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.: **04**

PROJECT NAME: **Williams Park Fieldhouse**

PROJECT NO.: **11320**

CONTRACT NO.: **C1593**

DATE OF ISSUE: **January 24, 2018**

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**
None.

ITEM NO. 3: **REVISIONS TO BOOK 2 – PBC STANDARD TERMS AND CONDITIONS**
None.

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

Change 1 **Book 3 – Volume 1&2** – **REPLACED** – 00 01 10 - Table of Contents
Change 2 **Book 3 – Volume 1** – **REPLACED** – 01 14 11 – Construction Operations and Site Utilization Plan
Change 3 **Book 3 – Volume 1** – **ADDED** – 04 20 00 – Unit Masonry
Change 4 **Book 3 – Volume 1** – **REPLACED** – 07 42 13.19 – Insulated Metal Wall Panels
Change 5 **Book 3 – Volume 1 – REPLACED** – 08 41 13 – Aluminum Framed Entrance and Storefronts

ITEM NO. 5: **REVISIONS TO DRAWINGS**

Change 1 **REVISED** Drawing G1.5Site Utilization Plan. Revised notes to incorporate latest CPD information.
Change 2 **REVISED** Drawings A3.1, A3.2, A4.2. Section and detail tags were updated.
Change 3 **REVISED** Drawings A5.1, A6.4. Stone thickness updated.
Change 4 **REVISED** Drawing A5.2. R-value of insulation updated.
Change 5 **REVISED** Drawing A8.4. Added notes for wall finishes.
Change 6 **REVISED** Drawing A10.2. Revised storefront finish.
Change 7 **REVISED** Drawing A11.1. General note added.

ITEM NO. 6: **REQUESTS FOR INFORMATION**

RFI-1.
Question: **Please clarify wall tile elevation where Ceramic Tile finishes occur.**
Response: **Interior Elevations Toilets and Reception sheet A8.4 has been revised and is included in this Addendum.**

RFI-2.

Question: Is R-21 acceptable for a 3" panel

Response: 3" Panel with R21 is required. Drawing A5.2 and Spec 07 42 13.19 have been revised and are included in this Addendum.

RFI-3.

Question: No manufacturer in spec offers 20 gauge panels. Is a 22 gauge exterior, 26 gauge interior acceptable?

Response: 22 gauge interior and exterior is acceptable. Specification Section 07 42 13.19 has been revised and is included in this Addendum.

RFI-4.

Question: Spec does not mention panel profile. Standard profile is embossed. Details call for smooth profile. Should panels be smooth?

Response: Finish of exterior panel to be smooth profile. Specification Section 07 42 13.19 has been revised and is included in this addendum.

RFI-5.

Question: Per Spec Section 084113 - 2.5/G1 they have specified a "Dark Grey Anodized" finish. None of the specified vendors offer a "Dark Grey Anodized" finish. Can you please have the architect clarify if this finish is supposed to be painted? Also, they are asking for a 20 year finish warranty but the longest our vendors offer for a anodized finish warranty is 10 years. If this finish changes to a painted finish we will be able to get a 20 year finish warranty.

Response: Dark Grey Anodized finish is not required. Provide Dark Grey Coated finish to match stone panel. A 20-year warranty is required, in accordance with Contract Documents. Drawing A10.2 and 2.5.F on Specification Section 08 41 13 have been revised and are included in this Addendum.

RFI-6.

Question: What finish (if any) do the glulam beams receive?

Response: Wiped Stain finish is to be provided as indicated in Specification Section 06 18 00-2.7A of the Contract Documents.

RFI-7.

Question: Please reference 2/A6.4 Enlarged RCP – Ext. West Vestbule. At this Vestibule ceiling, it calls for 1-1/2" thick stone panels. However, per associated detail 12/A6.4, 2" thick panels are called out at the ceiling. Similarly, at 3/A5.1 East Vestibule Wall Section it calls for 1-1/2" thick stone panels. However, per associated details 15/A6.1 & 15/A6.5, 2" thick panels are called out. Please clarify the thickness of the stone paneling at the ceiling as well as wall cladding at both vestibules.

Response: 2" panels are required per details on 12/A6.4, 15/A6.1, and 15/A6.5 of the Contract Documents. Details 3/A5.1 and 2/A6.4 have been revised and are included in this Addendum.

RFI-8.

Question: At the trash & hot box enclosures, CMU, brick & precast coping are called for. However, there is no unit masonry spec. Please provide unit masonry specification.

Response: New Specification Section '04 20 00 - Unit Masonry' has been added and is included in this Addendum.

RFI-9.

Question: I had a millwork contractor ask me if the architect is willing to waive the AWI Certification requirement for the millwork.

Response: No. Contractors are responsible for obtaining all required certifications, in accordance with the Contract Documents.

RFI-10.

Question: **On drawing C1.0 it shows Peoples Gas doing work on South State St. Does Peoples Gas do the work, open the street and do their own repair of the street? Or is the GC responsible to sawcut the street and repair the opening? Who pays for it?**

Response: **Peoples Gas will perform all work in public right of way related to Gas Service work, and be responsible for restoration of those work areas. This includes saw cutting and repairing the opening. The Public Building Commission will be responsible for payment to People's Gas.**

RFI-11.

Question: **As we contacted, the listed metal wall panel manufacturer ZAHNER in section 07 31 16.19 – 4 doesn't supply the product (Millennium Forms Flat Lock Panel) as required. Please suggest any other manufacturer or product we shall use.**

Response: **The specified panels are custom flat lock panels utilizing LIC stainless steel. The basis of design is Millennium Form. Zahner also fabricates custom flat lock panels in LIC stainless steel, and can match the basis of design: Millennium Form's Flat Lock Panel.**

RFI-12.

Question: **Please refer to A3.2 – there is a callout for detail 5/A5.1. Detail 5 does not exist on A5.1. Please issue detail.**

Response: **Drawing A3.1, A3.2 and A4.2 has been revised and are included in this addenda. Revision reflects corrected call outs on details 1/A3.1, 1/2/A3.2, and 2/A4.2.**

List of Attachments and Drawings:

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

1. Section 00 01 10 – Table of Contents
2. Section 01 14 11 – Construction Operations and Site Utilization Plan
3. Section 04 20 00 – Unit Masonry
4. Section 07 42 13.19 – Insulated Metal Wall Panels
5. Section 08 41 13 – Aluminum Framed Entrance and Storefronts

This Addendum includes the following attached Drawings:

1. G1.5 Site Utilization Plan, dated 1/22/2018
2. A3.1 East and North Elevations, dated 1/22/2018
3. A3.2 West and South Elevations, dated 1/22/2018
4. A4.2 Building Sections, dated 1/22/2018
5. A5.1 Exterior Wall Sections, dated 1/22/2018
6. A5.2 Exterior Wall Sections, dated 1/22/2018
7. A6.4 Exterior Vestibule Details, dated 1/22/2018
8. A8.4 Interior Elevations Toilet and Reception, dated 1/22/2018
9. A10.2 Door Schedule, dated 1/22/2018
10. A11.1 Equipment Plan and Schedule, dated 1/22/2018

END OF ADDENDUM NO. 04

SECTION 00 01 10

PROJECT MANUAL, BOOK THREE

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01 35 59	Indoor Air Quality Requirements	PBC 04_02/08/13
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PART 1 - GENERAL

1.1 SUMMARY

A. The Construction Operations Plan provides a coordinated construction environment to ensure an orderly, secure and safe operation within the existing park and the entire park property, consequently forming the basis for the Site Utilization Plan prepared by the General Contractor.

1. The Commission Representative and Parks will administer the operations plan activities. All Construction Operating issues shall be channeled through and require approval by the Commission Representative~~.~~
2. The Construction Operations Plan will be prepared based on the requirements of the project and in coordination with the existing park operations and program. The elements of this plan required for incorporation into the Site Utilization Plan are included in this section.

1.2 RELATED SECTIONS

A. Refer to drawings for information related to this section. Additional Specification Sections containing information that related to this section include, but are not limited to the following:

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

1.3 SUBMITTALS

A. Site Utilization Plan: Submit five (5) copies of the Site Utilization Plan required in Part 3.

1. Submit proposed revisions as deemed necessary

1.4 CONSTRUCTION OPERATIONS PLAN

A. **Sequence of Work**

1. **Work is to be performed and completed in (5) five phases:**
   - **Mobilization, site control, demolition**
   - **Environmental activities**
   - **Landscaping and site improvements**
   - **Demobilization and associated site restoration**
   - **Substantial completion of new construction and balance of work.**
2. If building is occupied during construction, Contractor must take any and all necessary steps to prevent dust generated by construction activities from spreading in the field house throughout the entire duration of construction.

3. Contractor must complete cleaning of all areas in the building affected by construction including, but not limited to, any and all areas where dust spread, no later than December 31st, 2018. The contractor must be aware that this is a finish cleaning and not limited to a construction cleaning.

B. Use of Site:

1. Deliveries: All deliveries prior to November 15th, 2018 shall be made through the State street construction entrance. Deliveries on and after November 15th, 2018 shall be made off State street onto CHA sidewalk **south** to site**.** No contractor deliveries shall be done 7:30am to 8:30am, or 2:45pm to 3:45pm on school days. No contractor deliveries will be allowed on Sundays. No contractor deliveries will be allowed after 6:00pm on any given day.
2. Trailer mobilization and demobilization will be subject to delivery restrictions listed above in 1.4.B.1.
3. Working hours will be as follows: Monday through Friday 6:00am to 8:00pm, Saturdays 9:00am to 3:00pm, and Sundays 10:00am to 2:00pm.
4. All landscaping (grass, shrubs, flowers, tress, etc.), curbs, pavement and sidewalks damaged during construction shall be replaced in kind.
5. (6) Six spaces in CPD/CPS parking lot to the northwest. CHA and CPS will need to approve contractor path of travel. No deliveries at parking lot. **Temporary signage stating parking restrictions will need to installed by GC.**
6. Dearborn Street will be unavailable to the contractor, except for mobilization and demobilization activities. **During these activities same restrictions as for deliveries applied.**
7. Contractor shall document all existing conditions prior to starting any work on site. Preconstruction photographs shall be submitted as a formal submittal prior to any work commencing. Photographs shall document both interior and exterior site conditions. Failure to document the existing conditions prior to work commencing will hold the contractor responsible for any damages in the event of a dispute. Final photographs shall be submitted at closeout.
8. A survey of the trailer / laydown area to the west of Dearborn Street will be required and submitted to Commission Representative prior to mobilization west of Dearborn.

C. Special Requirements:

1. **Refer to phasing plan on sheet G1.6**
2. **A copy of Chicago Park District programming schedule, will be available to the general contractor, upon award by CPD.**
3. **General contractor shall contact Claudine Malik, PROJECT MANAGER, CAPITAL AND PLANNING for CPD Access Permit and associated paperwork. Her contact information is Claudine.malik@chicagoparkdstrict.com or 312-742-4660**

1.5 GENERAL REQUIREMENTS

A. General Contractor shall review and be familiar with the site conditions through site visits.

B. General Contractor to obtain all temporary and permanent driveway apron and alley permits for the duration of the construction if required. The General Contractor is to pay all fees required for processing permits and is to contact and comply with all authorities and jurisdiction required for permitting.

C. General Contractor shall provide snow removal and clear all debris in construction area, including the trailer / laydown area, parking lot, adjacent sidewalk, site sidewalk, State Street, and Dearborn Street.

D. General Contractor is to provide and pay for all required permits for street access for truck delivery from the local and state jurisdiction.

E. General Contractor shall survey the site and photograph the area of construction operations. Upon completion of the work the Contractor is to restore the area to the documented condition prior to the start of work or as otherwise indicated in the Contract Documents.

F. General Contractor is to replace all removed trees, bushes, ground covers and grass on the Parks' property used as part of the construction operations. Also concrete pavement walks and asphalt surfaces shall be restored to condition prior to construction.

G. General Contractor shall coordinate and maintain all exit egress during construction as required by the City of Chicago code, other entities with jurisdiction, and as directed by CPD or their representatives. The General Contractor shall provide and maintain all materials and labor including barricades, construction fence, doors, partitions, and fire rated walls as required for safe egress. All costs for this work shall be included in the Contract Base Bid regardless of whether it is indicated in the Contract Documents or not.

1.6 PROTECTIVE FACILITIES

The contractor must provide, at a minimum, the temporary facilities required by the authorities having jurisdiction.

1. Site Fence: 8'-0" high, chain link fence, Contractor Obligations.

    a. Furnish, install and maintain to prevent unauthorized access to Site by people and animals.
    b. Locate fence where indicated on Drawings.
    c. Provide gates as required for access. Coordinate locations with Commission Representative.
    d. Do not remove until other security facilities, either temporary or permanent, are in place and in operation.

1.7 SECURITY PROCEDURES

The following security procedures must be followed by the Contractor.

A. Furnish and install fence as detailed per industry standards.

1. Fencing:

   a. Furnish, install, and maintain new temporary chain-link fence at boundary lines of all Sites included in this contract or added to this contract by change order. In addition, contiguous Site, the fence should surround the entire Site.
   b. Material:

      1) 9 gauge 2” galvanized steel mesh, 8 feet high
      2) 3” outside dimension galvanized end posts with caps
      3) 2” outside dimension galvanized line (intermediate) posts
      4) 10 ft. max. center to center, with caps
      5) 1-5/8” outside dimension galvanized top and bottom rails
      6) 12 gauge min. galvanized ties
      7) Required fittings for proper installation of above.
      8) Opaque fabric meshing affixed to fence as required by Chicago Municipal Code Section 13-32-125.

   c. Method:

      1) Unless otherwise indicated on the drawings, posts are to be set at a depth of no less than 3’0” below ground level and anchored in concrete to full depth. Posts shall be properly capped. End posts and line posts will be evenly spaced at a distance of no more than 10’-0” apart, center to center. Fence shall be erected with top and bottom rails of 1-5/8” o.d. and ties of no less than 12 gauge, securing the galvanized steel mesh to the rails. The bottom rail shall be placed at a distance of no greater than 2” from the bottom of the posts and shall be secured by the use of proper fittings to corner and intermediate posts. Top rail shall run continuously through line post caps and shall be fastened to end posts no less than 2” from the top by the use of proper fittings.
      2) Galvanized steel mesh shall be 8 feet high installed on outside of posts with salvage edge on top. Ties to be 12 gauge min. spaced as per ASTM F567 “Practice for Installation of Chain-Link Fence”.
      3) Gates: Double 8’-0” gate with welded frame and galvanized hinges and hardware and full height fabric as per specification. Locations and number as indicated. Coordinate installation of additional gates with Commission Representative. Additional gates to be installed at Contractor’s cost.
      4) Opaque fabric mesh “shall be affixed to the construction site fence. Such fabric meshing shall be capable of allowing air to pass but impervious to dust and dirt. The fabric meshing shall be of a fineness such that no material over 1/8 inch in size or material splatters, laitance or other products of the construction operation shall pass through the mesh. Such mesh fabric shall be the full height of the fence and cover the entire length of the fence including any gated openings. The fabric meshing and fence shall not contain any advertisements.” Chicago Municipal Code Section 13-32-125(2)(a).

B. The Contractor is to set up and stage the entire project within the boundaries of the construction fence. The General Contractor is responsible for maintaining and modifying the fence as necessary and as approved in the Site Utilization Plan for the life of the project. Removal and disposal of the fence at the conclusion of the project is the responsibility of the General Contractor.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SITE UTILIZATION PLAN

A. General Contractor is to prepare and submit to the Commission Representative, and the AOR for approval a Site Utilization Plan based on the Construction Operations requirements outlined in this section. Mobilization on-site is not to occur until approval of the Site Utilization Plan is obtained. If requested by the Contractor, a preliminary meeting to review site elements and Construction Operations with the Commission Representative, AOR, and Park staff prior to submission of the Site Utilization Plan shall be held.

B. The Site Utilization Plan shall be provided in a full-size graphic drawing format (36 x 48 inches) on 24 x 36 inch prints/plots. Modifications to the format and sheet size shall be permitted if pre-approved by the Commission Representative and if proposed modifications shall facilitate preparation, presentation and review of the Site Utilization Plan. Electronic copies of the Contract Document drawings as appropriate shall be provided for this purpose upon request. The Site Utilization Plan shall at a minimum include the following elements:

1. Title block information including Park Name, Contract Number, General Contractor, Building floor/level information, and current plan date.
2. Building footprint of both new (if applicable) and existing buildings, trees, landscaping, paving, drainage structures, existing and ornamental fencing and other important site features.
3. Denotation of the limits of construction and required construction fencing including any existing fencing to remain.
4. Denotation of required covered construction barricade walkways
5. Denotation of areas allowed for staging purposes: construction personnel parking, material storage, and construction trailer(s). Such activities are to only take place in areas designated.
6. Denotation of any specific site conditions required to be observed such as keeping alleys clear next to adjacent properties, and any other issues listed on the Construction Operations Site Plan.
7. Denotation of areas allowed for site access gates.
8. Construction worker ingress/egress, material staging areas in the existing building.
9. Proposed locations of temporary protection, barricades, and temporary walls within the existing building.
10. Denotation of all temporary exits and path of travel.

11. Indication of specific areas and their required contractual completion dates. If overtime work is required to meet the project dates it shall be at no additional cost to the Parks.

3.2 SITE UTILIZATION PLAN UPDATES

A. The General Contractor is required to submit for approval updated Site Utilization Plans whenever conditions in the current approved plan have changed. Approval is required prior to proceeding on any changed conditions not previously approved. Requirements for updating include the following:

1. In coordination with the project schedule provide detailed information regarding work in the existing building including phasing, vacation of existing in-use areas, and any other information requested by the Commission Representative.
2. Revision to the site plan to reflect changing conditions regarding construction fencing, ingress and egress, student and staff staging, construction deliveries, areas of stored materials, parking, and any other construction facility revisions.

END OF SECTION 01 014 11

SECTION 04 20 00 - UNIT MASONRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes masonry required to complete the Work

B. Options

1. Where “stone” is indicated built into masonry, provide cast stone as specified.

1.2 SUBMITTALS

A. Product Data: Submit copies of manufacturer's specifications and instructions for reinforcing and accessory materials and proprietary materials.

B. Shop Drawings:

1. Submit Shop Drawings for stone in the form of cutting and setting drawings showing size, profiles, locations and anchoring.
2. Submit shop drawings for reinforcing detailing, fabrication, bending and placement of reinforcing bars. Comply with ACI 315 "Details and Detailing of Concrete Reinforcing" showing bar schedules, stirrup spacing, diagrams of bent bars, control joints and arrangement of masonry reinforcement.

C. Samples - Mortar:

1. Submit samples of colored mortar, showing the range of color which can be expected in the finished Work.

D. Samples - Brick:

1. Submit 3 samples of exposed brick to Architects. Include the full range of exposed color and texture to be expected in the completed Work.

   a. Submit test reports for test conducted on the brick proposed for use not more than twelve (12) months before submittal in accordance with ASTM C 67 demonstrating specification compliance. Include initial rate of absorption.

2. Submit sufficient samples of each brick and other masonry unit to be utilized to the mortar batch plant, representing the full range of exposed color to be expected in the completed Work to construct prisms consisting of not more than 7 bricks for each different brick and brick combinations as they occur in the Work.

E. Samples – Stone sills: Submit three samples of window sill section profile, 6 inches long, having proposed finish and color. Include the full range of exposed color and texture to be expected in the completed Work.

F. Test Reports: Submit material test reports from a qualified independent testing laboratory complying with ASTM C 1093 to be employed and paid by Contractor with affidavits/certifications indicating and interpreting test results relative to compliance of the following proposed masonry materials with requirements indicated:

1. Mortar to comply with physical properties requirements set forth in ASTM C 270.
2. Clay masonry to comply with the physical properties requirement set forth in ASTM C 216. Test report shall include compressive strength, 24 hour soak, 5 hour boil, saturation coefficient, efflorescence, and IRA (suction) tests.
3. Concrete masonry units to comply with physical properties requirement set forth in ASTM C 90.

G. Certification: Plant mixed mortar and plant mixed grout: Submit statement from provider for each different cement product, name of manufacturer, brand, type and weight slips at the time of delivery for each 20 tons of mortar and grout.

H. Insulation Certification: Submit a certification signed and dated by the insulation installer listing the type of insulation installed, the manufacturer, and R-value.

I. Certification, Reinforcing Bar: submit certification indicating each material and grade.

J. Certification, Joint Reinforcing: submit certification indicating type and size of joint reinforcement.

K. Certification, Cast Stone: Submit statement that plant complies with the requirements of the Cast Stone Institute Technical Manual and the Architectural Precast Association. Submit manufacturers QAQC program.

1.3 QUALITY ASSURANCE

A. Materials:

1. Do not change source or brands of masonry mortar materials during the Work.
2. Obtain concrete masonry units (CMU) from one manufacturer, cured by one process and of uniform texture and color, for each type required for each continuous area and visually related areas.

B. Fire-Resistive ratings: Provide materials and construction identical to those of assemblies with fire-resistive ratings determined per ASTM E 119 by a testing and inspection agency, by equivalent concrete masonry thickness, or other means, as acceptable to authorities having jurisdiction.

C. Regulatory Requirements: Comply with the applicable requirements of governing authorities and codes.

D. Unit Masonry Standard: Comply with TMS602/ACI530.1/ASCE6 current edition "Specifications for Masonry Structures," except as otherwise specified.

E. Coordination: Review installation procedures and coordinate with other Work that must be integrated with masonry.

Preinstallation Conference: Conduct preconstruction conference at the project site.

1.4 DELIVERY, STORAGE AND HANDLING

A. Deliver masonry materials to project in undamaged condition.

B. Store and handle masonry units off the ground, under cover, and in a dry location to prevent their deterioration or damage due to moisture, temperature changes, contaminants, corrosion, and other causes. If units become wet, do not place until units are in an air-dried condition.

C. Store cementitious materials off the ground, under cover, and in dry location.

D. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

E. Store masonry accessories including metal items to prevent corrosion and accumulation of dirt and oil.

1.5 PROJECT CONDITIONS

A. Masonry Protections:

1. During erection, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress. Extend cover a minimum of 24 inches down both sides and hold cover securely in place.

   a. Where one wythe of multi wythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches down face next to unconstructed wythe and hold cover in place.

2. Do not apply uniform floor or roof loads or concentrated loads for at least 3 days after constructing masonry walls or columns.
3. Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Remove immediately any grout, mortar, and soil that comes in contact with such masonry.
4. Protect base of walls from rain-splashed mud and mortar splatter.
5. Protect sills, ledges, and projections from grout and mortar droppings.
6. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes from grout and mortar droppings.

B. Frozen Materials: Do not use frozen materials or materials mixed or coated with ice or frost.

C. Frozen Work: Do not build on frozen work. Remove and replace masonry work damaged by frost or freezing.

D. Cold Weather Construction: Comply with the cold weather requirements indicated in TMS 602/ACI 530.1/ASCE 6 and the following when the ambient temperature falls below 40 deg F or the temperature of masonry units is below 40° F, comply with the following:

1. Temperature of masonry units shall not be less than 20 deg F when laid in the assembly. Remove visible ice on masonry units before using the unit.
2. Heat mortar sand or mixing water to produce mortar temperatures between 40 deg F and 120° F at the time of mixing. Maintain mortar above freezing until used in masonry.
3. Use heat sources where ambient temperatures are between 20 deg F and 25 deg F, on both sides of the masonry under construction and install wind breaks when wind velocity is in excess of 15 mph.
4. Where ambient temperatures are below 20 deg F, provide an enclosure for the masonry under construction and use heat sources to maintain temperatures above 32 deg F within the enclosure.
5. Where mean daily temperatures are between 32 deg F and 40 deg F protect completed masonry from rain or snow by covering with a weather resistive membrane for 24 hours after construction.
6. Where mean daily temperatures are between 25 deg F, and 32 deg F completely cover completed masonry with a weather resistive membrane for 24 hours after construction.
7. Where mean daily temperatures are between 20 deg F and 25 deg F, completely cover completed masonry with insulating blankets or equal protection for 24 hours after construction.
8. Where mean daily temperatures are below 20 deg F, maintain masonry temperature above 32 deg F for 24 hours after construction by enclosure with supplementary heat, by electric heating blankets, by infrared heat lamps, or by other acceptable methods.

E. Hot Weather Construction: When the ambient air temperature exceeds 90° F with a wind velocity greater than 8 mph, do not spread mortar beds more than 4 feet ahead of laying masonry units and set units within one minute of spreading mortar.

PART 2 - PRODUCTS

2.1 MASONRY MATERIALS

A. Brick:

1. Face brick: Conforming to ASTM C 216, Grade SW, Type FBX having a maximum IRA of 30g/min-30 square inches.
2. Provide Masonry products with the following characteristics:

   a. Color and Finish: To match existing CHA housing on adjacent properties
   b. Size: 3.625” x 7.625” x 2.29”

3. Provide special shapes required to avoid exposing coring and maintain bond pattern or where exposed faces do not match uncut faces.

4. Minimum average net area compressive strength of 4950 psi by testing masonry prisms according to ASTM C 1314psi per ASTM C 90.
5. Efflorescence: Provide brick that has been tested according to ASTM C 67 and is rated "not effloresced."

B. Concrete Masonry Units (CMU):

1. Size: Nominal face dimensions of 16 inches long by 8 inches high (15-5/8 inches by 7-5/8 inches actual), unless otherwise indicated.
2. Special Shapes: Provide for lintels, corners, jambs, sash, control joints, headers, bonding and other special conditions.

    a. Provide bullnose block for outside corners, unless otherwise indicated.

3. Hollow and Solid CMU: ASTM C 90 minimum average net area compressive strength of 2800 PSI.

    a. Medium weight: provide units having dry weight not exceeding 125 pounds per cubic feet.
    b. Light weight: provide units having dry weight not exceeding 105 pounds per cubic feet.

4. Sustainability Requirements: Provide each product meeting the following minimum requirements:

    a. Provide units containing a minimum 40 percent post-consumer and pre-consumer recycled content.
    b. Provide units manufactured manufactured within 500 miles of the project site from raw materials that have been harvested within 500 miles of the project site.
    c. Provide units containing a minimum 40 percent water-cooled expanded blast furnace slag manufactured within 500 miles of the Project.
    d. Provide units with a minimum 10 percent of the Portland Cement replaced with Fly Ash and other pozzolans manufactured within 500 miles of the Project.

C. Cast Stone: A combination of Portland Cement, natural sand, marble and/or quartz aggregate and natural and synthetic pigments cast to produce a unit with a minimum compressive strength of 6,000 psi and a maximum 5 percent absorption and reinforced as required for stresses of transportation, handling and loads imposed by construction where used as lintels. Comply with ASTM C 1364.

1. Color: Natural gray.
2. Provide cast stone by a manufacturer having at least 5 years of experience. Provide statement plant complies with standards of Cast Stone Institute. Submit manufacturer’s in-house QA/QC program.

    a. American Art Stone.
    b. Continental Cast Stone.

c. Dallas Cast Stone.
d. Edwards.
e. Russell.

D. Materials - Mortar and Grout:

1. Portland Cement: ASTM C 150, Type I.
2. Masonry Cement: Not acceptable.
3. Lime: ASTM C 207, Type S.
4. Aggregate for Mortar: Sand, ASTM C 144, except for joints 1/4 inch and less (if any) use aggregate graded with 100 percent passing the No. 16 sieve.
5. Water: Clean, free of deleterious materials which would impair strength or bond.
6. Aggregate for Grout: ASTM C 404.
7. Pointing Mortar: Bagged Ceramic Tile Grout (sanded), to be mixed with an acrylic latex additive and manufactured by one of the following:

   a. Hydroment by Bostik.
   b. Laticrete International.
   c. Custom Building Products.

E. Mortar Pigment: Provide mortar pigment as required to produce color selected by Architect from manufacturer's full range of colors, compounded for use in mortar mixes by one of the following:

1. Bayer Corporation, Industrial Chemicals Div.: Bay ferrox Iron Oxide Pigments.
2. Davis Colors; True Tone Mortar Colors.
3. Solomon Grind-Chem Services,Inc.;SGS Mortar Colors.

F. Reinforcing Bars: ASTM A 615, Grade 60.

1. Where reinforcing bars are used, provide rebar positioners.

G. Continuous Wire Reinforcing:

1. Provide welded wire units prefabricated in straight lengths of not less than 10 feet, with matching corner ("L") and intersection ("T") units. Fabricate from steel wire complying with ASTM A 82, with deformed continuous side rods and plain cross rods, with unit width of 1-1/2 inches to 2 inches less than thickness of wall or partition.
2. For single wythe masonry, provide units fabricated as follows:

   a. Ladder type fabricated with single pair of side rods and perpendicular cross rods spaced not more than 16 inches O.C.

3. For multi-wythe masonry, provide units fabricated as follows:

   a. Use tab design with single pair of side rods and rectangular box eye-type cross tie of lengths required to extend through insulation and drainage material spaced not more than 16 inches O.C.; with side rods spaced for embedment within each face shell of backup wythe with loose pintle type ties extended to engage the outer wythe by at least 1 ½ inches. Similar to

Dur-o Wall Ludar-eye. Anchors portion shall have a maximum offset not to exceed 1-1/4 inch.

4. Wire: Fabricate with 9-gauge side and cross rods, unless otherwise indicated.

   a. Provide zinc-coated (galvanized) wire ASTM A 641 for interior partitions.
   b. Provide hot-dipped galvanized finish after fabrication, ASTM A 153, Class B-2, (1.5 ounce per square foot) for exterior walls.

H. Anchoring Devices:

1. Stone Anchors: Cramp anchors and dowels fabricate of stainless steel. Provide minimum 3/16 inch thick cramp anchors and minimum 3/8 inch diameter dowels.

I. Accessory Materials:

1. Bond Breaker Strips: 15 lb. asphalt impregnated building felt.
2. Pre-Molded Control Joint Strips: Solid rubber or PVC strips with a minimum Shore A durometer hardness of 70, designed to maintain lateral stability in masonry wall.
3. Compressible Filler: Expanded polyethylene.
4. Expansion Joint Filler: Closed cell neoprene 3/8 inch thick with peel off pressure sensitive adhesive on one side similar to Dur-O-Wall D/A 2010, rapid-soft joint or Hohmann & Barnard # NS Joint.
5. Weep-hole Ventilator: Continuous cellular flexible, ultraviolet resistant polypropylene. Dur-O-Wall Cell Vent, D/A 1006 or Hohmann & Barnard # QV vent width and height the same as brick head dimension. Color selected by Architect.
6. Precompressed Expansion backer for Sealant: Emseal Backerseal

J. Cap Flashing: Provide metal cap flashing below cast stone copings, complying with "Architectural Sheet Metal Manual" and as follows:

1. Stainless Steel: ASTM A 240/A 240M, Type 304, 0.016 inch (0.40 mm) thick.

K. Through-Wall Flashing:

1. Rubberized Asphalt Sheet Flashing: Manufacturer's standard composite flashing product consisting of minimum 26-mil-thick pliable and highly adhesive rubberized asphalt compound bonded completely and integrally to 4-mil-thick, high-density, cross-laminated polyethylene film to produce an overall thickness of 30 mils. Manufactured by Carlisle, W. R. Grace, Illinois Products Corp. or Polyguard.

   a. At drips, provide minimum 2 inches wide by 0.015 inch thick continuous stainless steel with one side hemmed edged and bent down 1/4 inch (at 45°) to form a drip. Stainless steel to be 304 or 316 grade.
   b. Provide stainless steel edge for construction adhesive on top of foundation walls.

c. Provide prefabricated pre-formed corner boots of rubberized asphalt flashing material for outside corners and flashing end dams at lintels, sills, inner corners and all other types of end terminations.
d. Provide mastic and primer recommended by the flashing manufacturer

L. Brick and Masonry Cleaner: Provide general purpose non-acidic cleaner

a. Prosoco.
b. Diedrich.
c. Or as recommended by the manufacturer.

2.2 MORTAR MIXES

A. General: Mortar for Unit Masonry, comply with ASTM C 270, Proportion Specifications for Type “N” portland lime mortar (1:1:6) except where indicated otherwise

1. Provide only plant mixed mortar as specified.

B. Mortar for Unit Masonry: Provide only premixed, pre-bagged mortar supplied from plant.

1. Comply with ASTM C 270, proportion specification for type “N” indicated in table 1.
2. Minimum compressive strength of mortar 1800 psi.
3. Provide only plant mixed mortar as specified. Mortar manufacturer must provide test results indicating the mortar’s compliance with this specification.

4. When used in brick, colored mortars are to be selected by the architect to match masonry units.

C. Grout: Portland cement, sand, gravel and water, proportioned as required ASTM C 476 to provide a 28-day minimum compressive strength of 2000 psi. Mix grout to obtain on 8 inches to 10 inches slump unless otherwise indicated.

1. At the contractors option, Self Consolidating Grout (SCG) can be used and must meet ASTM C 476 and the following requirements:

a. T20 between 2 to 5 seconds.
b. Visual Stability Index (VSI) to be zero.
c. A total spread range between 22 inches to 30 inches when mixed with the appropriate amount of water.

D. Plant Mixing Mortar and Grout:

1. Proportion mortar to comply with required type per ASTM C 270.

a. Have tests conducted by independent laboratory for compressive strength and bond strength for each masonry composite and submit results.
b. If specified compressive strength cannot be obtained by adjusting mortar mix within specified range of the mortar type specified, immediately notify the Architect and provide recommendations.

c. Conduct separate tests for each brick and separate tests utilizing different brick or other masonry units as combination occurs on the job.

2. Dry mix materials utilizing equipment designed to insure uniform blending and precision measuring devices to insure uniformity from batch to batch.
3. Deliver and maintain at site bulk dry blended ingredients in enclosed container.
4. Add only clean water at the site.
5. Provide required certificates.

2.3 STONE AND CAST STONE FABRICATION

A. Fabricate to profiles indicated. Provide holes and sinkages as required.

B. Fabricate in lengths shown, or if not shown, in locations approved by Architect. Allow for 3/8 inch joints. Provide drips and wash surfaces on all projecting portions.

C. Provide minimum two cramp anchors at top and bottom between panel units and minimum 2 dowels per coping and sill unit.

D. Provide mitered corners.

2.4 FIELD QUALITY CONTROL

A. Owner will employ a testing laboratory experienced in performing types of masonry field quality control tests for engineered masonry indicated.

1. Perform the following field tests; a minimum of 3 samples each, per 5000 square feet of wall area.

a. Mortar compression test per ASTM C 780.
b. Grout prism test per ASTM C 1019.
c. Concrete masonry prism test per ASTM C 1314.
d. Flexural bond strength of brick when brick are structural test per ASTM C 1072.
e. Cone slump test for grout as required.

B. Evaluation of Quality Control Tests: Masonry work, in absence of other indications of noncompliance with requirements, will be considered satisfactory if results from construction quality control tests comply with minimum requirements indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other specific conditions, and other conditions affecting performance of unit masonry.

B. Examine rough-in and built-in construction to verify actual locations of piping connections prior to installation.

C. Start of work will evidence acceptance of conditions.

3.2 PREPARATION

A. Lay out partitions on floors and locate door frames.

B. Reinforcing: Remove loose rust, ice and contaminates before placing units.

3.3 INSTALLATION

A. Tolerances: Erect masonry within the following tolerances from the specified dimensions:

1. Dimension of elements.

a.	In cross section or elevation	-1/4 in., +1/2 in.
b.	Mortar joint thickness	
	Bed	±1/8 in.
	Head	-1/8 in., +1/4 in.
	Collar	-1/4 in., +3/8 in.
c.	Grout space or cavity width	-1/4 in., +3/8 in.

2. Elements

a.	Variation from level:	
	Bed joints	±1/4 in. per 10 ft. ±1/2 in. maximum
	Top surface of bearing walls	±1/4 in. per 10 ft. ±1/2 in. maximum
b.	Variation from plumb	±1/4 in. per 10 ft. ±3/8 in. per 20 ft. ±1/2 in. maximum
c.	True to a line	±1/4 in. per 10 ft. ±3/8 in. per 20 ft. ±1/2 in. maximum
d.	Alignment of columns and walls (bottom versus top)	±1/2 in. for bearing walls ±3/4 in. for non-bearing walls

3. Location of elements

a.	Indicated in plan	±1/2 in. per 20 ft. ±3/4 in. maximum
b.	Indicated in elevation	±1/4 in. per story height ±3/4 n. maximum

4. In placing of reinforcement (See Article 3.4E of ACT 530.1)

B. Installation, General:

1. Comply with TMS 602/ACI 530.1/ASCE 6 Current Edition and this Specification.
2. Leave openings for equipment to be installed before completion of masonry work. After installation of equipment, complete masonry work to match Work immediately adjacent to the opening.
3. Cut masonry units using motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide required pattern and to fit adjoining Work neatly. Use full-size units without cutting wherever possible.
4. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint widths and to properly locate openings, movement type joints, returns and offsets. Avoid the use of less than half-size units at corners, jambs and wherever possible at other locations.
5. Lay up walls plumb and true to comply with specified tolerances, with courses level, accurately spaced and coordinated with other Work.
6. Where shown or scheduled, provide special units and bond.
7. Lay all other exposed masonry in the bond pattern shown or, if not shown, lay in running bond with vertical joint in each course centered on units in courses above and below (except in one - third running bond where required by unit size).
8. Lay concealed masonry with all units in a wythe bonded by lapping not less than 2 inches. Bond and interlock each course of each wythe at corners. Do not use units with less than 4 inches horizontal face dimensions at corners or jambs.
9. Discard units with cracked faces, chipped edges, or corners or other defects that affect appearance or performance.

C. Mortar Bedding and Jointing:

1. Lay brick and other solid masonry units with solidly filled bed and head joint; butter ends with sufficient mortar to fill head joints and shove into place. Do not slush head joints.
2. Lay hollow concrete masonry units with full mortar coverage on horizontal and vertical face shells. Bed cross webs in mortar in starting course and in all courses of piers, columns and pilasters, and where adjacent to cells or cavities to be reinforced and filled with grout.
3. Maintain joint widths except for minor variations required to maintain bond alignment. If not shown, lay walls with 3/8 inch joints.
4. Tool exposed joints slightly concave, except as otherwise shown.
5. Cut joints flush for masonry walls which are to be concealed or to be covered by other materials.
6. Remove masonry units disturbed after laying; clean and reset in fresh mortar. Do not pound corners at jambs to fit stretcher units which have been set in position. If adjustments are required, remove units, clean off mortar and reset in fresh mortar.
7. Remove mortar protruding into cells of CMU, which are to be grouted.

D. Stone and Cast Stone Work: Set units in full bed of mortar with all vertical joints full. Fill dowel, anchor and similar holes solid. Wet joint surface thoroughly before setting;

for surfaces which are soiled, clean bedding and exposed surfaces with fiber brush and soap powder followed by thoroughly rinsing with clear water.

1. At copings and sills and where stone joints are shown to be sealed or caulked, rake joints to a depth of ½ inch to allow for subsequent sealant installation.

E. Composite Walls:

1. Fill the collar joint solidly with mortar by parging the in-place wythe and laying units into the parging.
2. Provide weephole ventilator in head joints of exterior wythe of composite wall located immediately above ledges and flashing, spaced maximum 2 feet O.C. and recess 1/8 inch from face of masonry.
3. Install weephole ventilation so that the back of the ventilation comes into contact with the interior wythe surface

F. Stopping and Resuming Work:

1. Rake back 1/2 unit length for one half running bond or 1/3 unit length for one-third running bond in each course; do not tooth, stop and resume brickwork and CMU at control or expansion joints. Clean exposed surfaces of set masonry, wet units lightly (if required) and remove loose masonry units and mortar prior to laying fresh masonry.

G. Built-In Work:

1. As the Work progresses, build in items specified under this and other Sections and as required to complete the Project. Fill in masonry solidly around built-in items.
2. Fill space between hollow metal frames and masonry solidly with mortar.
3. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath in the joint below and rod mortar or grout into core.
4. Fill cores in hollow units with grout minimum 3 courses (24-inches) under bearing plates, beams, lintels, posts and similar items unless otherwise indicated.

H. General:

1. Place all anchors and ties, for secure anchorage and bonding of masonry.
2. Install anchors, ties and joint reinforcement to achieve full mortar encapsulation. Lap joint reinforcement minimum of 6 inch at end of 10 feet sections.
3. Embed anchors and ties at least 1/2 inch in mortar of outer face shell of hollow units and 1-1/2 inch in mortar of solid masonry.
4. Provide minimum of 5/8 inch mortar cover for anchors, ties, and longitudinal wires of joint reinforcement when exposed to earth or weather and 1/2 inch mortar cover when not exposed to earth or weather.
5. Do not disturb or bend ties or anchors after embedding in grout or mortar.
6. Cut or interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.
7. Provide continuity at corners and wall intersections by use of prefabricated “L” and “T” sections for single wythe CMU walls.

I. Anchors:

1. Anchor masonry to structural members as detailed on drawings, such members to comply with the following:

   a. Provide an open space not less than 1 inch in width between masonry and structural member, unless otherwise shown. Keep open space free of mortar or other rigid materials.
   b. Anchor masonry to structural members with metal anchors embedded in masonry joints and attached to structure.
   c. Space anchors as indicated, but not more than 16 inches O.C. vertically and 32 inch O.C. horizontally.

J. Ties and Joint Reinforcement:

1. Bond masonry wythes with specified continuous wire reinforcing at 16 inch O.C. vertically.

K. Control and Expansion Joints:

1. General: Provide horizontal and vertical expansion, control and isolation joints in masonry where shown. Provide related masonry accessory items as the masonry work progresses. Do not span joint reinforcement or other obstructions through movement joints unless provisions are made to prevent in-plane restraint of wall movement.
2. Vertical and Horizontal Expansion Joints in Brick: Leave joints open for installation of joint filler, backer rod and sealant.
3. Control Joints in concrete block: Install preformed control joint gaskets designed to fit standard sash block where indicated on drawing or form a continuous vertical joint in CMU and rake mortar joint back 3/4 inch and provide backer rod and sealant.

L. Flashing:

1. Provide flashing in masonry work at, or above, all shelf angles, lintels, ledges and other obstructions to the downward flow of water in the wall so as to divert such water to the exterior. Seal penetrations in flashing with material recommended by flashing manufacturer before covering with mortar.
2. Prepare surfaces to be smooth and free from projections which might puncture flashing.
3. Where horizontal surfaces of cast in place concrete are irregular or not level, provide a thin leveling bed of mortar before installing flashing.
4. At lintels and shelf angles, install flashing on steel surface with no mortar above or below.
5. At masonry and concrete surfaces, install flashing with a full bed of mortar between flashing and course above. Seal flashing penetrations with manufacturer recommended mastic before covering with mortar
6. Install rubberized asphalt flashing to comply with manufacturer's instructions and as follows:

a. Where indicated, install stainless steel drip edge to extend the drip strip a minimum of 1/4 inch beyond the face plane of the brick wall, unless otherwise indicated. Install the drip edge on top of the lintel or shelf angle set into a continuous bed of adhesive. Lap end joints of drip edge by overlapping not less than 2 inches and sealing lap with elastic sealant.
b. Apply primer to all material in contact with flashing to maximize adhesion of through-wall flashing.
c. Verify the width of flashing pieces to be installed by field measurement.
d. Flashing should extend, uninterrupted, from outer wythe of masonry into the concrete masonry back-up. Terminate interior leg of flashing by extending flashing ½ the width of CMU into CMU backing wythe.
e. Carefully fit flashing around projections, columns, walls, etc. Install flashing continuous around inside and outside corners using prefabricated corner boots. Form membrane to correct profile without wrinkles or buckles, and protect from entering the wall to the outside.
f. Extend flashing to within ½ 1/2 inch of the outside face of wall and adhere to drip edge or terminate as detailed on the drawings.
g. Extend drip edge past opening to furthest end dam and make it symmetrical.
h. Provide prefabricated end dams at termination of all flashing at columns, ends of lintels, inner corners or similar end conditions.
i. Lap flashing joints a minimum of 6 inches, set in mastic recommended by manufacturer and press tightly to seal.

3.4 INSTALLATION OF REINFORCED UNIT MASONRY

A. Install reinforced unit masonry to comply with requirements of TMS 602/ACI 530.1/ASCE 6 Current Edition.

B. Construct formwork and shores to support reinforced masonry elements during construction. Construction formwork to conform to shape, line, and dimensions shown. Make sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.

C. Do not place grout until entire height of masonry to be grouted has attained sufficient strength to resist grout pressure.

D. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other temporary loads that may be placed on them during construction.

E. Terminate all grout lifts 1-1/2 inches above the mortar joint at the bottom of the concrete masonry unit to form a grout key.

3.5 REPAIR, POINTING

A. Remove and replace masonry units which are loose, chipped, broken, stained or otherwise damaged, or if units do not match adjoining units as intended. Provide new units to match adjoining units and install in fresh mortar or grout, pointed to eliminate evidence of replacement.

B. During the tooling of joints, enlarge voids or holes, except weepholes, and completely fill with mortar.

C. Point up all joints at corners, openings and adjacent Work to provide a neat, uniform appearance, prepared for application of sealants.

3.6 CLEANING

A. Cleaning exposed concrete masonry surfaces: Wipe off excess mortar as the Work progresses. Dry brush at the end of each day's Work.

B. Final Cleaning of Brick Work:

1. After mortar is thoroughly set and cured, clean sample wall area of approximately 20 square feet as follows. Obtain Architect's acceptance of sample cleaning before proceeding to clean rest of masonry work.
2. Protect stone and non-masonry surfaces from contact with cleaner.
3. Protect landscape and soil from contact with masonry cleaner. Provide neutralizing solution application if contact occurs.
4. Mix and apply the cleaning agent as recommended by the manufacturer.
5. Working areas not larger than 150 square feet at a time, thoroughly wet the masonry surface.
6. Apply the cleaning solution liberally with a natural fiber brush.
7. Allow cleaning solution to remain on the wall for approximately 5 minutes. Do not allow the cleaning solution to dry on the wall.
8. Scrape off excess mortar deposits. Use of metal scrapers is discouraged. Use of wire brushes is forbidden.
9. Reapply cleaning solution.
10. Rinse thoroughly with fresh water at a pressure not to exceed 300psi with fan tipped nozzle.
11. When working from staging, keep area below surface wet.

END OF SECTION 04 20 00

SECTION 074213.19 - INSULATED METAL WALL PANELS

1.GENERAL

1. RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

2. SUMMARY

A. Section Includes:

1. Foamed-insulation-core metal wall panels, installed horizontally.

2. Vertical supports (sub-framing) to support horizontal panels where required between structural wall framing.

3. Accessories including miscellaneous framing, fasteners, flashings and perimeter trim.

3. PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Meet with Owner, Architect, Owner's insurer if applicable, metal panel Installer, metal panel manufacturer's representative, structural-support Installer, and installers whose work interfaces with or affects metal panels, including installers of doors, windows, and louvers.
2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
3. Review methods and procedures related to metal panel installation, including manufacturer's written instructions.
4. Examine support conditions for compliance with requirements, including alignment between and attachment to structural members.
5. Review flashings, special siding details, wall penetrations, openings, and condition of other construction that affect metal panels.
6. Review governing regulations and requirements for insurance, certificates, and tests and inspections if applicable.
7. Review temporary protection requirements for metal panel assembly during and after installation.
8. Review procedures for repair of metal panels damaged after installation.
9. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

4. ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of panel and accessory.

B. Shop Drawings:

1. Include fabrication and installation layouts of metal panels, relative to building framing; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details.
2. Accessories: Include details of the flashing, trim, and anchorage systems, at a scale of not less than 1-1/2 inches per 12 inches.

C. Samples for Initial Selection: For each type of metal panel indicated with factory-applied color finishes.

1. Include similar Samples of trim and accessories involving color selection.

D. Samples for Verification: For each type of exposed finish, prepared on Samples of size indicated below.

1. Metal Panels: 12 inches (305 mm) long by actual panel width. Include fasteners, closures, and other metal panel accessories.

5. INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Product Test Reports: For each product, tests performed by a qualified testing agency.

C. Sample Warranties: For special warranties.

6. CLOSEOUT SUBMITTALS

A. Maintenance Data: For metal panels to include in maintenance manuals.

7. QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

8. DELIVERY, STORAGE, AND HANDLING

A. Deliver components, metal panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.

B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.

C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.

D. Retain strippable protective covering on metal panels during installation.

9. FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal panels to be performed according to manufacturers' written instructions and warranty requirements.

10. COORDINATION

A. Coordinate metal panel installation with rain drainage work, flashing, trim, construction of soffits, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

11. WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal panel systems that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Structural failures including rupturing, cracking, or puncturing.
b. Deterioration of metals and other materials beyond normal weathering.

2. Warranty Period: Five years from date of Substantial Completion.

B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:

a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.

b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: 20 years from date of Substantial Completion.

2.PRODUCTS

1. PERFORMANCE REQUIREMENTS

A. Structural Performance: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E 72:

1. Wind Loads: As indicated on Drawings.
2. Deflection Limits: For wind loads, no greater than 1/360 of the span.

B. Air Infiltration: Air leakage of not more than 0.02 cfm/sq. ft. (0.1 L/s per sq. m) when tested according to ASTM E 283 at the following test-pressure difference:

1. Test-Pressure Difference: 6.24 lbf/sq. ft. (300 Pa).

C. Water Penetration under Static Pressure: No water penetration when tested according to ASTM E 331 at the following test-pressure difference:

1. Test-Pressure Difference: 6.24 lbf/sq. ft. (300 Pa).

D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

E. Fire-Test-Response Characteristics: Provide metal wall panels and system components with the following fire-test-response characteristics, as determined by testing identical panels and system components per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing agency.

1. Fire-Resistance Characteristics: Provide materials and construction tested for fire resistance per ASTM E 119.
2. Intermediate-Scale Multistory Fire Test: Tested mockup, representative of completed multistory wall assembly of which wall panel is a part, complies with NFPA 285 for test method and required fire-test-response characteristics of exterior non-load-bearing wall panel assemblies.
3. Radiant Heat Exposure: No ignition when tested according to NFPA 268.
4. Potential Heat: Acceptable level when tested according to NFPA 259.

5. Surface-Burning Characteristics: Provide wall panels with a flame-spread index of 25 or less and a smoke-developed index of 450 or less, per ASTM E 84.

2. FOAMED-INSULATION-CORE METAL WALL PANELS

A. General: Provide factory-formed and -assembled metal wall panels fabricated from two metal facing sheets and insulation core foamed in place during fabrication, and with joints between panels designed to form weathertight seals. Include accessories required for weathertight installation.

1. Panel Performance:

a. Flatwise Tensile Strength: 30 psi (207 kPa) when tested according to ASTM C 297/C 297M.
b. Humid Aging: Volume increase not greater than 6.0 percent and no delamination or metal corrosion when tested for seven days at 140 deg F (60 deg C) and 100 percent relative humidity according to ASTM D 2126.
c. Heat Aging: Volume increase not greater than 3.0 percent and no delamination, surface blistering, or permanent bowing when tested for seven days at 200 deg F (93 deg C) according to ASTM D 2126.
d. Cold Aging: Volume decrease not more than 1.0 percent and no delamination, surface blistering, or permanent bowing when tested for seven days at minus 20 deg F (29 deg C) according to ASTM D 2126.
e. Fatigue: No evidence of delamination, core cracking, or permanent bowing when tested to a 20-lbf/sq. ft. (958-kPa) positive and negative wind load and with deflection of L/180 for 2 million cycles.
f. Autoclave: No delamination when exposed to 2-psi (13.8-kPa) pressure at a temperature of 212 deg F (100 deg C) for 2-1/2 hours.

2. Insulation Core: Polyisocyanurate or polyurethane foam using a non-CFC blowing agent, with maximum flame-spread and smoke-developed indexes of 25 and 450, respectively.

a. Closed-Cell Content: 90 percent when tested according to ASTM D 6226.
b. Density: 2.0 to 2.6 lb/cu. ft. (32 to 42 kg/cu. m) when tested according to ASTM D 1622.
c. Compressive Strength: Minimum 20 psi (140 kPa) when tested according to ASTM D 1621.
d. Shear Strength: 17 psi (117 kPa) when tested according to ASTM C 273/C 273M.

B. Concealed-Fastener, Foamed-Insulation-Core Metal Wall Panels: Formed with tongue-and-groove panel edges; designed for sequential installation by interlocking panel edges and mechanically attaching panels to supports using concealed clips or fasteners.

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

a. CENTRIA Architectural Systems;
b. IPS - Insulated Panel Systems, an NCI company;

c. MBCI, a division of NCI Building Systems, L.P.
d. Metl-Span LLC
e. Kingspan

2. Metallic-Coated Steel Sheet: Facings of zinc-coated (galvanized) steel sheet complying with ASTM A 653/A 653M, G90 (Z275) coating designation, or aluminum-zinc alloy-coated steel sheet complying with ASTM A 792/A 792M, Class AZ50 (Class AZM150) coating designation; structural quality. Prepainted by the coil-coating process to comply with ASTM A 755/A 755M.

   a. Nominal Thickness: **0.034 inch (0.86 mm)**
   b. Exterior Finish: Two-coat fluoropolymer.

      1) Color: As selected by Architect from manufacturer's full range

   c. Interior Finish: Siliconized polyester

      1) Color: As selected by Architect from manufacturer's full range
3. Panel Coverage: 36 inches (1016 mm) nominal.
4. Panel Thickness**:** 3.0 inches (76 mm)
5. Thermal-Resistance Value (R-Value): **21** according to ASTM C 1363.
6. Fasteners and washers: To match panels
7. **Panel Profile: Smooth**

3. MISCELLANEOUS MATERIALS

A. Miscellaneous Metal Subframing and Furring: ASTM C 645, cold-formed, metallic-coated steel sheet, ASTM A 653/A 653M, G90 (Z275 hot-dip galvanized) coating designation or ASTM A 792/A 792M,Class AZ50 (Class AZM150) aluminum-zinc-alloy coating designation unless otherwise indicated. Provide sections as required and indicated on drawings for support and alignment of metal panel system.

B. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.

   1. Closures: Provide closures at eaves and rakes, fabricated of same metal as metal panels.
   2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
   3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch- (25-mm-) thick, flexible closure strips; cut or premolded to match metal panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.

C. Flashing and Trim: Provide flashing and trim, formed from same material as metal panels, as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, bases, drips, sills, jambs, corners, endwalls,

framed openings, rakes, fasciae, parapet caps, soffits, reveals, and fillers. Finish flashing and trim with same finish system as adjacent metal panels.

D. Panel Fasteners: Self-tapping screws designed to withstand design loads. Provide exposed fasteners with heads matching color of metal panels by means of plastic caps or factory-applied coating. Provide EPDM or PVC sealing washers for exposed fasteners.

E. Panel Sealants: Provide sealant type recommended by manufacturer that are compatible with panel materials, are nonstaining, and do not damage panel finish.

1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.
2. Joint Sealant: ASTM C 920; elastomeric polyurethane or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal panels and remain weathertight; and as recommended in writing by metal panel manufacturer.
3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C 1311.

4. FABRICATION

A. General: Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.

B. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.

C. Fabricate metal panel joints with factory-installed captive gaskets or separator strips that provide a weathertight seal and prevent metal-to-metal contact, and that minimize noise from movements.

D. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.

1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
2. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
3. Seams for Other Than Aluminum: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.
4. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate sealant and to comply with SMACNA standards.

5. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
6. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal panel manufacturer.

    a. Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" or metal wall panel manufacturer for application but not less than thickness of metal being secured.

5. FINISHES

A. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

C. Aluminum Panels and Accessories:
1. Mica Fluoropolymer: AAMA 621. Two-coat fluoropolymer finish with suspended mica flakes containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
2. Siliconized Polyester: Epoxy primer and silicone-modified, polyester-enamel topcoat; with a dry film thickness of not less than 0.2 mil (0.005 mm) for primer and 0.8 mil (0.02 mm) for topcoat.

3.EXECUTION

1. EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal panel supports, and other conditions affecting performance of the Work.

1. Examine wall framing to verify that girts, angles, channels, studs, and other structural panel support members and anchorage have been installed within alignment tolerances required by metal wall panel manufacturer.
2. Examine wall sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by metal wall panel manufacturer.

    a. Verify that air- or water-resistive barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

B. Examine roughing-in for components and systems penetrating metal panels to verify actual locations of penetrations relative to seam locations of metal panels before installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

2. PREPARATION

A. Miscellaneous Supports: Install subframing, furring, and other miscellaneous panel support members and anchorages according to ASTM C 754 and metal panel manufacturer's written recommendations.

3. METAL PANEL INSTALLATION

A. General: Install metal panels according to manufacturer's written instructions in orientation, sizes, and locations indicated. Panels are to be installed parallel to structural cold-formed framing to supports unless otherwise indicated. Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Install cross-framing (sub-framing) perpendicular to structural cold-formed framing.
2. Shim or otherwise plumb substrates receiving metal panels
3. Flash and seal metal panels at perimeter of all openings. Fasten with self-tapping screws. Do not begin installation until air- or water-resistive barriers and flashings that will be concealed by metal panels are installed.
4. Install screw fasteners in predrilled holes.
5. Locate and space fastenings in uniform vertical and horizontal alignment.
6. Install flashing and trim as metal panel work proceeds.
7. Locate panel splices over, but not attached to, structural supports. Stagger panel splices and end laps to avoid a four-panel lap splice condition.
8. Align bottoms of metal panels and fasten with blind rivets, bolts, or self-tapping screws. Fasten flashings and trim around openings and similar elements with self-tapping screws.
9. Provide weathertight escutcheons for pipe- and conduit-penetrating panels.

B. Fasteners:

1. Steel Panels: Use stainless-steel fasteners for surfaces exposed to the exterior; use galvanized-steel fasteners for surfaces exposed to the interior.

C. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action as recommended in writing by metal panel manufacturer.

D. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weathertight performance of metal wall panel assemblies. Provide types of gaskets, fillers, and sealants indicated by metal panel manufacturer; or, if not indicated, provide types recommended by metal wall panel manufacturer.

1. Seal metal wall panel end laps with double beads of tape or sealant, full width of panel. Seal side joints where recommended by metal wall panel manufacturer.
2. Prepare joints and apply sealants to comply with requirements in Section 079200 "Joint Sealants."

4. INSULATED METAL WALL PANEL INSTALLATION

A. General: Apply continuous ribbon of sealant to panel joint on concealed side of insulated metal wall panels as vapor seal; apply sealant to panel joint on exposed side of panels for weather seal.

1. Fasten foamed-insulation-core metal wall panels to supports with fasteners at each lapped joint at location and spacing and with fasteners recommended by manufacturer.
2. Apply panels and associated items true to line for neat and weathertight enclosure. Avoid "panel creep" or application not true to line.
3. Provide metal-backed washers under heads of exposed fasteners on weather side of insulated metal wall panels.
4. Locate and space exposed fasteners in uniform vertical and horizontal alignment. Use proper tools to obtain controlled uniform compression for positive seal without rupture of washer.
5. Provide sealant tape at lapped joints of insulated metal wall panels and between panels and protruding equipment, vents, and accessories.
6. Apply a continuous ribbon of sealant tape to panel side laps and elsewhere as needed to make panels weathertight.

B. Foamed-Insulation-Core Metal Wall Panels: Fasten metal wall panels to supports with concealed clips at each joint at location and spacing and with fasteners recommended by manufacturer. Fully engage tongue and groove of adjacent panels.

1. Install clips to supports with self-tapping fasteners.

C. Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.

1. Install components required for a complete metal panel system including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items. Provide types indicated by metal panel manufacturer; or, if not indicated, provide types recommended by metal panel manufacturer.

D. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level. Install work with laps, joints, and seams that are permanently watertight.

1. Install exposed flashing and trim that is without buckling and tool marks, and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to achieve waterproof performance.

2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (610 mm) of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).

5. FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

B. Water-Spray Test: After installation, test area of assembly as selected by Architect for water penetration according to AAMA 501.2.

C. Metal wall panels will be considered defective if they do not pass test and inspections.

D. Additional tests and inspections, at Contractor's expense, are performed to determine compliance of replaced or additional work with specified requirements.

E. Prepare test and inspection reports.

6. CLEANING AND PROTECTION

A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.

B. After metal panel installation, clear weep holes and drainage channels of obstructions, dirt, and sealant.

C. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 074213.19

SECTION 084113 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Aluminum entrances and storefront system as indicated and as specified.

B. Related Sections.

1. Section 088000 “Glazing” for Aluminum Entrance and Storefront glazing.

1.2 SUBMITTALS

A. Product Data: Submit copies of manufacturer’s data, recommendations and standard details, including fabrication, finishing, hardware, accessories and other components of the Work.

B. Shop Drawings: Submit Shop Drawings for the fabrication and installation and associated components of the Work signed and sealed by a licensed State of Illinois Structural Engineer stating compliance with “Quality Assurance” requirements.. Include wall elevations at 1/2" scale, and half-size detail sections of every typical composite member. Show anchors, joint system, expansion provisions and other components not included in manufacturer's standard data. Include glazing details.

C. Samples: Submit a set of two (2) samples of required aluminum finish, showing extremes of color and appearance, on minimum 4" long extrusions of the alloys to be used for the Work.

1. The right is reserved to require samples of typical fabricated sections, showing joints, exposed fastenings (if any), quality of workmanship, hardware and accessory items, before fabrication of the Work proceeds.

D. Certification: Submit written certifications, signed by window wall manufacturer, attesting that system conforms to each of the "Quality Assurance" requirements of this Specification where the manufacturer's standard system has been tested in accordance with specified tests and meets performance requirements specified. Where such testing has not been accomplished, perform required tests through a recognized testing laboratory or agency and provide certified test results.

1. Submit actual test data, signed by window wall manufacturer, that is no more than four years old and shows compliance with performance requirements.

E. Entrance Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of entrance door hardware, as well as procedures and diagrams. Coordinate final entrance door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of entrance door hardware.

1.3 QUALITY ASSURANCE

A. Standards: Comply with the requirements and recommendations in applicable specifications and standards by NAAMM, AAMA and AA, including the terminology definitions, and specifically including the "Entrance Manual" by NAAMM, except to the extent more stringent requirements are indicated. Conform to 16 CFR 1201.

B. Installer: Regularly engaged in installation of the types of Work required and acceptable to the system manufacturer.

C. Wind Loading: Fabricate exterior units to withstand the wind pressure loading of 25 psf. on the gross area of the system, acting inward and also acting outward except 30 psf. at corners when tested in accordance with ASTM E 330.

D. Deflections and Thermal Movements: Design work and internally reinforce component members to withstand wind pressures, building deflections, construction shrinkage, thermal movements and erection tolerances, within the following deflection limitations and temperature variations without causing buckling, stresses on glass, failure of joint seals, undue stress on structural elements, damaging loads on fasteners, reduction of performance or other detrimental effects. Fabricate, assemble and erect the work to maintain these limitations.

1. Deflection Normal to Wall Plane: Limited to 1/175 of clear span for spans up to 13 feet 6 inches (4.1 m) and to 1/240 of clear span plus ¼ inch (6.35 mm) for spans greater than 13 feet 6 inches (4.1 m) or an amount that restricts edge deflection of individual glazing lites to 3/4 inch (19 mm), whichever is less.
2. Deflection Parallel to Glazing Plane: Limited to amount not exceeding that which reduces glazing bite to less than 75 percent of design dimension and that which reduces edge clearance between framing members and glazing or other fixed components directly below to less than 1/8 inch (3.2 mm) and clearance between members and operable units directly below to less than 1/16 inch (1.5 mm).
3. Thermal expansion and contraction movement capability, resulting from not less than an ambient temperature range of 120ºF, which may cause a window wall material temperature range of 180oF.
4. Building deflection of L/360.

E. Water and Air Leakage: Design, fabricate, assemble and erect work and system of sealed joints with other work, to be permanently free of significant leakage of both water and air. Significant leakage is defined as follows, based on a differential test pressure amounting to 20% of specified strength performance pressure required, testing a complete module of window wall work.

1. Air Infiltration (Framing): More than 0.06 cu. ft. per minute per sq. ft. (projected area of module), determined by ASTM E 283 at an inward test pressure of 6.24 PSF.
2. Air Infiltration (Doors): Provide doors with an air infiltration rate of not more than 0.50 CFM for single doors and 1.0 for pairs of doors per lineal foot of crack, when tested in accordance with ASTM E 283 at an inward test pressure differential of 1.567 PSF.
3. Water Penetration: Provide framing systems with no water penetration (excluding operable door edges) as defined in the test method when tested in accordance with ASTM E 331 at an inward test pressure differential of 10.0 lbf. per sq. ft.

F. Condensation Requirements: Provide thermal-break construction, which provides a condensation resistance factor (CRF) of at least 55 per the requirements of AAMA 1502.7

G. Thermal Performance: Provide window wall system and doors having maximum U-factor of 0.57 for fixed units and 0.67 for operable units as determined in accordance with NFRC 100 by a laboratory accredited by a nationally recognized accreditation organization such as the National Fenestration Rating Council and labeled and certified by the manufacturer; and assembly maximum solar heat gain coefficient (SAGC) of 0.49 for north orientation and 0.39 for all other orientations for overall glazed area as determined in accordance with NFRC 200 by a laboratory accredited by a nationally recognized accreditation organization such as the National Fenestration Rating Council and shall be labeled and certified by the manufacturer. Shading coefficient of the center of glass multiplied by 0.86 shall be an acceptable alternate for determining compliance with the SHGC required for the overall glazed area. Shading coefficient shall be determined using special data file determined in accordance wit NFRC 300. Shading coefficient shall be verified and certified by the glass unit manufacturer.

1. U-Factors from 8.1 of ASHRAE IESNA Standard 90.1-1999 shall be an acceptable alternate for determining compliance with the U-factor criteria. Where credit is being taken for a low-emissivity coating, the emissivity of the coating shall be determined in accordance with NFRC 301. Emissivity shall be verified and certified by the window wall manufacturer.

1.4 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of aluminum-framed systems that do not comply with requirements or that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Structural failures including, but not limited to, excessive deflection.
b. Noise or vibration caused by thermal movements.
c. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
d. Water leakage through fixed glazing and framing areas.
e. Failure of operating components.

2. Warranty Period: Five years from date of Substantial Completion.

B. Special Finish Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components on which finishes do not comply with requirements or that fail in materials or workmanship within specified warranty period. Warranty does not include normal weathering.

1. Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Product: Basis of design: Pittco TMS 114 UFT, 2 inches by 4 and one half inches profile. Provide the basis-of-design product or equal product by one of the following manufacturers:

1. Efco
2. U.S. Aluminum
3. Kawneer
4. Tubelite

2.2 MATERIALS AND ACCESSORIES

A. Aluminum Extrusions: Provide alloy and temper as recommended by manufacturer for strength, corrosion resistance, application of required finish and control of color, but not less than 22,000-psi ultimate tensile strength. Provide main extrusions of not less than 0.125" wall thickness.

B. Fasteners: Aluminum, nonmagnetic stainless steel or other non-corrosive metal fasteners guaranteed by the manufacturer to be compatible with the doors, frames, stops, hardware, anchors and other items being fastened. For exposed fasteners (if any), provide Phillips flat-head screws with finish matching the item fastened.

1. Do not use exposed fasteners except where unavoidable for the assembly of units, and unavoidable for the application of hardware. Provide only concealed screws in glazing stops.

C. Steel Reinforcement and Brackets: Manufacturer's standard formed or fabricated steel units, of shapes, plates or bars; with 2.0 oz. hot-dip zinc coating complying with ASTM A 123, applied after fabrication to brackets and rust inhibitive paint applied to reinforcing elements.

D. Concealed Flashing: Dead soft stainless steel, minimum 26 gauge.

E. Inserts: For required anchorage into concrete or masonry work, furnish inserts of cast iron, malleable iron or 12 gauges steel hot-dip galvanized after fabrication.

F. Expansion Anchor Devices: Lead-shield or toothed-steel, drilled-in, expansion bolt anchors.

G. Bituminous Coatings: Cold-applied asphalt mastic complying with SSPC-PAINT 12, compounded for 30-mil thickness per coat.

H. Sealants and Gaskets: Provide sealants and gaskets in the fabrication, assembly and installation of the Work, which are recommended by the manufacturer to remain permanently elastic, non-shrinking, non-migrating and weatherproof for the life of the building.

1. **Sustainability** Requirement: Provide adhesives and sealants used inside the weatherproofing system meet the testing and product requirements of the California Department of Health Services *Standard Practice for the Testing of*

Volatile Organic emissions from Various Sources Using Small Scale Environmental Chambers. Including 2004 addenda.

I. Glazing Gaskets: For glazing glass, and for gaskets, which are factory-installed in a "captive" assembly of glazing stops, provide manufacturer's standard stripping of molded neoprene.

J. Glazing: Refer to Division 08 Section “Glazing”

2.3 HARDWARE

A. Except as indicated otherwise herein, refer to Section "Door Hardware" of these Specifications for the furnishing of hardware items. Hardware templates will be furnished to the manufacturer for the fabrication of door and frames to receive hardware. Receive the hardware and coordinate with the hardware requirements of this Section. Report discrepancies in writing to the Contractor.

B. Cut, reinforce, drill and tap frames and doors as required to receive hardware, except do not drill and tap for surface-mounted items until the time of installation at the Project Site. Comply with hardware manufacturer's instructions and template requirements. Use concealed fasteners wherever possible.

C. Install all hardware, except surface-mounted hardware, at the fabrication plant. Remove only as required for final finishing operations, and for delivery and installation of the Work at the Project Site.

2.4 FABRICATION

A. Coordination of Fabrication: Wherever possible, check the actual openings in the construction work by accurate field measurement before fabrication, and show recorded measurements on final Shop Drawings.

B. Prefabrication: Provide each door as a "packaged entrance" unit. Complete the fabrication, assembly, finishing, application of hardware and all other Work, before shipment to the Project Site, to the greatest extent possible. Disassemble only to the extent necessary for shipment and installation.

C. Basic Fabrication:

1. Complete the cutting, fitting, forming, drilling and grinding of all metal at the shop to the extent possible. Remove arises from cut edges and ease edges and corners to a radius of approximately 1/64".
2. Conceal fasteners, wherever possible, except as otherwise shown.
3. Maintain continuity of line and accurate relation of planes and angles. Provide secure attachment and support at mechanical joints, with hairline fit of contacting members.
4. Internally reinforce the Work as necessary for performance requirements, and for support to the structure. Separate dissimilar metals with bituminous paint or preformed separators, which will prevent corrosion. Separate metal surfaces at moving joints with nonmetallic separators to prevent "freeze-up" of joints.

D. Weather Stripping: Where exterior door stiles or head rails do not close against fixed stops equipped with compression weather stripping, provide sliding weather stripping, retained in an adjustable strip in a mortise centered in the edge of the door. Provide heavy-duty, hollow, compression weather stripping in the bottom-rail, adjustable for contact with the threshold.

E. Stile-and-Rail Type Aluminum Doors:

1. Provide tubular frame members, fabricated with mechanical joints of heavy inserted reinforcing plates and concealed tie-rods or j-bolts, in accordance with manufacturer's standard fabrication methods; or fabricate with structurally welded joints, at manufacturer's option.
2. Except as otherwise shown or scheduled, provide door units 1-3/4" thick.
   a. Provide medium stile doors.
   b. Provide 10” bottom rail to conform with ANSI A117.1-2003 requirements.

F. Aluminum Framing:

1. Fabricate tubular and channel frame assemblies with either welded or mechanical joints using shear blocks with concealed fasteners wherever possible.
2. Provide non-removable doorstops extruded integrally with frame to extent possible.
   a. Provide compression weather-stripping on the door-contact face of doorstop for exterior door frames, and on other frames where indicated.
   b. Where weather stripping is not provided, install neoprene silencers on doorstops to prevent metal-to-metal contact between doors and stops.
3. Provide glazing system for frames to receive lights. Design system for replacement of glass, but for non-removal of glass from the exterior.
4. Fabricate frame assemblies for exterior walls with flashing and weeps to drain penetrating moisture to exterior. Provide anchorage and alignment brackets for concealed support of assembly from the building structure. Allow for thermal expansion of exterior units.
5. Provide all elements with thermal breaks to positively eliminate outside to inside metal contact. Provide thermal break materials certified to comply with Performance Requirements of the unit in each case (window or window wall).
   a. Interior framing need not be thermal break construction.

2.5 ALUMINUM FINISHES

A. Prepare the surfaces for finishing in accordance with recommendations of the aluminum producer and the finisher or processor.

B. Finish all components of each assembly simultaneously so as to attain complete uniformity of color. Adjust and control the direction of mechanical finishes (as specified) to achieve the best overall visual effect in the Work, as determined in consultation with the Architect.

C. Sequence the finishing and processing of materials in a predetermined bay-bay-bay plan, which will minimize color and texture differences between adjacent components.

D. Color and Texture Tolerance:

1. The right is reserved to reject the Work because of color or texture variations, which are visually objectionable, but only where the variation exceeds the range of variations established by the manufacturer prior to the Work, by means of range samples which have been accepted by the Architect.
2. Prepare range samples on extrusions of profiles and shapes of the actual members of the Work. Establish range samples to maintain a total range of 2 degrees on the green reflectance scale.

E. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations relative to applying and designating finishes.

F. Finish designations prefixed by AA conform to the system established by the Aluminum Association for designating aluminum finishes.

1. High-Performance Organic Finish: 2-coat fluoropolymer finish complying with AAMA 2605 and containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
2. Color and Gloss: Dark grey formulated to match stone cladding and as approved by Architect.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Do not install component parts, which are observed to be defective in any way, including warped, bowed, dented, abraided and broken members, including glass and edge damage. Remove and replace members, which have been damaged during installation.

B. Deliver base plates for mullion anchorage in time to allow for installation. Provide setting drawings.

3.2 ERECTION TOLERANCES

A. Limit variations from plumb, and level to the following:

1. 1/8" maximum deviation.

B. Limit variations from location (theoretical calculated positions in plan or elevation based on established floor lines and column lines), including variations from plumb and level, to the following:

1. 3/8" total maximum deviation for any member at any location.
2. 1/8" maximum change in deviation for any member at any 10' run, any direction.

C. Limit offsets in the end-to-end and edge-to-edge alignments of adjoining and consecutive members, which form planes, continuous runs and profiles to the following:

1. 1/16" maximum offset in any flush alignment, including any which are to be ½" or less out-of-flush, and including any which are separated 2" or less by a reveal or protrusion in the plane of the wall.
2. 1/8" maximum offset in alignments which are to be out-of-flush by more than ½", or separated by a reveal or protrusion of more than 2" width.

D. Provide sliding connections at top of mullions to accommodate deflections of L/360 of the floor above.

3.3 ERECTION

A. Erect steel elements in accordance with AISC - Manual of Standard Practice.

B. Certify welders in accordance with requirements of AWS.

C. Do not cut, trim, weld or braze components during erection in any manner which would damage the finish, decrease the strength, or result in a visual imperfection or a failure in performance of the window wall. Return component parts, which require alteration to the shop for refabrication, if possible, or for replacement by new parts, if not possible.

D. Install components level, plumb, true to line and with uniform joints and reveals. Use erection equipment, which will not mark or stain finished surfaces, and will not damage the component parts in any way.

E. Anchor component parts securely in place by bolting, welding or other permanent mechanical attachment system, which will comply with performance requirements and permit movements which are intended or necessary. Install slip-joints wherever necessary to ensure movement as intended or necessary.

F. Apply bituminous paint of approximately 30-mil dry film thickness, or other suitable permanent separator, on concealed contact surfaces of dissimilar materials, before assembly or installation.

G. Wire brush and touch-up prime welded and unshop primed steel.

H. Provide close fitting sleeves at joints to insure alignment and no open joints.

I. Provide all closures, panels, sill and stool covers and all other accessory items required for a complete installation. Form accessories of minimum .063" aluminum.

J. Install fire stopping in accordance with requirements to obtain fire rating.

3.4 PROTECTION AND CLEANING

A. Protect exposed aluminum work from damage by construction. Use lacquer coating only if totally removed without damage to finish. Use strippable covering only if totally

removed without damage to finish. Remove protection and clean surfaces and glass immediately before acceptance of building.

END OF SECTION 084113

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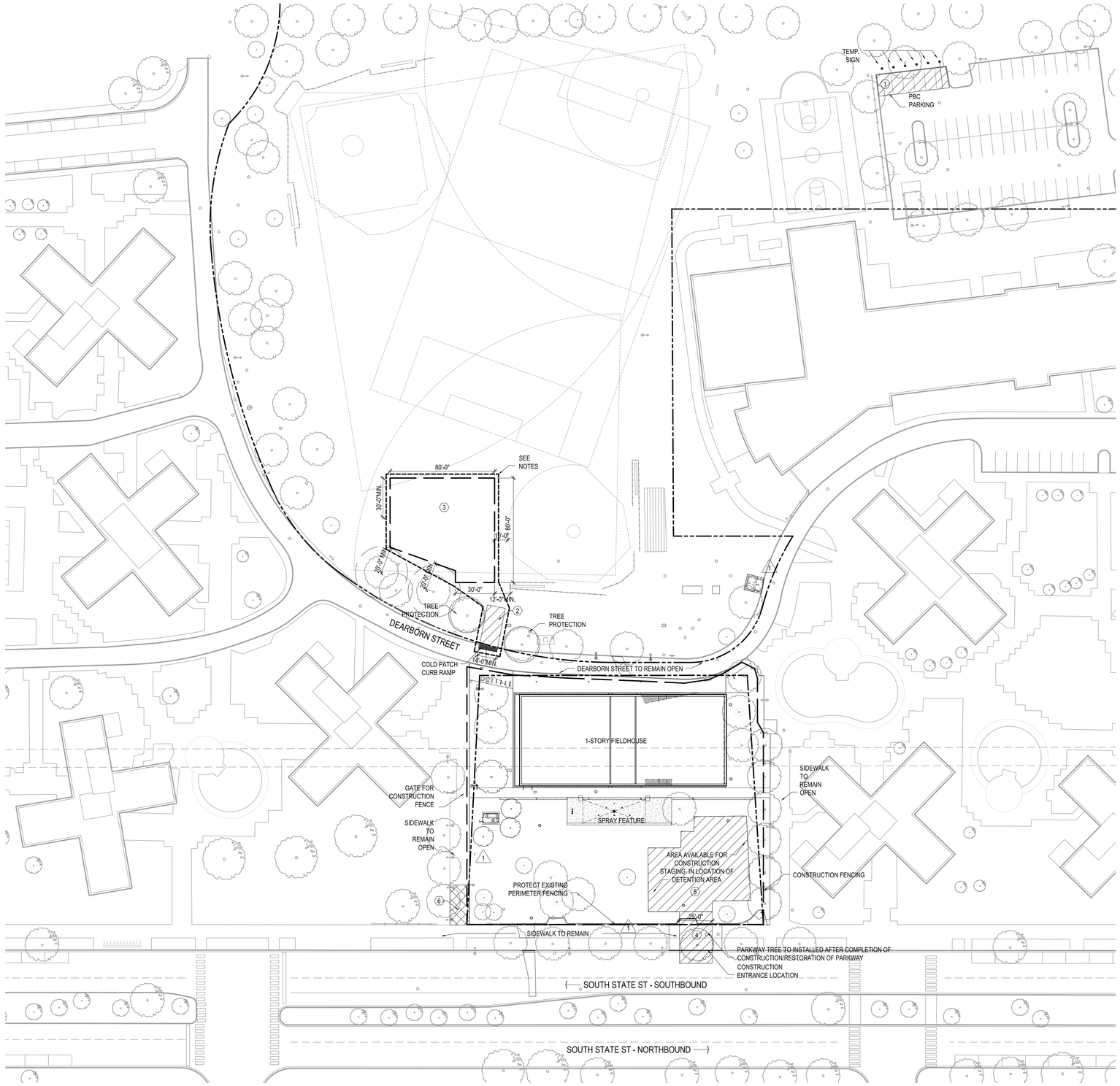

GENERAL NOTES

1. THIS DRAWING IS INTENDED FOR USE BY THE CONTRACTOR TO DEVELOP ITS LOGISTICS PLAN. SITE UTILIZATION AND MANAGEMENT ARE SOLELY THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL APPLICABLE CODES AND STANDARDS.
2. REFER TO TREE PRESERVATION PLAN L1.1 FOR TREE PRESERVATION REQUIREMENTS.
3. REFER TO SITE EROSION AND SEDIMENT CONTROL PLAN C1.4 FOR EROSION CONTROL.
4. CONTRACTOR RESPONSIBLE FOR COORDINATION WITH ADJACENT PROPERTY OWNERS.
5. CONTRACTOR RESPONSIBLE FOR COORDINATING AND OBTAINING ALL REQUIRED PROW CLOSURE PERMITS.
6. RESTORE ALL SITE AREAS TO PRE EXISTING CONDITIONS.
7. REFER 01 14 11 FOR FURTHER DETAILS.
8. CONTRACTOR RESPONSIBLE FOR OBTAINING ANY / ALL REQUIRED ACCESS PERMIT (CPD, CHA, ETC.)
9. CONTRACTOR SHALL ASSUME USE OF FIVE(5) STAFF PARKING SPACES AT THE EXISTING SCHOOL PARKING LOT. PBC WILL REQUIRE ONE (1) PARKING SPACE FOR ITS STAFF.
10. NO DELIVERING ALLOWED FROM DEARBORN STREET.

KEY NOTES

1. PBC 1X PARKING WITH TEMPORARY SIGN
2. FOOT TRAFFIC ACCESS AREA.
   - PROVIDE TEMPORARY ROOT PROTECTION DURING DELIVERY AND REMOVAL OF TRAILERS.
   - PROVIDE TEMPORARY COLD PATCH CURB RAMP TO PROTECT SUMP CURB.
   - ENTRANCE FOR FOOT TRAFFIC ONLY TO TRAILER AREA EXCEPTION TRAILER DELIVERY.
   - REFER TO CIVIL DWG. C1.4 FOR ADDITIONAL REQUIREMENT.
3. TRAILERS & ADDITIONAL LAY DOWN
   - MAINTAIN DISTANCE FROM BASEBALL FIELD.
   - PROVIDE CONSTRUCTION FENCING PER SPECIFICATION.
   - CONTRACTOR TO SURVEY AREA TO RESTORE TO EXISTING CONDITIONS INCLUDING CULTIVATING, REGRADING AND SODDING.
4. ALL DELIVERIES HERE. MAIN ENTRANCE TO SITE. SEE PHASING PLANS FOR ADDITIONAL INFO.
5. AREA AVAILABLE FOR CONSTRUCTION STAGING PRIOR TO CONSTRUCTION OF DETENTION.
6. PROJECT DELIVERY ACCESS AFTER 11/15/2018.

LEGEND

- SITE BOUNDARY LINE
- CONSTRUCTION FENCING
- EXISTING HYDRANT
- EXISTING UTILITY MANHOLE
- EXISTING LIGHT POLES
- EXISTING SIGN
- SIGN
- TRASH RECEPTACLE
- LIGHT POLE
- NEW LIGHT POLE HEAD
- DRINKING FOUNTAIN

NOTES FOR AREA--------

TRAILER AND FOOT TRAFFIC AREA MUST BE RESTORED AT END OF PROJECT. RESTRATION INCLUDES

1. SURVEY OF CONDITION AND GRADES PRIOR TO PLACEMENT OF TEMPORARY FACILITIES.
2. REMOVAL OF TEMPORARY FACILITIES INCLUDING ANY GRAVEL OR BASE MATERIALS UTILIZED BY CONTRACTOR.
3. CULTIVATING AND REPLACEMENT OF TOPSOIL.
4. REGLADING
5. RESTORATION OF GRASS WITH SOD.

1 SITE UTILIZATION PLAN
1" = 40'

PUBLIC BUILDING COMMISSION

CHICAGO PARK DISTRICT ORGANIZED 1869

WILLIAMS PARK FIELDHOUSE
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Flood Testing Labs
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Chicago, IL 60606
Cost Estimating

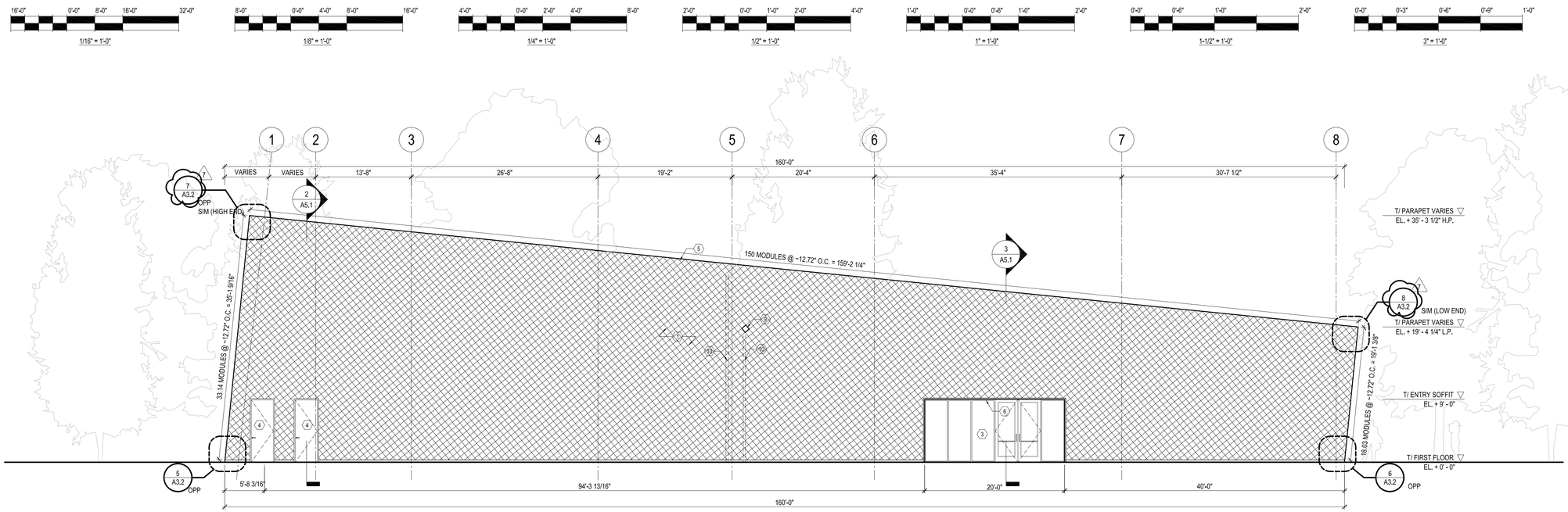
Issuance

Mark	Description	Date
7	Addendum 4	1/22/2018
	Issue for Bid	12/06/2017
	PBC Format Revision	8/30/2017
1	Certified Permit Corrections	8/03/2017
	Issued for Permit & Bid	6/01/2017

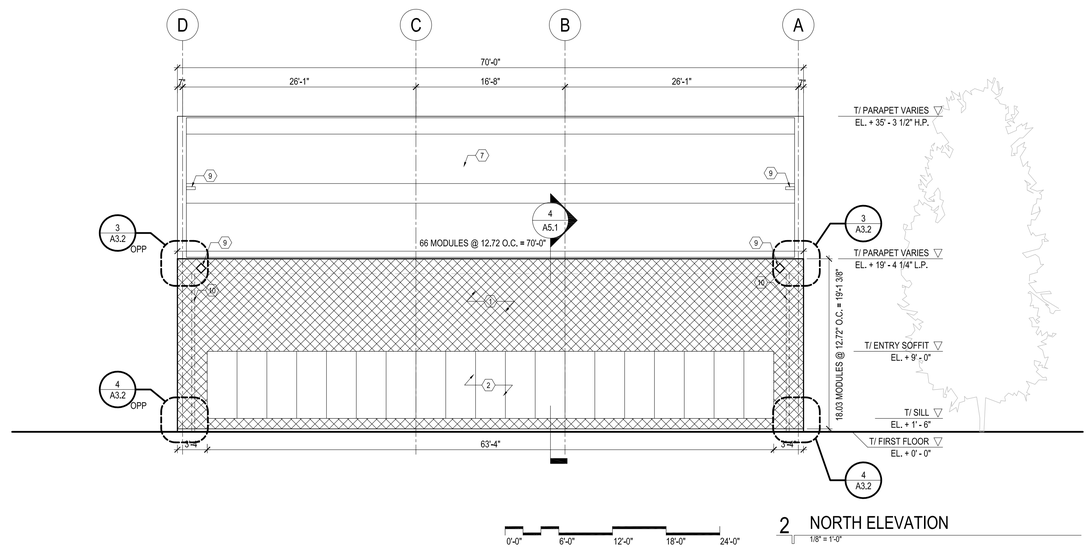
PBC Project Name:Williams Park Fieldhouse
PBC Contract No.: C1593
Project No.: 11320

Title
SITE UTILIZATION PLAN

Sheet
G1.5



1 EAST ELEVATION
1/8" = 1'-0"



2 NORTH ELEVATION
1/8" = 1'-0"

KEY NOTES

1. MILLENIUM FORMS STAINLESS STEEL FLAT LOCK PANEL CLADDING
2. BUTT-GLAZED STOREFRONT SYSTEM
3. ALUMINUM FRAMED STOREFRONT
4. CLAD HOLLOW METAL DOOR AND FRAME
5. METAL COPING TO MATCH CLADDING
6. STONE PANEL AT SOFFIT
7. PVC ROOFING SYSTEM
8. FIELD HOUSE SIGNAGE
9. SCUPPER
10. DOWNSPOUT BEHIND CLADDING
11. STONE PANEL CLADDING
12. ALUMINUM AND GLASS WINDOWS
13. ALUMINUM AND GLASS DOORS

GENERAL NOTES

1. ALL FACE CLADDING ELEMENTS AND OPENINGS ARE LAID OUT AS INDICATED.
2. ALL FASTENERS ARE TO BE CONCEALED.
3. ALL EXTERIOR CLADDING ELEMENTS SHALL BE DESIGNED TO MEET CHICAGO BUILDING CODE WIND PRESSURE DESIGN LOADS OR SPECIFIED DESIGN LOADS, WHICHEVER IS GREATER.
4. CHICAGO BUILDING CODE DESIGN WIND PRESSURE LOADS FOR EXTERIOR CLADDING ELEMENTS:
   - 4.1. 25 PSF GENERALLY
   - 4.2. 30 PSF FOR CORNERS AND PROJECTING ELEMENTS.
5. ALL GLAZING IN EXTERIOR ENCLOSURE SHALL BE 1" INSULATED GLASS UNITS MEETING OR EXCEEDING THE FOLLOWING CRITERIA:
   - 5.1. VISIBLE LIGHT TRANSMITTANCE MIN 70%
   - 5.2. SOLAR HEAT GAIN COEFFICIENT MIN. .38
   - 5.3. SHADING COEFFICIENT MIN. .44
   - 5.4. U-VALUE WINTER MAX. .29
   - 5.5. U-VALUE SUMMER MAX .27
   - 5.6. EXTERIOR VISIBLE LIGHT REFLECTANCE MAX 11%
   - 5.7. INTERIOR VISIBLE LIGHT REFLECTANCE MAX 12%
6. ALL OPERATING HARDWARE AT OPERABLE WINDOWS SHALL COMPLY WITH ANSI A117.1 PART 309.4.
7. CONTRACTOR TO ESTABLISH CONTROL POINTS DURING INSTALLATION OF FACADE MODULES IN ORDER TO ENSURE ADHERENCE TO NOTED NUMBER OF MODULES ON ABOVE ELEVATIONS

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Title
EAST AND NORTH ELEVATIONS

Sheet
A3.1

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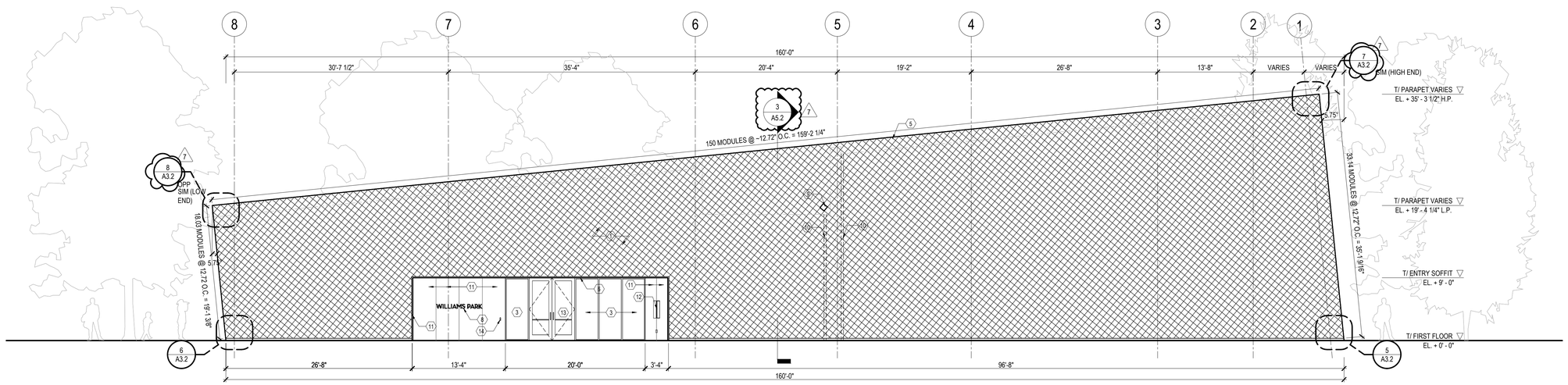
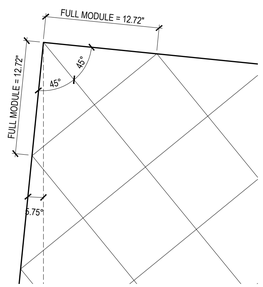
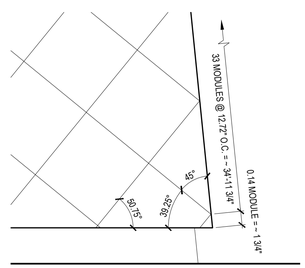


0'-0" 6'-0" 12'-0" 18'-0" 24'-0"

1 WEST ELEVATION
1/8" = 1'-0"



7 UPPER CORNER DETAIL @EAST FACADE OPP. @WAST FACADE
1-1/2" = 1'-0"



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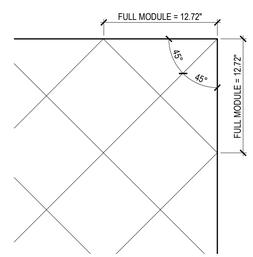
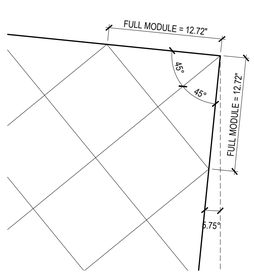
1-1/2" = 1'-0"



3 MODULATION DETAIL
1-1/2" = 1'-0"



8 UPPER CORNER DETAIL @EAST FACADE OPP. @WEST FACADE
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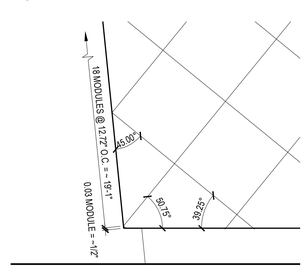

6 MODULATION DETAIL
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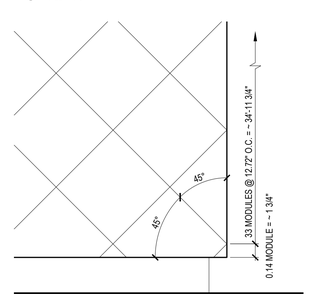

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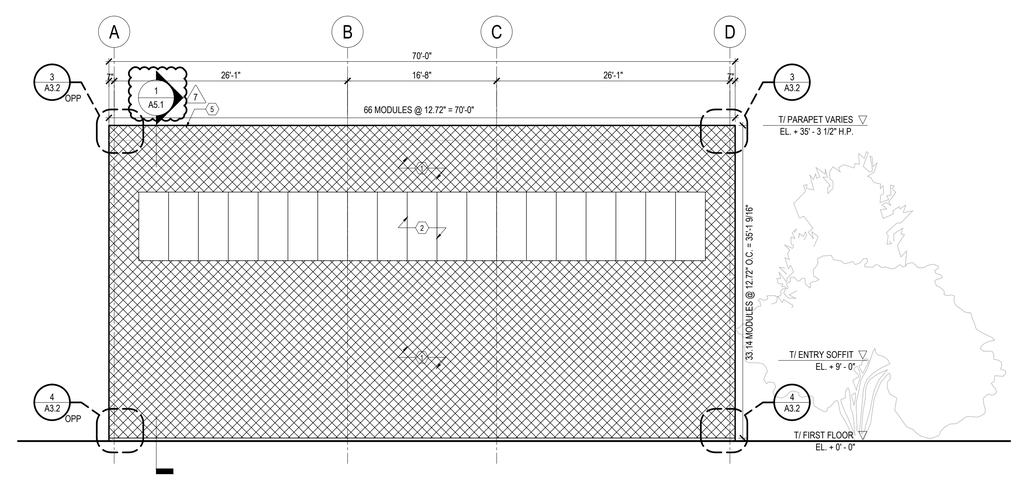

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9. SCUPPER
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11. STONE PANEL CLADDING
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13. ALUMINUM AND GLASS DOORS
14. ADA RECESSED PUSH PLATE

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CHICAGO PARK DISTRICT
CITY OF CHICAGO, MAYOR RAHM EMANUEL

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Arup Engineering
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Environmental Consulting Group
105 S. york Street, Suite 250
Elmhurst, IL 60126
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Flood Testing Labs
1845 E. 87th Street, Chicago, IL 60617
Geotechnical Engineers of Record

Faithful & Gould
20 N. Upper Wacker Dr., Suite 2243
Chicago, IL 60606
Cost Estimating

Issuance

Mark	Description	Date
7	Addendum 4	1/22/2018
	Issue for Bid	12/06/2017
	PBC Format Revision	8/30/2017
	Issued for Permit & Bid	6/01/2017

PBC Project Name:Williams Park Fieldhouse
PBC Contract No.: C1593
Project No.: 11320

Title
WEST AND SOUTH ELEVATIONS

Sheet
A3.2

16'-0" 0'-0" 8'-0" 16'-0" 32'-0"
1/16" = 1'-0"

8'-0" 0'-0" 4'-0" 8'-0" 16'-0"
1/8" = 1'-0"

4'-0" 0'-0" 2'-0" 4'-0" 8'-0"
1/4" = 1'-0"

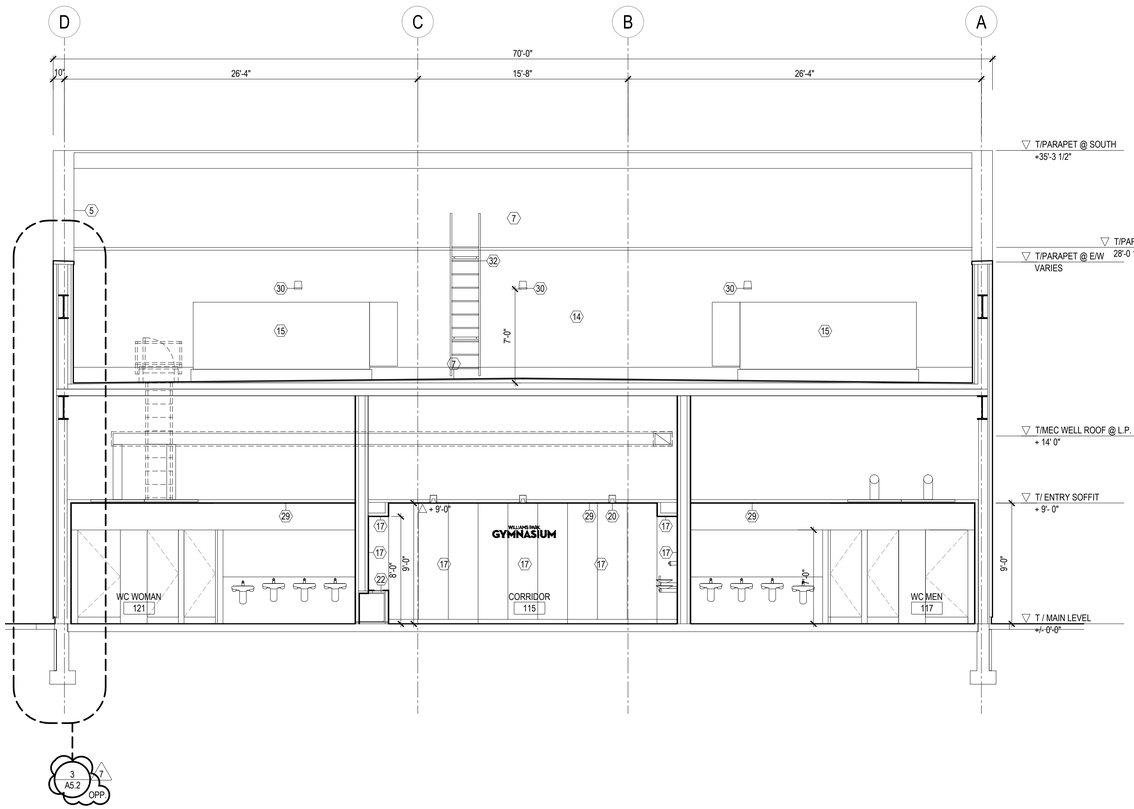
2'-0" 0'-0" 1'-0" 2'-0" 4'-0"
1/2" = 1'-0"

1'-0" 0'-0" 0'-6" 1'-0" 2'-0"
1" = 1'-0"

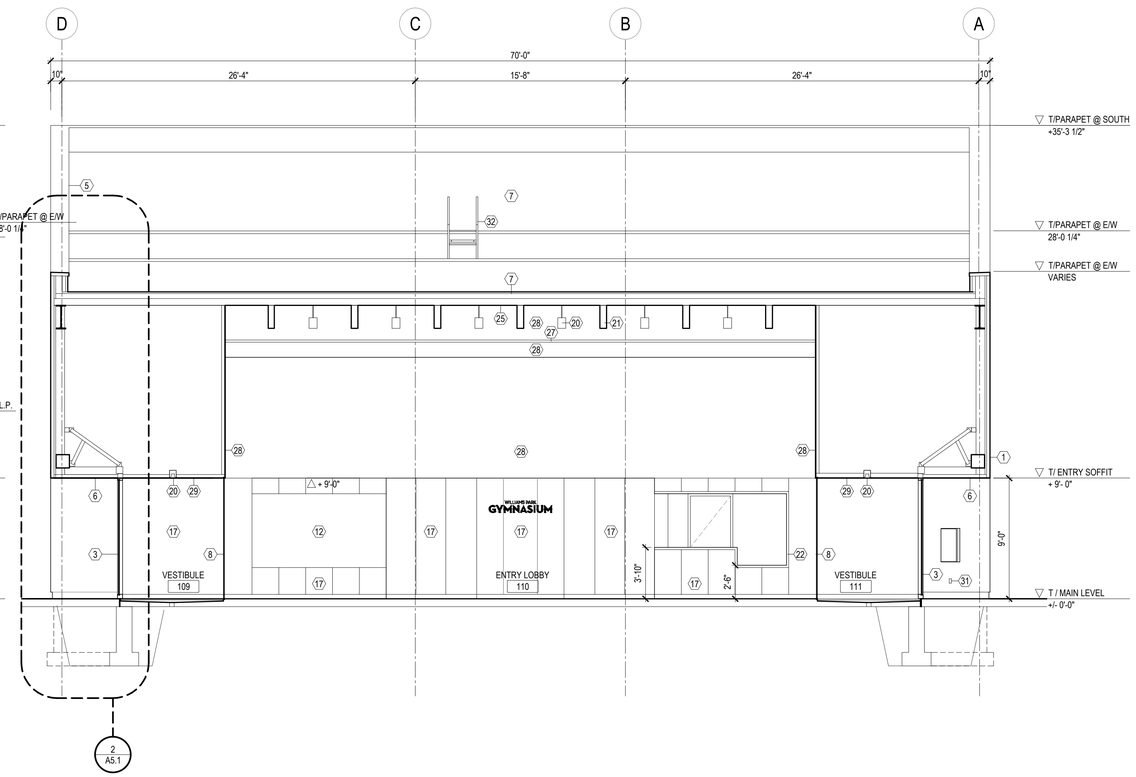
0'-0" 0'-6" 1'-0" 2'-0"
1-1/2" = 1'-0"

0'-0" 0'-3" 0'-6" 0'-9" 1'-0"
3" = 1'-0"

0'-0" 0'-1-1/2" 0'-3" 0'-4-1/2" 0'-6"
6" = 1'-0"



2 BUILDING SECTION
3/8"= 1'-0"



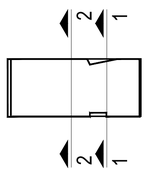
1 BUILDING SECTION
3/8"= 1'-0"

0'-0" 6'-0" 12'-0" 18'-0" 24'-0"

KEY NOTES

1. MILLENIUM FORMS STAINLESS STEEL FLAT LOCK PANEL CLADDING
2. BUTT GLAZED CLEARSTORY
3. ALUMINUM AND FRAMED STOREFRONT
4. CLAD HOLLOW METAL DOOR AND FRAME
5. METAL COPING TO MATCH CLADDING
6. STONE PANEL AT SOFFIT
7. PVC ROOFING OVER PROTECTION BOARD
8. FRAMELESS STOREFRONT SYSTEM
9. FULL HEIGHT STORAGE MILLWORK
10. VOLLEYBALL STANCHION FLOOR INSERT
11. SHELVES ON BRACKETS AND STANDARDS
12. DISPLAY BOARD
13. TROPHY CASE
14. MECHANICAL WELL
15. RTU
16. WALL PADDING
17. SOLID SURFACE WAINSCOTING
18. ADJUSTABLE BACKBOARDS
19. HIGH BAY LED LIGHT FIXTURE
20. LED DOWNLIGHT
21. GLULAM BEAM
22. MILLWORK, SEE A9.2, A9.3, A9.4
23. PTD. GALV. TUBE SUPPORT BEAMS
24. OPERABLE PARTITION
25. PAINTED ACOUSTIC DECK
26. INSULATED METAL PANEL WALL
27. HIGH THROW MECHANICAL DIFFUSER
28. PAINTED DRY WALL
29. PAINTED GYPSUM CEILING
30. EXTERIOR LIGHTING FIXTURE
31. ELECTRICAL POWER OUTLET
32. ROOF LADDER

KEY PLAN



PUBLIC BUILDING COMMISSION

CHICAGO PARK DISTRICT ORGANIZED 1934

WILLIAMS PARK FIELDHOUSE
PARK #261

2820 SOUTH STATE STREET
CHICAGO, IL 60616

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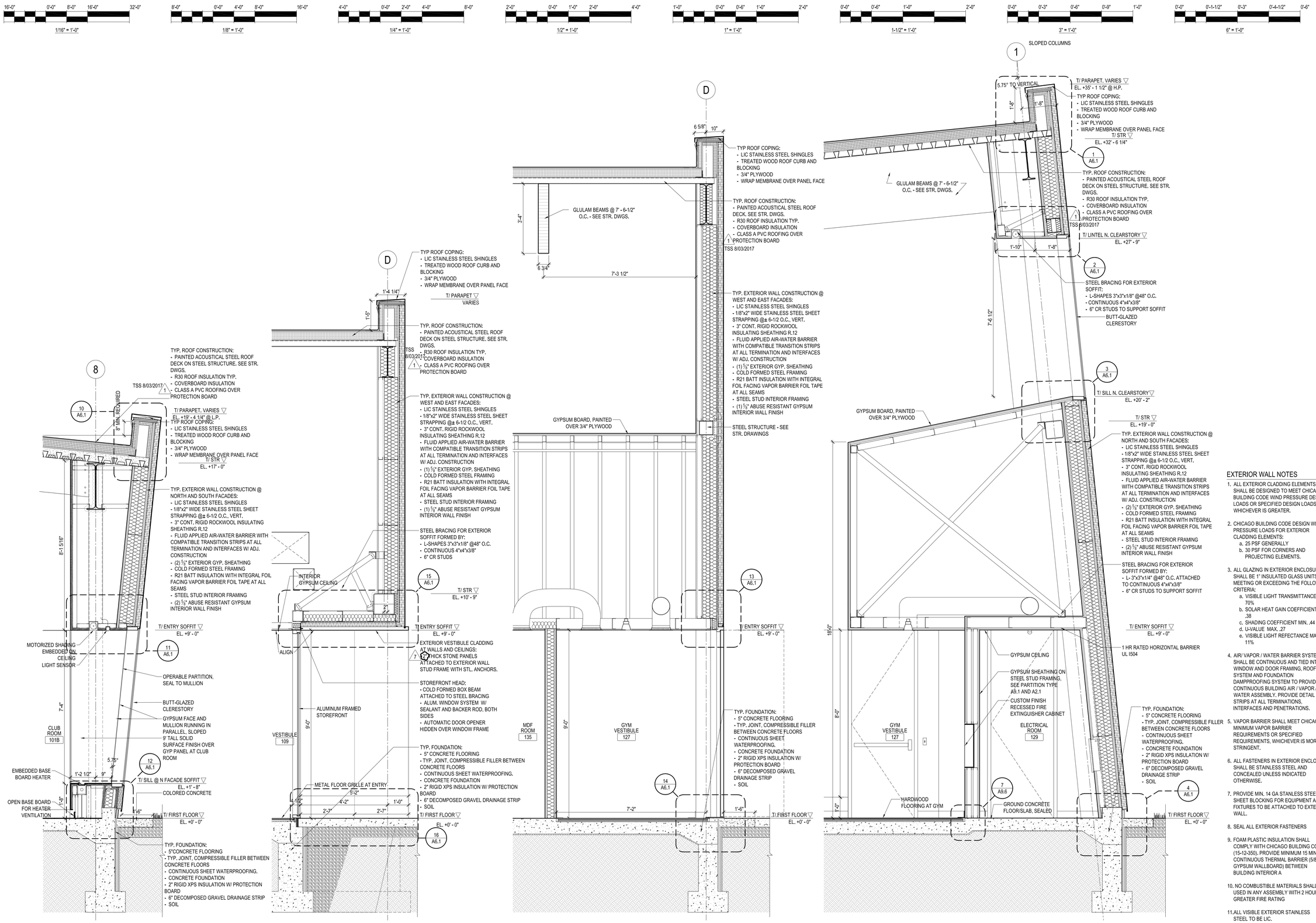
PBC Project Name:Williams Park Fieldhouse
PBC Contract No.: C1593
Project No.: 11320

Title
BUILDING SECTIONS

Sheet
A4.2



EXTERIOR WALL NOTES

1. ALL EXTERIOR CLADDING ELEMENTS SHALL BE DESIGNED TO MEET CHICAGO BUILDING CODE WIND PRESSURE DESIGN LOADS OR SPECIFIED DESIGN LOADS, WHICHEVER IS GREATER.
2. CHICAGO BUILDING CODE DESIGN WIND PRESSURE LOADS FOR EXTERIOR CLADDING ELEMENTS:
   a. 25 PSF GENERALLY
   b. 30 PSF FOR CORNERS AND PROJECTING ELEMENTS.
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11. ALL VISIBLE EXTERIOR STAINLESS STEEL TO BE LIC.

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PBC Contract No.: C1593
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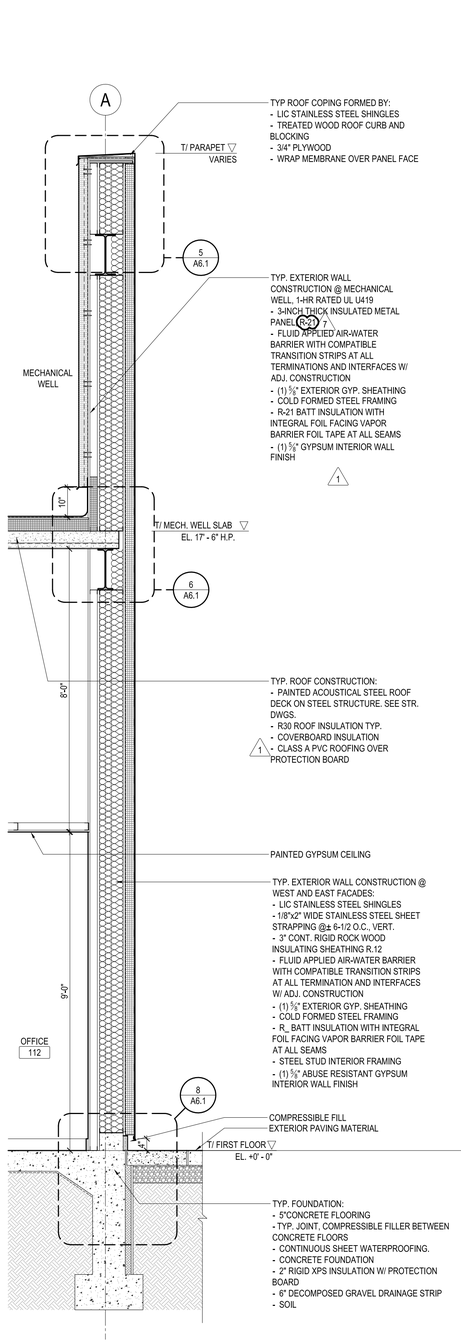
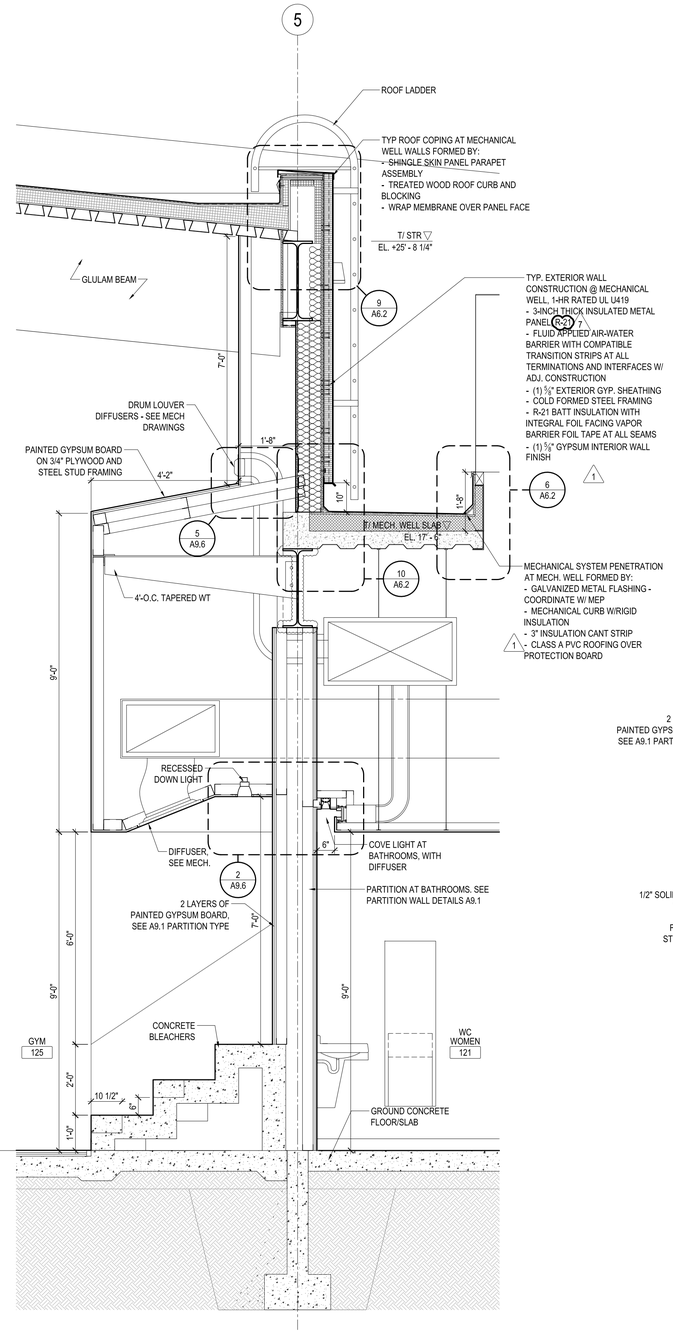
Title
EXTERIOR WALL SECTIONS

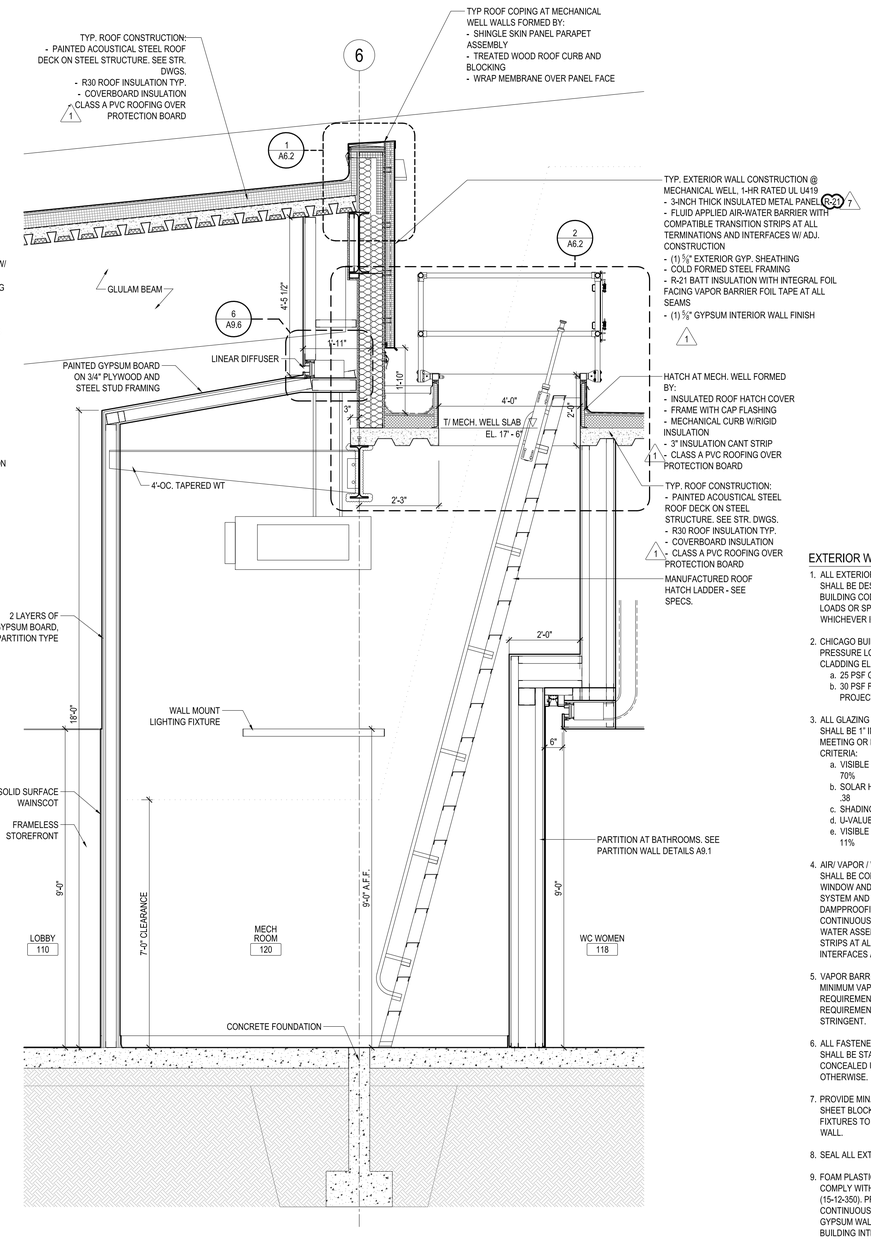
Sheet
A5.1



3 WALL SECTION
1/2" = 1'-0"
WEST WALL @ MECH WELL



2 WALL SECTION
1/2" = 1'-0"
MECHANICAL WELL SOUTH WALL



1 WALL SECTION
1/2" = 1'-0"
MECHANICAL WELL NORTH WALL

EXTERIOR WALL NOTES

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   e. VISIBLE LIGHT REFECTANCE MAX 11%

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0'-0" 1'-0" 3'-0" 6'-0"

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PBC Contract No.: C1593
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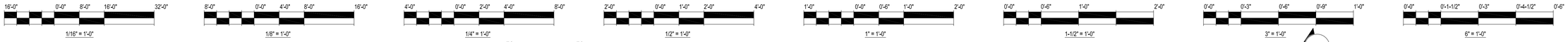
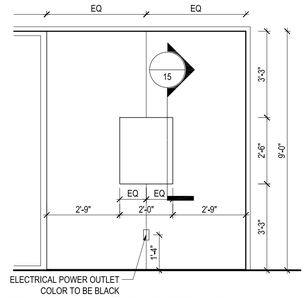
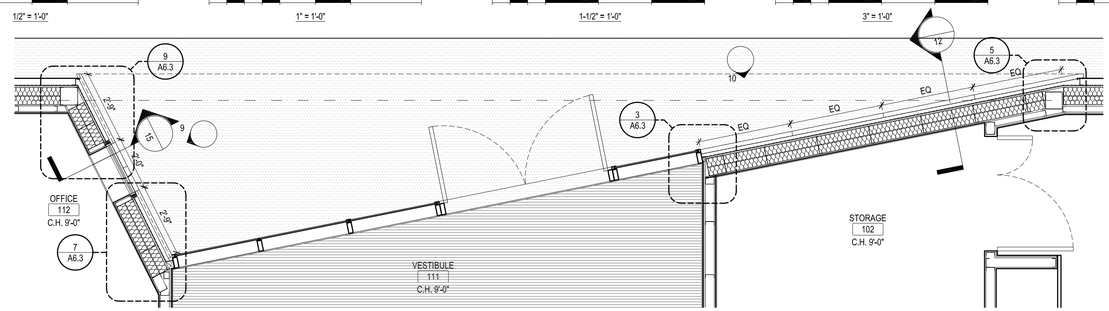
Title
EXTERIOR WALL SECTIONS

Sheet
A5.2

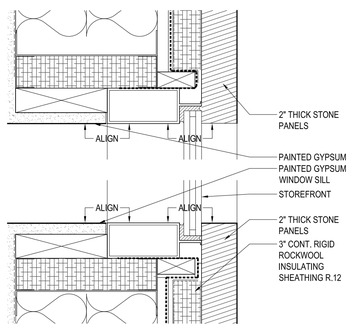




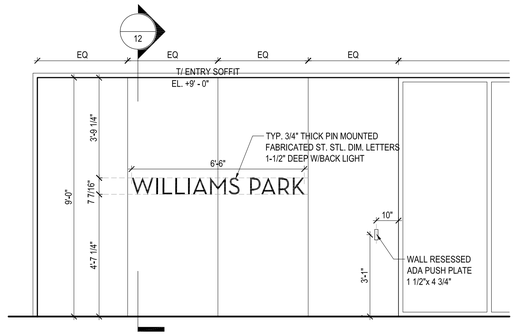
9 ELEVATION - SOUTH WALL @ WEST VESTIBULE SOUTH WALL
3/8" = 1'-0"



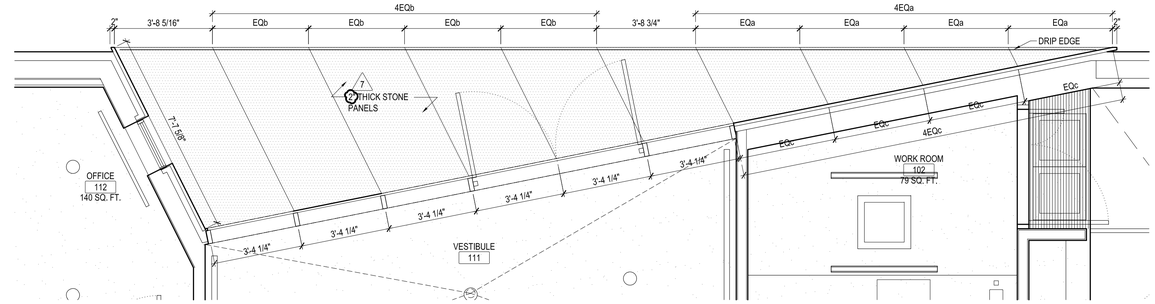
1 ENLARGED PLAN - EXT. WEST VESTIBULE
3/8" = 1'-0"



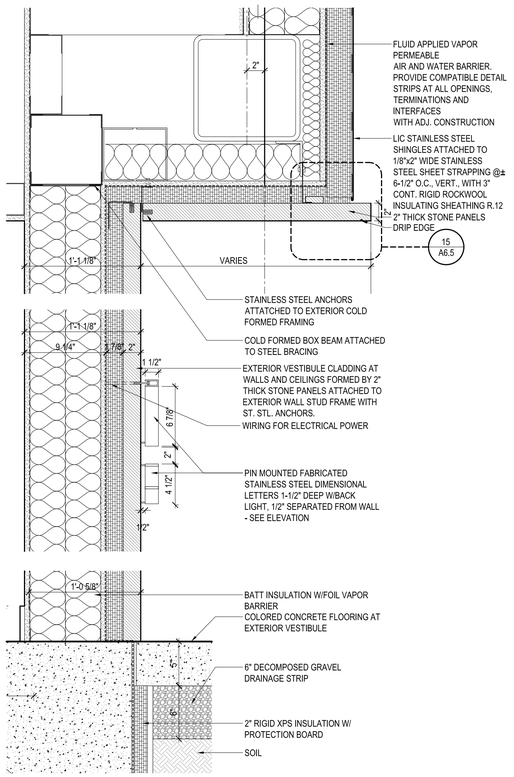
15 DETAILS - EXT. WEST WINDOW HEAD AND BOTTOM
3" = 1'-0"



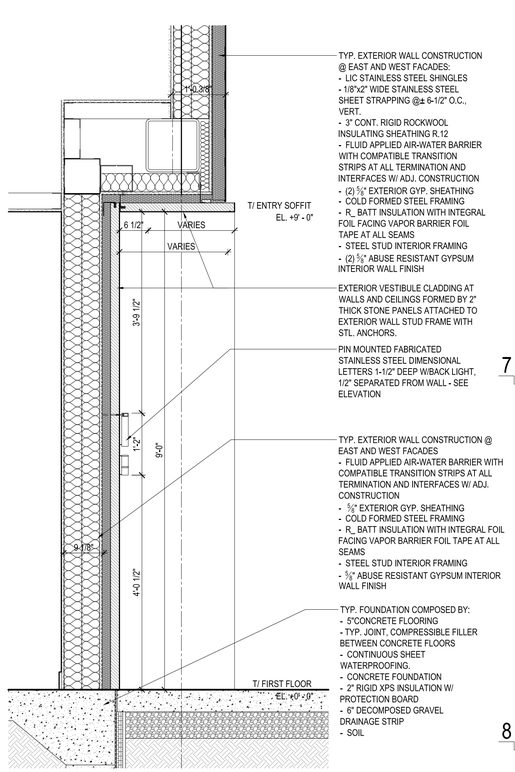
10 ELEVATION - SIGNAGE @ WEST EXT. VESTIBULE EAST WALL
3/8" = 1'-0"



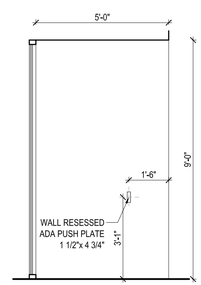
2 ENLARGED RCP - EXT. WEST VESTIBULE
3/8" = 1'-0"



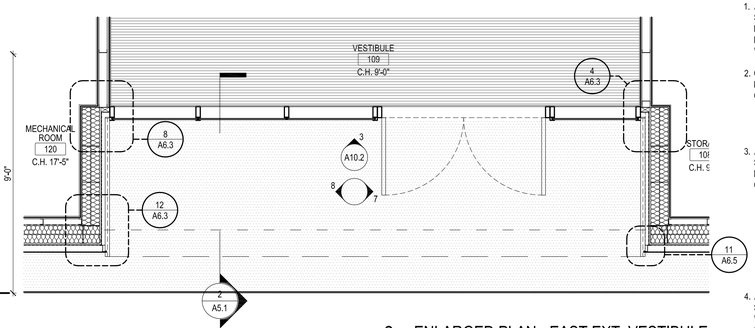
16 DETAILS - EXT. WEST VESTIBULE WALL
1 1/2" = 1'-0"



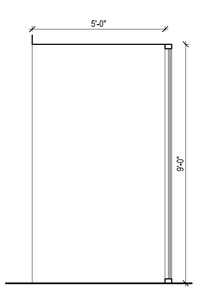
12 WALL SECTION - EXT. WEST VESTIBULE WALL
3/4" = 1'-0"



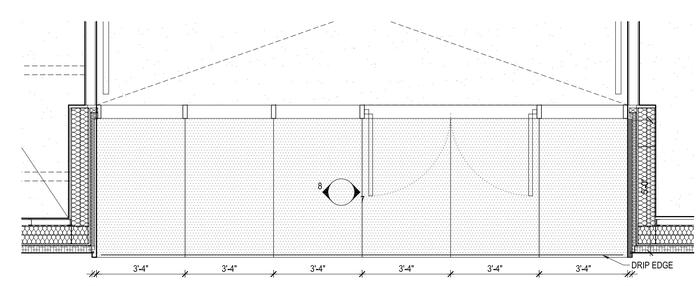
7 ELEVATION - EAST VEST. NORTH WALL
3/8" = 1'-0"



3 ENLARGED PLAN - EAST EXT. VESTIBULE
3/8" = 1'-0"



8 ELEVATION - EAST VEST. SOUTH WALL
3/8" = 1'-0"



4 ENLARGED RCP - EAST EXT. VESTIBULE
3/8" = 1'-0"

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PUBLIC BUILDING COMMISSION

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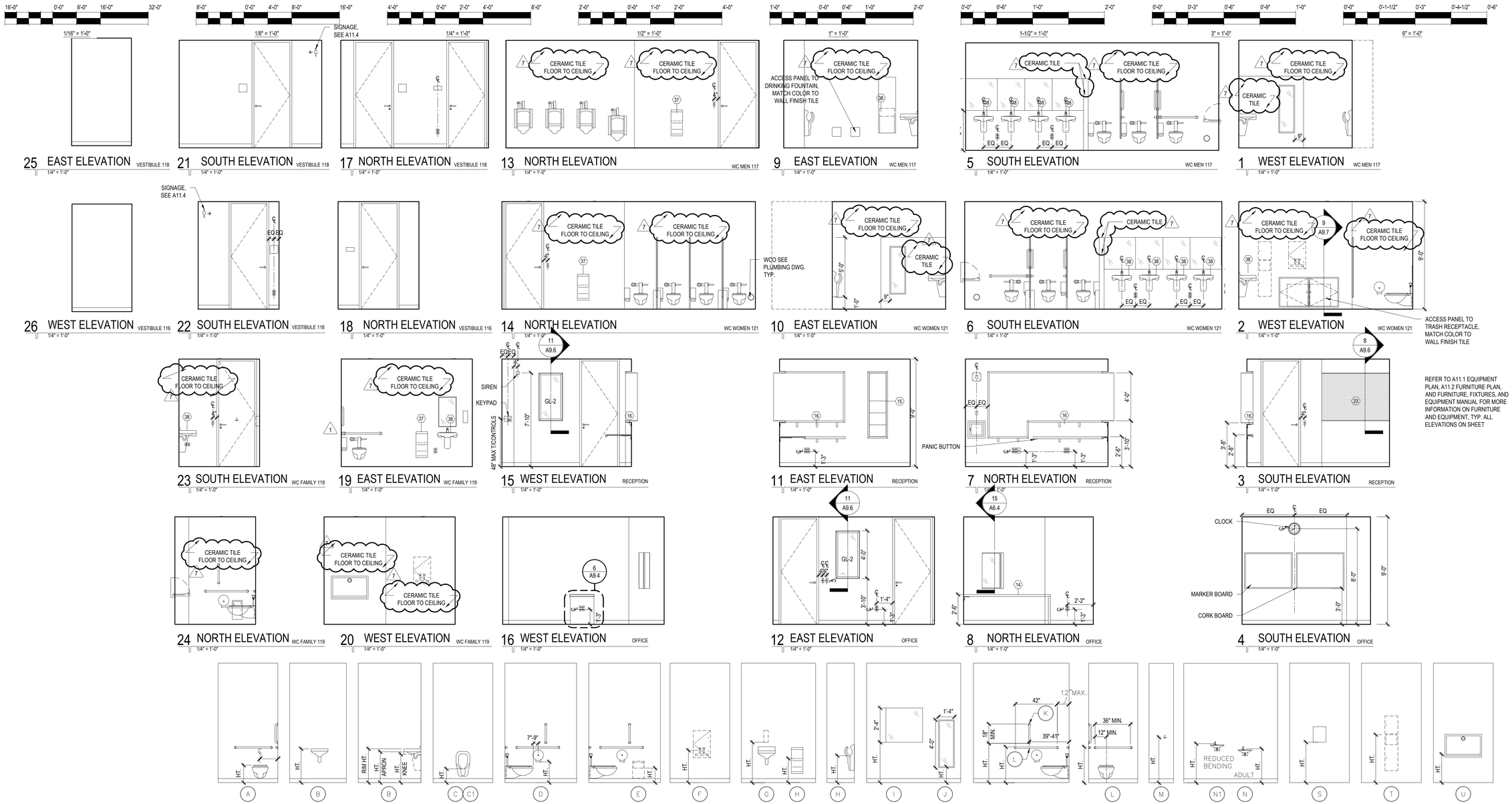
EXTERIOR VESTIBULE DETAILS

Sheet
A6.4



REFER TO A11.1 EQUIPMENT PLAN, A11.2 FURNITURE PLAN, AND FURNITURE, FIXTURES, AND EQUIPMENT MANUAL FOR MORE INFORMATION ON FURNITURE AND EQUIPMENT, TYP. ALL ELEVATIONS ON SHEET

TOILET ACCESSORIES SCHEDULE & STANDARD MOUNTING HEIGHTS

(A) WATER CLOSET
HEIGHT: 18" A.F.F. TO TOP OF SEAT
CENTERLINE: 18" (THIS IS A FIXED DIMENSION THAT DOES NOT ALLOW FOR CONSTRUCTION TOLERANCE)

(B) LAVATORY
HEIGHT: 34" A.F.F. MAX. RIM HEIGHT
KNEE SPACE: 27" A.F.F. MIN.
BOTTOM OF APRON: 29" A.F.F. MIN.

(C) URINAL
STANDARD HEIGHT: 24" A.F.F. MAX. TO RIM

(C1) ADULT ADA HEIGHT: 17" A.F.F. MAX. TO RIM

NOTE: EXCEPT WHERE NOTED, ALL FIXTURES ARE MOUNTED AT ADA ACCESSIBLE HEIGHT

(D) TOILET PAPER DISPENSER
HEIGHT: 47" A.F.F. MAX. TO OUTLET OF DISPENSER

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

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

(G) SOAP DISPENSER (OVER SINK)
HEIGHT: 44" A.F.F. TO HIGHEST OPERABLE PART
48" MAX. ALLOWABLE DIMENSION

(H) HAND DRYER
HEIGHT: 27" A.F.F. TO HIGHEST OPERABLE PART

(I) MIRRORS
40" A.F.F. TO BOTTOM OF REFLECTIVE SURFACE

(J) FULL-LENGTH MIRRORS
15" A.F.F. TO BOTTOM OF REFLECTIVE SURFACE

(K) VERTICAL GRAB BAR
ADULT: HEIGHT: 40" A.F.F. TO BOTTOM OF BAR
39"-41" ALLOWABLE DIMENSION

(L) SIDE WALL/REAR WALL GRAB BAR
ADULT HEIGHT: 35" A.F.F. TO TOP OF BAR
33"-36" ALLOWABLE DIMENSION

(M) COAT HOOKS
ADULT HEIGHT: 47" A.F.F. TO TOP
48" MAX. ALLOWABLE DIMENSION

(N) DRINKING FOUNTAINS
ADULT ADA HEIGHT: 36" A.F.F. MAX. TO SPOUT

(N1) REDUCED BENDING HEIGHT: 42" A.F.F. TO SPOUT
38" A.F.F. MIN – 43" A.F.F. ALLOWABLE DIMENSION

(S) PAPER TOWEL DISPENSER
ADULT ADA HEIGHT: 47" A.F.F. MAX. TO OUTLET OF THE DISPENSER

(T) RECESSED TRASH RECEPTACLE
HEIGHT: 18–48" A.F.F. TO RECEPTACLE OPENING

(U) RECESSED BABY CHANGING TABLE
HEIGHT: 30–32" A.F.F. TO TOP OF TABLE

SCHEDULE OF OWNER–PROVIDED, CONTRACTOR INSTALLED ITEMS

TAG	INSTALLED ITEMS
D3	JUMBO SINGLE ROLL TOILET TISSUE DISPENSER
D4	JUMBO TWIN ROLL TOILET TISSUE DISPENSER
D5	JUMBO SINGLE ROLL TOILET TISSUE DISPENSER
G3	SOAP DISPENSER
G4	SOAP DISPENSER
S	PAPER TOWEL DISPENSER
S2	PAPER TOWEL DISPENSER

LEGEND

- FIRE EXTINGUISHER
- RECESSED FIRE EXTINGUISHER CABINET
- PUSH PLATE BOLLARD

KEY NOTES

1. FIXED CAST-IN-PLACE CONCRETE SEATING AND STEPS
2. CONCRETE PAD
3. MECHANICAL WELL
4. STONE PANEL
5. SHIP'S LADDER
6. STAINLESS STEEL SHINGLES
7. METAL COPING TO MATCH STAINLESS STEEL SHINGLES
8. PAINTED STEEL STRUCTURE
9. NOT USED
10. GLULAM BEAMS
11. MILLWORK TROPHY CASE REFER TO 9.4
12. MILLWORK TRASH ENCLOSURE REFER TO 9.4 AND A9.7
13. MILLWORK 16" SHELVING ON BRACKETS AND HEAVY DUTY STANDARDS, REFER TO 9.4
14. MILLWORK REFER TO A9.3-A9.5
15. MILLWORK BROCHURE SHELF REFER TO A9.4
16. MILLWORK RECEPTION COUNTER REFER TO 9.3
17. PVC ROOFING SYSTEM
18. TAPERED INSULATION AREA
19. ROOF DRAIN
20. ALL GLASS STOREFRONT
21. ALUMINUM STOREFRONT
22. ROOF ACCESS HATCH
23. TACKABLE WALL SURFACE
24. OPERABLE PARTITION
25. MOTORIZED WINDOW SHADE
26. FLOOR GRILLE
27. RECESSED AED DEFIBRILLATOR CABINET
28. SINK
29. HI-LOW DRINKING FOUNTAIN
30. RTU
31. REFRIGERATOR
32. LINEAR LIGHT AT MILLWORK
33. EMBEDDED BASEBOARD HEATER
34. SOLID SURFACE WAINSCOTING
35. MICROWAVE
36. ADA PUSH PLATE
37. HAND DRYER WITH TOP DOWN ACCESS AND INTEGRAL DRIP TRAY
38. SINK WITH INTEGRAL, FIXED SOAP DISPENSER

GENERAL NOTES

1. REFER TO SHEETS G SERIES FOR REQUIRED FIRE RATINGS AT PARTITIONS. HORIZONTAL FIRE-RATED SHAFTWALL CONSTRUCTION SHALL BE PROVIDED AT THE BOTTOM OF ALL SHAFTS.
2. REFER TO SHEET A2.1 FOR PARTITIONS TYPES INDICATED THUS: (G1a)
3. REFER TO STRUCTURAL DRAWINGS FOR REINFORCEMENT, DOWELS AND HEAD ANCHORS FOR MASONRY PARTITIONS
4. ALL DOORS IN FIRE-RATED PARTITIONS TO BE UL LABELED AS REQUIRED FOR WALL RATING. REFER TO SHEETS G SERIES FOR REQUIRED FIRE RATINGS AT PARTITIONS.
5. REFER TO SHEET A10.1 FOR DOOR SCHEDULE FOR DOORS TAGGED THUS: XXX
6. REFER TO A9 SERIES DRAWINGS FOR FINISH SCHEDULE AND FINISH PLANS.
7. REFER TO CODE MATRIX FOR REQUIRED HOURS OF FIRE RESISTANCE OF BUILDING ELEMENTS. PROVIDE ASSEMBLIES HAVING UL RATINGS MEETING OR EXCEEDING INDICATED REQUIREMENTS.
8. DIMENSIONS GIVEN FOR ROOM LAYOUT ARE TO FACE OF DRYWALL PARTITIONS EXCEPT SOLID SURFACE WAINSCOT WHERE SHOWN ON FINISH PLANS AND UNLESS NOTED OTHERWISE.
9. ALL PARTITIONS ABUTTING EXTERIOR MULLIONS SHALL BE CENTERED ON THE MULLION UNLESS NOTED OTHERWISE.
10. PROVIDE MIN. 16 GA GALVANIZED STEEL SHEET METAL BLOCKING IN PARTITIONS AT ALL WALL-MOUNTED ITEMS.
11. NO COMBUSTIBLE MATERIALS SHOULD BE USED IN ANY ASSEMBLY WITH A 2-HR OR GREATER FIRE-RATING.
12. REFER TO A8.4 FOR FIXTURE TYPE AND MOUNTING HEIGHTS.

PUBLIC BUILDING COMMISSION

CHICAGO PARK DISTRICT BEGAN IN 1869 ORGANIZED 1934

WILLIAMS PARK FIELDHOUSE
PARK #261

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Issuance

Mark	Description	Date
7	Addendum 4	1/22/2018
	Issue for Bid	12/06/2017
	PBC Format Revision	8/30/2017
1	Certified Permit Corrections	8/03/2017
	Issued for Permit & Bid	6/01/2017

PBC Project Name:Williams Park Fieldhouse
PBC Contract No.: C1593
Project No.: 11320

Title INTERIOR ELEVATIONS TOILETS AND RECEPTION

Sheet A8.4

16'-0" 0'-0" 8'-0" 16'-0" 32'-0"
1/16" = 1'-0"

8'-0" 0'-0" 4'-0" 8'-0" 16'-0"
1/8" = 1'-0"

4'-0" 0'-0" 2'-0" 4'-0" 8'-0"
1/4" = 1'-0"

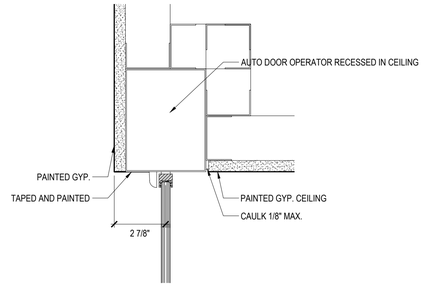
2'-0" 0'-0" 1'-0" 2'-0" 4'-0"
1/2" = 1'-0"

1'-0" 0'-0" 0'-6" 1'-0" 2'-0"
1" = 1'-0"

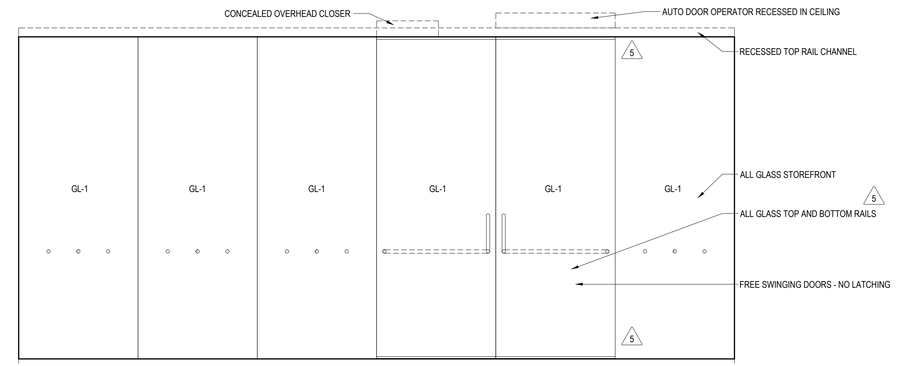
0'-0" 0'-6" 1'-0" 2'-0"
1-1/2" = 1'-0"

0'-0" 0'-3" 0'-6" 0'-9" 1'-0"
3" = 1'-0"

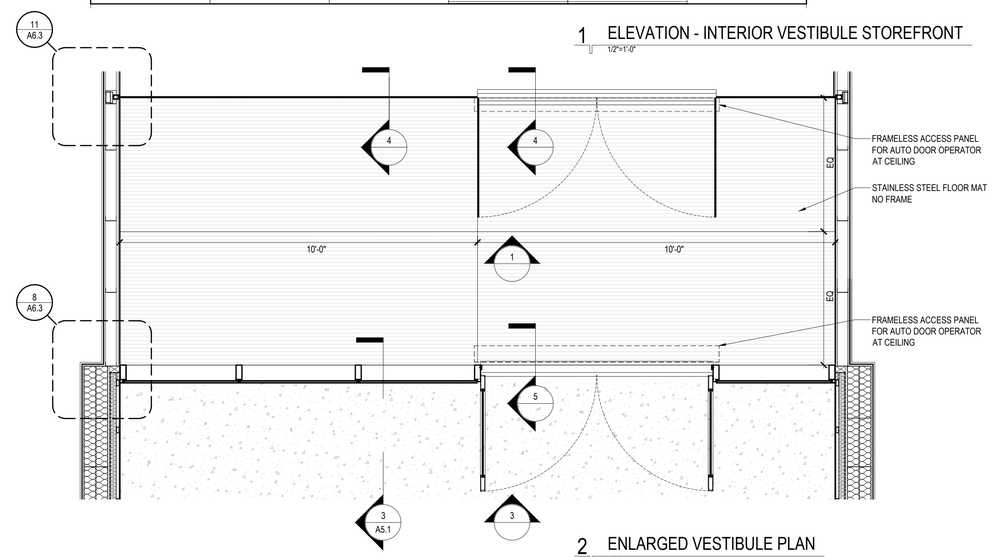
0'-0" 0'-1-1/2" 0'-3" 0'-4-1/2" 0'-6"
6" = 1'-0"



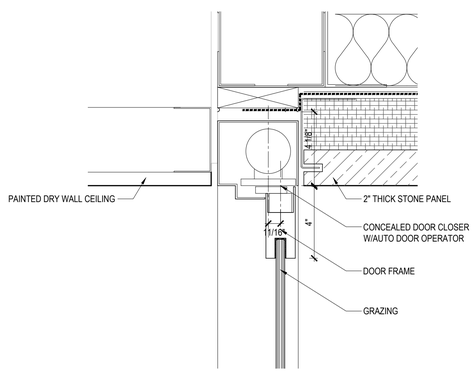
4 SECTION DETAIL
3"=1'-0"



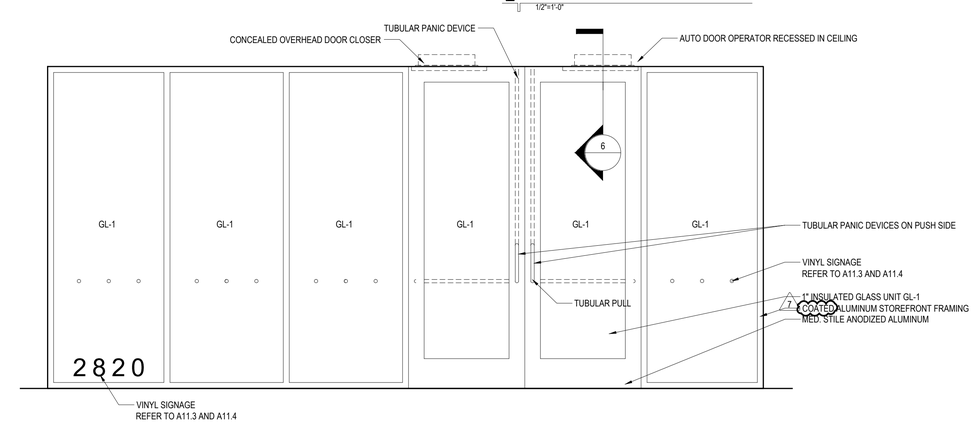
1 ELEVATION - INTERIOR VESTIBULE STOREFRONT
1/2"=1'-0"



2 ENLARGED VESTIBULE PLAN
1/2"=1'-0"



6 SECTION DETAIL
3"=1'-0"



3 ELEVATION - EXTERIOR VESTIBULE STOREFRONT
1/2"=1'-0"

ABBREVIATIONS

ALUM	ALUMINUM	WD	SOLID CORE WOOD
HM	HOLLOW METAL	ANOD	ANODIZED
GLS	GLASS	PT	PAINTED

DOOR LABELS/FIRE RATINGS

A	2 HOURS
B	1 1/2 HOURS
C	45 MINUTES

GLAZING SCHEDULE

GL-1: INSULATED GLASS UNIT AT EXT. WINDOWS AND WINDOW WALLS
GL-2: CLEAR FLOAT GLAZING
GL-3: CLEAR $\frac{3}{4}$" CERAMIC FIRE RATED GLAZING

TYPICAL DOOR AND FRAME DETAIL NOTES

1. WIDTH OF HOLLOW METAL FRAMES ARE ACTUAL PARTITION THICKNESS PLUS 1" (REFER TO PARTITION TYPES ON SHEET A9.1). PARTITION TYPES ARE KEYED ON FLOOR PLANS.
2. PROVIDE SPECIFIED FRAME ANCHORS (LISTED IN THE SPECIFICATION SECTION 08110 - STEEL DOORS AND FRAMES) TO ACCOMMODATE PARTITION TYPES AND REQUIREMENTS FOR FIRE RATING.
3. AT GYPSUM BOARD PARTITIONS, SPOT GROUT FRAMES AT EACH JAMB ANCHOR.
4. ALL UNDERCUT FIRE RATED DOORS TO COMPLY WITH UL FIRE RATED UNDERCUTTING RESTRICTIONS.
5. PROVIDE SEALANT AT JUNCTION OF ALL FRAMES TO PARTITIONS.
6. AT WOOD DOORS, PAINT ALL METAL GLAZING STOPS OR METAL LOUVERS TO MATCH STAINED & VARNISHED DOOR FINISH.
7. PROVIDE KNURLED HARDWARE AT STORAGE AND MECHANICAL SPACES, ELECTRICAL ROOMS AND OTHER HAZARDOUS AREAS

GENERAL NOTES

1. ALL HARDWARE LEVER SETS TO BE ADA COMPLIANT.
2. ALL UNDERCUT FIRE RATED DOORS TO COMPLY WITH U.L. FIRE RATED UNDERCUTTING RESTRICTIONS.
3. ALL FIRE RATED DOORS TO HAVE CLOSERS WITHOUT HOLD OPEN CAPABILITIES
4. ALL DOORS IN RATED PARTITIONS SHALL HAVE BE UL LABELED AS FOLLOWS: 3-HR RATED WALLS: "A" LABEL; 2-HR RATED WALLS: "B" LABEL; 1-HOUR RATED WALLS: "C" LABEL (45 MIN.). ALL UL LABELED DOORS SHALL HAVE CLOSERS.
5. ALL EXTERIOR DOORS AND FRAMES ARE TO BE GALVANIZED AND INSULATED.
6. ALL DOORS SHALL BE KEYLESS IN THE DIRECTION OF EGRESS. NO SPECIAL HARDWARE OR KNOWLEDGE SHALL BE REQUIRED TO OPERATE DOORS IN THE DIRECTION OF EXIT.
7. ALL DOORS SHALL HAVE A MINIMUM LEAF WIDTH F 3'-0".
8. OPERATING HARDWARE SHALL COMPLY WITH ANSI A117.1 PART 309.4 AND DOORS SHALL OPEN WITH LESS THAT 5 LBS PRESSURE (INTERIOR DOORS) AND 8.5 LBS OF PRESSURE (EXTERIOR DOORS).
9. THRESHOLDS SHALL COMPLY WITH ANSI A117.1 PART 303.

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Issuance

Mark	Description	Date
7	Addendum 4	01/22/2018
5	Addendum 2	01/10/2018
	Issue for Bid	12/06/2017
	PBC Format Revision	8/30/2017
	Issued for Permit & Bid	6/01/2017

PBC Project Name:Williams Park Fieldhouse
PBC Contract No.: C1593
Project No.: 11320

Title
DOOR DETAILS

Sheet
A10.2

16'-0" 0'-0" 8'-0" 16'-0" 32'-0"
1/16" = 1'-0"

8'-0" 0'-0" 4'-0" 8'-0" 16'-0"
1/8" = 1'-0"

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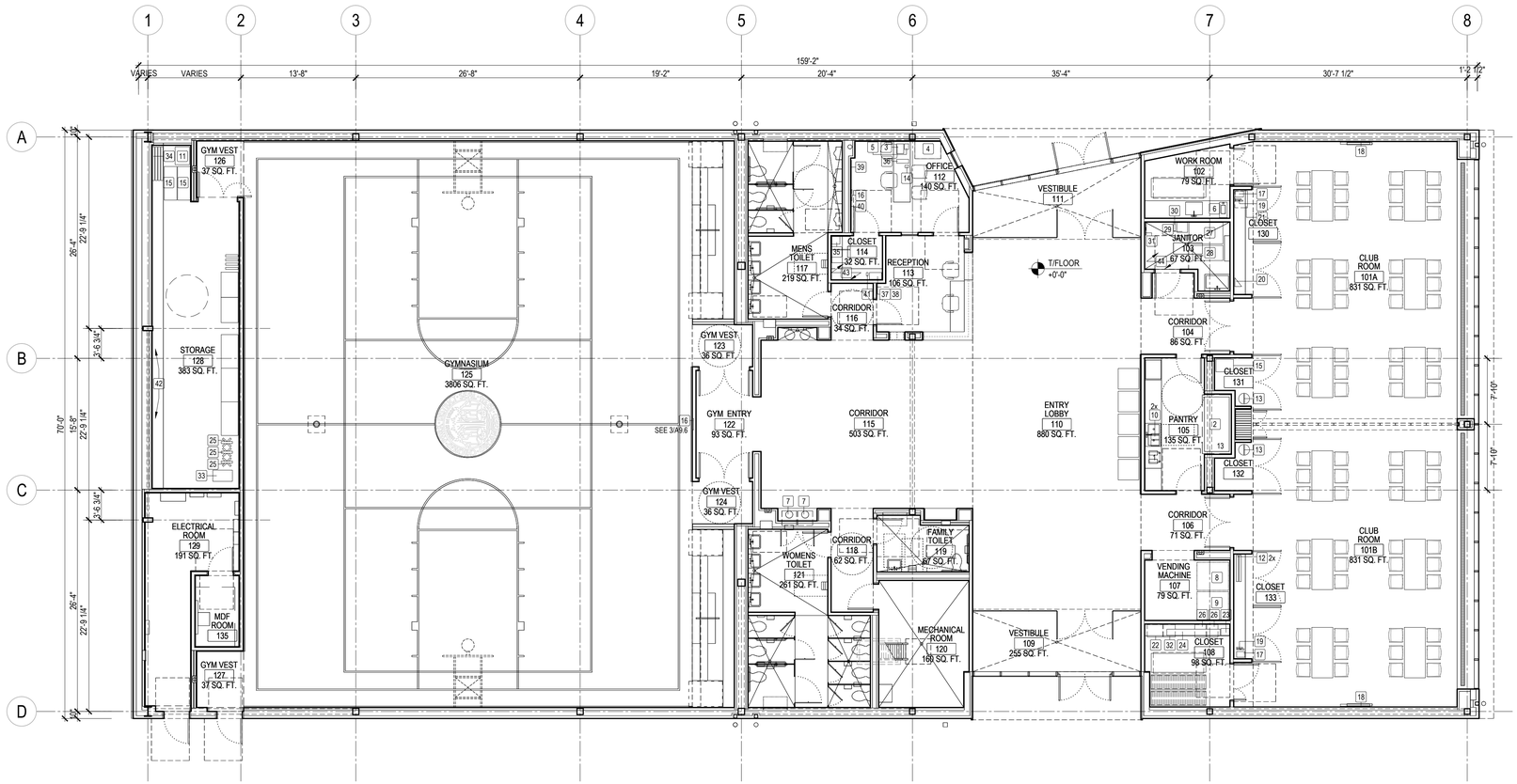

1 EQUIPMENT PLAN

1/8" = 1'-0"

TAG XX	DESCRIPTION						
1	MICROWAVE	16	CLOCK	31	SNOW SHOVEL	44	CLEANING EQUIPMENT, LISTED BELOW
2	REFRIGERATOR	17	DVD PLAYER	32	PORTABLE GENERATOR		MOP BUCKET
3	PC OR LAPTOP BY OWNER	18	TV WITH MOUNTING BRACKET	33	TWO WHEEL HAND TRUCK		MOP
4	COPY/SCANNER BY OWNER	19	GAMING SYSTEM	34	FLOOR MATS		VACUUM
5	TELEPHONE BY OWNER	20	USA FLAG	35	FIRST AID KIT		DUST MOP
6	TRASH CONTAINER	21	AV CART	36	LAMINATING MACHINE		DUST MOP HANDLE
7	TRASH CONTAINER	22	PORTABLE PA	37	DEFIBRILLATOR		HEAVY DUTY FLOOR SWEEP
8	VENDING MACHINE A	23	PROJECTOR	38	DEFIBRILLATOR CABINET		PLUNGER
9	VENDING MACHINE B	24	PROJECTOR SCREEN	39	MARKER BOARD WITH CADDY		EXTENDABLE DUSTER
10	TRASH CONTAINER	25	3 SPEED OSCILLATING FAN	40	CORK BOARD		OVERHEAD DUSTING TOOL
11	LECTERN	26	FLOOR DRYER	41	DOOR STOP		UTILITY BRUSH
12	EASEL	27	SNOW BLOWER	42	SPORTS EQUIPMENT		IRON HANDLE BRUSH
13	SIGN HOLDER	28	FLOOR SCRUBBER	43	OFFICE SUPPLIES		MOP AND BROOM HOLDER
14	CASH BOX	29	PRESSURE WASHER				PUSH BROOM
15	GARMENT RACK	30	WINDOW CLEANING SYSTEM				MISCELLANEOUS CLEANING SUPPLIES

2 EQUIPMENT SCHEDULE

N.T.S.

GENERAL NOTES

1. G.C. TO PROVIDE ALL EQUIPMENT UNLESS NOTED OTHERWISE.
2. G.C. TO COORDINATE BLOCKING AND POWER REQUIREMENTS WITH EQUIPMENT SPECIFICATIONS.
3. G.C. TO COORDINATE SCHEDULING OF ALL EQUIPMENT INSTALLATION.
4. REFER TO FURNITURE, FIXTURES, AND EQUIPMENT MANUAL FOR DETAILED INFORMATION ON ITEMS LISTED IN EQUIPMENT SCHEDULE.
5. VENDING MACHINES TO HAVE ALL CONTROLS LOCATED BETWEEN 15" A.F.F. AND 48"A.F.F.
6. G.C. TO COORDINATE WITH OWNER FOR VENDING MACHINE TYPE/SPECIFICATIONS.
7. REFER TO F.F&E MANUAL FOR QUANTITIES AND DETAILED LIST OF ITEMS TO BE PURCHASED. DRAWING IS FOR INSTALLATION PURPOSES.

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Title
EQUIPMENT PLAN AND SCHEDULE

Sheet
A11.1