ADDENDUM

Public Building Commission of Chicago | Richard J. Daley Center | 50 West Washington Street, Room 200 | Chicago, Illinois 60602 | (312) 744-3090 | pbcchicago.com

ADDENDUM NO.: **01**

PROJECT NAME: **Mt. Greenwood Elementary School Annex II – Site Preparation**

PROJECT NO.: **05145**

CONTRACT NO.: **C1584**

DATE OF ISSUE: **August 23, 2017**

NOTICE OF CHANGES, MODIFICATIONS, OR CLARIFICATIONS TO CONTRACT DOCUMENTS

The following changes, modifications, or clarifications are hereby incorporated and made an integral part of the Contract Documents. Unless clearly expressed otherwise by this Addendum, all terms and conditions defined in the original Contract Documents shall continue in full force and effect and shall have the same meaning in this Addendum. Issued Addenda represent responses/clarifications to various inquiries. Contractors shall be responsible for including all associated labor/material costs in its bid. Drawings/specifications corresponding to inquiry responses will be issued with the Issue for Construction Documents, upon issuance of building permit.

ITEM NO. 1: CHANGE TO KEY DATES

None.

ITEM NO. 2: REVISIONS TO BOOK 1 – PBC INSTRUCTIONS TO BIDDERS

Change 1. **Book 1 –** Section II. Project Information (G) **REMOVE** in its entirety and **REPLACE WITH**:

G. Scheduling Software Requirements

The PBC may require General Contractors to submit schedules electronically or utilize scheduling software for project management purposes.

Change 2. **Book 1 –** Section V. Proposal Support Documents (A)(8) **REMOVE** paragraph one in its entirety and **REPLACE WITH**:

The Commission is **requiring** the identification of critical subcontractors (who will perform the Work in the areas below – Subcontractor management not applicable) be identified at the time of bid submission. Bidders are required to list the names of the intended subcontractors who will perform the corresponding Work, if successful. Failure to provide the names of the subcontractors listed below may deem a bid non-responsive.

ITEM NO. 3: REVISIONS TO BOOK 2 – PBC STANDARD TERMS AND CONDITIONS

Change 1. **Book 2 –** Article 10. Schedule (02)(1)(b)(1) **REMOVE** in its entirety and **REPLACE WITH**:

(1) Contractor shall, within thirty (30) days, of the Notice to Proceed, or as directed by the Commission, submit a Proposed Target Schedule for the Work to the Commission for review and conditional approval that meets all the requirements of this Section 10.02.1 except for the Cost loading requirements of Paragraph 10.02.1.g.(4). Within forty-five (45) days of the Notice to Proceed, or as directed by the Commission, Contractor shall submit a cost and resource loaded schedule to the Commission Representative for review and final approval that meets all the requirements of this Section 10.04.a. (Target Schedule) including 10.02.1.g(4) Cost Loading. The Commission reserves the right to require a resource-loaded schedule within the timeframe designated by the Commission. The Proposed Target Schedule and the Target Schedule must be provided in hard copy and editable electronic format.

ITEM NO. 4: REVISIONS TO BOOK 3 – TECHNICAL SPECIFICATIONS

Change 1. The following specifications have been **ADDED** to this project scope:

a.	01 35 60.1 LEED© Requirements	PBC 05_09/22/14
b.	01 35 60a Attachment A – Materials Credit Documentation Sheet	PBC 04_08/17/14
c.	01 35 60b Attachment B – Low Emitting Mtls. Credits Documentation Sht.	PBC 01_05/15/13
d.	01 35 60c Attachment C – LEED© Checklist for Schools v.4	PBC 01_01/01/09
e.	01 35 60d Attachment D – LEED© BD+C Calculator v.2012	PBC 04_08/01/12
f.	01 35 60e Attachment E – Sustainable Projects Metrics Capture	PBC 01_09/22/14
g.	01 35 61 LEED© Coordinator	PBC 02_09/22/14
h.	01 50 10 Commission Representatives Field Office	PBC 04_04/03/17
i.	01 70 71 Final Cleaning	PBC 01_09/28/11
j.	03 30 00 Cast-In-Place Concrete	02_04/10/08
k.	08 11 13 Hollow Metal Doors and Frames	A_04/10/08
l.	08 71 00 Door Hardware	A_04/10/09
m.	31 23 23 Acceptance of Backfill, Top Soil & CU Structural Soil	PBC A_07/31/15

Change 2. The following specifications have been **REVISED**:

a.	00 01 10 PBC Table of Contents	PBC 01_05/16/17

ITEM NO. 5: REVISIONS TO DRAWINGS

Change 1. G4.0, (**REVISED**)
- a. Note added to Temporary Exit Plan – Reference note to egress door details.
- b. Note added to Temporary Exit Plan – Door width revised from 48” to 44”.

Change 2. C-100-SP, (**REVISED**)
- a. Notes added to Site Demolition plan – Removal of abandoned duct bank described.
- b. Note added to remove and salvage ornamental fencing

Change 3. C-200-SP (**REVISED**)
- a. Notes added to Site Preparation plan – Additional notes added describing Construction Fence to remain in place at project completion.

Change 4. SP-S0.0, (**REVISED**)
- a. Note added to the Concrete and Formwork – CC.17

Change 5. SP-S0.1, (**REVISED**)
- a. Note added to Demolition plans – Cellular equipment enclosure to remain in place.
- b. Note added to Demolition plans – Protection of cellular equipment enclosure foundations.

Change 6. SP-S0.2, (**REVISED**)
- a. Notes added to Existing Cell Structure.
- b. Notes added to Plan Notes.

Change 7. SP-S0.3 (**REVISED**)
- a. Notes added to Detail 6

Change 8. SP-S0.4 (**REVISED**)
- a. Notes added to Detail 2 Section.

Change 9. SP-S1.0 (**REVISED**)
- a. Caisson Layout Plan adjusted.

Change 10. SP-S1.1, (**REVISED**)
- a. Notes added to Grade Beam plan – locations of pipe sleeves.

Change 11. SP-S1.2, (**REVISED**)
- a. Notes added to First Floor Framing plan – Cellular equipment enclosure to remain in place.

Change 12. SP-S3.0 (**REVISED**)
- a. Notes added to Detail 5 Column Base Plate.
- b. Notes added to Detail 1 Base Plate Schedule.

Change 13. SP-S3.2, (**REVISED**)
a. Notes added to Grade Beam Opening detail – position within beam note added.

Change 14. SA-1.0, (**REVISED**)
a. Notes added at Cellular Enclosure.

Change 15. AS-1.0D, (**REVISED**)
a. Notes added to Site Demolition Plan – Cellular equipment enclosure to remain in place.
b. Notes added to Site Demolition Plan – Notes regarding salvage of site materials revised.

Change 16. A-1.0D, (**REVISED**)
a. Notes added to Basement Demolition plan – Cellular equipment enclosure to remain in place.
b. Notes and graphics added to sheet – Elevations and details associated with temporary exit door.

ITEM NO. 6: REQUESTS FOR CLARIFICATION

Clarification: All Scope related to the JOC Site Prep Electrical Work is to be coordinated with this scope.
a. Location of the new electrical duct bank to remain is shown on the following sheets: C-100-SP, C-300-SP, SP-S0.3, and ES2.1.
b. The abandoned portion of existing electrical duct bank is to be removed. See revised Sheet C-100-SP.

ITEM NO. 7: REQUESTS FOR INFORMATION

RFI-1.
Statement: Please confirm whether or not the construction fence is to be left in place after substantial completion of the work under this contract and if so that it will not be part of this contract scope to remove it after construction of the building in the next phase of this project.
Response: The construction fence is to be left in place. The General Contractor for the vertical construction phase will assume responsibility for maintenance and removal.

RFI-2.
Question: Please clarify the requirements for salvage of the existing parking lot pavers. Will they be required to placed on pallets? Where will they be stored at?
Response: Sheet AS1.0D has been revised to clarify the salvage requirements. Salvaged items shall be stacked on new palettes such that they are above the ground and shall be securely wrapped and covered with opaque plastic sheeting that is tied down and secured in place. Coordinate storage location of salvaged items with the school.

RFI-3.
Statement: Please issue specs for the temp doors and hardware and provide door height.
Response: Specification for the temporary doors and elevation drawing – A1.0D are included in this addendum.

RFI-4.
Question: Please confirm that PBC shall complete the board of underground process as part of the permit application that it will make. How long will this process take?
Response: The OUC review process has started. Contractor shall be responsible for preparing and submitting all related construction submittals within 2 weeks of the issuance of the Notice of Award, including and not limited to its caisson procedures and calculations.

RFI-5.
Statement: Please confirm that for this project that the GC will not have to provide a job office for the PBC, architect, or any of the PBC consultants.
Response: A job office for the PBC will be required. Refer to included Specification 01 50 10.

RFI-6.

Statement: Please confirm that the GC can use the existing electrical for any temp electric for this project.

Response: The school's existing electrical service is available for use by the contractor pending the contractor's confirmation of its electrical load requirements. The contractor shall submit its electrical load calculations to the AOR for review and approval. Upon approval by the AOR, the contractor shall sub-meter its electrical use. Contractor shall be responsible for any /all costs related to its electrical load usage.

RFI-7.

Question: Where on the site can the GC place its construction office/trailer?

Response: GC can use the area south of the existing school / west of the annex construction for construction office/trailer. See updated sheets C-100-SP and C-200-SP for details.

List of Attachments and Drawings:

This Addendum includes the following attached Specifications and/or Documents:

1. 0 01 10 PBC Table of Contents
2. 01 35 60.1 LEED© Requirements
3. 01 35 60a Attachment A – Materials Credit Documentation Sheet
4. 01 35 60b Attachment B – Low Emitting Mtls. Credits Documentation Sht.
5. 01 35 60c Attachment C – LEED© Checklist for Schools v.4
6. 01 35 60d Attachment D – LEED© BD+C Calculator v.2012
7. 01 35 60e Attachment E – Sustainable Projects Metrics Capture
8. 01 35 61 LEED© Coordinator
9. 01 50 10 Commission Representatives Field Office
10. 01 70 71 Final Cleaning
11. 03 30 00 Cast-In-Place Concrete
12. 08 11 13 Hollow Metal Doors and Frames
13. 08 71 00 Door Hardware
14. 31 23 23 Acceptance of Backfill, Top Soil & CU Structural Soil

This Addendum includes the following attached General Drawings:

1. G4.0 Temporary Exiting
2. C-100-SP Existing Condition & Demolition Plan
3. C-200-SP Site Preparation Plan
4. SP-0.0 Typical Notes
5. SP-S0.1 Existing & Demo Plans
6. SP-S0.2 Combined Foundation Plan
7. SP-S0.3 Sections
8. SP-S0.4 Sections
9. SP-S1.0 Foundation Plan - Caissons
10. SP-S1.1 Foundation Plan Grade Beam
11. SP-S1.2 First Floor Framing Plan
12. SP-S3.0 Typical Foundation Details
13. SP-S3.2 Typical Grade Beam Details
14. SA1.0 Site Plan
15. AS1.0D Site Plan Demolition
16. A1.0D Basement Demolition Plan

END OF ADDENDUM NO. 01

SECTION 00 01 10

TABLE OF CONTENTS

INTRODUCTORY INFORMATION

SPECIFICATIONS GROUP

GENERAL REQUIREMENTS SUBGROUP

DIVISION 01 – GENERAL REQUIREMENTS

FACILITY CONSTRUCTION SUBGROUP

DIVISION 02 – EXISTING CONDITIONS

DIVISION 03 – CONCRETE

DIVISION 04 – MASONRY

Section Number	*Section Title*	*CPS Control Rev.*
Not Included		

DIVISION 05 – METALS

Section Number	*Section Title*	*CPS Control Rev.*
Not Included		

DIVISION 06 – WOOD, PLASTICS, AND COMPOSITES

Section Number	*Section Title*	*CPS Control Rev.*
Not Included		

DIVISION 07 – THERMAL AND MOISTURE PROTECTION

Section Number	*Section Title*	*CPS Control Rev.*
07 13 26	Self-Adhering Sheet Waterproofing	01_02/28/17

DIVISION 08 – OPENINGS

Section Number	*Section Title*	*CPS Control Rev.*
08 11 13	Hollow Metal Doors and Frames	03_04/10/08
08 71 00	Door Hardware	04_04/10/09

DIVISION 09 – FINISHES

Section Number	*Section Title*	*CPS Control Rev.*
Not Included		

DIVISION 10 – SPECIALTIES

Section Number	*Section Title*	*CPS Control Rev.*
Not Included		

DIVISION 11 – EQUIPMENT

Section Number	*Section Title*	*CPS Control Rev.*
Not Included		

DIVISION 12 – FURNISHINGS

Section Number	*Section Title*	*CPS Control Rev.*
Not Included		

DIVISION 13 – SPECIAL CONSTRUCTION

Section Number	*Section Title*	*CPS Control Rev.*
Not Included		

DIVISION 14 – CONVEYING EQUIPMENT

Section Number	*Section Title*	*CPS Control Rev.*
Not Included		

DIVISION 21 – FIRE SUPPRESSION

Section Number	*Section Title*	*CPS Control Rev.*
Not Included		

DIVISION 22 – PLUMBING

Section Number	*Section Title*	*CPS Control Rev.*
Not Included		

DIVISION 23 – HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC)

Section Number	*Section Title*	*CPS Control Rev.*
Not Included		

DIVISION 26 – ELECTRICAL

Section Number	*Section Title*	*CPS Control Rev.*
Not Included		

DIVISION 27 – COMMUNICATIONS

Section Number	*Section Title*	*CPS Control Rev.*
Not Included		

DIVISION 28 – ELECTRONIC SAFETY AND SECURITY

Section Number	*Section Title*	*CPS Control Rev.*
Not Included		

SITE AND INFRASTRUCTURE SUBGROUP

DIVISION 31 – EARTHWORK

Section Number	*Section Title*	*CPS Control Rev.*
31 22 14	Earthwork	05_01/21/10
31 23 17	Excavating, Backfilling, and Compacting for Utilities	03_06/30/08
31 23 18.13	Soil, Fill, Backfill, CU Structural Soil, and Construction and Demo Debris Removal	PBC 01_07/31/15
31 23 23	Acceptance of Backfill, Top Soil, & CU Structural Soil	PBC 01_07/31/15
31 63 29	Drilled Piers	02_01/21/08

DIVISION 32 – EXTERIOR IMPROVEMENTS

Section Number	*Section Title*	*CPS Control Rev.*
Not Included		

DIVISION 33 – UTILITIES

Section Number	*Section Title*	*CPS Control Rev.*
33 41 00	Sewerage and Drainage	03_01/21/08

APPENDICES –

BOOK 3 VOLUME 2

Geotechnical Site Assessment – by Weaver Consultants Group	7/10/17
Hazardous Materials Building Survey – by GSG Consultants, Inc.	7/7/17

BOOK 3 VOLUME 3

Phase 1 Environmental Assessment – by Amec Foster Wheeler Environment & Structure, Inc.	6/9/17

END OF SECTION

SECTION 01 35 60.1

LEED REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes general requirements and procedures for compliance with certain USGBC LEED prerequisites and credits needed for Project to obtain LEED Silver certification based on LEED v4 for BD+C: New Construction & Major Renovation.
   1. A copy of the LEED Project checklist is attached at the end of this Section for information only.

B. Related Sections:
   1. Division 01 through 33 Sections for LEED requirements specific to the work of each of these Sections. Requirements may or may not include reference to LEED.

1.2 DEFINITIONS

A. Chain-of-Custody (COC) Certificates: Certificates signed by vendors and manufacturers certifying that wood used to make products was obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-40-004, "FSC Principles and Criteria for Forest Stewardship." Certificates shall include evidence that manufacturer is certified for chain of custody by an FSC-accredited certification body.

B. LEED: Leadership in Energy & Environmental Design.

C. Regional Materials: Materials that have been extracted, harvested, or recovered, as well as manufactured, within 100 miles (161 km) of Project site. If only a fraction of a product or material is extracted/harvested/recovered and manufactured locally, then only that percentage (by weight) shall contribute to the regional value.

D. Recycled Content: The recycled content value of a material assembly shall be determined by weight. The recycled fraction of the assembly is then multiplied by the cost of assembly to determine the recycled content value.

   1. "Post-consumer" material is defined as waste material generated by households or by commercial, industrial, and institutional facilities in their role as end users of the product, which can no longer be used for its intended purpose.
   2. "Pre-consumer" material is defined as material diverted from the waste stream during the manufacturing process. Excluded is reutilization of materials such as rework, regrind, or scrap generated in a process and capable of being reclaimed within the same process that generated it.

1.3 SUBMITTALS

A. General: Submit additional LEED submittals required by other Specification Sections.

B. LEED Coordinator resume and statement of qualifications.

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. Project Materials Cost Data: Provide statement indicating total cost for building materials used for Project, excluding mechanical, electrical, and plumbing components, and specialty items such as elevators and equipment. Include statement indicating total cost for wood-based materials used for Project.

E. LEED Action Plans: Provide preliminary submittals within fifteen days of date established for the Notice to Proceed (NTP) indicating how the following requirements will be met, except where otherwise indicated:
   1. Prerequisite Construction Activity Pollution Prevention: Provide sediment and erosion control plan, specific to the site, that complies with the construction activities requirements listed in Phase I and Phase II of the National Pollutant Discharge Elimination System (NPDES) program or local requirement where more restrictive. Provide written plan. Include sample logs and inspection report. .
   2. Prerequisite Construction and Demolition Waste Management Planning: Waste management plan complying with Division 1 Section "Construction Waste Management." .
   3. Credit Environmental Product Declarations: Provide Environmental Product Declarations and Multi-Attribute Optimization based on LEED determined criteria. Extra credit for products sourced from within 100 miles.
   4. Credit Sourcing of Raw Materials.: Provide Raw Material Source and Extraction Reports and use products that demonstrate Leadership Extraction Practices. Extra credit for products sourced from within 100 miles. Submit plan within thirty days of NTP.
   5. Credit Material Ingredients: Provide Material Ingredient Reports and documentation of Material Ingredient Optimization and/or Product Manufacturer Supply Chain Optimization. Extra credit for products sourced from within 100 miles. Submit plan within thirty days of NTP.
   6. Credit Construction and Demolition Waste Management: Reduce total waste material or divert 75% and Four Material Streams.

F. LEED Progress Reports: Concurrent with each Application for Payment, or as otherwise directed by the Commission representative, submit reports comparing actual construction and purchasing activities with LEED Action Plans for the following:

   1. Prerequisite Construction Activity Pollution Prevention: Construction Activity Pollution Prevention photos illustrating compliance. Provide date stamped photos, inspection logs and reports, and descriptions of corrective action.
   2. Prerequisite Construction and Demolition Waste Management Planning: Waste reduction progress reports complying with Division 1 Section "Construction Waste Management."
   3. Credit Environmental Product Declarations.
   4. Credit Sourcing of Raw Materials.
   5. Credit Material Ingredients.
   6. Credit Construction and Demolition Waste Management.

7. Contractor shall use tracking tools similar to sample LEED materials Table (Attachment D) or Material and Resource Calculator, available in LEED On-Line Credit Resources, to document progress with respect to MR 4, MR 5 and MR 7.
8. Commissioning Activities.
9. Report in format approved by the Commission Representative.

G. LEED Documentation Submittals:
1. Prerequisite Construction Activity Pollution Prevention: Provide sediment and erosion control plan, specific to the site, that complies with the construction activities requirements listed in Phase I and Phase II of the National Pollutant Discharge Elimination System (NPDES) program or local requirement where more restrictive. Provide written plan. Include sample logs and inspection report. .
2. Prerequisite Construction and Demolition Waste Management Planning: Waste management plan complying with Division 1 Section "Construction Waste Management." .
3. Credit Environmental Product Declarations: Provide Environmental Product Declarations and Multi-Attribute Optimization based on LEED determined criteria. Extra credit for products sourced from within 100 miles.
4. Credit Sourcing of Raw Materials.: Provide Raw Material Source and Extraction Reports and use products that demonstrate Leadership Extraction Practices. Extra credit for products sourced from within 100 miles. Submit plan within thirty days of NTP.
5. Credit Material Ingredients: Provide Material Ingredient Reports and documentation of Material Ingredient Optimization and/or Product Manufacturer Supply Chain Optimization. Extra credit for products sourced from within 100 miles. Submit plan within thirty days of NTP.
6. Credit Construction and Demolition Waste Management: Reduce total waste material or divert 75% and Four Material Streams. Provide logs of waster management streams.

7. Contractor shall use the LEED Materials Credit Documentation Sheet (Attachment A) and the LEED Low-Emitting Materials Credit Documentation Sheet (Attachment B), as appropriate for each LEED materials submittal.

8. Contractor will provide LEED documentation and input LEED documentation Online to demonstrate compliance with the following LEED credits described above.

1.4 QUALITY ASSURANCE

A. LEED Coordinator: Engage an experienced LEED-Accredited Professional to coordinate, assist in planning, execution and documentation of the LEED requirements. LEED coordinator may also serve as waste management coordinator.

PART 2 - PRODUCTS

2.1 MATERIAL INGREDIENTS

A. Option 1: Material Ingredient Reporting – 1 point. Use at least twenty products from five different manufacturers that use any of the following programs. Manufacturer Inventory (chemical content), Health Product Declaration, Cradle to Cradle v2 or v3 levels, Declare (ingredient listed to 1000 parts per million), ANSI/BIFMA Furniture Sustainability Standard, Cradle to Cradle Material Health Certificate bronze level, or USGBC approved program.

B. Option 2: Material Ingredient Optimization – 1 point. Use products that document their material ingredient optimization using one of the following paths. GreenScreen v1.2 Benchmark, Cradle to Cradle Certified, or USGBC approved program.

C. Option 3: Product Manufacturer Supply Chain Optimization – 1 point. Use building products for at least 25% by cost of the total value of permanently installed products in the project that are sourced from suppliers that engage in validated health and safety programs, and have third party verification of chemical handling safety.

2.2 REGIONAL MATERIALS

A. Any product that is sourced within 100miles of site are valued at 200% of base contributing cost.

2.3 SOURCING OF RAW MATERIALS

A. Option 1: Raw Material Source and Extraction Reporting – 1 point. Use at least twenty products from five different manufacturers that have publicly released a report from their raw material suppliers that material extraction location, and commitments to politically approved land use and techniques, a commitment. Self-reporting attains ½ value and third party corporate sustainability reports (CSR) attain full value.

B. Option 2: Leadership Extraction Practices – 1 point. Use products that meet at least one of the following extraction criteria: Extended producer responsibility, Bio-based materials, Forest Stewardship Council, Materials reuse, Recycled content, or USGBC approved program.

2.4 CREDIT ENVIRONMENTAL PRODUCT DECLARATIONS

A. Option 1: Environmental Product Declaration (EPD) – 1 point. Use at least twenty products from five different manufacturers that provide declarations of conformance to the following: ISO 14044 for ¼ of each of the products; EPDs for ISO 14025, 14040, 14044, and EN 15804 or ISO 21930 – and other listed criteria; or a USGBC approved program.

B. Option 2: Multi-Attribute Optimization – 1 point. Use products that comply with one of the following criteria for 50%, by cost, of the total value of permanently installed products in the project. Products must be certified by third party.
- Global warming – reduce CO_2e

- Stratospheric Ozone layer – reduce CFC-11
- Acid Rain – reduce H+ or SO_2
- Eutrophication – reduce nitrogen or phosphates
- Tropospheric Ozone layer – reduce NO_2, O_3 eq, or ethane.
- USGBC approved program.

PART 3 - EXECUTION

3.1 CONSTRUCTION WASTE MANAGEMENT

A. Prerequisite Construction and Demolition Waste Management Planning.: Comply with Division 1 Section "Construction Waste Management."

3.2 MATERIAL AND CONSTRUCTION PROTECTION

A. Deliver, store and handle products and materials using methods that will prevent damage and deterioration and in accordance with manufacturer's recommendations. Deliver to minimize long term storage in undamaged condition in manufacturer's original unopened, undamaged containers complete with labels and instructions. Store products and materials subject to damage by the elements under cover in a weather tight enclosure above ground with ventilation adequate to prevent condensation. Protect from freezing and moisture intrusion.

B. Inspect materials and products promptly upon arrival at the site for damage, soiling, contaminates and dampness and reject as appropriate.

C. Provide protection during the construction process to prevent moisture intrusion, freezing, dirt and debris within assemblies and extremes in temperature not common to the in-place use environment of the element. Do not allow food and drink or food and drink containers or material protective wrapping to be incorporated into the Work.

D. Install Work in sequence with sufficient time for curing and drying of each element before subsequent work upon which such work depends.

E. Promptly take measures to dry or remove and replace materials products and portions of the project that evidence absorption of moisture or are wet before incorporation proceeding with the work and incorporation or of such materials or products into the project.

END OF SECTION

Section Attachments:

Attachment A – Materials Credits Documentation Sheet

Attachment B – Low-Emitting Materials Credits Documentation Sheet

Attachment B (ALT) – Low-Emitting Materials Credits Documentation Sheet; Alternate Compliance Path

Attachment C – LEED Checklist

Attachment D – LEED Materials Table in Excel Spreadsheet Format

LEED v4 for BD+C: New Construction and Major Renovation

Project Checklist

Project Name: Mt. Greenwood Elementary School Annex
Date: 7/13/2017

Y	?	N			
		1	Credit	Integrative Process	1

8	2	20	Location and Transportation		15
		15	Credit	LEED for Neighborhood Development Location	15
1			Credit	Sensitive Land Protection	1
		2	Credit	High Priority Site	2
2		3	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

3	2	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

7	4	20	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
4	3	9	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

2	9	2	Materials and Resources		13
Y			Prereq	Storage and Collection of Recyclables	Required
Y			Prereq	Construction and Demolition Waste Management Planning	Required
	3	2	Credit	Building Life-Cycle Impact Reduction	5
	2		Credit	Building Product Disclosure and Optimization - Environmental Product Declarations	2
	2		Credit	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
	2		Credit	Building Product Disclosure and Optimization - Material Ingredients	2
2			Credit	Construction and Demolition Waste Management	2

9	4	3	Indoor Environmental Quality		16
Y			Prereq	Minimum Indoor Air Quality Performance	Required
Y			Prereq	Environmental Tobacco Smoke Control	Required
Y			Prereq	Environmental Tobacco Smoke Control	Required
		2	Credit	Enhanced Indoor Air Quality Strategies	2
3			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

4	2	0	Innovation		6
3	2		Credit	Innovation	5
1			Credit	LEED Accredited Professional	1

2	2	0	Regional Priority		4
1			Credit	Regional Priority: Specific Credit	1
1			Credit	Regional Priority: Specific Credit	1
	1		Credit	Regional Priority: Specific Credit	1
	1		Credit	Regional Priority: Specific Credit	1

38	27	60	TOTALS	Possible Points:	38

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

MATERIALS CREDITS DOCUMENTATION SHEET

LEED® - GREEN BUILDING RATING SYSTEM

MATERIAL OR PRODUCT:	
MATERIAL COST (LESS LABOR AND EQUIPMENT):	
Contractor/Installer:	Manufacturer:
Address:	Manufacturer Address:
Contact:	

Signed by:_____ Date:_____

Company:_____

Instructions to Contractor/Installer: *Please complete the following information in all appropriate categories. Use one documentation sheet for each product or material (e.g. tile and grout each get their own sheet). Attach supporting information to this sheet (e.g. cut sheets, letters from manufacturers, etc.)*

LEED Credit 4.1 and 4.2 - Recycled Content

Does the material/product contain post-consumer or post-industrial content?

Percentage of post-consumer (PC) content?	
Percentage of pre-consumer (PI) content?	

If only part of the assembly contains recycled content, fill in the detail chart below:

Assembly Components:	Weight:	% PC	% PI

LEED Credit 5.1 and 5.2 - Locally Manufactured and Harvested/Extracted Materials/Product

Was the material/product manufactured or fabricated locally and does it contain locally harvested/extracted raw materials?

Location of manufacturer/fabricator:	Miles:
Percent locally/regionally harvested and manufactured:	

All Raw Materials:	Weight (if applicable):	Location of harvest/extraction:	Miles:

LEED Credit MR 7 – Certified Wood (FSC COC required for vendors, including distributors, millwork shops)

Does the product/material include new wood? What is percent FSC certified? Invoices attached?

Percent of Product Cost that is New Wood	Percent of New Wood that is FSC certified	FSC Chain of Custody attached?

INSTRUCTIONS

User-entered
Calculated, read-only

Step 1. Enable macros

Step 2. Indicate whether total materials cost is based on actual or default cost: Actual Materials Cost

Step 3. Based on the selection in Step 1, provide the actual materials cost OR total construction costs.

Actual materials cost, excluding labor and equipment*:

OR

Total construction costs for the LEED project*: $ -

Step 4. If furniture is included, provide the actual furniture materials cost.

Actual furniture materials cost, excluding labor and equipment**: (Optional)

Total materials cost for the LEED project: $ -

Step 5. Complete Table L-3 (Tab B).

Step 6. Use the results in the applicable summary tab to complete forms for MR Credits 3-7.

Notes:

* *Includes hard costs for CSI MasterFormat 2004 Divisions 3-10, 31.60.00, 32.10.00, 32.30.00, and 32.90.00 only. Excludes mechanical, electrical, and plumbing components, and equipment.*

** *Includes hard costs for CSI MasterFormat 2004 Division 12 only. If furniture is not included, leave blank.*

Table L-3. Sustainable Materials

Legend
- User-entered
- Read-only

Fill in all columns with applicable material data for all attempted credits among MR Credits 3-7. Exclude materials included in MR Credit 1.1 or 1.2: Building Reuse and all mechanical, electrical and plumbing (MEP) components and equipment. If the credit is not attempted, leave the column blank. Include furniture only if actual furniture materials cost was provided in "Tab A. Instructions." To add more materials, click "Add Material." To remove a material, delete the row contents.

General Information				MR Credit 3	Resource Reuse		MR Credit 4	Recycl	
CSI Div (optional)	Description of Material	Manufacturer / Vendor Name	Material Cost [1] ($)		Percent Salvaged / Reused (%)	Sustainable Criteria Value ($)		Percent Post-Consumer (%)	Percent Pre-Consumer (%)
						$ -			
						$ -			
						$ -			
						$ -			
						$ -			
						$ -			
						$ -			
						$ -			
						$ -			
						$ -			
Total sustainable materials cost			$ -		Sustainable criteria value	$ -		Sustainable criteria value	
Total materials cost			$ -						
Sustainable criteria value as percentage of total					% of total	0.00%		% of total	
Percentage of sustainble criteria value with cutsheets provided									% cutsheet

Notes:

1 *Includes all expenses to deliver the material to the project site, including taxes and delivery costs incurred by the contractor. Excludes labor and equipment costs number of items purchased. In the case of a salvaged item may be the actual or replacement value, but must be consistent with the cost used to calculated the to*

2 *Supporting documentation (cutsheet, MSDS, etc) has been uploaded to LEED Online.*

3 *In lieu of exact distances, estimated distances may be used. If estimated distances are used, provide the manufacturer's letter stating that the material/product wa*

ed Content		MR Credit 5	Regional Materials							
		Calculation Method	Option 1		Option 2 (Not available for LEED for Retail projects)				
Sustainable Criteria Value ($)	Cutsheet Provided [2]	Percent Regional (%)	Extraction Distance [3] (mi)	Manufacture Distance [3] (mi)	Travel Distance by Rail [3] (mi)	Travel Distance by Inland Waterway [3] (mi)	Travel Distance by Sea [3] (mi)	Travel Distance by Other Means [3] (mi)	Total Distance Travelled (weighted) (mi)
$ -									0.00
$ -									0.00
$ -									0.00
$ -									0.00
$ -									0.00
$ -									0.00
$ -									0.00
$ -									0.00
$ -									0.00
$ -									0.00
$ -									Sustainable criteria value
0.00%									% of total
0%									% cutsheet

once the material is delivered to the site. Equals cost per item times
tal materials cost for the project.

as manufactured and extracted/recovered/harvested within 500 miles of the project site.

		MR Credit 6	Rapidly Renewable Materials (Not Available for LEED for Core & Shell projects)				MRc6 (CS) / MR Credit 7	Certified Wood				
Sustainable Criteria Value ($)	Cutsheet Provided [2]		Percent Rapidly Renewable (%)	Renewable Material Type	Sustainable Criteria Value ($)	Cutsheet Provided [2]		Percent New Wood (%)	New Wood Materials Cost ($)	Percent New Wood that is FSC Certified (%)	Sustainable Criteria Value ($)	Vendor Invoice Provided [2]
$ -					$ -				$ -		$ -	
$ -					$ -				$ -		$ -	
$ -					$ -				$ -		$ -	
$ -					$ -				$ -		$ -	
$ -					$ -				$ -		$ -	
$ -					$ -				$ -		$ -	
$ -					$ -				$ -		$ -	
$ -					$ -				$ -		$ -	
$ -					$ -				$ -		$ -	
$ -					$ -				$ -		$ -	
$ -			Sustainable criteria value		**$ -**			Total new wood materials cost			**$ -**	
								Sustainable criteria value			**$ -**	
0.00%			% of total		**0.00%**			% of new wood			**0.00%**	
0%			% cutsheet		**0%**			% vendor invoice			**0%**	

Summary for NC, Schools & Retail: NC Projects

Note: All information on this tab is READ-ONLY. To edit, see Tabs A and B. Use the information below to complete the forms for MR Credits 3-7.

Total materials cost for the LEED project:	$ -

Table MRc3-1. Credit Summary for Materials Reuse

Sustainable criteria value of salvaged, refurbished or reused materials:	$ -
Reused materials as a percentage of total materials cost: Must be at least 5% for 1 point, 10% for 2 points, 15% for exemplary performance	0.00%

Table MRc4-1. Credit Summary for Recycled Content

Sustainable criteria value of post + 1/2 preconsumer recycled content:	$ -
Recycled content value as a percentage of total materials cost: Must be at least 10% for 1 point, 20% for 2 points, 30% for exemplary performance	0.00%
Percentage of MRc4 materials with cutsheets provided (by cost): Must be at least 20% to document credit compliance	0%

Table MRc5-1. Credit Summary for Regional Materials

Sustainable criteria value of materials manufactured and extracted, harvested, or recovered within 500 miles:	$ -
Regional materials value as a percentage of total materials cost: Must be at least 10% for 1 point, 20% for 2 points, 30% for exemplary performance	0.00%
Percentage of MRc5 materials with cutsheets provided (by cost): Must be at least 20% to document credit compliance	0%

Table MRc6-1. Credit Summary for Rapidly Renewable Materials

Sustainable criteria value of rapidly renewable materials:	$ -
Rapidly renewable materials value as a percentage of total materials cost: Must be at least 2.5% for 1 point, 5% for exemplary performance	0.00%
Percentage of MRc6 materials with cutsheets provided (by cost): Must be at least 20% to document credit compliance	0%

Table MRc7-1. Credit Summary for Certified Wood

Sustainable criteria value of new wood products that are FSC certified:	$ -
Total new wood materials cost:	$ -
Certified wood value as a percentage of new wood materials cost: Must be at least 50% for 1 point, 95% for exemplary performance	0.00%
Percentage of MRc7 materials with vendor invoices provided	

Summary for CS Projects

Note: All information on this tab is READ-ONLY. To edit, see Tabs A and B. Use the information below to complete the forms for MR Credits 3-6.

Total materials cost for the LEED project: $ -

Table MRc3-1. Credit Summary for Materials Reuse

Sustainable criteria value of salvaged, refurbished or reused materials:	$ -
Reused materials as a percentage of total materials cost: Must be at least 5% for 1 point, 10% for exemplary performance	0.00%

Table MRc4-1. Credit Summary for Recycled Content

Sustainable criteria value of post + 1/2 preconsumer recycled content:	$ -
Recycled content value as a percentage of total materials cost: Must be at least 10% for 1 point, 20% for 2 points, 30% for exemplary performance	0.00%
Percentage of MRc4 materials with cutsheets provided (by cost): Must be at least 20% to document credit compliance	0%

Table MRc5-1. Credit Summary for Regional Materials

Sustainable criteria value of materials manufactured and extracted, harvested, or recovered within 500 miles:	$ -
Regional materials value as a percentage of total materials cost: Must be at least 10% for 1 point, 20% for 2 points, 30% for exemplary performance	0.00%
Percentage of MRc5 materials with cutsheets provided (by cost): Must be at least 20% to document credit compliance	0%

Table MRc6-1. Credit Summary for Certified Wood

Sustainable criteria value of new wood products that are FSC-Certified:	$ -
Total new wood materials cost:	$ -
Certified wood value as a percentage of new wood materials cost: Must be at least 50% for 1 point, 95% for exemplary performance	0.00%
Percentage of MRc6 materials with cutsheets provided (by cost): Must be 100% to document credit compliance	0%

Sustainable Projects Metrics Capture

Public Building Commission of Chicago ● 50 West Washington, Room 200 ● Chicago, Illinois 60602 ● Tel: 312-744-3090 ● Fax: 312-744-8005

Project Name: Architect of Record:

Address:

PBC Project #: General Contractor:

File Code: 04-05-04, 05-05-04

Project Type: Interior Renov ☐ Envelope ☐ MEP ☐ Add'n / Annex ☐ New Building ☐ Sitework ☐ Other_____

ADA [Elevator / Plumbing] ☐ No Primary Learning Space ☐ Campus Parks / Playgrounds ☐

Scope: *(include SF and general description of work here)*

LEED Requirements: Track Metrics Only - comparable to: *LEED (version, level)*

DESIGN PARAMETERS	* Note as N/A if not in project scope						Comments
Site ☐							
	Existing Condition (SF)	Design Condition (SF)	Total Area (SF)	Comments / Description:			
Building (SF)							
Hardscape							
Apshalt (imperv)							
Concrete (imperv)							
Permeable Pvmt							
Artificial Turf:							
Other:							
Landscape:				Description (native/adaptive,etc. Attach further description if required)			
Special / Best Management Practices *(list + quantify - attach if required)*				Description:			
Stormwater *(Use Stormwater Ordinance Calcs)*							
Quantity Diverted from Sewer							
Quality - Quantitiy filtered							
Roof	Existing Roof color:	Design - Description (incl SRI, extensive / intensive green roof):					
Existing to remain (SF):		New roof total area (SF):		Green Roof (SF) (incl pavers for access):		% green / total roof area:	
Shade Trees #	Current:	Design Final:		Net added:		*(rem'v/ replc'd?)*	
Water					Savings (Gal/yr)	Comments	
Irrigation - System Water Use Conservation *(use LEED calcs if irrigation to be installed)*							
Plumbing Fixtures	Replaced (Qt, gal)	New	*(use LEED WEc3 template / calcs)*				
Lavs							
WC							
Urinals							
Showers							
Other *(water reuse system?)*							
Energy	*(provide DOB mechanical form)*				Annual Savings	Comments	
Electrical	Existing Equipment	New Equipment	# Replaced	Energy Svgs Per	Total (kWh/yr)	No CFC's / low ODP / GWP refrigerants. Refrigerants:	
Lighting							
MEP (Pumps, motors, etc.)							
Elevator							
Natural Gas	Existing Equipment	New Equipment	Expected Annual Savings (therms)				
Boiler(s)							
Chiller(s)							
Domestic HW							
Renewables *(type; expected impact, yield)*							

Sustainable Projects Metrics Capture

Public Building Commission of Chicago ● 50 West Washington, Room 200 ● Chicago, Illinois 60602 ● Tel: 312-744-3090 ● Fax: 312-744-8005

Project Name: Architect of Record:

Address:

PBC Project #: General Contractor:

CONSTRUCTION PARAMETERS * Note as N/A if not in project scope							Comments
Materials / Waste *(Use LEED templates or PBC LEED Monthly Report tracking matrices. Applies to all construction/demo waste and new materials specificied in Division 2-10)*							
Waste Diverted (tons) (Attach Waste Management Plan updates and waste tracking log from disposal company)						Designated Recycling Storage Area in design.	
	Total Waste (tons):		Waste Diverted (tons):		% diverted		
Deconstruction (attach description. Include materials list, recipient(s))							
Recycled Content ($ postconsumer +							
	Total Cost of Materials Div 2-10		Recycled Content Cost (postconsumer + 1/2 preconsumer)			% Recycled	
Regional Material ($)							
	Total Cost of Materials Div 2-10		Material Cost within 500 miles			% Regional	☐
Certified Wood ($; $ total all wood products)							
	Total Cost All Wood Products		Total Cost FSC Certified Wood				
Other:							
Low Emitting Materials (attach list of actual and VOC limits of all materials, from specifications)							
Clean Indoor Air During Construction (Comply with SMACNA guidelines)							

SECTION 01 35 61

LEED COORDINATOR

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes: Tasks to be performed by a LEED Coordinator employed by the General Contractor

1.2 SUBMITTALS

A. Qualification Data: Submit qualification data on LEED Coordinator indicating LEED accreditation, and experience as LEED AP for project(s) of similar size and complexity.

1.3 QUALITY ASSURANCE

A. LEED Coordinator: LEED accredited professional by U.S. Green Building Council. PRODUCTS (NOT USED)

PART 2 - EXECUTION

2.1 LEED COORDINATOR

A. The General Contractor shall employ a LEED Accredited Professional by the U.S. Green Building Council, who is experienced in completing at least one successful LEED submission through certification, to supervise all LEED related activities, perform the tasks specified, and maintain the Project on track to obtain the LEED credits specified. Credentials are to be submitted within fifteen (15) days of the issuance of the Notice to Proceed.

B. The General Contractor's LEED Coordinator shall furnish all submittals required by the specifications to the LEED Coordinator who is hired by the Architect of Record. The Architect of Record's LEED Coordinator shall serve as the contact for the LEED Authority (the Green Building Certification Institute, and/or the U.S. Green Building Council) with respect to this project.

C. Initial Tasks
1. Procure and incorporate waste management, recycled content and erosion and sedimentation control, and regional materials data from previous contractors who performed work on the site.
2. Procure or prepare and submit Qualification Data required by Specification Section 01 52 40 for the Waste Management Coordinator before work begins.
3. Prepare and submit the LEED Action Plan required in Specification Section 01 35 60.1 within fifteen (15) days of the date of the NTP.
4. Prepare and submit the materials table required in Specification Section 01 35 60.1 within thirty (30) days of the date of the NTP. Include information from previous contractors.

5. Prepare and submit Erosion and Sediment Control plan required in Specification Section 01 35 62 within fifteen (15) days of the NTP. Include information from previous contractors.
6. Prepare and submit the Construction Waste Management Plan required in Specification Section 01 52 40 within fifteen (15) days of the NTP. Include information from previous contractors.

D. Ongoing Tasks
1. Prepare and submit with each application for payment or as directed by Commission representative, LEED progress report required in Specification Section 01 35 60.
2. Procure and submit LEED Documentation submittals required in Specification Section 01 35 60.1 concurrent with Product Data, Shop Drawings, and LEED Submittals required of the various Technical Specification Section.
3. Procure and submit Waste Reduction Progress Reports required by Specification Section 01 52 40 with each LEED progress report.
4. Procure and submit recycling and processing facility records required by Specification Section 01 52 40 concurrently with each Waste Reduction Progress Report (concurrently with each LEED progress report).
5. Procure and submit landfill and incinerator disposal records required by Specification Section 01 52 40 concurrently with each Waste Reduction Progress Report (concurrently with each LEED Progress report).
6. Prepare and submit records of donations and sales of salvageable waste with each Waste Reduction Progress Report.

E. Closeout Tasks
1. Procure and submit waste reduction calculations as required by Specification Section 01 52 40 before request for Substantial Completion.
2. Prepare and submit LEED On Line forms and supporting documentation for each construction phase credit sought per Specification Section 01 35 60.1: to Architect of Record's LEED Coordinator before request for Substantial Completion.
3. Prepare and upload to LEED On-line all LEED documentation assigned to Contractor per Specification Section 01 35 60.1.
4. Provide any and all other documents required at any time by the LEED Authority to support the LEED application for this project.

END OF SECTION

SECTION 01 50 10

COMMISSION REPRESENTATIVE FIELD OFFICE

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings
B. Book 1: Project Information, Instructions to Bidders, and Execution Documents
C. Book 2: Standard Terms and Conditions for Construction Contracts

1.2 COMMISSION REPRESENTATIVE'S FIELD OFFICE

A. Furnish, erect and maintain a clean, weather-tight office at the site of the Work for the duration of the Contract, through final completion, for the sole and exclusive use of the Commission. No on-site Work may commence until the Commission Representative's Field Office required by this Subsection is in place, fully functional and approved by the Commission. The proposed location of the Commission Representative's Field Office and the pedestrian gate for access to the fenced site is indicated on the Drawings.

B. Provide the Commission Representative's Field Office with toilet facility entirely separate from, unconnected to, and not to be shared with the Contractor's Field Office.

C. Provide the Commission Representative's Field Office not less than 400 square feet in area and with a ceiling not less than 7 feet high with a minimum of two private offices and one common area, and one toilet. The two private offices and common area shall be equipped with minimum of (4) 110-120v 20amp 3-prong grounded duplex receptacles each section, equally distributed across (2) power circuits each section. The field office shall be equipped with a minimum of 100 amp electrical service. The field office shall include an interior toilet facility, shall be painted, heated, air-conditioned, lighted, provided with lockable windows with blinds or shades that operate, and doors with cylinder locks and deadbolt locks. Provide appropriate signage on the outside of the trailer indicating PBC Field Office. Enclose the air space beneath the trailer with exterior grade plywood panel siding painted to match office exterior. Provide hinged access doors at utility connection area. Provide stair access with handrails per code requirements.

D. Provide weekly janitorial service for the Commission Representative's Field Office and interior toilet facility.

E. Pay all expenses in connection with the Commission Representative's Field Office, including but not limited to, the installation and high speed internet service, heat, air-conditioning, light, water, sewerage, janitorial services, equipment, pest control, snow removal, set up and take down. HVAC filters shall be replaced every month.

F. Furnish the following equipment and furniture:

1. (2) - 60” x 30” desks with two 2 drawer (one file and one miscellaneous) pedestal file cabinets and 2 non folding chairs with upholstered seat and back.

2. (2) - 2 drawer lateral file cabinets.

3. (1) - layout table with minimum top size of 42” x 60”. An adjustable height drafting stool with upholstered seat and back shall be provided.

4. (2) - 8’ x 3’ folding conference tables and 20 folding chairs.

5. Provide (1) 48” x 72” (min) and (1) 48” x 96” wall mounted dry erase boards.

6. (1) - equipment cabinet with lock of minimum inside dimensions of 72” high x 48” wide x 24” deep with (5) shelves. The walls shall be of steel with a 3/32” minimum thickness with concealed hinges and enclosed lock constructed to prevent entry by force.

7. (1) 1200 watt Microwave oven.

8. (2) - wall mounted mail holders

9. (1) - first aid cabinet fully equipped and maintained on monthly basis.

10. (1) - 5 gallon hot and cold water dispenser with cup dispenser, cups and bottled drinking water supply service.

11. Central heating and air conditioning appropriate to trailer size and construction per ASHRAE 90.1 efficiency requirement.

12. (1) - 6 cubic feet refrigerator with freezer compartment.

13. (1) - plan rack with (12) 42” capacity hanging clamps.

14. (1) - fire extinguisher.

15. Printer: Provide a multifunction color printer (fax, copy, scan and print) the latest version with toner cartridges, paper, and a maintenance service contract for the duration of project.

    a. Canon Color Laser Multifunction Image CLASS C5000-Series or equal (Dual Tray - 8-1/2” x 11” and 11” x 17” format) with scanning capability (PDF format)

    b. Provide required toner cartridges throughout duration of the project.

    c. Provide 24lb 8 ½” x 11” and 11” x 17” format paper throughout duration of project.

16. Network: Provide Local Area Network (LAN) and a Wireless Area Network (WAN) communication and Internet access for Commission computers with all associated equipment, drops, patch cords, power cords, etc., for the duration of the project.. Network the printer/scanner to all Commission computers to enable direct printing and scanning to and from any computer.

17. Internet Access: Provide an unlimited Internet access account to achieve a minimum of 50MB per second download speed.

G. The Commission Representative's field office and all furnishing and equipment will remain the property of the Contractor at the completion of the Project.

H. Provide (2) on-site parking spaces adjacent to Commissions Trailer for duration of project.

I. Submit two (2) copies of the site field office layout plan required for approval by the Commission Representative.

1.3 SUBMITTALS

A. Unless provided for elsewhere in the contract documents, prior to any onsite work, the Contractor is to prepare and submit to the Architect for approval the Commission Representative's Site Field Office Location Plan showing field offices and related temporary support facilities. If requested by the Contractor, a preliminary meeting to review site elements and construction operations including trailer and gates location with the Architect and Commission Representative prior to submission of the Plan will be held.

PART 2 PRODUCTS

2.1 Provide new materials and equipment. Undamaged, previously used materials and equipment in serviceable condition may be used if approved by the Commission Representative. Provide materials suitable for use intended.

PART 3 EXECUTION

3.2 The proposed location of the Commission Representatives field office and the pedestrian gate for access to the fenced site is indicated on the drawings.

3.3 Locate and maintain the field office with temporary walkways providing easy and safe access.

3.4 Maintain support facilities until substantial completion or as directed the Commission Representative.

END OF SECTION

SECTION 01 70 71
FINAL CLEANING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings
B. Book 1: Project Information, Instructions to Bidders, and Execution Documents
C. Book 2: Standard Terms and Conditions for Construction Contracts

1.2 SUMMARY

A. Section includes: Final Cleaning.

1.3 SUBMITTALS

A. Product Data: Submit complete printed data for cleaning agents and floor sealers finishes.

B. Certifications:

1. Cleaning service: Submit complete data demonstrating compliance with QUALITY ASSURANCE requirements of this section.
2. Completion: Submit a statement that all final cleaning as specified is complete on company letter head signed by an officer of the company.

1.4 QUALITY ASSURANCE

A. Cleaning service: Regularly engaged in commercial and institutional building cleaning and maintenance as a primary business for a minimum of five (5) years.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents and floor sealers-finishes: Use cleaning materials and agents and floor sealers- finishes recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

C. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial/institutional building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire project or for a portion of project:

a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
b. Sweep paved areas broom clean and power wash to remove equipment marks. Remove petrochemical spills, stains, and other foreign deposits.
c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
d. Remove tools, construction equipment, machinery, and surplus material from Project site.
e. Remove snow and ice to provide safe access to building.
f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
h. Sweep concrete floors broom clean in unoccupied spaces using sweeping compound or other non-dust producing product.
i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
k. Clean washroom floor, walls, fixtures, toilet partitions, mirrors and etc with non- acid cleaning products.
l. Strip factory finish from new vinyl composition (VCT) and sheet vinyl floor. Apply five (5) new thin coats of synthetic floor finish (18% - 20% solids) in classrooms and seven (7) new thin coats of synthetic floor finish (25% solids) in all other rooms with VCT finish that are part of the contract work per manufacturers recommendation and then burnish floor.
m. Clean, mop all wood floors in areas of new construction and renovation work. n. Clean walls, woodwork in classrooms, offices and corridors.
o. Scrub tile floors in all food service areas and finish according to manufacturers' specifications.
p. Remove labels that are not permanent.

q. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.

r. Wipe surfaces of mechanical and electrical equipment, [elevator equipment**,**] and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.

s. Replace parts subject to unusual operating conditions.

t. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.

u. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.

v. Clean ducts, blowers, and coils if units were operated without filters during construction.

w. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

x. Leave Project clean and ready for occupancy.

C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Board's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of in accordance with specification sections 31 23 18.3 and 31 23 18.5.

END OF SECTION

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes cast-in-place concrete required to complete the work indicated on all the project construction drawings except for related sections.

1.2 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash and other pozzolans.

1.3 SUBMITTALS

A. Product Data: Submit preprinted data for each type of manufactured material and product demonstrating compliance requested by the Architect.

B. Design Mixes: Submit design mix for each concrete mix. Include field test data used to establish the required average strength in accordance with ACI 301. Review of design mixes and field test data will be for general information only. Production of concrete to comply with specified requirements is the responsibility of the contractor. Submit written reports to Architect of each proposed mix for each class of concrete at least 15 days prior to start of work. Do not begin concrete production until each mix has been reviewed by the Architect.

1. Indicate amounts of mix water to be withheld for later addition at Project site.

C. Shop Drawings:

1. Steel Reinforcement Shop Drawings: Submit details of fabrication, bending, and placement, prepared according to ACI 315, "Details and Detailing of Concrete Reinforcement." Include material, grade, bar schedules, stirrup spacing, bent bar diagrams, arrangement, and supports of concrete reinforcement. Include special reinforcement required for openings through concrete structures.

D. Welding Certificates: Copies of certificates for welding procedures and personnel.

E. LEED Submittals:

1. LEED Credit MR 4.1[and Credit MR 4.2]: Submit product data for products having recycled content, documentation indicating percentages by weight of post-consumer and pre-consumer recycled content.

a. Include statement indicating costs for each product having recycled content.

2. LEED Credit MR 5.1[and Credit MR 5.2]: Submit product data for products that have extracted, harvested, or recovered, as well as manufactured within 500 miles of the Project site.

    a. Include a statement indicating the percentage by weight which is extracted, harvested, or recovered within 500 miles of the Project site.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed concrete Work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment.

C. Testing Agency Qualifications: An independent testing agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 to conduct the testing indicated, as documented according to ASTM E 548.

D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, each aggregate from one source, and each admixture from the same manufacturer.

E. Welding: Qualify procedures and personnel according to AWS D1.4, "Structural Welding Code--Reinforcing Steel."

F. Publications: Comply with the latest edition of the following, except as modified by the Contract Documents. Maintain a copy of the latest edition of ACI 301, 117, 318, and 347 at the project site at all times. Where provisions of the above codes and standards are in conflict with the building code in force for the Project, the building code shall govern.

1. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
2. ACI 301, "Standard Specification for Structural Concrete."
3. ACI 302, “Guide for Concrete Floor and Slab Construction.”
4. ACI 305, “Hot Weather Concreting”
5. ACI 306 , “Cold Weather Concreting”
6. ACI 308, “ Standard Practice for Curing Concrete”
7. ACI 318 “ Building Code Requirements for Structural Concrete”
8. ACI 347 “ Recommended Practice for Concrete Formwork”
9. ASTM C494 Standard Specification for Chemical Admixtures for Concrete
10. AWS D12.1 “Recommended Practices for Welding Reinforcing Steel, Metal Inserts and Connections in Reinforced Concrete Construction.”
11. CRSI “Manual of Standard Practice.”

G. Concrete Testing Service: The Owner will employ a testing laboratory to perform initial field quality control testing.

1. Materials and installed Work may require testing and retesting, at anytime during the progress of the Work. Allow free access to material stockpiles and facilities at all times.

Tests, not specifically indicated to be done at the Owner's expense, including the retesting of rejected materials and installed Work, shall be done at the Contractor's expense.

H. Pre-Concrete Conference

1. Conduct a meeting to review the detailed requirements for preparing the concrete design mixes and to review the drawings, specifications, and the project.
2. Require responsible representatives of every party who is concerned with the concrete work to attend the conference, including but not limited to the following:

   a. Contractor's superintendent
   b. Laboratory responsible for the concrete design mix
   c. Laboratory responsible for the field quality control
   d. Concrete subcontractor
   e. Architect
   f. Boards Authorized Representative

3. Type and print minutes from the meeting and distributed to all parties within 5 days of the meeting.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle steel reinforcement to prevent bending and damage.

1. Avoid damaging coatings on steel reinforcement.

1.6 PROJECT CONDITIONS

A. Before commencing work, examine all adjoining work on which this work is in any way dependent for proper installation and workmanship and report to the Contractor any condition which prevents performing first class work.

B. Protection of Footings Against Freezing: Cover completed work at footing level with sufficient temporary or permanent cover as required to protect footings and adjacent subgrade against possibility of freezing; maintain cover for time period as necessary.

C. Protect adjacent finish materials against spatter during concrete placement.

D. Provide all barricades and safeguards at all pits, holes, shaft and stairway openings, and the like. Provide all safeguards as required by authorities having jurisdiction. Take full responsibility for safety precautions and methods.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

A. Formed Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

1. Rust-free metal.

2. Exterior-grade undamaged, unpatched plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:

   a. Medium-density overlay, Class 1, or better, mill-release agent treated and edge sealed.
   b. Structural 1, B-B, or better, mill oiled and edge sealed.
   c. B-B (Concrete Form), Class 1, or better, mill oiled and edge sealed.

B. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch (19 by 19 mm), minimum.

C. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

1. Formulate form-release agent with rust inhibitor for steel form-facing materials.

D. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.

1. Furnish units that will leave no corrodible metal closer than 1 inch (25 mm) to the plane of the exposed concrete surface.
2. Furnish ties that, when removed, will leave holes not larger than 1 inch (25 mm) in diameter in concrete surface.
3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

2.2 STEEL REINFORCEMENT

A. Recycled Content of Steel Products: Provide products with an average recycled content of steel products so post-consumer recycled content plus one-half of pre-consumer recycled content is not less than 60 percent.

B. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.

C. Epoxy-Coated Reinforcing Bars: ASTM A 775/A 775M.

D. Plain-Steel Wire: ASTM A 82, as drawn.

E. Deformed-Steel Wire: ASTM A 496.

F. Epoxy-Coated Wire: ASTM A 884/A 884M, Class A coated, plain-steel wire.

G. Plain-Steel Welded Wire Fabric: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.

1. Welded wire fabric maybe used in lieu of carbon steel fibers for interior slabs on grade and interior elevated concrete topping on metal deck when acceptable to the Architect.

H. Epoxy-Coated Welded Wire Fabric: ASTM A 884/A 884M, Class A, plain steel.

2.3 REINFORCEMENT ACCESSORIES

A. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete or fiber-reinforced concrete of greater compressive strength than concrete, and as follows:

1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected or CRSI Class 2 stainless-steel bar supports.
2. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.
3. For zinc-coated reinforcement, use galvanized wire or dielectric-polymer-coated wire bar supports.
4. Do not use wood, masonry, concrete or other similar supports.

B. Joint Dowel Bars: Plain-steel bars, ASTM A 615/A 615M, Grade 60 (Grade 420). Cut bars true to length with ends square and free of burrs.

C. Epoxy-Coated Joint Dowel Bars: ASTM A 775/A 775M; with ASTM A 615/A 615M, Grade 60 (Grade 420), plain-steel bars.

D. Epoxy Repair Coating: Liquid, two-part, epoxy repair coating; compatible with epoxy coating on reinforcement and complying with ASTM A 775/A 755M.

E. Mechanical Reinforcement Couplers: ASTM A-519, Minimum tensile strength 100,000 psi

2.4 CONCRETE MATERIALS

A. Portland Cement: ASTM C 150, Type I. Type III cement may be used in lieu of Type I at Contractor’s option, when acceptable to the Architect.

1. Use only one brand of cement throughout project, except as otherwise indicated.

B. Fly Ash: ASTM C618, Class C or F

C. Normal-Weight Aggregate: ASTM C 33, uniformly graded, and as follows:

1. Class: Severe weathering region, but not less than 3S.
2. Nominal Maximum Aggregate Size: 3/4 inch (19 mm) unless otherwise indicated.
3. Provide water cooled expanded blast furnish slag such as True-Lite by LaFarge manufactured within 500 miles of the Project.

D. Water: Potable and complying with ASTM C 94.

2.5 ADMIXTURES

A. General: Admixtures certified by manufacturer to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material and to be compatible with other admixtures and cementitious materials. Do not use admixtures containing calcium chloride thyocyanates or admixtures containing more than 0.1 percent chloride ions.

B. Air-Entraining Admixture: ASTM C 260.

C. Water-Reducing Admixture: ASTM C 494, Type A.

D. High-Range, Water-Reducing Admixture (Super Plasticizer): ASTM C 494, Type F.

2.6 FIBER REINFORCEMENT

A. Carbon-Steel Fiber: ASTM A 820, deformed, minimum 1.5 inches (60 mm) long, and of diameter or effective diameter indicated.

1. Fiber: Type 1, cold-drawn wire.

B. Products: Subject to compliance with requirements, provide one of the following:

1. Carbon-Steel Fibers:

a. Dramix; Bekaert Corporation.
b. Fibercon; Fibercon International.
c. Zorex; Novocon International Inc.

2. Provide admixtures as recommended by steel fiber manufacturer without increasing specified water-cementitious material ratio.

2.7 WATERSTOPS

A. Self-Expanding Strip Waterstops: Manufactured rectangular or trapezoidal strip, sodium bentonite or other hydrophylic material for adhesive bonding to concrete.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Volclay Waterstop-RX; Colloid Environmental Technologies Co.
b. Conseal CS-231; Concrete Sealants Inc.
c. Swellseal Joint; De Neef Construction Chemicals (U.S.) Inc.
d. Hydrotite; Greenstreak.
e. Mirastop; Mirafi Moisture Protection, Div. of Royal Ten Cate (USA), Inc.
f. Adeka Ultra Seal; Mitsubishi International Corporation.
g. Superstop; Progress Unlimited Inc.

2.8 VAPOR RETARDERS

A. Vapor Retarder: ASTM E 1745, Class C, of one of the following materials; or polyethylene sheet, ASTM D 4397, not less than 10 mils (0.25 mm) thick. Use only materials which are resistant to decay when tested in accordance with ASTM E 154:

1. Nonwoven, polyester-reinforced, polyethylene coatd sheet; 10 mils (0.25 mm) thick.
2. Three-ply, nylon- or polyester-cord-reinforced, laminated, high-density polyethylene sheet; 7.8 mils (0.18 mm) thick.

2.9 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) dry.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Drinkable.

D. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B.

2.10 RELATED MATERIALS

A. Joint-Filler Strips: ASTM D 1752, cork or self-expanding cork.

B. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

C. Reglets: Fabricate reglets of not less than 26 gage (0.0217-inch) (0.55-mm) thick galvanized steel sheet with 45 degree slot minimum 1" deep and ¼" wide and formed with upper lip bent back to engage concrete. Temporarily fill or cover face opening of reglet to prevent intrusion of concrete or debris.

D. Dovetail Anchor Slots: Hot-dipped galvanized steel sheet not less than 0.0217 inch (0.55-mm) thick, with bent tab anchors. Temporarily fill or cover face opening of slots to prevent intrusion of concrete or debris.

2.11 REPAIR MATERIALS

A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch (3.2 mm) and that can be feathered at edges to match adjacent floor elevations.

1. Cement Binder: ASTM C 150, Portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch (3 to 6 mm) or coarse sand as recommended by underlayment manufacturer.
4. Compressive Strength: Not less than 4100 psi (29 MPa) at 28 days when tested according to ASTM C 109/C 109M.

B. Repair Topping: Traffic-bearing, cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch (6 mm).

1. Cement Binder: ASTM C 150, Portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.

3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch (3 to 6 mm) or coarse sand as recommended by topping manufacturer.
4. Compressive Strength: Not less than 5700 psi (39 MPa) at 28 days when tested according to ASTM C 109/C 109M.

2.12 CONCRETE MIXES

A. Prepare design mixes for each type and strength of concrete determined by either laboratory trial mix or field test data bases, as follows:

1. Proportion normal-weight concrete according to ACI 211.1 and ACI 301.

B. Use a qualified independent testing agency for preparing and reporting proposed mix designs for the laboratory trial mix basis.

C. Provide a minimum 28 day compressive strength of 4000 psi (27.7 MPa) and a maximum water-cementitious material ratio of 0.44, unless otherwise indicated.

D. Footings and Foundation Walls: Proportion normal-weight concrete mix as follows unless otherwise indicated:

1. Compressive Strength (28 Days): 4000 psi (27.6 MPa) with a maximum water cementitious material ratio of 0.44 (non air-entrained).
2. Maximum Slump at point of placement: 4 inches (100 mm).
3. Maximum Slump for Concrete Containing High-Range Water-Reducing Admixture: 8 inches (200 mm) after admixture is added to concrete with 2- to 4-inch (50- to 100-mm) slump.

E. Slab-on-Grade: Proportion normal-weight concrete mix as follows unless otherwise indicated:

1. Exterior Exposed Concrete - Compressive Strength (28 Days): 5000 psi (34.5 MPa) with a maximum water-cementitious material ratio of 0.4 (air-entrained).
2. Interior Concrete - Compressive Strength (28 Days): 4000 psi (27.6 MPa) with a maximum water-cementitious material ratio of 0.44.

F. Suspended Slabs on Metal Deck: Proportion lightweight structural concrete mix as follows:

1. Concrete - Compressive Strength (28 Days): 3,500 psi (24.1 MPa) with a maximum water-cementitious material ratio of 0.50.
2. Calculated Equilibrium Unit Weight: 110 lb/cu. ft. (1762 kg/cu. m) plus or minus 3 lb/cu. ft. (48.1 kg/cu. m) as determined by ASTM C 567.

G. Cementitious Materials:

1. For concrete exposed to deicers, limit percentage, by weight, of cementitious materials other than Portland cement according to ACI 301 requirements.
2. For all other concrete, limit percentage, by weight, of cementitious materials other than Portland cement in concrete as follows:

a. Fly Ash: 25 percent by weight.

H. Air Content: Use air-entraining admixture in exterior exposed concrete. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content as follows within a tolerance of plus 1 or minus 1.5 percent, unless otherwise indicated:

1. Air Content: 6 percent for 3/4-inch (19-mm) nominal maximum aggregate size.

I. Do not air entrain concrete to trowel-finished interior floors and suspended slabs. Do not allow entrapped air content to exceed 3 percent.

J. Steel-Fiber Reinforcement: Add to concrete mix, according to manufacturer's written instructions at a rate indicated on the drawings but not less than 25 lb/cu. yd.

K. Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use water-reducing admixture or high-range water-reducing admixture (superplasticizer) in concrete, as required, for placement and workability.
2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.
4. Use corrosion-inhibiting admixture in concrete mixes where indicated.

L. Prepare design mixes for each type and strength of concrete by either laboratory trial batch of field experience methods as specified in ACI 301. If trial batch method is used, use an independent testing facility acceptable to the Architect for preparing and reporting proposed mix designs.

2.13 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice." In the case of fabrication errors, do not rebend or straighten reinforcement.

B. Unacceptable Materials: Reinforcement with any of the following defects will not be permitted in the Work:

1. Bar lengths, depths or bends exceeding specified fabrication tolerances.
2. Bends or kinks not indicated on the Drawings or final Shop Drawings
3. Bars with reduced cross section due to excessive corrosion or other cause.
4. Bars with damaged corrosion resistive coating (if specified).

2.14 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94 and ASTM C 1116, and furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 FORMWORK

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until concrete structure can support such loads within acceptable deflection limits.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages, ind inserts, and other features required.

C. Limit concrete surface irregularities, designated by ACI 347R as abrupt or gradual, as follows:

1. Class A, 1/8 inch (3 mm), for surfaces predominantly exposed to public view.
2. Class B, 1/4 inch (6 mm), for course-textured concrete formed surfaces intended to receive plaster, stucco, or wainscoting.
3. Class C, 1/2 inch (13 mm). for all other surfaces.

D. Construct forms tight enough to prevent loss of concrete mortar.

E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical. Kerf wood inserts for forming keyways, reglets, recesses, and the like, for easy removal.

1. Do not use rust-stained steel form-facing material.

F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.

H. Chamfer exterior corners and edges of permanently exposed concrete with ¾” x3/4” strips (unless otherwise indicated) accurately formed and surfaced to produce uniform straight lines and tight edges. Unexposed corners may be formed square or chamfered.

I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items, including those under separate prime contracts (if any).

J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

L. Coat contact surfaces of forms with non-staining, rust preventative form-release agent, according to manufacturer's written instructions, before placing reinforcement. Rust stained steel formwork is not acceptable.

M. Support form facing materials by structural members spaced sufficiently close to prevent deflection. Fit forms placed in successive units for continuous surfaces of accurate alignment, from irregularities and within allowable tolerances

N. Elevate formwork as required for anticipated deflections due to weight and pressures of fresh concrete, shortening of formwork system, and construction loads.

O. Carefully inspect falsework and formwork during and after concrete placement to determine abnormal deflection or signs of failure; make necessary adjustments to produce work of required dimensions.

P. Form intersecting planes to provide true, clean-cut corners, with edge grain of plywood not exposed as form for concrete.

Q. Forms for exposed Concrete:

1. Drill forms to suit ties used and to prevent leakage of concrete mortar around tie holes.
2. Do not use metal cover plates for patching holes or defects in forms.
3. Provide sharp, clean corners at intersecting planes, without visible edges or offsets. Back joints with extra studs or girts to maintain true, square intersection.
4. Use extra studs, walers and bracing to prevent bowing of forms between studs and to avoid bowed appearance of concrete. Do not use narrow strips of form material that will produce bow.
5. Assemble forms so they may be readily removed without damage to exposed concrete surfaces.

3.2 EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use Setting Drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

1. Install anchor rods, accurately located, to elevations required.
2. Install reglets to receive top edge of foundation sheet waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
3. Install dovetail anchor slots in concrete structures as indicated.

3.3 REMOVING AND REUSING FORMS

A. General: Formwork, for sides of beams, walls, columns, and similar parts of the Work, that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for 24 hours after placing concrete provided concrete is hard enough to not be damaged by form-removal operations and provided curing and protection operations are maintained.

B. Leave formwork, for beam soffits, joists, slabs, and other structural elements, that supports weight of concrete in place until concrete has achieved 28-day design compressive strength.

C. Determine compressive strength of in-place concrete by testing representative field- or laboratory-cured test specimens according to ACI 301.

1. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.

D. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.

E. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.4 VAPOR RETARDERS

A. Vapor Retarder: Place, protect, and repair vapor-retarder sheets according to ASTM E 1643 and manufacturer's written instructions and as follows:

1. Use sheets as large as practical. Overlap minimum 6” and tape. Tape to perimeter and to projections.

3.5 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials.

C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

1. At a spacing not to exceed 4’-0” on center in either direction. For slabs on grade, use supports not to exceed 4’-0” o.c. with sand plates or horizontal runners where base material will not support chair legs.
2. Shop- or field-weld reinforcement according to AWS D1.4, where indicated.

D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

E. Install welded wire fabric in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least two mesh spacings. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

F. Epoxy-Coated Reinforcement: Use epoxy-coated steel wire ties to fasten epoxy-coated reinforcement. Repair cut and damaged epoxy coatings with epoxy repair coating according to ASTM D 3963/D 3963M.

3.6 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
2. Form from preformed galvanized steel, plastic keyway-section forms, or bulkhead forms with keys, unless otherwise indicated. Embed keys at least 1-1/2 inches (38 mm) into concrete.
3. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
4. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
5. Space vertical joints in walls at not more than 60 feet in any horizontal direction. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
6. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into 15-foot maximum perpendicular strips, and areas not exceeding 225 square feet. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness, as follows:

1. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- (3-mm-) wide joints into concrete within 24-hours after initial floating, when cutting action will not tear, abrade, or otherwise damage surface, and before concrete develops random contraction cracks.

D. Isolation Joints in Slabs-on-Grade: Install joint-filler strips at all slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated.
2. Terminate full-width joint-filler strips not less than 1/2 inch (12 mm) or more than 1 inch (25 mm) below finished concrete surface where joint sealants are indicated.
3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.

E. Dowel Joints: Install dowel sleeves and dowels or dowel bar and support assemblies at joints where indicated.

1. Use dowel sleeves or lubricate or asphalt-coat one-half of dowel length to prevent concrete bonding to one side of joint.

3.7 WATERSTOPS

A. Flexible Waterstops: Install in construction joints as indicated to form a continuous diaphragm. Install in longest lengths practicable. Support and protect exposed waterstops during progress of Work. Field-fabricate joints in waterstops according to manufacturer's written instructions.

B. Self-Expanding Strip Waterstops: Install in construction joints and at other locations indicated, according to manufacturer's written instructions, bonding or mechanically fastening and firmly pressing into place. Install in longest lengths practicable.

3.8 CONCRETE PLACEMENT

A. Pre-Placement Inspection:

1. Before concrete placement, check the lines and levels of erected formwork. Make corrections and adjustments to ensure proper size and location of concrete members and stability of forming systems. During concrete placement, check formwork and related supports to ensure that forms are not displaced and that completed Work will be within specified tolerances.
2. Before placing concrete, inspect and complete the formwork installation, reinforcing steel, and items to be embedded or cast-in. Notify other crafts involved in ample time to permit the installation of their Work; cooperate with other trades in setting such Work, as required.
3. Thoroughly wet wood forms immediately before placing concrete, as required where form coatings are not used.
4. Soil at bottom of foundation systems are subject to testing for soil bearing value by the testing laboratory, as directed by the Architect. Place concrete immediately after approval of foundation excavations.
5. Coordinate the installation of joint materials and moisture barriers with placement of forms and reinforcing steel.
6. Remove soil, debris, standing water, ice, snow, loose mill scale or coating and other foreign matter from formwork and metal deck.

B. Do not add water to concrete during delivery, at Project site, or during placement, unless indicated on trip ticket.

C. Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation.

D. Deposit concrete in forms in horizontal layers no deeper than 24 inches (600 mm) and in a manner to avoid inclined construction joints. Place each layer while preceding layer is still plastic, to avoid cold joints.

1. Consolidate placed concrete with mechanical vibrating equipment. Use equipment and procedures for consolidating concrete recommended by ACI 309R.

2. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations no farther than the visible effectiveness of the vibrator. Place vibrators to rapidly penetrate placed layer and at least 6 inches (150 mm) into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mix constituents to segregate.

E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete. Place concrete in accordance with the practices and recommendations of ACI 304, and as herein specified.

1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
2. Maintain reinforcement in position on chairs during concrete placement.
3. Screed slab surfaces with a straightedge and strike off to correct elevations.
4. Slope surfaces uniformly to drains where required.
5. Begin initial floating using bull floats or derbies to form a uniform and open-textured surface plane, free of humps or hollows, before excess moisture or bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

F. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

1. When air temperature has fallen to or is expected to fall below 40 deg F (4.4 deg C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F (10 deg C) and not more than 80 deg F (27 deg C) at point of placement.
2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators, unless otherwise specified and approved in mix designs.

G. Hot-Weather Placement: Place concrete according to recommendations in ACI 305R and as follows, when hot-weather conditions exist:

1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F (32 deg C) at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

3.9 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defective areas repaired and patched. Remove fins and other projections exceeding ACI 347R limits for class of surface specified.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defective areas. Remove fins and other projections.

1. Apply to concrete surfaces exposed to public view or to be covered with a coating or covering material applied directly to concrete, such as waterproofing, dampproofing, veneer plaster, or painting.
2. Do not apply rubbed finish to smooth-formed finish.

C. Rubbed Finish: Apply one of the following to finished concrete exposed to view:

1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
2. Grout-Cleaned Finish: Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes. Mix one part Portland cement to one and one-half parts fine sand with a 1:1 mixture of bonding admixture and water. Add white Portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.
3. Cork-Floated Finish: Wet concrete surfaces and apply a stiff grout. Mix one part Portland cement and one part fine sand with a 1:1 mixture of bonding agent and water. Add white Portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Compress grout into voids by grinding surface. In a swirling motion, finish surface with a cork float.

D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.10 FINISHING FLOORS AND SLABS

A. General: Comply with recommendations in ACI 302.1R for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

1. F(F) defines the maximum floor curvature allowed over 24 in. Computed on the basis of successive 12 in. elevation differentials, F(F) is commonly referred to as the “Flatness F-Number”.
2. F(L) defines the relative conformity of the floor surface to a horizontal plane as measured over a 10 ft. distance, commonly referred to as the “Levelness F-Number”.
3. All floors shall be measured in accordance with ASTM E-1155 “Standard Test Method for Determining Floor Flatness and Levelness Using the “F Number” System.
4. All slabs shall achieve the specified overall tolerance. The minimum local tolerance (1/2 bay) shall be 2/3 of the specified tolerances.

B. Trowel Finish: Apply first trowel finish and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings. Finish surfaces to the following tolerances,

measured within 24 hours according to ASTM E 1155/E 1155M for a randomly trafficked floor surface:

1. Elevated slabs overall values of flatness, F(F) 25; with minimum local values of flatness, F(F) 17.
2. All other slab on grade overall values of flatness, F(F) 25; and levelness, F(L) 20; with minimum local values of flatness, F(F) 17; and levelness, F(L) 15 other.

3.11 MISCELLANEOUS CONCRETE ITEMS

A. Filling In: Fill in holes and openings left in concrete structures, unless otherwise indicated, after work of other trades is in place. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete Work.

B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates of manufacturer furnishing machines and equipment.

D. Steel Pan Stairs: Provide concrete fill for steel pan stair treads, landings, and associated items. Provide wire reinforcement. Cast-in inserts and accessories as shown on Drawings or required by manufacturer. Screed, tamp, and trowel-finish concrete surfaces.

3.12 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 301, ACI 306.1 for cold-weather protection, and with recommendations in ACI 305R for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing by one or a combination of the following methods:

D. Unformed Surfaces: Begin curing immediately after finishing concrete. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive resilient sheet floor coverings. Cure concrete surfaces to receive other floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer recommends for use with floor coverings.

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:

a. Water.
b. Continuous water-fog spray.
c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch (300-mm) lap over adjacent absorptive covers.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

3.13 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval. Comply with ACI 301.

B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part Portland cement to two and one-half parts fine aggregate passing a No. 16 (1.2-mm) sieve, using only enough water for handling and placing.

C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.

1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch (13 mm) in any dimension in solid concrete but not less than 1 inch (25 mm) in depth. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
2. Repair defects on surfaces exposed to view by blending white Portland cement and standard Portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.

D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.

1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch (0.25 mm) wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.

2. After concrete has cured at least 14 days, correct high areas by grinding.
3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch (6 mm) to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
6. Repair defective areas, except random cracks and single holes 1 inch (25 mm) or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least 3/4 inch (19 mm) clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mix as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
7. Repair random cracks and single holes 1 inch (25 mm) or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.

F. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.14 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to sample materials, perform tests, and submit test reports during concrete placement. Sampling and testing for quality control may include those specified in this Article.

B. Testing Services: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:

1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mix exceeding 5 cu. yd. (4 cu. m), but less than 25 cu. yd. (19 cu. m), plus one set for each additional 50 cu. yd. (38 cu. m) or fraction thereof.

    a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mix, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.

2. Slump: ASTM C 143; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mix. Perform additional tests when concrete consistency appears to change.
3. Air Content: ASTM C 231, pressure method, for normal-weight concrete; ASTM C 173, volumetric method, for structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mix.
4. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F (4.4 deg C) and below and when 80 deg F (27 deg C) and above, and one test for each composite sample.
5. Unit Weight: ASTM C 567, fresh unit weight of structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mix.
6. Compression Test Specimens: ASTM C 31/C 31M; cast and laboratory cure one set of five standard cylinder specimens for each composite sample.
7. Compressive-Strength Tests: ASTM C 39

    a. Test two specimens at 7 days, two at 28 days and one at 56 days if 28-day compressive strength has not yet been obtained.
    b. A compressive-strength test shall be the average compressive strength from two specimens obtained from same composite sample and tested at age indicated.
    c. Test one sample area for each slab area required to have a floor flatness, F(F) or floor levelness F(L) greater than 25.
    d. Perform tests elevated slabs within 72 hours of concrete placement.

C. Strength of each concrete mix will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi (3.4 MPa).

D. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-and 28-day tests.

E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.

F. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42 or by other methods as directed by Architect.

G. Defective Work: Concrete work which does not conform to the specified requirements, including strength , tolerances, and finishes, shall be corrected at the Contractor’s expense without extension of time . The contractor shall also be responsible for the cost of corrections to any other work affected by or resulting from corrections to the concrete work.

END OF SECTION

SECTION 08 11 13

HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes steel doors and frames (hollow metal) indicated and as specified.

1.2 SUBMITTALS

A. Product Data: Submit complete printed data for each type of door and frame indicated, include door designation, type, level and model, material description, core description, construction details, label compliance, sound and fire-resistance ratings, and finishes.

B. Shop Drawings: Submit complete shop drawings; show the following:

1. Elevations of each door design.
2. Details of doors including vertical and horizontal edge details.
3. Frame details for each frame type including dimensioned profiles.
4. Details and locations of reinforcement and preparations for hardware.
5. Details of each different wall opening condition.
6. Details of anchorages, accessories, joints, and connections.
7. Coordination of glazing frames and stops with glass and glazing requirements.

C. Door Schedule: Use same reference designations indicated on Drawings in preparing schedule for doors and frames.

D. Oversize Construction Certificates: Submit certification for door assemblies required to be fire-protection rated and exceeding size limitations of labeled assemblies.

E. Thermal Performance Certification: For exterior door assemblies, submit certification required under “Quality Assurance” of this specification.

F. LEED Submittals:

1. Credit Environmental Product Declarations: Provide Environmental Product Declarations and Multi-Attribute Optimization based on LEED determined criteria. Extra credit for products sourced from within 100 miles.
2. Credit Sourcing of Raw Materials.: Provide Raw Material Source and Extraction Reports and use products that demonstrate Leadership Extraction Practices. Extra credit for products sourced from within 100 miles. Submit plan within thirty days of NTP.
3. Credit Material Ingredients: Provide Material Ingredient Reports and documentation of Material Ingredient Optimization and/or Product Manufacturer Supply Chain Optimization. Extra credit for products sourced from within 100 miles. Submit plan within thirty days of NTP.

1.3 QUALITY ASSURANCE

A. Steel Door and Frame Standard: Comply with ANSI A 250.8, unless more stringent requirements are indicated.

B. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 252.

1. Test Pressure: Test at atmospheric pressure.
2. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a testing agency acceptable to authorities having jurisdiction that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.
3. Temperature-Rise Rating: Where indicated in exit enclosures, provide doors that have a temperature-rise rating of 450 deg F (250 deg C) maximum in 30 minutes of fire exposure.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver doors and frames cardboard-wrapped or crated to provide protection during transit and job storage. Provide additional protection to prevent damage to finish of factory-finished doors and frames.

B. Inspect doors and frames on delivery for damage, and notify shipper and supplier if damage is found. Minor damages may be repaired provided refinished items match new work and are acceptable to Architect. Remove and replace damaged items that cannot be repaired as directed.

C. Store doors and frames at building site under cover. Place units on minimum 4 inch (100 mm) high wood blocking. Avoid using non-vented plastic or canvas shelters that could create a humidity chamber. If door packaging becomes wet, remove cartons immediately. Provide minimum 1/4 inch (6 mm) spaces between stacked doors to permit air circulation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Amweld Building Products, Inc.
2. Benchmark Commercial Doors; a division of General Products Co., Inc.
3. Ceco Door Products; a United Dominion Company.
4. Copco Door Co.
5. Curries Company.
6. Deansteel Manufacturing, Inc.
7. Kewanee Corporation (The).
8. Mesker Door, Inc.
9. Pioneer Industries Inc.
10. Republic Builders Products.

11. Steelcraft; a division of Ingersoll-Rand.

2.2 MATERIALS

A. LEED Requirements:
1. Maximize the percentage of recycled metal in the sheet metal, but not less than 50%.

B. Hot-Rolled Steel Sheets: ASTM A 569/A 569M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.

C. Cold-Rolled Steel Sheets: ASTM A 366/A 366M, Commercial Steel (CS), or ASTM A 620/A 620M, Drawing Steel (DS), Type B; stretcher-leveled standard of flatness.

D. Metallic-Coated Steel Sheets: ASTM A 653/A 653M, Commercial Steel (CS), Type B, with an A40 (ZF120) zinc-iron-alloy (galvannealed) coating; stretcher-leveled standard of flatness.

2.3 DOORS

A. General: Provide doors of sizes, thicknesses, and designs indicated.

B. Interior Doors: Provide doors complying with requirements indicated below by referencing ANSI 250.8 for level and model and ANSI A250.4 for physical-endurance level:

1. Level 2 and Physical Performance Level B (Heavy Duty), Model 1 Full Flush except

2.4 FRAMES

A. General: Provide steel frames for doors, transoms, sidelights, borrowed lights, and other openings that comply with ANSI A250.8 and with details indicated for type and profile. Conceal fastenings, unless otherwise indicated.

B. Interior Frames: Fabricate frames of 0.053 inch (1.3 mm) thick steel sheet.

1. Where indicated, fabricate of stainless steel.

C. Door Silencers: Except on weather-stripped frames, fabricate stops to receive three silencers on strike jambs of single-door frames and two silencers on heads of double-door frames.

D. Plaster Guards: Provide 0.016 inch (0.4 mm) thick, steel sheet plaster guards or mortar boxes to close off interior of openings; place at back of hardware cutouts where mortar or other materials might obstruct hardware operation.

E. Supports and Anchors: Fabricated from not less than 0.042 inch (1.0 mm) thick, electrolytic zinc-coated or metallic-coated steel sheet.

1. Wall Anchors in Masonry Construction: 0.177 inch (4.5 mm) diameter, steel wire complying with ASTM A 510 (ASTM A 510M) may be used in place of steel sheet.

F. Inserts, Bolts, and Fasteners: Manufacturer's standard units. Where zinc-coated items are to be built into exterior walls, comply with ASTM A 153/A 153M, Class C or D as applicable.

2.5 FABRICATION

A. General: Fabricate steel door and frame units to comply with ANSI A250.8 and to be rigid, neat in appearance, and free from defects including warp and buckle. Where practical, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory assembled before shipment, to assure proper assembly at Project site.

B. Exterior Door Construction: For exterior locations and elsewhere as indicated, fabricate doors, panels, and frames from metallic-coated steel sheet. Close top and bottom edges of doors flush as an integral part of door construction or by addition of 0.053 inch (1.3 mm) thick, metallic-coated steel channels with channel webs placed even with top and bottom edges.

C. Interior Door Faces: Fabricate exposed faces of door from cold-rolled steel sheet.

D. Core Construction: Manufacturer's standard core construction that produces a door complying with SDI standards.

E. Core Construction: One of the following manufacturer's standard core materials that produce a door complying with SDI standards:

1. Resin-impregnated kraft/paper honeycomb.
2. Polyurethane where code compliant.
3. Polystyrene where code compliant
4. Vertical steel stiffeners.
5. Rigid mineral-fiber board.

F. Clearances for Non-Fire-Rated Doors: Not more than 1/8 inch (3.2 mm) at jambs and heads, except not more than 1/4 inch (6.4 mm) between pairs of doors. Not more than 3/4 inch (19 mm) at bottom.

G. Clearances for Fire-Rated Doors: As required by NFPA 80.

H. Single-Acting, Door-Edge Profile (strike jamb).

I. Double-Acting, Door-Edge Profile: Round vertical edges with 2-1/8 inch (54 mm) radius.

J. Tolerances: Comply with SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."

K. Fabricate concealed stiffeners, reinforcement, edge channels, louvers, and moldings from either cold- or hot-rolled steel sheet.

L. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat or oval heads for exposed screws and bolts.

M. Sound-Rated (Acoustical) Assemblies: Where shown or scheduled, provide door and frame assemblies fabricated as sound-reducing type, tested according to ASTM E 1408, and classified according to ASTM E 413.

1. Unless otherwise indicated, provide acoustical assemblies with STC sound ratings of 33 or better.

N. Hardware Preparation: Prepare doors and frames to receive mortised and concealed hardware according to final door hardware schedule and templates provided by hardware supplier. Comply with applicable requirements in ANSI A250.6 and ANSI A115 Series specifications for door and frame preparation for hardware.

O. Frame Construction: Fabricate frames to shape shown.

1. Fabricate frames with mitered or coped and continuously welded corners and seamless face joints.
2. For exterior applications, fabricate frames with mitered or coped and continuously welded corners and seamless face joints.
3. Provide welded frames with temporary spreader bars.

P. Reinforce doors and frames to receive surface-applied hardware. Drilling and tapping for surface-applied hardware may be done at Project site.

Q. Locate hardware as indicated on Shop Drawings or, if not indicated, according to ANSI A250.8.

R. Glazing Stops: Manufacturer's standard, formed from 0.032 inch (0.8 mm) thick steel sheet.

1. Provide nonremovable stops on outside of exterior doors and on secure side of interior doors for glass, louvers, and other panels in doors.
2. Provide screw-applied, removable, glazing stops on inside of glass, louvers, and other panels in doors.
3. Coordinate stop location for the type and thickness of glazing required.

S. Astragals: As required by NFPA 80 to provide fire ratings indicated.

2.6 FINISHES

A. Prime Finish: Manufacturer's standard, factory-applied coat of rust-inhibiting primer complying with ANSI A250.10 for acceptance criteria.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Install steel doors, frames, and accessories according to Shop Drawings, manufacturer's data, and as specified.

B. Placing Frames: Comply with provisions in SDI 105, unless otherwise indicated. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders, leaving surfaces smooth and undamaged.

1. Except for frames located in existing walls or partitions, place frames before construction of enclosing walls and ceilings.
2. In masonry construction, provide at least three wall anchors per jamb; install adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Acceptable anchors include masonry wire anchors and masonry T-shaped anchors.

3. In existing concrete or masonry construction, provide at least three completed opening anchors per jamb; install adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Set frames and secure to adjacent construction with bolts and masonry anchorage devices.
4. In metal-stud partitions, provide at least three wall anchors per jamb; install adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Attach wall anchors to studs with screws.
5. For in-place gypsum board partitions, install knock-down, drywall slip-on frames.
6. Install fire-rated frames according to NFPA 80.
7. For openings 90 inches (2286 mm) or more in height, install an additional anchor at hinge and strike jambs.

C. Door Installation: Comply with ANSI A250.8. Fit hollow-metal doors accurately in frames, within clearances specified in ANSI A250.8. Shim as necessary to comply with SDI 122 and ANSI/DHI A115.1G.

1. Fire-Rated Doors: Install within clearances specified in NFPA 80.
2. Smoke-Control Doors: Install to comply with NFPA 105.

3.2 ADJUSTING AND CLEANING

A. Prime-Coat Touchup: Immediately after installation, sand smooth any rusted or damaged areas of prime coat and apply touch up of compatible air-drying primer.

B. Protection Removal: Immediately before final inspection, remove protective wrappings from doors and frames.

END OF SECTION

SECTION 08 71 00

DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes finish hardware as required and as specified.

1.2 SUBMITTALS

A. Product Data: Submit manufacturers technical product data for each item of hardware. Include whatever information may be necessary to show compliance with requirements, and include instructions for installation and for maintenance of operating parts and finish.

B. Hardware Schedule: Submit finish hardware schedule in a vertical format separate from door and frame schedule, conforming to "Sequence and Format for the Hardware Schedule" published by the Door and Hardware Institute (DHI). Horizontal and coded schedules are not acceptable.

1. Finish Hardware Schedule Content: Based on finish hardware indicated, organize hardware schedule into "hardware sets" indicating complete designations of every item required for each door or opening. Schedules not having the following information will be rejected:

   a. Type, style, function, size and finish of each hardware item.
   b. Name and manufacturer of each item.
   c. Fastenings and other pertinent information.
   d. Location of hardware set cross-referenced to indications on Drawings both on floor plans and in door and frame schedule.
   e. Explanation of all abbreviations, symbols, codes, etc. contained in schedule.
   f. Mounting locations for hardware.
   g. Door and frame sizes and materials.

2. All hardware for Aluminum doors shall be grouped and segregated from other hardware in the schedule, and may be processed separately. Only the portion of hardware schedule pertaining to Aluminum doors and frames should be forwarded to the aluminum door contractor.
3. Submit schedule at earliest possible date, particularly where acceptance of hardware schedule must precede fabrication of other work (e.g., hollow metal frames) that is critical in the project construction schedule. Include with schedule the product data, samples, shop drawings of other work affected by finish hardware, and other information essential to the coordinated review of hardware schedule. Review and acceptance by the Owner or Architect does not relieve Contractor of responsibility to fulfill requirements of Contract Documents.

C. Samples: Prior to submittal of the final hardware schedule and prior to final ordering of finish hardware, submit one sample of each type of exposed hardware unit, finished as required, and tagged with full description for coordination with schedule.

1. Samples may be retrieved by the supplier. Units that are acceptable and remain undamaged through submittal, review and field comparison procedures may, after final check of operation, be used in the work, within limitations of keying coordination requirements.

D. Templates: Furnish hardware templates to each fabricator of doors, frames and other work to be factory-prepared for the installation of hardware. Upon request, check shop drawings of such other work, to confirm that adequate provisions are made for proper location and installation of hardware.

E. Keying Schedule: Submit keying schedule after meeting with Owner's agent for keying instructions.

F. Electrified Hardware Coordination: Where electric strikes, magnetic locks, low energy door operators are listed, provide power supplies by the device manufacturer and wiring diagrams for all items, whether listed in the sets or not. Provide elevations of each system showing locations for each item and description of system operation. Coordinate with electric contractor.

1.3 QUALITY ASSURANCE

A. Manufacturer: Obtain each type of hardware (latch and lock sets, hinges, closers, etc.) from only one manufacturer, although several may be indicated as offering products complying with requirements.

B. Supplier: A recognized architectural finish hardware supplier, with warehousing facilities, who has been furnishing hardware in the project's vicinity for a period of not less than 2 years, and who is, or employs an experienced architectural hardware consultant who is available, at reasonable times during the course of the work, for consultation about project's hardware requirements, to Owner, Architect and Contractor.

C. Fire-Rated Openings: Provide hardware for fire-rated openings in compliance with NFPA Standard No. 80 and local building code requirements. Provide only hardware that has been tested and listed by UL or FM or WHI for types and sizes of doors required and complies with requirements of door and door frame labels.

1. Exit Devices: Where required on fire-rated doors (with supplementary marking on doors' UL, FM, or WHI labels indicating "Fire Door to be Equipped with Fire Exit Hardware") provide UL, FM, or WHI label on exit devices indicating "Fire Exit Hardware".
2. Fire exit devices and door closers shall be certified to be in compliance with UBC7.2 and UL 10C.

1.4 PREINSTALLATION CONFERENCE:

A. Conduct preconstruction conference at the project site in compliance with requirements of Division 01 Section "Project Management and Coordination.

B. Contractor shall notify hardware supplier two weeks prior to beginning of hardware installation to set up pre-installation meeting with installation carpenters. Hardware supplier shall provide a qualified Architectural Hardware Consultant to personally meet with, and instruct installers on job site in proper techniques for installation and adjustment of locks, closers and exit devices, and advise on required wire types and gauges for access control/electrical locking hardware.

1. Lock, Door Closer and Exit Device Manufacturer's representative shall be available for a post installation walk and punch list assistance on behalf of the General Contractor, Architect and Owner.
2. Review electrical roughing-in and preparatory work.
3. Review construction keying and final keying.

1.5 DELIVERY, STORAGE AND HANDLING

A. Tag each item or package separately, with identification related to final hardware schedule, and include basic installation instructions with each item or package.

B. Inventory hardware jointly with representatives of the hardware supplier and the hardware installer until each is satisfied that the count is correct.

C. Deliver individually packaged hardware items at the proper times to the proper locations (shop or project site) for installation.

D. Provide secure lock-up for hardware delivered to the project, but not yet installed. Control handling and installation of hardware items that are not immediately replaceable, so that completion of the work will not be delayed by hardware losses, both before and after installation.

PART 2 - PRODUCTS

2.1 SCHEDULED HARDWARE

A. Requirements for design, grade, function, finish, size and other distinctive qualities of each type of door hardware item is indicated in the Schedule of Hardware sets.

B. Manufacturer's Product Designations: A manufacturer's symbol in the hardware sets indicates whose product designation is used in the Schedule of Hardware Sets for purposes of establishing minimum requirements. Provide either the product designated, or, where more than one manufacturer is listed, the comparable product of one of the other manufacturers that comply with requirements including those specified elsewhere in this section.

C. ANSI/BHMA designations used elsewhere in this section or in schedules to describe hardware items or to define quality or function are derived from the following standards. Provide products complying with these standards and requirements specified elsewhere in this section.

1. Butts and Hinges: ANSI/BHMA A156.1.
2. Locks & Lock Trim: ANSI/BHMA A156.13.
3. Exit Devices: ANSI/BHMA A156.3.
4. Door Controls - Closers: ANSI/BHMA A156.4.
5. Auxiliary Locks: ANSI/BHMA A 156.5.

6. Architectural Door Trim: ANSI/BHMA A156.6.
7. Template Hinge Dimensions: ANSI//BHMA A156.7.
8. Door Controls - Overhead Holders: ANSI/BHMA A156.8.
9. Closer Holder Release Devices: ANSI/BHMA A156.15.
10. Auxiliary Hardware: ANSI//BHMA A156.16.
11. Materials & Finishes: ANSI/BHMA A156.18.
12. Power Assist and Low Energy Operated Door: ANSI/BHMA 156.19.
13. Thresholds: ANSI/BHMA A156.21.
14. Door Gasketing Systems: ANSI/BHMA A156.22.
15. Continuous Hinges: ANS/BHMA 156.26.

2.2 MATERIALS AND FABRICATION, GENERAL

A. Hand of door: Drawings show direction of slide, swing or hand of each door leaf. Furnish each item of hardware for proper installation and operation of door movement shown.

B. Manufacturer's Name Plate: Do not use manufacturer's products that have manufacturer's name or trade name displayed in a visible location (omit removable nameplates), except in conjunction with required UL labels and as otherwise acceptable to Architect.

C. Manufacturer's identification will be permitted on rim of lock cylinders, and armor front.

D. Base Metals: Produce hardware units of basic metal and forming method indicated, using manufacturer's standard metal alloy, composition, temper and hardness, but in no case of lesser quality than specified for the applicable hardware units by applicable ANSI A156 series standard for each type hardware and with ANSI A156.18 for finish designations indicated. Do not furnish "optional" materials or forming methods for those indicated, except as otherwise specified.

E. Fasteners: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation. Do not provide hardware that has been prepared for self-tapping sheet metal screws, except as specifically indicated.

F. Furnish screws for installation, with each hardware item. Provide Phillips flat-head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match hardware finish or, if exposed in surfaces of other work, to match finish of such other work as closely as possible, including "prepared for paint" in surfaces to receive painted finish.

G. Provide concealed fasteners for hardware units that are exposed when door is closed, except to extent no standard units of the type specified are available with concealed fasteners. Do not use thru-bolts for installation where bolt head or nut on the opposite face is exposed in other work, except where it is not feasible to adequately reinforce the work. In such cases, provide sleeves for each thru-bolt or use sex screw fasteners.

2.3 HARDWARE FINISHES

A. Provide matching finishes for hardware units at each door or opening, to the greatest extent possible, and except as otherwise indicated. Reduce differences in color and textures as much as commercially possible where the base metal or metal forming process is different for individual units of hardware exposed at the same door or opening. In general, match items to the

manufacturer's standard finish for the latch and lock set (or push-pull units if no latch- lock sets) for color and texture.

B. Provide finishes that match those established by BHMA as indicated in the hardware schedule or, if none indicated, match the finish to which the item is applied.

C. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness and other qualities complying with manufacturer's standards, but in no case less than specified for the applicable units of hardware by referenced standards.

D. Finish Designations: Scheduled designations refer to ANSI A156.18 "Materials & Finishes Standard", including coordination with the traditional U.S. finishes shown by certain manufacturers for their products.

2.4 HINGES, BUTTS

A. Templates: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template- produced units.

B. Screws: Furnish Phillips flat-head or machine screws for installation of units, except furnish Phillips flat-head or wood screws for installation of units into wood. Finish screw heads to match surface of hinges or pivots.

C. Hinge Pins: Except as otherwise indicated in the hardware schedule, provide hinge pins as follows:

1. Material: Stainless steel pins.
2. Exterior Doors: Non-removable pins (NRP).
3. Interior Doors: Non-removable pins (NRP).
4. Tips: Flat button and matching plug, finished to match leaves.
5. Number of Hinges: Provide number of hinges indicated but not less than 3 hinges for door leaf for doors 90 inches or less in height and one additional hinge for each 30 inches of additional height.
6. All hinges shall be ball bearing type.
7. Provide safety stud and locking hole for hinges where scheduled.

D. Manufacturer, (Butts): Subject to compliance with requirements, provide products of one of the following:

1. Bommer Industries.
2. Hager Hinge Co.
3. Ives; Ingersoll-Rand Co.
4. McKinney Mfg. Co.; Assa Abloy Co.
5. PBB, Inc.
6. Stanley Hardware.

E. Manufacturer, (Geared Continuous Hinges): Provide products having UL listed units equal to or better than the rating of the opening of one of the following manufacturers:

1. ABH, Inc. 4240HD series
2. Hager/Roton 780-224-HD series

3.	Pemko	FMHD series
4.	Select Products	SL-24-HD series
5.	Stanley	520 series
6.	Zero	914DB series

2.5 LOCK CYLINDERS AND KEYING

A. General: Supplier shall meet with Owner to finalize keying requirements and obtain final instructions in writing. Comply with Owner's instructions for master keying and except as otherwise indicated, provide individual change key for each lock which is not designed to be keyed alike with a group of related locks.

B. Standard System: Except as otherwise indicated, provide new master key system for project. The following is standard system for keying hierarchy per CPS MASTER KEY ORGANIZATION.

1. Great grand master
2. Grand master: Principal and Building Engineer.
3. Sub Master for the following areas and conditions:

    a. Exterior doors.
    b. Special Rooms: Including rooms such auditorium, gymnasium and special use classrooms.
    c. Single User Keys: Teacher's classroom key.

C. All cylinder cores shall be keyed at the factory by the cylinder manufacturer where records will be established and maintained.

D. All cylinders shall be not less than six (6) pin interchangeable core keyed to the existing (insert manufacturer) registered Grand master Key system.

E. Permanent keys shall be stamped with the key system symbol (VKC). Do not mark the keys with the cylinder biting. Permanent cores shall be marked with the key system symbol in such a manner that the mark is not visible when the core is installed in the cylinder (CVKC).

F. Except where otherwise specified, locksets, cylinders and cores shall be by the same manufacturer, to assure proper operations.

G. During construction, all cylinder cores shall be keyed alike. The Contractor shall receive three (3) copies of this key. Under no circumstances shall the Contractor receive any of the permanent building master keys or changes keys. The construction master key shall operate on no less than six (6) pins.

1. Quantity of Keys:

    a. 3 Great Grand Master.
    b. 3 Grand Master Keys.
    c. 3 Master Keys.
    d. 3 Keys per lock or cylinder.
    e. 50 key blanks.
    f. 3 Control keys.

H. Provide two key control systems, including envelopes, labels, tags with self locking key clips, receipt forms, 3-way visible card index, temporary markers and standard metal cabinet, all as recommended by system manufacturer with capacity for 150% of the number of locks required for the project.

1. The hardware supplier shall set up complete cross index system and place keys on markers and hooks in the cabinet as determined by the final key schedule.

I. Provide two hinges type wall mounted key cabinets for the above system to be installed as directed by the Owner.

2.6 LOCKS, LATCHES AND BOLTS

A. Strikes: Provide manufacturer's standard wrought box strike for each latch or lock bolt, with curved lip extended to protect frame, finished to match hardware set.

1. Foot Bolts: Provide dust-proof strikes, except where special threshold construction provides non-recessed strike for bolt.
2. Roller Strikes: Provide where recommended by manufacturer of the latch and lock units.

B. Mortise Locks:

1. Locks shall have all functions available in one size case, manufactured from heavy gauge steel, minimum thickness 3/32 inch, completely chrome plated for corrosion resistance and lubricity of parts. Cases shall be closed on all sides to protect internal parts. Locks shall have adjustable, beveled and armored fronts, secured with spanner head security screws. Standard 2-3/4 inch backset convertible from one function to another, with a full 3/4 inch throw two-piece, or approved one-piece anti-friction latch bolt and 1" throw dead bolt with hardened steel insert and available for a minimum door thickness of 1-3/4 inch. Internal parts shall be heavy gauge steel, zinc dichromate-plated and nickel steel hubs.
2. All locksets with latch bolts, regardless of trim, shall be listed by UL for A and lesser labeled doors, single or pairs.
3. Lock trim shall be solid stainless steel levers with wrought rose, through bolted through the lock case to assure correct alignment.
4. Lockset shall conform to, and be certified as meeting, ANSI A156.13 Grade 1 requirements.
5. Subject to compliance with specifications, provide one of the following:

a.	Best Lock; Stanley Works, Inc.	45H-14H series
b.	Corbin Russwin ; Assa Abloy Co.	ML2000 LSA series
c.	Dorma; Dorma Co.	ML9000 LTB Series
d.	Sargent; Assa Abloy Co.	8200 LNJseries
e.	Schlage;Ingersoll-Rand Co.	L9000-B03 series
f.	Yale Security; Assa Abloy Co.	CRR 8800FL series

C. Exit Devices:

1. Surface applied rim, mortise and vertical rod exit devices shall be available as a complete series, listed in UL "Accident Equipment List-Panic Hardware" and "Fire Exit Hardware". All devices shall be the modern push type. These devices shall have met

Performance Test Requirements in accordance with ANSI Standard A156.3 for Grade 1 exit devices. All exit devices shall be furnished with thru-bolts and sex nuts. Provide cylinder dogging for all devices except "Fire Exit Devices"

2. Rim exit device for single doors and pairs of doors with fixed or removable mullions shall be equipped with one of the following type of latch bolts, deadlocking, guarded or square bolt with a minimum 3/4 inch throw.
3. All rim exit devices for pairs of doors with fixed or removable mullion shall have two-piece interlocking stabilizer blocks installed above and below the latch case.
4. Exit devices shall be the type, function, and design as listed in the schedule of finish hardware sets and shall have a manufacturer's warranty of five (5) years.
5. Removable Mullions:

    a. Constructed of 2 inch by 3 inch steel tubing prepared to receive the required strike plates.
    b. The top mounting shall be self-locking key removable type.
    c. Provide a wall mounted storage mount for each mullion by the same manufacturer.
    d. Provide stainless steel bottom floor fitting.
    e. Provide stabilizers above and below each exit device latch case.
    f. Provide factory applied paint finish conforming to ANSI/BHMA 689.

6. Subject to compliance with specifications, provide one of the following:

a.	Dorma; Dorma Co.	9000 Series
b.	Precision; Prevision Co.	Apex Series
c.	Sargent; Assa Abloy Co.	80 Series
d.	Yale Security; Assa Abloy Co.	7000 Series
e.	Von Duprin; Ingersoll-Rand Co.	98 Series

D. Multi-Point Lock: Three point lock.

1. Description: Three 1/2 inch x 1 inch solid steel bolts with 3/4 inch throw; 16 gauge galvanized steel case; 12 gauge plated steel strikes; 3 inch backset.
2. Function: Levers on both sides of lock. Turning lever retracts bolts in unison. Bolts are held retracted and are released when door closes.
3. Acceptable Product/Manufacturer: Lock 301C; Wm. J. Perkinson Co., Inc.

2.7 PUSH/PULL UNITS

A. Concealed Fasteners: Provide manufacturer's special concealed fastener system for installation; through-bolted for matched pairs, but not for single units. Pulls to have 2-1/2 inch clearance from face of the door to the underside of the pull.

B. Acceptable Manufacturers: Subject to compliance with requirements, provide products by the following:

1. Rockwood.
2. Hager.
3. Ives.
4. Trimco.
5. Hiawatha.
6. Von Duprin.

2.8 CLOSERS AND DOOR CONTROL DEVICES

A. Closers shall be rack and pinion construction with both rack and pinion of heat treated steel and with a cast iron or cast aluminum case. Closing the door will be controlled by 2 valves, one to control closing speed and one to control latching speed. Closers shall be regularly furnished with fully adjustable backcheck allowing approximate 70 degrees backcheck on both regular and parallel are closers. Delayed action shall be available. Valves shall be concealed against unauthorized adjustment and non-critical needle valve type. Spring power adjustment shall be standard with an adjustment size 1 to size 6. Closers shall be surface applied with rectangular metal covers, void of manufacturers' trademarks. All door closers intended to be mounted to the door shall be furnished with thru-bolts and sex nuts.

B. Closers shall be certified as meeting the ANSI A156.4 Grade 1 requirements, be listed by UL for all classes of labeled doors and shall have a manufacturer’s warranty of ten (10) years.

C. Size of units: Except as otherwise specifically indicated, comply with the manufacturers recommendations for size of door control unit depending upon size of door, exposure to weather and anticipated frequency of use.

1. Provide heavy duty arms.
2. Provide spring cushion stops on parallel arm closers.
3. Provide heavy duty dead stop parallel arms on doors equipped with electric hold open/release devices.
4. Provide all necessary plates, brackets, arms and shoes required for proper installation of closer.

D. Acceptable Manufacturers:

1. Dorma 8900 Series.
2. LCN 4040 Series.
3. Norton 7500 Series.
4. Sargent 281 Series.

E. Door Holder/Release: Provide electric holder/release meeting the requirements of ANSI Standard A156.15.

1. Holder/release: Surface, wall-mounted
2. Door Armature: Cast aluminum furnished with Through-bolted and sex nuts with the projection required for wall and door conditions. Armatures requiring rod or tube extensions are not acceptable. Where required to make contact, provide shims of the same material and shape as the armature base.
3. Electric boxes, conduit and wiring to be provided under Division 26.
4. Voltage to be as required under Division 26.
5. Acceptable manufacturers:

a.	LCN	SEM7800 Series and SHE Series
b.	Sargent	1500 Series
c.	Rixson	900 Series

2.9 DOOR TRIM UNITS

A. Kick Plates, Mop Plates, Armor Plates: Stainless steel, 0.050 inch thick, beveled three sides.

B. Fasteners: Provide manufacturer's standard exposed fasteners for door trim units (kick plates, edge trim, viewers, knockers, mail drops and similar units); either machine screws or self-tapping screw.

C. Door protection plates shall be stainless steel 18-8 type 302, 0.050 inch thick, beveled three sides with vertical finish grain.

2.10 STOP AND HOLDERS

A. Provide wall mounted door stops and wall mounted door stop and holders as required to protect the wall and door lever.

1. Wall door stops: BHMA Type L52261.
2. Door Holders, Interior Doors: BHMA Type L1191.
3. Door Holders, Exterior doors: BHMA Type L11271.

B. Acceptable Manufacturers:

1. Rockwood Mfg. Co.
2. Hager.
3. Architectural Builders Hardware (ABH).
4. Trimco.
5. Ives.

2.11 THRESHOLDS, WEATHER SEALS AND RAIN DRIPS

A. Provide thresholds and weather seals on all exterior doors as scheduled.

B. Acceptable Manufacturers:

1. National Guard Products.
2. Pemko.
3. Hager.
4. Zero.
5. Reese.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Mounting Locations: As indicated in "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute, and "ADA Accessibility Guidelines for Buildings and Facilities", except as specifically indicated or required to comply with governing regulations, and except as may be otherwise directed by Architect.

B. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Wherever cutting and fitting is required to install hardware onto or into

surfaces that are later to be painted or finished in another way, coordinate removal, storage and reinstallation or application of surface protections with finishing work specified in the Division-9 sections. Do not install surface-mounted items until finishes have been completed on the substrate.

C. Install door hardware units using fasteners provided by the manufacturer as specified.

1. Hinges: Phillips flat head wood screws into wood Phillips flat head machine screws into metal.
2. Exit devices: Through bolts and sex nuts.
3. Closers Through bolts and sex nuts.
4. Door holder/release; armature mounted with through bolts and sex nuts.

D. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.

E. Drill and countersink units that are not factory-prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.

F. Set thresholds for exterior doors in full bed of butyl- rubber or polyisobutylene mastic sealant. Thresholds shall be notched or coped to fit around removable mullions.

G. Removable mullion sill brackets shall be secured to the concrete floor with approved fasteners and anchors.

H. Hardware shall be installed with the fasteners and anchors provided by the manufacturer of that hardware item.

3.2 ADJUSTMENT, CLEANING AND KEYING

A. Adjust and check each operating item of hardware and each door, to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate freely and smoothly as intended for the application made.

B. Clean adjacent surfaces soiled by hardware installation.

C. Permanent cores and keys shall be delivered by the hardware supplier directly to the contractor at the keying meeting. The contractor and representative of the hardware supplier shall jointly install the permanent cores in the presence of the Owner's agent who shall receive the keys. Hardware supplier shall return the construction cores and construction keys to the manufacturer.

D. Tools and instructions: At the time of keying the hardware supplier shall provide a complete set of specialized tools and maintenance instructions and shall instruct the Owner's agent in the proper maintenance.

E. Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy of a space or area, return to the work during the week prior to acceptance or occupancy, and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.

1. Instruct Owner's Personnel in proper adjustment and maintenance of hardware and hardware finishes, during the final adjustment of hardware.

F. Continued Maintenance Service: Approximately three months after the acceptance of hardware in each area, the Installer, accompanied by the representative of the latch and lock manufacturer, shall return to the project and re- adjust every item of hardware to restore proper function of doors and hardware. Consult with and instruct Owner's personnel in recommended additions to the maintenance procedures. Replace hardware items that have deteriorated or failed due to faulty design, materials or installation of hardware units. Prepare a written report of current and predictable problems (of substantial nature) in the performance of the hardware.

3.3 SCHEDULE OF FINISH HARDWARE SETS

A. Provide finish hardware for each door to comply with requirements of this Section, hardware set numbers indicated on Door Schedule and the schedule of hardware sets on drawings.

B. Manufacturer's function and catalog numbers used in the hardware sets are identified by the following symbols.

1.	Hager Hinge Co.	HA
2.	Yale Security	Y
3.	LCN Closers	L
4.	Ives	I
5.	Rockwood Mfg. Co	R
6.	Architectural Builders Hardware Products	A
7.	Von Duprin	V
8.	Pemco	P
9.	Du Seung	D

C. Other Abbreviations:

1. LDW - Less Door Width
2. TBS - To Be Selected

END OF SECTION

SECTION 31 23 23

ACCEPTANCE OF BACKFILL, TOP SOIL & CU STRUCTURAL SOIL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Geotechnical Site Assessment – by Weaver Consultants Group.

1.2 APPLICABILITY

These environmental requirements apply to all Public Building Commission (PBC) projects. This section applies for all demolition, construction and renovation projects that require the importation of backfill material.

1.3 INTRODUCTION

A. Description of Work: This specification is for the importation and acceptance of CCDD and Uncontaminated Soil for use as backfill. All imported material must meet the requirements presented in this specification. No proposed imported material will be accepted for use prior to its pre-approval from the Environmental Consultant and Public Building Commission. Where there is a conflict between the contract documents and actual site conditions, the Contractor shall comply with any appropriate field order changes directed by the Commission Representative. The Contractor shall perform the work under this section in accordance with all local, state, and federal rules and regulations including but not limited to Illinois EPA, United States Environmental Protection Agency (USEPA), Illinois Department of Transportation, and Occupational Safety and Health Agency (OSHA) regulations. This

B. Related Work:

1. Section 01 35 62 – Erosion and Sedimentation Control
2. Section 01 52 40 – Construction Waste Management and Disposal
3. Section 31 22 14 – Earthwork
4. Section 31 23 17 – Excavating, Backfilling, and Compacting Utilities
5. Section 31 23 18.13 – Soil, Fill, Backfill, CU Structural Soil & Construction & Demolition Debris Removal

1.4 DEFINITIONS

A. Agency means Illinois Environmental Protection Agency (IEPA).

B. Backfill means any granular or cohesive material used to fill an excavation or bring property to design grade as specified in the Architect/Engineer drawings and specifications.

C. Commission Representative means the person assigned, in writing, by the Executive Director to be the Commission's Representative for the project.

D. CU Structural Soil means a uniformly blended mixture of crushed stone, clay, loam and hydrogel by weight consisting of approximately 83% crushed limestone (3/4 to 1.5 inch, highly angular with limited fines), 17% clay loam and hydrogel (1 oz. per 200 pounds of stone).

E. IEPA means Illinois Environmental Protection Agency

F. Environmental Consultant (EC) means the entity with overall responsibility for the direction and control of the environmental investigations, assessments, designs, and supervision of remediation work.

G. Top Soil means any soils placed to design grade and used to promote vegetative growth. All top soil shall not exceed Title 35: Environmental Protection Subtitle G: Waste Disposal Chapter I: Pollution Control Board Subchapter F: Risk Based Cleanup Objectives, Part 742, Tiered Approach To Corrective Action Objectives (TACO), Appendix B, Table A values for 35 Illinois Administrative Code (Ill. Adm. Code) 740 Appendix A Target Compound List (TCL) parameters.

H. User means the entity for which or on whose behalf the Commission has undertaken to causethe Work to be performed.

I. Work means the obligations of the Contractor under the Contract Documents. Work includes, unless specifically accepted by the Contract Documents, the furnishing of all materials, labor, equipment, supplies, plant, tools, scaffolding, transportation, superintendence, permits, in sections, occupancy approvals, insurance, taxes, and all other services, facilities and expenses necessary for the full performance and completion of the requirements of the Contract Documents. Work also means that which is furnished, produced, constructed, or built pursuant to the Contract Documents.

1.5 SUBMITTALS

A. Copies of environmental analytical results of all backfill material, top soil and CU Structural Soil verifying that these materials do not exceed APPENDIX B, SECTION 742, TABLE A; TIERED APPROACH TO CORRECTIVE ACTION OBJECTIVES (TACO): 35 ILL. ADM. CODE 742 values for 35 ILL. ADM. CODE 740 APPENDIX A Target Compound List (TCL) parameters. For samples from virgin sources, one representative sample must be analyzed for 35 ILL. ADM. CODE 740 APPENDIX A Target Compound List (TCL) parameters. For virgin sources, Contractor shall submit a certification letter from the Owner of the source that all imported material is virgin material mined directly from the source quarry. For samples from recycled sources, one sample per 1,000 tons of material must be analyzed for 35 ILL. ADM. CODE 740 APPENDIX A Target Compound List (TCL) parameters. For recycled sources, the Contractor must identify the source of the recycled material including the owner, the address, imported fill environmental history, and a written demonstration that the property source is not in any regulated environmental related cleanup program. A copy of the analytical results shall be submitted at

least one week prior to depositing backfill or top soil on site. The date of the analysis shall be within 60 days of importing such material to a school property.

B. Name and address and telephone number of the laboratory that will be used by the Contractor to perform the environmental analytical testing for backfill, top soil and CU Structural Soil samples prior to starting Work. The laboratory performing the analysis must be an IEPA accredited laboratory.

C. Copies of all daily reports, transport records and receipts to the PBC Authorized Representative on a daily basis.

1.6 SUBMITTAL REVIEW

A. Review of submittals or any comments made does not relieve the Contractor from compliance with the requirements of the drawings and specifications. The purpose of this check is to review for general conformance with the design concept of the project and general compliance with the information given in the contract documents. The Contractor is responsible for confirming and correlating all quantities and dimensions; electing techniques of construction; coordinating the Work; and performing the Work in a safe and satisfactory manner.

PART 2 - PRODUCTS

2.1 BACKFILL, TOP SOIL, CU STRUCTURAL SOIL

A. The Contractor shall supply only backfill, top soil and CU Structural Soil that does not exceed APPENDIX B, SECTION 742, TABLE A; TIERED APPROACH TO CORRECTIVE ACTION OBJECTIVES (TACO): 35 ILL. ADM. CODE 742 values for 35 ILL. ADM. CODE 740 APPENDIX A Target Compound List (TCL) parameters. For samples from virgin sources, one representative sample must be analyzed for 35 ILL. ADM. CODE 740 APPENDIX A Target Compound List (TCL) parameters. For virgin sources, Contractor shall submit a certification letter from the Owner of the source that all imported material is virgin material mined directly from the source quarry. For samples from recycled sources, one sample per 1,000 tons of material must be analyzed for 35 ILL. ADM. CODE 740 APPENDIX A Target Compound List (TCL) parameters. For recycled sources, the Contractor must identify the source of the recycled material including the owner, the address, imported fill environmental history, and a written demonstration that the property source is not in any regulated environmental related cleanup program. The date of the environmental analysis of any backfill, top soil or CU Structural Soil shall be within 60 days of importing such material to a school property.

PART 3 - EXECUTION

3.1 AUTHORIZATIONS

A. Haulers for transportation of backfill, top soil or CU Structural Soil shall hold and present upon request a current, valid Commercial Driver's License (CDL).

3.2 MATERIAL SAMPLING

A. The Contractor shall collect sufficient amount of representative (no composite samples) backfill, top soil and CU Structural Soil sample(s) for analytical testing sufficient to verify that these materials do not exceed APPENDIX B, SECTION 742, TABLE A; TIERED APPROACH TO CORRECTIVE ACTION OBJECTIVES (TACO): 35 ILL. ADM. CODE 742 values for 35 ILL. ADM. CODE 740 APPENDIX A Target Compound List (TCL) parameters. The Contractor is responsible for payment of all backfill, top soil and CU Structural Soil sampling and analytical fees.

B. The EC may collect backfill, top soil or CU Structural Soil samples for laboratory analysis on behalf of the Contractor at no additional cost to the project.

C. The EC may collect samples for laboratory analysis or field Photo-ionization Detector (PID) screening, or liquid samples for laboratory analysis. The Contractor shall provide the necessary equipment and manpower to assist the EC to collect materials to be sampled at no additional cost to the project and in compliance with OSHA and all other Rules and Regulations.

3.3 HAULING

A. The Contractor shall not create dust and shall maintain adequate dust suppression equipment on site if conditions warrant.

B. The Contractor shall maintain streets clean and free of mud and dirt.

C. The Contractor shall place backfill, top soil and CU Structural Soil to ensure minimum interference with roads; streets, walks and other adjacent occupied and used facilities. Do not close or obstruct streets, walks or other occupied or used facilities without permission from the applicable governing agency and the PBC Authorized Representative. Provide alternate routes around closed or obstructed traffic ways if required by the governing agency.

3.4 TRANSPORTATION

A. The Contractor shall provide and complete copies of all daily reports, weight tickets, and receipts (as applicable) for transportation and ultimate placement of the backfill, top soil, and CU Structural Soil to the PBC Authorized Representative and/or EC for review and signature within 5 business days or as directed by the PBC Authorized Representative.

3.5 BACKFILL

A. The backfill material shall be granular or cohesive material that meets the project specified requirements.

B. For each off-site source of backfill materials, the Contractor shall provide to the PBC Authorized Representative and/or EC as required, environmental laboratory analyses and certification that the imported backfill does not exceed APPENDIX B, SECTION 742, TABLE A; TIERED APPROACH TO CORRECTIVE ACTION OBJECTIVES (TACO): 35 ILL. ADM. CODE 742 values for 35 ILL. ADM. CODE 740 APPENDIX A Target Compound List (TCL) parameters. For samples from virgin sources, one representative sample must be analyzed for Appendix B,

Section 742 Table A parameters. For virgin sources, Contractor shall submit a certification letter from the Owner of the source that all imported material is virgin material mined directly from the source quarry. For samples from recycled sources, one sample per 1,000 tons of material must be analyzed for Appendix B, Section 742 Table A parameters. For recycled sources, the Contractor must identify the source of the recycled material including the owner, the address, imported fill environmental history, and a written demonstration that the property source is not in any regulated environmental related cleanup program. The date of the analysis of any backfill shall be within 60 days of importing such material to a school property.

C. The Contractor shall not place backfill material without approval of the PBC Authorized Representative. If the Contractor backfills the excavation area without obtaining approval from the Commission Representative, the backfill materials shall be excavated, if required, at the Contractor's expense.

3.6 TOP SOIL

A. The Top Soil material shall meet the project specified requirements.

B. For each off-site source of top soil, the Contractor shall provide to the Commission Representative as required, environmental laboratory analyses and certification that the imported top soil does not exceed APPENDIX B, SECTION 742, TABLE A; TIERED APPROACH TO CORRECTIVE ACTION OBJECTIVES (TACO): 35 ILL. ADM. CODE 742 values for 35 ILL. ADM. CODE 740 APPENDIX A Target Compound List (TCL) parameters. For samples from virgin sources, one representative sample must be analyzed for 35 ILL. ADM. CODE 740 APPENDIX A Target Compound List (TCL) parameters. For virgin sources, Contractor shall submit a certification letter from the Owner of the source that all imported material is virgin material mined directly from the source quarry. For samples from recycled sources, one sample per 1,000 tons of material must be analyzed for 35 ILL. ADM. CODE 740 APPENDIX A Target Compound List (TCL) parameters. For recycled sources, the Contractor must identify the source of the recycled material including the owner, the address, imported fill environmental history, and a written demonstration that the property source is not in any regulated environmental related cleanup program. The date of the analysis of any backfill top soil shall be within 60 days of importing such material to a school property.

C. The Contractor shall not place top soil without approval of the Commission Representative. If the Contractor places top soil without obtaining approval from the Commission Representative, the top soil shall be excavated, if required, at the Contractor's expense.

3.7 STRUCTURAL SOIL

A. CU Structural Soil shall meet the project specified requirements.

B. For each off-site source of CU Structural Soil, the Contractor shall provide to the Commission Representative and/or EC, as required, environmental laboratory analyses and certification that the imported materials do not exceed APPENDIX B, SECTION 742, TABLE A; TIERED APPROACH TO CORRECTIVE ACTION OBJECTIVES (TACO): 35 ILL. ADM. CODE 742 values for 35 ILL. ADM. CODE 740 APPENDIX A Target Compound List (TCL) parameters. For samples from virgin sources, one representative sample must be analyzed for 35 ILL. ADM. CODE 740 APPENDIX A Target Compound List (TCL) parameters. For virgin sources,

Contractor shall submit a certification letter from the Owner of the source that all imported material is virgin material mined directly from the source quarry. For samples from recycled sources, one sample per 1,000 tons of material must be analyzed for 35 ILL. ADM CODE 740 APPENDIX A Target Compound List (TCL) parameters. For recycled sources, the Contractor must identify the source of the recycled material including the owner, the address, imported fill environmental history, and a written demonstration that the property source is not in any regulated environmental related cleanup program. The date of the analysis of any CU Structural Soil shall be within 60 days of importing such material to a school property.

C. The Contractor shall not place CU Structural Soil without approval of the Commission Representative. If the Contractor places CU Structural Soil without obtaining approval from the Commission Representative, the CU Structural Soil shall be excavated, if required, at the Contractor's expense.

3.8 DUST CONTROL

A. The Contractor shall control dust by all necessary means, including but not limited to covering trucks, stockpiles and open materials, watering haul roads, sweeping paved roads, and limiting the speed of all on-site vehicles.

3.9 QUALITY CONTROL

A. The Contractor shall take all necessary precautions to protect structures, equipment, pavement, walks and utilities against movement or settlement during the course of work.

B. The Contractor shall promptly replace or repair any damage caused to adjacent pavement, utilities or facilities by removal operations at no additional cost. Work shall be performed to the satisfaction of the Commission Representative.

C. The Contractor shall maintain existing utilities and protect against damage during placement of backfill, top soil and CU Structural Soil.

END OF SECTION 31 23 23

TEMPORARY EXITING CALCULATION:
385 OCCUP. 1ST FLR. (SOUTH WING) +
207 OCCUP. 2ND FLR. (SOUTH WING) = 592
OCCUP. < 690 EXIT CAPACITY OF DOORS
(SOUTH WING)

(2) EXIST'G / NEW 36"W DOORS, 3 EXIT WIDTHS = 345 OCCUP. CAPACITY; BLOCKED FOR DURATION OF CONST.

6'-6" W CORRIDOR, 3.5 EXIT WIDTHS = 350 OCCUP. CAPACITY (WHEN ANNEX COMPLETE), DOOR WIDTH GOVERNS

G.C. TO PROVIDE:
5/8" GYP.BD. ON METAL FURRING. PAINT.

DOOR #10

207 OCCUP. DN. FROM 2ND FLR. +4 FROM OFF/STOR = 211

G.C. TO PROVIDE:
SALVAGE EXISTING DOORS FOR OWNER'S USE. STORE WHERE DIRECTED BY CPS.

G.C. TO PROVIDE
SEE 2/A1.0D FOR TEMPORARY EGRESS DOOR DETAILS

EXISTING 2-STORY OPEN STAIR TO REMAIN UNTIL SUMMER 2019, 4'-8"W, 2.5 EXIT WIDTHS = 250 OCCUP. CAPACITY CARRYING 207 OCCUP. (NOTE: 36"W STAIR FROM BASEMENT TO REMAIN)

G.C. TO PROVIDE
TEMPORARY B-LABEL DOORS: (1)44"W LEAF SWING INTO GYM, (2)EW = 230 CAPACITY (1)36"W LEAF SWING OUT OF GYMNASIUM = 172 CAPACITY

G.C. TO PROVIDE
PROVIDE TEMPORARY EXIT LIGHTING, DIRECTIONAL SIGNAGE, AND BATTERY BACK-UP EMERGENCY LIGHTS FOR DURATION OF TEMPORARY EXITING
PAINT DOORS AND FRAMES

(2) EXIST'G 36" DOORS = 3 E.W. 345 OCCUP. EXIT CAPACITY >332 OCCUP.PROPOSED (OK)

DOOR #11

T.D. FROM B/STAIR 85'-0" VIA 2-HR / B-LABEL GYM WALL SEPARATION

T.D. FROM B/STAIR = 146'-3"

0 (TEMP)

211 (TEMP)

332 (COMBINED / TEMP) <345 EXIT CAPACITY

260 (COMBINED / TEMP) <345 EXIT CAPACITY

35 (TEMP)

36 (TEMP)

1 PARTIAL FIRST FLOOR TEMPORARY EXITING PLAN
G4.0 SCALE: 1/8" = 1'-0"

KEY PLAN (N.T.S.)

TEMPORARY EXITING FOR EXIST'G STAIR DURING CONSTRUCTION; 202 OCCUP. FROM CLASSROOMS + 5 FROM OFFICE/STORAGE = 207 OCCUPANTS

EXISTING 2-STORY OPEN STAIR, 4'-8"W, 2.5 EXIT WIDTHS = 250 OCCUP. CAPACITY

T.D. = 144' T/ OPEN STAIR

408 OCCUP (SOUTH WING) < 500 EXIT CAPACITY PROVIDED BY TWO STAIRS

T.D. = 147' TO OPEN STAIR

202 OCCUP (COMBINED)

EXISTING 2-STORY OPEN STAIR, 4'-8"W, 2.5 EXIT WIDTHS = 250 OCCUP. CAPACITY

TEMPORARY EXITING:
EXISTING 2-STORY OPEN STAIR TO REMAIN UNTIL SUMMER 2019, 4'-8"W, 2.5 EXIT WIDTHS = 250 OCCUP. CAPACITY >207 OCCUP. IN SOUTH WING

2 PARTIAL SECOND FLOOR TEMPORARY EXITING PLAN
G4.0 SCALE: 1/8" = 1'-0"

KEY PLAN (N.T.S.)

TEMPORARY EGRESS KEY:

1. CONSTRUCTION COMMENCES FALL 2017, THIS EXIT WILL BE CLOSED FOR DURATION OF CONST. TEMPORARY ALTERNATE EXITING ACCEPTABLE TO DEPT. OF BLDGS. & FIRE DEPT. SHALL BE EMPLOYED
2. EXISTING 2-STORY OPEN STAIR TO REMAIN OPERATIONAL FROM FALL 2017 THROUGH JUNE 2018 (SUMMER BREAK), AT WHICH TIME THIS STAIR WILL BE DEMOLISHED FOR NEW SECOND FLOOR ANNEX CONNECTION
3. REQUESTED TEMPORARY EXIT PATHS FROM EXISTING STAIR FROM FALL 2017 - JUNE 2019, TEMPORARY EXIT, DIRECTIONAL SIGNS, BATTERY OPERATED EMERGENCY LIGHT AND ANY SPECIAL PROVISIONS REQUESTED BY DEPT. OF BUILDINGS AND FIRE DEPT. WILL BE EMPLOYED 3A EXITS 2ND FLOOR, 3B RE-DIRECTS FIRST FLR. EXITS TEMPORARILY
4. COMPLETION OF NEW ANNEX CONSTRUCTION ANTICIPATED IN NOVEMBER 2018, AT WHICH TIME EXITING THROUGH 4-HOUR HORIZONTAL EXIT WILL BE ACHIEVED AT THE FIRST FLOOR ONLY, TEMPORARY EXITING CAN BE TERMINATED AT THAT TIME.

   TEMPORARY EXIT FOR 2ND FLOOR VIA EXISTING STAIR SHALL CONTINUE UNTIL SUMMER 2019 WHEN STAIR WILL BE REMOVED AND NEW HORIZONTAL EXIT TO ANNEX AND ANCILLARY STAIR TO EXIST. OFFICES WILL BE CONSTRUCTED.

PROPOSED TEMPORARY EXITING PREPARED FOR CODE AUTHORITY REVIEW

Chicago Public Schools
PUBLIC BUILDING COMMISSION

MT. GREENWOOD ANNEX II

10841 SOUTH HOMAN AVENUE
CHICAGO, IL 60655

CHICAGO PUBLIC SCHOOLS
CITY OF CHICAGO, MAYOR RAHM EMANUEL

ARCHITECT OF RECORD:
EC PURDY & ASSOCIATES
53 W Jackson Blvd. - Ste. 1631
Chicago, IL 60604

DESIGN ARCHITECT:
SMNG A LTD.

STRUCTURAL ENGINEER:
GOODFRIEND MAGRUDER STRUCTURES

MEP&FP ENGINEER:
RAO ENGINEERING CONSULTANTS

LANDSCAPE ARCHITECT:
JACOBS/RYAN ASSOCIATES

CIVIL ENGINEER:
RME-i

ENERGY ANALYSIS & LEED:
ALPHA COMMISSIONING ENGINEERS, INC.

WARNING:
ASBESTOS-CONTAINING BUILDING MATERIALS ARE OR MAY BE PRESENT IN THIS BUILDING. AN ASBESTOS MANAGEMENT PLAN IS AVAILABLE IN THE SCHOOL FOR REVIEW UPON REQUEST. NO PERSON MAY DISTURB ASBESTOS-CONTAINING MATERIALS UNLESS THAT PERSON IS A LICENSED ASBESTOS WORKER OR CONDUCTS SUCH WORK IN ACCORDANCE WITH SPECIFICATIONS(S) CONTAINED IN THE PROJECT DOCUMENTS AND IN COMPLIANCE WITH ILLINOIS DEPARTMENT OF HEALTH RULES AND REGULATIONS.

ISSUANCE

MARK	DESCRIPTION	DATE
1	ADDENDUM 01	8/18/2017
	SITE PREPARATION BID	8/4/2017
	100% CD REVIEW	7/25/2017
	DESIGN DEVELOPMENT	6/13/2017

PBC PROJECT NAME: MT. GREENWOOD ANNEX II

PBC CONTRACT NO:

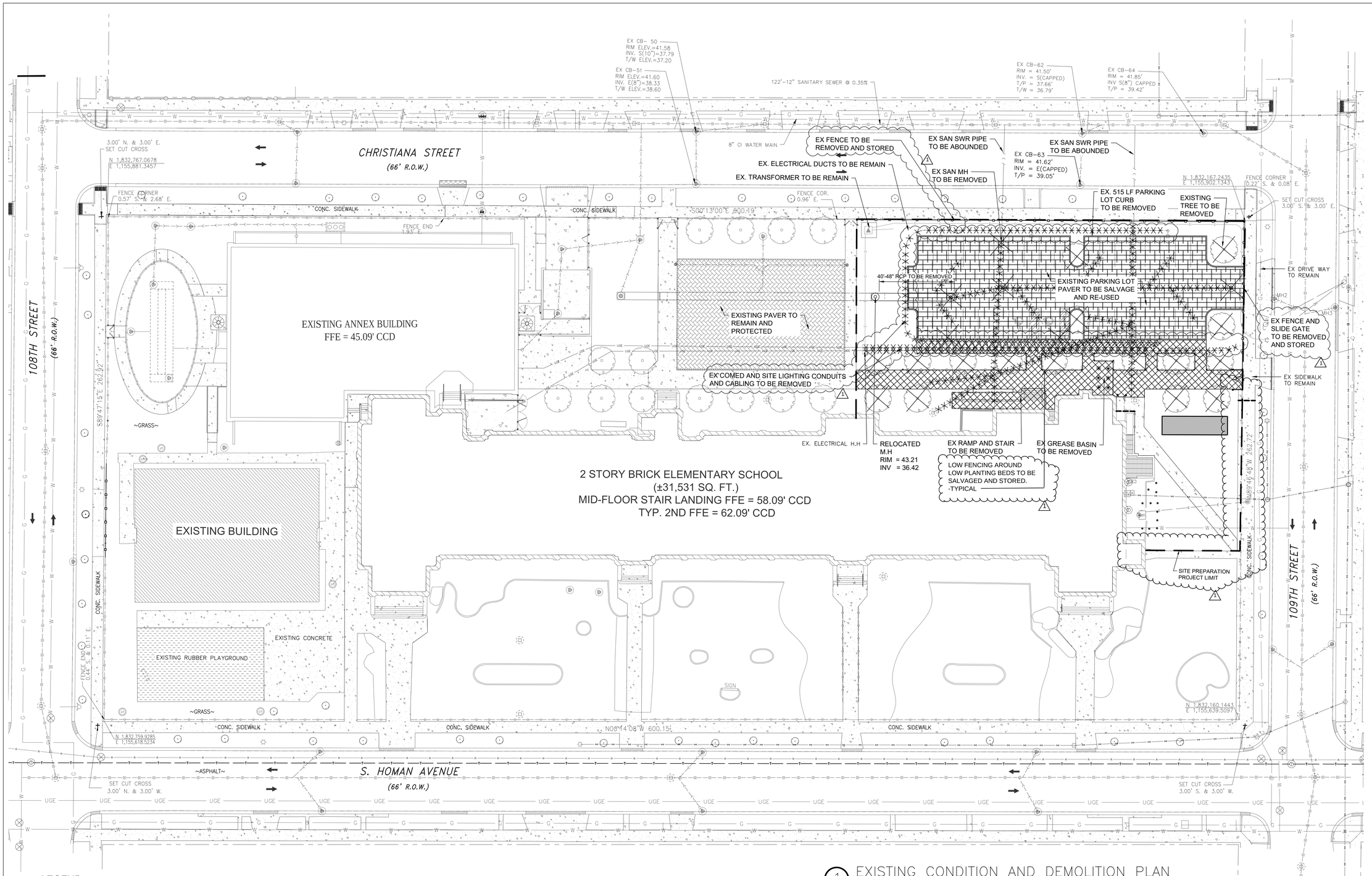
PROJECT NO: 05145

TITLE

TEMPORARY EXITING

SHEET

G4.0



LEGEND:

- SIDEWALK REMOVAL
- LANDSCAPE REMOVAL
- PARKING PAVER REMOVAL
- TREE / STRUCTURAL / LIGHT POLE TO BE REMOVED
- PIPE / CONDUIT / CABLE TO BE REMOVED
- STOCKPILE AREA RESTORE EXISTING PAVER TO RE-USED AT NEW PARKING LOT AT FINAL STAGE

1 EXISTING CONDITION AND DEMOLITION PLAN

SCALE: 1" = 20'

0 20 40 60

MT GREENWOOD ANNEX II

10841 SOUTH HOMAN AVENUE
CHICAGO, IL 60655

CHICAGO PUBLIC SCHOOLS
CITY OF CHICAGO, MAYOR RAHM EMANUEL

ARCHITECT OF RECORD:
EC PURDY & ASSOCIATES
53 W. JACKSON BLVD. – SUITE 1631
CHICAGO, ILLINOIS 60604
V 312-408-1631 / F 312-408-1632
www.ecpurdy.com

DESIGN ARCHITECT:
SMNG A LTD.

STRUCTURAL ENGINEER:
GOODFRIEND MAGRUDER STRUCTURES

MEP&FP ENGINEER:
RAO ENGINEERING CONSULTANTS

LANDSCAPE ARCHITECT:
JACOBS/RYAN ASSOCIATES

CIVIL ENGINEER:
RME

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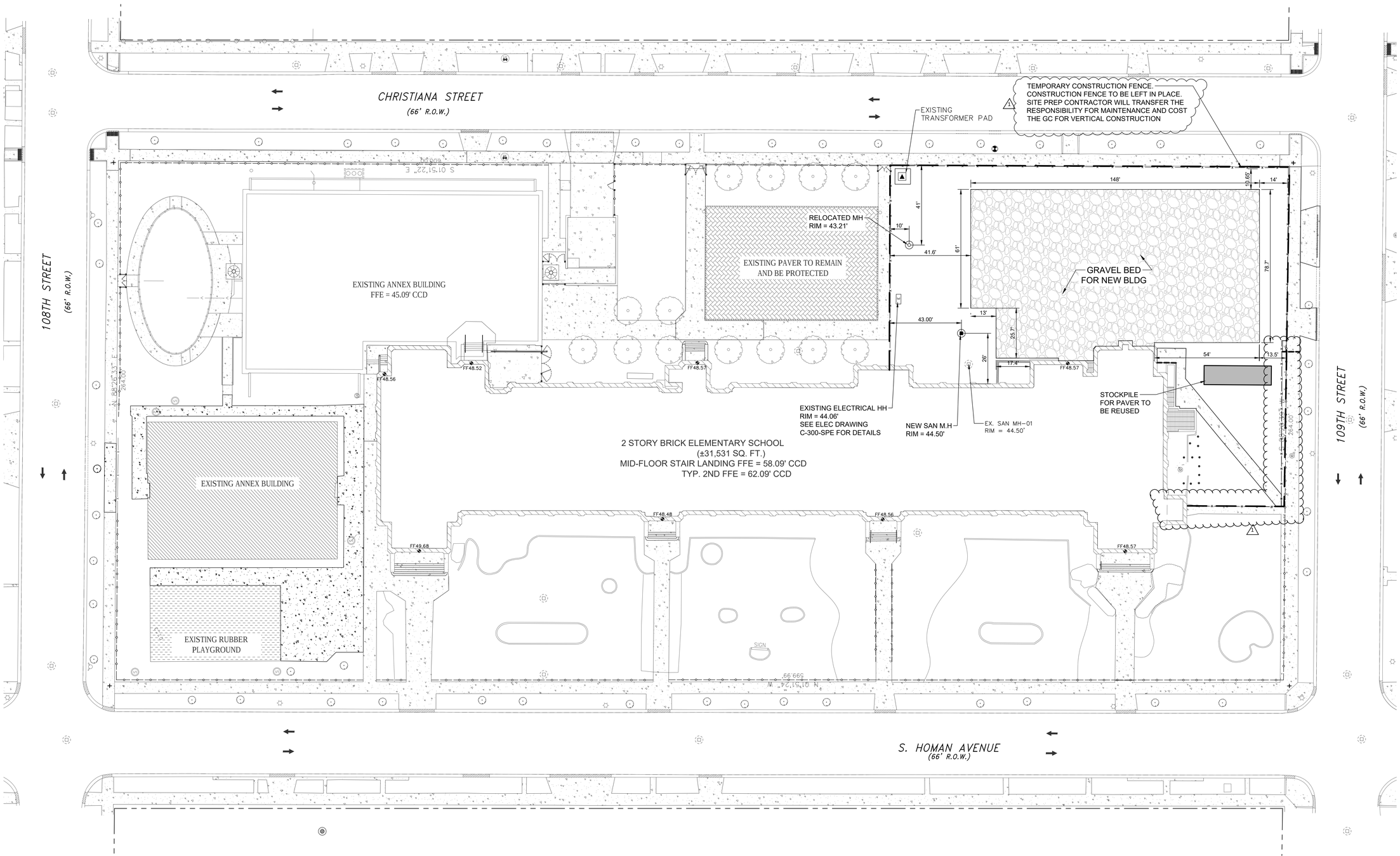
ISSUANCE

MARK	DESCRIPTION	DATE
1	ADDENDUM 01	08/22/2017
B	SITE PREPARATION BID	08/04/17
A	100% SUBMITTAL	07/25/17

MT. GREENWOOD ANNEX II
PBC CONTRACT NO:
PROJECT NO: 05145

TITLE
EXISTING CONDITION & DEMOLITION PLAN

SHEET
C-100-SP



1 SITE PREPARATION PLAN
SCALE: 1" = 20'

0 20 40 60

MT GREENWOOD ANNEX II

10841 SOUTH HOMAN AVENUE
CHICAGO, IL 60655

CHICAGO PUBLIC SCHOOLS
CITY OF CHICAGO, MAYOR RAHM EMANUEL

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ISSUANCE

MARK	DESCRIPTION	DATE
1	ADDENDUM 01	8/22/2017
B	SITE PREPARATION BID	08/04/17
A	100% SUBMITTAL	07/25/17

MT. GREENWOOD ANNEX II
PBC CONTRACT NO:
PROJECT NO: 05145

TITLE
SITE PREPARATION PLAN

SHEET
C-200-SP

0'–0" 16'–0" 32'–0" 64'–0" 96'–0"
1/32"=1'–0"

0'–0" 8'–0" 16'–0" 32'–0" 48'–0"
1/16"=1'–0"

0'–0" 4'–0" 8'–0" 16'–0" 24'–0"
1/8"=1'–0"

0'–0" 2'–0" 4'–0" 8'–0" 12'–0"
1/4"=1'–0"

0'–0" 4'–0" 8'–0" 16'–0" 24'–0"
1/2"=1'–0"

0'–0" 2'–0" 4'–0" 8'–0" 12'–0"
1"=1'–0"

0" 6" 1'–0" 2'–0"
1"=1'–0"

0" 3" 6" 1'–0"
3"=1'–0"

0" 1 1/2" 3" 6"
6"=1'–0"

GENERAL

GE.01 BEFORE SUBMITTING A PROPOSAL FOR THIS WORK, THE CONTRACTOR SHALL VISIT THE PREMISES AND ACQUAINT HIMSELF FULLY WITH THE EXISTING CONDITIONS, TEMPORARY CONSTRUCTION REQUIRED, QUANTITIES AND TYPES OF EQUIPMENT REQUIRED, ETC. HIS BID SHALL INCLUDE ALL SUMS REQUIRED TO DO THE WORK WITHIN THE EXISTING CONDITIONS. DISRUPTION OF NORMAL ACTIVITIES IN THE WORK AREA MUST BE KEPT TO A MINIMUM

GE.02 THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONSTRUCTION, DIMENSIONS, MEMBER SIZES, AND ELEVATIONS FOR CONFORMANCE WITH THE DRAWINGS. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT IMMEDIATELY.

GE.03 UNLESS NOTED OTHERWISE, DETAILS, SECTIONS, AND NOTES ON THE DRAWINGS ARE INTENDED TO BE TYPICAL FOR SIMILAR CONDITIONS

GE.04 DIMENSIONS ON STRUCTURAL DRAWINGS ARE TO BE CHECKED AGAINST THE DRAWINGS OF OTHER DISCIPLINES, AND ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT IMMEDIATELY.

GE.05 COORDINATE WITH THE ARCHITECTURAL DRAWINGS FOR LINTELS, METAL WALL FRAMING, SHELF ANGLES, SIZE AND LOCATION OF SLOPES, DEPRESSED AREAS, FINISH FILLS, CHAMFERS, GROOVES, SLEEVES, INSERTS, ETC.

GE.06 COORDINATE WITH MECHANICAL/ELECTRICAL/PLUMBING DRAWINGS FOR DUCTWORK, PIPE SLEEVES, FLOOR DRAINS, INSERTS, HANGERS, TRENCHES, PITS, PADS, WALL AND SLAB OPENINGS, CONDUIT RUNS IN WALLS AND SLABS, SIZE AND LOCATION OF MACHINE OR EQUIPMENT SUPPORTS, BASES, ANCHOR BOLTS, ETC

GE.07 ELEVATIONS INDICATED REFER TO PROJECT DATUM WHICH IS ELEV 0'-0" = +44.7' CCD

GE.08 SHOP DRAWINGS PREPARED BY THE CONTRACTOR AND/OR HIS SUPPLIERS SHALL BE REVIEWED BY THE ARCHITECT ONLY FOR CONFORMANCE WITH THE DESIGN INTENT. NO WORK SHALL BE STARTED WITHOUT SUCH REVIEW.

GE.09 SHOP DRAWINGS PREPARED BY SUPPLIERS AND SUBCONTRACTORS SHALL BE REVIEWED BY THE CONTRACTOR PRIOR TO SUBMISSION TO THE ARCHITECT

GE.10 DESIGN LOADS, ALLOWABLE STRESSES AND STRUCTURAL CAPACITIES ARE BASED ON THE CHICAGO BUILDING CODE, WITH LOCAL AMENDMENTS.

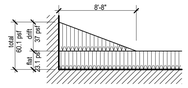
DESIGN WIND LOADS

MAIN WIND RESISTING SYSTEM	20 PSF
COMPONENTS & CLADDING	25 PSF

DESIGN LIVE LOADS

A	CORRIDORS	80 PSF
B	STAIRS, PUBLIC SPACES	100 PSF
C	CLASSROOMS	40 PSF
D	LABS / SCIENCE	75 PSF
E	OFFCE	50 PSF
F	LIBRARY - READING ROOM	60 PSF
G	GYMNASIUM, RECREATION ROOM	100 PSF
H	STORAGE	125 PSF
J	MECHANICAL	125 PSF OR ACTUAL EQUIP WT
K	TOILET ROOMS	60 PSF
L	ROOF SNOW	25 PSF OR DRIFT

SNOW DRIFT DIAGRAM



GE.11 SHOP DRAWING SUBMITTALS TO ARCHITECT/ENGINEER ARE REQUIRED FOR ALL PRE-FABRICATED ITEMS.

EXCAVATION AND BACKFILL

EB.01 BEFORE ANY OTHER BUILDINGS OPERATIONS ARE STARTED, REMOVE ALL BITUMINOUS PAVEMENT, LOOSE GRAVEL, ABANDONED FOUNDATIONS, BLACK LOAM, ORGANIC MATERIAL, AND FILL ENCOUNTERED WITHIN THE AREA TO BE OCCUPIED BY NEW CONSTRUCTION. NONE OF THIS MATERIAL OR OTHER EXCAVATED ON-SITE SOILS, WHICH ARE FOUND TO BE UNSUITABLE, SHALL BE USED FOR FILL WITHIN OR ADJACENT TO THE BUILDING. STORE GRAVEL ON SITE FOR POTENTIAL REUSE.

EB.02 GENERAL MACHINE EXCAVATION FOR FOOTINGS SHALL STOP NOT LESS THAN 6" ABOVE SCHEDULED ELEVATIONS OF BOTTOMS OF FOOTINGS. FINAL EXCAVATION TO UNDISTURBED SOIL AT REQUIRED FOOTING ELEVATION SHALL BE DONE BY HAND NOT MORE THAN 48 HOURS BEFORE THE FOOTING IS PLACED.

EB.03 ALL NECESSARY CHANGES IN ELEVATION OF WALL FOOTINGS SHALL BE MADE IN STEPS OF NOT MORE THAN 2'-0" HIGH AND A MINIMUM OF 4'-0" APART, EXCEPT AS OTHERWISE DETAILED.

EB.04 AFTER EXCAVATING FOR ALL EARTH-SUPPORTED SLABS AND PRIOR TO PLACING FILL, THE EXPOSED NATURAL SOIL SHALL BE COMPACTED TO 95% OF ASTM D-1557 (MODIFIED PROCTOR) MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT.

EB.05 SEE GEOTECHNIC REPORT FOR FOUNDATION BACKFILL AND FILL REQUIRED TO ESTABLISH FINAL SUB-GRADES. ALL EARTH-SUPPORTED SLABS SHALL HAVE AT LEAST 6" OF CA6 DIRECTLY BELOW THE SLAB COMPACTED TO 95% OF ASTM D-1557 (MODIFIED PROCTOR) MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT.

EB.06 BACKFILL PLACED DIRECTLY ADJACENT TO BASEMENT AND RETAINING WALLS SHALL BE CA6 COMPACTED TO 95% OF ASTM D-1557 (MODIFIED PROCTOR) MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT. AT TOP OF BACKFILL, PROVIDE 1'-8" OF CA6 COMPACTED TO 95% OF ASTM D-1557 (MODIFIED PROCTOR) MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT.

EB.07 ALL CAISSON FOUNDATIONS SHALL BE FOUNDED UPON UNDISTURBED, NATURAL SUBGRADE WITH A MINIMUM ALLOWABLE BEARING CAPACITY OF6,000 PSF, AS INDICATED IN THE GEOTECHNICAL REPORT REFERENCED BELOW AND AS FIELD VERIFIED AND APPROVED BY THE OWNER'S GEOTECHNICAL ENGINEER. THE CAISSON ELEVATIONS AND SOIL BEARING CAPACITIES AS INDICATED ON THE DRAWINGS ARE ESTIMATED FROM THE SOIL BORING DATA. FINAL, EXACT ELEVATIONS AND SOIL BEARING CAPACITIES SHALL BE FIELD DETERMINED AND VERIFIED BY THE OWNER'S GEOTECHNICAL ENGINEER AND REVIEWED BY THE ARCHITECT/ENGINEER PRIOR TO PLACEMENT OF CONCRETE. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN THE EVENT THAT THE SOIL CONDITIONS ENCOUNTERED VARY FROM THOSE ASSUMED IN THE DESIGN.

EB.08 ALL SOIL SUPPORTED FOUNDATIONS SHALL BE FOUNDED UPON UNDISTURBED, NATURAL SUBGRADE, OR ENGINEERED FILL WITH A MINIMUM ALLOWABLE BEARING CAPACITY OF 3,000 PSF, AS INDICATED IN THE GEOTECHNICAL REPORT AND AS FIELD VERIFIED AND APPROVED BY THE OWNER'S SOIL TESTING LABORATORY. THE FOOTING ELEVATIONS AND SOIL BEARING CAPACITIES AS INDICATED ON THE DRAWINGS ARE ESTIMATED FROM THE SOIL BORING DATA. FINAL, EXACT ELEVATIONS AND SOIL BEARING CAPACITIES SHALL BE FIELD DETERMINED AND VERIFIED BY THE OWNER'S SOIL TESTING LABORATORY AND REVIEWED BY THE ARCHITECT/ENGINEER PRIOR TO PLACEMENT OF CONCRETE. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN THE EVENT THAT THE SOIL CONDITIONS ENCOUNTERED VARY FROM THOSE ASSUMED IN THE DESIGN.

EB.09 DO NOT BACKFILL AGAINST BASEMENT WALLS UNTIL GROUND FLOOR AND LOWER LEVEL SLABS HAVE BEEN PLACED AND THE CONCRETE HAS ATTAINED FULL DESIGN STRENGTH.

EB.10 BACKFILL AGAINST SIDES OF FOUNDATION WALLS SHALL BE PLACED SIMULTANEOUSLY ON BOTH SIDES TO THE TOP OF THE WALL.

EB.11 NO MUD SLABS, FOOTINGS, OR SLABS SHALL BE PLACED ONTO OR AGAINST SUBGRADE CONTAINING FREE WATER, FROST, OR ICE.

EB.12 THE CONTRACTOR SHALL PROVIDE ALL NECESSARY MEASURES TO PREVENT ANY FROST OR ICE FROM PENETRATING ANY FOOTINGS OR SLAB SUBGRADE BEFORE AND AFTER PLACEMENT OF CONCRETE UNTIL SUCH SUBGRADES ARE FULLY PROTECTED BY THE PERMANENT BUILDING STRUCTURE.

EB.13 THE CONCRETE FOR EACH ISOLATED FOOTING SHALL BE PLACED IN ONE (1) CONTINUOUS PLACEMENT.

EB.14 ALL PERIMETER WALL AND COLUMN FOOTINGS SHALL BEAR A MINIMUM OF 42" BELOW FINISHED GRADE.

EB.15 FOR ADDITIONAL SITE CONDITIONS, FOUNDATION CONSTRUCTION CONSIDERATIONS AND RECOMMENDATIONS, REFER TO THE GEOTECHNICAL REPORT, PREPARED BY WEAVER CONSULTANTS GROUP: ***GEOTECHNICAL SITE ASSESSMENT - MT. GREENWOOD ELEMENTARY SCHOOL ANNEX II, PROJECT NO. 05145 - 10841 S. HOMAN AVENUE CHICAGO, IL 60655.*** DATED 05/15/2017

ELEVATIONS INDICATED REFER TO PROJECT DATUM WHICH IS ELEV 0'-0" = +44.7' CCD

CONCRETE AND FORMWORK

CO.01 ALL CONCRETE WORK SHALL CONFORM TO THE LATEST EDITION OF THE FOLLOWING AMERICAN CONCRETE INSTITUTE PUBLICATIONS:

ACI 301	ACI 304	ACI 311
ACI 315	ACI 318	ACI 347

CO.02 THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE LOCATION AND PLACEMENT OF INSERTS, EMBEDDED PLATES, MASONRY ANCHORS, REGLETS, SLEEVES, DUCT WORK, PADS, AND ANCHOR BOLTS. THE INSERTS, EMBEDDED PLATES, ETC. SHALL NOT INTERFERE WITH CONCRETE REINFORCEMENT LOCATIONS. THE GENERAL CONTRACTOR SHALL VERIFY ALL OPENINGS THROUGH WALLS WITH SHOP DRAWINGS, SHOWING OPENINGS IN THE SLABS INCLUDING, BUT NOT LIMITED TO, SLEEVE SIZES AND LOCATIONS, DUCT SIZES AND LOCATIONS, ETC.

CC.17 THE GENERAL CONTRACTOR SHALL COORDINATE AND SUBMIT FOR REVIEW A SLEEVE LAYOUT DRAWING WHICH INCLUDES ALL SLEEVES/OPENINGS IN CONCRETE FOUNDATIONS PRIOR TO PERFORMING THE WORK. LAYOUT DRAWING SHALL INDICATED PLAN LOCATION , SIZE AND ELEVATION OF SLEEVES/OPENINGS.

CO.03 SEE ARCHITECTURAL DRAWINGS FOR TYPE AND LOCATION OF ALL ARCHITECTURAL FINISHES, FLOOR FINISHES, FLOOR DEPRESSIONS, AND CURBS AND FOR ALL WATERPROOFING AND/OR DAMPPROOFING DETAILS. SEE MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR ADDITIONAL WALL AND/OR SLAB OPENINGS NOT INDICATED ON THE STRUCTURAL DRAWINGS.

CO.04 THE CONTRACTOR SHALL SUBMIT DETAILED DRAWINGS SHOWING THE LOCATIONS OF ALL CONSTRUCTION JOINTS, CURBS, AND SLAB DEPRESSIONS, IF ANY, AND DESCRIBE THE CONCRETE PLACEMENT SEQUENCE. ALL CURBS SHALL BE REINFORCED WITH AT LEAST 1-#4 CONTINUOUS AND #3 AT 18" C/C DOWELS TO THE STRUCTURE BELOW, UNLESS NOTED OTHERWISE.

CO.05 CONCRETE SHALL DEVELOP MINIMUM 28-DAY STRENGTH AS FOLLOWS:

FOOTINGS & FOUNDATIONS	NMWT (145 PCF)	f'c= 4,000 PSI
CONCRETE WALLS	NMWT (145 PCF)	f'c= 4,000 PSI
SLABS ON GRADE	NMWT (145 PCF)	f'c= 3,500 PSI
CONCRETE ON STEEL DECK	NMWT (145 PCF)	f'c= 4,000 PSI
CAISSONS	NMWT (145 PCF)	f'c= 5,000 PSI
GRADE BEAMS	NMWT (145 PCF)	f'c= 5,000 PSI

CO.06 ALL CONCRETE EXPOSED TO THE EXTERIOR SHALL BE AIR- ENTRAINED. WATER REDUCING PLASTICIZING ADMIXTURES MAY BE USED, PENDING APPROVAL OF THE ARCHITECT.

CO.07 NO CALCIUM CHLORIDE OR CHLORIDE ION PRODUCING ADMIXTURE SHALL BE USED IN ANY CONCRETE.

CO.08 FORMWORK FOR ALL CONCRETE WHICH WILL BE EXPOSED IN THE COMPLETED BUILDING SHALL BE CONSTRUCTION FROM A SUITABLE PLASTIC SURFACED PLYWOOD WHICH WILL PRODUCE AN ACCEPTABLY SMOOTH SURFACE. ALSO SEE THE SPECIFICATIONS.

CO.09 VERTICAL WALL CONSTRUCTION JOINTS SHALL BE FORMED WITH VERTICAL BULKHEADS AND KEYWAYS. WALL REINFORCEMENT SHALL BE CONTINUOUS THROUGH THE JOINT OR SHALL BE DOWELED WITH AN EQUIVALENT AREA OF REINFORCEMENT.

CO.10 ALL CONSTRUCTION JOINTS SHALL BE WIRE-BRUSHED AND CLEANED IMMEDIATELY PRIOR TO PLACING NEW CONCRETE. ALLOW 24 HOURS MINIMUM TO ELAPSE BETWEEN PLACEMENTS.

CO.11 PROVIDE CONTINUOUS WATERSTOPS IN VERTICAL CONSTRUCTION JOINTS, IN BASEMENT AND ELEVATOR PIT WALLS, AND IN ALL OTHER WALLS ADJACENT TO BELOW GRADE SLABS.

CO.12 EXPOSED CONCRETE CORNERS SHALL HAVE 3/4" CHAMFERS WHERE REQUIRED BY ARCH.

CO.13 INTERIOR SLABS ON GRADE THICKNESSES AND REINFORCEMENT SHALL BE AS INDICATED AND NOTED ON THE PLANS, THICKENED OR DEPRESSED AS REQUIRED FOR THE DETAILS. DEPRESSED SLABS SHALL MAINTAIN FULL THICKNESS UNLESS NOTED OTHERWISE. SEE NOTE RS.09 FOR THE PLACEMENT OF WELDED WIRE FABRIC. A VAPOR RETARDED SHALL BE PROVIDED UNDER ALL INTERIOR SLABS ON GRADE PER THE PROJECT SPECIFICATIONS.

CO.14 SLABS ON GRADE SHALL BE PLACED IN ALTERNATE STRIPS WITH A MAXIMUM WIDTH OF 15'-0" OR AS INDICATED ON PLAN. CONTROL JOINTS SHALL BE CUT WITHIN A 8-12 HOURS AFTER THE CONCRETE HAS SET. CONTROL JOINTS SHALL NOT EXCEED 15'-0" INTERVALS IN EACH DIRECTION, AND SHALL BE LOCATED TO CONFORM WITH BAY SPACING WHEREVER POSSIBLE (I.E. AT COLUMN CENTERLINES, HALF-BAYS, THIRD-BAYS)

CO.15 SLOPE CONCRETE SLABS, WHERE REQUIRED, TO FLOOR DRAINS INDICATED ON THE ARCHITECTURAL AND PLUMBING DRAWINGS. MAINTAIN MINIMUM SLAB THICKNESSES AS INDICATED ON THE STRUCTURAL DRAWINGS.

CO.16 PROVIDE "VOID BOARD" UNDER ALL EXTERIOR STRUCTURAL SLABS ON GRADE WHICH ARE INDICATED AS DIRECTLY ATTACHED TO THE BUILDING EXTERIOR WALLS. "VOID BOARD" REFERS TO COLLAPSIBLE MATERIAL (2" MINIMUM THICKNESS) WHICH WILL DISINTEGRATE OVER TIME LEAVING A VOID BELOW SLABS AS FROST HEAVE PROTECTION.

REINFORCEMENT STEEL

RS.01 ALL CONCRETE REINFORCEMENT SHALL BE DETAILED, FABRICATED, LABELED, SUPPORTED AND SPACED IN FORMS, AND SECURED IN PLACE IN ACCORDANCE WITH PROCEDURES AND REQUIREMENTS OUTLINES IN THE LATEST EDITIONS OF THE "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" (ACI 318) AND THE "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT" (ACI 315). AT EPOXY COATED BARS, USE DIELECTRIC MATERIAL FOR BAR SUPPORTS AND NYLON COATED TIE WIRE.

RS.02 CHECKED SHOP DRAWINGS SHOWING REINFORCEMENT DETAILS, INCLUDING STEEL SIZES, SPACING, AND PLACEMENT SHALL BE SUBMITTED TO THE ARCHITECT FOR REVIEW PRIOR TO FABRICATION.

RS.03 ALL REINFORCEMENT STEEL SHALL BE HIGH STRENGTH NEW BILLET STEEL CONFORMING TO THE LATEST EDITION OF ASTM A 615, GRADE 60.

RS.04 ALL WELDED WIRE FABRIC SHALL CONFORM TO THE LATEST EDITION OF ASTM A 185

RS.05 THE FOLLOW CLEAR COVER SHALL BE PROVIDED FOR REINFORCEMENT IN CAST-IN-PLACE CONCRETE, UNLESS NOTED OTHERWISE:

CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3"
EXPOSED TO EARTH OR WEATHER:	
#6 THROUGH #18 BARS	2"
#5 BARS, 5/8" DIA. WIRE AND SMALLER	1 1/2"
NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:	
SLABS & WALLS	3/4"
PIERS, COLUMNS, AND BEAMS:	
PRIMARY REINFORCEMENT, TIES, AND STIRRUPS	1 1/2"

RS.06 PROVIDE ADEQUATE BOLSTERS, HIGH CHAIRS, SUPPORT BARS, ETC. TO MAINTAIN SPECIFIED CLEARANCES FOR THE ENTIRE LENGTH OF ALL REINFORCEMENT BARS. PROVIDE CONTINUOUS #4 SPACER BARS IN WALLS AND SLABS TO SUPPORT DOWELS, AS REQUIRED. WELDED WIRE FABRIC SHALL BE SUPPORTED IN PROPER POSITION ON CHAIRS AND CARRIER BARS.

RS.07 ALL EMBEDMENT LENGTHS SHALL CONFORM TO THE LATEST EDITION OF ACI 318.

RS.08 ALL REINFORCEMENT SPLICES SHALL BE LAP SPLICED AND WIRED TOGETHER IN CONTACT. SPLICE LENGTHS SHALL CONFORM TO THE LATEST ACI CRITERIA FOR SIZE AND TYPE OF REINFORCEMENT STEEL AND CONCRETE COMPRESSIVE STRENGTHS SPECIFIED. UNLESS NOTED OTHERWISE, MINIMUM LAP SHALL BE 40 BAR DIAMETERS.

RS.09 ALL WELDED WIRE FABRIC SHALL BE LAPPED TWO (2) FULL MESH PANELS AT SIDE AND END LAPS AND TIED SECURELY. PROVIDE ADDITIONAL REINFORCEMENT WHERE INDICATED ON THE DRAWINGS. PLACE MESH 1" FROM THE TOP OF SLABS. NO ELECTRICAL CONDUIT SHALL BE PLACED ABOVE WELDED WIRE FABRIC SLABS.

RS.10 NO REINFORCEMENT STEEL SHALL BE WELDED IN ANYWAY UNLESS PRIOR WRITTEN APPROVAL IS GIVEN BY THE ARCHITECT.

RS.11 CORNER BARS SHALL BE PROVIDED AT WALL CORNERS EQUAL TO THE HORIZONTAL WALL REINFORCEMENT.

RS.12 ALL CONCRETE FORMED SLAB OR WALL OPENINGS SHALL BE REINFORCED WITH 2-#5 BARS PLACED ONE IN EACH FACE AT 45 DEGREES TO OPENING CORNERS.

RS.13 UNLESS NOTED OTHERWISE, ALL CONCRETE WORK SHALL CONTAIN AT LEAST MINIMUM REINFORCEMENT AS REQUIRED BY ACI 318.

RS.14 PROVIDE EPOXY COATED REINFORCEMENT AT ALL EXTERIOR CONCRETE INCLUDING WALLS.

SHORING AND BRACING

SB.01 INDIVIDUAL STRUCTURAL COMPONENTS ARE DESIGNED TO SUPPORT LOADS IN THEIR FINAL ERECTED POSITION AS PART OF THE TOTAL COMPLETED STRUCTURE. PROVIDE TEMPORARY SHORING, GUYING AND BRACING AS REQUIRED UNTIL ALL CONSTRUCTION AFFECTING LOAD CARRYING MEMBERS AND LATERAL STABILITY IS COMPLETED.

SB.02 CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR STABILITY OF STRUCTURE, ITS PARTS, AND JOB SITE SAFETY BY USE OF GUYING, BRACING, SHORING, BARRICADES, SAFETY RAILINGS AND DEVICES DURING THE ENTIRE PERIOD OF CONSTRUCTION.

SB.03 CONTRACTOR IS FULLY RESPONSIBLE FOR PROVIDING ALL TEMPORARY SHORING AND BRACING OF EXISTING ELEMENTS DURING CONSTRUCTION. ALL SHORING SHALL BE ADEQUATE TO SUPPORT ALL LOADINGS DURING MODIFICATION OF THE EXISTING BUILDING AND ERECTION OF THE NEW STRUCTURAL SUPPORT SYSTEM. TEMPORARY SHORING MUST REMAIN IN PLACE UNTIL ALL NEW STRUCTURAL MEMBERS SUPPORTING SHORED ELEMENTS ARE IN PLACE AND ALL NEW CONNECTIONS COMPLETED.

SP Structural Drawing List

SP-S0.0	TYPICAL NOTES
SP-S0.1	EXISTING & DEMO PLANS
SP-S0.2	COMBINED FOUNDATION PLAN
SP-S0.3	SECTIONS
SP-S0.4	SECTIONS
SP-S1.0	FOUNDATION PLAN - CAISSONS
SP-S1.1	FOUNDATION PLAN GRADE BEAM
SP-S1.2	FIRST FLOOR FRAMING PLAN
SP-S2.0	ELEVATOR SECTIONS AND DETAILS
SP-S3.0	TYPICAL FOUNDATION DETAILS
SP-S3.1	TYPICAL CAISSON DETAILS
SP-S3.2	TYPICAL GRADE BEAM DETAILS
SP-S3.3	CONCRETE WALL DETAILS

PUBLIC BUILDING COMMISSION
CHICAGO Public Schools

MT. GREENWOOD ANNEX II

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CHICAGO, IL 60655

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CITY OF CHICAGO, MAYOR RAHM EMANUEL

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LANDSCAPE ARCHITECT:
JACOBS/RYAN ASSOCIATES

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ENERGY ANALYSIS & LEED:
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ISSUANCE

MARK	DESCRIPTION	DATE
	SITE PREPARATION BID	08/03/2017
1	ADDENDUM 1	08/23/1017

MT. GREENWOOD ANNEX II
PBC CONTRACT NO:
PROJECT NO: 05145

TITLE:
TYPICAL NOTES

SHEET:
SP-S0.0

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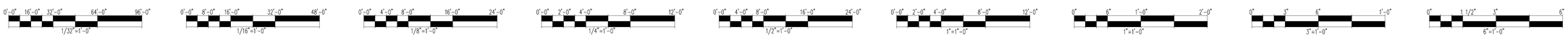

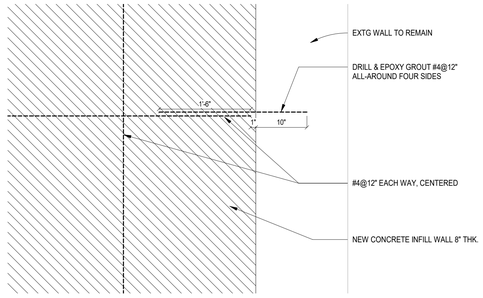

1 WALL INFILL
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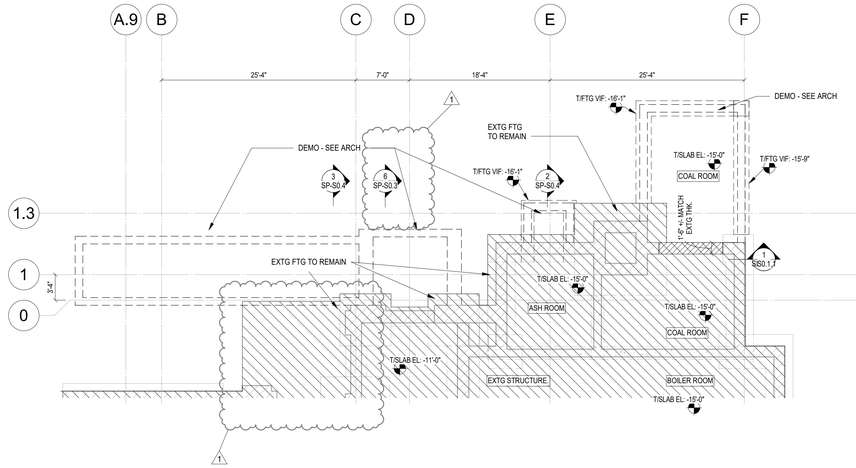

A BASEMENT EXTG & DEMO PLAN
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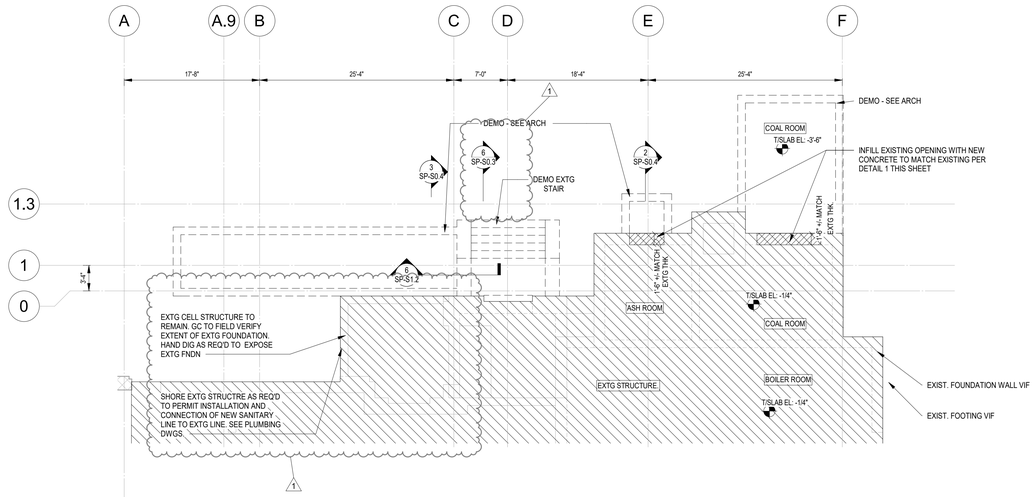

B FIRST FLOOR EXTG & DEMO PLAN
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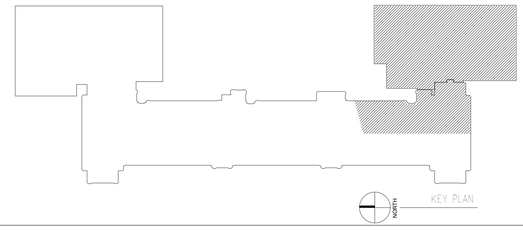

MT. GREENWOOD ANNEX II

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MEP&FP ENGINEER:
RAO ENGINEERING CONSULTANTS

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CIVIL ENGINEER:
RME

ENERGY ANALYSIS & LEED:
ALPHA COMMISSIONING ENGINEERS, INC.

ISSUANCE

MARK	DESCRIPTION	DATE
	SITE PREPARATION BID	08/03/2017
1	ADDENDUM 1	08/23/1017

MT. GREENWOOD ANNEX II
PBC CONTRACT NO:
PROJECT NO: 05145

TITLE:
EXISTING & DEMO PLANS

SHEET:
SP-S0.1

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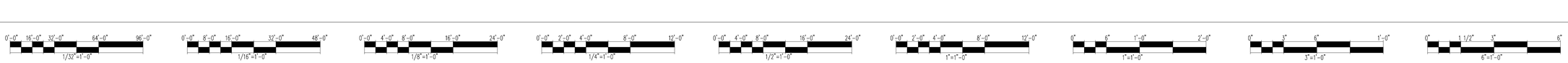
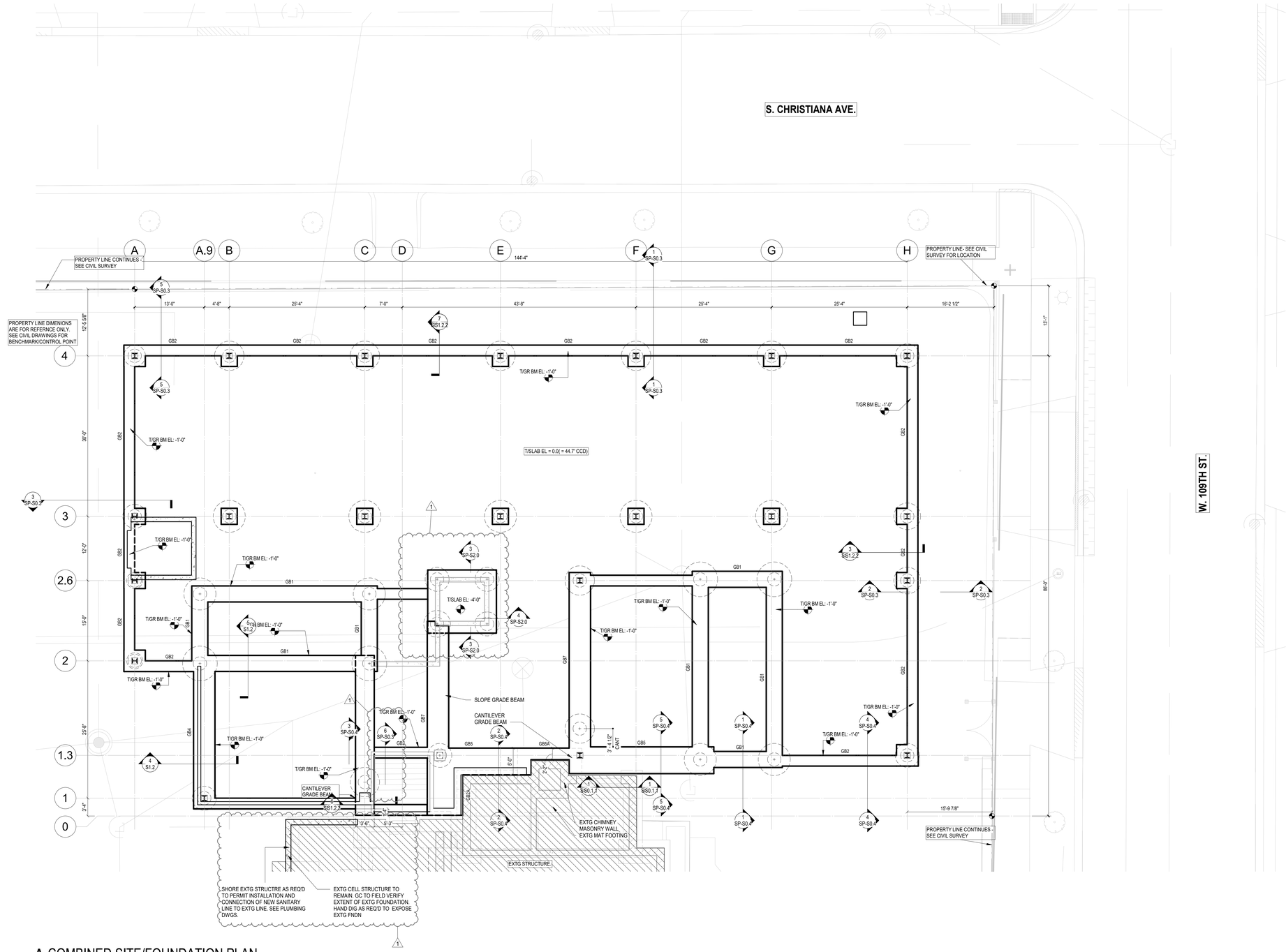
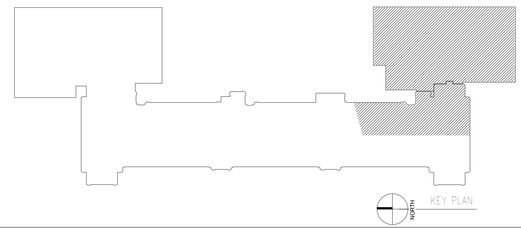




A COMBINED SITE/FOUNDATION PLAN
SCALE: 1/8" = 1'-0"

PLAN NOTES

1. ELEVATIONS INDICATED ARE RELATIVE TO LOCAL DATUM: 0'-0" = 44.70' CCD
2. COLUMN ANCHOR BOLTS ARE INCLUDED WITH SITE PREPARATION PACKAGE. PROVIDE COLUMN ANCHOR BOLTS PER DRAWING SP-S3. ANCHOR BOLT INSTALLATION TO MEET AISC REQUIREMENTS FOR TOLERANCE. ANCHOR BOLT SURVEY IS INCLUDED WITH SITE PREPARATION PACKAGE.



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MT. GREENWOOD ANNEX II
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JACOBS/RYAN ASSOCIATES

CIVIL ENGINEER:
RME

ENERGY ANALYSIS & LEED:
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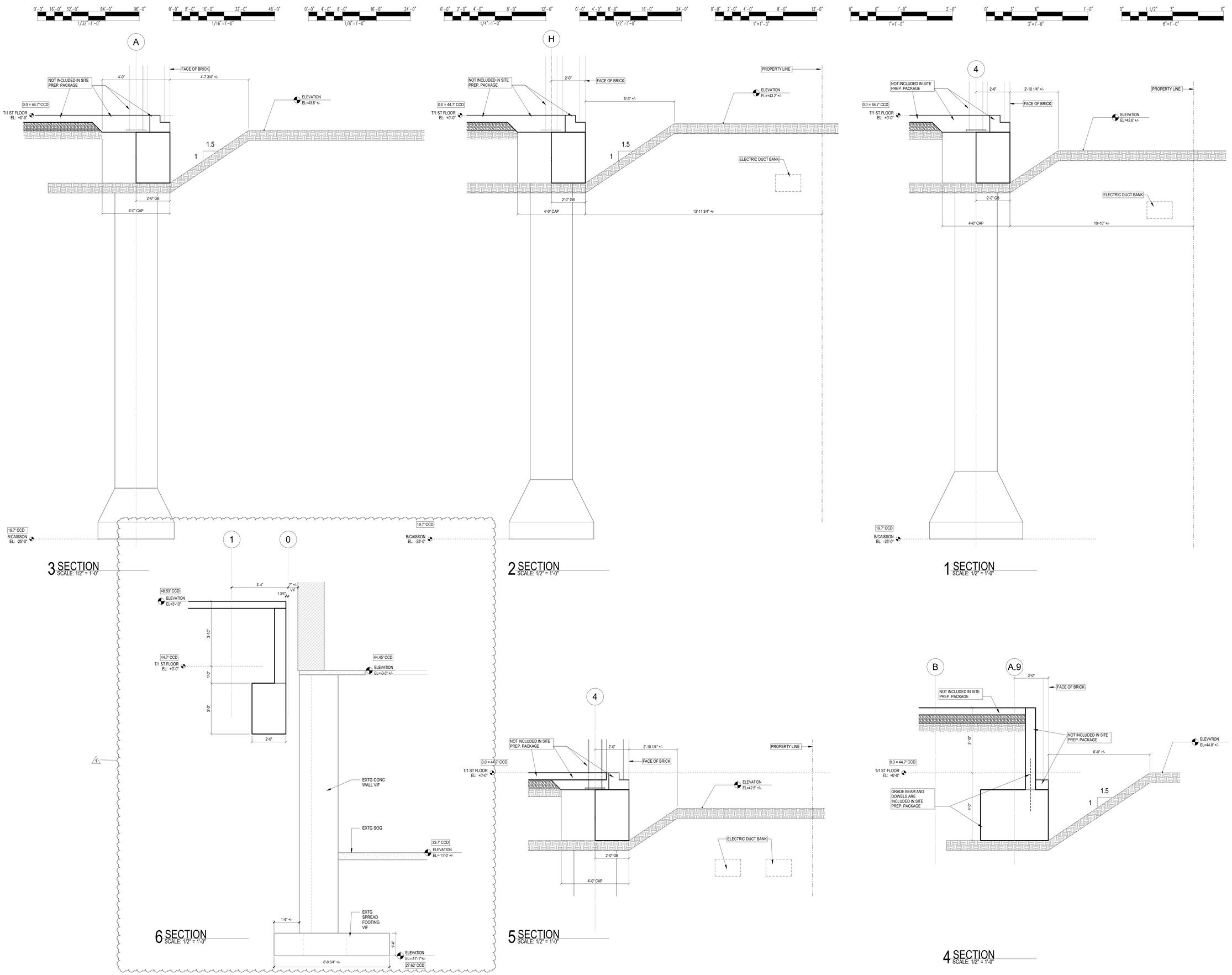
ISSUANCE

MARK	DESCRIPTION	DATE
	SITE PREPARATION BID	08/03/2017
1	ADDENDUM 1	08/23/1017

MT. GREENWOOD ANNEX II
PBC CONTRACT NO:
PROJECT NO: 05145

TITLE:
COMBINED FOUNDATION PLAN

SHEET:
SP-S0.2



3 SECTION
SCALE: 1/2" = 1'-0"

2 SECTION
SCALE: 1/2" = 1'-0"

1 SECTION
SCALE: 1/2" = 1'-0"

6 SECTION
SCALE: 1/2" = 1'-0"

5 SECTION
SCALE: 1/2" = 1'-0"

4 SECTION
SCALE: 1/2" = 1'-0"

8/23/2017 2:54:17 PM

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ISSUANCE

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	SITE PREPARATION BID	08/03/2017
1	ADDENDUM 1	08/23/1017

MT. GREENWOOD ANNEX II
PBC CONTRACT NO:
PROJECT NO: 05145

TITLE:
SECTIONS

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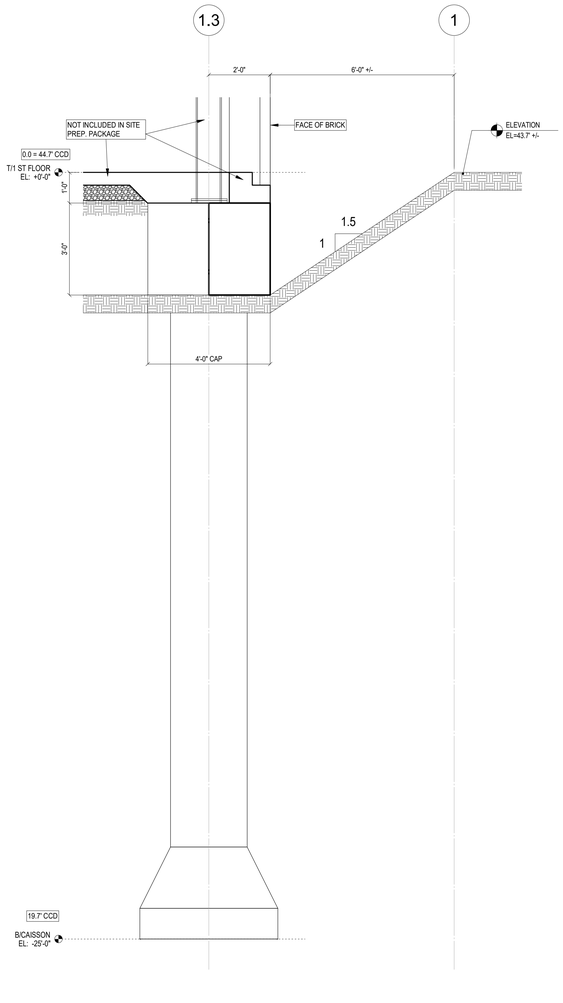
SP-S0.3



4 SECTION
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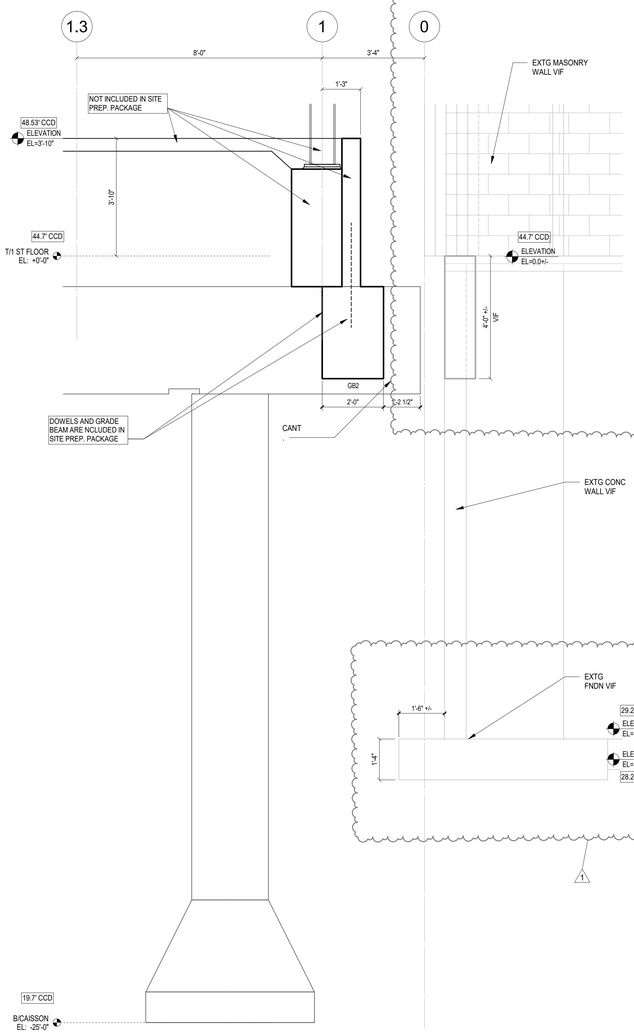

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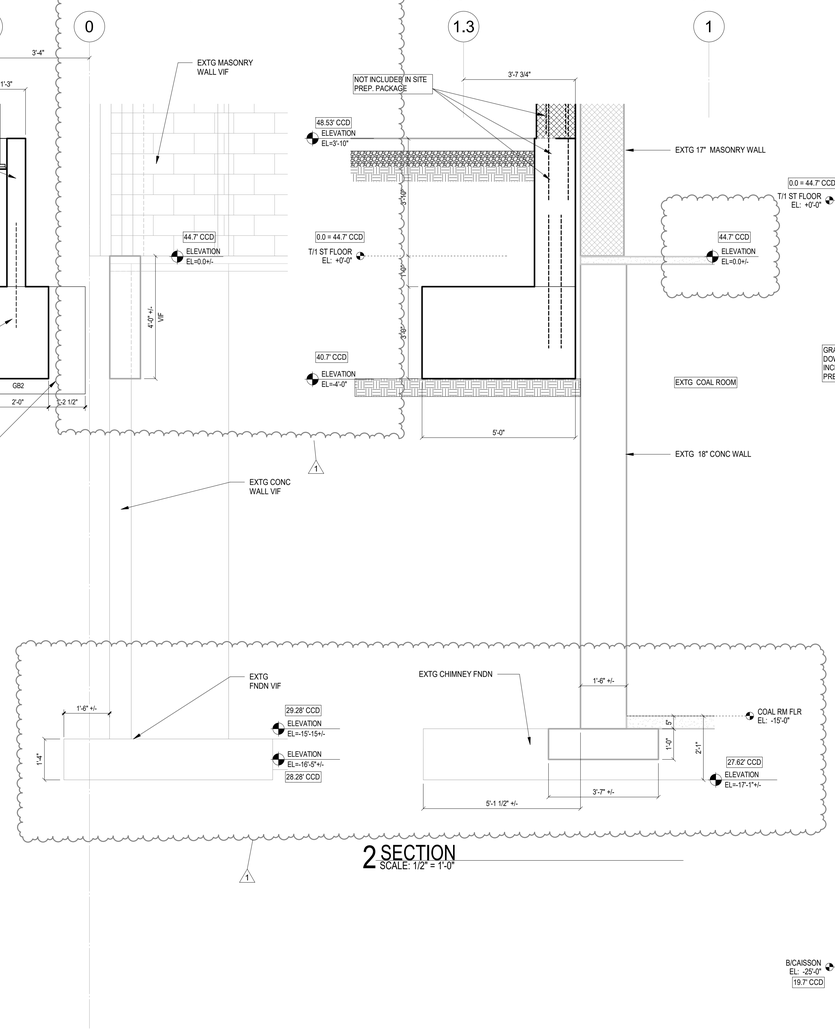

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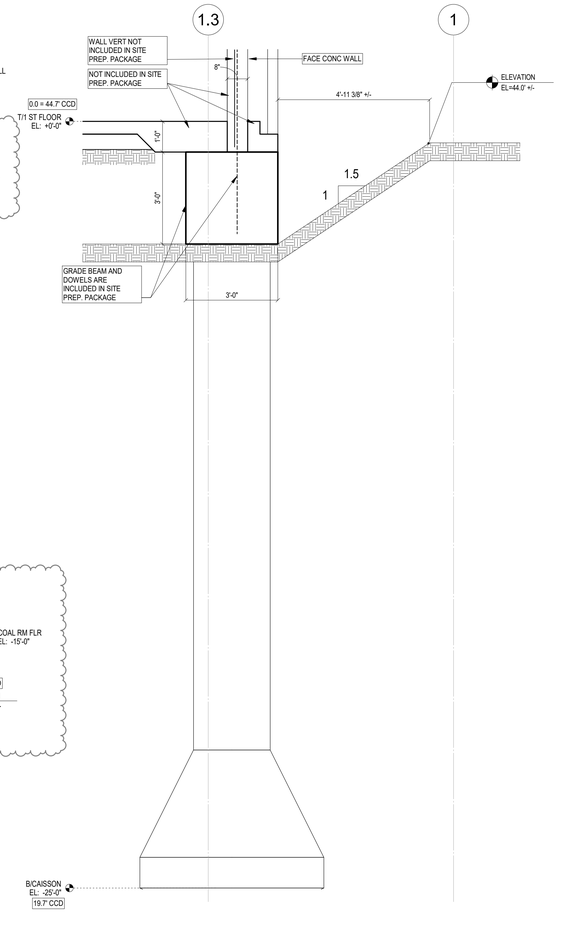

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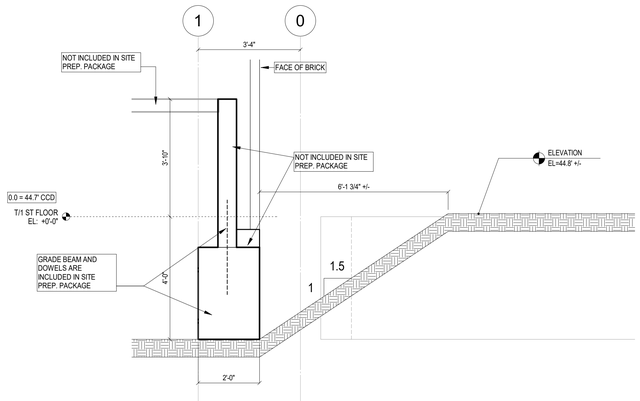

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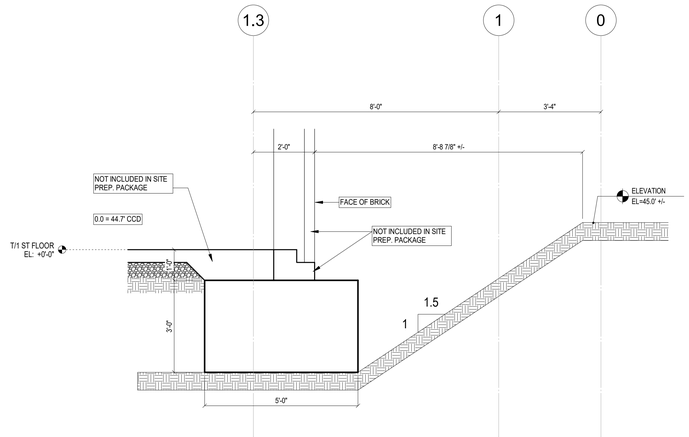

5 SECTION
SCALE: 1/2" = 1'-0"

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ISSUANCE

MARK	DESCRIPTION	DATE
	SITE PREPARATION BID	08/03/2017
1	ADDENDUM 1	08/23/1017

MT. GREENWOOD ANNEX II
PBC CONTRACT NO:
PROJECT NO: 05145

TITLE:
SECTIONS

SHEET:
SP-S0.4

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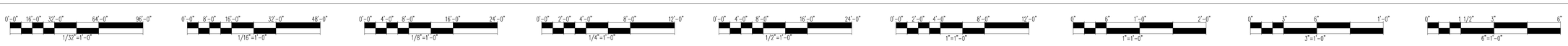
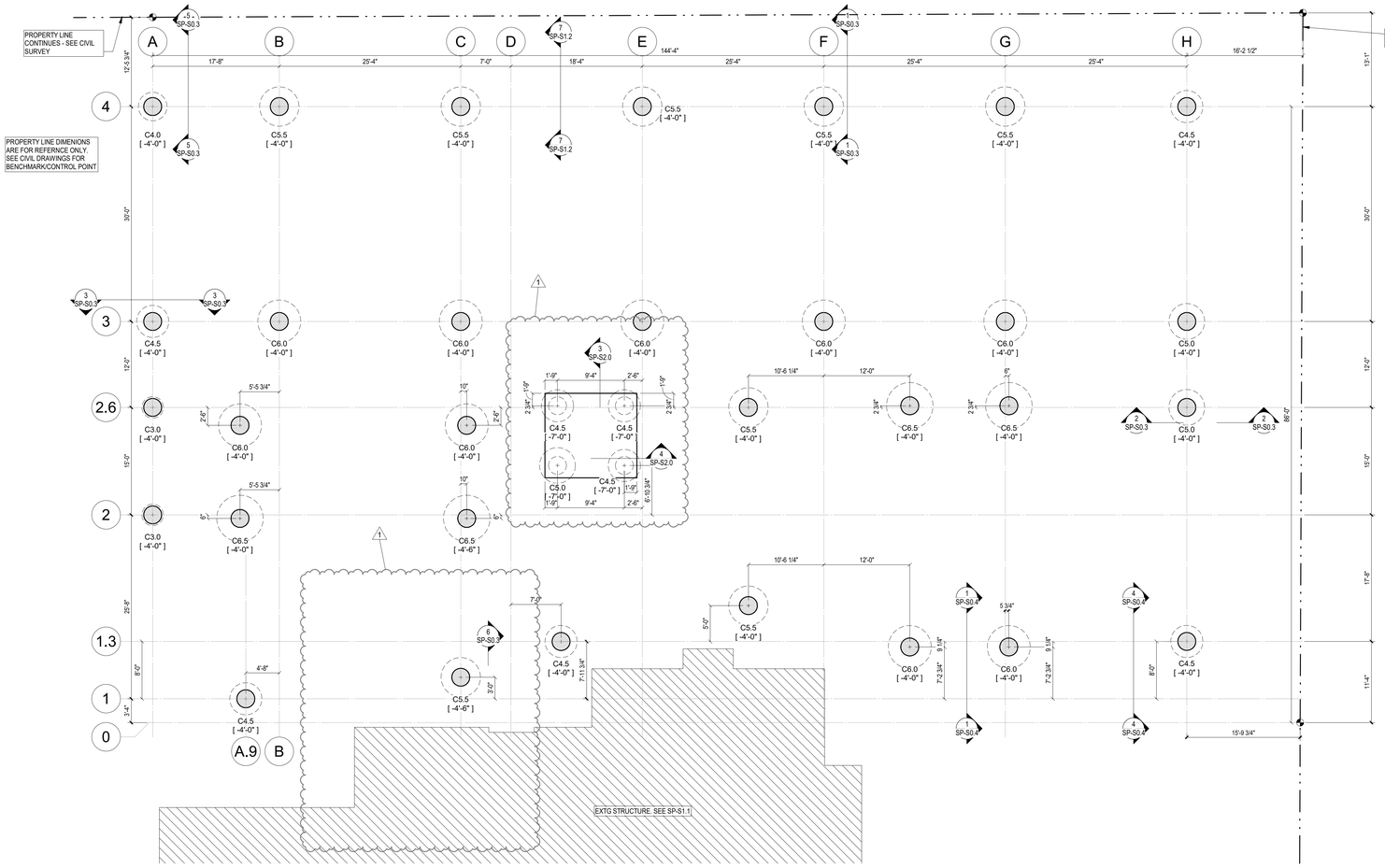
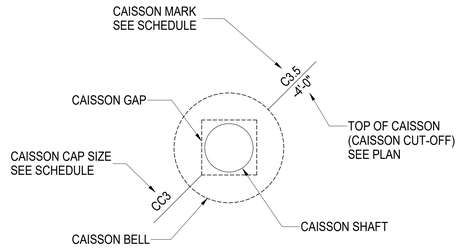




A CAISSON LAYOUT PLAN
SCALE: 1/8" = 1'-0"

NOTE: CAISSONS ARE CENTERED ON GRID LINE U.O.N.



CAISSON LEGEND

PUBLIC BUILDING COMMISSION
Chicago Public Schools

MT. GREENWOOD ANNEX II

10841 SOUTH HOMAN AVENUE
CHICAGO, IL 60655

CHICAGO PUBLIC SCHOOLS
CITY OF CHICAGO, MAYOR RAHM EMANUEL

ARCHITECT OF RECORD:
EC PURDY & ASSOCIATES
53 W. JACKSON BLVD. – SUITE 1631
CHICAGO, ILLINOIS 60604
V 312-408-1631 / F 312-408-1632
www.ecpurdy.com

DESIGN ARCHITECT:
SMNG A LTD.

STRUCTURAL ENGINEER:
GOODFRIEND MAGRUDER STRUCTURE LLC

MEP&FP ENGINEER:
RAO ENGINEERING CONSULTANTS

LANDSCAPE ARCHITECT:
JACOBS/RYAN ASSOCIATES

CIVIL ENGINEER:
RME

ENERGY ANALYSIS & LEED:
ALPHA COMMISSIONING ENGINEERS, INC.

ISSUANCE

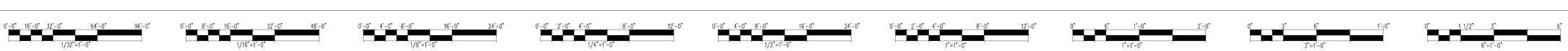
MARK	DESCRIPTION	DATE
	SITE PREPARATION BID	08/03/2017
1	ADDENDUM 1	08/23/1017

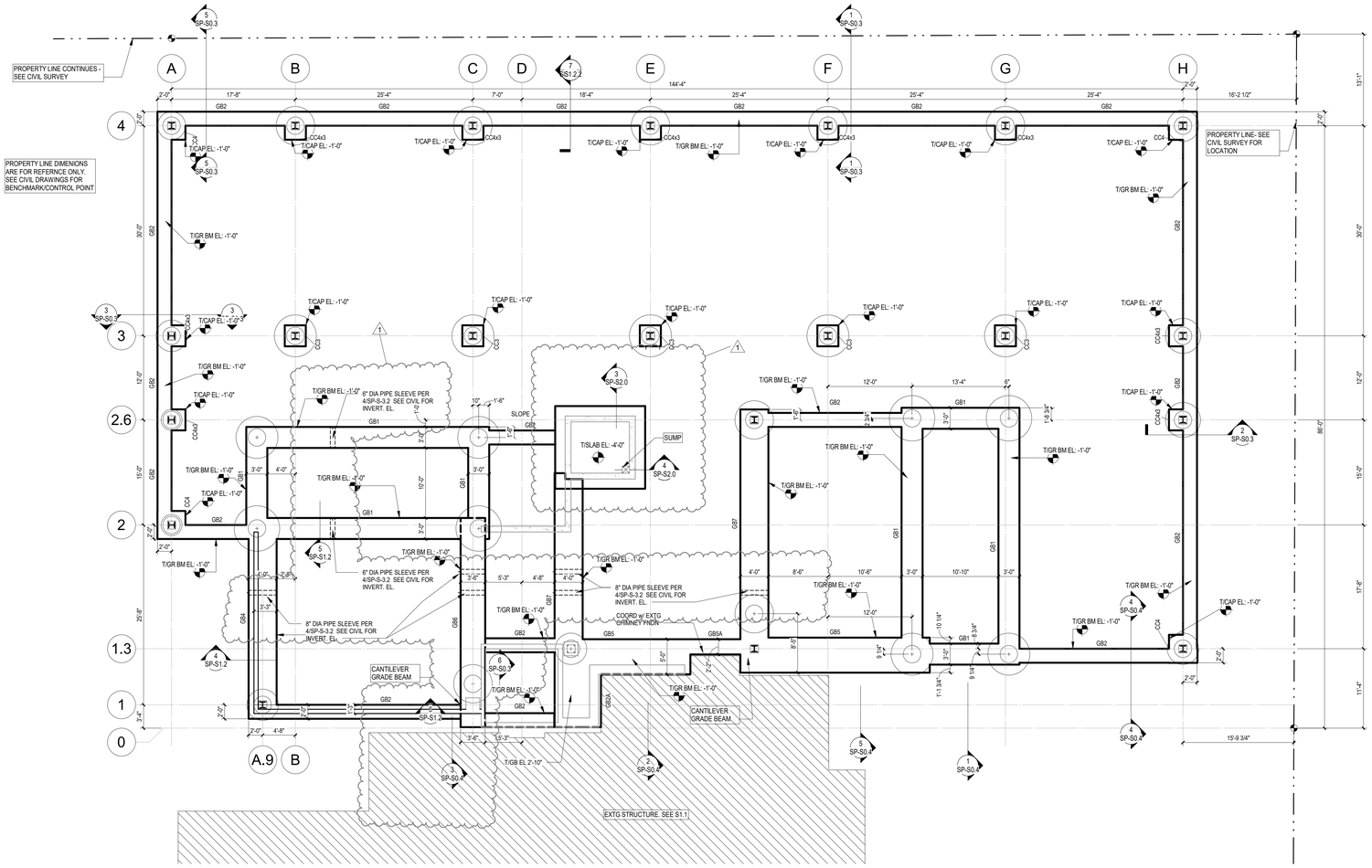
MT. GREENWOOD ANNEX II
PBC CONTRACT NO:
PROJECT NO: 05145

TITLE:
FOUNDATION PLAN – CAISSONS

SHEET:
SP-S1.0

8/23/2017 2:54:20 PM

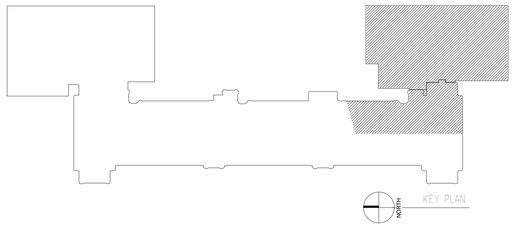




1 GRADE BEAM LAYOUT PLAN
SCALE: 1/8" = 1'-0"

PLAN NOTES

1. ELEVATIONS INDICATED ARE RELATIVE TO LOCAL DATUM: 0'-0" = 44.70' CCD
2. COLUMN ANCHOR BOLTS ARE INCLUDED WITH SITE PREPARATION PACKAGE. PROVIDE COLUMN ANCHOR BOLTS PER DRAWING SP-S3. ANCHOR BOLT INSTALLATION TO MEET AISC REQUIREMENTS FOR TOLERANCE. ANCHOR BOLT SURVEY IS INCLUDED WITH SITE PREPARATION PACKAGE.



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JACOBS/RYAN ASSOCIATES

CIVIL ENGINEER:
RME

ENERGY ANALYSIS & LEED:
ALPHA COMMISSIONING ENGINEERS, INC.

ISSUANCE

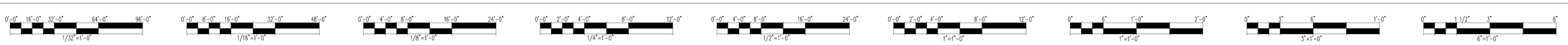
MARK	DESCRIPTION	DATE
	SITE PREPARATION BID	08/03/2017
1	ADDENDUM 1	08/23/1017

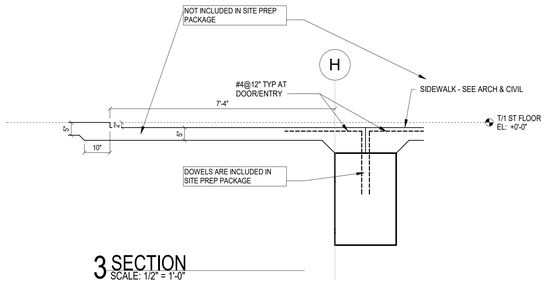
MT. GREENWOOD ANNEX II
PBC CONTRACT NO:
PROJECT NO: 05145

TITLE:
FOUNDATION PLAN GRADE BEAM

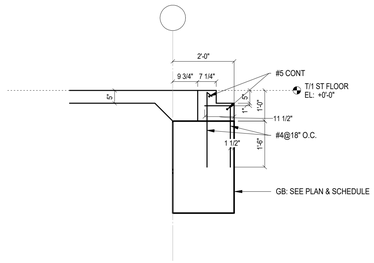
SHEET:
SP-S1.1

8/23/2017 2:54:21 PM

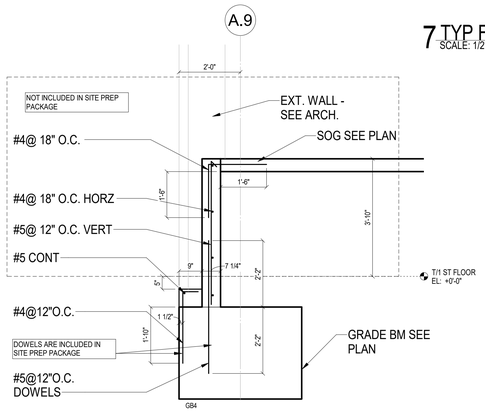




3 SECTION
SCALE: 1/2" = 1'-0"



7 TYP FOUNDATION SECTION
SCALE: 1/2" = 1'-0"



4 FOUNDATION SECTION
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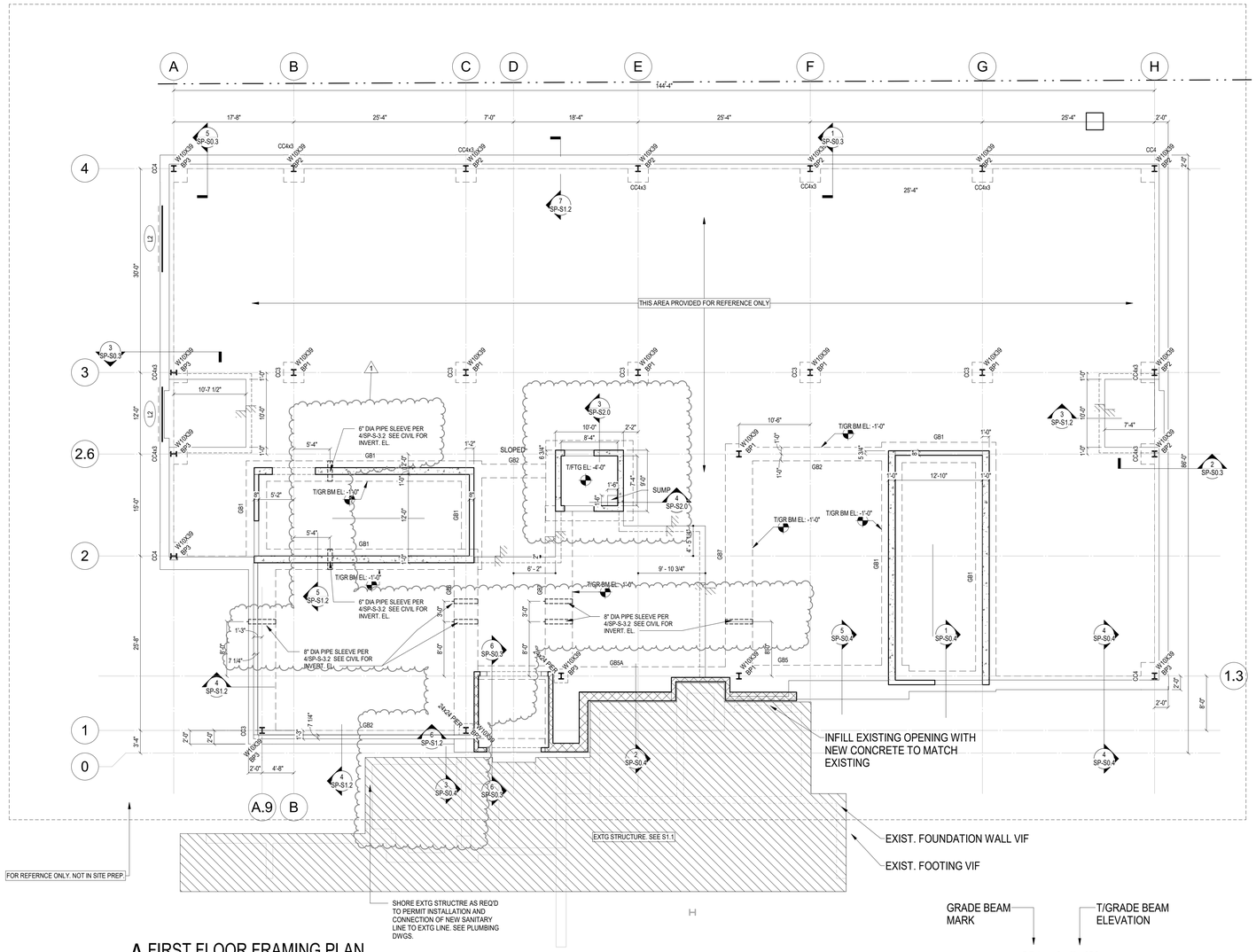
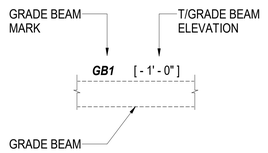


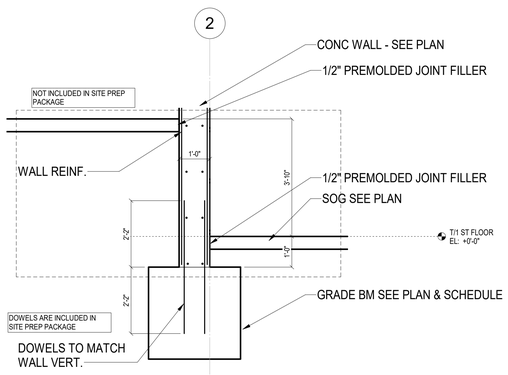
A FIRST FLOOR FRAMING PLAN
SCALE: 1/8" = 1'-0"



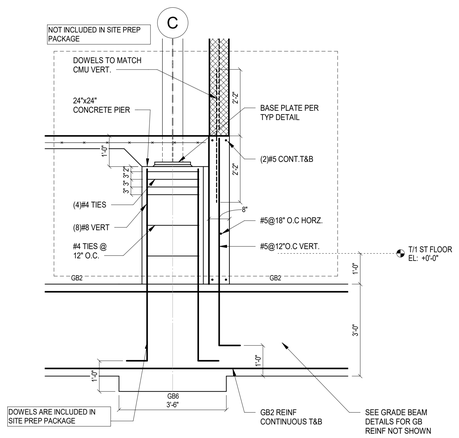
GRADE BEAM LEGEND

PLAN NOTES

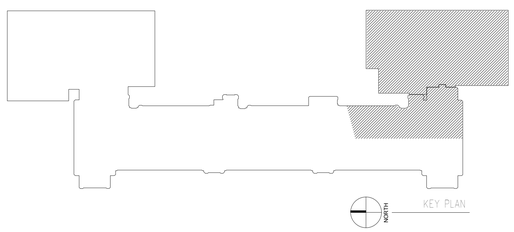
1. ELEVATIONS INDICATED ARE RELATIVE TO LOCAL DATUM: 0'-0" = 44.70' CCD
2. COLUMN ANCHOR BOLTS ARE INCLUDED WITH SITE PREPARATION PACKAGE. PROVIDE COLUMN ANCHOR BOLTS PER DRAWING SP-S3. ANCHOR BOLT INSTALLATION TO MEET AISC REQUIREMENTS FOR TOLERANCE. ANCHOR BOLT SURVEY IS INCLUDED WITH SITE PREPARATION PACKAGE.



5 FOUNDATION SECTION
SCALE: 1/2" = 1'-0"



6 SECTION
SCALE: 1/2" = 1'-0"



PUBLIC BUILDING COMMISSION
CHICAGO Public Schools

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ISSUANCE

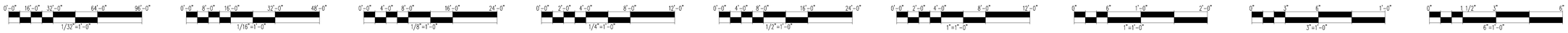
MARK	DESCRIPTION	DATE
	SITE PREPARATION BID	08/03/2017
1	ADDENDUM 1	08/23/1017

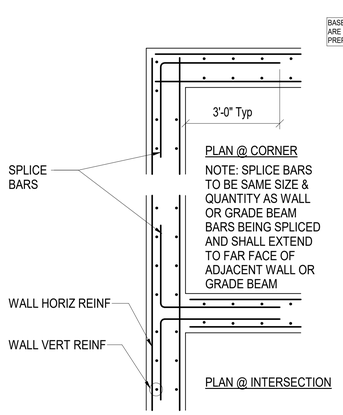
MT. GREENWOOD ANNEX II
PBC CONTRACT NO:
PROJECT NO: 05145

TITLE:
FIRST FLOOR FRAMING PLAN

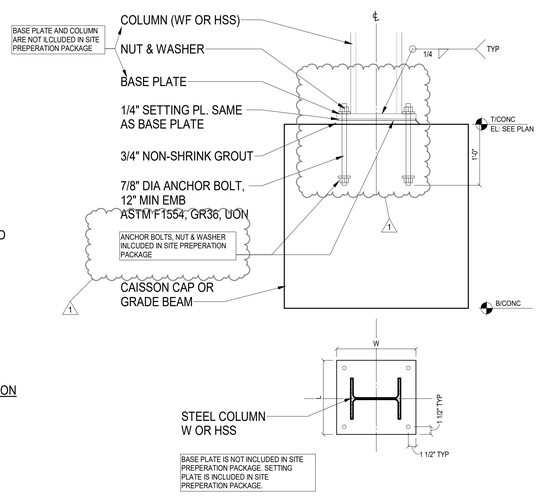
SHEET:
SP-S1.2

8/23/2017 2:54:23 PM

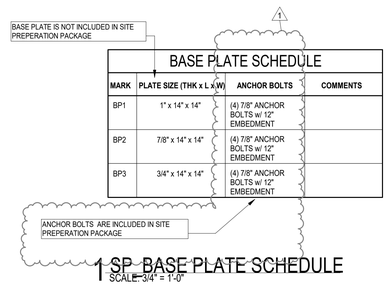




10 SP CORNER BARS @ CONC WALLS
SCALE: 1" = 1'-0"



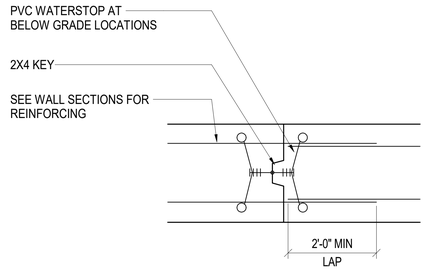
5 SP COLUMN BASE PLATE
SCALE: 1" = 1'-0"



BASE PLATE SCHEDULE

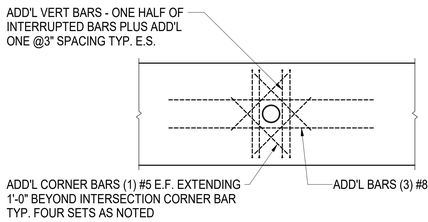
MARK	PLATE SIZE (THK x L x W)	ANCHOR BOLTS	COMMENTS
BP1	1" x 14" x 14"	(4) 7/8" ANCHOR BOLTS w/ 12" EMBEDMENT	
BP2	7/8" x 14" x 14"	(4) 7/8" ANCHOR BOLTS w/ 12" EMBEDMENT	
BP3	3/4" x 14" x 14"	(4) 7/8" ANCHOR BOLTS w/ 12" EMBEDMENT	

1 SP BASE PLATE SCHEDULE
SCALE: 3/4" = 1'-0"



NOTE:
ALLOW A MINIMUM OF 12 HOURS BETWEEN ADJACENT POURS

2 SP FNDN WALL CONSTR. JOINT
SCALE: 1" = 1'-0"



NOTES:
1. LIMIT SLEEVE DIAMETER TO ONE THIRD OF GRADE BEAM OR WALL DEPTH
2. PLACE SLEEVE ENTIRELY WITHIN TO ONE THIRD OF GRADE BEAM OR WALL DEPTH
3. PLACE SLEEVE ENTIRELY WITHIN MIDDLE FIFTH OF GRADE BEAM CLEAR SPAN
4. LOCATE SLEEVES BASED ON TRADE CORPORATION AND SUBMIT SHOP DRAWINGS
5. TYPICAL STIRRUPS/VERT BARS ARE NOT SHOWN FOR CLARITY.

3 SP TYP. FOUNDATION PIPE SLEEVE
SCALE: 1/2" = 1'-0"

PUBLIC BUILDING COMMISSION
CHICAGO Public Schools

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ENERGY ANALYSIS & LEED:
ALPHA COMMISSIONING ENGINEERS, INC.

ISSUANCE

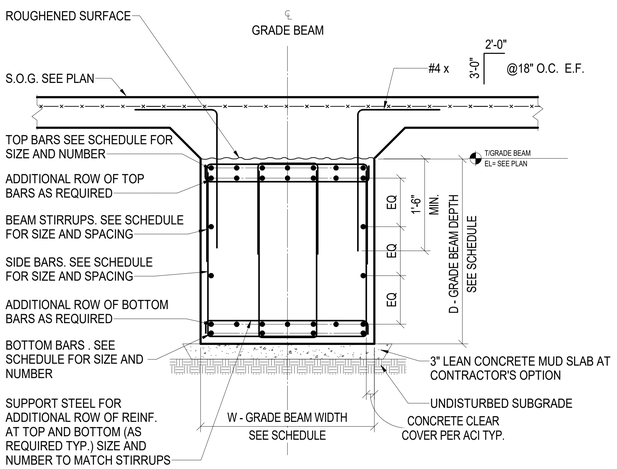
MARK	DESCRIPTION	DATE
	SITE PREPARATION BID	08/03/2017
1	ADDENDUM 1	08/23/1017

MT. GREENWOOD ANNEX II
PBC CONTRACT NO:
PROJECT NO: 05145

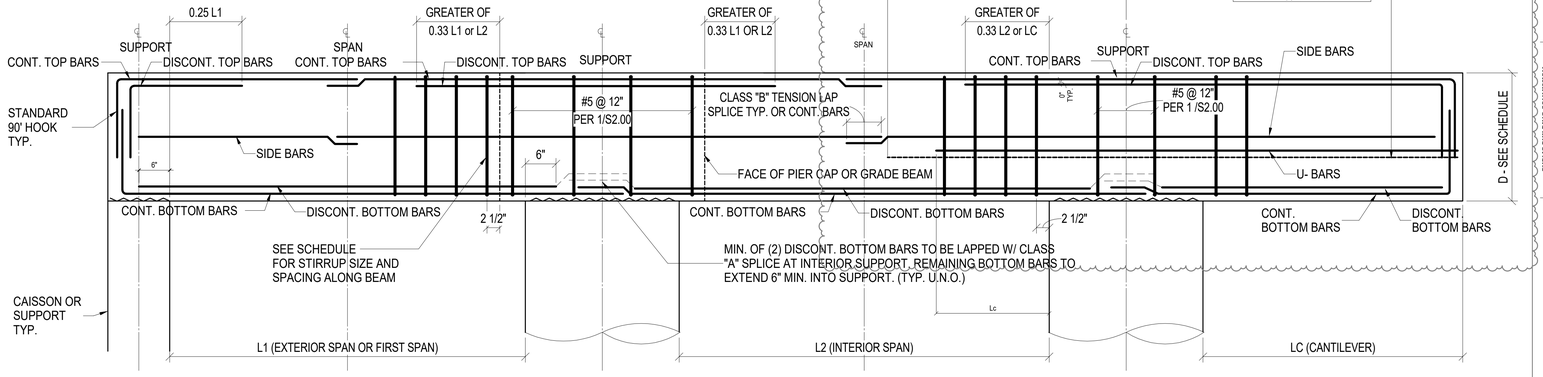
TITLE:
TYPICAL FOUNDATION DETAILS

SHEET:
SP-S3.0

8/23/2017 2:54:25 PM

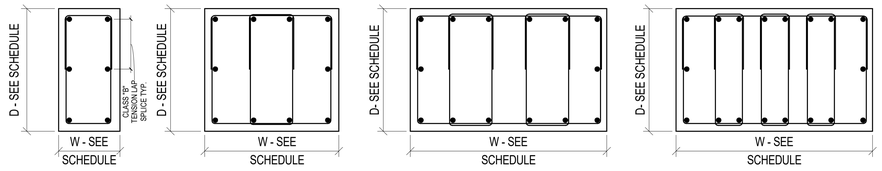


2 TYP GRADE BEAM SECTION
SCALE: 1" = 1'-0"



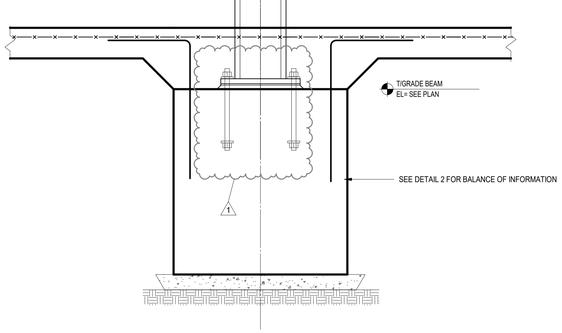
1 TYP GRADE BEAM
SCALE: 1" = 1'-0"

NOTES:
1. SPACE SIDE BARS EQUALLY BETWEEN TOP AND BOTTOM LONGITUDINAL BARS.
2. AT INTERIOR SUPPORTS PROVIDE LARGER SIZE AND NUMBER OF TOP BARS SCHEDULED FOR ADJACENT SPANS.
3. PROVIDE MINIMUM STIRRUPS #4 @12" O.C. TYPE A, U.N.O.
4. PROVIDE CONTINUOUS #4 BARS AT TOP OF BEAM WHERE THERE ARE NO SCHEDULED BARS TO SUPPORTS STIRRUPS.

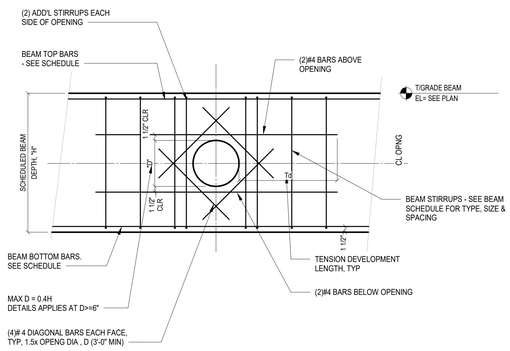


GRADE BEAM SCHEDULE — f'c = 5000 PSI, Fy = 60 KSI

MARK	WIDTH (IN.)	HEIGHT (IN.)	REINFORCEMENT								REMARKS
			BOTTOM BARS	TOP BARS	SIDE BARS EA. FACE	STIRRUPS SIZE	STIRRUPS SPACING	STIRRUPS TYPE	U-BARS U-BARS	U-BARS DETAIL	
GB1	36"	36"	6-#8	6-#8	2-#5	#4	12"	B			
GB2	24"	36"	4-#8	4-#8	2-#5	#4	12"	A			
GB2A	32"	36"	4-#8	4-#8	2-#5	#4	12"	A			
GB4	48"	36"	6-#8	6-#8	2-#5	#4	12"	B			
GB5	60"	36"	6-#8	6-#8	2-#5	#4	12"	C			
GB5A	26"	36"	6-#8	6-#8	2-#5	#4	12"	C			
GB6	42"	42"	8-#8	12-#8	3-#5	#4	12"	C			
						#5	6"	@CANT	(4)#6		
GB7	48"	36"	8-#8	12-#8	3-#5	#4	12"	C			
						#5	6"	@CANT	(4)#6		



3 TYP GRADE BEAM AT COLUMN
SCALE: 1" = 1'-0"



4 GRADE BEAM OPENING
SCALE: 3/4" = 1'-0"

8/23/2017 2:54:27 PM

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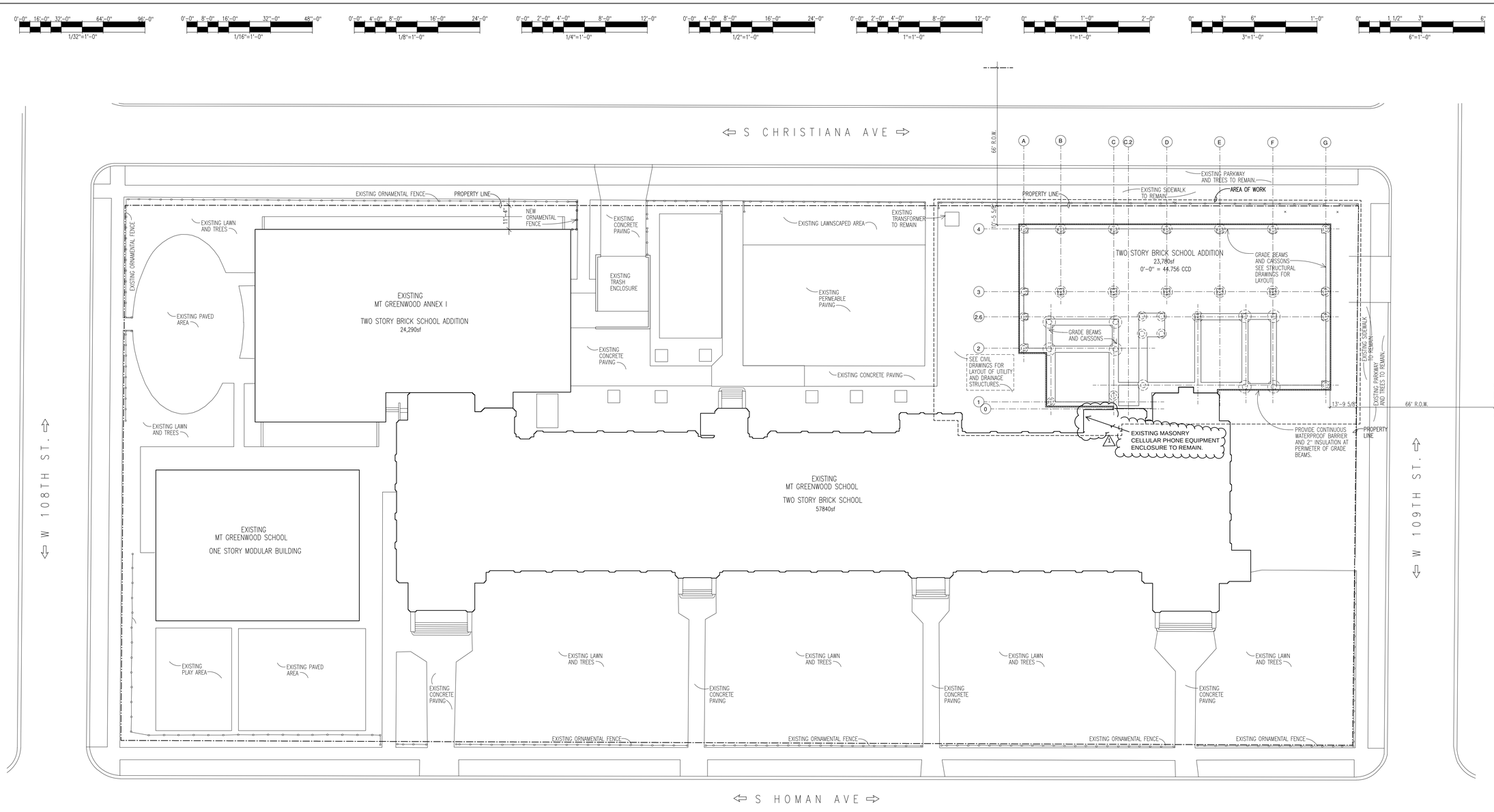
ISSUANCE

MARK	DESCRIPTION	DATE
	SITE PREPARATION BID	08/03/2017
1	ADDENDUM 1	08/23/1017

MT. GREENWOOD ANNEX II
PBC CONTRACT NO:
PROJECT NO: 05145

TITLE:
TYPICAL GRADE BEAM DETAILS

SHEET:
SP-S3.2



1 SITE PLAN
SCALE: 1/20"=1'–0"

NORTH

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ISSUANCE

MARK	DESCRIPTION	DATE
1	ADDENDUM 01	8/22/2017
	SITE PREPARATION BID	8/4/2017
	100% REVIEW	7/25/2017
	75% REVIEW	7/18/2017
	DD MILESTONE MEETING	6/27/2017
	DESIGN DEVELOPMENT	6/13/2017

MT. GREENWOOD ANNEX II
PBC CONTRACT NO:
PROJECT NO: 05145

TITLE
SITE PLAN

SHEET
SA1.0

0'–0" 16'–0" 32'–0" 64'–0" 96'–0"
1/32"=1'–0"

0'–0" 8'–0" 16'–0" 32'–0" 48'–0"
1/16"=1'–0"

0'–0" 4'–0" 8'–0" 16'–0" 24'–0"
1/8"=1'–0"

0'–0" 2'–0" 4'–0" 8'–0" 12'–0"
1/4"=1'–0"

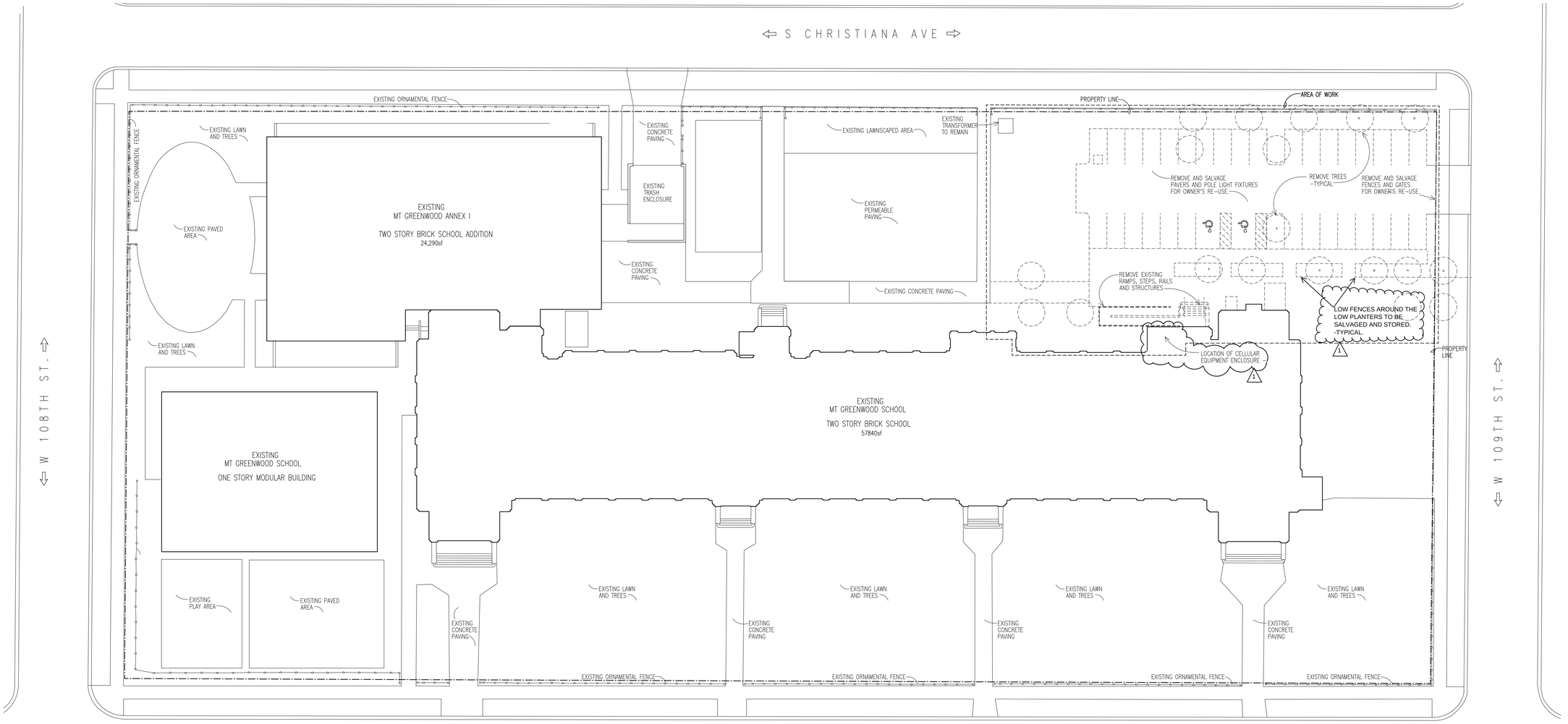
0'–0" 4'–0" 8'–0" 16'–0" 24'–0"
1/2"=1'–0"

0'–0" 2'–0" 4'–0" 8'–0" 12'–0"
1"=1'–0"

0" 6" 1'–0" 2'–0"
1"=1'–0"

0" 3" 6" 1'–0"
3"=1'–0"

0" 1 1/2" 3" 6"
6"=1'–0"



1 SITE PLAN
SCALE: 1/20"=1'–0"

NORTH

GRAPHICS KEY

DASHED LINES INDICATE SITE CONSTRUCTION TO BE REMOVED.

SOLID LINES INDICATE SITE ELEMENTS TO REMAIN.

1. STORE ELEMENTS NOTED TO BE SALVAGED ON SITE WHERE DIRECTED BY OWNER.

SALVAGED ITEMS SHALL BE NEATLY STACKED ON NEW PALETTES, SUCH THAT THEY ARE ABOVE THE GROUND, AND SHALL BE SECURELY WRAPPED AND COVERED WITH OPAQUE PLASTIC SHEETING THAT IS TIED DOWN AND SECURED IN PLACE.

MT GREENWOOD ANNEX II

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MARK	DESCRIPTION	DATE
1	ADDENDUM 01	8/22/2017
	SITE PREPARATION BID	8/4/2017
	100% REVIEW	7/25/2017
	75% REVIEW	7/18/2017
	DD MILESTONE MEETING	6/27/2017
	DESIGN DEVELOPMENT	6/13/2017

MT. GREENWOOD ANNEX II
PBC CONTRACT NO:
PROJECT NO: 05145

TITLE
SITE PLAN DEMOLITION

SHEET
AS1.0D

0'-0" 16'-0" 32'-0" 64'-0" 96'-0"
1/32"=1'-0"

0'-0" 8'-0" 16'-0" 32'-0" 48'-0"
1/16"=1'-0"

0'-0" 4'-0" 8'-0" 16'-0" 24'-0"
1/8"=1'-0"

0'-0" 2'-0" 4'-0" 8'-0" 12'-0"
1/4"=1'-0"

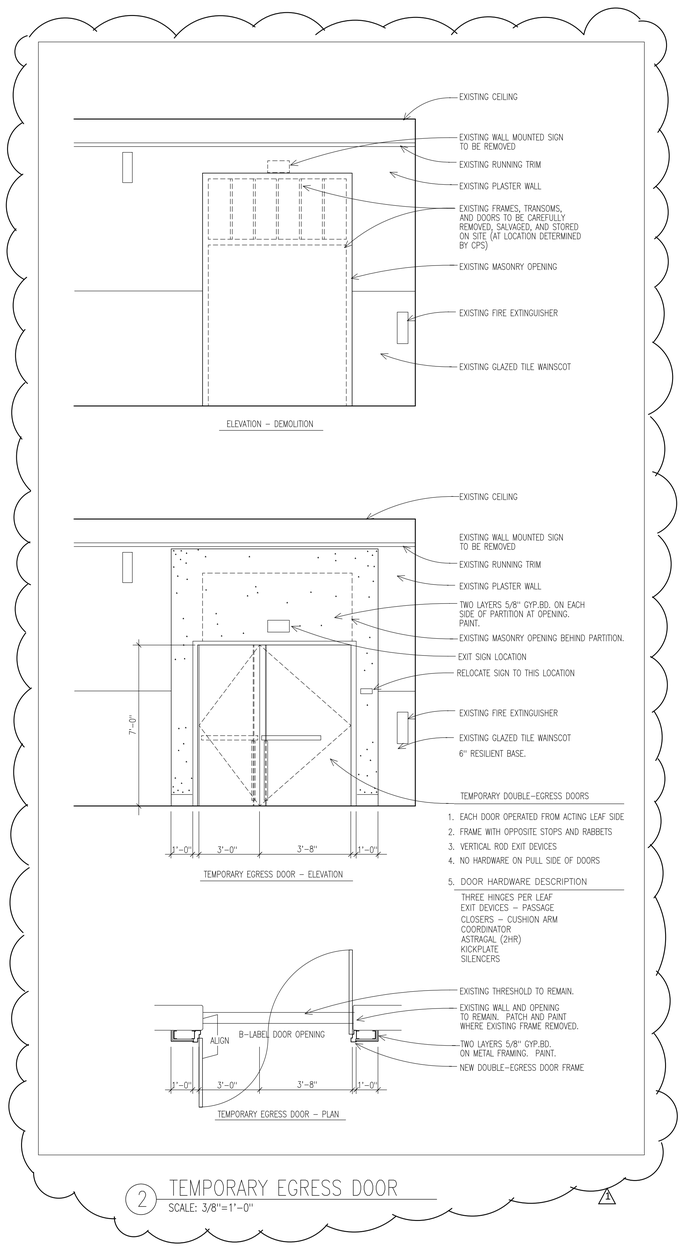
0'-0" 4'-0" 8'-0" 16'-0" 24'-0"
1/2"=1'-0"

0'-0" 2'-0" 4'-0" 8'-0" 12'-0"
1"=1'-0"

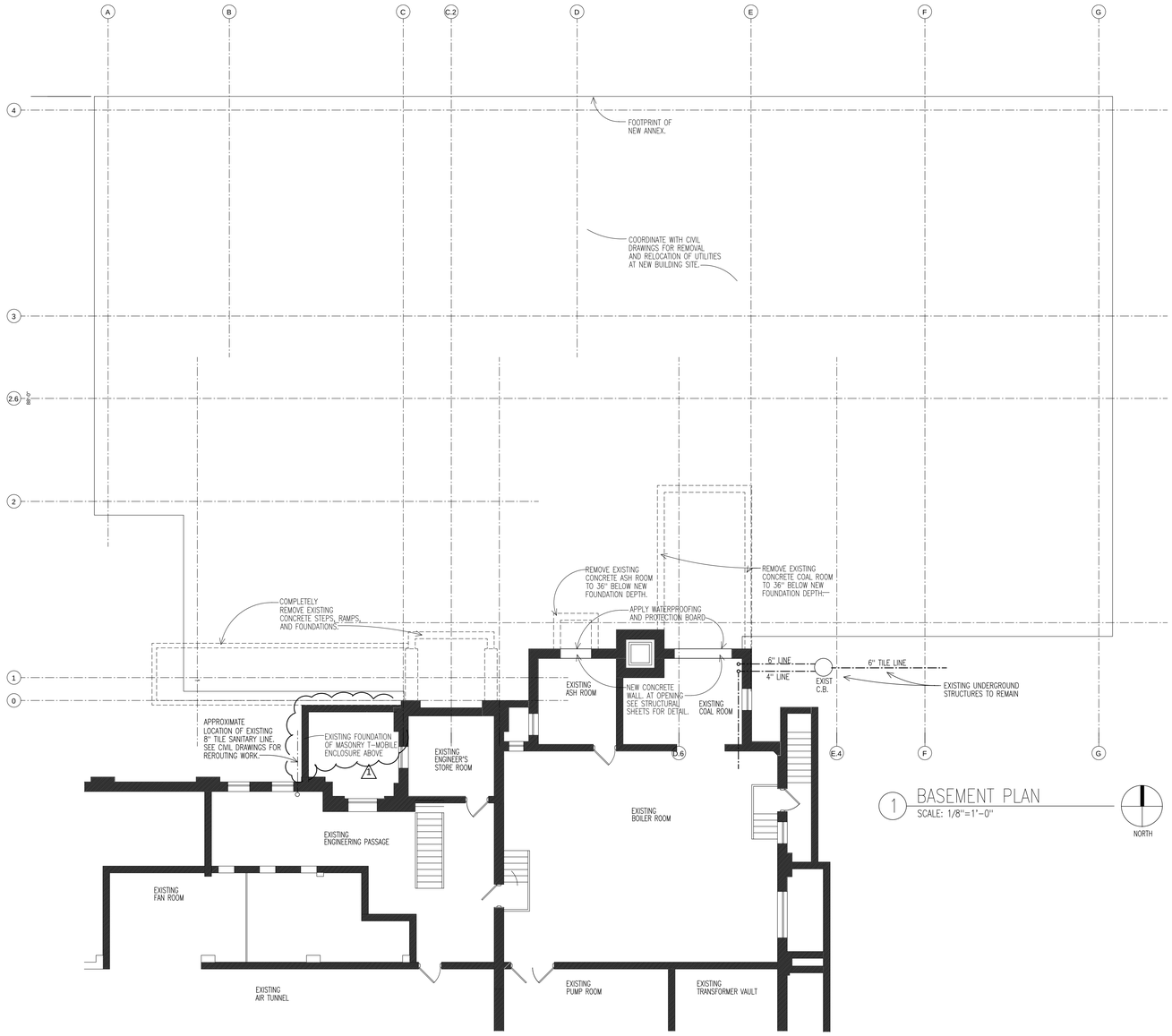
0" 6" 1'-0" 2'-0"
1"=1'-0"

0" 3" 6" 1'-0"
3"=1'-0"

0" 1 1/2" 3" 6"
6"=1'-0"



2 TEMPORARY EGRESS DOOR
SCALE: 3/8"=1'-0"



1 BASEMENT PLAN
SCALE: 1/8"=1'-0"

PUBLIC BUILDING COMMISSION
Chicago Public Schools

MT GREENWOOD ANNEX II

10841 SOUTH HOMAN AVENUE
CHICAGO, IL 60655
CHICAGO PUBLIC SCHOOLS
CITY OF CHICAGO, MAYOR RAHM EMANUEL

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DESIGN ARCHITECT:
SMNG A LTD.

STRUCTURAL ENGINEER:
GOODFRIEND MAGRUDER STRUCTURE, LLC

MEP&FP ENGINEER:
RAO ENGINEERING CONSULTANTS

LANDSCAPE ARCHITECT:
JACOBS/RYAN ASSOCIATES

CIVIL ENGINEER:
RME

ENERGY ANALYSIS & LEED:
ALPHA COMMISSIONING ENGINEERS, INC.

ISSUANCE

MARK	DESCRIPTION	DATE
1	ADDENDUM 01	8/22/2017
	SITE PREPARATION BID	8/4/2017
	100% REVIEW	7/25/2017
	DD MILESTONE MEETING	6/27/2017
	DESIGN DEVELOPMENT	6/13/2017
	REVIEW	6/2/2017

MT. GREENWOOD ANNEX II
PBC CONTRACT NO:
PROJECT NO: 05145

TITLE
BASEMENT DEMOLITION PLAN

SHEET
A1.0D