree in good condition should be saved if possible.
3. Existing plant material on the east side of the existing building is in good condition and should remain.

J. Landscape – Right of Way

1. The existing parkway width along N. Sacramento Ave is roughly 12' from property line to the back of curb. The parkway treatment does not vary greatly from North to South, with 18 existing parkway trees ranging in caliper size from approx. 4" to 24" in fair to good

condition and consist of Elm, Honey Locust, Maple, Hackberry and Linden trees, which are all typical for parkway plantings. These trees are located in a 5' grass parkway adjacent to the back-of-curb.

K. Furnishing – Site

1. The existing north play lot and surfacing is in good condition and could be retained depending on the final design of the new play lot and asphalt play area.
2. Portions of the ornamental fence and curb line along the western edge of the asphalt play surface could be retained depending on the final design of the new play lot.
3. The existing south play lot, surfacing and portions of the ornamental fence will be removed for the development of the new building annex.
4. The existing shade structure, basketball hoops and triple hoops within the asphalt play area are in good to fair condition and could be retained depending on the final design of the new play lot.
5. Existing arbors, bike racks and benches on the east side of the existing building are in good condition and should remain.

BASIS OF DESIGN – PRELIMINARY
Dirksen Elementary School Annex II

Architectural, Civil, Landscape, Mechanical, Electrical, Plumbing and Fire Protection

Conceptual Design Submission
10.05.2018

Project Description

The Dirksen ES Annex project is a planned Annex (addition) to the existing Everett McKinley Dirksen Chicago Public Elementary School and original annex located at 8601 N. Foster Ave. Chicago, Illinois 60656.

This Annex (addition) to the existing building is conceived as a permanent solution to address overcrowding and to eliminate the use of temporary mobile classrooms (modular). The "Linked Annex" provides expanded program space with contiguous weather-protected connection to the existing building. The design of the new Annex and site improvements strive to provide spaces which can contribute to ensuring that every child is educated and prepared for success; the ultimate goal of CPS. In order to achieve this goal, the building and site design seeks to provide a non-institutional child-centered learning environment that can foster integration and cooperation among students, encourage learning through an array of spaces and visual connections, allow for interactive play and learning, and encourage independence of students. Importantly, the architecture should have an inherent and understandable order and offer visual cues and orientation aids for all students.

The building and site will be designed and constructed to achieve a LEED v4 for Schools Silver rating for the Annex components as defined by the U.S. Green Building Council. Requirements for green building items that are part of the LEED process will be incorporated into the drawings and specifications to provide direction to the construction team. Given that the project meets the mandated Planned Development thresholds, the project will also be required to meet the City of Chicago Department of Planning and Development Sustainability Matrix Requirements.

Furthermore the project shall comply, in all respects, with requirements of the CPS Design Guidelines including all amendments and memoranda. Deviations, where required, shall be requested in writing. Additional specifications, where required, shall be authored by the design team to support the objectives of the project. Additional specifications shall be presented to PBC & CPS representatives as the design is developed.

Programming: The specific spatial programming requirements are as follows:

New Annex:

- 4-hour fire-separation vestibule on first floor
- (18) New Academic Classrooms, approximately 760 GSF each
- (4) special needs (servicing 3 different age groups) 760 GSF each
- (2) science classrooms w/ storage 1080 GSF each
- (2) computer classrooms 1040 GSF each
- (4) Pre-K & K classrooms 1180 GSF each
- (2) Administrative offices remote from main school office, approximately 150 GSF each
- (1) student dining room 4,650 GSF
- (1) Kitchen prep. And servery 1,890 GSF
- (1) Dining storage and accessory spaces for kitchen staff 1,350 GSF
- (1) Library 2,280 GSF
- (1) MDF/IDF (CPS stated this can be storage if existing overhead service is not disrupted), approx. 280 GSF
- Student and Staff toilets at each floor to support code-calculated annex population
- Custodial rooms at each floor
- Exit stairs; number and design to meet requirements of egress and accessibility
- (1) elevator
- Trash compactor and enclosure
- Utility spaces as required (plumbing, sprinkler pump, electrical)

Site:

- Removal of the two existing modular units after annex completion.
- Review of existing playlot and future playlot needs.
- Re-route existing utilities that conflict with new work
- Temporary off-site staff and construction parking to be reviewed / resolved by PBC and CPS
- Replace existing parking to accommodate 90 FTE (per CPS) and a fire lane for emergency vehicle access.
- Provide trash and trash-compactor enclosure

Existing Building:

- Convert existing kitchen to teacher's lounge
- Convert existing kindergarten classrooms into Music and Drama classrooms.
- Provide accessible directional signage
- Low-voltage interconnections of public-address /intercom, security system, fire alarm, MDF/IDF
- Environmental remediation in areas affected by work

Schedule: The design and construction of the annex facility as well as renovation of existing building, removal of modular, completing all site elements to be complete in Jan 2021.

Budget: \$30,000,000 (refer to CPS program)

Building Envelope

The building will be a modified three-story Annex prototype with a four-hour vestibule connection to the existing building and a double-loaded corridor enclosing a total gross area of approximately 63,000 square feet of floor area.

The three-story structure will be a steel frame with steel beams joists with composite metal deck at elevated slabs. Exterior walls will be constructed of brick veneer with 6" cold-formed framing back-up. The typical masonry veneer assembly will include 4" nominal exterior masonry veneer, 2" air cavity, insulation, continuous air-and water barrier, exterior gypsum sheathing, cold-formed framing, and interior gypsum board. Masonry anchors will exceed 4.5", exceeding the empirical design criteria, requiring structural design of the anchor size and spacing. Glazing systems will be a combination of thermally broken aluminum frame windows and storefront systems with both fixed and operable lites of insulated, low-E, clear glazing. Given the project's proximity to O'Hare International Airport, additional acoustical parameters are anticipated. These could include laminated glazing and additional partition thicknesses or layers.

The first floor will be constructed as a reinforced concrete slab on grade over a continuous vapor retarder, foundations and footings are anticipated to be shallow footings. The second and third floors of the Annex will be constructed of 6-1/2" normal weight concrete and composite metal deck. Spray-applied fireproofing material will be provided to all second and third floor supporting steel as required by the building code. Due to the building height exceeding 30' shelf angles will be required to support brick veneer at mid-height, and a second shelf angle will be required at the roof deck to permit roof scupper flashings to be accommodated without differential movement at mid-span.

The Annex entry vestibules will consist of aluminum storefront and insulated, low-E glazing, laminated to a height of approximately 9'-0" above finished-floor for enhanced vandal resistance. Glazing at corridor nodes will be of storefront and low-e glazing assembly. All windows shall receive limestone or precast concrete sills with drip-edges secured with appropriate anchorage to prevent overturn. Walls shall be fully flashed and weeped at all terminations (base of wall, shelf angles, below sills, above lintels, wall offsets, etc.) Cell vents will be provided to convey water from the cavity to the exterior. Where spacing of cell vents exceeds recommended distances cotton sash rope weeps shall be specified.

Envelope enclosing roofs will be constructed of steel beams, joists, and insulated concrete deck with a modified-bituminous membrane system and reflective coating meeting LEED criteria. Normal weight concrete shall be installed at all roof locations pending recommendations by the AOR's acoustical consultant.

Acoustics

The AOR will engage an acoustical consultant for assistance in the design of appropriate assemblies to meet the CPS Facilities Performance Standards; http://cps.edu/About_CPS/Policies_and_guidelines/Pages/facilitystandards.aspx, LEED prerequisite acoustical design requirements, and requirements of the City of Chicago relating to sound levels in the public way. Note that the project is located within very close proximity to O'Hare International Airport. The existing facility was previously retrofit for acoustic improvements.

Prior to transfer of the project the Design Architect has not engaged an acoustical consultant. However, certain aspects of the design warrant specific review and input from an acoustical consultant in order to meet CPS and LEED prerequisite acoustic requirements. Partitions will, in many cases, require multiple layers of gypsum board that exceed the minimum fire-separation requirements of the Chicago Building Code. It is also assumed that the roof will require a normal-weight concrete-filled deck at all locations and laminated glazing at all exterior glazing. The design team should evaluate if additional acoustical mitigation measures are necessary at the building envelope.

Mechanical equipment shall be installed on acoustical / vibration isolators and all return ductwork shall be offset in a manner to reduce fan noise in the core learning areas. The design team should evaluate whether sound-control barriers at the roof will be required to mitigate sound at the lot line or whether this can be addressed via equipment specification.

LEED and Sustainability Requirements

- A. This Section includes general requirements and procedures for compliance with U.S. Green Building Council's (USGBC) LEED prerequisites and credits needed for the project to obtain LEED for Schools Silver Certification.
- B. In addition to the outlined LEED Requirements, the project shall comply with the Department of Planning and Development's Zoning Sustainability Matrix, meeting a minimum of 100 credits. The AOR shall coordinate with CPS to determine the most cost effective means to obtain these credits.
- C. LEED submittals are in addition to other submittals. If submitted item is identical to that submitted to comply with other requirements, submit duplicate copies as a separate submittal to verify compliance with indicated LEED requirements.
- D. Products used on this project will have additional requirements which are required to comply with the USGBC LEEDv4 for BD+C: Schools rating system:
 - 1. Reduced Urban Heat island effect.
 - 2. Water use reduction.
 - 3. Optimize energy performance.
 - 4. Construction waste management.
 - 5. Environmental Product Declarations
 - 6. Low VOC-emitting materials.
 - 7. Zero use of CFC-based refrigerants.
 - 8. Low Ozone Depletion and Global Warming Potential refrigerants.
- E. General Commissioning (Cx) Requirements
 - 1. This Section includes general and USGBC LEED for Schools requirements that apply to implementation of commissioning without regard to systems, subsystems, and equipment being commissioned. Project specific MEP requirements will be identified in individual specification sections.

2. Commissioning Plan: A document, prepared by the Commissioning Authority (CxA), that outlines the schedule, allocation of resources, and documentation requirements of the commissioning process, and shall include, but is not limited to the following:
 - a. Overview of the Cx Plan describing the purpose, scope, abbreviations and list of applicable forms.
 - b. General description of the project and salient design features related to successful commissioning of the project.
 - c. Commissioning team information including communication matrix identifying members appointed by the Owner including Owner's representative, CxA and Architect/Engineer and Contractor including representatives of the prime and sub-contractors, construction superintendant and specialists deemed appropriate by the CxA..
 - d. Description of roles, responsibilities and authority of commissioning team members.
 - e. Commissioning process requirements including, but not limited to:
 - 1) Commissioning kick-off meeting guideline and requirements.
 - 2) Site observation guidelines and requirements.
 - 3) Miscellaneous meeting guidelines and requirements.
 - 4) Miscellaneous management protocols for the Cx team.
 - 5) Progress reporting issue log guidelines and requirements.
 - 6) Guidelines for initial submittals and documentation including equipment shop drawing submittals, operations and maintenance manuals, certifications and warranties and guidelines for special submittals, notifications and clarifications.
 - 7) Verification and testing overview including development and completion of construction checklists and completion of functional performance tests.
 - 8) Construction checkout procedures and guidelines for contractor review and completion of checklists, verification of information by the CxA and correction of deficiencies.
 - 9) Procedures for development, coordination and completion of all applicable functional performance forms and tests including correction of deficiencies.
 - 10) Guidelines and procedures for preparation of Operation and Maintenance Manuals and Commissioning Record.
 - 11) Detailed guidelines and procedures for training of Owner's personnel.
 - 12) All extended warranty period activities typically provided for successful completion and credit for enhanced commissioning activities.
 - f. Detailed matrix of written work products including Cx Plan, schedule, submittals, checklists, testing, adjusting and balancing (TAB) documents and procedures, issue logs and corrective action reports. The matrix describes the author, product description, due dates, and who receives/ approves the products.
 - g. Schedule of Cx activities with specific dates coordinated with overall construction schedule.
 - h. Appendices including Owners Design Criteria and MEP Engineer's basis of design

Architectural

1. THERMAL AND MOISTURE PROTECTION

The envelope will be designed in accordance with the City of Chicago Energy Conservation Code, Section 18-13, *Table 13*, or the ASHRAE 90.1-2004, *TABLE 5.5-5 Building Envelope Requirements for Climate Zone 5A*, whichever is stricter.

- A. Insulation
 - 1. Rigid Wall Insulation. Extruded Polystyrene, 2 ½" overall. Minimum R-value of R-12.5.
- B. Membrane Roofing System
 - 1. Two-ply SBS Modified Bitumen roofing system, white coating or cap sheet with Solar Reflectance Index (SRI) of 78 minimum. Install in compliance with roofing manufacturer's printed instructions. Comply with USGBC LEED for Schools Sustainable Sites Credit for Heat Island Effect: Roof.
 - 2. Provide insulation with an aged R-Value of 30, first and second layer fully adhered over a substrate board (thermal barrier) and a vapor retarder.
- C. Roof Coating
 - 1. Comply with USGBC LEED for Schools Sustainable Sites Credit Heat Island Effect: Roof.
- D. Sealants and Adhesives
 - 1. Interior sealants and adhesives shall meet or exceed South Coast Air Quality Management District (SCAQMD) Rule #1168. Comply with USGBC LEED for Schools Indoor Environmental Quality Credit Low-Emitting Materials.

2. DOORS AND WINDOWS

- A. Fiber-Reinforced Polymer (FRP) Doors and Aluminum Frames
 - 1. Insulated FRP doors and thermally broken aluminum frames at all service exterior doors.
- B. All-Glass Entrances and Aluminum Window Wall:
 - 1. Main Entrances: Provide pair of all glass entrance doors as scheduled on the drawings. Install all-glass systems and associated components according to manufacturer's written instructions.
 - a. Glass: As indicated in the CPS specifications, enhanced for energy performance.
 - b. Aluminum: As indicated in the CPS specifications.
 - c. Patch Fittings: As indicated in the CPS specifications.
- C. Aluminum Windows
 - 1. Provide aluminum windows, that comply with AAMA/NWWDA 101/I.S.2 for performance class and performance grade which includes a complete system for assembling components and anchoring windows.
 - 2. Provide windows with an integral, concealed, low-conductance thermal barrier; located between exterior materials and window members exposed to interior side, in a manner that eliminates direct metal to metal contact.
- D. Provide windows and hardware to accommodate screens in a tight-fitting, removable arrangement, with a minimum of exposed fasteners and latches.
- E. Glass and Glazing
 - 1. Exterior and Interior Glazing:
 - a. As indicated in the CPS Specifications and as shown on the Drawings.
 - b. Laminated assemblies where required for acoustical mitigation.

Structural

The structural system was selected based on the current project schedule, the ease of construction, the recommendations from CPS regarding slab thicknesses (to mitigate moisture conditions) and the suitability of the structural system for future modifications. No provisions have been made for future expansion in this phase of the design as CPS has not requested any considerations for future additions.

Floor Framing

The floor framing of the building will consist of 2" composite metal deck with 4 1/2" Normal weight concrete slab supported on composite steel beams spaced at 7' to 8'-6" on centers with girders spaced at 25'-30' on centers. The portion of the second floor, above the dining room, will consist of 2" composite metal deck with 6" Normal weight concrete slab supported on composite steel beams spaced at 6'-8" on centers. The composite beams typically span 30' (+/-) with a 15' span at the corridors. The floor framing will be supported on W10 wide flange steel columns. The column locations and the spacing will be determined as the design is further developed.

The stairs will be metal pan with concrete infill per the Architectural requirements.

Roof

The roof structure will consist of composite metal deck with concrete floor, similar to the floor framing. The composite slab will be supported by composite bar joist or non-composite bar joists or wide flange beams.

Lateral System

Currently the lateral load resisting system is envisioned to be steel braced frames in either direction. The location of the bracing will be determined as the design progresses.

Foundations

A comprehensive Geotechnical Report needs to be obtained prior to structural foundation design. Based on review of previous foundation construction shallow spread and strip footings are expected. The existing building has footings set at a lower level indicating unsuitable soil for the top 6'-8'. Geotechnical recommendations should clarify the bearing capacity as well as the location of the bottom of the footing. Removal of unsuitable soil and back-fill with stone could be another option. The slab on grade will be 5" thick concrete slab with 6x6 -W2.9xW2.9 Welded Wire Fabric.

Any vibration sensitive machinery will be supported on isolated foundations. The foundation mass will be determined per machinery manufacturer's recommendations.

Codes and Technical References

- Governing Building Code: **Chicago Building Code (CBC), 2018**
- ANSI-A58.1 & ASCE 7: Minimum Design Loads for Buildings
- Structural Steel: AISC Specification for Structural Steel Buildings
- Concrete: ACI - 318 Building Code Requirements for Structural Concrete
- Precast Concrete: PCI – Design Handbook Latest Edition
- Masonry: ACI - 530 – Building Code Requirements for Concrete Masonry Structures
- Cold Formed: AISI – North American Specification for the Design of Cold Formed Steel Structures
- Steel Deck: SDI – Diaphragm Design Manual
- Elevators and Escalators: ASME A17.1 Safety Code for Elevators and Escalators

Design Load Criteria

Dead Load

- 2" Metal Deck + 4 1/2" N. WT. Concrete Slab = 69 psf
- 2" Metal Deck + 6" N. WT. Concrete Slab = 88 psf
- Structure = 7 psf
- Partitions = 20 psf
- MEP = 15 psf; RTUs = Per Mechanical Data
- Roofing + Insulation = 12 psf
- Misc = 5 psf

Live Load

- Classrooms (Typ.) = 40 psf + Partitions
- Public Areas = 100 psf
- Corridors = 100 psf
- Stairs, Lobbies = 100 psf
- Library Stacks = 150 psf
- Mechanical Rooms = 150 psf
- Storage = 125 psf

Snow Load

- Uniform = 25 psf
- Drift = 60 psf (16' width)

Wind Load

- Structure = 20 psf
- Cladding = 25 psf (Typical)
- Cladding = 30 psf (Corners)
- Uplift (Canopy) = 40 psf

Thrust on

- Handrails and Stairway railings = 50 plf (on top horiz. and vert. or 200 lbs at any point)

Mechanical

1. Utilities

- A new gas service is expected to be required to provide natural gas for the building heating, hot water heater, and kitchen equipment, however the available gas capacity of existing service will be confirmed with the utility to determine if a new service is required for the new building. The expected gas load for the new building is approximately 700 CFH for water heating, 500 CFH for kitchen equipment and 2,800 CFH for heating for a total load of 4,000 CFH.

2. Main Systems

- Primary Heating System: The annex building will be served via a hot water heating system. The system will consist of two (2) high efficiency condensing hot water boilers. An estimate of the heating load at 45 BTU/h/SF gives a total heating load of 2,800 MBH. Each boiler will be sized at 2,000 MBH for approximately 66% of the heating load.
- Primary cooling system: An air-cooled chiller will provide chilled water for cooling the building. The chiller will be located on the roof of the new building and is estimated to be 150 tons.
- Air side systems: Two variable air volume (VAV) air handling units (AHUs) will be located on the roof of the new annex. One unit will serve the kitchen and dining areas on the first floor, and the other unit will serve the remainder of the building. The AHUs will have a chilled-water cooling coil and a hot-water heating coil.
- The dedicated unit for the kitchen and dining area will have a significant quantity of outdoor air as makeup for the hooded cooking equipment in the kitchen.
- Additional systems
 - Each of the toilet rooms shall have a hot water unit heater and an exhaust fan.
 - Each entry vestibule shall be provided a hot water cabinet unit heater.

3. Distribution

- The AHU's supply and return fans will be equipped with variable frequency drives. Air will be distributed via medium pressure ductwork to VAV boxes with hot-water reheat coils.
- Hot water will be circulated to heating coils in the AHUs and VAV terminal boxes via circulation pumps with VFD in a 100% standby configuration.
- Chilled water will be circulated to the cooling coils in the AHUs via circulation pumps with VFD in a 100% standby configuration.

4. Terminal Equipment
 - Each zone will be supplied fresh air, heating, and cooling through the airside distribution system of VAV boxes each with a motorized damper connected to low-pressure ductwork and diffusers.
 - Return air will be transferred back to the rooftop AHU via plenum return, which will be blended with the code required outdoor air at each unit.
5. Interface with Existing Building
 - As long as the existing gas service capacity is sufficient (to be verified by utility), the annex gas service will tap into the existing service. However, it is assumed that a new service will be required and there will be no mechanical system interface with the existing building.
6. LEED Mechanical Issues
 - All ventilation systems will be designed to meet ASHRAE 62.1 – 2010 as well as the Chicago Mechanical Code in order to comply with the LEED prerequisite Minimum Indoor Air Quality Performance.
 - Installing high-efficiency condensing boilers and an efficient chiller will contribute positively towards the prerequisite Minimum Energy Performance, which requires a 5% energy reduction compared to an ASHRAE 90.1-2010 baseline building. It will also help for earning points under the credit Optimize Energy Performance, in which similar recent projects have earned 5-7 points.
Selection of a chiller with an appropriate refrigerant may allow 1 point to be earned in the Credit Enhanced Refrigerant Management.

Electrical

Utilities

- Main Electrical Service:
 - Provide new 800 amp, 277/480V, 3-phase, 4-wire electrical service to serve the new annex building. Provide a new switchboard MSB-2 to be located in a new 2-hour fire rated dedicated electrical room within new annex building. This new electrical service shall be fed from a new ComEd utility service transformer located along the alley.
 - The new proposed main electrical room located within the new annex building shall be 2-hour rated room with minimum 2 exit doors with panic hardware at each end of the switchboard which open in the direction of egress from the room.
- Fire Pump Electrical Service: The fire pump electrical service shall be fed directly from the secondary side of the pole mounted ComEd transformer via underground secondary electrical service conductors to the fire pump controller via a ComEd utility service meter socket located within the fire pump room, dedicated for the fire pump service. The incoming underground fire pump service feeders to be rated at 277/480 V 3-Phase, 4-Wire. A C/T cabinet with meter socket will be located directly adjacent to the fire pump controller.

Life Safety System

- The life safety system will be a class II system which consists of individual emergency battery units with internal 90-minute batteries and battery unit exit signs. All life safety lighting (emergency battery units and exit signs) shall be provided with integral Chicago approved 90-minute battery complete with internal test push-button and indicator lamp. All exit signs shall be LED type. Emergency Life Safety Lighting System shall be sized for 0.1 watt per square foot based on the programmed facility size and 1-foot candle lighting levels as required by the Chicago Building Code. Exit and emergency lights will be provided as required by City of Chicago Fire Prevention Bureau. Per energy code all exit signs shall have a minimum source efficacy of 35 lm/W. All exit signs shall be wall mounted where possible.
- Wall pack emergency lighting fixtures will be provided throughout the rooms and spaces as per code in order to provide the required 1-foot candle lighting levels. Lighting fixtures with integral battery packs shall NOT be acceptable per CPS standards.
- A master control switch shall be provided to shut off the emergency lights within the new annex building when the building is not occupied. The switch shall be disabled by the security camera system upon activation.

Emergency Means of Egress Lighting:

- The following areas shall have emergency illumination whether having natural illumination or not:
- Egress corridors and stairways
- Assembly areas
- Locker rooms
- Gymnasium
- Student rest rooms
- Main and other dedicated electrical rooms
- Mechanical rooms
- Administration and other building control areas
- Kitchen/student dining
- Interior instructional space without natural illumination
- Rooms with areas exceeding 1000 sq. ft.
- Exterior side of exterior exit doors

Grounding and Bonding:

- Grounding: System and equipment grounding will be provided. All switchboards, transformers, motor starters, panel boards, wiring systems, etc., will be effectively grounded via a code compliant Ground Bus System.
- Telecommunications Ground Bus System: The building shall have a reference "telecommunication ground bus" (TGB) within each telecommunications and systems closets (MDF room and IDF rooms/closets). Each TGB shall be bonded to the Main Building Grounding point. The Standard for this system shall be: EIA/TIA Standard 607: Commercial Building Grounding (Earthing) And Bonding Requirements for Telecommunications.
- All MDF and IDF rooms shall be provided with static dissipative tile which is to be bonded to the local MDF/IDF ground bus bar.

Distribution:

- Electrical distribution equipment shall be located in dedicated electrical rooms or mechanical rooms. Main electrical service (switchboards) distribution equipment shall be located in a separate electrical room with fire ratings as required by the Chicago Building Code. Branch circuit distribution panel boards shall be located in dedicated electrical closets. Mounting electrical distribution equipment and panels within classroom or corridor walls shall not be acceptable.
- Electrical distribution panels shall be designed with a 15 percent spare amperage capacity and 30 percent spare space capacity. Panel boards shall be designed up to 70 percent of capacity and be provided with a minimum of 6 spare over-current protection devices. Provide 10 spare spaces in branch distribution panel boards and (4) 3 pole spaces on the main distribution boards.
- Dedicated distribution equipment shall be provided for all mechanical equipment. Electrical branch circuits to 5 horsepower, 3-phase, and larger motors for air-handling units, exhaust fans, pumps, chillers, and condensing units shall be provided with phase loss protection. Phase loss protection equipment shall be integral to starters or variable frequency drives serving the equipment.
- All mechanical and plumbing equipment shall be fed from 277/480V distribution panels, particularly all equipment loads rated 1/2 hp and larger and 2kW and greater.
- All general use power receptacle and equipment circuits shall be fed from normal 120/208V branch circuit receptacle panels. These panelboards shall be provided with 10% spares minimum.
- All receptacle devices located in kindergarten classrooms shall be "tamper resistant" type.
- All computer use power receptacle and equipment circuits shall be fed from "Isolated Ground" type 120/208V branch circuit panels. These panels shall be provided with a type 2 surge protection device, externally mounted adjacent to panel. These panelboards shall be provided with 10% spares minimum.
- All lighting circuits shall be fed from 120/208V branch circuit panelboard dedicated for lighting circuits only.
- Voltage drop for feeders between the service entrance equipment and the branch circuit distribution equipment shall conform to the requirements of the city of Chicago Electrical Code and LEED as follows: 2% at full connected load for feeders and 3% at full connected load for branch circuits. All branch circuits shall be loaded to a maximum of 60% as per CPS design guidelines.
- Branch circuits for the voice and data system receptacles shall contain an isolated ground wire. Neutral conductors for shared neutral multi-wire circuits shall be minimum No. 10 AWG.

- All branch circuit panel boards supplying voice and data systems circuits shall be supplied from a separate feeder over current protective device (OCPD) in the main switchboard, or from a separate distribution panel supplied by its own feeder in the main switchboard.
- Feeders supplying the branch circuit panel board for voice and data systems circuits shall contain three phase conductors, sized in accordance with Code requirements, a 200% neutral conductor(s), and an isolated ground conductor. The isolated ground conductor system shall be kept separate from the receptacle or branch circuits to the main switchboard ground bus or separately derived system. The isolated ground conductor and equipment ground system shall be connected only at the main switchboard or separately derived system, and shall have a surge suppression device.
- Transformers serving all computer receptacle distribution panelboard shall be, K4 rated type complete with 200% neutral bus capacity and isolated ground bus.
- Transformers serving all normal receptacle distribution panelboards and lighting distribution panelboards shall be standard rated type.
- All dry type transformers shall be energy efficient type and compliant with DOE (Department of Energy 2016) regulations.
- All unisex toilet rooms shall be provided with hard-wired electronic, infrared flush valves for water closets and urinals only. All banked restrooms and unisex toilet rooms shall be provided with electric hand dryers and switched power GFI receptacles for future changing tables.

Lighting Systems:

- The building will consist of 120 volt LED, 3500 degrees kelvin, wall and ceiling mounted lighting fixtures throughout.
- Controls shall abide to ASHRAE 90.1, 2013 and LEED requirements for achieving certification level. Ceiling mounted vacancy sensors shall be dual technology with 30 minute maximum delay. All rooms with vacancy sensors and associated manual wall switches shall be programmed to operate on a manual on/automatic off (vacancy) basis. Light fixtures shall be controlled on a per room basis where fixtures are located in accordance with individual control schemes outlined in the room level section. Circuit breakers will not be acceptable for turning lighting "on" and "off". All lighting fixtures located within 15 feet from exterior windows shall be provided with integral automatic daylight sensors.
- The building automation system shall be solely responsible for holding schedules; the lighting control systems shall receive schedule-based on/off inputs from the BAS.
- Utility space (boiler room, electrical room, janitor closets, storage rooms etc.) lighting shall be controlled via local manual wall mounted timer switch.
- All assembly spaces, corridors and lobbies shall be controlled via Network Low Voltage Relay System with Integral Time Clock Function, programmed for shut-off of lights between 11 pm and 5 am.
- All classrooms shall be locally controlled via four manual 0-10 volt digital dimmer switches for video presentation and daylighting scene control as per CPS design guidelines. All interior lights located within daylight harvesting zones to be provided with integral automatic daylight sensors. All lights within these rooms shall be automatically shut off via ceiling mounted vacancy sensors after 30 minute time delay.
- The new proposed link connection between the new annex building and existing building to be provided with new LED lighting fixtures.

Exterior Lighting:

- Site Lighting: Provide site lighting for the new proposed parking lot. Pole lights shall be energy efficient LED, 4000 degrees kelvin, full cutoff fixtures on 20-foot poles for parking areas. No light trespass will be allowed to adjacent properties. The new proposed pole lights to be fed from the existing main building.
- Building Perimeter: Exterior building perimeter lighting shall be provided and mounted every 60 feet and at all exterior doors for safety and security. Perimeter lighting shall spotlight the building mounted school signage. Provide an exterior, weatherproof ground fault protected duplex receptacle outside each main exterior door. Provide weatherproof ground fault interrupter receptacles on all outdoor locations for rooftop maintenance, and same with lockable covers on all exterior wall mounted receptacles. All exterior lighting shall be controlled via building automation interface as per CPS design guidelines.

Fire Alarm System

- Provide a new fire alarm control panel that is class 1, non-coded, zoned, supervised fully addressable type detection, with initiation and notification devices throughout.

- Provide new fire alarm system devices and associated NAC (power supply) panels for the new annex building and connect to the existing main fire alarm control panel located within the existing main building. Provide magnetic door-hold open devices and associated smoke detectors at each double-door access between the existing and new building.
- All new fire alarm devices and equipment shall be the of the addressable type, incorporating activation devices such as pull stations, smoke detectors, flow switches, duct detectors, etc., and audio visual devices such as horns and strobes and shall match the existing building's fire alarm system equipment manufacturer in order to ensure full compatibility with the existing system. Photoelectric type smoke detectors at the following locations:
 - Electrical, MDF and IDF Rooms.
 - Storage Areas.
 - Duct smoke detectors on all supply and return fans including HVAC equipment serving the Kitchen Area.
- A complete fire alarm and detection system shall be provided in accordance with the City of Chicago Building Code, National Fire Protection Association and the requirements of the Bureau of Fire Prevention and the Americans with Disabilities Act whichever is more stringent. All fire alarm and detection system wiring shall be installed in its own dedicated conduit system.

Technology

- Design Criteria: The design of the Technology systems shall conform to the following codes:
 - Chicago Building Code
 - National Electric Code
- The design of the Technology systems shall conform to the following standards:
 - Standard for Safety of Information Technology Equipment
 - Standard for Safety of Telephone Equipment
 - BICSI Network Design Reference Manual
 - IEEE 802.1 - Telecommunications and information exchange between systems--IEEE standard for local and metropolitan area networks--Common specifications
 - IEEE 802. - Telecommunications and information exchange between systems--Local and metropolitan area networks--Specific requirements--Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications
 - IEEE 802.11 - Telecommunications and information exchange between systems--Local and metropolitan area networks--Specific requirements--Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications
 - IEEE 802.15- Telecommunications and Information Exchange between Systems - LAN/MAN Specific Requirements - Part 15: Wireless Medium Access Control (MAC) and Physical Layer (PHY) specifications for Wireless Personal Area Networks (WPAN)
 - IEEE 802.16 - Telecommunications and Information Exchange between Systems - LAN/MAN Specific Requirements - Part 16: Air Interface for Fixed Broadband Wireless Access Systems
 - CPS design guidelines and master specifications
- Structured Cabling System: The new annex building cable infrastructure will be served via a copper and fiber backbone. The cable infrastructure shall provide transport to support voice/data, video and other systems residing on the CPS network. The fiber backbone shall consist of multimode fiber optic cables in protective innerducts, cabletray, conduit, sleeves and cores. Copper cabling shall consist of UTP type cable for backbone or horizontal distribution.
- Access Control System: Contractor to upgrade existing Access Control System to accommodate new annex building. The system will control or limit access through card reader controlled doors based on the card user's access levels to an area, floor or the building.
- Intrusion Detection System: Contractor to upgrade existing Intrusion Detection System to accommodate new annex building. The system will monitor after hour entry into any area of the building by microwave PIR motion detection.
- Two-way Intercom System: The system will provide two-way communication between visitors, students or faculty. The system shall have the capability to release secured doors as defined by CPS.
- Video Surveillance System: The system will be a digital IP base video monitoring system. The system will monitor internal and external movement to be captured, compressed and stored. The system will have the capability to review archived images (remotely or on-site) providing an instant video source of an incident or annunciated alarm through the CPS-OTS network via the WAN. The cable infrastructure will resemble the UTP structured cabling system.

- Master Antenna TV System: The system will be a star topology two-way coaxial video cabling system capable of passing reverse channels. The cable infrastructure will be a combination of coaxial and UTP. Contractor to upgrade existing Master Antenna TV system to accommodate new annex building.
- Public Address System & (ALS): Contractor to upgrade existing Public Address System to accommodate new annex building. Provide new public address system speaker devices and associated conduit and wiring that are fully compatible to the existing main building ALS system.

Interface with Existing Building

- The new fire alarm system will interface with the new annex. The fire alarm control panel will be used to feed the existing building and the new annex. The new PA/Intercom system will also interface with the existing building. The master station for the PA/Intercom will be located in the existing building and be connected to devices in both the existing building and the new annex.

LEED Electrical Issues

- All new lighting systems will be designed to better ASHRAE 90.1-2010 lighting power density requirements by a minimum of 30%.
- Lighting controls will comply with the requirements of the Indoor Lighting credit.

Plumbing

Utilities

- Install a new 8" ductile iron incoming combined water service and fire service.
- Combined service to split into a new 4" domestic service to serve both the new annex and existing building, and a new 6" fire service with a double detector check valve assembly for new annex building.
- New sanitary and storm line is recommended for the new school addition as noted below.

Main Systems

- A new fire pump is recommended to ensure adequate flow and pressure to the building sprinkler system. Fire pump system will be sized at approximately 500 GPM/ 20 HP.
- A new domestic water booster pump is recommended due to low and fluctuating city pressure, to guarantee building domestic water pressure always meets code requirements. Booster pump will be sized at approximately 175 GPM/10 HP.
- Two 120 gallons condensing gas water heaters will be provided to new annex building.
- A master thermostatic mixing valve will be provided to maintain building water temperature to safe levels.

Distribution

- 3" Domestic cold water and 2 1/2" domestic hot water distribution will be routed in the ceiling of the new annex to all the plumbing equipment and fixtures. All piping will be type L Copper.
- Building will be provided with new sanitary waste and vent system. The building main sewer shall be approximately 6" diameter.
- Building will be provided with a new storm water. The Building storm sewer shall be approximately 10" diameter.

Terminal Equipment

- The new annex building will be provided with new plumbing fixtures, adhering to Chicago Plumbing Code.
- Toilets and urinals will be flush-valve type.
- Student lavatories will be either manual or sensor metering type faucets.
- Staff lavatories will be manual faucets.
- Mop sinks, classroom sinks and kitchen sinks will be provided with manual faucets.
- Floor drains will be all placed in all restrooms, janitor's closets, mechanical rooms, and other spaces required by code.
- Roof and overflow drains will be provided on the roof.

Interfaces with Existing Building

- Existing building will be back-fed with new 4" domestic water line from new domestic water service. Domestic water will be extended to existing building boiler rooms through the ceiling within the existing building.

LEED Plumbing Issues

- Plumbing fixture flow rates to be chosen to meet minimum reduction requirement of 35% for Indoor Water Use.

Civil

1. Project Summary
 - A. Existing Parcel:
 1. The School is located at the corner of W Foster Ave. and N Delphia Ave. in the northwest City Limits of Chicago. The project will develop a ~1.8 acres of the existing parcel that is about 4.3 Acres in size.
 - B. Proposed Project
 1. The scope of the school project is to construct a new Annex to the south of the existing school, removing the parking lot and existing modular buildings. The project will add a new parking lot and fire lane at the buildings east façade with access at two locations from N Delphia Ave. Along with the building and parking lot there is an area dedicated at the north end of the existing building as a "Play Area." It is anticipated this is to be an artificial turf or poured in place rubber surface play area.
2. Basis of design for civil site improvements:
 - A. Earthwork: Excavation shall be performed in accordance with IDOT Standard Specifications for Road and Bridge Construction (latest edition) and shall also include the following:
 1. Excavation to design subgrade $\pm 0.1'$.
 2. Hauling, placement, and compaction of excavated material to 95% Standard Proctor Density, in fill areas.
 3. Discing and drying of suitable materials to obtain proper compaction.
 4. Borrow excavation to obtain suitable material.
 5. Undercutting, hauling, and placement of unsuitable materials to non-structural fill areas.
 6. Handling, hauling, and placement of all excess spoil, to fill areas.
 7. Import or export of material necessary to bring site to final grade.
 8. Fill to obtain desired subgrade shall be coordinated with stormwater management objectives.
 - B. Underground Utility Improvements:
 1. All underground utility improvements shall be constructed in accordance with the Standard Specifications for Water and Sewer Main Construction in Illinois, and the City of Chicago Department of Water Management (CDWM).
 2. Select granular trench backfill will be required for all storm sewer trenches lying under existing or proposed streets, loading dock or sidewalks, and within 24" thereof. Trench materials shall be Illinois Department of Transportation CA-6 gradation.
 3. Manholes, catch basins, and inlets shall be constructed of reinforced precast concrete ring construction with tongue and groove joints in conformance with ASTM C-478.
 - C. Sanitary/Combined sewer shall be installed in accordance with the following:
 1. Pipe material shall be of water main quality, Ductile Iron Pipe (DIP), Class 56 or equivalent or Extra Strength Vitrified Clay Pipe, ASTM C-700 specification, with PVC compression collar seal type joints conforming to ASTM Specification D 1784.
 2. Pipe bedding shall consist of compacted aggregate, CA-11, placed 6" below to springline of pipe, and compacted FA-6 from springline of the pipe to 12" above for the width of the trench. Up to 25% RAP allowable for base course aggregate as long as required gradation is maintained.
 3. Frames and lids shall be as specified by the DWM and shall include an external 10" elastomeric band extending from the frame to the manhole.
 4. Testing and televising of sanitary sewer shall be in accordance with the Standard Specifications for Sewer and Water Main Construction and City of Chicago Department of Water Management.
 - D. Storm Sewer shall be installed in accordance with the following:
 1. Pipe material shall be reinforced concrete pipe for pipes greater than 21 inches, ASTM C-76, Class III, Wall-B O-ring joints is the minimum requirement. Pipe material shall be DIP, Extra Strength Vitrified Clay Pipe [ESVCP] or PVC-SDR-26 for pipes 21" and smaller in diameter.
 2. Pipe bedding shall consist of Illinois Department of Transportation CA-11 gradation compacted from 6" below to the spring line of the pipe and compacted CA-11 or CA-16 from springline of the pipe to 12" above, over the trench width. Up to 25% RAP allowable for base course aggregate as long as required gradation is maintained.

3. Frame and lids shall be as specified by the City of Chicago Department of Water Management.
- E. Paving Improvements:
1. Subgrade preparation shall include final grading of the pavement subgrade to $\pm 1"$ with an average subgrade elevation of $\pm 0.02'$ from the proposed subgrade elevation.
 2. Aggregate base course for concrete and asphalt pavements shall be constructed in conformance with Section 351. It shall be type "B" with a CA-6 gradation, unless otherwise specified. Up to 25% RAP allowable for base course aggregate as long as required gradation is maintained.
 3. Hot mix asphalt aggregate base course shall be constructed in accordance with Section 311 of the Standard Specifications for Road and Bridge Construction. It shall have a minimum Marshall Stability of 1,700 or greater.
 4. Hot mix asphalt binder course shall conform to IDOT SSRBC, latest edition.
 5. Hot mix asphalt surface course shall conform to IDOT SSRBC, latest edition. A prime coat will be required prior to surfacing.
 6. Concrete sidewalks shall be 5" thick with a 6" aggregate base. The concrete shall be 3,500 psi air entrained. A $\frac{1}{2}"$ premoulded expansion joint shall be provided at minimum 30' intervals and tooled contraction joints at 5' centers will be required. Maximize recycled content for concrete; substitute fly-ash and slag for up to 40% of cementitious material.
 7. Combination concrete curb and gutter shall be B6.12. Construction will conform to Section 606 of the Illinois Standard Specifications. The concrete shall be Class SI in accordance with Section 720. Maximize recycled content for concrete. Substitute fly-ash and slag for up to 40% of cementitious material.
 8. Concrete pavement for driveways shall be 8" thick with 6" CA-6 granular base. The concrete shall be equivalent to IDOT class PV concrete and conform to Section 1020. Provide $\frac{3}{4}"$ premoulded expansion joints at 30' intervals and tooled contraction joints at 10' centers.
 9. Pavement markings shall be thermoplastic in accordance with Illinois Department of Transportation T501 of the Standard Specifications for Traffic Control Items.
3. Demolition/Site Clearing/Erosion Control:
- A. Earthwork removal will be in accordance with the environmental investigation reports and shall be in accordance with IEPA regulations for Subtitle D, CCCD, or any other landfill identified in the anticipated environmental investigation report.
 - B. Demolition is anticipated for the existing modular building at the southeast corner of the site. Along with the modular removal, all utility service connection will be removed, abandoned, and/or disconnected for service. Coordinate all service disconnect with service provider.
 - C. Erosion control measures anticipated for the project are as follows:
 1. Construction fence with dust screening at property boundary
 2. Silt fence at property boundary
 3. Inlet filters at all proposed and existing catch basins
 4. Temporary seeding at all stock piles
 5. Permanent erosion control blankets and seeding at all berms

4. At Grade Improvements

A. Pavement

1. Proposed, on-site new paving improvements within the project site are planned as follows, pending coordination with geotechnical engineer and their forthcoming report:

- a) Two-lane paved access drive with 90 Degree parking.
 - a. 8" compacted CA-6 subbase
 - b. 3.5" HMA Binder Course IL-4.75, N50
 - c. 2.5" HMA Surface Course Mix D, N70
- b) Parking stalls: Non-ADA
 - a. Permeable paver
 - b. 2" CA-16
 - c. 6" CA-7
 - d. 12" CA-1
- c) Parking Stall: ADA
 - a. 8" compacted CA-6 subbase
 - b. 3.5" HMA Binder Course IL-4.75, N50
 - c. 2.5" HMA Surface Course Mix D, N70
- d) Concrete barrier curb and gutter shall line the access drive and landscape islands.
- e) 5" concrete walk with 6" base between the access drive and existing building and proposed annex.

5. Site Grading:

A. Grading of site pavements will follow Chicago Department of Water Management (CDWM) requirements for drainage, with a minimum slope of 1.0%. All pedestrian paving onsite will meet the Mayor's Office for People with Disabilities (MOPD) and Illinois Accessibility Code (IAC) requirements for grading and slopes for accessibility. Drainage of site areas will consist of routing landscape and pavement areas to a series of catch basins, trench drains, and inlets that will connect to the site detention storage areas and ultimately outfall to a sewer connection in N Delphia Ave.

6. Stormwater Detention:

A. Requirements:

1. The proposed project is a regulated development as defined by the City of Chicago Department of Water Management (CDWM). As such, stormwater detention will be required for the project.
2. The CDWM requires two different stormwater components: Rate Control and Volume Control. Rate control is stormwater that will be temporarily stored in an onsite detention system, and volume control is stormwater that will be retained on site.
3. At this time the project has not determined if it will upgrade the detention and volume control systems to achieve the requirements set out by The Sustainable Development Policy.

B. Stormwater Assumptions:

1. School Project:

- a) We have assumed +/-1.8 acres of disturbed site area.
- b) Preliminary calculations have been completed to determine the site sewer capacity. Based on the City of Chicago's sewer infrastructure the site has a release of 0.20 cfs/ac. This is a low release rate compared to other areas of the City. The release rate is based on the areas outfall at basin 'Foster West'.
- c) We estimated areas of impervious site and pervious (landscape) in order to calculate the detention per CDWM code requirements. Areas will be updated once a survey is received.
- d) We assume there is no off-site drainage flowing into the School property.

C. Rate Control:

1. School Annex and parking lot.

- a) Based on the above assumptions, the preliminary stormwater detention required for the access road is 33,000 cubic feet.

2. North Play Lot

- a) Based on the above assumptions, the preliminary stormwater detention required for the access road is 2,000 cubic feet.

- D. Volume Control:
 - 1. We will be able to confirm volume control required once we receive the survey and geotechnical report, however the site will require a volume control component based on CDWM regulations. Due to site constraints the most suitable option for the site is to utilize the parking stalls for a best management practice. Permeable pavers are anticipated to be used in the non-ADA parking stalls.
- E. Detention
 - 1. Detention is anticipated to be handled in a subsurface detention tank. Due to the limited amount of site area, a tank is the best economical option for this development. Other detention options such as permeable paver, oversized RCP would generate an already large amount of haul off.
- 7. Underground Utility Improvements
 - A. The new Annex will require sanitary, storm, electrical, gas, and water services.
 - B. Electric Service is anticipated to be pulled from the existing city line at the west property line. The primary will be pulled to will be feed to a new transformer. Location of transformer and service is to be determined.
 - C. Gas Service. A new gas service will be provided. Location of service is to be determined. Coordination with Peoples Gas will be required.
 - D. Water. The new Annex will require its own service connection. The City Water main is located in the west sidewalk of Delphia Ave. it is anticipated that the service will be greater than 100' long. Coordination with the Department of Water Management is required for the service to determine if a Hot Box and above ground RPZ is required for this service. Coordination with the Department of Water Management will be required for all water service taps and terminations.
 - E. Storm Service. It is assumed that all roof drains and existing pavement drainage is in good condition and will remain as is. A new connection from the proposed detention system(s) will be provided to the 12" sewer at Delphia Ave.
- 8. LEED SS4 – Rainwater Management
 - A. Based on preliminary site investigations, it is not believed that this credit will be achievable based on the proposed site programming. It will be verified throughout the design process if this credit will be achievable.
- 9. Outstanding Items Required for Civil Engineering Design:
 - A. A boundary and topographic survey with 3D, digital, topographic information and underground utility information, in .dwg format.
 - B. Geotechnical report outlining soil profiles, water table, pavement/earthwork recommendations, etc.
 - C. Environmental Remedial Action Plan.
 - D. OUC Atlases sent to Surveyor by City of Chicago.

Landscape

1. Project Summary

A. Existing Parcel

1. The School is located at the corner of W Foster Ave. and N Delphia Ave. in the northwest City Limits of Chicago. The project will develop a ~1.8 acres of the existing parcel that is about 4.3 Acres in size.

B. Proposed Project

1. The scope of the school project is to construct a new Annex to the south of the existing school, removing the parking lot and existing modular buildings. The project will add a new parking lot and fire lane at the buildings east façade with access at two locations from N Delphia Ave.
2. The landscape design shall be in accordance with the Chicago Public School Program, Public Building Commission of Chicago Site Development Guidelines, and the Chicago Landscape Ordinance. Landscaping shall be designed to complement the adjacent setting and proposed annex and is anticipated to include code required parkway and parking lot landscape, building foundation landscape around the annex, and landscape restoration for disturbed areas of the site. Additionally, pedestrian hardscape and landscape planters are included to blend the new and existing site improvements while improving pedestrian safety and paths of travel across the northern portion of the site to the parking lot and playlot if necessary.

2. Basis of design for landscape architecture improvements:

A. Site Plantings

1. All proposed plantings within the limit of construction will be adaptive and drought tolerant species. Plantings shall include shrubs, ornamental grasses, perennials, and ground covers. Trees shall be min. 4" caliper for shade trees, 10' ht. for ornamental trees and evergreen trees. Tree pit areas shall be dug 2x the size of the rootball and backfilled with amended topsoil. Shrub, perennial and groundcover planting beds shall be backfilled with 24" of pulverized topsoil with required amendments.

B. Parkway Planting:

1. The existing parkway planting shall be assessed in detail by the Landscape Architect and additional trees provided as needed to meet the requirements of the Chicago Landscape Ordinance. Pending receipt of the final topographic survey, we estimate the following will be required:
 - One (1) 4" caliper shade tree will be required to supplement the existing parkway trees along West Foster Ave.
 - Eight (8) 4" caliper shade trees will be required to supplement the existing parkway trees along North Delphia Ave. Several existing Elms, Honey Locusts, and Maples appear in poor shape and may have to be removed and replaced. This is up to the discretion of the Chicago Bureau of Forestry

C. Parking Area:

1. The proposed parking lot will be designed to comply with the requirements of the Chicago Landscape Ordinance. This will include the following:

Parking Lot and Vehicular Use Area Screening Requirements:

- Seven (7) foot wide perimeter landscaped area adjacent to public ROW.
- Continuous screening hedge, maintained between thirty (30) and forty-eight (48) inches in height.
- Tree planting required in perimeter landscaped area at a rate of one per twenty-five (25) feet of linear frontage for a total of 6 trees.
- Ornamental metal fencing around new parking lot and other vehicular use areas (4 foot height typical), to be located within the seven (7) foot perimeter landscaped area. Proposed parking lot requires approximately 200 L.F. of fence. The existing fence adjacent to proposed is in good condition and can likely be salvaged and reinstalled. Provide two (2) 24' wide manual slide gates the new parking lot entrances.
- Approximately 225 L.F. of 6-foot height wood screen fence south of the parking lot adjacent to residential properties.

Internal Parking Lot Landscape Requirements:

- Required internal landscape area of parking lots and vehicular use areas vary as a function of size. Parking lots between 4,500-30,000 square feet: Internal landscaped area equal to 7.5% of total area, which will be approximately 1,790 square feet of internal landscape.
- One (1) tree per 125 SF of required internal landscaped area, exclusive of tree planting required in perimeter landscaped area, for a total of 15 interior trees.
- Minimum two-foot (2'-0") excavation below the parking surface.
- Backfill internal islands with topsoil to top of curb, and mound topsoil up another six (6) inches above top of surrounding curb.
- Use spreading canopy trees, to increase shade and reduce "urban heat island" effect.

D. Irrigation:

1. Hose bibs will be installed at the new annex building and parking lot to water site landscape during plant establishment period and extreme periods of drought. Assume a minimum of two hose bibs spaced around the annex and parking lot to ensure coverage as required by the Landscape Ordinance.

E. Site Furnishings:

1. Site furnishings will be distributed throughout the site and adjacent the annex to accommodate programming for the facility as well as user needs and comfort. Furnishings may include benches, bicycle racks and trash receptacles.

F. Green Roof:

1. No green roof is proposed as part of this project.

3. LEED:

- A. LEED certification requirements to be determined by PBC and architect.

4. Permits / Approvals:

- A. It is anticipated that the landscape scope of this project will be permitted through the following agencies:
 - City of Chicago Department of Buildings – Landscape Zoning Review
 - City of Chicago Department of Streets and Sanitation – Bureau of Forestry.

Dirksen ES Annex**SD Specification Table of Contents**

Note: AOR to edit/update as project progresses

BOOK 3: Volume 1**DIVISION 00 - INTRODUCTORY INFORMATION**

<i>Section</i>	<i>Title</i>	<i>Author</i>	<i>Ctrl Rev</i>	<i>Notes</i>
00 00 00	PBC Project Manual Cover Page	PBC	01_01/01/14	Place-holder - Confirm if updated specification available from PBC
00 01 10	Table of Contents	PBC	01_08/18/14	
00 30 00	Information Available to Bidders	AOR	N/A	Added back titles of environmental reports per PBC review comment, referenced location in Division 2.
00 30 00A	Attachment A - Subsurface Exploration, Geotechnical Report & Percolation Tests (Hard Copy - Printed on Yellow Paper)	Geotech	N/A	Environmental report information included with Division 2, by CCA

DIVISION 01 - GENERAL REQUIREMENTS

<i>Section</i>	<i>Title</i>	<i>Author</i>	<i>Ctrl Rev</i>	<i>Notes</i>
01 14 10	Pre-Construction Mockup	PBC	01_07/31/10	Provide detail on project drawings
01 14 11	Construction Operations and Site Utilization Plan	CPS	06_07/20/09	PBC PM to edit after initial drafting by AOR
01 35 60.1	LEED Requirements	PBC	04_09/06/12	LEED 2009 For Schools
01 35 60a	Attachment A – Materials Credit Documentation Sheet	PBC	04_08/17/08	LEED 2009 For Schools
01 35 60b	Attachment B – Low Emitting Mtls. Credits Documentation Sheet	PBC	01_05/15/13	LEED 2009 For Schools
01 35 60b ALT	Attachment B ALT - Low Emitting Mtls. Credits Documentation Sheet	PBC	01_05/15/13	LEED 2009 For Schools
01 35 60c	Attachment C – LEED Checklist for Schools v.2009	PBC	01_01/01/09	LEED 2009 For Schools
01 35 60d	Attachment D – LEED BD+C Calculator v.2012	PBC	04_08/01/12	LEED 2009 For Schools
01 35 61	LEED Coordinator	PBC	01_09/10/12	
01 35 62	Erosion and Sedimentation Control	PBC	01_09/14/12	
01 35 66	Commissioning (Cx) Submittal Procedures	CPS	01_08/17/08	CxA to author / edit - coordinate as req'd
01 35 67	Commissioning (Cx) Project Record Documents	CPS	01_08/17/08	CxA to author / edit - coordinate as req'd
01 35 68	Commissioning (Cx) Operation and Maintenance Data	CPS	01_02/28/06	CxA to author / edit - coordinate as req'd
01 35 69	Commissioning (Cx) Process	CPS	01_08/17/08	CxA to author / edit - coordinate as req'd
01 35 70	Commissioning (Cx) Pre-Functional Checklists	CPS	01_08/17/08	CxA to author / edit - coordinate as req'd
01 35 71	Commissioning (Cx) Functional Performance Testing	CPS	01_08/17/08	CxA to author / edit - coordinate as req'd
01 50 10	Commission Representative Field Office	PBC	03_11/24/09	
01 52 40	Construction Waste Management and Disposal	PBC	02_09/18/13	Environmental Consultant to review when drafted by AOR
01 56 11	General Dust, Fume, and Odor Control	CPS	01_01/21/10	Revise all references of "Board" to "Commission"
01 56 39	Temporary Tree and Plant Protection	PBC	01_05/15/13	
01 57 15	Integrated Pest Management	PBC	01_09/11/11	Missing from PBC TOC in transfer
01 70 71	Final Cleaning - Schools	PBC	01_10/20/10	
01 73 29	Cutting and Patching	CPS	03_07/20/09	
01 79 00	Demonstration and Training	CPS	03_07/20/09	

DIVISION 02 – EXISTING CONDITIONS

<i>Section</i>	<i>Title</i>	<i>Author</i>	<i>Ctrl Rev</i>	<i>Notes</i>
02 24 00	Environmental Assessment	EC		Authored by EC
02 24 00-A	Phase I Environmental Property Assessment	EC		To be available on CD
02 24 00-A	Phase II Limited Subsurface Investigation	EC		If required, to be available on CD
02 24 00-A	Ground Penetrating Radar Survey	EC		If required, To be available on CD
02 24 00-A	Phase I Environmental Site Assessment	EC		To be available on CD
02 24 00-A	Comprehensive Site Investigation / Remedial Objectives Report / Remedial Action Plan	EC		If required, to be available on CD
02 26 00	Hazardous Materials Assessment	EC		
02 41 19	Selective Demolition	CPS	02_01/21/08	
02 82 14	Asbestos Abatement - Interiors	EC		If required.
02 82 115	Asbestos Abatement - Exteriors	EC		If required.
02 83 19.13	Lead-Based Paint Abatement	EC		If required.
02 86 13	Hazardous and Universal Waste Management	EC		If required.

DIVISION 03 - CONCRETE

<i>Section</i>	<i>Title</i>	<i>Author</i>	<i>Ctrl Rev</i>	<i>Notes</i>
03 30 00	Cast-In-Place Concrete	CPS	02_04/10/08	

DIVISION 04 - MASONRY

<i>Section</i>	<i>Title</i>	<i>Author</i>	<i>Ctrl Rev</i>	<i>Notes</i>
04 20 00	Unit Masonry	CPS	04_04/02/10	Confirm exterior doors adjusted to masonry module, floor-to-floor is not on masonry module if stair shafts are CMU

DIVISION 05 - METALS

<i>Section</i>	<i>Title</i>	<i>Author</i>	<i>Ctrl Rev</i>	<i>Notes</i>
05 12 00	Structural Steel Framing	CPS	02_04/10/08	
05 21 00	Steel Joist Framing	CPS	02_04/10/08	
05 31 13	Steel Floor Decking	CPS	02_04/10/08	
05 31 23	Steel Roof Decking	CPS	02_04/10/08	
05 40 00	Cold-Formed Metal Framing	CPS	02_04/10/08	
05 50 00	Metal Fabrications	CPS	04_03/22/13	
05 51 10	Metal Stairs	AOR	N/A	If not included in Metal Fabrications

DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES

<i>Section</i>	<i>Title</i>	<i>Author</i>	<i>Ctrl Rev</i>	<i>Notes</i>
06 10 53	Miscellaneous Rough Carpentry	CPS	03_04/10/08	
06 16 43	Gypsum Sheathing	CPS	02_04/10/09	
06 40 23	Interior Architectural Woodwork	CPS	03_04/10/08	There are several outdated mfrs/products in this spec that need review / edit by AOR
06 65 00	Solid Surface Cladding	AOR	N/A	All first floor corridors and in dining room

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

<i>Section</i>	<i>Title</i>	<i>Author</i>	<i>Ctrl Rev</i>	<i>Notes</i>
07 01 50.63	Roof Patching and Repair	AOR	N/A	
07 11 13	Bituminous Dampproofing	CPS	02_08/20/07	
07 21 00	Thermal Insulation	CPS	03_04/10/08	Delete BATT insulation, edit-in spray-polyurethane foam; low-rise & thermal barrier materials
07 27 00.1	Self-Adhering Air and Vapor Barrier	PBC	01_02/28/10	
07 27 00.2	Fluid-Applied Air and Vapor Barrier	PBC	01_02/28/10	
07 52 00	Modified Bituminous Membrane Roofing	CPS	04_11/08/10	Edit in new CPS address
07 62 00	Sheet Metal Flashing and Trim	CPS	04_01/21/10	
07 72 00	Roof Accessories	CPS	02_08/20/07	
07 72 01	Manufactured Roof Specialties	AOR	N/A	Edit and include at AOR's discretion
07 81 16	Spray-Applied Fire-Resistive Materials	CPS	02_08/20/07	Change name to spray-applied fire-resistive materials, was cementitious on transfer.
07 84 13	Penetration Firestopping	CPS	03_04/10/08	
07 84 14	Fire Resistive Joint Systems	AOR	N/A	
07 92 00	Joint Sealants	CPS	03_04/10/08	Numerous updates required.
07 95 13	Expansion Joint Assemblies	CPS	02_08/20/07	Numerous updates required.

DIVISION 8 - OPENINGS

<i>Section</i>	<i>Title</i>	<i>Author</i>	<i>Ctrl Rev</i>	<i>Notes</i>
08 11 13	Hollow Metal Doors and Frames	CPS	03_04/10/08	
08 14 16	Flush Wood Doors	CPS	03_04/10/08	
08 15 00	Fiberglass Reinforced Polyester (FRP) Flush Door Assemblies	CPS	01_02/28/06	Electrical, pump room doors
08 31 13	Access Doors and Frames	CPS	02_08/20/07	
08 41 13	Aluminum-Framed Entrances and Storefronts	CPS	03_04/10/08	
08 51 13	Aluminum Windows	CPS	04_01/16/14	
08 56 57	Window Guards - Exterior	CPS	02_01/05/07	
08 71 00	Door Hardware	CPS	04_04/10/09	
08 71 13	Automatic Door Operators	CPS	01_07/27/07	
08 80 00	Glazing	AOR	N/A	Consider AOR authored stand-alone spec (in lieu of glass
08 91 00	Louvers	CPS	02_02/20/07	

DIVISION 9 - FINISHES

<i>Section</i>	<i>Title</i>	<i>Author</i>	<i>Ctrl Rev</i>	<i>Notes</i>
09 01 22	Plaster Patching	CPS	02_08/20/07	At new link connection
09 21 16	Gypsum Board Assemblies	CPS	03_04/10/08	
09 21 19	Gypsum Board Shaft Wall Assemblies	CPS	03_04/10/08	
09 30 00	Tiling	CPS	03_04/10/08	Numerous mfr/product edits required
09 51 13	Acoustical Panel Ceilings	CPS	03_01/13/14	
09 65 13	Resilient Base and Accessories	CPS	03_04/10/08	
09 65 19	Resilient Tile Flooring and Moisture Mitigation System	AOR	N/A	Edit moisture-mitigation system into CPS standard product spec
09 65 20	Solid Vinyl Flooring And Moisture Mitigation System	AOR	N/A	Edit moisture-mitigation system into CPS standard product spec
09 68 13	Carpet Tile	AOR	N/A	
09 77 23	Fabric-Wrapped Panels	CPS	02_08/20/07	Coordinate requirements with acoustic consultant as required to meet LEED acoustic req'mts
09 91 00	Painting	CPS	02_01/16/14	
09 91 03	Renovation Painting - Surface Preparation	CPS	01_02/28/06	
09 91 05	Renovation Painting	CPS	01_02/28/06	
09 96 30	Silicone Elastomeric Coating	AOR	N/A	May be needed at roof parapets
09 97 24	Epoxy Floor Coating Systems	AOR	N/A	Storage rooms, mechanical rooms

DIVISION 10 - SPECIALTIES				
<i>Section</i>	<i>Title</i>	<i>Author</i>	<i>Ctrl Rev</i>	<i>Notes</i>
10 11 00	Visual Display Units	CPS	02_04/10/08	
10 14 03	Interior Signage	CPS	02_08/20/07	
10 14 05	Exterior Signage	CPS	02_08/20/07	
10 14 07	Exterior Signage - Emergency	CPS	02_08/20/07	
10 14 19	Dimensional Letter Signage	CPS	02_08/20/07	
10 21 13	Toilet Compartments	CPS	02_04/10/08	
10 28 13	Toilet Accessories	CPS	03_01/27/11	
10 44 03	Installation of Fire Extinguishers and Cabinets	CPS	01_02/28/06	Specify and tag on architectural drawings reference location on this specification.
10 51 13	Metal Lockers - Elementary Schools	CPS	04_04/10/08	
DIVISION 11 - EQUIPMENT				
<i>Section</i>	<i>Title</i>	<i>Author</i>	<i>Ctrl Rev</i>	<i>Notes</i>
11 14 00	Food Service Equipment	Consultant	N/A	Elevation drawings of food line required, 1/4"=1'-0"
11 52 13	Projection Screens	CPS	02_08/20/07	
11 68 00	Playground Equipment	Landscape	N/A	
11 82 26	Facility Waste Compactors	CPS	03_01/21/10	
DIVISION 12 - FURNISHINGS				
<i>Section</i>	<i>Title</i>	<i>Author</i>	<i>Ctrl Rev</i>	<i>Notes</i>
12 24 13	Roller Window Shades - Manual	CPS	03_08/22/07	
12 32 00	Manufactured Wood Casework	CPS	03_04/10/08	
12 35 53	Wood Laboratory Casework	CPS	03_04/28/10	
12 48 13	Entrance Floor Mats	CPS	02_08/20/07	CPS requested alternate products to be proposed in lieu of standard spec: Proposed mfr/model: 1) Nystrom: Rugged Scrub M-600RS with F-3 aluminum recessed frame. 2) Construction Specialties: Pedimat AA M2EC with aluminum level base frame. Coordinate / provide latex screed and slab depression as per mfr. requirements
12 93 00	Site Furnishings	CPS	01_03/18/14	
DIVISION 13 - SPECIAL CONSTRUCTION (NOT USED)				
<i>Section</i>	<i>Title</i>	<i>Author</i>	<i>Ctrl Rev</i>	<i>Notes</i>
13 48 25	Sound Control Panel System	AOR	N/A	Confirm if needed to meet acoustic criteria.
DIVISION 14 - CONVEYING EQUIPMENT				
<i>Section</i>	<i>Title</i>	<i>Author</i>	<i>Ctrl Rev</i>	<i>Notes</i>
DIVISION 21 - FIRE SUPPRESSION				
21 05 00	Common Work Results For Fire Suppression	EOR		
21 05 13	Common Motor Requirements For Fire Suppression Equipment	EOR		
21 10 00	Water-Based Fire-Suppression Systems	EOR		
21 32 13	Electric-Drive, Vertical-Turbine Fire Pumps	EOR		
DIVISION 22 - PLUMBING				
<i>Section</i>	<i>Title</i>	<i>Author</i>	<i>Ctrl Rev</i>	<i>Notes</i>
22 05 00	Common Work Results For Plumbing	EOR		
22 05 13	Common Motor Requirements For Plumbing Equipment	EOR		
22 05 16	Expansion Fittings And Loops For Plumbing	EOR		
22 05 19	Meters And Gages For Plumbing Piping	EOR		
22 05 23	General-Duty Valves For Plumbing Piping	EOR		
22 05 29	Hangers And Supports For Plumbing Piping And Equipment	EOR		
22 05 53	Identification For Plumbing Piping And Equipment	CPS	02_05/10/13	
22 07 00	Plumbing Insulation	CPS	04_05/22/08	
22 11 16	Domestic Water Piping	CPS	01_02/28/06	
22 11 19	Domestic Water Piping Specialties	CPS	01_02/28/06	
22 11 23	Domestic Water Pumps	CPS	01_02/28/06	
22 13 16	Sanitary Waste And Vent Piping (Hub & Spigot Cast Iron)	CPS	01_02/28/06	
22 13 19	Sanitary Waste Piping Specialties	EOR		
22 14 13	Storm Drainage Piping	CPS	01_02/28/06	
22 14 23	Storm Drainage Piping Specialties	CPS	01_02/28/06	
22 14 29	Sump Pumps	CPS	01_02/28/06	

22 34 00	Fuel-Fired Domestic Water Heaters	EOR	
22 40 00	Plumbing Fixtures	CPS	02_02/06/09
22 47 00	Drinking Fountains And Water Coolers	EOR	

DIVISION 23 - HEATING VENTILATION AND AIR CONDITIONING		Author	Ctrl Rev	Notes
23 05 03	General Provisions For Hvac Work	EOR		
23 05 05	Basic Hvac Materials And Methods	CPS	03_08/20/10	
23 05 13	Common Motor Requirements For Hvac Equipment	CPS	01_02/28/06	
23 05 15	Motors - Variable Frequency Controllers	CPS	02_03/18/11	
23 05 16	Expansion Fittings And Loops For Hvac Piping	CPS	01_02/28/06	
23 05 19	Meters And Gauges For Hvac Piping	CPS	03_08/20/10	
23 05 23	General-Duty Valves For Hvac Piping	CPS	01_02/28/06	
23 05 29	Hangers And Supports For Piping And Equipment	CPS	01_02/28/06	
23 05 48	Vibration Controls For Hvac	CPS	01_02/28/06	
23 05 53	Identification For Hvac Piping And Equipment	CPS	02_05/10/13	
23 05 93	Testing, Adjusting, And Balancing For Hvac	CPS	03_03/18/11	
23 07 00	Hvac Insulation	CPS	07_05/31/13	
23 09 20	Building Automation System-Bas	CPS	06_03/18/11	
23 09 21	Building Automation System-Basic Materials	CPS	06_04/27/10	
23 09 26	Building Automation System-Sequence Of Operation	CPS	04_02/28/08	
23 11 23	Facility Natural-Gas Piping	EOR		
23 21 13	Hydronic Piping	CPS	05_08/20/10	
23 21 23	Hydronic Pumps	CPS	01_02/28/06	
23 23 00	Refrigerant Piping	CPS	02_08/20/10	
23 25 00	Hvac Water Treatment	CPS	02_03/18/11	
23 31 13	Metal Ducts	CPS	03_08/20/10	
23 33 00	Air Duct Accessories	CPS	02_12/06/09	
23 34 23	Hvac Power Ventilators	CPS	01_02/28/06	
23 36 00	Air Terminal Units	CPS	02_12/03/09	
23 37 13	Diffusers, Registers, And Grilles	CPS	01_02/28/06	
23 38 13	Commercial-Kitchen Hoods	EOR		
23 52 16	Condensing Boilers	CPS	06_04/13/10	
23 64 23	Scroll Water Chillers	CPS	03_12/06/09	
23 74 14	Custom-Packaged Outdoor, Central-Station Air-Handling	CPS	05_11/06/09	
23 81 26	Split-System Air-Conditioners	CPS	01_08/20/10	
23 82 39.13	Cabinet Unit Heaters	CPS	01_02/28/06	
23 82 39.16	Propeller Unit Heaters	CPS	01_02/28/06	

DIVISION 26 - ELECTRICAL		Author	Ctrl Rev	Notes
26 05 03	General Requirements For Electrical Systems	CPS	01_02/28/06	
26 05 05	Basic Electrical Materials And Methods	CPS	03_07/23/14	
26 05 11	Conductors And Cables For Electrical Systems	CPS	02_07/23/14	
26 05 26	Grounding And Bonding For Electrical Systems	CPS	02_03/30/06	
26 05 29	Hangers And Supports For Electrical Systems	CPS	01_02/28/06	
26 05 33	Raceway And Boxes For Electrical Systems	CPS	03_04/13/09	
26 05 36	Cable Trays For Electrical Systems	EOR		
26 05 43	Underground Ducts And Raceways For Electrical Systems	EOR		
26 05 53	Identification For Electrical Systems	CPS	02_03/30/06	
26 05 73	Overcurrent Protective Device Coordination Study	CPS	01_02/28/06	
26 08 00	Commissioning For Electrical	EOR		
26 08 13	Testing Of Electrical Systems	CPS	01_02/28/06	
26 09 23	Lighting Control Devices	CPS	01_02/28/06	
26 22 00	Low-Voltage Transformers	CPS	01_02/28/06	
26 24 13	Switchboards	CPS	01_02/28/06	
26 24 16	Panelboards	CPS	01_02/28/06	
26 27 13	Electricity Metering	EOR		
26 27 26	Wiring Devices	CPS	02_12/04/08	
26 28 13	Fuses	CPS	01_02/28/06	
26 28 16	Enclosed Switches And Circuit Breakers	CPS	01_02/28/06	
26 29 13	Enclosed Controllers	CPS	01_02/28/06	
26 29 23	Variable Frequency Motor Controllers	EOR		
26 43 00	Surge Protection Devices	CPS	02_08/20/10	
26 51 00	Interior Lighting	CPS	02_02/26/14	
26 56 00	Exterior Lighting	CPS	02_02/26/14	

DIVISION 27 - COMMUNICATIONS		Author	Ctrl Rev	Notes
27 05 03	Communications General Requirements	CPS	02_07/23/14	
27 05 53	Identification For Communication Systems	CPS	02_07/23/14	
27 08 00	Commissioning Of Communications	CPS	02_07/23/14	

27 11 16	Communications Cabinets Racks And Enclosures	CPS	06_07/23/14	
27 13 00	Communication Backbone Cabling	EOR		
27 13 13	Communications Copper Backbone Cabling	CPS	02_03/30/10	
27 13 23	Communications Optical Fiber Backbone Cabling	CPS	04_07/23/14	
27 15 00	Communications Horizontal Cabling	EOR		
27 15 00.19	Data Communications Horizontal Cabling	CPS	03_07/23/14	
27 41 33	Master Antenna Television System	EOR		
27 51 00	Distributed Audio-Video Communications Systems	CPS	01_02/28/06	
27 51 16	Public Adress Systems	CPS	01_02/28/06	
27 53 13	Master Clock System	CPS	03_07/23/14	
27 53 15	Intercom Master Clock And Program Equipment Interface	CPS	05_07/23/14	
27 60 13	Wireless Access Points For Data Communications	CPS	02_07/23/14	

DIVISION 28 - ELECTRONIC SAFETY AND SECURITY

<i>Section</i>	<i>Title</i>	<i>Author</i>	<i>Ctrl Rev</i>	<i>Notes</i>
28 13 13	Access Control System (Small Installation)	CPS	02_07/23/14	
28 16 00	Intrusion Detection	CPS	03_07/23/14	
28 23 03	Cctv System And Components	CPS	02_03/10/10	
28 23 09	Digital Video Surveillance System And Components (For New	CPS	05_08/15/12	
28 31 00	Fire Detection And Alarm	CPS	03_11/08/10	
28 35 00	Refrigerant Detection And Alarm	CPS	01_11/06/09	

DIVISION 31 - EARTHWORK

<i>Section</i>	<i>Title</i>	<i>Author</i>	<i>Ctrl Rev</i>	<i>Notes</i>
31 13 00	Tree and Landscape Protection	Landscape	N/A	
31 22 14	Earthwork	CPS	5_01/21/10	
31 23 17	Excavating, Backfilling and Compacting for Utilities	CPS	3_06/30/08	

DIVISION 32 - EXTERIOR IMPROVEMENTS

<i>Section</i>	<i>Title</i>	<i>Author</i>	<i>Ctrl Rev</i>	<i>Notes</i>
32 12 16	Hot Mix Asphalt paving	CPS	1_11/08/10	
31 13 13	Portland Cement Concrete Paving	CPS	2_08/17/07	
32 31 19	Decorative Metal Fences and Gates	CPS	4_04/05/10	
32 92 23	Sodding	CPS	2_08/17/07	
32 93 11	Plantings	CPS	4_06/30/08	
32 31 20	View Blocking Fences and Gates	AOR	N/A	Landscape ordinance required gates at refuse / compactor enclosure

DIVISION 33 - UTILITIES

<i>Section</i>	<i>Title</i>	<i>Author</i>	<i>Ctrl Rev</i>	<i>Notes</i>
33 10 13	Water Service	CPS	3_01/21/08	
33 41 00	Sewerage and Drainage	CPS	3_08/28/14	

Key Phrases Authorized Commission Representative
Commission Representative
Board Representative
Authorized Board Representative
Substantial Completion
Preliminary Acceptance
Pre-installation Conference
Book 2 Section 11.03(9).



LEED v4 for BD+C: Schools

Project Checklist

Project Name: Dirksen Elementary School Annex

Date: 10.05.2018

Y ? N



Credit Integrative Process

1

10	1	19	Location and Transportation	15
		15	Credit LEED for Neighborhood Development Location	15
1			Credit Sensitive Land Protection	1
		2	Credit High Priority Site	2
4	1		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

3	2	7	Sustainable Sites	12
Y			Prereq Construction Activity Pollution Prevention	Required
Y			Prereq Environmental Site Assessment	Required
	1		Credit Site Assessment	1
	2		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

5	0	7	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
2		5	Credit Indoor Water Use Reduction	7
	2		Credit Cooling Tower Water Use	2
1			Credit Water Metering	1

10	0	21	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
3		3	Credit Enhanced Commissioning	6
6		10	Credit Optimize Energy Performance	16
	1		Credit Advanced Energy Metering	1
	2		Credit Demand Response	2
	3		Credit Renewable Energy Production	3
1			Credit Enhanced Refrigerant Management	1
	2		Credit Green Power and Carbon Offsets	2

5	3	5	Materials and Resources	13
Y			Prereq Storage and Collection of Recyclables	Required
Y			Prereq Construction and Demolition Waste Management Planning	Required
		5	Credit Building Life-Cycle Impact Reduction	5
1	1		Credit Building Product Disclosure and Optimization - Environmental Product Declarations	2
1	1		Credit Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
1	1		Credit Building Product Disclosure and Optimization - Material Ingredients	2
2			Credit Construction and Demolition Waste Management	2

7	4	5	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
		2	Credit Enhanced Indoor Air Quality Strategies	2
1	1	1	Credit Low-Emitting Materials	3
1			Credit Construction Indoor Air Quality Management Plan	1
1	1		Credit Indoor Air Quality Assessment	2
1			Credit Thermal Comfort	1
2			Credit Interior Lighting	2
	2	1	Credit Daylight	3
1			Credit Quality Views	1
	1		Credit Acoustic Performance	1

2	1	0	Innovation	6
1	1		Credit Innovation	5
1			Credit LEED Accredited Professional	1

0	0	4	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

42	11	69	TOTALS	Possible Points:	110
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Certified: 40 to 49 points, Silver: 50 to 59 points, Gold: 60 to 79 points, Platinum: 80 to 110

Concept Design – Code Status Report

PROJECT: Everett Mckinley Dirksen Elementary School Annex
8601 W. Foster Ave.
Chicago, IL 60656

DATE: October 5, 2018

SMNG-A PROJECT NO.: 1814

1. After preparing a program test-fit SMNG A Ltd. prepared a preliminary zoning analysis. The findings were provided to PBC for review by the zoning attorney. A meeting between the zoning attorney (Neal & Leroy) and DA (Todd Niemiec, SMNG A Ltd.) occurred on 9/28, we presented to Noah Szafronic and Emily Thrun with DPD. Below are the salient points of the meeting:
 - a. Site is over 2-acres triggering a PD, however, existing use is established and subject to consideration for PD waiver for the new development.
 - b. PD is required by zoning, the project does not meet the requirements for a PD waiver; the planned facility is located on a site with two different zoning districts that must be consolidated and adjusted for greater FAR. Additionally the proposed 3-story addition to a one-story building exceeds the bulk and area and height of the principal building.
 - c. DPD requests CPS/PBC to investigate and propose acceptable interim (temporary) parking arrangement as a condition of the PD. This information has been conveyed to both PBC and CPS for follow-up.
 - d. Noah confirmed that the rear-yard open space requirement for the underlying district does not apply to non-residential developments such as this project.
 - e. Noah noted that the existing building encroaches into the side yard and that this is an existing non-conforming condition.
 - f. Project to be reviewed, on a preliminary basis by John Javorka for fire access evaluation.
2. Team corresponded with John Javorka, Chief Engineer for the Chicago Fire Department. A concept site plan was sent for his review. Below are the salient points of the phone conversation between John Javorka and Todd Niemiec on 10/3:
 - a. Javorka requested we confirm total building occupancy (both original and existing) per building code calculation for Type I school, if less than 2,500 occupants the code requires two streets and one other fire access. Proposed access in front must extend a hammer-head the full depth of the building on the south façade. Proposed 'linear' scheme must be shortened in order to provide ample access. Refuse enclosure should not block fire access.
 - b. Foster Avenue is the front yard, which is preferred by CFD.
 - c. John Javorka confirmed the turning radius for fire apparatus (fire-truck tower ladder type) is a nominal 50', however, an "auto-turn" analysis for the vehicle is required. Terra, our civil consultant for the DA phase has performed a preliminary auto turn analysis.
 - d. Survey should identify nearby public fire hydrants; CFD requires them to be within 300' of hydrant. Javorka will review when survey is provided but does not anticipate that additional private hydrants will be required.
 - e. Additional review is required when design progresses and will be required for PD.
3. At this time no meetings have yet been conducted with DOB regarding temporary exiting or other clarifications.
4. CPS has provided an EAC/ERC report to the design team which is in review. At this time no MOPD meetings have yet been scheduled or conducted, this will be done prior to completion of SD.
5. A preliminary plumbing fixture calculation has been performed and is enclosed with this submission.

EXISTING BUILDING

1814-DIRKSEN

PER CBC 2018

10.05.2018

PLUMBING:

TOILETS:

CLASSROOMS + STAFF:

ADDITION	TOTAL:	1167
FIRST	TOTAL:	996
SECOND	TOTAL:	143
BUILDING TOTAL:		2306 OCCUPANTS

1 TO 10 1

11 TO 25 1

2281 / 25 92

94 FIXTURES REQUIRED**47** REQUIRED PER GENDER

38 Toilets 1st Floor

1 Toilets 2nd Floor

0 Toilets 3rd Floor

39 TOTAL PROVIDED**94** TOTAL FIXTURES REQUIRED**39** TOTAL FIXTURES PROVIDEDLAVATORIES:

CLASSROOMS + STAFF:

BUILDING TOTAL: 2306 OCCUPANTS

1 LAVATORY REQUIRED PER 40 OCCUPANTS

23 Lavatories 1st Floor

1 Lavatories 2nd Floor

0 Lavatories 3rd Floor

24 TOTAL**58** LAVATORIES REQUIRED**24** LAVATORIES PROVIDEDDRINKING FOUNTAINS:

CLASSROOMS + STAFF:

BUILDING TOTAL: 2306 OCCUPANTS

1 DRINK. FOUNT. REQ'D PER 100 OCCUPANTS

8 Drinking Fountains 1st Floor

0 Drinking Fountains 2nd Floor

0 Drinking Fountains 3rd Floor

8 TOTAL**24** DRINKING FOUNTAINS REQUIRED**8** DRINKING FOUNTAINS PROVIDED

SCHEME A

1814-DIRKSEN

10.05.2018

PLUMBING:**TOILETS:****CLASSROOMS + STAFF:**

FIRST	TOTAL:	293
SECOND	TOTAL:	380
THIRD	TOTAL:	494
BUILDING TOTAL:		1167 OCCUPANTS

1 TO 10	1
11 TO 25	1
1142 / 25	46

48 FIXTURES REQUIRED**24** REQUIRED PER SEX

17	Toilets 1st Floor
21	Toilets 2nd Floor
21	Toilets 3rd Floor
59	TOTAL PROVIDED

48 TOTAL FIXTURES REQUIRED**59** TOTAL FIXTURES PROVIDED**LAVATORIES:****CLASSROOMS + STAFF:****BUILDING TOTAL:** 1167 OCCUPANTS

1 LAVATORY REQUIRED PER 40 OCCUPANTS

10	Lavatories 1st Floor
16	Lavatories 2nd Floor
16	Lavatories 3rd Floor
42	TOTAL

30 LAVATORIES REQUIRED**42** LAVATORIES PROVIDED**DRINKING FOUNTAINS:****CLASSROOMS + STAFF:****BUILDING TOTAL:** 1167 OCCUPANTS

1 DRINK. FOUNT. REQ'D PER 100 OCCUPANTS

4	Drinking Fountains Ground Floor
4	Drinking Fountains 2nd Floor
4	Drinking Fountains 3rd Floor
12	TOTAL

12 DRINKING FOUNTAINS REQUIRED**12** DRINKING FOUNTAINS PROVIDED

SCHEME B

1814-DIRKSEN

10.05.2018

PLUMBING:**TOILETS:****CLASSROOMS + STAFF:**

FIRST TOTAL: 302
 SECOND TOTAL: 301
 THIRD TOTAL: 422
BUILDING TOTAL: 1025 OCCUPANTS

1 TO 10 1
 11 TO 25 1
 1000 / 25 40

42 FIXTURES REQUIRED**21** REQUIRED PER SEX

17 Toilets 1st Floor
 19 Toilets 2nd Floor
 11 Toilets 3rd Floor
47 TOTAL PROVIDED

42 TOTAL FIXTURES REQUIRED**47 TOTAL FIXTURES PROVIDED****LAVATORIES:****CLASSROOMS + STAFF:****BUILDING TOTAL:** 1025 OCCUPANTS

1 LAVATORY REQUIRED PER 40 OCCUPANTS

15 Lavatories 1st Floor
 14 Lavatories 2nd Floor
 9 Lavatories 3rd Floor
38 TOTAL

26 LAVATORIES REQUIRED**38 LAVATORIES PROVIDED****DRINKING FOUNTAINS:****CLASSROOMS + STAFF:****BUILDING TOTAL:** 1025 OCCUPANTS

1 DRINK. FOUNT. REQ'D PER 100 OCCUPANTS

5 Drinking Fountains 1st Floor
 6 Drinking Fountains 2nd Floor
 3 Drinking Fountains 3rd Floor
14 TOTAL

11 DRINKING FOUNTAINS REQUIRED**14 DRINKING FOUNTAINS PROVIDED**