DOCUMENT 00 11 13
ADVERTISEMENT FOR BIDS

1.1 PROJECT INFORMATION

A. Notice to Bidders: Qualified bidders may submit bids for project as described in this Document. Submit bids according to the Instructions to Bidders.

1. Regulatory Requirements: Applicable standards, regulations and laws of the State of Kansas shall govern submittal, opening, and award of bids.

B. Project Identification: M E Pearson Elementary School, Modular Classroom, Kansas City, Kansas Public Schools USD 500.

1. Project Location: 310 North 11th Street, Kansas City, Kansas 66102

C. Owner: Kansas City Kansas Public Schools (KCKPS), USD 500.

1. Owner's Representative: Kurt Wagner
   Tele: 913-627-3851

D. Architect: ACI/Boland, Inc.

E. Project Description: The project consists of relocating one (1) existing modular classroom unit from the recently demolished William Allen White Elementary School to M E Pearson Elementary School. The Contractor will be responsible for moving the modular classrooms from William Allen White Elementary School to M E Pearson Elementary School. Included will be all site work involving the placement of the modular classroom at the new site, foundation work for support, mechanical, electrical, plumbing and fire protection work required to connect to existing services, construction of the access ramp and platform for access, construction of the skirt between the bottom of the modular classrooms and the grade below, demolition of the existing improvements at the site of the existing modular classroom unit and restoration of the William Allen White Elementary modular classroom site after the existing improvements have been removed.

F. Construction Contract: Bids will be received for the following Work:

1. General Contract (all trades).

1.2 BID SUBMITTAL AND OPENING

A. Owner will receive sealed lump sum bids until the bid time and date at the location given below. Owner will consider bids prepared in compliance with the Instructions to Bidders issued by Owner, and delivered as follows:

1. Bid Date/Time: September 8, 2020
2. Bid Time: 2:00 PM (Central Daylight Time – US and Canada)
3. Location: 3rd Floor, Board of Education Building, Room 355,
   2010 N. 59th Street, Kansas City, Kansas, 66104.

Due to CoVid -19 Social Distancing Restrictions, Bidders will not be allowed to stay for bid opening.

B. Bids will be thereafter publicly opened and read aloud via Zoom video conference

1. KCKPS Purchasing Department is inviting you to a scheduled Zoom meeting.

   Topic: IFB 20-016 Relocation of Modular Classroom - ME Pearson Elementary
   Time: Sep 8, 2020 02:00 PM Central Time (US and Canada)

   Join Zoom Meeting
   https://us02web.zoom.us/j/84517689756?pwd=R2lhcW1yeG8xUklVT2ZJY0ErRjQ1dz09

   Meeting ID: 845 1768 9756
   Passcode: 326640
   One tap mobile
   +12532158782,,84517689756# US (Tacoma)
   +13462487799,,84517689756# US (Houston)

   Dial by your location
   +1 253 215 8782 US (Tacoma)
   +1 346 248 7799 US (Houston)
   +1 669 900 6833 US (San Jose)
   +1 301 715 8592 US (Germantown)
   +1 312 626 6799 US (Chicago)
   +1 929 205 6099 US (New York)

   Meeting ID: 845 1768 9756

   Find your local number: https://us02web.zoom.us/u/kc4wnKD1Fn

C. Inclement weather/emergency policy – If there is a school closing the day of the bid opening due to inclement weather or an emergency, the bid opening will occur at 2:00 PM (Central Daylight Time) the next business day that the district is open.

1.3 BID SECURITY

A. Bid security shall be submitted with each bid in the amount of 5 percent (5%) of the bid amount. No bids may be withdrawn for a period of sixty (60) days after opening of bids. Owner reserves the right to reject any and all bids and to waive informalities and irregularities.

1.4 PRE-BID CONFERENCE

A. A Pre-bid Conference for all bidders will be held at 1:00 p.m. on August 20, 2020. The Pre-bid Conference will be at Pearson Elementary School, 310 North 11th Street, Kansas City, Kansas. A limited “walk-thru” for all to review the project area will follow the Pre-Bid Conference. Prospective bidders are requested to attend.

1.5 DOCUMENTS

A. Contractors, legitimate sub-bidders, and vendors may obtain copies of Bidding Documents from Pinnacle Plotting & Supply, 913-766-1822. The cost of printing of any drawings shall be borne by the Contractors/bidders.

B. Online Procurement and Contracting Documents: Obtain access via the on-line plan room at the website for Pinnacle Plotting and Supply, http://www.kcplans.com/. Online access will be provided to all bidders and suppliers.

1.6 TIME OF COMPLETION AND LIQUIDATED DAMAGES

A. Successful bidder shall begin the Work on receipt of the Notice to Proceed (assume to be September 23, 2020) and shall complete the Work (Substantial Completion) no later than November 24, 2020. The work is subject to Liquidated Damages.

1.7 BIDDER'S QUALIFICATIONS

A. Bidders must be properly licensed under the laws governing their respective trades and be able to obtain insurance and bonds required for the Work. A Performance Bond, separate Labor and Material Payment Bond, and Insurance in a form acceptable to Owner will be required of the successful Bidder.

1.8 NOTIFICATION

A. This Advertisement for Bids document is issued by Kansas City, Kansas Public Schools USD 500.

END OF ADVERTISEMENT FOR BIDS

Project Manual

IFB 20-16
M E Pearson Elementary
Modular Classroom
Kansas City, Kansas Public Schools
USD 500

Civil:	Renaissance Infrastructure Consulting 1815 McGee Street, Ste. 200 Kansas City, Missouri 64108
Architect:	ACI/Boland, Inc. 1710 Wyandotte Kansas City, Missouri 64108
Structural Engineer:	Bob D. Campbell Engineers 4338 Belleview Kansas City, Missouri 64111
Mechanical/Electrical/Plumbing:	Pearson Kent McKinley Raaf Engineers LLC. 1330 W. 98th St. Lenexa, Kansas 66215

August 14, 2020

ACI/ Boland, Inc. Project No. 3-20023

ACI BOLAND ARCHITECTS

PROJECT MANUAL

for

IFB 20-016
M E PEARSON ELEMENTARY MODULAR CLASSROOM

KANSAS CITY, KANSAS PUBLIC SCHOOLS USD 500

Civil:
Renaissance Infrastructure Consulting
1815 McGee Street, Suite 200
Kansas City, Missouri 64108

Architect:
ACI/Boland, Inc.
1710 Wyandotte
Kansas City, Missouri 64108

Structural Consultant:
Bob D. Campbell Engineers
4338 Belleview
Kansas City, Missouri 64111

Mechanical/Electrical/Plumbing/Fire Protection:
Pearson, Kent, McKinley, Raaf Engineers, LLC
13300 West 98th Street
Lenexa, Kansas 66215

Specification Date
August 14, 2020

ARCHITECT'S PROJECT NO. 3-20023

DISCLAIMER OF RESPONSIBILITY

I HEREBY STATE THAT ALL DOCUMENTS INTENDED TO BE AUTHENTICATED BY MY SEAL ARE LIMITED TO DRAWINGS 01, 02, 03, 04, 05 & 06

AND HEREBY DISCLAIM ANY RESPONSIBILITY FOR ALL OTHER SPECIFICATIONS, ESTIMATES, REPORTS OR OTHER DOCUMENTS OR INSTRUMENTS RELATED TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE ARCHITECTURAL OR ENGINEERING PROJECT.

SEAL:

DUSTIN J. BURTON
22013
5/14/2020

Name: Dustin Burton, PE
Registration No.: Kansas/License # 22013
Discipline: Civil
Title: Project Manager
Company Name: Renaissance Infrastructure Consulting

DISCLAIMER OF RESPONSIBILITY

I HEREBY STATE THAT ALL DOCUMENTS INTENDED TO BE AUTHENTICATED BY MY SEAL ARE LIMITED TO SPECIFICATION SECTIONS 011000, 012100, 012300, 012500, 012600, 012900, 013100, 013200, 013300, 014000, 014200, 015000, 016000, 017300, 017700, 017823, 017839, 024119, 025000, 033000, 042000, 054000, 061053, 079200, 081000, 088000 and 099113.

AND DRAWINGS A1.0, A2.0 and A2.1

AND HEREBY DISCLAIM ANY RESPONSIBILITY FOR ALL OTHER SPECIFICATIONS, ESTIMATES, REPORTS OR OTHER DOCUMENTS OR INSTRUMENTS RELATED TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE ARCHITECTURAL OR ENGINEERING PROJECT.

SEAL:

5247
8/14/20

Name: Douglas B. Loveland
Registration No.: Kansas/License # A5247
Discipline: Architecture
Title: Partner | Architect
Company Name: ACI Boland, Inc.

DISCLAIMER OF RESPONSIBILITY

I HEREBY STATE THAT ALL DOCUMENTS INTENDED TO BE AUTHENTICATED BY MY SEAL ARE LIMITED TO SPECIFICATION SECTIONS 033000 and 042000

AND DRAWING S1.0

AND HEREBY DISCLAIM ANY RESPONSIBILITY FOR ALL OTHER SPECIFICATIONS, ESTIMATES, REPORTS OR OTHER DOCUMENTS OR INSTRUMENTS RELATED TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE ARCHITECTURAL OR ENGINEERING PROJECT.

SEAL:

JEFFREY LYLE WRIGHT
16071
8/14/2020

Name: Jeffrey L. Wright
Registration No.: Kansas/License # 16071
Discipline: Structural Engineer
Title: Principal
Company Name: Bob D. Campbell & Company

DISCLAIMER OF RESPONSIBILITY

I HEREBY STATE THAT ALL DOCUMENTS INTENDED TO BE AUTHENTICATED BY MY SEAL ARE LIMITED TO DRAWINGS ME1.1, ME2.1, ME2.2

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SEAL:

20675

8/14/2020

Name: Kevin J. Zimmerman
Registration No.: Kansas/License #20675
Discipline: Engineer
Title: Principal/ Professional Engineer
Company Name: Pearson Kent McKinley Raaf Engineers, LLC

DOCUMENT 00 01 15
LIST OF DRAWING SHEETS

1.1 LIST OF DRAWINGS

A. Drawings: Drawings consist of the Contract Drawings and other drawings listed herein and included as attachments within the Specifications, as modified by subsequent Addenda and Contract modifications.

B. List of Drawings: Drawings consist of the following Contract Drawings and other drawings of type indicated:

1. General Drawings:
    a. A0.0 - Cover Sheet

2. Civil Drawings:
    a. C01- Title Sheet
    b. C02- WAW Demolition and Restoration Plan
    c. C03- ME Pearson Demo Plan
    d. C04- Spot Elevations and Site Plan
    e. C05- ME Pearson Stormwater Plan
    f. C06- Standard Details I
    g. C07- Seeding Specification

3. Architectural Drawings:
    a. A1.0 – Architectural Site Plan
    b. A2.0 – Ramp Plans
    c. A2.1 – Ramp Details

4. Structural Drawings:
    a. S1.0 – Foundation Plan/Details

5. Mechanical, Plumbing, Electrical and Special Systems Drawings:
    a. ME1.1 – Site Plan – Mechanical / Electrical
    b. ME2.1 – Schedules / Details – Electrical
    c. ME2.2 – Schedules / Details - Mechanical

6. Modular Classroom Unit Manufacturer’s Drawings (For Reference Only):
    a. 1 – Cover Sheet / Unit Information and Specifications
    b. 2 – Exterior Elevations
    c. 3 – Floor Plan/Sections
    d. 4 – Electrical Plan
    e. 5 – Reflected Ceiling Plan
    f. 1 – Suggested Blocking Layout

END OF DOCUMENT

DOCUMENT 00 11 13
ADVERTISEMENT FOR BIDS

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Meeting ID: 845 1768 9756
Passcode: 326640
One tap mobile
+12532158782,,84517689756# US (Tacoma)
+13462487799,,84517689756# US (Houston)

Dial by your location
+1 253 215 8782 US (Tacoma)
+1 346 248 7799 US (Houston)
+1 669 900 6833 US (San Jose)
+1 301 715 8592 US (Germantown)
+1 312 626 6799 US (Chicago)
+1 929 205 6099 US (New York)

Meeting ID: 845 1768 9756

Find your local number: https://us02web.zoom.us/u/kc4wnKD1Fn

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A. Bidders must be properly licensed under the laws governing their respective trades and be able to obtain insurance and bonds required for the Work. A Performance Bond, separate Labor and Material Payment Bond, and Insurance in a form acceptable to Owner will be required of the successful Bidder.

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END OF ADVERTISEMENT FOR BIDS

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M E Pearson Elementary School
Modular Classroom Relocation
Kansas City, Kansas Public Schools USD 500

DIVISION 00 - GENERAL PROVISIONS

DIVISION 01 - GENERAL REQUIREMENTS

DIVISION 02 - EXISTING CONDITIONS

DIVISION 32 – EXTERIOR IMPROVEMENTS
(Not Used)

DIVISION 33 - UTILITIES
As shown on the Contract Documents

END OF TABLE OF CONTENTS

DOCUMENT 002113

INSTRUCTIONS TO BIDDERS

1.1 GENERAL INFORMATION

A. The M E Pearson Elementary School, Modular Classrooms, Kansas City, Kansas Public Schools (KCKPS) shall be bid as follows:

1. The project consists of relocating one (1) existing modular classroom unit from William Allen White Elementary School to M E Pearson Elementary School. The KCKPS will be responsible for moving the modular classrooms from William Allen White Elementary School to M E Pearson Elementary School. Included will be all site work involving the placement of the modular classroom at the new site, foundation work for support, mechanical, electrical, plumbing and fire protection work required to connect to existing services, construction of the access ramp and platform for access, construction of the skirt between the bottom of the modular classrooms and the grade below, demolition of the existing improvements at the site of the existing modular classroom unit and restoration of the William Allen White Elementary modular classroom site after the existing improvements have been removed.

2. The modular classroom unit shall be prepared for movement, transported and reset as part of this contract.

3. All demolition work and utility disconnection for the existing modular classroom unit at the William Allen White Elementary School site shall be performed by the Contractor.

4. Bus drop-off and pick-up shall occur adjacent to the construction site. General Contractor shall coordinate construction activities during these times with KCKPS.

5. No work shall occur in the existing M E Pearson Elementary School during school hours.

6. School starts on September 8, 2020. Subject to change.

7. School Hours are as follows:

   Regular Start Time – 9:00 a.m.

   Regular Dismissal Time – 4:15 p.m.

   Wednesday Early Dismissal Time – 2:15 p.m.

8. Total Lump Sum Contract Amount for the Work indicated on the Contract Documents.

B. Refer to Advertisement for Bids for information relating to time, date, and place for receipt of Bid Proposals, and other pertinent bidding information.

C. Refer to General Conditions as modified and General Requirements for information relating to time for completion, insurance, payment, guaranty bonds, taxes, substitution of materials, and other conditions pertinent to the work.

D. The form of the Contract Agreement, Performance Bond, and Labor and Material Payment Bond shall follow the forms as included in the project manual.

1.2 QUALIFICATION OF GENERAL CONTRACTORS

A. AIA Qualification Statement: Each Contractor may be asked to submit or have on file with the Architect a Qualification Statements in order to be considered for Award of Contract.

B. The Owner shall have the right to take such steps as the Owner deems necessary to determine the ability of the bidder to perform the work and the Bidder shall furnish to the Owner all such information and data for this purpose, as the Owner may request.

C. The Owner reserves the right to reject any Contractor and Contractor's Proposal where investigation or consideration of the information submitted by the Contractors does not satisfy the Owner that the Bidder has previous experience in performing similar or comparable work, sufficient business and technical organization, financial resources, and plant available to perform the Work.

1.3 EXAMINATION OF BIDDING DOCUMENTS AND ADDENDA

A. Examination: Each Bidder shall carefully examine the Bidding Documents and all Addenda or other revisions, and thoroughly inform them self with all requirements prior to submitting a Bid.

B. Should a Bidder find discrepancies or ambiguities in, or omission from Bidding Documents, or should they be in doubt as to their meaning, the Bidder shall at once and prior to bid date, notify the Architect, who will respond by written Addenda sent to all Bidders, if correction or clarification of Bidding Documents is required. The Architect will not be responsible for any oral instructions. All Addenda will become a part of Contract Documents.

1. All inquiries shall be directed to Architect's office; ACI/Boland, Inc., 1710 Wyandotte, Kansas City, Missouri 64108, Gary Phillips, Tele: (816) 763-9600.

2. No consideration will be granted for any alleged misunderstanding of the materials, articles, or pieces of equipment to be furnished or work to be done, it being understood that the tender of a Bid Proposal carries with it the agreement to all items and conditions referred to or indicated in the Bidding Documents.

C. Changes: Changes or corrections may be made in the Bidding Documents after they have been issued and before bids are received. In such case, a written Addendum describing the change or correction will be issued by the Architect to all Bidders. Such Addendum or Addenda shall take precedence over the portion of the Bidding Documents concerned, and shall be considered as part of the Bidding Documents.

D. All Bidders shall acknowledge receipt of all Addenda on the Form of Proposal in the space provided.

1.4 EXAMINATION OF CONDITIONS AFFECTING WORK

A. Existing Conditions: Prior to submitting a Bid, each Bidder shall examine and become thoroughly familiar with all existing conditions including all applicable laws, codes, ordinances, rules and regulations that will affect the Work.

B. Bidders shall visit the site, examine all existing conditions and shall ascertain by reasonable means all conditions that will in any manner affect their work. Bidders shall ask the Architect for any additional information deemed necessary for them to be fully informed to as exactly what is to be expected prior to submitting a Bid.

C. Bidding/Contract Documents have been prepared on the basis of available information and inspections of the site, and represent an essentially accurate indication of the physical conditions at the site. This, however, does not relieve the Bidder of the necessity for becoming fully informing as to existing physical conditions.

1.5 PRE-BID CONFERENCE

A. A Pre-bid Conference for all bidders will be held at 1:00 p.m. on August 20, 2020. The Pre-bid Conference will be at M E Pearson Elementary School, 310 North 11th Street, Kansas City, Kansas. A limited “walk-thru” for all to review the project area will follow the Pre-Bid Conference. Prospective bidders are requested to attend

1.6 PREPARATION OF PROPOSALS

A. Bid Envelopes: To be considered as eligible to submit a Proposal, Bidder must be legally licensed to operate under applicable Laws of Kansas. Envelopes containing Proposals shall be opaque, sealed, addressed and identified as indicated on the Proposal Forms for the **M E Pearson Elementary, Modular Classroom, Kansas City, Kansas Public Schools USD 500**.

B. Bid Proposals: Submit Proposal on forms furnished by the Architect. Oral or telephone bids or modifications will not be considered.

1. All blank spaces on the form must be filled-in. Signature must be in longhand and be executed by a Principal duly authorized to make contracts. Bidder's legal name must be fully stated. Completed forms must be without interlineation, alterations, or erasure.

2. No bids will be considered after calling of time, regardless of how they are transmitted. Bids shall not contain any added statement that will recapitulate, modify, or interpret the terms of the Bid.

3. Inclement weather/emergency policy – If there is a school closing the day of the bid opening due to inclement weather or an emergency, the bid opening will occur at 2:00 PM (Central Daylight Time) the next business day that the district is open.

C. Bid Withdrawals: No Bids may be withdrawn for a period of **Sixty (60)** days after opening of Bids, except by mutual consent of Owner and Bidder, except that Proposals may be withdrawn on written request received from Bidders prior to time fixed for receiving proposals. Negligence on the part of Bidders in preparing Bids confers no right for the withdrawal of Proposals after opening.

1.7 BID SECURITY

A. Each bid shall be accompanied by a certified cashier's check, or a Bid Bond in the amount of five percent (5%) of the Base Bid, made payable unconditionally to the Owner, as evidence of good faith as a guarantee that, if awarded the Contract, Bidder will execute Contract and furnish required bonds and evidence of insurance within ten (10) days after receipt of Notice of Award. An attorney-in-fact who signs a Bid Bond must submit with the Bid Bond a certified and effectively dated copy of the attorney in fact’s Power of Attorney.

B. Checks or Bid Bonds will be returned to all bidders after the execution of the Contract with successful Bidder, or on the specified time for holding bids, which ever comes first.

1.8 ACCEPTANCE AND REJECTION OF PROPOSALS

A. Bid Proposals: The Owner reserves the right to reject any or all Bids and to waive any informality or technicality in bidding. In addition, the Bidder recognizes the right of the Owner to reject a Bid if the Bidder failed to furnish any required bid security, or to submit the data required by the Bidding Documents, or the Bid is in any way incomplete or irregular.

B. As a condition precedent to contract award, the Bidder's prior experience, financial status and the Bidders proposed sub-contractors will be carefully considered. If awarded, the contract will be awarded to the best responsible Bidder complying with the conditions of the Bidding Documents and submitting the lowest acceptable Bid and accepted Alternates, provided the Bid is reasonable and it is in the best interest of the Owner to accept same.

1.9 DRAWINGS AND PROJECT MANUAL

A. All documents furnished to any person, under any condition, remain property of the Architect.

1.10 BIDDING DOCUMENTS

A. Online Procurement and Contracting Documents: On-line access will be provided via the Kansas City Kansas Public School Systems Purchasing/Solicitation website and via the on-line plan room at the website for Pinnacle Plotting and Supply, http://www.kcplans.com/. Online access will be provided to all bidders and suppliers.

1.11 PREVAILING WAGE RATES

A. Prevailing Wage Rates:

1. Wage Rates are not required for this project.

1.12 SALES TAX

A. Sales Tax: Contractors shall **NOT** include any Kansas Sales or Use Tax, in their Bid Proposals.

1.13 SUBSTITUTIONS

A. Substitution Requests: All materials shall be as specified, with Request for Substitutions as set forth in the General Requirements, Section, “Substitution Requests.”

1.14 BUILDING CODES AND PERMITS

A. All work shall be completed in accordance with the 2012 edition of the International Building Code (IBC) and all applicable City Codes and Ordinances.

B. The Building Permits will be issued by the Unified Government of Wyandotte County, Building Inspection Department.

C. The Owner will submit Contract Documents to the Codes Department, prior to Date established for Receipt of Bids. The General Contractor **SHALL** include the permit costs in the Base Bid.

D. The Contractor is responsible for procuring and paying for occupational licenses, fees, Permits and similar items required by the City and other authorities having jurisdiction.

1.15 SUBSTITUTIONS

A. All materials shall be as specified with Substitutions as set forth in the Division 01, General Requirements Sections.

1.16 EXECUTION OF CONTRACT

A. In bidding, the bidder agrees, if selected, to enter into a contract with the Owner, the form of which shall be the AIA A101-2017, modified as set forth in this Project Manual.

B. The Owner will retain ten (10%) percent of all progress payments until completion and acceptance of the project by the Board of Education.

1.17 PROJECT SIGNIFICANCE

A. Contractors submitting a bid on this project shall recognize the importance of completing this project within the indicated time frame. Each Contractor who submits a bid shall be prepared to start immediately upon approval by the Board of Education and issuance of the Notice to Proceed.

END OF INSTRUCTIONS TO BIDDERS

BID PROPOSAL FORM

M E PEARSON ELEMENTARY
MODULAR CLASSROOM
KANSAS CITY, KANSAS PUBLIC SCHOOLS
USD 500

KANSAS CITY, KANSAS PUBLIC SCHOOLS
2010 N. 59TH STREET
KANSAS CITY, KANSAS 66104

____
CONTRACTOR

____
ADDRESS

____
CITY/STATE

____
CONTACT NAME

____
PHONE/E-MAIL ADDRESS

1.1 BID PROPOSAL FORM:

The undersigned agrees to furnish all labor, equipment and materials necessary for the M E **Pearson Elementary Modular Classroom, Kansas City, Kansas Public Schools USD 500** in accordance with Contract Documents.

For all Work described in the Contract Documents, each bidder agrees to perform said work, as detailed below for the sum as shown:

1.2 BASE BID:

For all Work described in the Drawings, Project Manual and other Contract Documents, each bidder agrees to perform said work, as detailed below for the sum as shown:

____ **Dollars** (**$**__________________________)

AMOUNT OF BASE BID SHALL BE SHOWN IN BOTH WRITTEN FORM AND NUMERICAL FORM. In the event of a discrepancy between the two, the written amount will govern.

1.3 ALLOWANCES:

Persuant to **Section 012100 Allowances,** the contractor shall include the following allowance in the Base Bid:

Allowance No. 1: Electrical Work, 32 manhours of labor and $500.00 for materials.

1.4 BID ALTERNATES:

Having carefully studied the Alternates set forth in Division 01, Section 012300 - Alternates, and how these changes will affect the work, the undersigned agrees to the following amounts to be added to or deducted from the Base Bid Amount:

Alternate No. 1 - Re-install Existing Ramp Components

Deduct: ___________________________________Dollars ($_____________________)

Alternate No. 2 – Exterior Enclosure Upgrade

Add: ___________________________________Dollars ($_____________________)

AMOUNT OF ALTERNATE BIDS SHALL BE SHOWN IN BOTH WRITTEN FORM AND NUMERICAL FORM. In the event of a discrepancy between the two, the written amount will govern.

1.5 CONTRACT TIME AND LIQUIDATED DAMAGES:

The undersigned further agrees that, if awarded the Contract for the M E **Pearson Elementary Modular Classroom, Kansas City, Kansas Public Schools USD 500**, that the Work will begin commencing from the date of written **Notice to Proceed** and shall be complete with **Substantial Completion by November 24, 2020**. Liquidated damages apply to the Work.

1.6 ADDENDA ACKNOWLEDGEMENT:

The undersigned acknowledges receipt of the following addenda; list by number and the date appearing on Addenda.

Addendum No.	**Date**	**Addendum No.**	**Date**

1.7 GENERAL:

The undersigned declares that they have carefully examined the plans and specifications, visited the sites at which Work is to be done, investigated sources of supply and that they are satisfied as to all the quantities and conditions related to the construction of the Work, and understands that in signing this proposal, they waive the right to plead any misunderstanding regarding the same.

The undersigned has checked all of the above figures, and understands that the Owner will not be responsible for any errors or omissions on the part of the undersigned in preparing this Bid.

The undersigned understands that a Bid will be considered incomplete and non-responsive that includes a "No Bid" or other such language identified and described on the Form of Proposal. The term "No Change" will be considered as a valid bid, as will the figure "0.00".

In submitting this Bid, it is understood that the right is reserved by Owner to reject any or all bids and waive all informalities in connection therewith. It is agreed that this Bid may not be withdrawn for a period of **Sixty (60)** days from time established for opening Bids.

It is agreed that no person or company other than the firm listed below or as otherwise indicated has any interest whatsoever in this Bid or the contract that may be entered into as a result of this Bid, and that in all respects the Bid is legal and firm, submitted in good faith without collusion or fraud.

It is agreed that the undersigned has complied or will comply with all requirements of local, state, and national laws, and that no legal requirements have been or will be violated in making or accepting this Bid.

The undersigned has included in all quoted prices the cost for all applicable federal, state, and local taxes to items subject to said taxes.

1.8 NOTICE OF ACCEPTANCE:

If written notice of acceptance of this Bid is mailed, electronically transmitted, or delivered to the undersigned within sixty (60) days after the date of opening of bids, the undersigned will then execute the formal Contract and deliver, within ten (10) days of notification, all required bonds, certificates of insurance.

In the case the undersigned fails or neglects to execute the Contract or deliver required bonds, insurance certificates within ten (10) days of notification, the undersigned will be considered as having abandoned the Contract and shall forfeit the bid security.

1.9 MAILING ADDRESS:

The undersigned designates the following as the office to which such Notice of Acceptance may be mailed or delivered:

____

____

____

1.10 BID WITHDRAWAL:

This Bid may be withdrawn at any time prior to the scheduled time for the opening of Bids or any valid postponement thereof.

1.11 LIST OF SUBCONTRACTORS AND SUPPLIERS:

The bidder, upon award of a contract, agrees to furnish for approval a list of the proposed subcontractors and material suppliers no later than seven (7) days after award of said contract, including subcontractors and material suppliers.

1.12 CERTIFICATION:

The undersigned declares that the person or persons signing this Bid is/are fully authorized to sign on behalf of the firm listed and to fully bind the firm listed to all the condition and provisions of these documents.

Dated: ____________________, **2020**

Firm Name: ____

Address: ____

Printed Name: ____

Signature: ___________________________________ (Corporate Seal)

Title: ____

If Bidder is a Corporation, identify State of Incorporation; if a Partnership, give full name of all partners.

____

____

1.13 BID SUBMITTALS

Submit Proposal in a sealed, opaque envelope identified as and addressed to:

<u>BID FOR GENERAL CONSTRUCTION</u>

NAME AND ADDRESS OF BIDDER

____

____

____

BID FOR:

M E PEARSON ELEMENTARY

MODULAR CLASSROOM

KANSAS CITY, KANSAS PUBLIC SCHOOLS USD 500

END OF PROPOSAL FORM

DOCUMENT 00 60 00
FORMS

1.1 FORM OF AGREEMENT AND GENERAL CONDITIONS

A. The following form of Owner/Contractor Agreement and form of the General Conditions shall be used for Project:

1. AIA Document A107, "Standard Form of Agreement between Owner and Contractor, for a Project of Limited Scope" is bound into the Project Manual.
2. Owner's document(s) bound following this Document. Forms not included shall be as referenced herein.

1.2 ADMINISTRATIVE FORMS

A. Administrative Forms: Additional administrative forms are specified in Division 01 General Requirements.

B. Copies of AIA standard forms may be obtained from the American Institute of Architects; http://www.aia.org/contractdocs/purchase/index.htm; docspurchases@aia.org; (800) 942-7732 unless otherwise noted herein.

C. Bidding Forms:

1. Bid Bond: AIA Document A310, "Bid Bond" is bound into the Project Manual and shall accompany the Bid Proposal Form.

D. Pre-construction Forms:

1. Form of Performance Bond and Payment Bond: AIA Document A312, "Performance Bond and Payment Bond" is bound into the Project Manual.

E. Information and Modification Forms (Not bound in the project manual):

1. Form for Requests for Information (RFIs): AIA Document G716, "Request for Information (RFI)."
2. Form of Request for Proposal: AIA Document G709, "Work Changes Proposal Request."
3. Change Order Form: AIA Document G701, "Change Order."
4. Form of Architect's Memorandum for Minor Changes in the Work: AIA Document G707, "Architect's Supplemental Instructions."
5. Form of Change Directive: AIA Document G714, "Construction Change Directive."

F. Payment Forms:

1. Schedule of Values Form: AIA Document G703, "Continuation Sheet."
2. Payment Application: AIA Document G702/703, "Application and Certificate for Payment and Continuation Sheet."
3. Form of Affidavit of Release of Liens: AIA Document G706A, "Contractor's Affidavit of Payment of Release of Liens."
4. Form of Consent of Surety: AIA Document G707, "Consent of Surety to Final Payment."

END OF DOCUMENT

FEDERAL WORK AUTHORIZATION PROGRAM AFFIDAVIT

I, _________________________, being of legal age and having been duly sworn upon my oath, state the following facts are true:

1. I am more than twenty-one years of age; and have first-hand knowledge of the matters set forth herein.

2. I am employed by __________ (hereinafter “Company”) and have authority to issue this affidavit on its behalf.

3. Company is enrolled in and participating in the United States E-Verify (formerly known as “Basic Pilot”) federal work authorization program with respect to Company’s employees working in connection with the services Company is providing to, or will provide to, the District, to the extent allowed by E-Verify.

4. Company does not knowingly employ any person who is an unauthorized alien in connection with the services the Company is providing to, or will provide to, the District.

FURTHER AFFIANT SAYETH NOT.

By:_________________________________ (individual signature)

For _________________________ (company name)

Title:________________________

Subscribed and sworn to before me on this _____ day of ____________________, 200___.

____

NOTARY PUBLIC

My commission expires:

SECTION 01 10 00

SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Work by Owner.
4. Work under separate contracts.
5. Access to site.
6. Coordination with Occupants
7. Work restrictions.
8. Specification and drawing conventions.
9. Miscellaneous provisions.

B. Related Requirements:

1. Section 015000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 PROJECT INFORMATION

A. Project Identification: Project Name; ACI/Boland, Inc., Project #3-20023.00

1. 310 North 11th Street, Kansas City, Kansas 66102

B. Owner: Kansas City Kansas Public Schools
2010 N. 59th Street
Kansas City, Kansas 66104

1. Owner's Representative: Kurt Wagner

C. Architect: ACI/Boland, Inc.; Gary Phillips; 816-763-9600.

D. Architect's Consultants: The Architect has retained the following design professionals who have prepared designated portions of the Contract Documents:

1. Civil Consultant: Renaissance Infrastructure Consulting; Dustin Burton; 816-800-0950.
2. Structural Consultant: Bob D. Campbell Engineers, Jeff Wright; 816-531-4414.
3. MEP Consultant: Pearson, Kent, McKinley, Raaf Engineers, Kevin Simmerman; 913-492-2400.

1.4 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following:

1. The scope of the work shall include, but not be limited to the relocation of the existing modular classroom unit from William Allen White Elementary School (2600 N 43rd Ter., Kansas City, Kansas 66104) to the building grounds and project site of Pearson Elementary School (310 North 11th Street, Kansas City, Kansas 66102). Included will be all site work involving the placement of the modular classrooms at the new site, foundation work for support, mechanical, electrical, plumbing and fire protection work required to connect to existing services, construction of the access ramp and platform for access, construction of the skirt between the bottom of the modular classrooms and the grade below, demolition of the existing improvements at the site of the existing modular classroom unit and restoration of the William Allen White Elementary modular classroom site after the existing improvements have been removed. Modular Classroom Trailer shall have the windows replaced with vinyl replacement windows and doors replaced with new hollow metal insulated doors Window and door replacement shall include energy efficient thermal glazing

2. Any asphalt paving damaged by the Work shall be patched and restored to good condition in order to match the immediate adjacent asphalt pavement area, for purpose of a school playground.

B. Type of Contract:

1. Project will be constructed under a single prime contract.

1.5 WORK BY OWNER

A. General: Cooperate fully with Owner so work may be carried out smoothly, without interfering with or delaying work under this Contract or work by Owner. Coordinate the Work of this Contract with work performed by Owner.

B. Preceding Work: Owner will perform the following construction operations at Project site.

1. NONE

1.6 ACCESS TO SITE

A. General: Contractor shall have full use of Project site (area where modular classrooms will be located), the portion of the playground where the utility services will be provided from for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.

B. Use of Site: Limit use of Project site to areas within the Contract limits indicated (See Item A above). Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Limits: Confine construction operations to areas within the Project Site.

2. Driveways, Walkways and Entrances: Keep driveways loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.

   a. Schedule deliveries to minimize use of driveways and entrances by construction operations.

b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

1.7 COORDINATION WITH OCCUPANTS

A. Full Owner Occupancy: Owner will occupy building(s) or areas during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.

1.8 WORK RESTRICTIONS

A. Work Restrictions, General: Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.

B. On-Site Work Hours: Limited.

1. Work hours are generally considered to be 7:30 a.m. to 3:30 p.m., Monday through Friday. Weekend work is possible with approval of the Owner. The Owner will maintain control of the building(s) and will lock and unlock the building(s) for the Contractor.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:

1. Notify Architect and Owner not less than two (2) days in advance of proposed utility interruptions.
2. Obtain Owner's written permission before proceeding with utility interruptions.

D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.

1. Notify Architect and Owner not less than two days in advance of proposed disruptive operations.
2. Obtain Owner's written permission before proceeding with disruptive operations.

E. Non-smoking Building and Site: Smoking is not permitted in the building or within 200 feet of the building.

F. Controlled Substances: Use of tobacco products and other controlled substances on the School District Property is not permitted.

G. Employee Identification: Provide identification tags for Contractor personnel working on Project site. Require personnel to use identification tags at all times.

H. Employee Screening: Comply with Owner's requirements for drug, CoVid-19 and background screening of Contractor personnel working on Project site.

1. Maintain list of approved screened personnel with Owner's representative.

1.9 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 21 00
ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements governing allowances.

1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements.

B. Types of allowances include the following:

1. Lump-Sum Allowances.

1.3 SELECTION AND PURCHASE

A. At the **EARLIEST** practical date after award of the Contract, advise Architect of the date when purchase of each product or system described by an allowance must be completed to avoid delaying the Work.

B. At Architect's request, obtain proposals for each allowance. Include recommendations that are relevant to performing the Work.

C. Purchase products and systems selected by Architect from the designated supplier.

1.4 ACTION SUBMITTALS

A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.

1.5 INFORMATIONAL SUBMITTALS

A. Submit invoices to show actual cost for use in fulfillment of each allowance.

B. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.6 COORDINATION

A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.7 LUMP-SUM ALLOWANCES

A. Allowance shall include cost to Contractor of specific products and services to be provided by the Contractor under the allowance and shall include all costs for the product or service including freight and delivery to Project site. No State tax shall be included.

B. Unless otherwise indicated, the Allowance shall include all required costs for implementation of the product or service.

1.8 UNUSED MATERIALS

A. Unused Materials: At Substantial Completion, return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner.

1. Credits for unused materials shall be deducted for the Contract by deductive Change Order.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

A. Lump-Sum Allowance:

1. Lump-Sum Allowance No. 1: Electrical Work; Allowance, 32 manhours of labor and $500.00 for materials. This allowance shall include costs for 32 hours of electrical work and up to $500.00 of materials to be provided to the project for trailer connections to make electrical cross-over connections, grounding for all junction boxes above ceiling, to provide light fixture supports, to hook-up and connect exhaust fans in trailer skirt and to attach MC cable to structure.

END OF SECTION

SECTION 01 23 00
ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated revisions to alternates.

C. Execute accepted alternates under the same conditions as other work of the Contract.

D. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. Alternate No. 1.

Re-install Existing Ramp Components: The Contractor shall state the amount to be deducted from the Base Bid to re-install the existing ramp components currently located at William Allen

White Elementary School. The Contractor shall remove and transport to ME Pearson Elementary School the plastic deck, rails and balusters (Trex) and metal handrails. The Contractor shall be responsible to install the plastic deck, rails and balusters (Trex) and metal handrails salvaged from William Allen White Elementary School in lieu of new materials as shown on Sheets A2.0 and A2.1.

B. Alternate No. 2.

Exterior enclosure upgrade: The Contractor shall state the amount to be added to the Base Bid to upgrade the exterior enclosure of the entire modular classroom trailer as follows:

a. Roof (Area = 1,504 SF ±/modular classroom): Remove existing gutters, downspouts and EPDM single ply roofing; provide and install 5" polyisocyanurate insulation board (5.6R/inch min.) on entire roof area; provide and install 5/8" OSB roof sheathing on entire roof area; provide and install fully adhered white single ply EPDM roof membrane (Firestone RubberGard Ecowhite 60 mil or equivalent) on entire roof area; provide and install fascia trim board on all eaves and gables (HardieTrim 1" x 7.25" – back side of trim to align with exterior face of extruded polystyrene wall insulation); provide and install 2x P.T. wood nailers/blocking (3 – 2x flat with ½" plywd. spacer) for roof terminations at roof perimeter (eaves, gables and ridge); provide and install self-adhesive EPDM strip at ridge mating connection; paint fascia board; provide and install prefinished sheet metal drip edge (eaves and gables); provide and install prefinished sheet metal gutters and downspouts (quantity, location, size and configuration to match existing).

b. Exterior Walls (Area = 1,470 SF ±/modular classroom): Remove existing trim boards to provide continuous smooth surface for the installation of the rigid insulation; provide and install building wrap/air barrier (Tyvek, HardieWrap or approved equivalent) on all walls; provide and install 1" extruded polystyrene insulation (Dow Styrofoam LB or approved equivalent , R=5.0/inch) on all walls (full height – bottom of trailer to eave/gable trim); provide and install HardiePanel vertical siding – Sierra 8 or approved equivalent) on all walls; all joints (trim/siding, siding/siding, trim/trim, trim/existing, etc.) shall be sealed with paintable silicone sealant (GE silicone II or approved equivalent); provide and install trim around all electrical panels, panelboards, HVAC units, windows, doors, electrical outlets/junction boxes, etc. with 4/4 NT3 smooth HardieTrim (or approved equivalent); extend electrical outlets/junction boxes as required so they are surface mounted to new HardiePanel or HardieTrim; extend junction boxes as required so that mounting face of box is flush with HardiePanel or Hardtrim - salvage and reinstall electrical devices/lighting where junction boxes are extended; provide openings in new insulation and siding for relocated existing attic vents/ventilator – salvage and reinstall existing attic vents/ventilator; provide and install prefinished sheet metal "Z" flashing below trim at trailer to skirt transition.

c. Trim shall be as follows: Windows, Doors – ¾" x 3.5" (with 5/4 x 5.5" trim underneath) ; corners – 2 @ ¾" x 5.5" (fasten corner trim pieces together); trailer/skirt transition – ¾" x 5.5" (with 5/4 x 5.5" trim underneath); Trailer mating joint (walls at both ends of trailer) – ¾" x 7.25" (removable); Horz. Trim – ¾" x 3.5"(with "Z" flashing below) and 5/4 trim underneath, if required); Misc. – ¾" x 3.5" or larger if required (with 5/4 trim underneath, if required).

d. All materials shall be installed per manufacturer's recommendations, touch-up all cuts. Provide/use 5/4 HardieTrim underneath 4/4 HardieTrim as required to maintain flush substrate for siding and 4/4 trim.

e. All new siding and trim shall be painted (2 coats min.). Paint shall be Sherwin Williams Duration exterior acrylic latex (satin sheen). Color per Architect.

f. The contractor shall replace each of the the existing windows (4 total) with new insulated vinyl windows, single hung operation, including 3/4" thick insulated LowE and Argon filled glazing, associated window trim pieces etc. Windows shall be as manufactured by Atrium Series 150, or equally performing. The window sizes shall be sized to match the existing window openings. Contractor shall remove/salvage existing mini-blinds and reinstall salvaged mini-blinds once windows are replaced.

g. Contractor shall also replace each exterior door opening (2 total) with a heavy duty insulated steel door and frame. The door style shall be type L series, 16 gauge skin and shall include a 3" wide narrow view panel (style N3) including 1" thick insulated glazing unit with 1/4" impact resistant glazing on interior pane and 5/16" laminated glazing on the exterior pane. The exterior doors shall be as manufactured by SteelCraft, or equally performing. The door frame shall be sized to match the existing openings. Salvage and reinstall existing hardware. Paint doors with Heavy duty enamel paint. Color per architect.

END OF SECTION

SECTION 01 25 00
SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

B. Related Requirements:

1. Division 01 Section "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.3 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: Use form provided in Project Manual at the end of this Section.
2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

   a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
   b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractor's, that will be necessary to accommodate proposed substitution.
   c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect,

sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.

- d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
- e. Samples, where applicable or requested.
- f. Certificates and qualification data, where applicable or requested.
- g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
- h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
- i. Research reports evidencing compliance with building code in effect for Project (2009 IBC), from ICC-ES.
- j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
- k. Cost information, including a proposal of change, if any, in the Contract Sum.
- l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
- m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

   - a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
   - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

A. Substitutions Prior to Bidding: For inclusion of products other than those specified, Bidders shall submit a request in writing at least ten (10) business days prior to bid date Requests received after this time will not be reviewed or considered regardless of cause. Requests shall clearly define and describe the product for which inclusion is requested. Inclusion by the Architect will be in the form of an addendum to the specifications, issued to all contract bidders on record..

1. Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will take no action.

   - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.

b. Requested substitution does not require extensive revisions to the Contract Documents.
c. Substitution request is fully documented and properly submitted.
d. Requested substitution will not adversely affect Contractor's construction schedule.
e. Requested substitution has received necessary approvals of authorities having jurisdiction.
f. Requested substitution is compatible with other portions of the Work.
g. Requested substitution has been coordinated with other portions of the Work.
h. Requested substitution provides specified warranty.
i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitutions for cause immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution for cause when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
b. Substitution request is fully documented and properly submitted.
c. Requested substitution will not adversely affect Contractor's construction schedule.
d. Requested substitution has received necessary approvals of authorities having jurisdiction.
e. Requested substitution is compatible with other portions of the Work.
f. Requested substitution has been coordinated with other portions of the Work.
g. Requested substitution provides specified warranty.
h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Architect will consider requests for substitutions for convenience if received within **30 DAYS** after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Architect.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
b. Requested substitution does not require extensive revisions to the Contract Documents.

c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
d. Substitution request is fully documented and properly submitted.
e. Requested substitution will not adversely affect Contractor's construction schedule.
f. Requested substitution has received necessary approvals of authorities having jurisdiction.
g. Requested substitution is compatible with other portions of the Work.
h. Requested substitution has been coordinated with other portions of the Work.
i. Requested substitution provides specified warranty.
j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 3 - EXECUTION (Not Used)

END OF SECTION

SUBSTITUTION REQUEST FORM

ONE ITEM PER FORM

FILL IN ALL BLANKS

Project:________________________________ Date:____________________________

We hereby submit for your review the following substitution for the following specified material for the above project.

Section	Page	Paragraph	Specified Material
_______	____	_________	____

PROPOSED SUBSTITUTION:

____

Attach complete technical data, including laboratory tests, if applicable. Include complete information on changes to drawings and/or specifications which proposed substitution will require for its proper installation.

A. Does the substitution effect dimensions shown on drawings in any way?

____

B. Will the undersigned pay for any changes to the building design, including engineering and detailing costs caused by the requested substitution?

____

C. What effect does substitution have on schedule or other trades?

____

D. What effect does substitution have on cost?

____

E. Differences between proposed substitution and specified items are:

________ Same ________ Different (Explain)

____

F. Contractor represents that he has investigated the proposed product and determined that it meets or exceeds the quality of the specified product.

SUBMITTED BY:

____ Accepted ____ Accepted as Noted

____ Not Accepted ____ Received Too Late

____
(Firm)

__________________________ ______________ ______________
(Address) (By) (Date)

__________________________ __________________________
(Telephone) (Remarks)

__________________________ __________________________
(Signature)

SECTION 01 26 00
CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

B. Related Requirements:

1. Section 012500 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.

1.3 MINOR CHANGES IN THE WORK

A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

1.4 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Proposal Requests, issued by AIA Document G709 from the Architect are not instructions either to stop work in progress or to execute the proposed change.
2. Within time specified in Proposal Request or 20 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

   a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
   b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
   c. Include costs of labor and supervision directly attributable to the change.

   d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
   e. Quotation Form: Use forms acceptable to Architect.

B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Section 012500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
7. Proposal Request Form: Use form acceptable to Architect.

1.5 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Work Change or Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.6 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 2 900
PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.

B. Related Requirements:

1. Section 012600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
2. Section 013200 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

1.3 DEFINITIONS

A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.

1. Coordinate line items in the schedule of values with other required administrative forms and schedules, including the following:

    a. Application for Payment forms with continuation sheets.
    b. Submittal schedule.
    c. Items required to be indicated as separate activities in Contractor's construction schedule.

2. Submit the schedule of values to Architect at earliest possible date, but no later than **fourteen days** after the Notice of Award.
3. Sub-schedules for Phased Work: Where the Work is separated into phases requiring separately phased payments, provide sub-schedules showing values coordinated with each phase of payment.
4. Sub-schedules for Separate Elements of Work: Where the Contractor's construction schedule defines separate elements of the Work, provide sub-schedules showing values coordinated with each element.

5. Sub-schedules for Separate Design Contracts: Where the Owner has retained design professionals under separate contracts who will each provide certification of payment requests, provide sub-schedules showing values coordinated with the scope of each design services contract as described in Section 011000 "Summary."

B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the schedule of values:

    a. Project name and location.
    b. Name of Architect.
    c. Architect's project number.
    d. Contractor's name and address.
    e. Date of submittal.

2. Arrange schedule of values consistent with format of AIA Document G703.
3. Arrange the schedule of values in tabular form with separate columns to indicate the following for each item listed:

    a. Related Specification Section or Division.
    b. Description of the Work.
    c. Name of subcontractor.
    d. Name of manufacturer or fabricator.
    e. Name of supplier.
    f. Change Orders (numbers) that affect value.
    g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.

        1) Labor.
        2) Materials.
        3) Equipment.

4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Project Manual table of contents. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.
5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
6. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

    a. Differentiate between items stored on-site and items stored off-site. If required, include evidence of insurance.

7. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
8. Purchase Contracts: Provide a separate line item in the schedule of values for each purchase contract. Show line-item value of purchase contract. Indicate owner payments or deposits, if any, and balance to be paid by Contractor.
9. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.

10. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.5 APPLICATIONS FOR PAYMENT

A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.

1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.

C. Payment Application Times: Submit Application for Payment to Architect by **the 25th of the month**. The period covered by each Application for Payment is one month, ending on the last day of the month.

1. Submit draft copy of Application for Payment seven days prior to due date for review by Architect.

D. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.

E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.

1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.

F. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.

1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
3. Provide summary documentation for stored materials indicating the following:

a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.

G. Transmittal: Submit two signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt. One copy shall include waivers of lien for all Applications after the first Application and similar attachments as required to permit processing of the Application.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

H. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
2. When an application shows completion of an item, submit conditional final or full waivers.
3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
5. Waiver Forms: Submit executed waivers of lien on forms, acceptable to Owner.

I. Initial Application for Payment: Administrative actions and submittals that must precede submittal of first Application for Payment include the following:

1. Administrative Actions proceeding Initial Application for Payment:

a. List of Subcontractors
b. Schedule of Values.
c. Contractor’s Construction Schedule.
d. Copies of Building Permit(s).
e. Shop Drawing Submittal Listing.
f. Performance and Payment Bonds
g. Certificate of Insurance and insurance policies.
h. Other Administrative submittals.

2. Initial Application for Payment: Subject to timely submittal of proper Initial Application for Payment by the Contractor, the Owner agrees to pay to the Contractor an amount to be determined by taking 90% percent of the value of labor and materials incorporated in the work, plus material not incorporated in the work but approved by the Architect under the provisions of the Contractor Documents, up to the date of application.

a. 10% shall be held as retainage. The Owner shall endeavor to make payments recommended within thirty days.

3. Initial Application for Payment Documents

a. Cover Letter.
b. Application for Payment, AIA G702 and Continuation Sheet, AIA G703.

c. Contractor and Subcontractor, Certified Payroll Reports submitted to Owner.

J. Progress Payments: Subject to timely submittal of proper Application for Payment by the Contractor, the Owner agrees to pay to the Contractor an amount to be determined by taking 90% percent of the value of labor and materials incorporated in the work, plus material not incorporated in the work but approved by the Architect under the provisions of the Contractor Documents, up to the date of application, less the aggregate of all previous payments, the cost of all materials, supplies and equipment paid for by the Owner and deductions provided for in the Contract Documents.

1. 10% shall be held as retainage. The Owner shall endeavor to make payments recommended within thirty days.

    a. Reduction in retainage will not be considered by the Owner.

2. No interest shall be paid for payments due and unpaid under the Contract Documents.
3. Progress Payment Applications shall include the following:

    a. Cover letter.
    b. Application for Payment, AIA G702 and Continuation Sheet, AIA G703.
    c. Partial Lien Waiver, in arrears, Contractor
    d. Partial Lien Waiver, Subcontractor
    e. Contractor and Subcontractor, Certified Payroll Reports submitted to Owner.

K. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
3. Contractor and Subcontractor, Certified Payroll Reports submitted to Owner.

L. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.
2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid, if appropriate.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
6. AIA Document G707, "Consent of Surety to Final Payment."
7. Evidence that claims have been settled.
8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work, if required.
9. Contractor and Subcontractor, Certified Payroll Reports submitted to the Owner.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 31 00
PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. General coordination procedures.
2. Requests for Information (RFIs).
3. Project meetings.

B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.

C. Related Requirements:

1. Section 013200 "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.
2. Section 017300 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
3. Section 017700 "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

A. Request for Information: The “Request for Information” or RFI is a request from Owner, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.

B. Key Personnel Names: Within **15 DAYS** of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1. Post copies of list in project meeting room, in temporary field office, on Project Web site, and by each temporary telephone. Keep list current at all times.

1.5 GENERAL COORDINATION PROCEDURES

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

B. Coordination: Each contractor shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Each contractor shall coordinate its operations with operations, included in different Sections, that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components with other contractors to ensure maximum performance and accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

C. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's construction schedule.
2. Preparation of the schedule of values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Pre-installation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.

E. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as Owner's property.

1.6 REQUESTS FOR INFORMATION (RFIs)

A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.

  1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
  2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:

  1. Project name.
  2. Project number.
  3. Date.
  4. Name of Contractor.
  5. Name of Architect.
  6. RFI number, numbered sequentially.
  7. RFI subject.
  8. Specification Section number and title and related paragraphs, as appropriate.
  9. Drawing number and detail references, as appropriate.
  10. Field dimensions and conditions, as appropriate.
  11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
  12. Contractor's signature.
  13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.

    a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.

C. RFI Forms: AIA Document G716.

  1. Attachments shall be electronic files in Adobe Acrobat PDF format.

D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.

  1. The following Contractor-generated RFIs will be returned without action:

    a. Requests for approval of submittals.
    b. Requests for approval of substitutions.
    c. Requests for approval of Contractor's means and methods.
    d. Requests for coordination information already indicated in the Contract Documents.
    e. Requests for adjustments in the Contract Time or the Contract Sum.
    f. Requests for interpretation of Architect's actions on submittals.
    g. Incomplete RFIs or inaccurately prepared RFIs.

2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Contract Modification Procedures."

    a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.

E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly.

1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect.
4. RFI number including RFIs that were returned without action or withdrawn.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.

F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.

1. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
2. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

1.7 PROJECT MEETINGS (If Required)

A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within seven days of the meeting.

B. Pre-construction Conference: Architect will schedule and conduct a pre-construction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement.

1. Conduct the conference to review responsibilities and personnel assignments.
2. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Discuss items of significance that could affect progress, including the following:

    a. Tentative construction schedule.
    b. Phasing.

c. Critical work sequencing and long-lead items.
d. Designation of key personnel and their duties.
e. Lines of communications.
f. Procedures for processing field decisions and Change Orders.
g. Procedures for RFIs.
h. Procedures for testing and inspecting.
i. Procedures for processing Applications for Payment.
j. Distribution of the Contract Documents.
k. Submittal procedures.
l. Preparation of record documents.
m. Use of the premises and existing building.
n. Work restrictions.
o. Working hours.
p. Owner's occupancy requirements.
q. Responsibility for temporary facilities and controls.
r. Procedures for moisture and mold control.
s. Procedures for disruptions and shutdowns.
t. Construction waste management and recycling.
u. Parking availability.
v. Office, work, and storage areas.
w. Equipment deliveries and priorities.
x. First aid.
y. Security.
z. Progress cleaning.

4. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

C. Pre-installation Conferences: Conduct a pre-installation conference at Project site before each construction activity that requires coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

a. Contract Documents.
b. Options.
c. Related RFIs.
d. Related Change Orders.
e. Purchases.
f. Deliveries.
g. Submittals.
h. Review of mockups.
i. Possible conflicts.
j. Compatibility requirements.
k. Time schedules.
l. Weather limitations.
m. Manufacturer's written instructions.
n. Warranty requirements.
o. Compatibility of materials.
p. Acceptability of substrates.
q. Temporary facilities and controls.
r. Space and access limitations.
s. Regulations of authorities having jurisdiction.

    - t. Testing and inspecting requirements.
    - u. Installation procedures.
    - v. Coordination with other work.
    - w. Required performance results.
    - x. Protection of adjacent work.
    - y. Protection of construction and personnel.

  3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
  4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
  5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Project Closeout Conference: Schedule and conduct a project closeout conference, at a time convenient to Owner and Architect, but no later than 90 days prior to the scheduled date of Substantial Completion.

  1. Conduct the conference to review requirements and responsibilities related to Project closeout.
  2. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
  3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:

    - a. Preparation of record documents.
    - b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
    - c. Submittal of written warranties.
    - d. Requirements for preparing operations and maintenance data.
    - e. Requirements for delivery of material samples, attic stock, and spare parts.
    - f. Requirements for demonstration and training.
    - g. Preparation of Contractor's punch list.
    - h. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
    - i. Submittal procedures.
    - j. Coordination of separate contracts.
    - k. Owner's partial occupancy requirements.
    - l. Installation of Owner's furniture, fixtures, and equipment.
    - m. Responsibility for removing temporary facilities and controls.

  4. Minutes: Entity conducting meeting will record and distribute meeting minutes.

E. Progress Meetings: Conduct progress meetings at weekly intervals.

  1. Coordinate dates of meetings with preparation of payment requests.
  2. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
  3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

1) Review schedule for next period.

b. Review present and future needs of each entity present, including the following:

1) Interface requirements.
2) Sequence of operations.
3) Resolution of BIM component conflicts.
4) Status of submittals.
5) Deliveries.
6) Off-site fabrication.
7) Access.
8) Site utilization.
9) Temporary facilities and controls.
10) Progress cleaning.
11) Quality and work standards.
12) Status of correction of deficient items.
13) Field observations.
14) Status of RFIs.
15) Status of proposal requests.
16) Pending changes.
17) Status of Change Orders.
18) Pending claims and disputes.
19) Documentation of information for payment requests.

4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.

a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

F. Coordination Meetings: Conduct Project coordination meetings at intervals as necessary for coordination of the project. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and pre-installation conferences.

1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meetings shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to combined Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

b. Schedule Updating: Revise combined Contractor's construction schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.

c. Review present and future needs of each contractor present, including the following:

    1) Interface requirements.
    2) Sequence of operations.
    3) Resolution of BIM component conflicts.
    4) Status of submittals.
    5) Deliveries.
    6) Off-site fabrication.
    7) Access.
    8) Site utilization.
    9) Temporary facilities and controls.
    10) Work hours.
    11) Hazards and risks.
    12) Progress cleaning.
    13) Quality and work standards.
    14) Change Orders.

3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 32 00
CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Startup construction schedule.
2. Contractor's construction schedule.
3. Construction schedule updating reports.
4. Daily construction reports.
5. Weekly construction progress reports.
6. Material location reports.
7. Site condition reports.
8. Special reports.

B. Related Requirements:

1. Section 013300 "Submittal Procedures" for submitting schedules and reports.
2. Section 014000 "Quality Requirements" for submitting a schedule of tests and inspections.

1.3 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
2. Predecessor Activity: An activity that precedes another activity in the network.
3. Successor Activity: An activity that follows another activity in the network.

B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.

C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

D. Event: The starting or ending point of an activity.

E. Float: The measure of leeway in starting and completing an activity.

1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

F. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

1.4 INFORMATIONAL SUBMITTALS

A. Format for Submittals: Submit required submittals in the following format:

1. Working electronic copy of schedule file, where indicated.
2. PDF electronic file.

B. Startup construction schedule.

1. Approval of cost-loaded, startup construction schedule will not constitute approval of schedule of values for cost-loaded activities.

C. Startup Network Diagram: Of size required to display entire network for entire construction period. Show logic ties for activities.

D. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.

1. Submit a working electronic copy of schedule, using software indicated, and labeled to comply with requirements for submittals. Include type of schedule (initial or updated) and date on label.

E. CPM Reports: Concurrent with CPM schedule, submit each of the following reports. Format for each activity in reports shall contain activity number, activity description, cost and resource loading, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.

1. Activity Report: List of all activities sorted by activity number and then early start date, or actual start date if known.
2. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then early start date, or actual start date if known.
3. Total Float Report: List of all activities sorted in ascending order of total float.
4. Earnings Report: Compilation of Contractor's total earnings from commencement of the Work until most recent Application for Payment.

F. Construction Schedule Updating Reports: Submit with Applications for Payment.

G. Daily Construction Reports: Submit at monthly intervals.

H. Material Location Reports: Submit at monthly intervals.

I. Site Condition Reports: Submit at time of discovery of differing conditions.

J. Special Reports: Submit at time of unusual event.

K. Qualification Data: For scheduling consultant.

1.5 QUALITY ASSURANCE

A. Pre-scheduling Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination." Review methods and procedures related to the preliminary construction schedule and Contractor's construction schedule, including, but not limited to, the following:

1. Review software limitations and content and format for reports.
2. Verify availability of qualified personnel needed to develop and update schedule.
3. Discuss constraints, including phasing, work stages, area separations, interim milestones and partial Owner occupancy.
4. Review delivery dates for Owner-furnished products.
5. Review schedule for work of Owner's separate contracts.
6. Review submittal requirements and procedures.
7. Review time required for review of submittals and re-submittals.
8. Review requirements for tests and inspections by independent testing and inspecting agencies.
9. Review time required for Project closeout and Owner startup procedures.
10. Review and finalize list of construction activities to be included in schedule.
11. Review procedures for updating schedule.

1.6 COORDINATION

A. Coordinate Contractor's construction schedule with the schedule of values, submittal schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from entities involved.
2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Substantial Completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

B. Activities: Treat each story or separate area as a separate numbered activity for each main element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 30 days, unless specifically allowed by Architect.

2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
3. Submittal Review Time: Include review and re-submittal times indicated in Section 013300 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's construction schedule with submittal schedule.
4. Startup and Testing Time: Include no fewer than 15 days for startup and testing.
5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
6. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and final completion.

C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

1. Phasing: Arrange list of activities on schedule by phase.
2. Work under More Than One Contract: Include a separate activity for each contract.
3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
4. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Section 011000 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
5. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Section 011000 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
6. Work Restrictions: Show the effect of the following items on the schedule:

    a. Coordination with existing construction.
    b. Limitations of continued occupancies.
    c. Uninterruptible services.
    d. Partial occupancy before Substantial Completion.
    e. Use of premises restrictions.
    f. Provisions for future construction.
    g. Seasonal variations.
    h. Environmental control.

7. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:

    a. Subcontract awards.
    b. Submittals.
    c. Purchases.
    d. Fabrication.
    e. Sample testing.
    f. Deliveries.
    g. Installation.
    h. Tests and inspections.
    i. Adjusting.
    j. Curing.
    k. Building flush-out.
    l. Startup and placement into final use and operation.

8. Construction Areas: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:

    a. Structural completion.
    b. Temporary enclosure and space conditioning.
    c. Permanent space enclosure.
    d. Completion of mechanical installation.
    e. Completion of electrical installation.
    f. Substantial Completion.

D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and final completion.

E. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:

1. Unresolved issues.
2. Unanswered Requests for Information.
3. Rejected or unreturned submittals.
4. Notations on returned submittals.
5. Pending modifications affecting the Work and Contract Time.

F. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, equipment required to achieve compliance, and date by which recovery will be accomplished.

2.2 CONSTRUCTION SCHEDULE

A. Bar-Chart Schedule: Submit horizontal, bar-chart-type construction schedule within fourteen days of date established for the Notice to Proceed.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

2.3 REPORTS

A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

1. List of subcontractors at Project site.
2. List of separate contractors at Project site.
3. Approximate count of personnel at Project site.
4. Lead-safe work practices and cleaning verifications.
5. Equipment at Project site.
6. Material deliveries.
7. High and low temperatures and general weather conditions, including presence of rain or snow.
8. Accidents.
9. Meetings and significant decisions.

10. Unusual events (see special reports).
11. Stoppages, delays, shortages, and losses.
12. Meter readings and similar recordings.
13. Emergency procedures.
14. Orders and requests of authorities having jurisdiction.
15. Change Orders received and implemented.
16. Construction Change Directives received and implemented.
17. Services connected and disconnected.
18. Equipment or system tests and startups.
19. Partial completions and occupancies.
20. Substantial Completions authorized.

B. Weekly Construction Progress Reports: The General Contractor at weekly intervals shall prepare and submit a construction progress report which includes the following:

1. Name of Project.
2. Name of Contractor.
3. Date of Report.
4. Outline of current week’s construction activities.
5. Outline of anticipated (look ahead) activities for subsequent week.
6. Critical Path Items for current week.
7. Photographs documenting activities occurring during current week. See Division 01, Section “Photographic Documentation” for photograph requirements of periodic construction photographs.
8. Weekly Reports shall be bound and one (1) copy submitted to the Owner and Architect at the beginning of the subsequent week following the week of the report.
9. Failure to submit the “Weekly Reports” can be cause for delay in progress payments by the Owner until “Weekly Reports” are made current.

C. Material Location Reports: At monthly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site. Indicate the following categories for stored materials:

1. Material stored prior to previous report and remaining in storage.
2. Material stored prior to previous report and since removed from storage and installed.
3. Material stored following previous report and remaining in storage.

D. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.4 SPECIAL REPORTS

A. General: Submit special reports directly to Owner within five day(s) of an occurrence. Distribute copies of report to parties affected by the occurrence.

B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Scheduling Consultant: Engage a consultant to provide planning, evaluation, and reporting using acceptable scheduling programs.

1. In-House Option: Owner may waive the requirement to retain a consultant if Contractor employs skilled personnel with experience in scheduling and reporting techniques. Submit qualifications.
2. Meetings: Scheduling consultant shall attend all meetings related to Project progress, alleged delays, and time impact.

B. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule with monthly payment applications.

1. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
2. As the Work progresses, indicate final completion percentage for each activity.

C. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. Post copies in Project meeting rooms and temporary field offices.
2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION

SECTION 01 33 00
SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

B. Related Requirements:

1. Division 01 Section "Payment Procedures" for submitting Applications for Payment and the schedule of values.
2. Division 01 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
3. Division 01 Section "Operation and Maintenance Data" for submitting operation and maintenance manuals.
4. Division 01 Section "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

C. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.

D. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.4 ACTION SUBMITTALS

A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.

1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.

    a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.

4. Format: Arrange the following information in a tabular format:

    a. Scheduled date for first submittal.
    b. Specification Section number and title.
    c. Submittal category: Action; informational.
    d. Name of subcontractor.
    e. Description of the Work covered.
    f. Scheduled date for Architect's final release or approval.
    g. Scheduled date of fabrication.
    h. Scheduled dates for purchasing.
    i. Scheduled dates for installation.
    j. Activity or event number.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Architect's Digital Data Files: Electronic digital data files of the Contract Drawings will be provided by Architect for Contractor's use in preparing submittals.

1. Architect will furnish Contractor one set of digital data drawing files, as requested, of the Contract Drawings for use in preparing Shop Drawings.

    a. Architect makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
    b. Contractor shall execute a electronic release agreement acceptable to Architect and their Consultants.
    c. The following digital data files will by furnished for each appropriate discipline:

        1) Drawings and plans as requested.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

    a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Allow time for submittal review, including time for re-submittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including re-submittals.

1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Re-submittal Review: Allow 15 days for review of each re-submittal.
4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.
5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow 15 days for review of each submittal. Submittal will be returned to Architect before being returned to Contractor.

D. Paper Submittals: Place a permanent label or title block on each submittal item for identification.

1. Indicate name of firm or entity that prepared each submittal on label or title block.
2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
3. Include the following information for processing and recording action taken:

    a. Project name.
    b. Date.
    c. Name of Architect.
    d. Name of Construction Manager.
    e. Name of Contractor.
    f. Name of subcontractor.
    g. Name of supplier.
    h. Name of manufacturer.
    i. Submittal number or other unique identifier, including revision identifier.

        1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Re-submittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).

    j. Number and title of appropriate Specification Section.
    k. Drawing number and detail references, as appropriate.
    l. Location(s) where product is to be installed, as appropriate.
    m. Other necessary identification.

4. Additional Paper Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.

    a. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect.

5. Transmittal for Paper Submittals: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return without review submittals received from sources other than Contractor or submittals that fail to have Contractor’s stamp included on the submittal.

    a. Transmittal Form for Paper Submittals: Use form acceptable to the Architect.
    b. Transmittal Form for Paper Submittals: Provide locations on form for the following information:

        1) Project name.
        2) Date.
        3) Destination (To:).
        4) Source (From:).
        5) Name and address of Architect.
        6) Name of Construction Manager.
        7) Name of Contractor.
        8) Name of firm or entity that prepared submittal.
        9) Names of subcontractor, manufacturer, and supplier.
        10) Category and type of submittal.
        11) Submittal purpose and description.
        12) Specification Section number and title.
        13) Specification paragraph number or drawing designation and generic name for each of multiple items.
        14) Drawing number and detail references, as appropriate.
        15) Indication of full or partial submittal.
        16) Transmittal number.
        17) Submittal and transmittal distribution record.
        18) Remarks.
        19) Signature of transmitter.

E. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:

1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
2. Name file with submittal number or other unique identifier, including revision identifier.

    a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-061000.01). Re-submittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-061000.01.A).

3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Architect, containing the following information:

    a. Project name.

- b. Date.
- c. Name and address of Architect.
- d. Name of Construction Manager.
- e. Name of Contractor.
- f. Name of firm or entity that prepared submittal.
- g. Names of subcontractor, manufacturer, and supplier.
- h. Category and type of submittal.
- i. Submittal purpose and description.
- j. Specification Section number and title.
- k. Specification paragraph number or drawing designation and generic name for each of multiple items.
- l. Drawing number and detail references, as appropriate.
- m. Location(s) where product is to be installed, as appropriate.
- n. Related physical samples submitted directly.
- o. Indication of full or partial submittal.
- p. Transmittal number.
- q. Submittal and transmittal distribution record.
- r. Other necessary identification.
- s. Remarks.

F. Options: Identify options requiring selection by Architect.

G. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.

H. Re-submittals: Make re-submittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.

I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

J. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

- a. Contractor shall keep one complete set of submittals to be turned over to the Owner at the end of the project. This set of submittals shall be complete, organized by specification section and include all information as submitted and approved for the project.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

1. Submit electronic submittals via email as PDF electronic files.

   - a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.

2. Action Submittals: Submit two paper copies of each submittal in addition to the number as required by the Contractor. Architect will return all but two copies.
3. Informational Submittals: Submit two paper copies of each submittal in addition to the number as required by the Contractor. Architect will return all but two copies.
4. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

   - a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.
   - b. Provide a notarized statement on original paper copy certificates and certifications where indicated.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

   - a. Manufacturer's catalog cuts.
   - b. Manufacturer's product specifications.
   - c. Standard color charts.
   - d. Statement of compliance with specified referenced standards.
   - e. Testing by recognized testing agency.
   - f. Application of testing agency labels and seals.
   - g. Notation of coordination requirements.
   - h. Availability and delivery time information.

4. For equipment, include the following in addition to the above, as applicable:

   - a. Wiring diagrams showing factory-installed wiring.
   - b. Printed performance curves.
   - c. Operational range diagrams.
   - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before or concurrent with Samples.
6. Submit Product Data in the following format:

   - a. PDF electronic file.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal based on Architect's digital data drawing files is otherwise permitted.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

   - a. Identification of products.

b. Schedules.
c. Compliance with specified standards.
d. Notation of coordination requirements.
e. Notation of dimensions established by field measurement.
f. Relationship and attachment to adjoining construction clearly indicated.
g. Seal and signature of professional engineer if specified.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 30 by 42 inches.
3. Submit Shop Drawings in the following format:

a. PDF electronic file.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Attach label on unexposed side of Samples that includes the following:

a. Generic description of Sample.
b. Product name and name of manufacturer.
c. Sample source.
d. Number and title of applicable Specification Section.
e. Specification paragraph number and generic name of each item.

3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

a. Number of Samples: Submit two full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return one set with options selected.

6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

- a. Number of Samples: Submit two sets of Samples. Architect will retain **one** Sample set; remainder will be returned.
  - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
  - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least two sets of paired units that show approximate limits of variations.

E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

- 1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
- 2. Manufacturer and product name, and model number if applicable.
- 3. Number and name of room or space.
- 4. Location within room or space.
- 5. Submit product schedule in the following format:
  - a. PDF electronic file.

F. Coordination Drawing Submittals: Comply with requirements specified in Division 01 Section "Project Management and Coordination."

G. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."

H. Application for Payment and Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."

I. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Division 01 Section "Quality Requirements."

J. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Division 01 Section "Closeout Procedures."

K. Maintenance Data: Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."

L. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

M. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.

N. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

O. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

P. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

Q. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

R. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

S. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

T. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:

1. Name of evaluation organization.
2. Date of evaluation.
3. Time period when report is in effect.
4. Product and manufacturers' names.
5. Description of product.
6. Test procedures and results.
7. Limitations of use.

U. Pre-construction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

V. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

W. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

X. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

2.2 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

   1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF electronic file and one paper copies of certificate, signed and sealed by the responsible design professional, licensed in the state where the project is constructed, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

   1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Project Closeout and Maintenance Material Submittals: See requirements in Division 01 Section "Closeout Procedures."

C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

A. Action Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action, as follows:

   1. “Reviewed”, submittal may be incorporated into the project as submitted.
   2. “Reviewed as Noted”, submittal may be incorporated into the project with modifications or corrections as noted on the submittal.
   3. “Resubmission is Required”, submittal may **NOT** be incorporated into the project as submitted and requires a re-submittal for additional review and approval.

B. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.

D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for re-submittal without review.

E. Submittals not required by the Contract Documents may be returned by the Architect without action.

END OF SECTION

SECTION 01 40 00
QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
4. Specific test and inspection requirements are not specified in this Section.

1.3 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.

C. Pre-construction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.

D. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

E. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.

F. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

G. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

H. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).

I. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.4 CONFLICTING REQUIREMENTS

A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.5 INFORMATIONAL SUBMITTALS

A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.

B. Qualification Data: For Contractor's quality-control personnel.

C. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility sent to authorities having jurisdiction before starting work on the following systems:

1. Seismic-force-resisting system, designated seismic system, or component listed in the designated seismic system quality-assurance plan prepared by Architect.
2. Main wind-force-resisting system or a wind-resisting component listed in the wind-force-resisting system quality-assurance plan prepared by Architect.

D. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

E. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

1. Specification Section number and title.
2. Entity responsible for performing tests and inspections.
3. Description of test and inspection.
4. Identification of applicable standards.
5. Identification of test and inspection methods.
6. Number of tests and inspections required.
7. Time schedule or time span for tests and inspections.

8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

1.6 CONTRACTOR'S QUALITY-CONTROL PLAN

A. Quality-Control Plan, General: Submit quality-control plan within 10 days of Notice of Award, and not less than five days prior to pre-construction conference. Submit in format acceptable to Architect. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's construction schedule.

B. Quality-Control Personnel Qualifications: Engage qualified full-time personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.

1. Project quality-control manager may also serve as Project superintendent.
2. Shall have had experience in similar project types and work for the last five years.

C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.

D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:

1. Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections.
2. Special inspections required by authorities having jurisdiction and indicated on the "Statement of Special Inspections."
3. Owner-performed tests and inspections indicated in the Contract Documents.

E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements.

F. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.7 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.

10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of technical representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement that equipment complies with requirements.
3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
4. Statement whether conditions, products, and installation will affect warranty.
5. Other required items indicated in individual Specification Sections.

D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.8 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or products that are similar in material, design, and extent to those indicated for this Project.

F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

   1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.

G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

   1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
   2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.

H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

J. Pre-construction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:

   1. Contractor responsibilities include the following:

      a. Provide test specimens representative of proposed products and construction.
      b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.

   2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

1.9 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

   1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
   2. Payment for these services will be made from testing and inspecting allowances, as authorized by Change Orders or paid by Owner directly.
   3. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.

B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.

1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.

    a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.

3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 013300 "Submittal Procedures."

D. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in pre-installation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

E. Re-testing/Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and re-inspecting, for construction that replaced Work that failed to comply with the Contract Documents.

F. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform any duties of Contractor.

G. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.

2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents as a component of Contractor's quality-control plan. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.

1. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.10 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:

1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviews the completeness and adequacy of those procedures to perform the Work.
2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
6. Retesting and re-inspecting corrected work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Architect.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

SECTION 01 42 00
REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.4 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Thomson Gale's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."

B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

AA	Aluminum Association (The) www.aluminum.org	(703) 358-2960
AABC	Associated Air Balance Council www.aabchq.com	(202) 737-0202
AAMA	American Architectural Manufacturers Association www.aamanet.org	(847) 303-5664
AASHTO	American Association of State Highway and Transportation Officials www.transportation.org	(202) 624-5800
AATCC	American Association of Textile Chemists and Colorists www.aatcc.org	(919) 549-8141
ABAA	Air Barrier Association of America www.airbarrier.org	(866) 956-5888
ABMA	American Bearing Manufacturers Association www.abma-dc.org	(202) 367-1155
ACI	American Concrete Institute www.concrete.org	(248) 848-3700
ACPA	American Concrete Pipe Association www.concrete-pipe.org	(972) 506-7216
AEIC	Association of Edison Illuminating Companies, Inc. (The) www.aeic.org	(205) 257-2530
AF&PA	American Forest & Paper Association www.afandpa.org	(800) 878-8878 (202) 463-2700
AGA	American Gas Association www.aga.org	(202) 824-7000

AHAM	Association of Home Appliance Manufacturers www.aham.org	(202) 872-5955
AHRI	Air-Conditioning, Heating, andRefrigeration Institute, The www.ahrinet.org	(703) 524-8800
AI	Asphalt Institute www.asphaltinstitute.org	(859) 288-4960
AIA	American Institute of Architects (The) www.aia.org	(800) 242-3837 (202) 626-7300
AISC	American Institute of Steel Construction www.aisc.org	(800) 644-2400 (312) 670-2400
AISI	American Iron and Steel Institute www.steel.org	(202) 452-7100
AITC	American Institute of Timber Construction www.aitc-glulam.org	(303) 792-9559
ALSC	American Lumber Standard Committee, Incorporated www.alsc.org	(301) 972-1700
AMCA	Air Movement and Control Association International, Inc. www.amca.org	(847) 394-0150
ANSI	American National Standards Institute www.ansi.org	(202) 293-8020
AOSA	Association of Official Seed Analysts, Inc. www.aosaseed.com	(405) 780-7372
APA	APA - The Engineered Wood Association www.apawood.org	(253) 565-6600
APA	Architectural Precast Association www.archprecast.org	(239) 454-6989
API	American Petroleum Institute www.api.org	(202) 682-8000
ARI	Air-Conditioning & Refrigeration Institute www.ari.org	(703) 524-8800
ARMA	Asphalt Roofing Manufacturers Association www.asphaltroofing.org	(202) 207-0917
ASCE	American Society of Civil Engineers www.asce.org	(800) 548-2723 (703) 295-6300
ASCE/SEI	American Society of Civil Engineers/Structural Engineering Institute (See ASCE)	

ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers www.ashrae.org	(800) 527-4723 (404) 636-8400
ASME	ASME International (American Society of Mechanical Engineers International) www.asme.org	(800) 843-2763 (973) 882-1170
ASSE	American Society of Sanitary Engineering www.asse-plumbing.org	(440) 835-3040
ASTM	ASTM International (American Society for Testing and Materials International) www.astm.org	(610) 832-9500
ATIS	Alliance for Telecommunications Industry Solutions www.atis.org	(202) 628-6380
AWCMA	American Window Covering Manufacturers Association (Now WCMA)	
AWCI	Association of the Wall and Ceiling Industry www.awci.org	(703) 534-8300
AWI	Architectural Woodwork Institute www.awinet.org	(571) 323-3636
AWPA	American Wood Protection Association (Formerly: American Wood Preservers' Association) www.awpa.com	(205) 733-4077
AWS	American Welding Society www.aws.org	(800) 443-9353 (305) 443-9353
AWWA	American Water Works Association www.awwa.org	(800) 926-7337 (303) 794-7711
BHMA	Builders Hardware Manufacturers Association www.buildershardware.com	(212) 297-2122
BIA	Brick Industry Association (The) www.bia.org	(703) 620-0010
BICSI	BICSI, Inc. www.bicsi.org	(800) 242-7405 (813) 979-1991
BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International) www.bifma.com	(616) 285-3963
BISSC	Baking Industry Sanitation Standards Committee www.bissc.org	(866) 342-4772

CCC	Carpet Cushion Council www.carpetcushion.org	(610) 527-3880
CDA	Copper Development Association www.copper.org	(800) 232-3282 (212) 251-7200
CEA	Canadian Electricity Association www.canelect.ca	(613) 230-9263
CEA	Consumer Electronics Association www.ce.org	(866) 858-1555 (703) 907-7600
CFFA	Chemical Fabrics & Film Association, Inc. www.chemicalfabricsandfilm.com	(216) 241-7333
CGA	Compressed Gas Association www.cganet.com	(703) 788-2700
CIMA	Cellulose Insulation Manufacturers Association www.cellulose.org	(888) 881-2462 (937) 222-2462
CISCA	Ceilings & Interior Systems Construction Association www.cisca.org	(630) 584-1919
CISPI	Cast Iron Soil Pipe Institute www.cispi.org	(423) 892-0137
CLFMI	Chain Link Fence Manufacturers Institute www.chainlinkinfo.org	(301) 596-2583
CPA	Composite Panel Association www.pbmdf.com	(703) 724-1128
CRI	Carpet and Rug Institute (The) www.carpet-rug.com	(800) 882-8846 (706) 278-3176
CRRC	Cool Roof Rating Council www.coolroofs.org	(866) 465-2523 (510) 485-7175
CRSI	Concrete Reinforcing Steel Institute www.crsi.org	(847) 517-1200 (800) 328-6306
CRRC	Cool Roof Rating Council www.coolroofs.org	(866) 465-2523 (510) 485-7175
CSA	Canadian Standards Association www.csa.ca	(800) 463-6727 (416) 747-4000
CSA	CSA International (Formerly: IAS - International Approval Services) www.csa-international.org	(866) 797-4272 (416) 747-4000
CSI	Construction Specifications Institute (The) www.csinet.org	(800) 689-2900 (703) 684-0300

CSSB	Cedar Shake & Shingle Bureau www.cedarbureau.org	(604) 820-7700
CTI	Cooling Technology Institute (Formerly: Cooling Tower Institute) www.cti.org	(281) 583-4087
DHI	Door and Hardware Institute www.dhi.org	(703) 222-2010
ECA	Electrical Components Association www.ec-central.org	(703)907-8024
EIA	Electronic Industries Alliance www.eia.org	(703) 907-7500
EIMA	EIFS Industry Members Association www.eima.com	(800) 294-3462 (770) 968-7945
EJCDC	Engineers Joint Contract Documents Committee http://content.asce.org/ejcdc/	(703) 295-6000
EJMA	Expansion Joint Manufacturers Association, Inc. www.ejma.org	(914) 332-0040
ESD	ESD Association (Electrostatic Discharge Association) www.esda.org	(315) 339-6937
ETL SEMCO	Intertek ETL SEMCO (Formerly: ITS - Intertek Testing Service NA) www.intertek-etlsemko.com	(800) 967-5352
FIBA	Federation Internationale de Basketball (The International Basketball Federation) www.fiba.com	41 22 545 00 00
FIVB	Federation Internationale de Volleyball (The International Volleyball Federation) www.fivb.ch	41 21 345 35 35
FM Approvals	FM Approvals LLC www.fmglobal.com	(781) 762-4300
FM Global	FM Global (Formerly: FMG - FM Global) www.fmglobal.com	(401) 275-3000
FRSA	Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc. www.floridaroof.com	(407) 671-3772
FSA	Fluid Sealing Association www.fluidsealing.com	(610) 971-4850

FSC	Forest Stewardship Council www.fsc.org	49 228 367 66 0
GA	Gypsum Association www.gypsum.org	(301) 277-8686
GANA	Glass Association of North America www.glasswebsite.com	(785) 271-0208
GRI	(Part of GSI)	
GS	Green Seal www.greenseal.org	(202) 872-6400
GSI	Geosynthetic Institute www.geosynthetic-institute.org	(610) 522-8440
HI	Hydronics Institute www.gamanet.org	(908) 464-8200
HI/GAMA	Hydronics Institute/Gas Appliance Manufacturers Association Division of Air-Conditioning, Heating, and Refrigeration Institute (AHRI) www.ahrinet.org	(908) 464-8200
HMMA	Hollow Metal Manufacturers Association (Part of NAAMM)	
HPVA	Hardwood Plywood & Veneer Association www.hpva.org	(703) 435-2900
HPW	H. P. White Laboratory, Inc. www.hpwhite.com	(410) 838-6550
IAPSC	International Association of Professional Security Consultants www.iapsc.org	(515) 282-8192
ICBO	International Conference of Building Officials www.iccsafe.org	(888) 422-7233
ICEA	Insulated Cable Engineers Association, Inc. www.icea.net	(770) 830-0369
ICRI	International Concrete Repair Institute, Inc. www.icri.org	(847) 827-0830
ICPA	International Cast Polymer Association www.icpa-hq.org	(703) 525-0320
IEC	International Electrotechnical Commission www.iec.ch	41 22 919 02 11
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The) www.ieee.org	(212) 419-7900

IES	Illuminating Engineering Society of North America www.iesna.org	(703) 525-0320
IEST	Institute of Environmental Sciences and Technology www.iest.org	(847) 255-1561
IGMA	Insulating Glass Manufacturers Alliance www.igmaonline.org	(613) 233-1510
ILI	Indiana Limestone Institute of America, Inc. www.iliai.com	(812) 275-4426
ISA	Instrumentation, Systems, and Automation Society, The www.isa.org	(919) 549-8411
ISO	International Organization for Standardization www.iso.ch	41 22 749 01 11
ISSFA	International Solid Surface Fabricators Association www.issfa.net	(877) 464-7732 (801) 341-7360
ITS	Intertek Testing Service NA (Now ETL SEMCO)	
ITU	International Telecommunication Union www.itu.int/home	41 22 730 51 11
KCMA	Kitchen Cabinet Manufacturers Association www.kcma.org	(703) 264-1690
LGSEA	Light Gauge Steel Engineers Association www.arcat.com	(202) 263-4488
LMA	Laminating Materials Association (Now part of CPA)	
LPI	Lightning Protection Institute www.lightning.org	(800) 488-6864
MBMA	Metal Building Manufacturers Association www.mbma.com	(216) 241-7333
MCA	Metal Construction Association www.metalconstruction.org	(847) 375-4718
MFMA	Maple Flooring Manufacturers Association, Inc. www.maplefloor.org	(888) 480-9138
MFMA	Metal Framing Manufacturers Association, Inc. www.metalframingmfg.org	(312) 644-6610
MH	Material Handling (Now MHIA)	
MHIA	Material Handling Industry of America	(800) 345-1815

	www.mhia.org	(704) 676-1190
MIA	Marble Institute of America www.marble-institute.com	(440) 250-9222
MPI	Master Painters Institute www.paintinfo.com	(888) 674-8937 (604) 298-7578
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc. www.mss-hq.com	(703) 281-6613
NAAMM	National Association of Architectural Metal Manufacturers www.naamm.org	(630) 942-6591
NACE	NACE International (National Association of Corrosion Engineers International) www.nace.org	(800) 797-6223 (281) 228-6200
NADCA	National Air Duct Cleaners Association www.nadca.com	(202) 737-2926
NAGWS	National Association for Girls and Women in Sport www.aahperd.org/nagws/	(800) 213-7193, ext. 453
NAIMA	North American Insulation Manufacturers Association www.naima.org	(703) 684-0084
NBGQA	National Building Granite Quarries Association, Inc. www.nbgqa.com	(800) 557-2848
NCAA	National Collegiate Athletic Association (The) www.ncaa.org	(317) 917-6222
NCMA	National Concrete Masonry Association www.ncma.org	(703) 713-1900
NCTA	National Cable & Telecommunications Association www.ncta.com	(202) 222-2300
NEBB	National Environmental Balancing Bureau www.nebb.org	(301) 977-3698
NECA	National Electrical Contractors Association www.necanet.org	(301) 657-3110
NeLMA	Northeastern Lumber Manufacturers' Association www.nelma.org	(207) 829-6901
NEMA	National Electrical Manufacturers Association www.nema.org	(703) 841-3200
NETA	InterNational Electrical Testing Association www.netaworld.org	(888) 300-6382 (269) 488-6382

NFHS	National Federation of State High School Associations www.nfhs.org	(317) 972-6900
NFPA	NFPA (National Fire Protection Association) www.nfpa.org	(800) 344-3555 (617) 770-3000
NFRC	National Fenestration Rating Council www.nfrc.org	(301) 589-1776
NGA	National Glass Association www.glass.org	(866) 342-5642 (703) 442-4890
NHLA	National Hardwood Lumber Association www.natlhardwood.org	(800) 933-0318 (901) 377-1818
NLGA	National Lumber Grades Authority www.nlga.org	(604) 524-2393
NOFMA	NOFMA: The Wood Flooring Manufacturers Association (Formerly: National Oak Flooring Manufacturers Association) www.nofma.org	(901) 526-5016
NOMMA	National Ornamental & Miscellaneous Metals Association www.nomma.org	(888) 516-8585
NRCA	National Roofing Contractors Association www.nrca.net	(800) 323-9545 (847) 299-9070
NRMCA	National Ready Mixed Concrete Association www.nrmca.org	(888) 846-7622 (301) 587-1400
NSF	NSF International (National Sanitation Foundation International) www.nsf.org	(800) 673-6275 (734) 769-8010
NSSGA	National Stone, Sand & Gravel Association www.nssga.org	(800) 342-1415 (703) 525-8788
NTMA	National Terrazzo & Mosaic Association, Inc. (The) www.ntma.com	(800) 323-9736 (540) 751-0930
NWFA	National Wood Flooring Association www.nwfa.org	(800) 422-4556 (636) 519-9663
PCI	Precast/Prestressed Concrete Institute www.pci.org	(312) 786-0300
PDI	Plumbing & Drainage Institute www.pdionline.org	(800) 589-8956 (978) 557-0720
PGI	PVC Geomembrane Institute http://pgi-tp.cee.uiuc.edu	(217) 333-3929

PTI	Post-Tensioning Institute	(248) 848-3180
	www.post-tensioning.org	
RCSC	Research Council on Structural Connections	
	www.boltcouncil.org	
RFCI	Resilient Floor Covering Institute	
	www.rfci.com	(706) 882-3833
RIS	Redwood Inspection Service	
	www.redwoodinspection.com	(925) 935-1499
SAE	SAE International	(877) 606-7323
	www.sae.org	(724) 776-4841
SCAQMD	South Coast Air Quality Management District	(909) 396-2000
	www.aqmd.com	
SCTE	Society of Cable Telecommunications Engineers	(800) 542-5040
	www.scte.org	(610) 363-6888
SDI	Steel Deck Institute	(847) 458-4647
	www.sdi.org	
SDI	Steel Door Institute	(440) 899-0010
	www.steeldoor.org	
SEFA	Scientific Equipment and Furniture Association	(877) 294-5424
	www.sefalabs.com	(516) 294-5424
SEI/ASCE	Structural Engineering Institute/American Society of Civil Engineers	
	(See ASCE)	
SIA	Security Industry Association	(866) 817-8888
	www.siaonline.org	(703) 683-2075
SJI	Steel Joist Institute	(843) 626-1995
	www.steeljoist.org	
SMA	Screen Manufacturers Association	(561) 533-0991
	www.smacentral.org	
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association	(703) 803-2980
	www.smacna.org	
SMPTE	Society of Motion Picture and Television Engineers	(914) 761-1100
	www.smpte.org	
SPFA	Spray Polyurethane Foam Alliance	(800) 523-6154
	(Formerly: SPI/SPFD - The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division)	
	www.sprayfoam.org	

SPIB	Southern Pine Inspection Bureau (The) www.spib.org	(850) 434-2611
SPRI	Single Ply Roofing Industry www.spri.org	(781) 647-7026
SSINA	Specialty Steel Industry of North America www.ssina.com	(800) 982-0355 (202) 342-8630
SSPC	SSPC: The Society for Protective Coatings www.sspc.org	(877) 281-7772 (412) 281-2331
STI	Steel Tank Institute www.steeltank.com	(847) 438-8265
SWI	Steel Window Institute www.steelwindows.com	(216) 241-7333
SWPA	Submersible Wastewater Pump Association www.swpa.org	(847) 681-1868
TCA	Tilt-Up Concrete Association www.tilt-up.org	(319) 895-6911
TCNA	Tile Council of North America, Inc. www.tileusa.com	(864) 646-8453
TEMA	Tubular Exchanger Manufacturers Association www.tema.org	(914) 332-0040
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance www.tiaonline.org	(703) 907-7700
TMS	The Masonry Society www.masonrysociety.org	(303) 939-9700
TPI	Truss Plate Institute, Inc. www.tpinst.org	(703) 683-1010
TPI	Turfgrass Producers International www.turfgrasssod.org	(800) 405-8873 (847) 649-5555
TRI	Tile Roofing Institute www.tileroofing.org	(312) 670-4177
UL	Underwriters Laboratories Inc. www.ul.com	(877) 854-3577 (847) 272-8800
UNI	Uni-Bell PVC Pipe Association www.uni-bell.org	(972) 243-3902
USAV	USA Volleyball www.usavolleyball.org	(888) 786-5539 (719) 228-6800

USGBC	U.S. Green Building Council www.usgbc.org	(800) 795-1747
USITT	United States Institute for Theatre Technology, Inc. www.usitt.org	(800) 938-7488 (315) 463-6463
WASTEC	Waste Equipment Technology Association www.wastec.org	(800) 424-2869 (202) 244-4700
WCLIB	West Coast Lumber Inspection Bureau www.wclib.org	(800) 283-1486 (503) 639-0651
WCMA	Window Covering Manufacturers Association www.wcmanet.org	(212) 297-2122
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association) www.wdma.com	(800) 223-2301 (312) 321-6802
WI	Woodwork Institute (Formerly: WIC - Woodwork Institute of California) www.wicnet.org	(916) 372-9943
WMMPA	Wood Moulding & Millwork Producers Association www.wmmpa.com	(800) 550-7889 (530) 661-9591
WSRCA	Western States Roofing Contractors Association www.wsrca.com	(800) 725-0333 (650) 570-5441
WWPA	Western Wood Products Association www.wwpa.org	(503) 224-3930

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

DIN	Deutsches Institut fur Normung e.V. www.din.de	49 30 2601-0
IAPMO	International Association of Plumbing and Mechanical Officials www.iapmo.org	(909) 472-4100
ICC	International Code Council www.iccsafe.org	(888) 422-7233
ICC-ES	ICC Evaluation Service, Inc. www.icc-es.org	(800) 423-6587 (562) 699-0543

D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

COE	Army Corps of Engineers www.usace.army.mil	(202) 761-0011
CPSC	Consumer Product Safety Commission www.cpsc.gov	(800) 638-2772 (301) 504-7923
DOC	Department of Commerce www.commerce.gov	(202) 482-2000
DOD	Department of Defense http://dodssp.daps.dla.mil	(215) 697-6257
DOE	Department of Energy www.energy.gov	(202) 586-9220
EPA	Environmental Protection Agency www.epa.gov	(202) 272-0167
FAA	Federal Aviation Administration www.faa.gov	(866) 835-5322
FCC	Federal Communications Commission www.fcc.gov	(888) 225-5322
FDA	Food and Drug Administration www.fda.gov	(888) 463-6332
GSA	General Services Administration www.gsa.gov	(800) 488-3111
HUD	Department of Housing and Urban Development www.hud.gov	(202) 708-1112
LBL	Lawrence Berkeley National Laboratory www.lbl.gov	(510) 486-4000
NCHRP	National Cooperative Highway Research Program (See TRB)	
NIST	National Institute of Standards and Technology www.nist.gov	(301) 975-6478
OSHA	Occupational Safety & Health Administration www.osha.gov	(800) 321-6742 (202) 693-1999
PBS	Public Buildings Service (See GSA)	
PHS	Office of Public Health and Science http://www.hhs.gov/ophs/	(202) 690-7694
RUS	Rural Utilities Service (See USDA)	(202) 720-9540

SD	State Department www.state.gov	(202) 647-4000
TRB	Transportation Research Board http://gulliver.trb.org	(202) 334-2934
USDA	Department of Agriculture www.usda.gov	(202) 720-2791
USP	U.S. Pharmacopeia www.usp.org	(800) 227-8772
USPS	Postal Service www.usps.com	(202) 268-2000

E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

ADAAG	Americans with Disabilities Act (ADA)	(800) 872-2253
	Architectural Barriers Act (ABA)	(202) 272-0080
	Accessibility Guidelines for Buildings and Facilities Available from U.S. Access Board www.access-board.gov	
CFR	Code of Federal Regulations	(866) 512-1800
	Available from Government Printing Office	(202) 512-1800
	www.gpoaccess.gov/cfr/index.html	
DOD	Department of Defense Military Specifications and Standards	(215) 697-2664
	Available from Department of Defense Single Stock Point http://dodssp.daps.dla.mil	
DSCC	Defense Supply Center Columbus (See FS)	
FED-STD	Federal Standard (See FS)	
FS	Federal Specification	(215) 697-2664
	Available from Department of Defense Single Stock Point http://dodssp.daps.dla.mil/	
	Available from Defense Standardization Program www.dsp.dla.mil	
	Available from General Services Administration	(202) 619-8925

	www.gsa.gov	
	Available from National Institute of Building Sciences	(202) 289-7800
	www.wbdg.org/ccb	
FTMS	Federal Test Method Standard (See FS)	
MIL	(See MILSPEC)	
MIL-STD	(See MILSPEC)	
MILSPEC	Military Specification and Standards	(215) 697-2664
	Available from Department of Defense Single Stock Point http://dodssp.daps.dla.mil	
UFAS	Uniform Federal Accessibility Standards	(800) 872-2253
	Available from Access Board	(202) 272-0080
	www.access-board.gov	

F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

CBHF	State of California, Department of Consumer Affairs Bureau of Home Furnishings and Thermal Insulation	(800) 952-5210
	www.dca.ca.gov/bhfti	(916) 574-2041
CCR	California Code of Regulations	(916) 323-6815
	www.calregs.com	
CDHS	California Department of Health Services	(916) 445-4171
	www.dhcs.ca.gov	
CDPH	California Department of Public Health, Indoor Air Quality Section www.cal-iaq.org	
CPUC	California Public Utilities Commission	(415) 703-2782
	www.cpuc.ca.gov	
TFS	Texas Forest Service Forest Resource Development	(979) 458-6606
	http://txforestservice.tamu.edu	

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 50 00
TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

B. Related Requirements:

  1. Section 011000 "Summary" for work restrictions and limitations on utility interruptions.

1.3 USE CHARGES

A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, occupants of Project, testing agencies, and authorities having jurisdiction.

B. Water and Sewer Service from Existing System: Water and sewer usage from Owner's existing water and sewer systems are available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

C. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

1.4 INFORMATIONAL SUBMITTALS

A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.

B. Erosion and Sedimentation Control Plan: Show compliance with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.

C. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.

1.5 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

C. Accessible Temporary Egress: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

1.6 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Portable Chain-Link Fencing: Minimum 2-inch (50-mm), 0.148-inch (3.8-mm) thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet (1.8 m) high with galvanized-steel pipe posts; minimum 2 3/8-inch (60-mm) OD line posts and 2 7/8-inch (73-mm) OD corner and pull posts, with 1 5/8-inch (42-mm) OD top and bottom rails. Provide galvanized-steel bases for supporting posts.

2.2 TEMPORARY FACILITIES

A. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.

1. Store combustible materials apart from building.

2.3 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

1. Locate facilities to limit site disturbance as specified in Section 011000 "Summary."

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.

1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

B. Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

C. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

1. Toilets: Use of Owner's new designated toilet facilities will not be permitted. At Substantial Completion, remove these facilities from the site.

D. Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.

E. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
2. Install lighting for Project identification sign.

F. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install one telephone line(s) for each field office.

1. Provide superintendent with cellular telephone or portable two-way radio for use when away from field office.

3.3 SUPPORT FACILITIES INSTALLATION

A. Parking: Provide temporary parking areas for construction personnel. Parking shall be available as approved by the Owner.

B. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 017300 "Execution."

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

1. Comply with work restrictions specified in Section 011000 "Summary."

C. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of 2003 EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.

1. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross tree- or plant- protection zones.
2. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.

3. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from Project site during the course of Project.
4. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

D. Storm Water Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.

E. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.

F. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.

1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.
2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Furnish one set of keys to Owner.

G. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

H. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.

I. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.

1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.

J. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.

1. Prohibit smoking in construction areas.
2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.5 CLEANING AND PROTECTION

A. Clean and maintain construction areas as frequently as necessary thought out the project. Contractor to provide up to and have use of at least one dumpster during the course of the Work. The dumpster to be located as coordinated with the Owner. The Contractor shall be responsible for any damages and shall repair and/or replace grass, sod, concrete, curbing, sidewalks, paved surfaces or other items if damaged due to the Contractor's activities.

B. Limiting Exposure: Supervise construction activities to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:

1. Excessive static or dynamic loading.
2. Excessive internal or external pressures.
3. Excessively high or low temperatures.
4. Thermal shock.
5. Excessively high or low humidity.
6. Air contamination or pollution.
7. Water or ice.
8. Solvents.
9. Chemicals.
10. Light.
11. Radiation.
12. Puncture.
13. Abrasion.
14. Heavy traffic.
15. Soiling, staining and corrosion.
16. Bacteria.
17. Rodent and insect infestation.
18. Combustion.
19. Electrical current.
20. High speed operation.
21. Improper lubrication.
22. Unusual wear of other misuses.
23. Contact between incompatible materials.
24. Destructive testing.
25. Misalignment.
26. Excessive weathering.
27. Unprotected storage.
28. Improper shipping or handling.
29. Theft.
30. Vandelism.

C. Product Prohibition: Do not install lead-based paints or coatings. Do not install lead bearing materials. The Contractor shall not install lead or lead-bearing products as defined by the US Consumer Product Safety Commission's Dan of Lead-Containing Paint and Certain Products Bearing Lead-Containing Paint 16 CFR 1303 et.al.

3.6 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

END OF SECTION

SECTION 01 60 00
PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

B. Related Requirements:

1. Section 012500 "Substitution Procedures" for requests for substitutions.
2. Section 014200 "References" for applicable industry standards for products specified.

1.3 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.4 ACTION SUBMITTALS

A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

    a. Form of Approval: As specified in Section 013300 "Submittal Procedures."
    b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.

B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 013300 "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.

5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.
7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Section 017700 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

B. Product Selection Procedures:

1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
3. Products:

   a. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
   b. Non-restricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.

4. Manufacturers:

   a. Restricted List: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
   b. Non-restricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.

5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

C. Visual Matching Specification: Where Specifications require "match Architect's sample", provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 012500 "Substitution Procedures" for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:

1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 73 00
EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.
2. Field engineering and surveying.
3. Installation of the Work.
4. Cutting and patching.
5. Coordination of Owner-installed products.
6. Progress cleaning.
7. Starting and adjusting.
8. Protection of installed construction.
9. Correction of the Work.

B. Related Requirements:

1. Section 011000 "Summary" for limits on use of Project site.
2. Section 013300 "Submittal Procedures" for submitting surveys.
3. Section 017700 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.
4. Section 024119 "Selective Demolition" for demolition and removal of selected portions of the building.

1.3 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.

B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

1.4 INFORMATIONAL SUBMITTALS

A. Cutting and Patching Plan: Submit plan describing procedures at least **10** days prior to the time cutting and patching will be performed. Include the following information:

1. Extent: Describe reason for and extent of each occurrence of cutting and patching.

2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
3. Products: List products to be used for patching and firms or entities that will perform patching work.
4. Dates: Indicate when cutting and patching will be performed.
5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.

    a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.

B. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.5 QUALITY ASSURANCE

A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection
2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that result in increased maintenance or decreased operational life or safety. Operational elements include the following:

    a. Primary operational systems and equipment.
    b. Mechanical systems piping and ducts.
    c. Control systems.
    d. Communication systems.
    e. Fire-detection and alarm systems.
    f. Electrical wiring systems.

3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that result in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:

    a. Water, moisture, or vapor barriers.

4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

B. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.

1. For projects requiring compliance with use of products for patching that comply with requirements of other Sections, comply with specifications as shown in those Sections of the specification.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning demolition, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.

B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:

1. Description of the Work.
2. List of detrimental conditions, including substrates.
3. List of unacceptable installation tolerances.
4. Recommended corrections.

D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Section 013100 "Project Management and Coordination."

3.3 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

    1. Make vertical work plumb and make horizontal work level.
    2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
    3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
    4. Maintain minimum headroom clearance of 96 inches in occupied spaces and 90 inches in unoccupied spaces.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.

F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.4 CUTTING AND PATCHING

A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

  1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

C. Temporary Support: Provide temporary support of work to be cut.

D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 011000 "Summary."

F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.

G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

  1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
  4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.

5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
6. Proceed with patching after construction operations requiring cutting are complete.

H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.

    a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    b. Restore damaged pipe covering to its original condition.

I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.5 OWNER-INSTALLED PRODUCTS

A. Site Access: Provide access to Project site for Owner's construction personnel.

B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel.

1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
2. Pre-installation Conferences: Include Owner's construction personnel at pre-installation conferences covering portions of the Work that are to receive Owner's work. Attend pre-installation conferences conducted by Owner's construction personnel if portions of the Work depend on Owner's construction.

3.6 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F (27 deg C).
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

    a. Use containers intended for holding waste materials of type to be stored.

4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 015000 "Temporary Facilities and Controls."

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.7 STARTING AND ADJUSTING

A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

B. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.

C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. Manufacturer's Field Service: Comply with qualification requirements in Section 014000 "Quality Requirements."

3.8 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION

SECTION 01 77 00
CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Substantial Completion procedures.
2. Final completion procedures.
3. Warranties.
4. Final cleaning.
5. Repair of the Work.

B. Related Requirements:

1. Section 017300 "Execution" for progress cleaning of Project site.
2. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.
3. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

1.3 ACTION SUBMITTALS

A. Product Data: For cleaning agents.

B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.4 CLOSEOUT SUBMITTALS

A. Certificates of Release: From authorities having jurisdiction.

B. Certificate of Insurance: For continuing coverage.

C. Field Report: For pest control inspection.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.6 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of **10** days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number where applicable.

    a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Architect's signature for receipt of submittals.

5. Submit test/adjust/balance records.
6. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

C. Procedures Prior to Substantial Completion: Complete the following a minimum of **10** days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Advise Owner of pending insurance changeover requirements.
2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
3. Complete startup and testing of systems and equipment.
4. Perform preventive maintenance on equipment used prior to Substantial Completion.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 017900 "Demonstration and Training."
6. Advise Owner of changeover in heat and other utilities.
7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
9. Complete final cleaning requirements, including touchup painting.
10. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of **10** days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for final completion.

1.7 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:

1. Submit a final Application for Payment according to Section 012900 "Payment Procedures."
2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.8 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction. Use CSI Form 14.1A or other form acceptable to Architect.

1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
3. Include the following information at the top of each page:

    a. Project name.
    b. Date.
    c. Name of Architect.
    d. Name of Contractor.
    e. Page number.

4. Submit list of incomplete items in the following format:

    a. PDF electronic file. Architect will return annotated file.

1.9 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.

B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.

C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.

1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8 1/2-inch by 11-inch (215-mm by 280-mm) paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.

D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

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

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

PART 3 - EXECUTION

3.1 FINAL CLEANING

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

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

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

a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
d. Remove tools, construction equipment, machinery, and surplus material from Project site.
e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
f. Remove debris and surface dust from limited access spaces, including roofs, trenches and similar spaces.
g. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
h. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
i. Remove labels that are not permanent.
j. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
k. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
l. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
m. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.
    1) Clean HVAC system in compliance with NADCA Standard 1992-01. Provide written report on completion of cleaning.
n. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
o. Leave Project clean and ready for occupancy.

C. Pest Control: Comply with pest control requirements in Section 015000 "Temporary Facilities and Controls." Prepare written report.

D. Construction Waste Disposal: Comply with waste disposal requirements in Section 015000 "Temporary Facilities and Controls."

3.2 REPAIR OF THE WORK

A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.

B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.

   a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.

3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION

SECTION 01 78 23
OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:

1. Operation and maintenance documentation directory.
2. Operation manuals for systems, subsystems, and equipment.
3. Product maintenance manuals.
4. Systems and equipment maintenance manuals.

B. Related Requirements:

1. Section 013300 "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.

1.3 DEFINITIONS

A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.

B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 CLOSEOUT SUBMITTALS

A. Manual Content: Operations and maintenance manual content is specified in individual Specification Sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.

1. Architect or Commissioning Authority will comment on whether content of operations and maintenance submittals are acceptable.
2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.

B. Format: Submit operations and maintenance manuals in the following format:

1. PDF electronic file. Assemble each manual into a composite electronically indexed file. Submit on digital media acceptable to Architect.

    a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked operation and maintenance directory.
    b. Enable inserted reviewer comments on draft submittals.

2. Three paper copies. Include a complete operation and maintenance directory. Enclose title pages and directories in clear plastic sleeves. Architect will return two copies.

C. Initial Manual Submittal: Submit draft copy of each manual at least 30 days before commencing demonstration and training. Architect or Commissioning Authority will comment on whether general scope and content of manual are acceptable.

D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect or Commissioning Authority will return copy with comments.

    1. Correct or revise each manual to comply with Architect's or Commissioning Authority's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's or Commissioning Authority's comments and prior to commencing demonstration and training.

PART 2 - PRODUCTS

2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

A. Directory: Prepare a single, comprehensive directory of emergency, operation, and maintenance data and materials, listing items and their location to facilitate ready access to desired information. Include a section in the directory for each of the following:

    1. List of documents.
    2. List of systems.
    3. List of equipment.
    4. Table of contents.

B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.

C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.

D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.

E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

2.2 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:

    1. Title page.
    2. Table of contents.
    3. Manual contents.

B. Title Page: Include the following information:

    1. Subject matter included in manual.
    2. Name and address of Project.
    3. Name and address of Owner.

4. Date of submittal.
5. Name and contact information for Contractor.
6. Name and contact information for Construction Manager.
7. Name and contact information for Architect.
8. Name and contact information for Commissioning Authority.
9. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
10. Cross-reference to related systems in other operation and maintenance manuals.

C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

E. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.

1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
2. File Names and Bookmarks: Enable bookmarking of individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.

F. Manuals, Paper Copy: Submit manuals in the form of hard copy, bound and labeled volumes.

1. Binders: Heavy-duty, three-ring, D-Style, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8 1/2-inch by 11-inch (215-mm by 280-mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

   a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
   b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents, and indicate Specification Section number on bottom of spine. Indicate volume number for multiple-volume sets.

2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment.

4. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment.
5. Supplementary Text: Prepared on 8-1/2-by-11-inch (215-by-280-mm) white bond paper.
6. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

    a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
    b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.3 OPERATION MANUALS

A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:

    1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
    2. Performance and design criteria if Contractor has delegated design responsibility.
    3. Operating standards.
    4. Operating procedures.
    5. Operating logs.
    6. Wiring diagrams.
    7. Control diagrams.
    8. Piped system diagrams.
    9. Precautions against improper use.
    10. License requirements including inspection and renewal dates.

B. Descriptions: Include the following:

    1. Product name and model number. Use designations for products indicated on Contract Documents.
    2. Manufacturer's name.
    3. Equipment identification with serial number of each component.
    4. Equipment function.
    5. Operating characteristics.
    6. Limiting conditions.
    7. Performance curves.
    8. Engineering data and tests.
    9. Complete nomenclature and number of replacement parts.

C. Operating Procedures: Include the following, as applicable:

    1. Startup procedures.
    2. Equipment or system break-in procedures.
    3. Routine and normal operating instructions.
    4. Regulation and control procedures.
    5. Instructions on stopping.
    6. Normal shutdown instructions.
    7. Seasonal and weekend operating instructions.
    8. Required sequences for electric or electronic systems.

9. Special operating instructions and procedures.

D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.4 PRODUCT MAINTENANCE MANUALS

A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

C. Product Information: Include the following, as applicable:

1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.
4. Material and chemical composition.
5. Reordering information for specially manufactured products.

D. Maintenance Procedures: Include manufacturer's written recommendations and the following:

1. Inspection procedures.
2. Types of cleaning agents to be used and methods of cleaning.
3. List of cleaning agents and methods of cleaning detrimental to product.
4. Schedule for routine cleaning and maintenance.
5. Repair instructions.

E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

2.5 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:

1. Standard maintenance instructions and bulletins.
2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
3. Identification and nomenclature of parts and components.
4. List of items recommended to be stocked as spare parts.

D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:

1. Test and inspection instructions.
2. Troubleshooting guide.
3. Precautions against improper maintenance.
4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
5. Aligning, adjusting, and checking instructions.
6. Demonstration and training video recording, if available.

E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.

F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.

B. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.

C. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

D. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

E. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.

F. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.

1. Do not use original project record documents as part of operation and maintenance manuals.
2. Comply with requirements of newly prepared record Drawings in Section 017839 "Project Record Documents."

G. Comply with Section 017700 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION

SECTION 01 78 39
PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for project record documents, including the following:

1. Record Drawings.
2. Record Specifications.
3. Record Product Data.
4. Miscellaneous record submittals.

B. Related Requirements:

1. Division 01 Section "Execution" for final property survey.
2. Division 01 Section "Closeout Procedures" for general closeout procedures.
3. Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.

1.3 CLOSEOUT SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit copies of record Drawings as follows:

    a. Initial Submittal:

        1) Submit one paper-copy set(s) of marked-up record prints.
        2) Submit PDF electronic files of scanned record prints and one of file prints.
        3) Submit record digital data files and one set(s) of plots.
        4) Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.

    b. Final Submittal:

        1) Submit one paper-copy set(s) of marked-up record prints.
        2) Submit PDF electronic files of scanned record prints and three set(s) of prints.
        3) Print each drawing, whether or not changes and additional information were recorded.

B. Record Specifications: Comply with the following:

1. Number of Copies: Submit copies of Specifications as follows:

    a. Initial Submittal:

1) Submit one paper-copy set(s) of marked-up Specifications and Addenda.
2) Submit PDF electronic files of scanned Specifications and Addenda.
3) Architect will indicate whether general scope of changes, additional information recorded, and quality are acceptable.

b. Final Submittal:

1) Submit one paper-copy set(s) of marked-up Specifications and Addenda.
2) Submit PDF electronic files of scanned Specifications and Addenda and three set(s) of copies.
3) Print each Specification Section or Addenda, whether or not changes and additional information were recorded.

C. Record Product Data: Submit one paper copy of each submittal.

1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

D. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit one paper copy of each submittal.

E. Reports: Submit written report indicating items incorporated into project record documents concurrent with progress of the Work, including revisions, concealed conditions, field changes, product selections, and other notations incorporated.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.

1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.

a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
b. Accurately record information in an acceptable drawing technique.
c. Record data as soon as possible after obtaining it.
d. Record and check the markup before enclosing concealed installations.
e. Cross-reference record prints to corresponding archive photographic documentation.

2. Content: Types of items requiring marking include, but are not limited to, the following:

a. Dimensional changes to Drawings.
b. Revisions to details shown on Drawings.
c. Depths of foundations below first floor.
d. Locations and depths of underground utilities.
e. Revisions to routing of piping and conduits.
f. Revisions to electrical circuitry.
g. Actual equipment locations.

    - h. Duct size and routing.
    - i. Locations of concealed internal utilities.
    - j. Changes made by Change Order or Construction Change Directive.
    - k. Changes made following Architect's written orders.
    - l. Details not on the original Contract Drawings.
    - m. Field records for variable and concealed conditions.
    - n. Record information on the Work that is shown only schematically.
3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
5. Mark important additional information that was either shown schematically or omitted from original Drawings.
6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:

1. Format: Same digital data software program, version, and operating system as the original Contract Drawings.
2. Format: ".dwg format", version 2008, Microsoft Windows operating system.
3. Format: Annotated PDF electronic file with comment function enabled.
4. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
5. Refer instances of uncertainty to Architect for resolution.
6. Architect will furnish Contractor one set of digital data files of the Contract Drawings for use in recording information.

    - a. See Division 01 Section "Submittal Procedures" for requirements related to use of Architect's digital data files.
    - b. Architect will provide data file layer information. Record markups in separate layers.

C. Newly Prepared Record Drawings: Prepare new Drawings instead of preparing record Drawings where Architect determines that neither the original Contract Drawings nor Shop Drawings are suitable to show actual installation.

1. New Drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or other modification.
2. Consult Architect for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. Integrate newly prepared record Drawings into record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.

D. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Format: Annotated PDF electronic file with comment function enabled.
3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
4. Identification: As follows:

a. Project name.
b. Date.
c. Designation "PROJECT RECORD DRAWINGS."
d. Name of Architect.
e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
5. Note related Change Orders, record Product Data, and record Drawings where applicable.

B. Format: Submit record Specifications as paper copy scanned PDF electronic file(s) of marked-up paper copy of Specifications.

2.3 RECORD PRODUCT DATA

A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, record Specifications, and record Drawings where applicable.

B. Format: Submit record Product Data as paper copy scanned PDF electronic file(s) of marked-up paper copy of Product Data.

1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

2.4 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

B. Format: Submit miscellaneous record submittals as paper copy and scanned PDF electronic file(s) of marked-up miscellaneous record submittals.

1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.

B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

END OF SECTION

SECTION 02 41 19
SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of site, building or structure.

    a. Removal of the asphalt playground surfacing and excavation of subgrade as required for trenching of underground utilities.
    b. Removal of selected portions of the building to allow connections to the existing utility services.

B. Related Sections:

1. Division 01 Section “Temporary Facilities and Controls” for work related to documenting dump site tickets and other administrative regulations related to disposal of materials.
2. Division 01 Section “Closeout Procedures” for work related to documenting dump site tickets and other administrative regulations related to disposal of

1.3 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.

B. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner ready for reuse.

C. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.

D. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.4 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

1.5 PRE-INSTALLATION MEETINGS

A. Pre-demolition Conference: Conduct conference at Project site.

1. Inspect and discuss condition of construction to be selectively demolished.
2. Review structural load limitations of existing structure.
3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.

4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
5. Review areas where existing construction is to remain and requires protection.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For demolition contractor.

B. Proposed Protection Measures: Submit report, including drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.

C. Schedule of Selective Demolition Activities: Indicate the following:

   1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.

D. Pre-demolition Photographs: Submit photographs before Work begins.

1.7 CLOSEOUT SUBMITTALS

A. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.8 QUALITY ASSURANCE

A. Demolition Contractor Qualifications: Contractor who has shown definite experience in the demolition and removal of similar structures and building elements..

1.9 FIELD CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

A. Hazardous Materials: Hazardous materials are not thought to be present in the buildings and structures to be demolished.

   1. Hazardous materials (involving asbestos only) will be removed by Owner if they are encountered.
   2. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
   3. Owner will provide material safety data sheets for suspected hazardous materials that are known to be present in buildings and structures to be selectively demolished because of building operations or processes performed there.

      a. An Asbestos Report is available from the Owner upon request. If there are questions they may be directed to the District.

b. A limited "Lead-Based" Paint Inspection Report is not available. The Contractor shall take appropriate action (lead-safe work practices) to provide compliance with the authorities having jurisdiction including, but not limited to, the EPA and the State of Kansas.

B. Storage or sale of removed items or materials on-site is not permitted.

PART 2 - PRODUCTS

2.1 PEFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Comply with Environmental Protection Agency Standards for Lead Renovation, Repair, and Painting Program (RRP); 40 CFR Part 745 and Kansas Department of Health and Environment Regulations K.A.R. 28-72-1 to 28-72-54.

1. Conduct pre-renovation education and notification.
2. Supervise construction activities to ensure that lead safe work practices are performed and take proper precautions concerning presumed lead materials.
3. Prevent discharge, dispersal, release or escape of lead dust and debris.
4. Isolate work areas and ensure that renovation dust or debris does not spread beyond contract limits or the project work areas. If latent emissions occur, perform cleaning, re-cleaning, and subsequent cleaning verifications as necessary. The Contractor shall not leave lead dust hazards in Owner facilities. Lead dust hazard means surface dust that contains a dust-lead loading (area concentration of lead) at or exceeding the levels promulgated by State of Kansas and Federal regulations. The Contractor shall not impair the Owner's ability to occupy work areas under this contract beyond substantial completion dates by leaving lead dust hazards.
5. During construction the Contractor shall perform visual inspections and cleaning verifications and shall weigh and assess the risks presented by the actual or presumed presence of lead-based paint and/or lead-based paint hazards.
6. The Contractor shall comply with State of Kansas and Federal lead safe work practices to clean and re-clean each work area for safe post renovation occupancy by unprotected workers, children, and other building occupants.
7. Comply with the US Occupational Safety and Health Administration's Lead in Construction Rule, 29 CFR Park 1926 et al., 29 CFR Part 1910 et al.

   a. Communicate information concerning lead hazards according to the requirements of OSHA's Hazard Communication Standard for the construction industry, 29 CFR 1926.59.
   b. Employee notification: Prior to the commencement of work, make available to the effected parties information developed for the hazard communication standard for this purpose.
   c. The Contractor shall properly clean all areas where suspect or identified lead-based paint products are disturbed prior to project completion.

8. At the Pre-Construction Conference the Contractor shall submit documents which indicate:

   a. Contractor and subcontractors are lead certified firms.
   b. The Lead Paint Removal/Disposal Contractor shall have a current license for the duration of this work from the State of Kansas and be bonded and insured to deal with hazardous lead paint removal and disposal.

  - c. That each firm employees at least one lead certified renovator who is specifically trained to supervise and direct lead safe work practices, post signage, and perform cleaning verifications.
  - d. That individual workers are trained to use lead safe work practices.
  - e. Lead Paint Removal/Disposal Contractor shall Certify the waste paint material containing lead that was removed from this project was properly contained, sealed, labeled and documented, and was disposed of in a licensed and environmentally approved dump side for lead wastes, with final destination and dates of disposal with signatures for receipts of waste containers from the licensed representative of the waste disposal company.

9. Product Prohibition: Do not install lead-based paints or coatings. Do not install lead bearing materials. The Contractor shall not install lead or lead-bearing products as defined by the US Consumer Product Safety Commission’s Ban of Lead-Containing Paint and Certain Products Bearing Lead-Containing Paint 16 CFR 1303 et. Al.

C. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Review record documents of existing construction provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in record documents.

B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

C. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.

D. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.

1. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

E. Survey of Existing Conditions: Record existing conditions by use of measured drawings and preconstruction photographs.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

1. Comply with requirements for existing services/systems interruptions specified in Section 011000 "Summary."

3.3 PREPARATION

A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Comply with requirements for access and protection specified in Section 015000 "Temporary Facilities and Controls."

B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
3. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 015000 "Temporary Facilities and Controls."

C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of selective demolition.

3.4 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
5. Maintain adequate ventilation when using cutting torches.
6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
9. Dispose of demolished items and materials promptly.

B. Reuse of Building Elements: Do not demolish building elements beyond what is indicated on Drawings without Architect's approval.

C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition, cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Concrete: Demolish in small sections. Using power-driven saw, cut concrete to a depth of at least 3/4-inch (19-mm) at junctures with construction to remain. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete. Neatly trim openings to dimensions indicated.

B. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals using power-driven saw, then remove concrete between saw cuts.

C. Asphalt Pavement: Saw-cut perimeter of area to be demolished, then break up and remove.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Provide Landfill Receipts indicating proper disposal of all hazardous materials disposed of by the Contractor including but not limited to “lead-contaminated” items.

B. Burning: Do not burn demolished materials.

C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.7 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION

SECTION 025000 - ASPHALTIC CONCRETE

PART 1 - GENERAL

1.1 The Requirements

A. As set forth in the headings of General Conditions, Supplementary General Conditions and Division 1, General Requirements shall apply to this branch of the work.

1.2 Scope

A. Furnish all materials, equipment, labor and appliances necessary to do all asphalt concrete paving and patching of existing asphaltic concrete as hereinafter specified, or as designated on the plans.

1.3 Asphalt concrete paving

A. Shall be full depth pavement laid over prepared sub-grade as plant-mixed asphalt base course, followed with a plant-mixed asphalt surface laid in a single course. Thickness shall match existing and as a minimum thickness shall be as follows:

1. Playground Areas
    a. Base course 4”
    b. Surface course 2”

1.4 All work outside of the property lines

A. Shall be performed in strict accordance with all applicable requirements of the Unified Government and other authority having jurisdiction.

1.5 Sub-Grade

A. Shall meet compaction and stabilization requirements as specified below. The surface of the sub-grade after compaction shall be hard, uniform, smooth and true to grade and cross-section.

B. Excavation for Parking/Playground areas – Cut surface under pavements to comply with cross-sections, elevations and grades indicated on the drawings.
In pavement areas, after removal of the existing asphalt paving , the exposed surfaces should be excavated down 12” below pavement, proof rolled, soft areas removed, reconditioned and re-compacted. Areas should then be scarified treated with Class “C” fly ash or cement dust, moisture content adjusted to within 0 to +4 above optimum, and re-compacted prior to placement of pavement subbase. Fill of acceptable material shall be installed in 8" max loose lifts.

1.6 Verifying Surfaces

A. This paving sub-contractor shall inspect sub-grade on which he is to place paving and report in writing to the General Contractor any needed corrections. Proof roll prepared sub-base surface using heavy, rubber-tired rollers to check for unstable areas requiring additional compaction. Inspect grading elevations, profiles, sidewalk locations and drainage ways for proper depths and locations prior to paving over. In starting work, this Contractor accepts said sub-grade and is responsible for any defects that may appear in the finished pavement.

1.7 Surface Quality

A. Completed pavement shall be dense, smooth, with no surface depressions which will retain more than 1/4" of water. Surface shall be free of "honey-comb" and irregularities at construction joints.

1.8 Certification and Inspection

A. The General Contractor shall employ the independent testing laboratory to perform necessary tests to verify the asphalt cement, aggregate, and mixes conform to requirements of this specification.

PART 2 - PRODUCTS

2.1 Asphalt Material

A. 85-100 penetration grade asphalt cement in accordance with ASTM D946, latest edition.

2.2 Prime Coat

A. Cut back asphalt.

2.3 Tack Coat

A. Emulsified asphalt.

2.4 Mineral Filler

A. ASTM D242 or AASHTO M17.

2.5 Base Course Aggregate

A. Sound, angular crushed stone, crushed gravel, or crushed slag, sand, stone or slag screenings free from dirt and foreign material. Maximum stone size of 5/8”.

2.6 Surface Course Aggregate

A. Crushed stone, crushed gravel, crushed slag, and sharp-edged natural sand, as required, free from dirt and foreign material. Maximum stone size 3/8".

2.7 Mixes

A. Base Course - ASTM D-3515 Mix Designation Type I.

B. Surface Course - ASTM D-3515 Mix Designation Type III.

C. At the Contractor's option - Local procedures and grading similar or conforming to the State Highway Specifications may be followed.

D. Submittals - Submit one copy of proposed mix design and compliance statement to the standard above selected.

PART 3 - EXECUTION

3.1 Soil

A. Shall be uniformly firm and approximately at optimum moisture content.

B. No paving shall be placed or spread on muddy or frozen sub-grade, or when excess of moisture would prevent uniform distribution and required penetration.

3.2 Establish Line and Grade

A. Chalk lines on concrete curbs, elevations of adjacent streets, concrete gutters, and redwood edging shall be used to establish line and grade.

B. Establish and maintain required lines and grades, including crown and cross-slope, for each course during construction operations.

3.3 Weather Limitations

A. Apply prime and tack coats only when ambient temperature in shade is above 50°F. and when temperature has not been below 35°F. for 12 hours immediately prior to application.

B. Apply asphalt concrete paving when temperature is above 40°F., when underlying base is dry, and when weather is not rainy. No exceptions.

3.4 Loose Materials

A. Remove loose materials from compacted sub-base surface immediately before applying base course.

B. Use power brooms and blowers supplemented by hand brooms or other acceptable means.

3.5 Masking

A. Employ masking of building paper or suitable protection to prevent any soiling or discoloration of curbs, sidewalks or building surfaces by bituminous materials.

3.6 Paving

A. Place asphalt mixture on prepared surface, spread and strike-off using acceptable bituminous paver.

B. Spread mixture at minimum temperature of 225°F.

C. Inaccessible and small areas may be placed by hand.

D. Place each course in required amounts so that when compacted, they will conform to grade, cross-section, and thickness.

3.7 Tack Coat

A. Apply to contact surfaces of previously constructed base course at the rate of 0.05 to 0.15 gallons per square yard of surface.

B. Brush apply to contact surfaces of curbs, gutters, manholes and other structures projecting into or abutting asphalt pavement.

C. Allow to dry until proper condition of tackiness to receive asphalt concrete mixture.

3.8 Compaction

A. Begin rolling when asphalt will bear roller weight without excessive displacement.

B. Rollers shall be smooth-wheeled rollers weighing not less than 10 tons and shall proceed in a longitudinal direction, beginning at the outer edges of each strip or area and working toward the center, each strip overlapping the prior strip by about one-half of the width of the rear roll.

C. Laps shall be finally rolled out as neatly as possible.

D. Areas not accessible to roller shall be thoroughly compacted with hot hand tampers.

E. Repair surface defects with hot asphalt mixture as rolling progresses.

F. Defective areas shall be cut out, replaced with fresh mix, and recompacted to blend in.

G. "Skin patching" will not be permitted.

3.9 Construction joints

A. Provide joints between old and new pavements and between successive day's work for continuous bond between adjoining work.

B. Clean contact surfaces and apply tack coat.

3.10 Curbs

A. No curbs

3.11 Paving Protection

A. Protect paving from damage and vehicular traffic until asphalt has cooled and attained its maximum degree of hardness.

END OF SECTION

SECTION 03 30 00
CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:

1. Footings/Foundations.
2. Exterior Slabs-on-grade (Sidewalks).

B. Related Sections:

1. Division 32 Section “Asphalt Paving” for coordination with asphalt playground paving.
2. Division 32 Section “Pavement Joint Sealants” for sealant at concrete pavements.

1.3 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

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

C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

D. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.

1. Location of construction joints is subject to approval of the Architect.

E. Samples: For waterstops and vapor retarder.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer, manufacturer and testing agency.

B. Welding certificates.

C. Material Certificates: For each of the following, signed by manufacturers:

1. Cementitious materials.
2. Admixtures.
3. Form materials and form-release agents.
4. Steel reinforcement and accessories.
5. Curing compounds.
6. Bonding agents.
7. Adhesives.
8. Vapor retarders.
9. Joint-filler strips.
10. Repair materials.

D. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:

1. Aggregates. Include service record data indicating absence of deleterious expansion of concrete due to alkali aggregate reactivity.

E. Field quality-control reports.

F. Minutes of pre-installation conference.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.

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

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

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

1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I. Testing Agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician - Grade II.

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

E. Welding Qualifications: Qualify procedures and personnel according to AWS D1.4/D 1.4M, "Structural Welding Code - Reinforcing Steel."

F. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301, "Specifications for Structural Concrete," Sections 1 through 5.
2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

G. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.

H. Pre-installation Conference: Conduct conference at Project site.

1. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:

    a. Contractor's superintendent.
    b. Independent testing agency responsible for concrete design mixtures.
    c. Ready-mix concrete manufacturer.
    d. Concrete subcontractor.
    e. Special concrete finish subcontractor.

2. Review special inspection and testing and inspecting agency procedures for field quality control, concrete finishes and finishing, cold- and hot-weather concreting procedures, curing procedures, construction contraction and isolation joints, joint-filler strips, forms and form removal limitations, shoring and re-shoring procedures, vapor-retarder installation, anchor rod and anchorage device installation tolerances, steel reinforcement installation, floor and slab flatness and levelness measurement, concrete repair procedures, and concrete protection.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage. Avoid damaging coatings on steel reinforcement.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

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

1. Plywood, metal, or other approved panel materials.

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

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

B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

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

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

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

1. Furnish units that will leave no corrodible metal closer than 1-inch (25-mm) to the plane of exposed concrete surface.
2. Furnish ties that, when removed, will leave holes no larger than 1-inch (25-mm) in diameter in concrete surface.
3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

2.2 STEEL REINFORCEMENT

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

B. Low-Alloy-Steel Reinforcing Bars: ASTM A 706/A 706M, deformed.

C. Steel Bar Mats: ASTM A 184/A 184M, fabricated from ASTM A 615/A 615M, Grade 60 (Grade 420), deformed bars, assembled with clips.

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

E. Deformed-Steel Wire: ASTM A 496/A 496M.

F. Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, plain, fabricated from as-drawn steel wire into flat sheets.

G. Deformed-Steel Welded Wire Reinforcement: ASTM A 497/A 497M, flat sheet.

2.3 REINFORCEMENT ACCESSORIES

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

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

2.4 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:

1. Portland Cement: ASTM C 150, Type I, gray. Supplement with the following:

   a. Fly Ash: ASTM C 618, Class C.

B. Normal-Weight Aggregates: ASTM C 33, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source with documented service record data of at least 10 years' satisfactory service in similar applications and service conditions using similar aggregates and cementitious materials.

1. Maximum Coarse-Aggregate Size: 3/4-inch (19-mm) nominal typically.
2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Water: ASTM C 94/C 94M and potable.

2.5 ADMIXTURES

A. Air-Entraining Admixture: ASTM C 260.

B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
2. Retarding Admixture: ASTM C 494/C 494M, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.
7. Moisture Migration Inhibitor: Concure Systems Admixture, (480) 820-7171 Jay Lamanske, Cell (816) 260-3632. For limited slab on grade areas as designated on finish schedule.
    a.

2.6 BASE MATERIALS

A. Fine-Graded Granular Material: Clean mixture of crushed stone, crushed gravel, and manufactured or natural sand; ASTM D 448, Size 10, with 100 percent passing a 3/8-inch (9.5-mm) sieve, 10 to 30 percent passing a No. 100 (0.15-mm) sieve, and at least 5 percent passing No. 200 (0.075-mm) sieve; complying with deleterious substance limits of ASTM C 33 for fine aggregates.

2.7 CURING MATERIALS

A. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, non-dissipating, certified by curing compound manufacturer to not interfere with bonding of floor covering.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    a. BASF Construction Chemicals - Building Systems; Kure-N-Seal WB.
    b. ChemMasters; Safe-Cure & Seal 20.
    c. Conspec by Dayton Superior; Cure and Seal WB.
    d. Dayton Superior Corporation; Safe Cure and Seal (J-18).
    e. Euclid Chemical Company (The), an RPM company; Aqua Cure VOX; Clearseal WB 150.
    f. Kaufman Products, Inc.; Cure & Seal 309 Emulsion.
    g. L&M Construction Chemicals, Inc.; Dress & Seal WB.
    h. Meadows, W. R., Inc.; Vocomp-20.

2.8 VAPOR RETARDERS

A. Sheet Vapor Retarder: ASTM E 1745, Class A. Include manufacturer's recommended adhesive or pressure-sensitive tape.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

   a. Stego Industries, LLC; Stego Wrap 15 mil Class A.
   b. Carlisle Coatings & Waterproofing, Inc.; Blackline 400.
   c. Insulation Solutions, Inc.; Viper VaporCheck 16
   d. Meadows, W. R., Inc.; Perminator 15 mil.
   e. Raven Industries Inc.; Vapor Block 15

B. Granular Fill: Clean mixture of crushed stone or crushed or uncrushed gravel; ASTM D 448, Size 57, with 100 percent passing a 1-1/2-inch (37.5-mm) sieve and 0 to 5 percent passing a No. 8 (2.36-mm) sieve.

2.9 RELATED MATERIALS

A. Expansion and Isolation Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork.

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

C. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:

1. Types I and II, non-load bearing and Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

2.10 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:

1. Fly Ash: 15 percent.
2. Combined Fly Ash and Pozzolan: 15 percent.

C. Limit water-soluble, chloride-ion content in hardened concrete to 0.25 for exterior concrete and 1.00 percent by weight of cement for all interior concrete.

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

1. Use water-reducing, high-range water-reducing or plasticizing admixture in concrete, as required, for placement and workability.
2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.
4. Use corrosion-inhibiting admixture in concrete mixtures where indicated.
5. Use moisture migration inhibitors in floor slab on grade areas as scheduled on the finish schedule.

2.11 CONCRETE MIXTURES FOR BUILDING ELEMENTS

A. Footings/Foundations: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 3000 psi (27.5 MPa) at 28 days.
2. Minimum Cementitious Materials Content: 475 lb/cu. yd.
3. Maximum Water-Cementitious Materials Ratio: 0.54.
4. Slump Limit: 5 inches (100 mm), max.

B. Exterior Slabs-on-Grade: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 4500 psi (31.0 MPa) at 31 days.
2. Minimum Cementitious Materials Content: 560 lb/cu. yd.
3. Maximum Water-Cementitious Materials Ratio: 0.42.
4. Slump Limit: 4 inches (100 mm), plus or minus max.
5. Air Content: 6 percent, plus or minus 1.0 percent at point of delivery for 3/4-inch (19-mm) nominal maximum aggregate size.

2.12 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.13 CONCRETE MIXING

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

1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.
2. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixture time, quantity, and amount of water added. Record approximate location of final deposit in structure.

PART 3 - EXECUTION

3.1 FORMWORK

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

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

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

1. Class A, 1/8-inch (3.2-mm) for smooth-formed finished surfaces.
2. Class B, 1/4-inch (6-mm) for rough-formed finished surfaces.

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

E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.

1. Install keyways, reglets, recesses, and the like, for easy removal.
2. Do not use rust-stained steel form-facing material.

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

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

H. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

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

J. Re-tighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

K. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 EMBEDDED ITEMS

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

1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."

3.3 REMOVING AND REUSING FORMS

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

1. Leave formwork for beam soffits, joists, slabs, and other structural elements that supports weight of concrete in place until concrete has achieved at least 70 percent of its 28-day design compressive strength.
2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.

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

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

3.4 BASE MATERIALS

A. Granular Course: Cover subgrade with granular course first and then a fine graded granular material prior to placement of concrete materials. Moisten, and compact granular courses with mechanical equipment to elevation tolerances of plus 0-inch (0-mm) or minus 3/4-inch (19-mm).

3.5 STEEL REINFORCEMENT

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

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

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.

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

1. Weld reinforcing bars according to AWS D1.4/D 1.4M, where indicated.

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

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

3.6 JOINTS

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

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

1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
2. Form keyed joints as indicated. Embed keys at least 1 1/2-inches (38-mm) into concrete.

3. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
4. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
5. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
6. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
7. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8-inch (3.2-mm). Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- (3.2-mm-) wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

D. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

3.7 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

B. **DO NOT ADD WATER** to concrete during delivery, at Project site, or during placement unless approved by Architect.

C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.

1. **DO NOT ADD WATER** to concrete after adding high-range water-reducing admixtures to mixture.

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

1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches (150 mm) into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

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

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

1. When average high and low temperature is expected to fall below 40 deg F (4.4 deg C) for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

G. Hot-Weather Placement: Comply with ACI 301 and as follows:

1. Maintain concrete temperature below 90 deg F (32 deg C) at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.8 FINISHING SLABS-ON-GRADE

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

B. Broom Finish: Apply a broom finish to exterior concrete platforms, and elsewhere as indicated.

1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

3.9 MISCELLANEOUS CONCRETE ITEMS

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

3.10 CONCRETE PROTECTING AND CURING

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

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

C. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

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

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

2. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.11 JOINT FILLING

A. Prepare, clean, and install joint filler according to manufacturer's written instructions.

1. Defer joint filling until concrete has aged at least one month. Do not fill joints until construction traffic has permanently ceased.

B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.

C. Install semi-rigid joint filler full depth in saw-cut joints and at least 2 inches (50 mm) deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.12 CONCRETE SURFACE REPAIRS

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

B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 (1.18-mm) sieve, using only enough water for handling and placing.

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

1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch (13 mm) in any dimension to solid concrete. Limit cut depth to 3/4 inch (19 mm). Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test

area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.

3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.

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

  1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch (0.25 mm) wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
  2. After concrete has cured at least 14 days, correct high areas by grinding.
  3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
  4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
  5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch (6 mm) to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
  6. Repair defective areas, except random cracks and single holes 1 inch (25 mm) or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch (19-mm) clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
  7. Repair random cracks and single holes 1 inch (25 mm) or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

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

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

3.13 FIELD QUALITY CONTROL

A. Testing and Inspecting: Owner will engage a special inspector and qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.

B. Inspections:

  1. Steel reinforcement placement.
  2. Steel reinforcement welding.
  3. Verification of use of required design mixture.
  4. Concrete placement, including conveying and depositing.

5. Curing procedures and maintenance of curing temperature.

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

1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd. (4 cu. m), but less than 25 cu. yd. (19 cu. m), plus one set for each additional 50 cu. yd. (38 cu. m) or fraction thereof.
2. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. (76 cu. m) or fraction thereof of each concrete mixture placed each day.

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

3. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
4. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
5. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F (4.4 deg C) and below and when 80 deg F (27 deg C) and above, and one test for each composite sample.
6. Compression Test Specimens: ASTM C 31/C 31M.

    a. Cast and field cure two sets of two standard cylinder specimens for each composite sample.

7. Compressive-Strength Tests: ASTM C 39/C 39M; test one laboratory-cured specimen at 7 days and one set of two specimens at 28 days. Hold and laboratory cured one specimen for testing upon direction by the architect.

    a. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.

8. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
9. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi (3.4 MPa).
10. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7 and 28 day tests.
11. Non-destructive Testing: Impact hammer, sonoscope, or other non-destructive devices may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
12. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to

determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.

13. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
14. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

END OF SECTION

SECTION 04 20 00
UNIT MASONRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Concrete masonry units.
2. Mortar and grout.
3. Steel reinforcing bars.
4. Masonry joint reinforcement.
5. Ties and anchors.
6. Miscellaneous masonry accessories.

B. Related Sections:

1. Section 033000 "Cast-in-Place Concrete" for installing dovetail slots for masonry anchors.

1.3 DEFINITIONS

A. CMU(s): Concrete masonry unit(s).

B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.4 PERFORMANCE REQUIREMENTS

A. Provide structural unit masonry that develops indicated net-area compressive strengths at 28 days.

1. Determine net-area compressive strength of masonry from average net-area compressive strengths of masonry units and mortar types (unit-strength method) according to Tables 1 and 2 in ACI 530.1/ASCE 6/TMS 602.
2. Determine net-area compressive strength of masonry by testing masonry prisms according to ASTM C 1314.

1.5 PRE-CONSTRUCTION TESTING

A. Pre-construction Testing Service: Owner will engage a qualified independent testing agency to perform pre-construction testing indicated below. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.

1. Concrete Masonry Unit Test: For each type of unit required, according to ASTM C 140 for compressive strength.
2. Mortar Test (Property Specification): For each mix required, according to ASTM C 109/C 109M for compressive strength.
3. Mortar Test (Property Specification): For each mix required, according to ASTM C 780 for compressive strength.
4. Grout Test (Compressive Strength): For each mix required, according to ASTM C 1019.

5. Prism Test: For each type of construction required, according to ASTM C 1314.

1.6 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: For the following:

1. Masonry Units: Show sizes, profiles, coursing, and locations of special shapes.
2. Reinforcing Steel: Detail bending and placement of unit masonry reinforcing bars. Comply with ACI 315, "Details and Detailing of Concrete Reinforcement." Show elevations of reinforced walls.

C. Samples for Verification: For each type and color of the following:

1. Accessories embedded in masonry.

1.7 INFORMATIONAL SUBMITTALS

A. List of Materials Used in Constructing Mockups: List generic product names together with manufacturers, manufacturers' product names, model numbers, lot numbers, batch numbers, source of supply, and other information as required to identify materials used. Include mix proportions for mortar and grout and source of aggregates.

1. Submittal is for information only. Neither receipt of list nor approval of mockup constitutes approval of deviations from the Contract Documents unless such deviations are specifically brought to the attention of Architect and approved in writing.

B. Qualification Data: For testing agency.

C. Material Certificates: For each type and size of the following:

1. Masonry units.

    a. Include data on material properties material test reports substantiating compliance with requirements.
    b. For masonry units used in structural masonry, include data and calculations establishing average net-area compressive strength of units.
    c. Masonry in acoustical significant areas shall have a normal weight density of 125 pcf minimum.

2. Cementitious materials. Include brand, type, and name of manufacturer.
3. Pre-blended, dry mortar mixes. Include description of type and proportions of ingredients.
4. Grout mixes. Include description of type and proportions of ingredients.
5. Reinforcing bars.
6. Joint reinforcement.
7. Anchors, ties, and metal accessories.

D. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.

1. Include test reports for mortar mixes required to comply with property specification. Test according to ASTM C 109/C 109M for compressive strength, ASTM C 1506 for water retention, and ASTM C 91 for air content.

2. Include test reports, according to ASTM C 1019, for grout mixes required to comply with compressive strength requirement.
3. Grout density shall be 125 pcf min.

E. Statement of Compressive Strength of Masonry: For each combination of masonry unit type and mortar type, provide statement of average net-area compressive strength of masonry units, mortar type, and resulting net-area compressive strength of masonry determined according to Tables 1 and 2 in ACI 530.1/ASCE 6/TMS 602.

F. Cold-Weather and Hot-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with requirements.

1.8 QUALITY ASSURANCE

A. Testing Agency Qualifications: Qualified according to ASTM C 1093 for testing indicated.

B. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.

C. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.

D. Masonry Standard: Comply with ACI 530.1/ASCE 6/TMS 602 unless modified by requirements in the Contract Documents.

E. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination."

1.9 DELIVERY, STORAGE, AND HANDLING

A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.

B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

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

D. Deliver pre-blended, dry mortar mix in moisture-resistant containers designed for use with dispensing silos. Store pre-blended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in covered weatherproof dispensing silos.

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

1.10 PROJECT CONDITIONS

A. Protection of Masonry: During construction, 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.

1. Extend cover a minimum of 24 inches (600 mm) down both sides of walls and hold cover securely in place.

B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least three days after building masonry walls or columns.

C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.

1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
2. Protect sills, ledges, and projections from mortar droppings.
3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.

D. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F (4 deg C) and higher and will remain so until masonry has dried, but not less than seven days after completing cleaning.

E. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

PART 2 - PRODUCTS

2.1 MASONRY UNITS, GENERAL

A. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not use units where such defects will be exposed in the completed Work.

B. Fire-Resistance Ratings: Where indicated, provide units that comply with requirements for fire-resistance ratings indicated as determined by testing according to ASTM E 119, by equivalent masonry thickness, or by other means, as acceptable to authorities having jurisdiction.

2.2 CONCRETE MASONRY UNITS

A. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.

1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
2. Provide square-edged double end type with flush ends for acoustically significant construction and bullnose units for outside corners and at exposed ends at doorways, unless otherwise indicated.

B. CMUs: ASTM C 90.

1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 3050 psi.
2. Density Classification: Lightweight or Medium weight for non-acoustically significant wall areas and Normal weight shall be used for all acoustically significant construction or below grade walls, with a minimum weight density of 125 pcf minimum unless otherwise indicated.
3. Size (Width): Manufactured to dimensions 3/8-inch less than nominal dimensions:

    a. 100-mm nominal (4-inch); 92-mm actual.
    b. 150-mm nominal (6-inch); 143-mm actual.
    c. 200-mm nominal (8-inch); 194-mm actual.
    d. 250-mm nominal (10-inch); 244-mm actual.
    e. 300-mm nominal (12-inch); 295-mm actual.

4. Size (Length): Manufactured to dimensions 3/8-inch less that nominal dimension:

    a. 400-mm nominal (16-inch); 396-mm actual.

5. Exposed Faces: Provide color and texture matching the range represented by Architect's sample.
6. Integral Water Repellent: Liquid polymeric, integral water-repellent admixture that does not reduce flexural bond strength and is compatible with mortar containing integral water-repellent manufacturer’s mortar additive. Available products:

    a. Addiment Incorporated: Block Plus W-10.
    b. Grace Construction Products, a unit of W.R. Grace & Co.: Dry Block.
    c. Master Builder Inc.: Rheopel.
    d. Price Research, Ltd.: Blockade.

2.3 MORTAR AND GROUT MATERIALS

A. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.

B. Hydrated Lime: ASTM C 207, Type S.

C. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.

D. Aggregate for Mortar: ASTM C 144.

1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.
2. For joints less than 1/4 inch (6 mm) thick, use aggregate graded with 100 percent passing the No. 16 (1.18-mm) sieve.

E. Water-Repellent Admixture: Liquid water-repellent mortar admixture intended for use with concrete masonry units, containing integral water repellent by same manufacturer.

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

    a. ACM Chemistries, Inc.; RainBloc for Mortar.
    b. BASF Aktiengesellschaft; Rheopel Mortar Admixture.
    c. Grace Construction Products, W. R. Grace & Co. - Conn.; Dry-Block Mortar Admixture.

F. Aggregate for Grout: ASTM C 404.

G. Cold-Weather Admixture: Non-chloride, noncorrosive, accelerating admixture complying with ASTM C 494/C 494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

   a. Euclid Chemical Company (The); Accelguard 80.
   b. Grace Construction Products, W. R. Grace & Co. - Conn.; Morset.
   c. Sonneborn Products, BASF Aktiengesellschaft; Trimix-NCA.

H. Water: Potable, clean and free from deleterious amounts of acids, alkalis or organic material.

2.4 REINFORCEMENT

A. Uncoated Steel Reinforcing Bars: ASTM A 615/A 615M or ASTM A 996/A 996M, Grade 60 (Grade 420).

1. Deformed Bars: Provide deformed bars unless otherwise indicated.

B. Wire Materials: Provide materials and galvanizing that comply with the following unless otherwise indicated.

1. Cold Drawn Steel Wire (Plain or Galvanized): ASTM A 82/A 82M.

   a. Mill-Galvanized: Comply with ASTM A 641/A 641M, Class 1 coating (0.1 oz/ft^2) for interior and non-wet locations only.
   b. Hot-Dipped Galvanized: Comply with ASTM A 153/A 153M, Class B2 coating (1.50 oz/ft^2) for exterior walls and wet locations.

C. Masonry Joint Reinforcement, General: ASTM A 951/A 951M.

1. Side Rods: 0.148-inch (3.77-mm) diameter (9 gauge) unless otherwise indicated.
2. Cross Rods: 0.148-inch (3.77-mm) diameter (9 gauge) unless otherwise indicated.
3. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches (407 mm) o.c.
4. Provide in lengths of not less than 10 feet (3 m), with prefabricated corner and tee units.

D. Masonry Joint Reinforcement for Single-Wythe Masonry: Either ladder or truss type made with single pair of side rods and cross rods, width as required for wall thickness.

1. Interior Walls: Mill-Galvanized, carbon steel.
2. Exterior Walls: Hot-Dipped Galvanized, carbon steel.

E. Masonry Joint Reinforcement for Multi-Wythe Masonry: Ladder type with side rods, cross rods and tabs (eyelets) to allow construction of interior wythe in advance of exterior wythe or where horizontal joints do not align. Provide one side rod at each shell face of hollow masonry unit more that 4-inches in width, plus one side rod at each additional wythe of masonry 4-inches or less in width.

1. Products: Provide Hohmann & Barnard #270 with ladder style adjustable joint reinforcement with eyes and pintles, made from 0.148-inch (3.77-mm) diameter (9 gauge) side and cross rods, galvanized after fabrication or approved equals.

a. Eyes and pintles are 3/16-inch in diameter.

2.5 TIES AND ANCHORS

A. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated.

1. Cold Drawn Steel Wire (Plain or Galvanized): ASTM A 82/A 82M.

a. Mill-Galvanized: Comply with ASTM A 641/A 641M, Class 1 coating (0.1 oz/ft²) for interior and non-wet locations only.
b. Hot-Dipped Galvanized: Comply with ASTM A 153/A 153M, Class B2 coating (1.50 oz/ft²) for exterior walls and wet locations.

2. Cold Rolled Carbon-Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS).

a. Mill-Galvanized: Comply with ASTM A 653/A 653M, Class G60 coating (0.6 oz/ft²) for interior and non-wet locations only.
b. Hot-Dipped Galvanized: Comply with ASTM A 153/A 153M, Class B coating (1.50 oz minimum for exterior walls and wet locations.

3. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

B. Corrugated Metal Ties: Metal strips not less than 1-inch (25-mm) wide by length required with corrugations having a wavelength of 7.6-mm to 12.7-mm and an amplitude of 0.06-inch to 0.10-inch (1.5-mm to 2.5-mm) made from 0.060-inch (1.52-mm) thick (16 gauge) steel sheet unless otherwise indicated, galvanized after fabrication.

C. Rigid Anchors: Fabricate from steel bars 1 1/2-inches (38 mm) wide by 1/4-inch (6.35 mm) thick by 24-inches (610 mm) long, with ends turned up 2-inches (51 mm) or with cross pins unless otherwise indicated.

1. Corrosion Protection: Rust-inhibitive paint.
2. Fabricate sheet metal anchor sections and other sheet metal parts from 0.075-inch (1.90-mm) thick steel sheet, galvanized after fabrication.
3. Wire Ties: Triangular-, rectangular-, or T-shaped wire ties fabricated from 0.187-inch (4.76-mm) diameter, hot-dip galvanized-steel wire unless otherwise indicated.

2.6 MISCELLANEOUS ANCHORS

A. Anchor Bolts: Headed or L-shaped steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers; hot-dip galvanized to comply with ASTM A 153/A 153M, Class C; of dimensions indicated.

B. Post-installed Anchors: Torque-controlled expansion anchors or chemical anchors.

1. Load Capacity: Capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.
2. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B 633 or ASTM F 1941 (ASTM F 1941M), Class Fe/Zn 5 unless otherwise indicated.

3. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 (A1) stainless-steel bolts, ASTM F 593 (ASTM F 738M), and nuts, ASTM F 594 (ASTM F 836M).

2.7 MISCELLANEOUS MASONRY ACCESSORIES

A. Compressible Filler: Pre-molded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene or urethane.

1. Products: Subject to compliance with requirements, provide Hohmann & Barnard NS or NSTA closed cell neoprene compressible sponge or approved equal materials.

B. Preformed Control-Joint Gaskets: Made from styrene-butadiene-rubber compound, complying with ASTM D 2000, Designation M2AA-805 and designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.

1. Products: Subject to compliance with requirements, provide Hohmann & Barnard RS or approved equal materials. Provide size and configuration as required for block width and joint condition.

C. Bond-Breaker Strips: Asphalt-saturated, organic roofing felt complying with ASTM D 226, Type I (No. 15 asphalt felt).

D. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells and hold reinforcing bars in center of cells. Units are formed from 0.148-inch (3.77-mm) steel wire (9 gauge), hot-dip galvanized after fabrication. Provide units designed for number of bars indicated.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

   a. Dayton Superior Corporation, Dur-O-Wal Division; D/A 810, D/A 812 or D/A 817.

   b. Heckmann Building Products Inc.; No. 376 Rebar Positioner.
   c. Hohmann & Barnard, Inc.; #RB or #RB-Twin Rebar Positioner.
   d. Wire-Bond; O-Ring or Double O-Ring Rebar Positioner.

2.8 MASONRY CLEANERS

A. Proprietary Detergent, non-muratic acid Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.

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

   a. Diedrich Technologies, Inc.
   b. EaCo Chem, Inc.
   c. ProSoCo, Inc.

2.9 MORTAR AND GROUT MIXES

A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.

1. Do not use calcium chloride in mortar or grout.
2. Use portland cement-lime mortar unless otherwise indicated.
3. For exterior masonry, use portland cement-lime mortar.
4. For reinforced masonry, use portland cement-lime mortar.
5. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.
6. For exterior masonry, use integral water repellant admixture.

B. Pre-blended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a pre-blended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.

C. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification. Provide the following types of mortar for applications stated unless another type is indicated or needed to provide required compressive strength of masonry.

1. For masonry below grade or in contact with earth, use Type S (1,800 psi).
2. For reinforced masonry, use Type N (750 psi).
3. For exterior, above-grade, load-bearing and non-load-bearing walls and for other applications where another type is not indicated, use Type N (750 psi).

D. Grout for Unit Masonry: Comply with ASTM C 476.

1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with Table 1.15.1 in ACI 530.1/ASCE 6/TMS 602 for dimensions of grout spaces and pour height.
2. Proportion grout in accordance with ASTM C 476, Table 1 or paragraph 4.2.2 for specified 28-day compressive strength indicated, but not less than 2000 psi (14 MPa).
3. Provide grout with a slump of 8-inches to 11-inches (203 to 279 mm) as measured according to ASTM C 143/C 143M.
4. See Structural Drawings for minimum required compressive grout strengths.

PART 3 - EXECUTION

3.1 EXAMINATION

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

1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of work.
2. Verify that foundations are within tolerances specified.
3. Verify that reinforcing dowels are properly placed.

B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.

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

3.2 INSTALLATION, GENERAL

A. Thickness: Build cavity and composite walls and other masonry construction to full thickness shown. Build single-wythe walls to actual widths of masonry units, using units of widths indicated.

B. Build chases and recesses to accommodate items specified in this and other Sections.

C. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to opening.

D. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

E. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures.

1. Mix units from several pallets or cubes as they are placed.

3.3 TOLERANCES

A. Dimensions and Locations of Elements:

1. For dimensions in cross section or elevation do not vary by more than plus 1/2-inch (12 mm) or minus 1/4-inch (6 mm).
2. For location of elements in plan do not vary from that indicated by more than plus or minus 1/2-inch (12 mm).
3. For location of elements in elevation do not vary from that indicated by more than plus or minus 1/4-inch (6 mm) in a story height or 1/2-inch (12 mm) total.

B. Lines and Levels:

1. For bed joints and top surfaces of bearing walls do not vary from level by more than 1/4- inch in 10 feet (6 mm in 3 m), or 1/2-inch (12 mm) maximum.
2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8-inch in 10 feet (3 mm in 3 m), 1/4-inch in 20 feet (6 mm in 6 m), or 1/4-inch (12 mm) maximum.
3. For vertical lines and surfaces do not vary from plumb by more than 1/4-inch in 10 feet (6 mm in 3 m), 3/8-inch in 20 feet (9 mm in 6 m), or 1/2-inch (12 mm) maximum.
4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8-inch in 10 feet (3 mm in 3 m), 1/4-inch in 20 feet (6 mm in 6 m), or 1/2-inch (12 mm) maximum.
5. For lines and surfaces do not vary from straight by more than 1/4-inch in 10 feet (6 mm in 3 m), 3/8-inch in 20 feet (9 mm in 6 m), or 1/2-inch (12 mm) maximum.
6. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4-inch in 10 feet (6 mm in 3 m), or 1/2-inch (12 mm) maximum.
7. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16-inch (1.5 mm) except due to warpage of masonry units within tolerances specified for warpage of units.

C. Joints:

1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8-inch (3 mm), with a maximum thickness limited to 1/2-inch (12 mm).
2. For exposed bed joints, do not vary from bed-joint thickness of adjacent courses by more than 1/8-inch (3 mm).
3. For head and collar joints, do not vary from thickness indicated by more than plus 3/8-inch (9 mm) or minus 1/4 inch (6 mm).
4. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm). Do not vary from adjacent bed-joint and head-joint thicknesses by more than 1/8 inch (3 mm).

5. For exposed bed joints and head joints of stacked bond, do not vary from a straight line by more than 1/16 inch (1.5 mm) from one masonry unit to the next.

3.4 LAYING MASONRY WALLS

A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less than nominal 4-inch (100-mm) horizontal face dimensions at corners or jambs.

C. Lay concealed masonry with all units in a wythe in running bond. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch (100-mm) horizontal face dimensions at corners or jambs.

D. Stopping and Resuming Work: Stop work by racking back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar before laying fresh masonry.

E. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.

F. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below and rod mortar or grout into core.

G. Fill cores in hollow CMUs with grout 24-inches (600 mm) under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.

H. Build non-load-bearing interior partitions full height of story to underside of solid floor or roof structure above unless otherwise indicated.

1. Install compressible filler in joint between top of partition and underside of structure above.
2. Fasten partition top anchors to structure above and build into top of partition. Grout cells of CMUs solidly around plastic tubes of anchors and push tubes down into grout to provide 1/2-inch (13-mm) clearance between end of anchor rod and end of tube. Space anchors 48-inches (1200 mm) o.c. unless otherwise indicated.
3. Wedge non-load-bearing partitions against structure above with small pieces of tile, slate, or metal. Fill joint with mortar after dead-load deflection of structure above approaches final position.
4. At fire-rated partitions, treat joint between top of partition and underside of structure above to comply with Section 078446 "Fire-Resistive Joint Systems."

3.5 MORTAR BEDDING AND JOINTING

A. Lay CMUs as follows:

1. With face shells fully bedded in mortar and with head joints of depth equal to bed joints, (full end coverage for acoustically significant construction areas)..
2. With webs fully bedded in mortar in all courses of piers, columns, and pilasters.
3. With webs fully bedded in mortar in grouted masonry, including starting course on footings.
4. With entire units, including areas under cells, fully bedded in mortar at starting course on footings where cells are not grouted.

B. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

D. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint) unless otherwise indicated.

3.6 MASONRY JOINT REINFORCEMENT

A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8-inch (16-mm) on exterior side of walls, 1/2-inch (13-mm) elsewhere. Lap reinforcement a minimum of 6-inches (150-mm).

1. Space reinforcement not more than 16-inches (406-mm) o.c.
2. Space reinforcement not more than 8-inches (203-mm) o.c. in foundation walls and parapet walls.
3. Provide reinforcement not more than 8-inches (203-mm) above and below wall openings and extending 12-inches (305-mm) beyond openings in addition to continuous reinforcement.

B. Interrupt joint reinforcement at control and expansion joints unless otherwise indicated.

C. Provide continuity at wall intersections by using prefabricated T-shaped units.

D. Provide continuity at corners by using prefabricated L-shaped units.

E. Cut and bend reinforcing units as directed by manufacturer for continuity at corners, returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

3.7 CONTROL AND EXPANSION JOINTS

A. General: Install control and expansion joint materials in unit masonry as masonry progresses. Do not allow materials to span control and expansion joints without provision to allow for in-plane wall or partition movement.

B. Form control joints in concrete masonry as follows:

1. Install control and expansion joints as shown on Contract Documents or if not shown provide joints at 1 1/2 times the length to width ratio or 25 feet maximum between joints. Obtain Architect’s approval of all joint locations.
2. Install preformed control-joint gaskets designed to fit standard sash block.

3.8 REINFORCED UNIT MASONRY INSTALLATION

A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.

1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms 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.
2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other loads that may be placed on them during construction.

B. Placing Reinforcement: Comply with requirements in ACI 530.1/ASCE 6/TMS 602.

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

1. Comply with requirements in ACI 530.1/ASCE 6/TMS 602 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
2. Limit height of vertical grout pours to not more than 48-inches (1219.2 mm), hold top of pour down 2-inches below top of masonry level of each pour to key in.

3.9 FIELD QUALITY CONTROL

A. Testing and Inspecting: Owner will engage special inspectors to perform tests and inspections and prepare reports. Allow inspectors access to scaffolding and work areas, as needed to perform tests and inspections. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.

B. Inspections: Level 1 special inspections according to the "International Building Code."

1. Begin masonry construction only after inspectors have verified proportions of site-prepared mortar.
2. Place grout only after inspectors have verified compliance of grout spaces and of grades, sizes, and locations of reinforcement.
3. Place grout only after inspectors have verified proportions of site-prepared grout.

C. Testing Prior to Construction: One set of tests.

D. Testing Frequency: One set of tests for each 5000 sq. ft. (464 sq. m) of wall area or portion thereof.

E. Clay Masonry Unit Test: For each type of unit provided, according to ASTM C 67 for compressive strength.

F. Concrete Masonry Unit Test: For each type of unit provided, according to ASTM C 140 for compressive strength.

G. Mortar Aggregate Ratio Test (Proportion Specification): For each mix provided, according to ASTM C 780.

H. Mortar Test (Property Specification): For each mix provided, according to ASTM C 780. Test mortar for mortar air content and compressive strength.

I. Grout Test (Compressive Strength): For each mix provided, according to ASTM C 1019.

J. Prism Test: For each type of construction provided, according to ASTM C 1314 at 7 days and at 28 days.

3.10 REPAIRING, POINTING, AND CLEANING

A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.

B. For masonry corners and ends that call for bullnose block and didn't get it installed, field grind edges uniformly to match specified 1" radius w/ radiused tooled joint appearance.

C. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.

D. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

E. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:

1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
3. Protect adjacent stone and non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
5. Clean brick by bucket-and-brush hand-cleaning method described in BIA Technical Notes 20.
6. Clean masonry with a proprietary detergent based cleaner applied according to manufacturer's written instructions.
7. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.

3.11 MASONRY WASTE DISPOSAL

A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.

B. Waste Disposal: Remove excess masonry waste and legally dispose of off Owner's property.

END OF SECTION

SECTION 06 10 53
MISCELLANEOUS ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Wood blocking and nailers.
2. Plywood skirt panels.
3. Elevated decks including plastic decking and railings.

1.3 DEFINITIONS

A. Dimension Lumber: Lumber of 2-inches nominal (38-mm actual) or greater but less than 5-inches nominal (114-mm actual) in least dimension.

B. Lumber grading agencies, and the abbreviations used to reference them, include the following:

1. NeLMA: Northeastern Lumber Manufacturers' Association.
2. NHLA: National Hardwood Lumber Association.
3. NLGA: National Lumber Grades Authority.
4. SPIB: The Southern Pine Inspection Bureau.
5. WCLIB: West Coast Lumber Inspection Bureau.
6. WWPA: Western Wood Products Association.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
3. For fire-retardant treatments, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D 5664.
4. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
5. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

1.5 INFORMATIONAL SUBMITTALS

A. Evaluation Reports: For the following, from ICC-ES:

1. Preservative-treated wood.
2. Fire-retardant-treated wood.
3. Power-driven fasteners.
4. Powder-actuated fasteners.
5. Expansion anchors.
6. Metal framing anchors.

1.6 QUALITY ASSURANCE

A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.7 DELIVERY, STORAGE AND HANDLING

A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
3. Provide dressed lumber, S4S, unless otherwise indicated.

B. Maximum Moisture Content of Lumber: 15 percent for 2-inch nominal (38-mm actual) thickness or less, 19 percent for more than 2-inch nominal (38-mm actual) thickness unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 for interior construction not in contact with the ground.

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium. Do not use inorganic boron (SBX) for sill plates.
2. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.

C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

D. Application: Treat all miscellaneous carpentry unless otherwise indicated.

1. Wood nailers, curbs, equipment support bases, blocking, stripping, window sill blocking, behind and under “wet” base cabinets, and similar members in connection with flashing, vapor barriers, and waterproofing.
2. Wood sills, sleepers, blocking, and similar concealed members in contact with masonry or concrete.

2.3 FIRE-RETARDANT-TREATED MATERIALS

A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.

B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet (3.2 m) beyond the centerline of the burners at any time during the test.

1. Use treatment that does not promote corrosion of metal fasteners.
2. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.
3. Design Value Adjustment Factors: Treated lumber shall be tested according ASTM D 5664, and design value adjustment factors shall be calculated according to ASTM D 6841.

C. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Kiln-dry plywood after treatment to a maximum moisture content of 15 percent.

D. Identify fire-retardant-treated wood with appropriate classification marking of testing and inspecting agency acceptable to authorities having jurisdiction.

E. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not bleed through, contain colorants, or otherwise adversely affect finishes.

F. Application: Treat all miscellaneous carpentry unless otherwise indicated.

1. Framing for raised platforms.
2. All concealed blocking.
3. Plywood backing panels.

2.4 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.
2. Nailers.
3. Grounds.

B. For items of dimension lumber size, provide Construction or No. 2 grade lumber and any of the following species:

1. Hem-fir (north); NLGA.
2. Mixed southern pine; SPIB.
3. Spruce-pine-fir; NLGA.
4. Hem-fir; WCLIB or WWPA.
5. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.
6. Western woods; WCLIB or WWPA.
7. Northern species; NLGA.
8. Eastern softwoods; NeLMA.

C. For concealed boards, provide lumber with 19 percent maximum moisture content and any of the following species and grades:

1. Mixed southern pine, No. 2 grade; SPIB.
2. Hem-fir or hem-fir (north), Construction or No. 2 Common grade; NLGA, WCLIB, or WWPA.
3. Spruce-pine-fir (south) or spruce-pine-fir, Construction or No. 2 Common grade; NeLMA, NLGA, WCLIB, or WWPA.
4. Eastern softwoods, No. 2 Common grade; NELMA
5. Northern species, No. 2 Common grade; NLGA
6. Western woods, Construction or No. 2 Common grade; WCLIB or WWPA.

D. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.

E. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

F. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

2.5 PLYWOOD SKIRT PANELS

A. Skirt Panels: T1-11, DOC PS 1, Exterior, AC, pressure treated, in thickness indicated or, if not indicated, not less than 5/8-inch nominal thickness. 12” oc RBB.

2.6 PLASTIC DECKING AND RAILING

A. Plastic Lumber, General: Products acceptable to authorities having jurisdiction and for which current model code evaluation reports exist that show compliance with building code in effect for Project for indicated occupancy and type of construction.

1. Allowable loads and spans, as documented in evaluation reports or in information referenced in evaluation reports, shall not be less than design loads and spans indicated.

B. Composite Plastic Lumber: Solid shapes made from a mixture of cellulose fiber and polyethylene or polypropylene.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    a. Trex Company, Inc.
    b. TimberTech.

2. Configuration: Provide product with grooved edges designed for fastening with concealed splines.
3. Surface Texture: Woodgrain.
4. Color: As selected by Architect from manufacturer's full range.

2.7 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. Where carpentry is exposed to moisture or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M or of Type 304 stainless steel. Fasteners securing pressure-preservative treated materials **SHALL BE** Type 304 stainless steel, no exceptions.

B. Nails, Brads, and Staples: ASTM F 1667.

C. Power-Driven Fasteners: NES NER-272.

D. Wood Screws: ASME B18.6.1.

E. Screws for Fastening to Metal Framing: ASTM C 1002 or ASTM C 954, length as recommended by screw manufacturer for material being fastened.

F. Lag Bolts: ASME B18.2.1 (ASME B18.2.3.8M).

G. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

H. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.

1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.
2. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2 (ASTM F 738M and ASTM F 836M, Grade A1 or A4).

2.8 MISCELLANEOUS MATERIALS

A. Adhesives for Gluing Furring to Concrete or Masonry: Formulation complying with ASTM D 3498 that is approved for use indicated by adhesive manufacturer.

1. Adhesives shall have a VOC content of 70 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

B. Self-Adhering, Polyethylene Faced, Separator Sheet: Minimum of 40-mil thick, polyethylene-film-reinforced top surface laminated to SBS-modified asphalt adhesive, with release paper backing; cold applied.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

  - a. Carlisle Coatings & Waterproofing, Inc. - CCW-705
  - b. Grace, W. R. & Co. - Perma-A-Barrier
  - c. Henry Company - Blueskin SA

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry to other construction; scribe and cope as needed for accurate fit. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.

B. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.

C. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

D. Install plywood backing panels by fastening to studs; coordinate locations with utilities requiring backing panels. Install fire-retardant treated plywood backing panels with classification marking of testing agency exposed to view.

E. Metal Framing Anchors: Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.

F. Do not splice structural members between supports unless otherwise indicated.

G. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.

  1. Provide metal clips for fastening gypsum board at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches (406 mm) o.c.

H. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

I. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

  1. Use inorganic boron for items that are continuously protected from liquid water.
  2. Use copper naphthenate for items not continuously protected from liquid water.

J. Securely attach carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

  1. NES NER-272 for power-driven fasteners.
  2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.

K. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

1. Fasteners for securing pressure-preservative treated materials shall be Type 304 stainless steel.

3.2 WOOD GROUND, BLOCKING AND NAILER INSTALLATION

A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.

C. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1 1/2-inches (38 mm) wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

D. Provide blocking for wood and metal casework, cabinets, grab bars, crash rails, handrails, door stops, coat hooks, electromagnetic hold opens, etc., unless other wise detailed.

E. Provide continuous 1-inch x 3-inch wood anchors above all cubicle and drapery tracks which occupy acoustical tile ceilings and secure to 1 1/2-inch steel runner channel if ceiling is suspended. Provide suspended wire supports to re-support blocking to structure above.

F. Self-Adhering, Polyethylene Faced, Separator Sheet: Install, wrinkle free, on metal stud surfaces to provide separator between water preservative treated wood and metal studs. Comply with low-temperature installation restrictions of sheet manufacturer if applicable. Install at locations indicated below and on Drawings, lapped as required to maintain total separation between wood and metal. Roll laps with roller. Cover underlayment within seven days.

   1. Installation on Metal Studs: Install full length of the stud or runner to cover the contact surface of the metal where water preservative treated materials are applied.

3.3 SCAFFOLDING AND PROTECTIVE RAILINGS

A. Furnish scaffolding and protective railings not done by other trades.

3.4 Nailing and Fastening

A. Shall meet minimum requirements established by the International Building Code.

3.5 PROTECTION

A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

B. Protect miscellaneous rough carpentry from weather. If, despite protection, miscellaneous rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

C. Weather damaged materials shall be removed and replaced.

D. Provide protection barrier for metals that come in contact to treated as recommended by wood preservative manufacturer.

END OF SECTION

SECTION 07 92 00

JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes

1. Silicone joint sealants.
2. Urethane joint sealants.
3. Latex joint sealants.

B. Related Sections

1. Division 03 Section “Cast-In-Place-Concrete”.
2. Division 07 Section "Unit Masonry" for masonry control and expansion joint fillers and gaskets.
3. Division 07 Section "Fire-Resistive Joint Systems" for sealing joints in fire-resistance-rated construction.
4. Division 08 Section "Glazing" for glazing sealants.
5. Division 09 Section "Gypsum Board" for sealing perimeter joints.
6. Division 09 Section "Acoustical Panel Ceilings" for sealing edge moldings at perimeters with acoustical sealant.
7. All Div. 21, 22, 23, 26, 27 specifications with regards to building service systems that penetrate walls, floors, and ceilings.

C. Seal interior penetration openings in a manner that prevents transmission of airborne noise and structural vibration into acoustically sensitive/critical spaces. Penetrations shall include conduit, duct, pipe, cable, recessed boxes, and other penetrants, assemblies, or devices noted in the Documents.

1.3 STANDARDS:

A. ASTM C510. Test Method for Staining and Color Change of Single- or Multicomponent Joint Sealant, 1990.

B. ASTM C639. Test Method for Rheological (Flow) Properties of Elastomeric Sealants, 1990.

C. ASTM C719. Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement, 1993.

D. ASTM D412. Test Method for Vulcanized Rubber and Thermo-Plastic Rubbers and Thermo-Plastic Elastomers/Tensions, 1992.

E. ASTM D2240. Test Method for Rubber Property- Durometer Hardness, 1991.

F. American Association of State Highway and Transportation Officials (AASHTO), Standard Specifications for Highway Bridges, Thirteenth Edition, 1992. See Table 25.2B for physical property requirements of bridge bearing quality neoprene.

1.4 DEFINITIONS:

A. Recessed Box: A box that is recessed behind gypsum board assemblies for the installation of a receptacle, switch, data/telephone outlet, fire alarm device, or any other purpose including future use.

1.5 PRE-CONSTRUCTION TESTING

A. Pre-construction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.

1. Use manufacturer's standard test method to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
2. Submit not fewer than eight pieces of each kind of material, including joint substrates, shims, joint-sealant backings, secondary seals, and miscellaneous materials.
3. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
4. For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures including use of specially formulated primers.
5. Testing will not be required if joint-sealant manufacturers submit joint preparation data that are based on previous testing, not older than 24 months, of sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.

B. Pre-construction Field-Adhesion Testing (If Requested by Owner): Before installing sealants, field test their adhesion to Project joint substrates as follows:

1. Locate test joints where indicated on Project or, if not indicated, as directed by Architect.
2. Conduct field tests for each application indicated below:

    a. Each kind of sealant and joint substrate indicated.

3. Notify Architect seven days in advance of dates and times when test joints will be erected.
4. Arrange for tests to take place with joint-sealant manufacturer's technical representative present.

    a. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.

        1) For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.

5. Report whether sealant failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.
6. Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

1.6 ACTION SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

C. Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.

1.7 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified Installer and testing agency.

B. Product Certificates: For each kind of joint sealant and accessory, from manufacturer.

C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating that sealants comply with requirements.

D. Pre-construction Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:

1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.

E. Pre-construction Field-Adhesion Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on testing specified in "Pre-construction Testing" Article.

F. Field-Adhesion Test Reports (If Requested by Owner): For each sealant application tested.

G. Warranties: Sample of special warranties.

1.8 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.

B. Source Limitations: Obtain each kind of joint sealant from single source from single manufacturer.

C. Product Testing: Test joint sealants using a qualified testing agency.

1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated.
2. Test according to SWRI's Sealant Validation Program for compliance with requirements specified by reference to ASTM C 920 for adhesion and cohesion under cyclic movement, adhesion-in-peel, and indentation hardness.

D. Mockups: Install sealant in mockups of assemblies specified in other Sections that are indicated to receive joint sealants specified in this Section. Use materials and installation methods specified in this Section.

E. Pre-installation Conference: Conduct conference at Project site.

1.9 PROJECT CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer.
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.10 WARRANTY

A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

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

B. Special Manufacturer's Warranty: Manufacturer's standard form in which joint-sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.

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

C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:

1. Movement of the structure caused by structural settlement or errors attributable to design or construction resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
2. Disintegration of joint substrates from natural causes exceeding design specifications.
3. Mechanical damage caused by individuals, tools, or other outside agents.
4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

B. VOC Content of Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):

1. Architectural Sealants: 250 g/L.
2. Sealant Primers for Non-porous Substrates: 250 g/L.
3. Sealant Primers for Porous Substrates: 775 g/L.

C. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

D. Stain-Test-Response Characteristics: Where sealants are specified to be non-staining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

E. Suitability for Contact with Food: Where sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.

F. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.2 SILICONE JOINT SEALANTS

A. Mildew-Resistant, Single-Component, Acid-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 25, for Use NT.

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

   a. BASF Building Systems; Omniplus.
   b. Dow Corning Corporation; 786 Mildew Resistant.
   c. GE Advanced Materials - Silicones; Sanitary SCS1700.
   d. Tremco Incorporated; Tremsil 200 Sanitary.

2.3 URETHANE JOINT SEALANTS

A. Single-Component, Pourable, Traffic-Grade, Urethane Joint Sealant: ASTM C 920, Type S, Grade P, Class 25, for Use T.

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

   a. BASF Building Systems; Sonolastic SL 1.
   b. Pecora Corporation; Urexpan NR-201.
   c. Sika Corporation. Construction Products Division; Sikaflex - 1CSL.
   d. Tremco Incorporated; Vulkem 45.

B. Multi-Component, Non-sag, Urethane Joint Sealant: ASTM C 920, Type M, Grade NS, Class 50, for Use NT.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

   a. Pecora Corporation; Dynatrol II.
   b. Tremco Incorporated; Dymeric 240 FC.

2.4 LATEX JOINT SEALANTS

A. Latex Joint Sealant: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.

1. Products: Subject to compliance with requirements, provide one of the following:
    - a. BASF Building Systems; Sonolac.
    - b. Pecora Corporation; AC-20+.
    - c. Tremco Incorporated; Tremflex 834.

2.5 JOINT SEALANT BACKING

A. General: Provide sealant backings of material that are non-staining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C 1330, Type B (bi-cellular material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.6 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Non-porous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Non-staining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

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

3.2 EXTENT

A. Resiliently seal all penetrations (conduit, ducts, pipes, cables, recessed boxes, etc.) using acoustical sealant and/or putty pads through all walls, floors, and ceilings of the following spaces:

B. At double-wall or triple-wall partitions, resiliently seal penetrations at each wall.

C. If the Contract Documents seem unclear, request clarification of extent from the Architect.

3.3 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:

    a. Unglazed surfaces of ceramic tile.

3. Remove laitance and form-release agents from concrete.

4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:

    a. Metal
    b. Glass
    c. Porcelain enamel
    d. Glazed surfaces of glass tile

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.4 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
   1. Place sealants so they directly contact and fully wet joint substrates.
   2. Completely fill recesses in each joint configuration.
   3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Non-sag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

   1. Remove excess sealant from surfaces adjacent to joints.
   2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
   3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.
   4. Provide flush joint profile where indicated per Figure 8B in ASTM C 1193.
   5. Provide recessed joint configuration of recess depth and at locations indicated per Figure 8C in ASTM C 1193.

      a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

3.5 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.6 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.7 JOINT SEALANT SCHEDULE

A. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal non-traffic surfaces.

   1. Joint Locations:

      a. Control joints on exposed exterior walls.
      b. Exterior vertical joints on exposed surfaces of walls and partitions.
      c. Exterior metal to metal expansion joints.

d. Exterior joints on weather edges of copings, gravel stops and other sheet metal work.
e. Exterior joints where dissimilar materials abut whether detailed or not.
f. Other exterior joints whether details or not requiring sealant to provide “weather-tight” construction.

2. Joint Sealant: Multi-Component, Non-sag, Urethane Joint Sealant.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

B. Joint-Sealant Application: Exterior joints in horizontal traffic bearing surfaces.

1. Joint Locations:

a. Control and expansion joints on exposed exterior horizontal surfaces of pavements.
b. Other horizontal joints as required to prevent water intrusion whether shown or not.

2. Joint Sealant: Single-Component, Pourable, Traffic-Grade, Urethane Joint Sealant.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

C. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal non-traffic surfaces

1. Joint Locations:

a. Control joints on exposed interior surfaces of exterior walls.
b. Vertical joints on exposed surfaces of walls and partitions.
c. Perimeter joints between interior wall surfaces and frames of windows and doors at exterior walls.
d. Other concealed interior joints not otherwise scheduled or indicated.
e. **DO NOT USE SEALANT MATERIALS AT INTERIOR SLAB-ON-GRADE CONTROL JOINTS**.

2. Joint Sealant: Multi-Component, Non-sag, Urethane Joint Sealant.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

D. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal non-traffic surfaces.

1. Joint Sealant Location:

a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
b. Joints between backsplashes and adjacent wall surfaces at wet locations.
c. Other joints at wet locations where or not specifically detailed or called out to seal joint from leakage of water.

2. Joint Sealant: Single component, non-sag, mildew resistant, acid curing.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

E. Joint-Sealant Application: Interior non-moving joints in vertical surfaces and horizontal non-traffic surfaces.

1. Joint Locations:

a. Perimeter joints between wall surfaces and hollow metal frames in masonry or gypsum board walls.

    b. Other interior joints between dissimilar materials and touch-up sealant locations as required.

2. Joint Sealant: Latex.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

END OF SECTION

SECTION 081000 - HOLLOW METAL DOORS

PART 1 - GENERAL

1.1 The Requirements

A. As set forth in the headings of General Conditions, Supplementary General Conditions, and Division1, General Requirements shall apply to this branch of the work.

1.2 Scope

A. Furnish all labor and material, including all anchors, trims, etc., required to complete the work of the hollow metal doors as indicated on the drawings and specified herein.

B. Doors, shall be shop fabricated to required profiles and elevations by forming and welding. Corners, angles, and edges shall be straight and true. All doors shall be accurately fitted and fabricated with corners, seams, joints and surfaces free from warp, wave, buckle, or other defects.

1. Doors shall be factory assembled and sent to the job ready for installation.

1.3 Hardware

A. For Hardware, reinstall existing salvaged hardware.

B. Hardware locations shall be in accordance with National Builders Hardware Association standard dimensional recommendations. Hardware supplier shall supply necessary hardware templates, schedules and samples.

1.4 Submittals

A. Shop drawings in the form of a schedule, with details using the same reference numbers for openings and details as those on the contract drawings, in compliance with the General Conditions.

1.5 Delivery, Storage and Handling

A. Deliver doors, wrapped or crated to provide protection during transit and project-site storage. Do not use non-vented plastic.

PART 2 - PRODUCTS

2.1 Manufacturers

A. Shall be as manufactured by Steelcraft an Ingersoll-Rand Company; Windsor Republic Doors; Amweld Building Products LLC; CECO Door Products an ASSA ABLOY Group Company; Curries Company, an ASSA ABLOY Group Company; or approved equal.

2.2 Materials

A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.

B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface effects; pickled and oiled.

C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum A60 zinc-iron-alloy (galvannealed) coating designation.

D. Electrolytic Zinc-Coated Steel Sheet: ASTM A 591/A 591M, Commercial Steel (CS), Class B coating; mill phosphatized.

E. Glazing: Comply with requirements in Division 8 Section "Glazing".

2.3 Hollow Metal Doors

A. Shall be full flush type, L series, 1-3/4" x 16 gauge, cold rolled steel without seams or joints in faces, edge seams welded and filed smooth. Provide 3” wide narrow view window panel (Style N3). All doors in exterior walls shall be galvanized and provided with full polyurethane insulated core. Provide a flush closure channel at top edge continuously welded and ground smooth.

B. Door Hardware Preparation: Hinge reinforcements shall be 11 gauge, size and thickness as required, or a 12 gauge continuous channel.

C. Locksets shall have 14 gauge reinforcement with type and design as required or 14 gauge continuous channel.

D. Closers and reinforcement shall consist of 12 gauge channel 5" x 24" type and mounting as required.

E. Surface Exit Device reinforcement shall be 12 gauge, size as required.

F. Push/Pull Plate reinforcements shall be 14 gauge, size as required.

2.4 Primer

A. Prime shop paint the doors one coat baked-on enamel primer.

PART 3 - EXECUTION

3.1 Packing and Storage

A. Doors shall be individually packaged in corrugated cartons with two-ply corner caps, completely covering entire door. Carton shall be held in place by steelbands to prevent damage to door or door finish. All rust occurring on doors during construction and storage shall be removed and spots re-prime painted.

END OF SECTION

SECTION 08 53 13

VINYL WINDOWS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes vinyl-framed windows.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, glazing and fabrication methods, dimensions of individual components and profiles, hardware, and finishes for vinyl windows.

B. Shop Drawings: Include plans, elevations, sections, hardware, accessories, insect screens, operational clearances, and details of installation, including anchor, flashing, and sealant installation.

1.4 INFORMATIONAL SUBMITTALS

A. Product Test Reports: For each type of vinyl window, for tests performed by a qualified testing agency.

B. Sample Warranties: For manufacturer's warranties.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: A manufacturer capable of fabricating vinyl windows that meet or exceed performance requirements indicated and of documenting this performance by test reports and calculations.

1.6 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to repair or replace vinyl windows that fail in materials or workmanship within specified warranty period.

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

    a. Failure to meet performance requirements.
    b. Structural failures including excessive deflection, water leakage, and air infiltration.
    c. Faulty operation of movable sash and hardware.
    d. Deterioration of materials and finishes beyond normal weathering.
    e. Failure of insulating glass.

2. Warranty Period:

    a. Window: 10 years from date of Substantial Completion.
    b. Glazing Units: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide Atrium Series 150 Single Hung or pre-bid approved equivalent.

2.2 WINDOW PERFORMANCE REQUIREMENTS

A. Thermal Transmittance: NFRC 100 maximum whole-window U-factor of .35.

B. Solar Heat-Gain Coefficient (SHGC): NFRC 200 maximum whole-window SHGC of 0.29.

2.3 VINYL WINDOWS

A. Operating Types: Provide the following operating types in locations indicated on Drawings:
    1. Single hung.

B. Frames and Sashes: Impact-resistant, UV-stabilized PVC complying with AAMA/WDMA/CSA 101/I.S.2/A440.

    1. Finish: Integral color, Bronze.
    2. Gypsum Board Returns: Provide at interior face of frame.

C. Glass: Clear annealed glass, ASTM C 1036, Type 1, Class 1, q3.

D. Insulating-Glass Units: ASTM E 2190.

    1. Glass: ASTM C 1036, Type 1, Class 1, q3.

        a. Tint: Bronze.

    2. Lites: Two.
    3. Filling: Fill space between glass lites with argon.
    4. Ultra Low-E Coating.

E. Glazing System: Manufacturer's standard factory-glazing system that produces weathertight seal.

F. Hardware, General: Provide manufacturer's standard hardware fabricated from aluminum, stainless steel, carbon steel complying with AAMA 907, or other corrosion-resistant material compatible with adjacent materials; designed to smoothly operate, tightly close, and securely lock windows, and sized to accommodate sash weight and dimensions.

G. Hung Window Hardware:

1. Counterbalancing Mechanism: Complying with AAMA 902, concealed, of size and capacity to hold sash stationary at any open position.
2. Locks and Latches: Allow unobstructed movement of the sash across adjacent sash in direction indicated and operated from the inside only.
3. Tilt Hardware: Releasing tilt latch allows sash to pivot about horizontal axis to facilitate cleaning exterior surfaces from the interior.

H. Weather Stripping: Provide full-perimeter weather stripping for each operable sash unless otherwise indicated.

I. Fasteners: Noncorrosive and compatible with window members, trim, hardware, anchors, and other components.

1. Exposed Fasteners: Do not use exposed fasteners to the greatest extent possible. For application of hardware, use fasteners that match finish hardware being fastened.

2.4 INSECT SCREENS

A. General: Fabricate insect screens to fully integrate with window frame. Provide screen for each operable exterior sash. Screen wickets are not permitted.

1. Type and Location: Half, outside for single-hung sashes.

B. Aluminum Frames: Manufacturer's standard aluminum alloy complying with SMA 1004 or SMA 1201. Fabricate frames with mitered or coped joints or corner extrusions, concealed fasteners, and removable PVC spline/anchor concealing edge of frame.

1. Tubular Framing Sections and Cross Braces: Roll formed from aluminum sheet.
2. Finish for Exterior Screens Matching color and finish of cladding.

C. Aluminum Wire Fabric: 18-by-16 mesh of 0.011-inch diameter, coated aluminum wire.

1. Wire-Fabric Finish: Charcoal gray.

2.5 FABRICATION

A. Fabricate vinyl windows in sizes indicated. Include a complete system for assembling components and anchoring windows.

B. Glaze vinyl windows in the factory.

C. Weather strip each operable sash to provide weathertight installation.

D. Hardware: Mount hardware through double walls of vinyl extrusions or provide corrosion-resistant reinforcement.

E. Complete fabrication, assembly, finishing, hardware application, and other work in the factory to greatest extent possible. Disassemble components only as necessary for shipment and installation. Allow for scribing, trimming, and fitting at Project site.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Verify rough opening dimensions, levelness of sill plate, and operational clearances.

C. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure weathertight window installation.

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

3.2 INSTALLATION

A. Comply with manufacturer's written instructions for installing windows, hardware, accessories, and other components. For installation procedures and requirements not addressed in manufacturer's written instructions, comply with installation requirements in ASTM E 2112.

B. Install windows level, plumb, square, true to line, without distortion, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction to produce weathertight construction.

3.3 ADJUSTING, CLEANING, AND PROTECTION

A. Adjust operating sashes and hardware for a tight fit at contact points and weather stripping for smooth operation and weathertight closure.

B. Clean exposed surfaces immediately after installing windows. Remove excess sealants, glazing materials, dirt, and other substances.

1. Keep protective films and coverings in place until final cleaning.

C. Remove and replace sashes if glass has been broken, chipped, cracked, abraded, or damaged during construction period.

D. Protect window surfaces from contact with contaminating substances resulting from construction operations. If contaminating substances do contact window surfaces, remove contaminants immediately according to manufacturer's written instructions.

END OF SECTION

SECTION 08 80 00

GLAZING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes:
  1. Insulated glass units for hollow metal door narrow light
  2. Note: Insulated glass units for vinyl windows are integral with window unit and are specified in the Vinyl window section.

1.3 DEFINITIONS

A. Glass Manufacturers: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.

B. Glass Thicknesses: Indicated by thickness designations in millimeters according to ASTM C 1036.

1.4 PERFORMANCE REQUIREMENTS

A. General: Installed glazing systems shall withstand normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, or installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.

  1. Safety Glazing: Provide safety glazing where required by the 2006 International Building Code and the authority having jurisdiction whether or not indicated on the Contract Documents.

B. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.

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

1.5 ACTION SUBMITTALS

A. Product Data: For each glass product and glazing material indicated.

1.6 DELIVERY, STORAGE AND HANDLING

A. Protect glazing materials according to manufacturer's written instructions. Prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

B. Comply with insulating-glass manufacturer's written recommendations for venting and sealing units to avoid hermetic seal ruptures due to altitude change.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.

1. Do not install glazing sealants when ambient and substrate temperature conditions are outside limits permitted by sealant manufacturer or below 40 deg F (4.4 deg C).

1.8 WARRANTY

A. Manufacturer's Special Warranty on Insulating Glass: Manufacturer's standard form in which insulating-glass manufacturer agrees to replace insulating-glass units that deteriorate within specified warranty period. Deterioration of insulating glass is defined as failure of hermetic seal under normal use that is not attributed to glass breakage or to maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.

1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 GLASS PRODUCTS, GENERAL

A. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass lites in thicknesses as needed to comply with requirements indicated.

B. Strength: Where float glass is indicated, provide annealed float glass, Kind HS heat-treated float glass, or Kind FT heat-treated float glass as needed to comply with "Performance Requirements" Article. Where heat-strengthened glass is indicated, provide Kind HS heat-treated float glass or Kind FT heat-treated float glass as needed to comply with "Performance Requirements" Article. Where fully tempered glass is indicated, provide Kind FT heat-treated float glass.

C. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:

1. For insulating-glass units, properties are based on units of thickness indicated for overall unit and for each lite.
2. U-Factors: Center-of-glazing values, according to NFRC 100 and based on LBL's WINDOW 5.2 computer program, expressed as Btu/sq. ft. x h x deg F (W/sq. m x K).
3. Solar Heat-Gain Coefficient and Visible Transmittance: Center-of-glazing values, according to NFRC 200 and based on LBL's WINDOW 5.2 computer program.
4. Visible Reflectance: Center-of-glazing values, according to NFRC 300.

2.2 GLASS PRODUCTS

2.3 INSULATING GLASS

A. Manufacturers: Subject to compliance with requirements, available manufacturers that may be incorporated into the Work include, but are not limited to, the following:

1. Guardian Industries, Inc.
2. Insulite Glass Company, Olathe, Kansas.
3. PPG Industries, Inc.

4. Pilkington North America
5. Viracon
6. Other manufacturer’s providing approved equal prior to bidding.

B. Insulating-Glass Units: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified according to ASTM E 2190, and complying with other requirements specified.

1. Sealing System: Dual seal, with manufacturer's standard primary and secondary.
2. Spacer: Manufacturer's standard spacer material and construction.
3. Desiccant: Molecular sieve or silica gel, or blend of both.
4. Air-Space Media: Argon

C. Glass: Comply with applicable requirements in "Glass Products" Article as indicated by designations in "Insulating-Glass Types" Article.

D. Coated Glass (Low-E): ASTM C 1376, float, tempered with metallic-oxide coating applied by sputter-coat deposition process during initial manufacture, and complying with other requirements specified.

1. Provide coating on the No. 3 surface.
2. Provide glazing with “Low-E” coating on all elevations of the building with insulating units.

E. Performance Requirements: Provide insulated glass units with the following physical performance:
1. Solar Factor (SHGC): .29
2. ASHRAE U-Values: .35

2.4 GLAZING GASKETS

A. Dense Compression Gaskets: Molded or extruded gaskets of profile and hardness required to maintain watertight seal, made from one of the following:

1. Neoprene complying with ASTM C 864.
2. EPDM complying with ASTM C 864.
3. Silicone complying with ASTM C 1115.
4. Thermoplastic polyolefin rubber complying with ASTM C 1115.

B. Soft Compression Gaskets: Extruded or molded, closed-cell, integral-skinned neoprene EPDM silicone or thermoplastic polyolefin rubber gaskets complying with ASTM C 509, Type II, black; of profile and hardness required to maintain watertight seal.

1. Application: Use where soft compression gaskets will be compressed by inserting dense compression gaskets on opposite side of glazing or pressure applied by means of pressure-glazing stops on opposite side of glazing.

2.5 GLAZING TAPES

A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based, 100 percent solids elastomeric tape; non-staining and non-migrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; and complying with ASTM C 1281 and AAMA 800 for products indicated below:

1. AAMA 804.3 tape, where indicated.
2. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.

3. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.

B. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; and complying with AAMA 800 for the following types:

1. AAMA 810.1, Type 1, for glazing applications in which tape acts as the primary sealant.
2. AAMA 810.1, Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

2.6 MISCELLANEOUS GLAZING MATERIALS

A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.

B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.

C. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.

D. Spacers: Elastomeric blocks or continuous extrusions of hardness required by glass manufacturer to maintain glass lites in place for installation indicated.

E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).

F. Cylindrical Glazing Sealant Backing: ASTM C 1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

G. Perimeter Insulation for Fire-Resistive Glazing: Product that is approved by testing agency that listed and labeled fire-resistant glazing product with which it is used for application and fire-protection rating indicated.

2.7 FABRICATION OF GLAZING UNITS

A. Fabricate glazing units in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.

2.8 GLASS TYPES

A. Low-E coated, tinted insulating glass

1. Overall Unit Thickness: 1-inch (25-mm).
2. Outdoor Lite: Tinted glass (bronze), 2 – 1/8” tempered glazing with 0.030” pvb interlayer for 5/16” total thickness

3. Interspace Content: Air 1/2-inch (12-mm).
4. Indoor Lite: ¼” Coated clear glass with Low-E coating on surface # 3, impact resistant
5. Provide safety glazing labeling.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine framing, glazing channels, and stops, with Installer present, for compliance with the following:

  1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
  2. Presence and functioning of weep systems.
  3. Minimum required face and edge clearances.
  4. Effective sealing between joints of glass-framing members.

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

3.2 PREPARATION

A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.

B. Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that will leave visible marks in the completed work.

3.3 GLAZING, GENERAL

A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.

B. Adjust glazing channel dimensions as required by Project conditions during installation to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.

C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.

D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.

E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.

F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.

G. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.

H. Set glass lites with proper orientation so that coatings face exterior or interior as specified.

I. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.

J. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

3.4 TAPE GLAZING

A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.

B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.

C. Cover vertical framing joints by applying tapes to heads and sills first and then to jambs. Cover horizontal framing joints by applying tapes to jambs and then to heads and sills.

D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.

E. Do not remove release paper from tape until right before each glazing unit is installed.

F. Apply heel bead of elastomeric sealant.

G. Center glass lites in openings on setting blocks and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.

H. Apply cap bead of elastomeric sealant over exposed edge of tape.

3.5 GASKET GLAZING (DRY)

A. Cut compression gaskets to lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.

B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.

C. Installation with Pressure-Glazing Stops: Center glass lites in openings on setting blocks and press firmly against soft compression gasket. Install dense compression gaskets and pressure-glazing stops, applying pressure uniformly to compression gaskets. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.

D. Install gaskets so they protrude past face of glazing stops.

3.6 CLEANING AND PROTECTION

A. Protect glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels and clean surfaces.

B. Protect glass from contact with contaminating substances resulting from construction operations. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended in writing by glass manufacturer.

C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains; remove as recommended in writing by glass manufacturer.

D. Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged from natural causes, accidents, and vandalism, during construction period.

E. Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

END OF SECTION

SECTION 09 91 13

EXTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes surface preparation and the application of paint systems on the following exterior substrates:

1. Steel.
2. Galvanized metal.
3. Concrete

B. Related Requirements:

1. Division 05 Sections for shop priming of metal substrates with primers specified in this Section.
2. Priming or priming and finishing of certain surfaces may be specified to be factory-performed or installer-performed under pertinent other Sections.

C. Work not included:

1. Metal surfaces of anodized aluminum, stainless steel, chromium pate, copper, bronze, and similar finished materials will not require painting under this Section except as may be so specified.
2. Do not paint moving parts of operating units; mechanical or electrical parts such as valve operator; linkages; sensing devices; and motor shafts, unless otherwise indicated.
3. Do not paint over required labels or equipment identification, performance rating, name, or nomenclature plates.
4. Do not paint concrete which has been sandblasted.

1.3 DEFINITIONS

A. “Paint,” as used herein, means coating systems materials including primers, emulsions, epoxy, enamels, sealers, fillers, and other applied materials whether used as prime, intermediate, or finish coats.

B. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

C. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

D. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.

E. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.

F. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.

G. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

B. Samples for Initial Selection: For each type of topcoat product.

C. Samples for Verification: For each type of paint system and each color and gloss of topcoat.

1. Submit Samples on rigid backing, 8-inches (200-mm) square minimum.
2. Step coats on Samples to show each coat required for system.
3. Label each coat of each Sample.
4. Label each Sample for location and application area.

D. Product List: For each product indicated, include the following:

1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
2. Printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.
3. VOC content.

E. SHOP DRAWINGS

1. Information to be included: Provide list of all paints to be included on the project for exterior painting and cross reference them to specified paints if submittal includes other than specified paints.

    a. Copy of room finish schedule of paint actually used.

        1) Include Manufacturer’s name for each paint used.
        2) Manufacturer’s Product number for each paint used.
        3) Color name and number for each paint used.
        4) Formulas for custom mixed colors.
        5) Location where paint was used.
        6) Include MSDS for each product used.

1.5 ATTIC STOCK

A. At completion of the job deliver to owner one new unopened container of each type and color of paint used. Properly labeled with color (formula for custom mixed colors). Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint: 5 percent, but not less than 1 gal. (3.8 L) of each material, color and gloss level applied, nor more than 5 gallons maximum of each color and gloss
2. Deliver to paint Owner at designated location.
3. Include Room finish Schedule with paint.
4. Include MSDS for all materials delivered.

1.6 QUALITY ASSURANCE

A. Use adequate number of skilled workman who are thoroughly trained and experienced in the necessary craft and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

B. Paint coordination:

1. Provide finish coats which are compatible with the prime coats actually used.
2. Review other Sections of these Specifications as required, verifying the primer coats to be used and assuring compatibility of the total coating system for the various substrate.
3. Furnish information on the characteristics of the specific finish materials to assure that compatible primer coats are used.
4. Provide barrier coats over non-compatible primers, or remove the primer and re-prime as required.
5. Notify the Architect in writing of anticipated problems in using the specified coating system over prime-coatings supplied under other Sections.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in manufacturer’s original, unopened packages and containers bearing manufacturer’s name and label:

B. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.8 FIELD CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).

B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Sherwin-Williams Company, telephone 1-800-743-7947, e-mail contact www.sherwin-williams.com.

B. Substitutions: Equal products of other manufactures approved in advance by the Architect.

2.2 PAINT, GENERAL

A. Material Compatibility:

1. Provide materials for use within each paint system for fillers, primers and finish-coat materials that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.

2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
3. VOC Classification: Provide high-performance coating materials, including primers, undercoats, and finish coat materials, that have a VOC classification of 450 g/l or less.

B. Colors: As selected by Architect from manufacturer's full range.

1. The Architect will prepare a color schedule with samples for guidance in painting.

2.3 APPLICATION EQUIPMENT

A. For application of the approved paint, use only such equipment as is recommended for application of the particular paint by the manufacturer of the particular paint, and as approved by the Architect.

B. Prior to use of application equipment, verify that the proposed equipment is actually compatible with the materials to be applied, and that integrity of the finish will not be jeopardized by use of the proposed equipment.

2.4 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

2.5 METAL PRIMERS

A. Primer, Ferrous Metals, Rust Inhibitive for Metal: MPI #79.

1. Sherwin Williams, Kromik Metal Primer, E41N1, 3.0-4.0 mils dry.

B. Primer, Galvanized, Solvent Based: MPI #135.

1. Sherwin-Williams, Galvite HS, B50WZ30, 3.0-4.5 mils dry.

C. Primer, Wood Materials: MPI #3.

1. Sherwin Williams, Exterior Oil-Based Wood Primer, Y24W8020, 2.3 mils dry.

2.6 CONCRETE PRIMERS

A. Primer, Cementitious Materials: MPI #3.

1. Sherwin Williams, Loxon Exterior Acrylic Masonry Primer, A24W300 Series, 3.7 mils dry.

2.7 ENAMEL-BASED PAINTS

A. Industrial & Marine Coatings, Exterior, Enamel Based, Gloss (Gloss Level 6): MPI #9.

1. Sherwin-Williams, Industrial Enamel, HS, Gloss, B54Z-400 Series, 2.0-4.0 mils dry.

2.8 WATER-BASED PAINTS

A. Sherwin-Williams, Exterior Latex, Flat: MPI #10 (Gloss Levels 1-2).

1. Sherwin Williams, A-100 Exterior Latex Flat, A6 Series 1.2 mils dry.

2.9 SOURCE QUALITY CONTROL

A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:

    1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
    2. Testing agency will perform tests for compliance with product requirements.
    3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove non-complying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

C. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.

D. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.

    1. Notify Architect in writing, about anticipated problems when using the materials specified over substrates primed by others.
    2. If a potential incompatibility of primers applied by others exists, obtain the following from the primer applicator before proceeding:

        a. Confirmation of primer’s suitability for expected service conditions.
        b. Confirmation of primer’s ability to be top coated with materials specified.

E. Proceed with coating application only after unsatisfactory conditions have been corrected.

    1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates and paint systems indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

D. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer.

1. SSPC-SP 2, "Hand Tool Cleaning."
2. SSPC-SP 3, "Power Tool Cleaning."
3. SSPC-SP 7/NACE No. 4, "Brush-off Blast Cleaning."
4. SSPC-SP 11, "Power Tool Cleaning to Bare Metal."

E. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

F. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Manual."

1. Touch up on applied prime coats which have been damaged, and touch up bare areas prior to start of finish coats application.
2. Slightly vary the color of succeeding coats.

    a. Do not apply additional coats until the completed coat has been inspected and approved.
    b. Only the inspected and approved coats of paint will be considered in determining the number of coats applied.

3. Sand and dust between coats to remove defects visible to the unaided eye from a distance of five feet.
4. On removable panels and hinged panels, paint the back sides to match the exposed sides.
5. Use applicators and techniques suited for paint and substrate indicated.
6. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
7. Paint both sides and edges of exterior doors and entire exposed surface of exterior door frames.
8. Paint entire exposed surface of window frames and sashes.
9. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
10. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.

B. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

C. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

D. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:

  1. Paint the following work where exposed to view.

    a. Equipment, including panelboards and switch gear.
    b. Uninsulated metal piping.
    c. Uninsulated plastic piping.
    d. Pipe hangers and supports.
    e. Metal conduit.
    f. Plastic conduit.
    g. Tanks that do not have factory-applied final finishes.

E. Application Procedures: Apply coatings by brush, roller, spray, or other applicators according to manufacturer’s written instructions.

  1. The number of coats and film thickness required is the same regardless of application method.
  2. Block filler on new concrete masonry units is to be applied by roller and not spray applied for proper coverage.

F. Drying:

  1. Allow sufficient drying time between coats, modifying the period as recommended by the material manufacturer to suit adverse weather conditions.
  2. Consider oil-base and oleo-resinous solvent-type paint as dry for recoating when the paint feels firm, does not deform or feel sticky under moderate pressure of the thumb, and when the application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.

G. Brush applications:

  1. Brush out and work the brush coats into the surface to an even film.
  2. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, and other surface imperfections will note be acceptable.

H. Spray applications:

  1. Except as specifically otherwise approved by the Architect, confine spray application to metal framework and similar surfaces where brush work would be inferior.
  2. Where spray application is used, apply each coat to provide the hiding equivalent of brush coats.
  3. Do not double back with spray equipment to build up film thickness of two coats in on pass.

I. Completed work: Match the approved Samples as to texture, color, and coverage. Remove, refinish, or repaint, work not in compliance with the specified requirements.

J. Miscellaneous surfaces and procedures:

  1. Exposed mechanical items;

a. Finish electric panels, access doors, conduits, pipes, ducts, grilles, registers, vents, and items of similar nature to match the adjacent wall and ceiling surfaces, or as directed by the Architect.

b. Plywood skirting.

3.4 FIELD QUALITY CONTROL

A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.

1. Contractor shall touch up and restore painted surfaces damaged by testing.
2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.5 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean glass, prefinished metals, concrete, precast and painted spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. Provide “Wet Paint” signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.

E. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 EXTERIOR PAINTING SCHEDULE

A. Ferrous Metal: Provide the following finish systems over exterior ferrous metal. Primer is not required on shop-primed items.

1. Two finish coats over a rust-inhibitive primer (ferrous).

   a. Primer: Sherwin-Williams: Kromik Metal Primer, E41N1: Applied at a dry film thickness of not less than 3.0-mils (0.076-mm) minimum.
   b. Finish: Sherwin-Williams: Pro-Industrial Urethane Alkyd Enamel, Gloss, B54-150. Applied at a dry film thickness of note less than 4.0-mils (0.101-mm) minimum.

2. Two finish coats over a rust-inhibitive primer (galvanized).

   a. Primer: Sherwin-Williams: Galvite HS, B50WZ30: Applied at a dry film thickness of note less than 4.5-mils (0.114-mm) minimum.

  - b. Finish: Sherwin-Williams: Pro-Industrial Urethane Alkyd Enamel, Gloss B54-150. Applied at a dry film thickness of note less than 4.0-mils (0.101-mm) minimum.

- 3. Two finish coats over factory primed metals.

  - a. Primer: Factory primed metals.
  - b. Finish: Sherwin-Williams: Pro-Industrial Urethane Alkyd Enamel, Gloss B54-150. Applied at a dry film thickness of note less than 4.0-mils (0.101-mm) minimum.

B. Wood Substrates: Provide the following finish systems over exterior wood substrates requiring painting.

- 1. Alkyd/Latex System:

  - a. Primer: Sherwin Williams, Exterior Oil-Based Wood Primer, Y24W8020, 2.3 mils dry.
  - b. Finish: Sherwin Williams, A-100 Exterior Latex Flat, A6-100 Series 1.2 mils dry.

END OF SECTION

IFB 20-016

Kansas City Kansas Public Schools USD 500

Modular Classroom Project

at ME Pearson Elementary School

310 North 11th Street
Kansas City, Kansas 66102

PROJECT TEAM

KANSAS CITY
KANSAS
PUBLIC SCHOOLS

ARCHITECT

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abbreviations

AC.	ACOUSTIC/ACOUSTICAL
ADD.	ADDENDUM
ADD'N.	ADDITION
ABC	AGGREGATE BASE COURSE
AFF	ABOVE FINISH FLOOR
AGG.	AGGREGATE
A/C	AIR CONDITIONING
AL.	ALUMINUM
ALT.	ALTERNATE
A.B.	ANCHOR BOLT
&	AND
ARCH.	ARCHITECT
ASP.	ASPHALT
@	AT
ACT	ACOUSTICAL CEILING TILE/PANEL
∠	ANGLE
BLKG.	BLOCKING
BSMT.	BASEMENT
BM.	BEAM
B.M.	BENCHMARK
BD.	BOARD
B.O.	BOTTOM OF
BLDG.	BUILDING
CAB'T.	CABINET
C.I.P.	CAST IN PLACE
C.B.	CATCH BASIN
CLG.	CEILING
CEM.	CEMENT/CEMENTITIOUS
CG.	CENTIGRAM
CM	CENTIMETER
CL.	CENTER LINE
CER.	CERAMIC
C.T.	CERAMIC TILE
CHAN.	CHANNEL
[	CHANNEL
CLR.	CLEAR
C.O.	CLEAN OUT
CLOS.	CLOSET
COL.	COLUMN
CONC.	CONCRETE
CONN.	CONNECTION
CONST.	CONSTRUCTION
C.J.	CONTROL JOINT CONSTRUCTION JOINT
CONT.	CONTINUOUS
CONTR.	CONTRACTOR
COR'G.	CORRUGATED
CTR.	COUNTER
CTSK.	COUNTERSUNK
C.M.U.	CONCRETE MASONRY UNIT
D.P.	DAMP PROOFING
DB.	DECIBEL
DIAG.	DIAGONAL
DIAM.	DIAMETER
DIM.	DIMENSION
DISP.	DISPENSER
DWL.	DOWEL
DN.	DOWN
D.S.	DOWNSPOUT
DWG.	DRAWING
EA.	EACH
ELEC	ELECTRIC
E.W.C.	ELECTRIC WATER COOLER
EL.	ELEVATION
ELEV.	ELEVATOR
EQ.	EQUAL
EQUIP.	EQUIPMENT
EXH.	EXHAUST
EXPAN.	EXPANSION
E.J.	EXPANSION JOINT
EXIST.	EXISTING
EXT.	EXTERIOR
FT.	FEET / FOOT
FIN.	FINISH
FIXT.	FIXTURE
FL.	FLASHING
FLR.	FLOOR
F.D.	FLOOR DRAIN
FLOR.	FLUORESCENT
FTG.	FOOTING
FND.	FOUNDATION
FR.	FRAME
F.H.C.	FIRE HOSE CAB.
FV.	FIELD VERIFY
GA.	GAUGE
GL.	GLASS / GLAZING
GD.	GRADE
G.	GRAM
GRL.	GRILLE
GRD.	GRID
GND.	GROUND
G.S.	GALVANIZED STEEL
GYP.	GYPSUM
GWB/G.B.	GYPSUM BOARD
H.R.	HAND RAIL
HDN.	HARDENER
HDW.	HARDWARE
HDWD.	HARDWOOD
HTR.	HEATER
HT.	HEIGHT
H.P.	HIGH POINT
H.M.	HOLLOW METAL
HORIZ.	HORIZONTAL
H.B.	HOSE BIB
H.W.	HOT WATER
IN.	INCH / INCHES
I.D.	INSIDE DIAMETER
INSUL.	INSULATION
INT.	INTERIOR
INV.	INVERT
JAN.	JANITOR
JT.	JOINT
JST.	JOIST
K.P.	KICK PLATE
LAM.	LAMINATED
LB.	POUND
LDG.	LANDING
LTH.	LATH
LAV.	LAVATORY
LG.	LENGTH
LOC.	LOCATION
LT.	LIGHT
L.W.C.	LIGHT WEIGHT CONCRETE
LVR.	LOUVER
LOC.	LOCATION
M.O.	MASONRY OPENING
MAT'L..	MATERIAL
MFR.	MANUFACTURER
MB.	MARKER BOARD
MAX.	MAXIMUM
MECH.	MECHANICAL
MTL.	METAL
M.L.	METAL LATH
M.	METER
MIN.	MINIMUM
MLDG.	MOLDING
MULL.	MULLION
N.G.	NATURAL GRADE
NOM.	NOMINAL
N.I.C.	NOT IN CONTRACT
N.T.S.	NOT TO SCALE
NO. / □	NUMBER
OBS.	OBSCURE
O.C.	ON CENTER
OPN'G.	OPENING
O.A.	OVERALL
O.D.	OUTSIDE DIAMETER
O.F.S.	OVERFLOW SCUPPER
O.F.D.	OVERFLOW DRAIN
O.H.D.	OVERHEAD DOOR
PTD.	PAINTED
PG.	PAGE
PLAM.	PLASTIC LAMINATE
PR.	PAIR
PNL.	PANEL
PTN.	PARTITION
d	PENNY
PL	PLATE
PLBG.	PLUMBING
PLYWD.	PLYWOOD
PT.	POINT
P.S.I.	POUNDS PER SQ. IN.
P.S.F.	POUNDS PER SQ. FT.
P.C.	PRECAST
P.L.	PROPERTY LINE
R.	RISER, RISERS
RAD.	RADIUS
R.D.	ROOF DRAIN
RB.	RESILIENT BASE
RE.	REFER TO
REG.	REGISTER
REQ'D.	REQUIRED
REV.	REVISION
RF'G.	ROOFING
RGH.	ROUGH
RM.	ROOM
RND.	ROUND
R.O.	ROUGH OPENING
SCHED.	SCHEDULE
S.C.	SEALED CONCRETE
SCR.	SCREW
SECT.	SECTION
SEL.	SELECT
SHG.	SHEATHING
SHT.	SHEET
SDG.	SIDING
SIM.	SIMILAR
SLDG.	SLIDING
SM.	SMOOTH
SPEC.	SPECIFICATION
SQ.	SQUARE
ST.	STAINED
STD.	STANDARD
S.S. / ST.STL.	STAINLESS STEEL
STRUC.	STRUCTURE
SUSP.	SUSPENDED
SW.BD.	SWITCHBOARD
SYS.	SYSTEM
T.	TREAD
T.C.	TOP OF CURB
T.G.	TEMPERED GLASS
T.O.	TOP OF
T.S.D.	TOP OF STEEL DECK
T.W.	TEACHERS WARDROBE
TYP.	TYPICAL
U.O.N.	UNLESS OTHERWISE NOTED
V.	VENT
VERT.	VERTICAL
V.G.	VERTICAL GRAIN
VEST.	VESTIBULE
V.C.T.	VINYL COMPOSITION TILE
VCP	VITREOUS CLAY PIPE
W.W.M.	WELDED WIRE MESH
W.C.	WATER CLOSET
W.H.	WATER HEATER
W.F.	WIDE FLANGE
W/	WITH
W/O	WITHOUT
WD.	WOOD
WDW.	WINDOW
W.W.	WINDOW WALL

code information

BUILDING CODE :

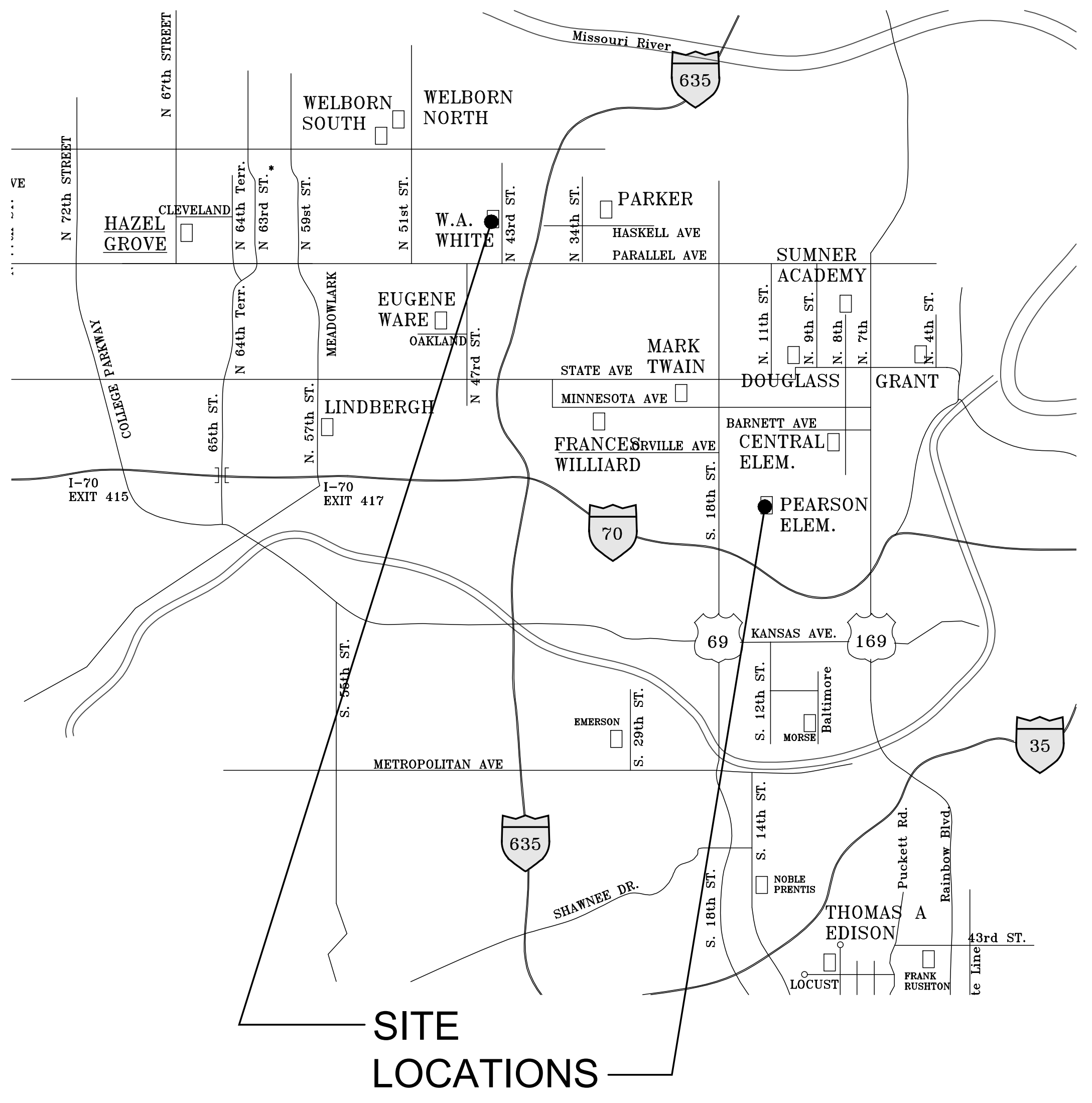
2012 International Building Code
2012 International Mechanical Code (ICC)
2012 International Energy Conservation Code (ICC)
2011 National Electrical Code
2012 Uniform Plumbing Code
2012 International Fire Code
And all amendments to the above codes as adopted by the Unified Government
All Ordinances of the Unified Government of Wyandotte County/Kansas City, KS
Current Life Safety Code
Kansas Fire Prevention Code

OCCUPANCY GROUP :	E
TYPE OF CONSTRUCTION :	V-B
SPRINKLER STATUS :	NOT SPRINKLERED
MOD. CLSSRM. AREA:	1,504 SF (635 SF/CLASSROOM)
OCCUPANT LOAD FACTOR:	20 NET SF/ OCC
OCCUPANT LOAD PER CLASSROOM:	32

materials legend

▨	BATT INSULATION (SECTION)
▨	GYPSUM BOARD (SECTION)
▨	PLYWOOD (SECTION)
▨	BRICK
▨	SAND; PLASTER; GROUT
▨	STEEL (SECTION)
▨	FINISH WOOD (SECTION)
▨	CONCRETE BLOCK (PLAN)
▨	GRAVEL
▨	TREATED WOOD BLOCKING (SECTION)
▨	RIGID INSULATION (SECTION)
▨	CONCRETE (SECTION)
▨	EARTH (SECTION)
▨	SHIM (SECTION)
▨	CONCRETE (SURFACE)

location map



index of drawings

A0.0	Cover Sheet

CIVIL

C01	Title Sheet
C02	WAW Demolition and Restoration Plan
C03	M E Pearson Demo Plan
C04	Spot Elevations & Site Plan
C05	M E Pearson Stormwater Plan
C06	Standard Details I
C07	Seeding Specification

ARCHITECTURAL

A1.0	Architectural Site Plan
A2.0	Ramp Plans
A2.1	Ramp Details

STRUCTURAL

S1.0	Foundation Plan/Details

MECHANICAL/PLUMBING/ELECTRICAL/SPECIAL SYSTEMS

ME1.1	Site Plan - Mechanical / Electrical
ME2.1	Schedules / Details - Electrical
ME2.2	Schedules / Details - Mechanical

MODULAR CLASSROOM UNIT MANUFACTURER'S DRAWINGS
(For reference only)

1	Cover Sheet/Unit Information & Specifications
2	Exterior Elevations
3	Floor Plan/Sections
4	Electrical Plan
5	Reflected Ceiling Plan
1	Suggested Blocking Layout

general notes

1 ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH A.D.A. and ANSI REQUIREMENTS AND ALL APPLICABLE LOCAL, STATE, AND FEDERAL BUILDING CODES AND REGULATIONS.

2 DO NOT SCALE DRAWINGS.

3 THE WORD "ALIGN" AS USED IN THESE DOCUMENTS SHALL SUPERSEDE ANY DIMENSIONAL INFORMATION GIVEN.

4 TYPICAL DIMENSIONS ARE TO FACE OF CONCRETE, DRYWALL, CURTAIN WALL, ETC., OR TO COLUMN CENTERLINE. DIMENSIONS AT WINDOWS ARE TYPICALLY ROUGH OPENINGS. REFER TO PLAN DETAILS FOR ADDITIONAL INFORMATION.

5 ALL WORK IN PUBLIC EASEMENTS AND RIGHT-OF-WAY AND ALL EROSION CONTROL WORK MUST COMPLY WITH THE LATEST EDITION OF THE TECHNICAL PROVISIONS & STANDARD DRAWINGS FOR ROADS AND SEWERS OF THE UNIFIED GOVERNMENT OF WYANDOTTE COUNTY AND KANSAS CITY, KANSAS. IF ANY GENERAL NOTES CONFLICT WITH THE STANDARDS OF THE UNIFIED GOVERNMENT OF WYANDOTTE COUNTY AND KANSAS CITY, KANSAS (THE UG), THE UG'S STANDARDS SHALL OVERRIDE.

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08/14/20

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Kansas City, Kansas Public Schools USD 500
ME Pearson Elementary
Modular Classrooms
310 North 11th St - Kansas City, Kansas - 66102

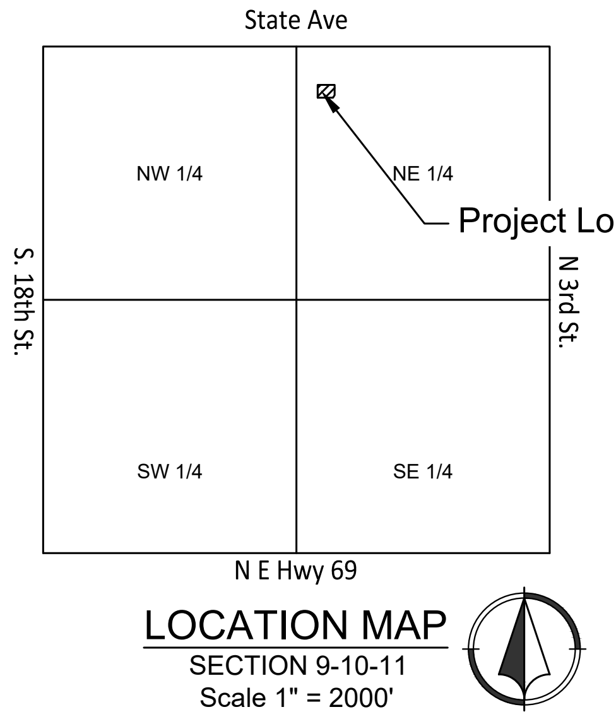
Date	8/14/20
Job Number	3-20053
Drawn By	GCP
Checked By	DBL

Revisions

Number	Date	Description

A0.0

IFB 20-016



LOCATION MAP
SECTION 9-10-11
Scale 1" = 2000'

Permit Plans For

M E PEARSON ELEMENTARY TRAILER RELOCATION

City Of Kansas City, Wyandotte County, Kansas

INDEX OF SHEETS

Sheet Number	Sheet Title
C01	Title Sheet
C02	William White Demo & Restoration Plan
C03	ME Pearson Demo Plan
C04	Spot Elevation & Site Plan
C05	ME Pearson Stormwater Plan
C06	Standard Details I
C07	Seeding Specification

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800.794.4780

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Atmos Energy
(Formerly Greeley Gas Company)
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Olathe, Kansas 66061
Richard Yunghans
Phone: 913.764.0531 Ext. 234
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richard.yunghans@atmosenergy.com

Kansas 811
Know what's below.
Call 811 before you dig.

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7th Floor
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Kirk Roland (Sanitary Sewers)
Phone: 913.573.5700
Fax: 913.573.5435

Southwestern Bell
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Kansas City, Missouri 64106
Doug Holthaus

Sunflower Broadband
1 Riverfront Plaza
Suite 301
Lawrence Kansas 66044
Tim Templeton
Phone: 785.312.6960

Time Warner Cable
6550 Winchester
Kansas City, Missouri 64133
Damon Porter
Phone: 816.222.5821

CONSULTANT/APPLICANT

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Kansas City, Kansas 66103
Phone: 913.317.9500

LEGEND

——	Existing Section Line	— · —	Proposed Right-of-Way
——	Existing Right-of-Way Line	——	Proposed Property Line
——	Existing Lot Line	——	Proposed Lot Line
- - - -	Existing Easement Line	— U/E —	Proposed Easement
══	Existing Curb & Gutter	══	Proposed Curb & Gutter
══	Existing Sidewalk	▨	Proposed Sidewalk
══	Existing Storm Sewer	══	Proposed Storm Sewer
▭	Existing Storm Structure	▭	Proposed Storm Structure
— W — W —	Existing Waterline	A	Proposed Fire Hydrant
——	Existing Gas Main	— W —	Proposed Waterline
——	Existing Sanitary Sewer	——	Proposed Sanitary Sewer
Ⓢ	Existing Sanitary Manhole	Ⓢ	Proposed Sanitary Manhole
— — —	Existing Contour Major	——	Proposed Contour Major
— — —	Existing Contour Minor	——	Proposed Contour Minor
		········	Future Curb and Gutter

GENERAL NOTES

1. All work must comply with the latest edition of the Technical Provisions & Standard Drawings for Roads and Sewers, of the Unified Government of Wyandotte County / Kansas City, Kansas. If any general notes conflict with the Technical Provisions & Standard Drawings for Roads and Sewers, of the Unified Government of Wyandotte County / Kansas City, Kansas (the UG), the UG's standards shall override.
2. All traffic control shall be in conformance with the Manual of Uniform Traffic Control Devices (MUTCD).
3. The contractor is responsible for the protection of all property corners and section corners. Any property corners and/or section corners disturbed or damaged by construction activities shall be reset by a Registered Land Surveyor licensed in the State of Kansas, at the contractor's expense.
4. The contractor shall be responsible for the restoration of the right-of-way and for damaged improvements such as curbs, driveways, sidewalks, street light and traffic signal junction boxes, traffic signal loop lead ins, signal poles, irrigation systems, etc. Damaged improvements shall be repaired in conformance with the latest City standards and to the City's satisfaction.
5. The contractor is responsible for providing erosion and sediment control BMPs to prevent sediment from reaching paved areas, storm sewer systems, drainage courses and adjacent properties. In the event the prevention measures are not effective, the contractor shall remove any debris, silt, or mud and restore to original or better condition.
6. The contractor shall sod all disturbed areas within the public street right-of-way unless otherwise noted on the plans or if specific written approval is granted by the Owner.
7. All public street sidewalk ramps constructed will be required to comply with the Americans with Disabilities Act (ADA) and Kansas City, Kansas sidewalk details.
8. All work shall be confined within easements and/or construction limits as shown on the plans.
9. Any existing and/or temporary storm sewer pipes and box culverts to be abandoned in place shall be grouted using a slurry grout mixture meeting a 7-day compressive strength of 100-150 psi. The slurry grout mixture of fly ash, cement, fine aggregate, forming agents and water shall be approved by the City and shall possess adequate flow characteristics to fill all voids.

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Kansas City, Kansas Public Schools USD 500
ME Pearson Elementary
Modular Classrooms
310 North 11th St - Kansas City, Kansas - 66102

Date	8/14/20
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Drawn By	JGW
Checked By	DJB

Revisions

Number	Date	Description

C01

Civil Title Sheet

William White Elementary School
2600 North 43 Terrace, Kansas City, KS

EX. UG Cable. Contractor to Verify

EX. Data Line Contractor to Verify

EX. Sanitary Contractor to Verify

EX. UG Elec. Contractor to Verify

Reestablish Vegetation to match existing ground cover in all disturbed areas.
(See Standard Details)

Install Perimeter Silt Fence Prior to Construction
(See Standard Details)

Existing Trailer to be Relocated to M E Pearson

Footings to be excavated and foundations removed per UG standards

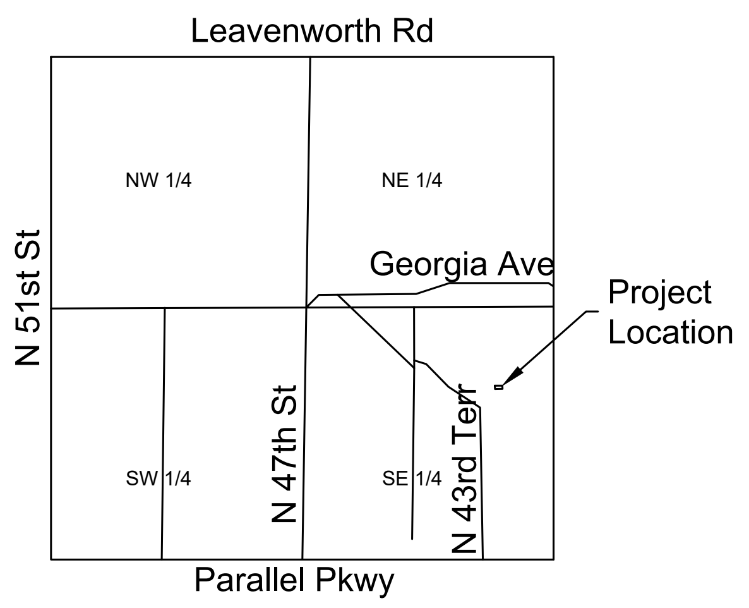
EX. Domestic Water Line Contractor to verify

Stockpile Area
(As Needed)

Remove all Existing Utilities Within Demolition Limits. Utilities Shown for Reference. Contractor Shall Field Verify Actual Locations Prior to Demolition/Construction Activities.

DEMOLITION NOTES:

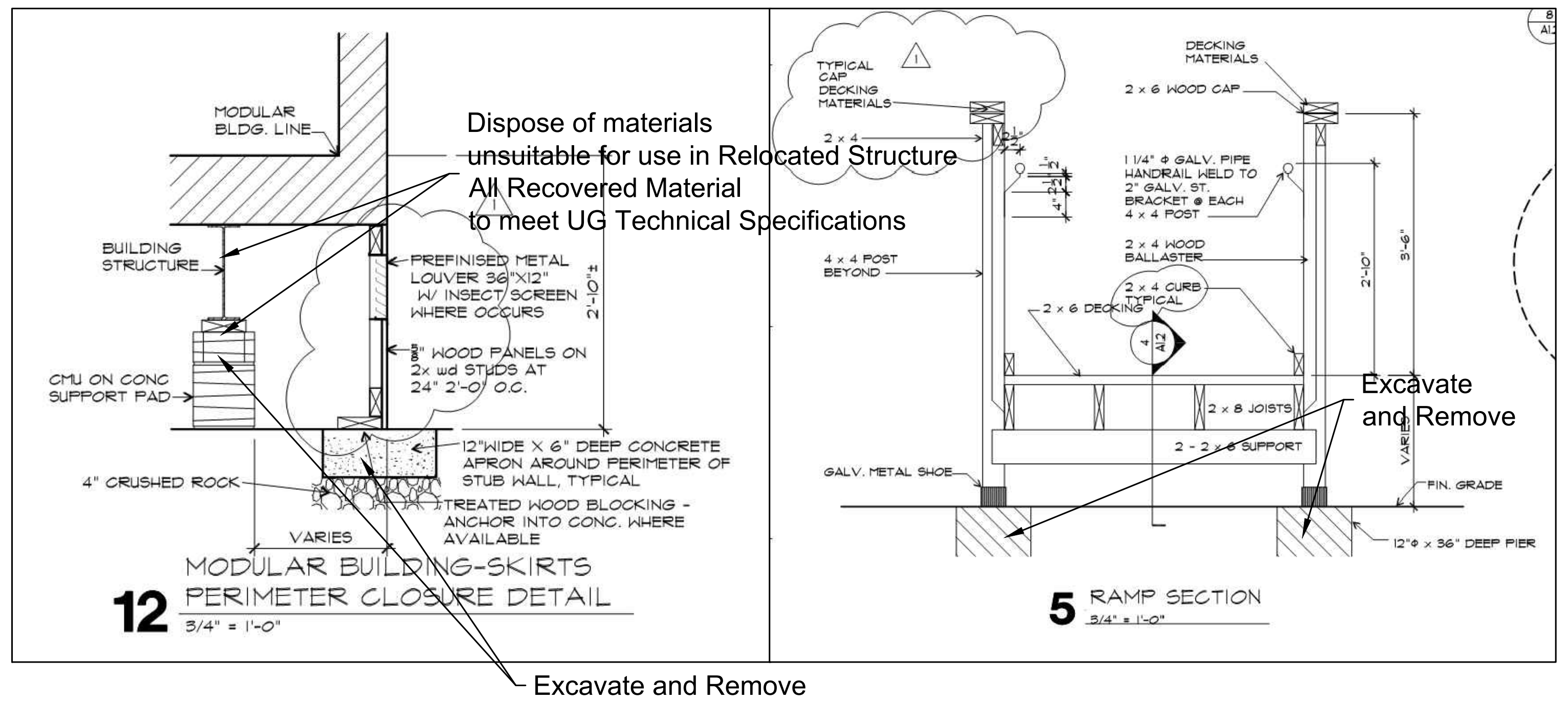
1. All Existing Structures, Curb, Gutter, Pavement, Sidewalks, Inlets, Pipes, etc. within the Limits of Demolition which are not being integrated into the Proposed Construction shall be Removed. All Waste Material Resulting from the Project shall be Disposed of Off-Site by the Contractor at an Approved Waste Dump and In Accordance with all Local Codes and Ordinances. The Cost shall be the Contractors Responsibility.
2. All materials removed shall be disposed of in an approved construction landfill. All demolition to meet all federal, state and city requirements.
3. Prior to Beginning Demolition/Costruction Activities, the Contractor Shall Verify all Utility Connections have been Shut Off and Abandoned.
4. All Cavities created by removal of existing facilities in the area of proposed construction shall be filled and compacted to sub-grade with AB-3, or a well drained aggregate approved by city. All fill shall be comply with UG Technical Provisions.
5. Contractor shall be responsible for any damage sustained to the building structure to be relocated, and will repair any such damage to the building at their own expense.
6. Contractor shall be responsible for the safety of those in the vicinity of work related to the project both on and in transit to construction sites in so far as it is affected by and relates to required relocation activities.
7. FINAL SITE CONDITION: The site shall be left in the following condition:
   - 7.1. Areas that pond water shall be eliminated.
   - 7.2. Slopes shall be no steeper than 3 Horizontal to 1 Vertical.
   - 7.3. Debris, salvage, excess construction materials, and Contractor's equipment shall be removed from site.
   - 7.4. The site shall be seeded or sodded per plan specifications (Sheet 06).



LOCATION MAP
SECTION 36-10-24
Scale 1" = 2000'

Legend

─□─□─	Silt Fence
▨	Demolition Area



Dispose of materials unsuitable for use in Relocated Structure All Recovered Material to meet UG Technical Specifications

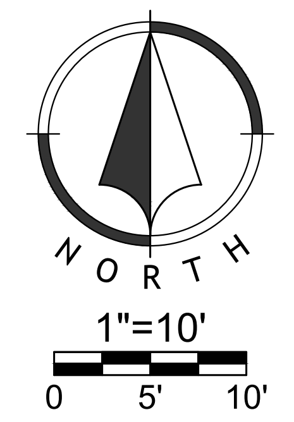
Excavate and Remove

Excavate and Remove

Footing Detail For Excavation
N.T.S

GENERAL EARTHWORK NOTES:

1. CONTOURS AND ELEVATIONS: Existing and proposed contours are shown on plans at one feet (1') contour intervals, unless otherwise noted. Proposed contours and elevations shown represent approximate finish grade.
2. CLEARING AND GRUBBING: Prior to the start of grading and earthwork, the areas to be graded shall be stripped of all vegetation, organic matter, and topsoil, to a minimum depth of four inches (4") or as otherwise directed by the Geotechnical Engineer. Stripping materials shall not be incorporated into structural fills. Topsoil materials shall not be used in building and pavement areas.
3. TOPSOIL: Prior to the start of grading, the contractor shall strip all topsoil from areas to be graded and stockpile at a location on or adjacent to the site as directed by the owner. At completion of grading operations and related construction, the contractor will be responsible for redistribution of topsoil over all areas disturbed by the construction activities. Topsoil shall be placed to a minimum depth of six inches (6").



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Kansas City, Kansas Public Schools USD 500

ME Pearson Elementary

Modular Classrooms

310 North 11th St - Kansas City, Kansas - 66102

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Job Number	20-0141
Drawn By	JGW
Checked By	DJB

Revisions

Number	Date	Description

C02

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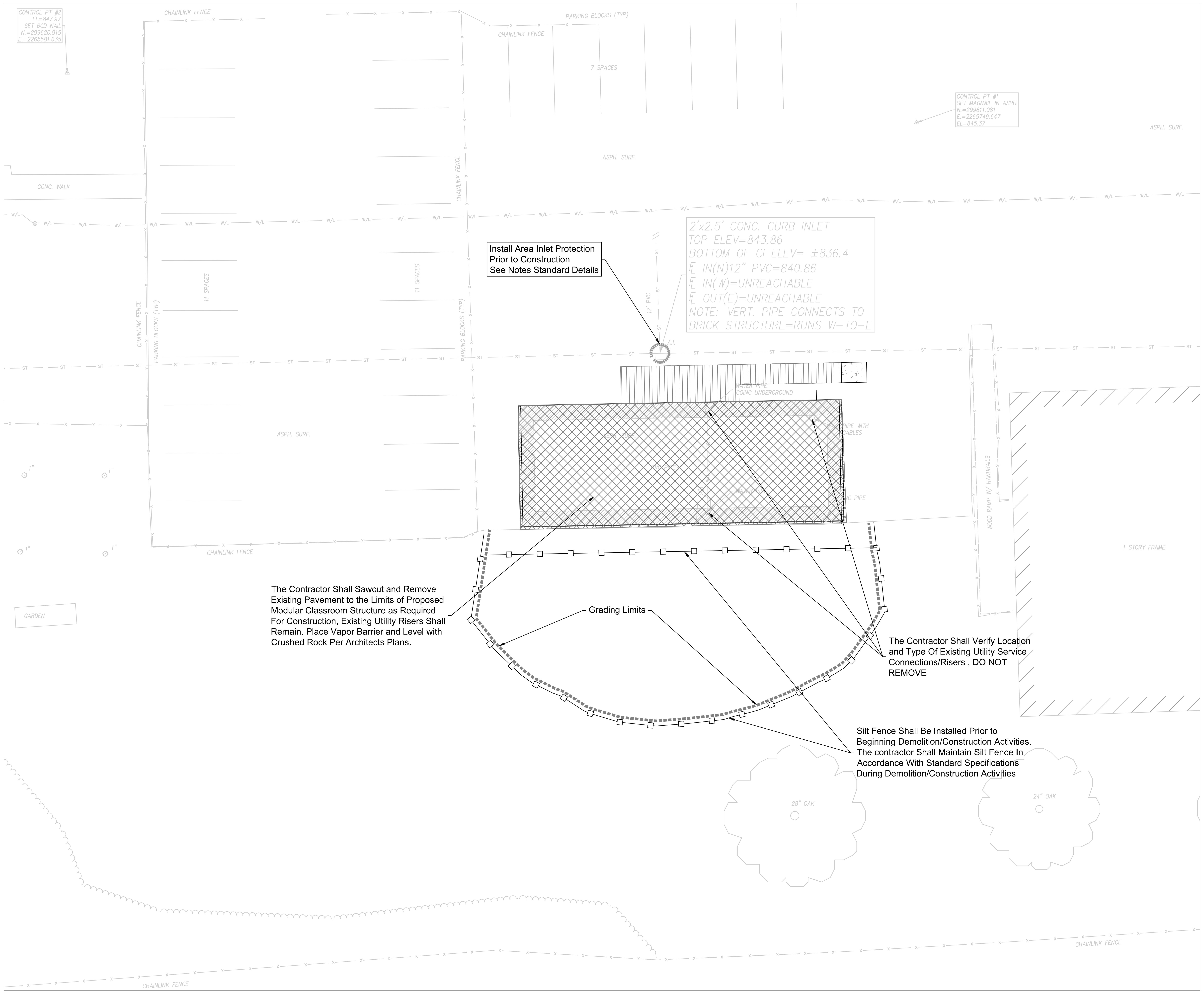

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5. Contractor shall be responsible for any damage sustained to the building structure to be relocated, and will repair any such damage to the building at their own expense.
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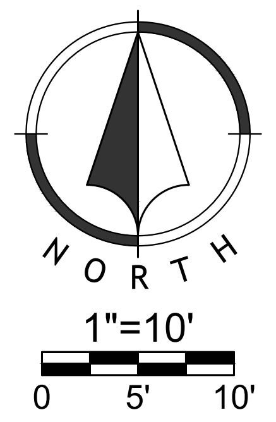
Legend

—□—□—	Silt Fence
▨	Demolition Area
◌	Inlet Protection



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Kansas City, Kansas Public Schools USD 500

ME Pearson Elementary
Modular Classrooms

310 North 11th St - Kansas City, Kansas - 66102

Date	8/14/20
Job Number	20-0141
Drawn By	JGW
Checked By	DJB

Revisions

Number	Date	Description

C03

ME Pearson Demo Plan

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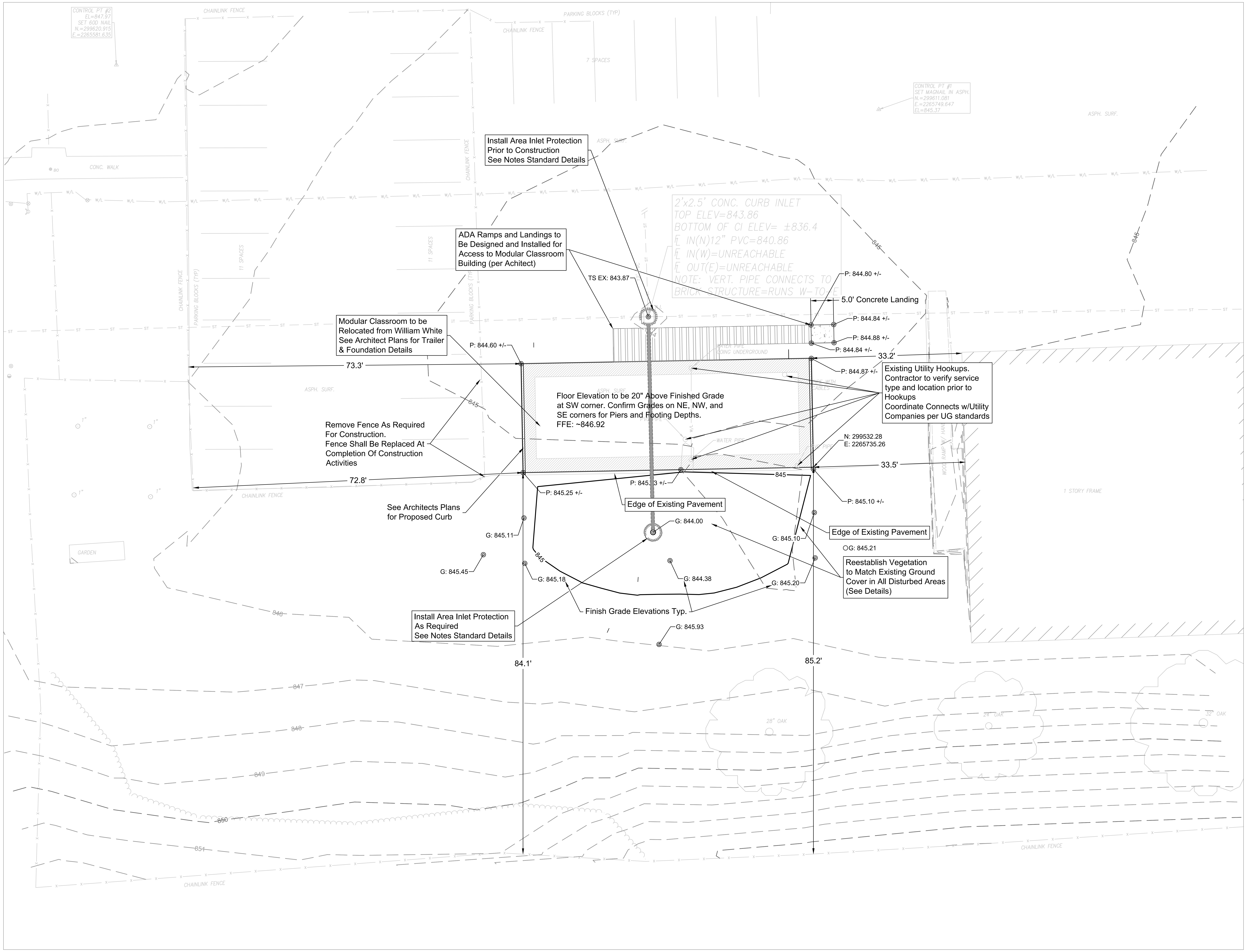

Install Area Inlet Protection
Prior to Construction
See Notes Standard Details

ADA Ramps and Landings to
Be Designed and Installed for
Access to Modular Classroom
Building (per Achitect)

2'x2.5' CONC. CURB INLET
TOP ELEV=843.86
BOTTOM OF CI ELEV= ±836.4
FL IN(N)12" PVC=840.86
FL IN(W)=UNREACHABLE
FL OUT(E)=UNREACHABLE
NOTE: VERT. PIPE CONNECTS TO
BRICK STRUCTURE=RUNS W-TO-E

Modular Classroom to be
Relocated from William White
See Architect Plans for Trailer
& Foundation Details

Existing Utility Hookups.
Contractor to verify service
type and location prior to
Hookups
Coordinate Connects w/Utility
Companies per UG standards

Floor Elevation to be 20" Above Finished Grade
at SW corner. Confirm Grades on NE, NW, and
SE corners for Piers and Footing Depths.
FFE: ~846.92

Remove Fence As Required
For Construction.
Fence Shall Be Replaced At
Completion Of Construction
Activities

See Architects Plans
for Proposed Curb

Edge of Existing Pavement

Reestablish Vegetation
to Match Existing Ground
Cover in All Disturbed Areas
(See Details)

Finish Grade Elevations Typ.

Install Area Inlet Protection
As Required
See Notes Standard Details

NORTH
1"=10'
0 5' 10'

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Kansas City, Kansas Public Schools USD 500

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Revisions

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C04

Spot Elevation & Site Plan

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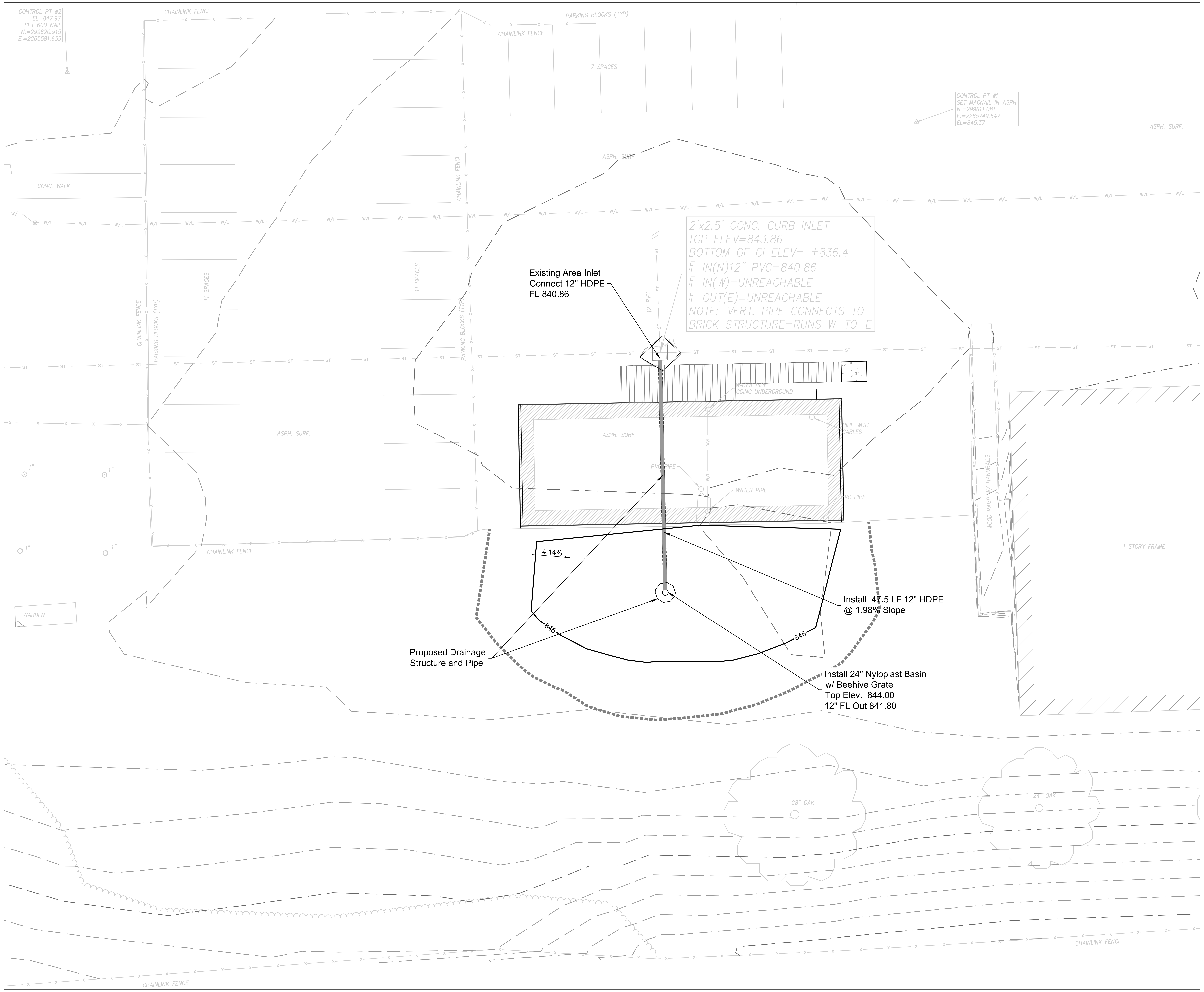

Existing Area Inlet
Connect 12" HDPE
FL 840.86

Install 47.5 LF 12" HDPE
@ 1.98% Slope

Proposed Drainage
Structure and Pipe

Install 24" Nyloplast Basin
w/ Beehive Grate
Top Elev. 844.00
12" FL Out 841.80

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KANSAS
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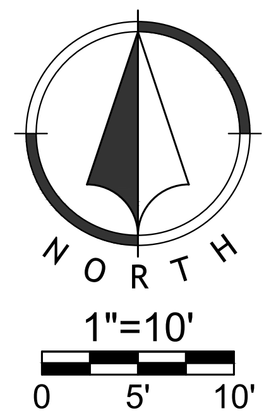
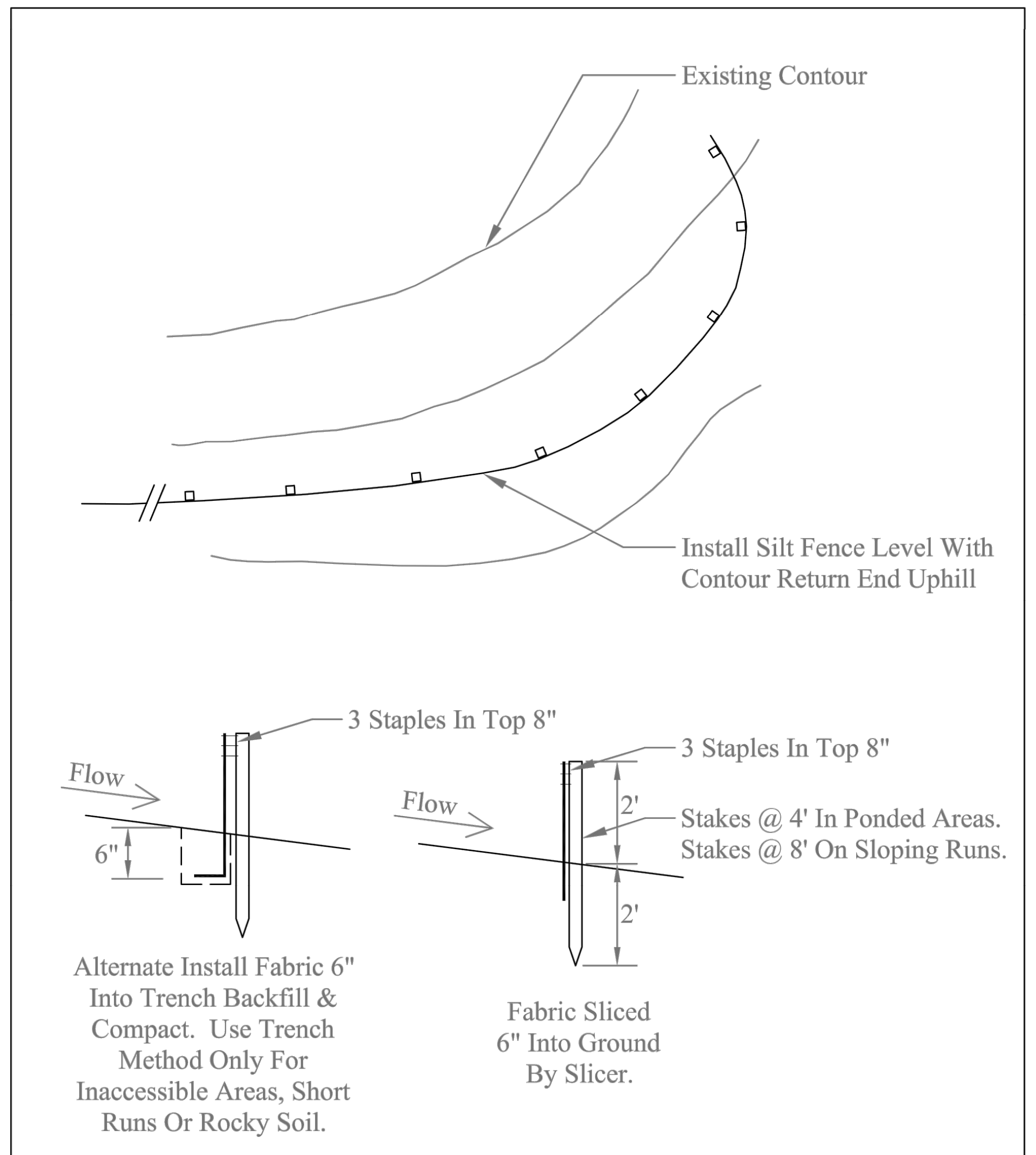


C05

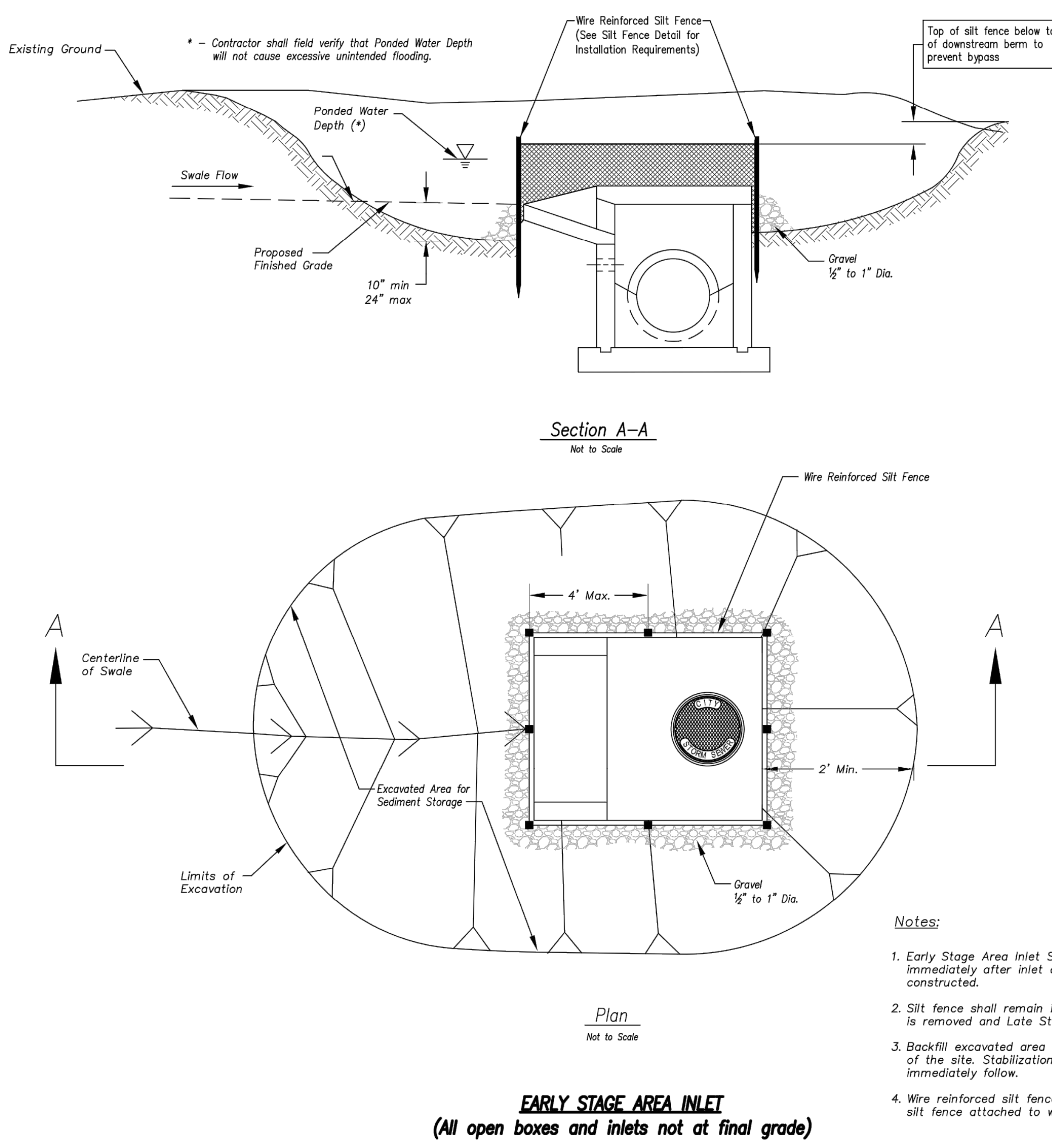


SILT FENCE INSTALLATION

PUBLIC WORKS DEPARTMENT, ENGINEERING DIVISION

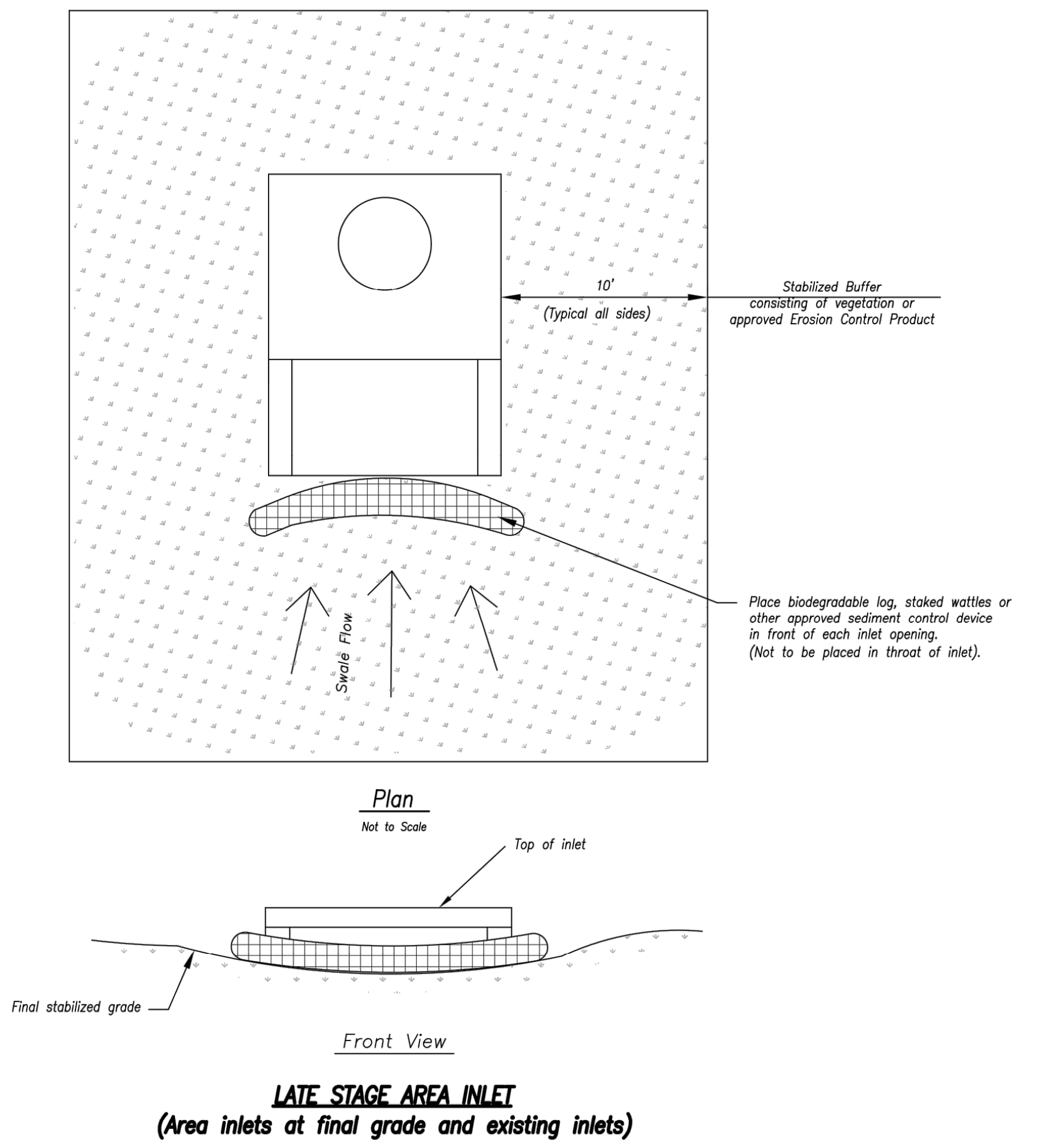
UNIFIED GOVERNMENT

UG 1400–E
2008 Edition



Notes:

1. Early Stage Area Inlet Sediment Barrier to be installed immediately after inlet or junction box is constructed.
2. Silt fence shall remain in place until excavated area is removed and Late Stage Area Inlet is being installed.
3. Backfill excavated area ONLY after final grading of the site. Stabilization of the site is to immediately follow.
4. Wire reinforced silt fence may be used in place of silt fence attached to wood frame.



Maintenance:

1. Remove deposited sediment from excavated storage areas when available storage has been reduced by 20%.
2. Remove deposited sediment from filter socks or similar when any accumulation of sediment is visible.
3. Repair or replace as necessary to maintain function and integrity of installation.

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

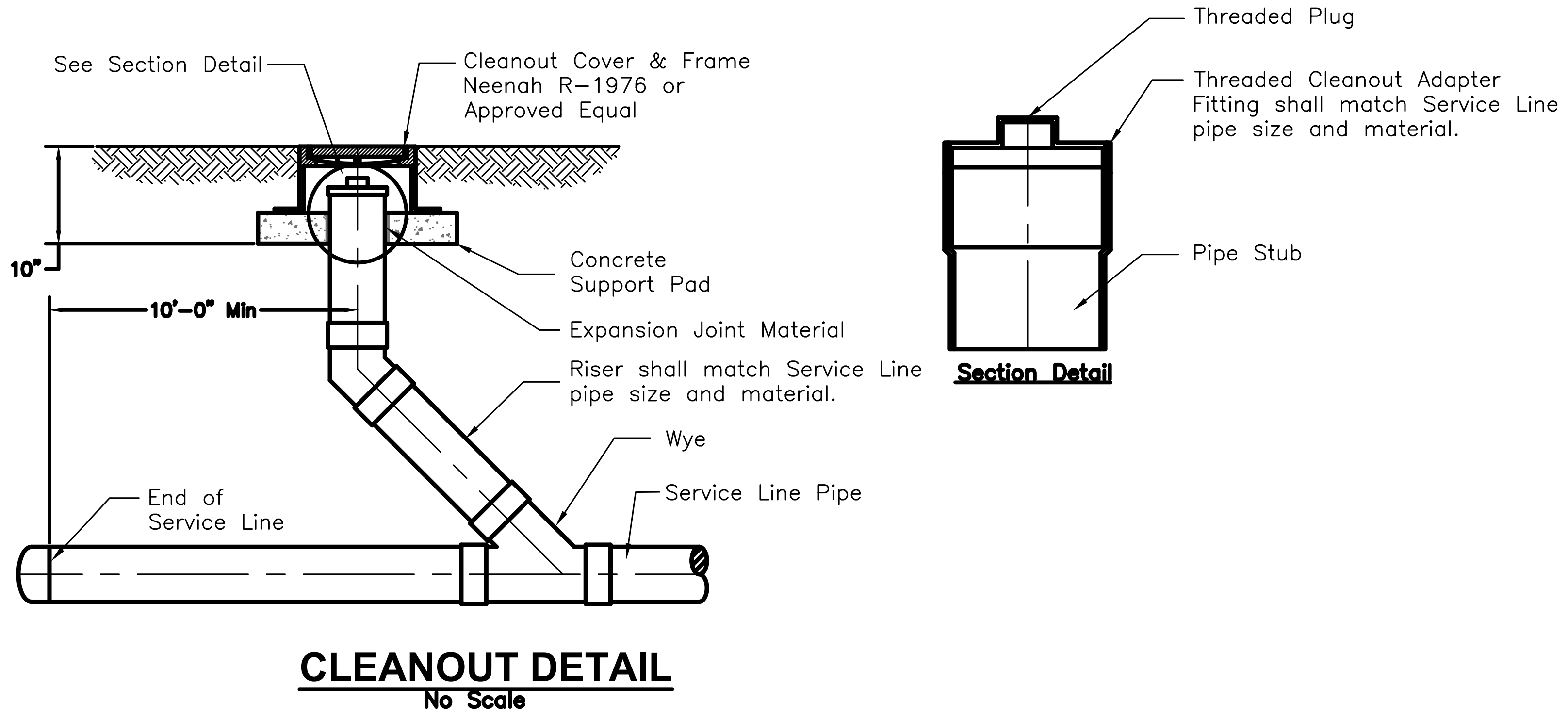
AMERICAN PUBLIC WORKS ASSOCIATION

KANSAS CITY
METRO CHAPTER

AREA INLET AND
JUNCTION BOX PROTECTION

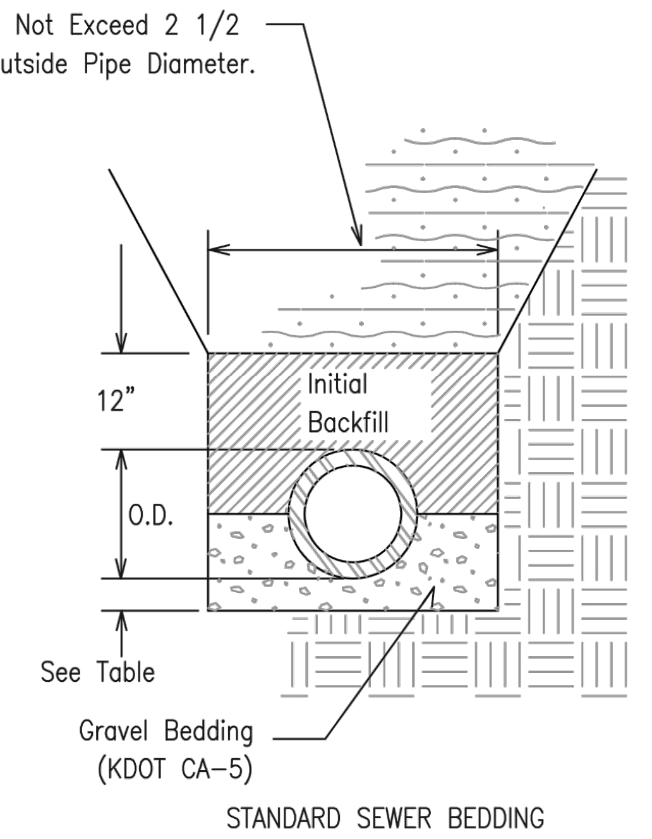
STANDARD DRAWING
NUMBER ESC-07

ADOPTED:
10/24/2016



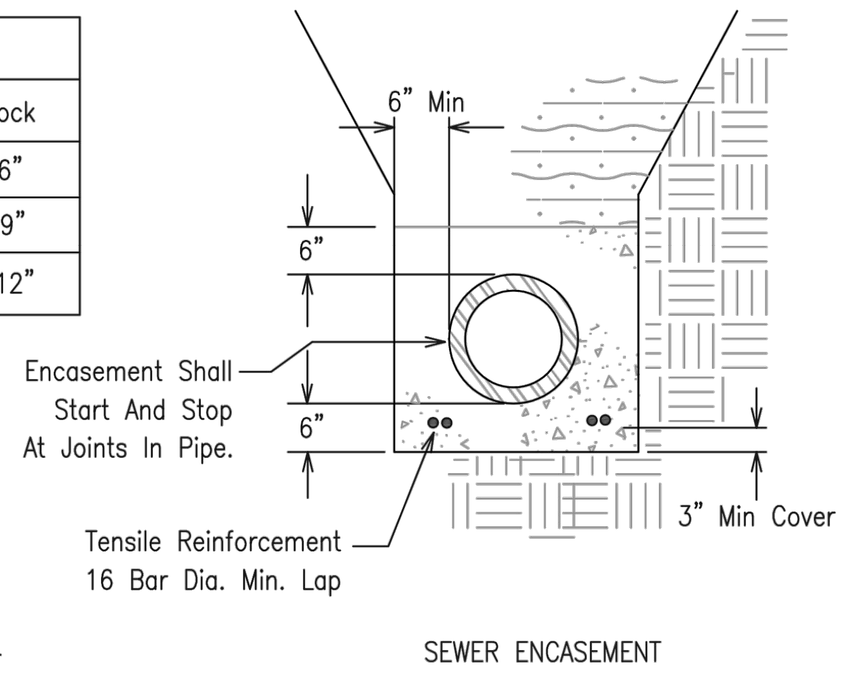
Initial Backfill Allowable Materials		
Application	Select Fill	Stone Fill
Paved Areas, All Materials & Depths	No	Yes
Open Areas, Rigid Pipes, Depths to 30'	Yes	Yes
Open Area, Flexible Pipe, Depths to 30'	Yes	Yes

See Section 2100 For Definition Of Stone Fill & Select Fill



Bedding Depth Below Pipe		
Pipe Diameter	In Soil	In Rock
24" & Less	4"	6"
27" through 60"	4"	9"
66" & Greater	6"	12"

Concrete Encasement Minimum 6" Beyond Outer Wall Of Pipe. Form or Cast Against Trench Wall. Reinforcing Steel Shall Be two #6 Bar for Pipe Up To 8" Dia; Four #6 Bar for 10" Through 24" Dia; & as Approved By the Engineer for Larger Than 24".



SANITARY AND STORM SEWER BEDDING

PUBLIC WORKS DEPARTMENT, ENGINEERING DIVISION

UNIFIED GOVERNMENT

UG 2100–B
2008 Edition

Aug 11 , 2020-4:13pm
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22013
8/14/2020

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Kansas City, Kansas Public Schools USD 500

ME Pearson Elementary

Modular Classrooms

310 North 11th St - Kansas City, Kansas - 66102

Date	8/14/20
Job Number	20-0141
Drawn By	JGW
Checked By	DJB

Revisions

Number	Date	Description

C06

Standard Details I

SECTION 329200 - LAWNS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following areas of Work:

1. Fine grading and preparing lawn areas.
2. Furnishing and applying topsoil.
3. Furnishing and applying limited soil amendments.
4. Sodding new lawn areas.
5. Reconditioning existing lawn areas.
6. Replanting unsatisfactory or damaged lawns.
7. Maintenance.

B. Related Work Specified Elsewhere:

1. Trees and Shrubs: SECTION 329300

1.2 REFERENCES

A. Applicable Standards:

1. American Society for Testing and Materials (ASTM) - Equivalent AASHTO standards may be substituted as approved.

1.3 SUBMITTALS

A. Certification of each seed mixture for sod, identifying the sod source, including name and telephone number of supplier. Seed for sod must be sod quality and is to be gold tag standards with 0% other crop seed and 0% weed seed.

B. Certification of each seed type for Native Grass mixture identifying the seed source, including name and telephone number of supplier.

C. Landscape Architect has final approval of sod grower, no exceptions.

D. Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and address of architects and owners, and other information specified.

E. Material test reports from qualified independent testing agency indicating and interpreting test results relative to compliance of the following materials with requirements indicated.

1. Agronomic and biological analysis of existing surface soil.
2. Agronomic and biological analysis of all imported topsoil.

F. Maintenance instructions recommending procedures to be performed by Owner for maintenance of landscaping during an entire year. Submit before expiration of required maintenance periods.

1.4 QUALITY ASSURANCE

A. Qualifications: A qualified subcontractor shall employ or provide a qualified installation manager who meets any or all of the required qualifications;

1. Bachelor of Science Degree in Horticulture, Botany, Soil Physics, Agronomy, General Agriculture, Agricultural or Biological Engineering, or a related field.
2. An individual with field experience as approved by the Landscape Architect or Registered Engineer.

B. Installer Qualifications: Engage an experienced Installer who has completed landscaping work similar in material, design, and extent to that indicated for this Project and with a record of successful turf establishment.

1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on the Project site during times that turf planting is in progress.

C. Testing Agency Qualifications: To qualify for acceptance, an independent testing agency must demonstrate to Landscape Architect's satisfaction, based on evaluation of agency-submitted criteria conforming to ASTM E 699, that it has the experience and capability to satisfactorily conduct the testing indicated without delaying the Work.

D. Topsoil Analysis: Furnish a soil analysis made by a qualified independent soil-testing agency stating percentages of organic matter by Loss on ignition, inorganic matter (proportion of silt, clay, and sand), deleterious material including biological contamination, pH, mineral and plant-nutrient content of topsoil, and cationic exchange capacity.

1. Report suitability of topsoil for grass growth from horticulturist. State recommended quantities of nitrogen, phosphorus, and potash nutrients and any limestone, aluminum sulfate, or other soil amendments to be added to produce satisfactory topsoil.

1.5 DELIVERY, STORAGE AND HANDLING

A. Sod: Harvest, deliver, store, and handle sod according to the requirements of the Turfgrass Producers International (TPI) "Specifications for Turfgrass Sod Materials and Transplanting/Installing."

B. Seed & Native Seed: Deliver packaged materials in containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery and while stored at site.

1.6 COORDINATION AND SCHEDULING

A. Planting Season: Install sod during normal planting seasons for type of lawn work required. Correlate planting with specified maintenance periods to provide required maintenance from date of Substantial Completion.

B. Weather Limitations: Proceed with work only when existing and forecast weather conditions are suitable for work.

1.7 MAINTENANCE

A. Lawns/turf areas: Begin maintenance of turfgrass immediately after each area is planted and continue until acceptable establishment, but for no less than the following periods:

1. Sodded Lawns: 90 days from the date of Substantial Completion.
2. Seeded Lawns: 90 days from the date of Substantial Completion.

B. Maintain and establish lawns by watering, fertilizing, weeding, mowing, trimming, replanting and other operations per this Specification.

C. Watering- Subcontractor shall be responsible of watering the sod as required by this Specification. Subcontractor may use irrigation system to accomplish watering. Subcontractor shall be responsible for coordinating with irrigation contractor for scheduling of irrigation system to provide required water needs.

D. Post-fertilization: Apply fertilizer to lawn after first mowing and when grass is dry.

PART 2 - PRODUCTS

2.1 TOPSOIL

A. Standard Topsoil: ASTM 5268, pH range 5.5 to 7. Free of stones 1 inch or larger in any dimension, and other extraneous materials harmful to plant growth.

B. Compost Soil Blend: As located in plan, areas denoted as Compost Soil Blend shall be provided as 50% Standard Topsoil or Native Topsoil and 50% Compost for a depth of 12". pH range shall be 5.5 to 7.

1. Topsoil Source: Reuse surface soil stockpiled on the site where available. Verify suitability of surface soil to produce topsoil meeting requirements and amend when necessary. Supplement with imported topsoil when quantities are insufficient. Imported topsoil shall meet the requirements of this specification for composition. Clean all topsoil of roots, plants, sods, stones, clay lumps, and other extraneous materials harmful to plant growth.
2. Compost Soil Blend shall have a minimum infiltration rate between 0.25" to 0.5" per hour.

2.2 LIMITED SOIL AMENDMENTS

A. Herbicides: EPA registered and approved, of type recommended by manufacturer and approved by the Landscape Architect.

B. Compost: Well-composted, stable and weed-free organic matter, pH range of 5.5-8; moisture content 35-55 percent by weight; 100 percent passing through 3/4-inch sieve; soluble salt content less than 4 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings.

C. Water: Potable.

2.3 SOD

A. Sod: Certified turfgrass sod complying with ASPA specifications for machine-cut thickness, size, strength, moisture content, and mowed height, and free of weeds and undesirable native grasses. Provide viable sod of uniform density, color, and texture of the following turfgrass species, strongly rooted, and capable of vigorous growth and development when planted.

1. Species: Provide sod of grass species and varieties, proportions by weight, and minimum percentages of purity, germination, and maximum percentage of weed seed as indicated on the following Schedule. The seed used will be of gold tag quality.
2. If gold tag is not available then seed must be of the highest quality blue tag certified available.
3. Landscape Architect has final approval, no exceptions.
4. All Turf-Type Fescues shall have a minimum 70% average endophyte level.
5. Sodded lawn areas to have a blend of 90% Turf-Type Tall Fescue and 10% Kentucky Bluegrass or approved equal.

B. Provide sod in uniform thickness of 16 mm (5/8-inch), plus or minus 6 mm (1/4-inch), measured at time of cutting and excluding top growth and thatch. Strips shall be of supplier's standard size of uniform length and width with maximum 5% allowable deviation in either length or width. Broken or torn pads, or pads with uneven ends are not acceptable.

C. Sod pads shall be capable of supporting their own weight and retaining size and shape when pad is suspended vertically from a firm grasp on upper 10% of pad.

D. Handle sod with care to prevent loss of native soil from roots.

2.4 GRASS SEED:

A. Provide fresh, clean, new crop seed complying with tolerance for purity and germination established by Official Seed Analysts of North America and as required below.

B. Be labeled according to the U.S. Department of Agriculture Federal Seed Act and shall be furnished in containers with tags showing seed mixture, purity, germination, weed content, name of seller, and date on which seed was tested.

C. Seed Mix: 10% Bluegrass & 90% Turf-Type Tall Fescue, composed of an equal mix of three or four compatible species of bluegrass and one or two species of fescue. The mixture shall not include any varieties of the slower growing "Dwarf" fescue types.

1. Fescue Varieties, or approved equal
   Apache, Arid, Austin, Bonanza, Carefree, Cheiftan, Cimmaron, Cochise, Falcon, Guardian,
   Houndog, Jaguar II, Maverick II, Mustang, Olympic, Phoenix, Rebel II, Rebel 3D, Safari,
   Shenandoah, Thoroughbred, Titan, Tribute, Vegas
2. Bluegrass Varieties, or approved equal
   Asset, Kenblue, Midnight, Nassau, Ruby II, Troy
3. Moldy seed or seed that has been damaged in storage shall not be used.
4. Landcape Architect shall have final approval of all seed blends and mixtures.

D. Cover Crop: As approved by Landscape Architect, Contractor shall submit mix for approval.

2.5 FERTILIZER

A. Commercial fertilizer of neutral character, with some elements derived from organic sources, containing not less than 4 lbs. of actual nitrogen per 1,000 square feet of lawn area. Provide nitrogen in form that will be available to the lawn under the following products or approved equal. During the maintenance period the following fertilizers shall be used or approved equal:

1. Starter Fertilizer: Dyna Green Starter 12-20-06 with Fertil Blend. Total nitrogen: 7.83% ammoniacal, 4.17% urea; Phosphate: Ammonium phosphate 20%; Potash MOP: 6%; Iron: 1%; SGN 200
2. Spring Fertilizer Dyna Green Long Lasting 22-0-8 with 50% UMAXX, 1,757% Viper & Fertil Blend. Total nitrogen: 22% urea with slowly available nitrogen from 50% UMAXX®; Potash MOP: 8%; Iron: 1%; SGN 200. Apply March to June.
3. Fall Fertilizer: Dyna Green Winterizer 18-0-9 with 1.434% Surge & Fertil Blend. Total nitrogen: 18% urea; Potash MOP: 8%; Iron: 1%; SGN 200. Apply September to October.

B. Deliver to site in labeled bags or containers.

2.6 MYCORRHIZAL INOCULANT

A. The Subcontractor shall utilize an organic, mycorrhizal inoculant for soil prep. The material shall be granular and applied per manufacturer's recommendation. M-Roots w/ Mycorrhiza or approved equal. For exact finish, insert names of coating manufacturers and products.

2.7 STRAW MAT

A. Provide a biodegradable single net, two sided organic straw mat with functional longevity of 10-12 months by Greenfix Amerca, Product WS072 Double Net Straw or Approved Equal.

B. Utilize Straw Mat within all seed areas on slopes greater than 4:1.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to receive lawns for compliance with requirements and for conditions affecting performance of work of this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.

B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.3 SOIL PREPARATION

A. Dispose of any growth, rocks, or other obstructions which might interfere with tilling, seeding, sodding, or later maintenance operations. Remove stones over 38 mm (1_1/2 inches) in any dimension and sticks, roots, rubbish, and other extraneous matter.

B. Thoroughly loosen and pulverize topsoil to a depth of at least 100 mm (4 inches) for all standard turfgrass areas. Areas denoted as "Compost Soil Blend", shall be loosened and amended to a depth of 12 inches

C. Grade lawn areas to a smooth, even surface with loose, uniformly fine texture. Roll and rake, remove ridges and fill depressions to meet finish grades. Limit fine grading to areas which can be planted within immediate future.

D. Moisten prepared lawn areas before planting if soil is dry. Water thoroughly and allow surface to dry off before planting of lawns. Do not create a muddy soil condition.

E. Restore prepared areas to specified condition if eroded or otherwise disturbed after fine grading and prior to planting.

F. Spread top soil mixture to depth required to meet thickness, grades, and elevations indicated after light rolling and natural settlement.

G. Allow for sod thickness in areas to be sodded.

H. Preparation of Unchanged Grades: Where lawns are to be planted in areas that have not been altered or disturbed by excavation, grading, or stripping operations, prepare soil for lawn planting as follows:

1. Remove and dispose of existing grass, vegetation, and turf. Do not turn over into soil being prepared for lawns.
2. Till surface soil to a depth of at least 6 inches. Apply required soil amendments and initial fertilizers and mix thoroughly into top 4 inches of soil. Trim high areas and fill in depressions. Till soil to a homogenous mixture of fine texture.
3. Clean surface soil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth.
4. Remove waste material, including grass, vegetation, and turf, and legally dispose of it off the Owner's property.

3.4 SEEDING NEW LAWNS (Turf-Type Seed):

A. Do not use wet seed or seed which is moldy or otherwise damaged in transit or storage.

B. Sow seed with a Brillion type seeding machine or where applicable and restricted by steep slopes or other areas not accessible to the seeding machine, broadcast or drop seed methods may be used. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in 2 directions at right angles to each other, and 3 directions in high maintenance areas, as directed by the Engineer.

C. Sow not less than rate of 8 pounds per 1,000 square feet.

D. Rake seed lightly into top 1/8_inch of soil, roll lightly, and water with fine spray.

E. Rake seed lightly into top 1/8 inch of topsoil, roll lightly, and water with fine spray.

F. Protect seeded slopes exceeding 1:4 against erosion with erosion-control blankets installed and stapled according to manufacturer's recommendations.

G. Protect seeded areas with slopes less than 1:4 against erosion by spreading mulch as specified after completion of seeding operations. Spread uniformly to form a continuous blanket over seeded areas. Spread by hand, blower, or other suitable equipment.

H. Protect seeded areas against hot, dry weather or drying winds by applying peat mulch within 24 hours after completion of seeding operations. Soak and scatter uniformly to a depth of 3/16 inch thick and roll to a smooth surface.

I. Seasonal Limitations:

1. Perform seeding only during the following seasons:
   a. Fall Seeding: August 15th to October 1st.
   b. Spring Seeding: March 15th to May 15th
   c. Recommend seeding when temperatures ranging from 50 degrees Fahrenheit to 70 degrees Fahrenheit for a minimum 6 week period.

J. Methods of Application:

1. Dry Seeding: Spreader or seeding machine.
2. Hydroseeding: Mix seed, fertilizer and pulverized mulch with water and constantly agitate. Do not add seed to water more than 4 hours before application:
   a. On slopes of 2 horizontal to 1 vertical or flatter, apply seed separately from fertilizer. Cover seed with soil to an average depth of 13 mm (1/2_inch) by raking or other approved methods.
   b. On slopes steeper than 2 horizontal to 1 vertical, seed and fertilizer may be applied in a single operation. Incorporation into the soil will not be required.

3.5 SODDING NEW LAWNS

A. Do not place sod during a drought or during the period from June 15 to September 15, except as authorized by the Landscape Architect.

B. Lay sod within 24 hours from time of stripping. Do not lay dormant sod or if ground is frozen.

C. Sod shall be moist at the time it is placed.

D. Lay sod strips along contour lines, by hand, commencing at the base of the area to be sodded and working upward:

1. Carefully lay sod to produce tight joints. Butt ends and sides of sod strips; do not overlap.
2. Stagger transverse joints of sod strips.
3. Work from boards to avoid damage to subgrade or sod.
4. Tamp or roll lightly to ensure contact with subgrade. Work sifted soil into minor cracks between pieces of sod, removing excess to avoid smothering adjacent grass.

E. Water sod with fine spray immediately after planting. During first week, water daily or more frequently as necessary to maintain moist soil to depth of 100 mm (4 inches).

3.6 RECONDITIONING LAWNS:

A. Recondition lawn areas damaged by construction operations, including storage of materials or equipment and movement of vehicles. Also recondition lawn areas where settlement or washouts occur or where minor regrading is required. Recondition other existing lawn areas where indicated.

B. Provide fertilizer, sod, and soil amendments as specified for new lawns and as required to provide satisfactorily reconditioned lawn. Provide new planting soil as required to fill low spots and meet new finish grades.

C. Cultivate bare and compacted areas thoroughly to provide a good, deep planting bed.

D. Remove diseased or unsatisfactory lawn areas; do not bury into soil. Remove topsoil containing foreign materials resulting from Subcontractor's operations including oil drippings, stone, gravel, and other construction materials. Replace with new topsoil.

E. Where substantial lawn remains (but is thin), mow, rake, aerate if compacted, fill low spots, remove humps and cultivate soil, fertilize, and seed. Remove weeds before seeding or, if extensive, apply selective chemical weed killers as required. Apply a seed-bed mulch, if required, to maintain moist condition.

F. Water newly planted areas and keep moist until new grass is established.

3.7 SEEDING COVER CROP & NATIVE GRASSES:

A. Sow seeds using seed drill (Truax-type) that accurately meters the seed types and mixes all seeds uniformly during seeding. It should have, at the minimum, two seed boxes to separate fine seeds from large/fluffy seeds. This seed drill should also be equipped with disc furrow openers and a no-till trash plow assembly, which will compact the soil directly over the drill rows. The maximum row spacing for drill seeding should be 8 inches. Fine seeds shall be dropped onto the ground from the fine seed box, while large/fluffy seed should be placed to obtain final planting depth of 1/4-1/2". The path of the drill seeding shall be done at a right angle to that of the drainage patterns.

1. Do not use wet seed or seed that is moldy or otherwise damaged in transit or storage.

B. Protect all native grass areas on slopes 4:1 and greater using straw mat erosion control blanket installed and stapled according to manufacturer's recommendations

C. Protect all native grass areas within detention basin by using straw mat erosion control blanket, installed and stapled according to manufacturer's recommendations.

D. Seeding within established vegetated area: Contractor shall apply herbicide per manufacturers recommendations or an approved nonherbicidal application to remove grass & weeds prior to installation of Native Grasses. Contractor shall mow existing grass & weeds after herbicide application per the manufacturers recommendation. Ensure all plants are not living. Apply native seeding within the timeframe specified by the manufacturer.

3.8 PROTECTION:

A. Erect barricades and warning signs as required to protect newly planted areas from traffic. Maintain barricades throughout maintenance period until lawn is established.

3.9 MAINTENANCE (SEED & SOD):

A. Mow grass to a height of 3 inches as soon as there is enough top growth to cut with mower. Remove no more than 30% of grass leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted.

B. Remove weeds by pulling or chemical treatment.

C. Perform maintenance throughout the maintenance period.

D. Sodded Areas:

1. Thoroughly water daily for a period of 15 days after placing and to a minimum of 1-inch per week thereafter.
2. Maintain sod in good live condition. Replace any sod not in good growing condition with fresh live sod.
3. Water thoroughly whenever sod evidences excessive drying.

E. Seeded Areas:

1. Thoroughly water seeded areas daily to keep seeds moist until germination. After seeds have germinated, continue watering daily until the first mowing. Watering shall be in amounts enough to wet seeds and surrounding soil, but not cause erosion or disposition of seeds.
2. Repair any portion of the seeded surface which becomes gullied or otherwise damaged. Reseed as required.

F. Apply second fertilizer application after first mowing and when grass is dry. Use fertilizer which will provide not less than 1 lbs of actual nitrogen per 1,000 square feet of lawn area.

3.10 ACCEPTANCE OF LAWNS:

A. When lawn Work is Substantially Complete, continue maintenance per the Specifications.

B. Replant rejected work and continue specified maintenance until re-inspected by Landscape Architect and Owner and found to be acceptable.

C. Sodded lawns will be acceptable provided requirements, including maintenance, have been complied with and healthy, well-rooted, even-colored, viable lawn is established free of weeds, open joints, bare areas, and surface irregularities. Final Acceptance shall be determined by City Inspection and accepted by the City Council.

D. Native Grass Stands (When Required by Plan)

1. An acceptable native grass stand will contain no less than 5 healthy mature or developing plants per square foot with a population distribution per 10,000 square feet representative of ratios in the original blend. The result of maintenance shall be that weeds are being controlled through competition with the desired plants, and that mowed bio-mass is not accumulating in such a manner to be detrimental to existing plant materials as determined by the City Inspector & Landscape Architect. Final Acceptance shall be determined by City Inspection and accepted by the City Council.
2. An acceptable native grass stand shall control erosion through root mass development. The occurrence of rills and gullies shall be unacceptable.

3.11 WARRANTY:

A. All turfgrass (seed, sod & native) shall be warranted one (1) year from the date of substantial completion.

3.12 CLEANUP:

A. Promptly remove soil and debris created by lawn Work from paved areas. Clean wheels of vehicles prior to leaving Site to avoid tracking soil onto surfacing of roads, walks, or other paved areas.

END OF SECTION 329200

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Date	8/14/20
Job Number	20-0141
Drawn By	JGW
Checked By	DJB

Revisions

Number	Date	Description

C07

Seeding Specification

Alternate No. 2

1. Alternate: Exterior enclosure upgrade: The Contractor shall upgrade the exterior enclosure of the entire trailer as follows:
   - a. Roof (Area = 1,504 SF ±/modular classroom): Remove existing gutters, downspouts and EPDM single ply roofing; provide and install 5" polyisocyanurate insulation board (5.6R/inch min.) on entire roof area; provide and install 5/8" OSB roof sheathing on entire roof area; provide and install fully adhered white single ply EPDM roof membrane (Firestone RubberGard Ecowhite 60 mil or equivalent) on entire roof area; provide and install fascia trim board on all eaves and gables (HardieTrim 1" x 7.25" - back side of trim to align with exterior face of extruded polystyrene wall insulation); provide and install 2x P.T. wood nailers/blocking (3 - 2x flat with ½" plywd. spacer) for roof terminations at roof perimeter (eaves, gables and ridge); provide and install self-adhesive EPDM strip at ridge mating connection; paint fascia board; provide and install prefinished sheet metal drip edge (eaves and gables); provide and install prefinished sheet metal gutters and downspouts (quantity, location and size to match existing).
   - b. Exterior Walls (Area = 1,470 SF ±/modular classroom): Remove existing trim boards to provide continuous smooth surface for the installation of the rigid insulation; provide and install building wrap/air barrier (Tyvek, HardieWrap or approved equivalent) on all walls; provide and install 1" extruded polystyrene insulation (Dow Styrofoam LB or approved equivalent , R=5.0/inch) on all walls (full height - bottom of trailer to eave/gable trim); provide and install HardiePanel vertical siding - Sierra 8 or approved equivalent) on all walls; all joints (trim/siding, siding/siding, trim/trim, trim/existing, etc.) shall be sealed with silicone sealant (GE silicone II or approved equivalent); provide and install trim around all electrical panels, panelboards, HVAC units, windows, doors, electrical outlets/junction boxes, etc. with 4/4 NT3 smooth HardieTrim (or approved equivalent); Extend electrical outlets/junction boxes as required so they are surface mounted to new HardiePanel or HardieTrim; extend junction boxes as required so that mounting face of box is flush with HardiePanel or Hardtrim - salvage and reinstall electrical devices/lighting where junction boxes are extended; provide openings in new insulation and siding for relocated existing attic vents/ventilator - salvage and reinstall existing attic vents/ventilator; provide and install prefinished sheet metal "Z" flashing below trim at trailer to skirt transition.
   - c. Trim shall be as follows: Windows, Doors - ¾" x 3.5" (with 5/4 x 5.5" trim underneath) ; corners - 2 @ ¾" x 5.5" (fasten corner trim pieces together); trailer/skirt transition - ¾" x 5.5" (with 5/4 x 5.5" trim underneath); Trailer mating joint (walls at both ends of trailer) - ¾" x 7.25" (removable); Horz. Trim - ¾" x 3.5"(with "Z" flashing below) and 5/4 trim underneath, if required); Misc. - ¾" x 3.5" or larger if required (with 5/4 trim underneath, if required).
   - d. All materials shall be installed per manufacturer's recommendations, touch-up all cuts. Provide/use 5/4 HardieTrim underneath 4/4 HardieTrim as required to maintain flush substrate for siding and 4/4 trim.
   - e. All new siding and trim shall be painted (2 coats min.). Paint shall be Sherwin Williams Duration exterior acrylic latex (satin sheen). Color per Architect.
   - f. The contractor shall replace each of the the existing windows (4 total) with new insulated vinyl windows, single hung operation, including 3/4" thick insulated LowE and Argon filled glazing, associated window trim pieces etc. Windows shall be as manufactured by Atrium Series 150, or equally performing. The window sizes shall be sized to match the existing window openings. Contractor shall remove/salvage existing mini-blinds and reinstall salvaged mini-blinds once windows are replaced.
   - g. Contractor shall also replace each exterior door opening (2 total) with a heavy duty insulated steel door and frame. The door style shall be type L series, 16 gauge skin and shall include a 3" wide narrow view panel (style N3) including 1" thick insulated glazing unit with $\frac{1}{4}$" impact resistant glazing on interior pane and $\frac{5}{16}$" laminated glazing on the exterior pane. The exterior doors shall be as manufactured by SteelCraft, or equally performing. The door frame shall be sized to match the existing openings. Salvage and reinstall existing hardware. Paint doors with Heavy duty enamel paint. Color per architect.

GENERAL SITE PLAN NOTES:

1. IT IS THE INTENT OF THESE DOCUMENTS TO PROVIDE A COMPLETE , OPERABLE AND ACCEPTABLE PROJECT THERE MAY BE ITEMS SHOWN OR IMPLIED BUT NOT SPECIFICALLY STATED OR DETAILED IN EVERY INSTANCE, BUT WHICH WILL BE REQUIRED TO MAKE THE WORK COMPLETE AND FINISHED AND SHALL BE INCLUDED AS PART OF THE WORK FOR THE PROJECT
2. DOCUMENTS ARE BASED ON EXISTING SITE CONDITIONS DRAWINGS, THEREFORE BEFORE EXECUTING ANY WORK SHOWN THE CONTRACTOR MUST PROCURE JOB MEASUREMENTS. EXAMINE ACTUAL JOB CONDITIONS AND REPORT TO THE ARCHITECT ANY ERROR. OMISSION OR DIFFICULTY AFFECTING THE WORK.
3. DRAWING AND SPECIFICATIONS ARE COMPLIMENTARY TO EACH OTHER AND WHAT IS SHOWN OR REQUIRED BY ONE IS REQUIRED BY BOTH.

   Any conflict and/or contradiction of terms or requirements with the General Notes, drawings and specifications will be resolved by the architect/engineer in favor of the more stringent or superior quality requirement.
4. SITE VERIFICATION IS REQUIRED AND MANDATORY TO VERIFY ALL UTILITIES AND EXISTING CONDITIONS THAT MIGHT INTERFERE WITH INTENT OF CONSTRUCTION, THERE ARE MULTIPLE UTILITIES THRU-OUT SURFACE AREAS, IT WILL BE IMPERATIVE TO VERIFY AND PROTECT ALL WORK OVER, UNDER AND SURROUNDING THESE UTILITIES THAT ARE EITHER BEING REUSED, REPAIRED AND/OR REPLACED WITH NEW.
5. THERE ARE NO GEOTECHNICAL ENGINEERING EVALUATIONS FOR SITE PREPARATION AND STRUCTURAL FILL REQUIREMENTS. CONTRACTOR SHALL UTILIZE GEOTECHNICAL ENGINEERING COMPANY FOR ALL WORK RELATED REQUIREMENTS. ALL NEW SUBGRADE SURFACES TO BE COMPACTED TO 95% COMPACTION PRIOR TO INSTALLATION OF NEW MATERIALS

NOTE:
THE EXISTING ASPHALT BELOW THE NEW MODULAR CLASSROOMS SHALL BE REMOVED. SAWCUT EXISTING ASPHALT AT THE PERIMETER OF THE MODULAR CLASSROOM - ASPHALT BELOW TRAILER SKIRT ON THE NORTH SIDE SHALL REMOVED AND REPAIRED FOR SKIRT FRAMING ANCHORAGE. SEE DETAILS 12 & 12A/A2.1. PROVIDE 15 MIL VAPOR BARRIER ON EXISTING CRUSHED ROCK BASE BELOW TRAILER AFTER PIERS ARE INSTALLED, SEAL AROUND PIERS/ALL UTILITES/ANCHORS/ETC. AND COVER WITH CRUSHED ROCK (FLUSH TO TOP OF EXISTING ASPHALT).

RELOCATED MODULAR CLASSROOM:
1. ALL FOUR (4) WINDOWS SHALL BE REPLACED WITH NEW VINYL SINGLE-HUNG WINDOWS (RE: SPECS.)
2. BOTH (2) HOLLOW METAL DOORS WITH VISION PANELS SHALL BE REPLACED WITH HM INSULATED DOORS WITH INSULATED GLAZING UNITS.

PREP/MOVE/RESET MODULAR CLASSROOMS

THE CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIAL NECESSARY TO PREPARE FOR MOVEMENT, MOVE AND RESET THE EXISTING MODULAR CLASSROOM UNIT THAT IS CURRENTLY LOCATED AT THE DEMOLISHED WILLIAM ALLEN WHITE SCHOOL SITE (2600 N. 43RD TERRACE).

PREPARE EXISTING MODULAR CLASSROOM UNIT

CONTRACTOR SHALL DISCONNECT (AND REMOVE/SALVAGE AS REQUIRED) EXISTING UTILITY COMPONENTS (ELECTRICAL, MECHANICAL, SANITARY SEWER, LOW VOLTAGE, ETC.) AS REQUIRED TO MOVE AND RELOCATE MODULAR CLASSROOM. CONTRACTOR SHALL REMOVE AND SALVAGE THE EXISTING CMU BLOCKS BELOW THE EXISTING MODULAR CLASSROOM. CONTRACTOR SHALL REMOVE AND SALVAGE ALL MATING COMPONENTS (COVER BOARDS, PLATES AND THRESHOLDS). CONTRACTOR SHALL PREPARE MODULAR CLASSROOM UNITS FOR MOVEMENT - TEMPORARILY BRACE AND/OR COVER MODULAR UNIT AS REQUIRED TO ASSURE SAFE/WEATHERTIGHT TRANSPORT.

MOVE MODULAR CLASSROOM UNIT

CONTRACTOR SHALL TRANSPORT THE EXISTING MODULAR CLASSROOM UNIT FROM ITS EXISTING LOCATION TO ITS NEW LOCATION AT ME PEARSON ELEMENTARY SCHOOL. CONTRACTOR SHALL OBEY ALL TRAFFIC/SAFETY REGULATIONS. CONTRACTOR SHALL OBTAIN ALL PERMITS REQUIRED TO TRANSPORT MODULAR CLASSROOM UNITS.

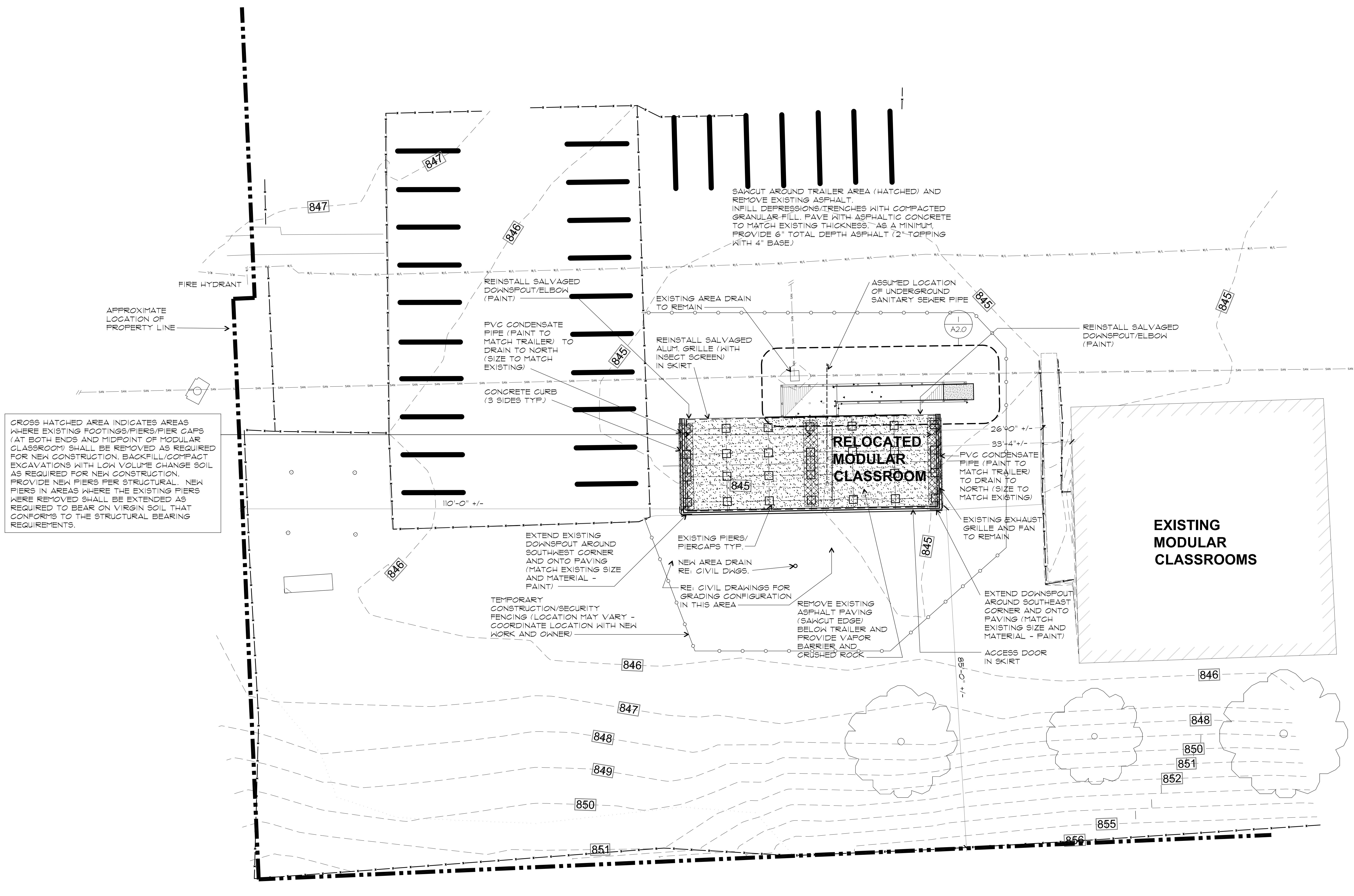
CONTRACTOR SHALL MOVE SALVAGED CMU BLOCKS TO THE ME PEARSON ELEMENTARY SCHOOL SITE FOR REUSE.

RESET MODULAR CLASSROOM UNIT

CONTRACTOR SHALL INSTALL CMU BLOCKING (SALVAGED/MOVED, EXISTING CMU ON SITE AND ANY OTHER NEW BLOCKING MATERIALS AS NECESSARY) AND ANCHORS/STRAPPING (PER MANUFACTURER'S RECOMMENDATIONS) AS NEEDED FOR A COMPLETE INSTALLATION. CONTRACTOR SHALL REMOVE ANY TEMPORARY BRACING, COVERING, ETC. REQUIRED FOR MOVEMENT. CONTRACTOR SHALL INSTALL SALVAGED MATING COMPONENTS (COVER BOARDS, PLATES AND THRESHOLDS) AT ALL MATING LINES/JOINTS INSIDE THE MODULAR CLASSROOM. TOUCH UP PAINT AND/OR REPLACE COVER BOARDS, PLATES AND THRESHOLDS AS REQUIRED AND/OR NECESSARY. CONTRACTOR SHALL PROVIDE WEATHERTIGHT COVERAGE OF THE MATING LINES/JOINTS UNTIL THE ROOF AND SIDING ARE COMPLETED.

NOTE: CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL WORK (LABOR AND MATERIALS) REQUIRED FOR A COMPLETE INSTALLATION EVEN IF THE WORK REQUIRED IS NOT SPECIFICALLY DESCRIBED ABOVE. OTHER SCOPES OF WORK THAT INTEGRATE WITH THIS PREP/MOVE/RESET WORK ARE INDICATED IN OTHER PARTS OF THE CONTRACT DOCUMENTS.

NOTE: THE EXISTING DECK, BALUSTERS, RAMP, RAILS, ETC. SHALL BE DEMOLISHED AND REMOVED PER THE CIVIL DRAWINGS IF NOT ACCEPTED AS PART OF ALTERNATE #1.



CROSS HATCHED AREA INDICATES AREAS WHERE EXISTING FOOTINGS/PIERS/PIER CAPS (AT BOTH ENDS AND MIDPOINT OF MODULAR CLASSROOM) SHALL BE REMOVED AS REQUIRED FOR NEW CONSTRUCTION. BACKFILL/COMPACT EXCAVATIONS WITH LOW VOLUME CHANGE SOIL AS REQUIRED FOR NEW CONSTRUCTION. PROVIDE NEW PIERS PER STRUCTURAL. NEW PIERS IN AREAS WHERE THE EXISTING PIERS WERE REMOVED SHALL BE EXTENDED AS REQUIRED TO BEAR ON VIRGIN SOIL THAT CONFORMS TO THE STRUCTURAL BEARING REQUIREMENTS.

SAWCUT AROUND TRAILER AREA (HATCHED) AND REMOVE EXISTING ASPHALT. INFILL DEPRESSIONS/TRENCHES WITH COMPACTED GRANULAR FILL. PAVE WITH ASPHALTIC CONCRETE TO MATCH EXISTING THICKNESS. AS A MINIMUM, PROVIDE 6" TOTAL DEPTH ASPHALT (2" TOPPING WITH 4" BASE.)

EXTEND EXISTING DOWNSPOUT AROUND SOUTHWEST CORNER AND ONTO PAVING (MATCH EXISTING SIZE AND MATERIAL - PAINT)

TEMPORARY CONSTRUCTION/SECURITY FENCING (LOCATION MAY VARY - COORDINATE LOCATION WITH NEW WORK AND OWNER)

RE: CIVIL DRAWINGS FOR GRADING CONFIGURATION IN THIS AREA

REMOVE EXISTING ASPHALT PAVING (SAWCUT EDGE) BELOW TRAILER AND PROVIDE VAPOR BARRIER AND CRUSHED ROCK

EXTEND DOWNSPOUT AROUND SOUTHEAST CORNER AND ONTO PAVING (MATCH EXISTING SIZE AND MATERIAL - PAINT)

SITE PLAN
1/16" = 1'-0"

08/14/20

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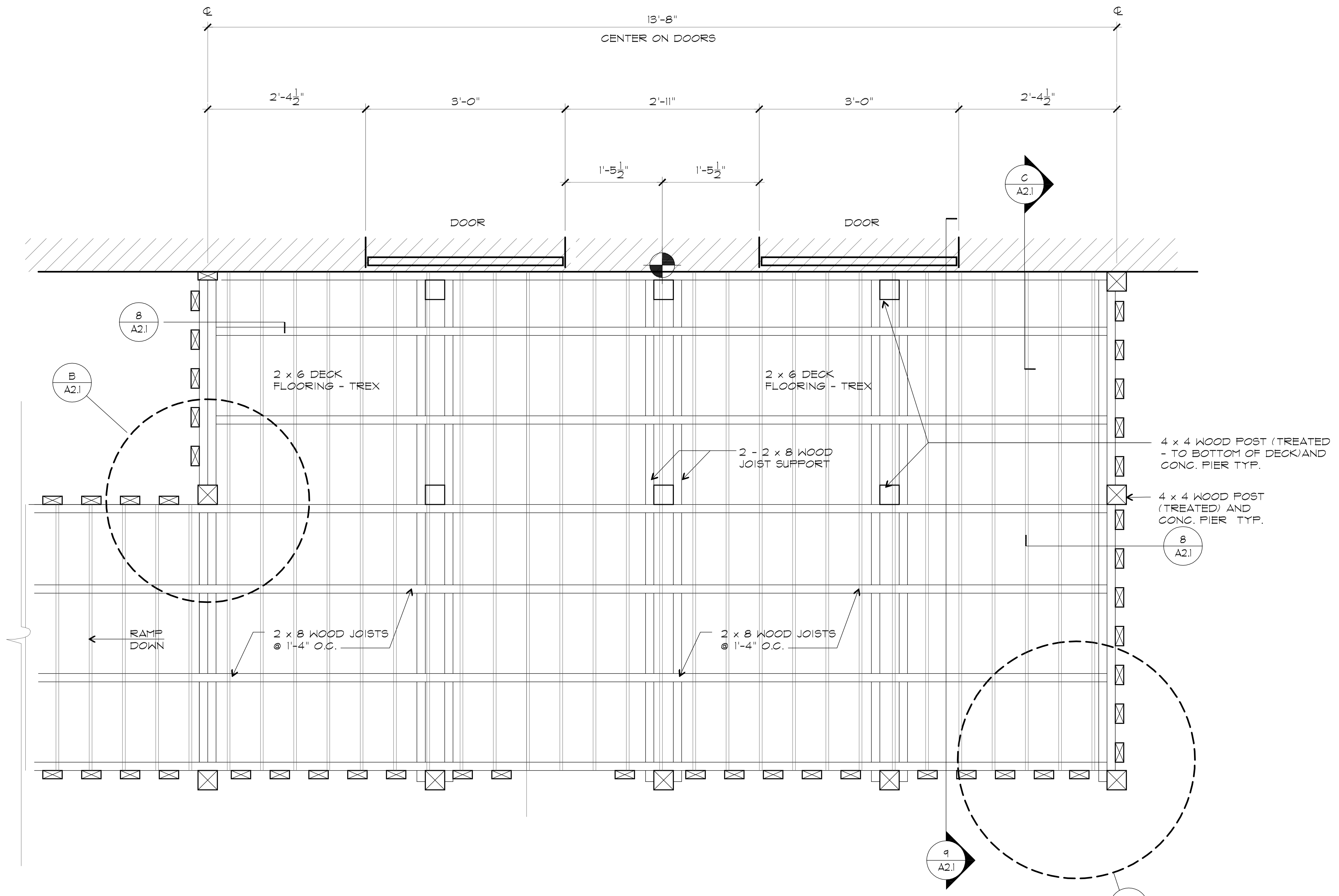
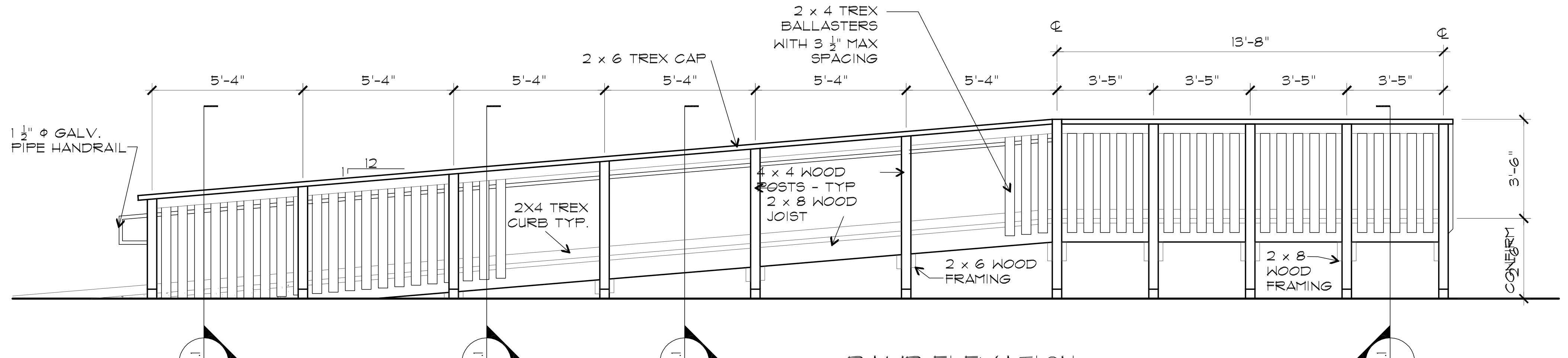
Floor Plan / Architectural Site Plan



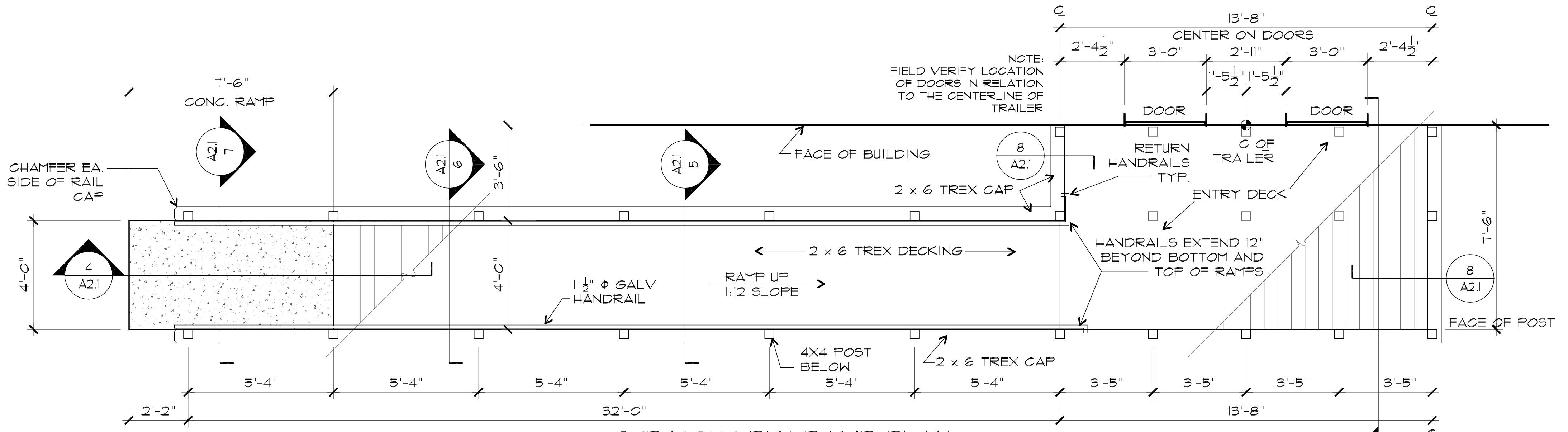
3 FRAMING PLAN/ RAMP ENTRY DECK - TYPICAL

3/4" = 1'-0"



RAMP ELEVATION 2

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



1 STRAIGHT RUN RAMP PLAN

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

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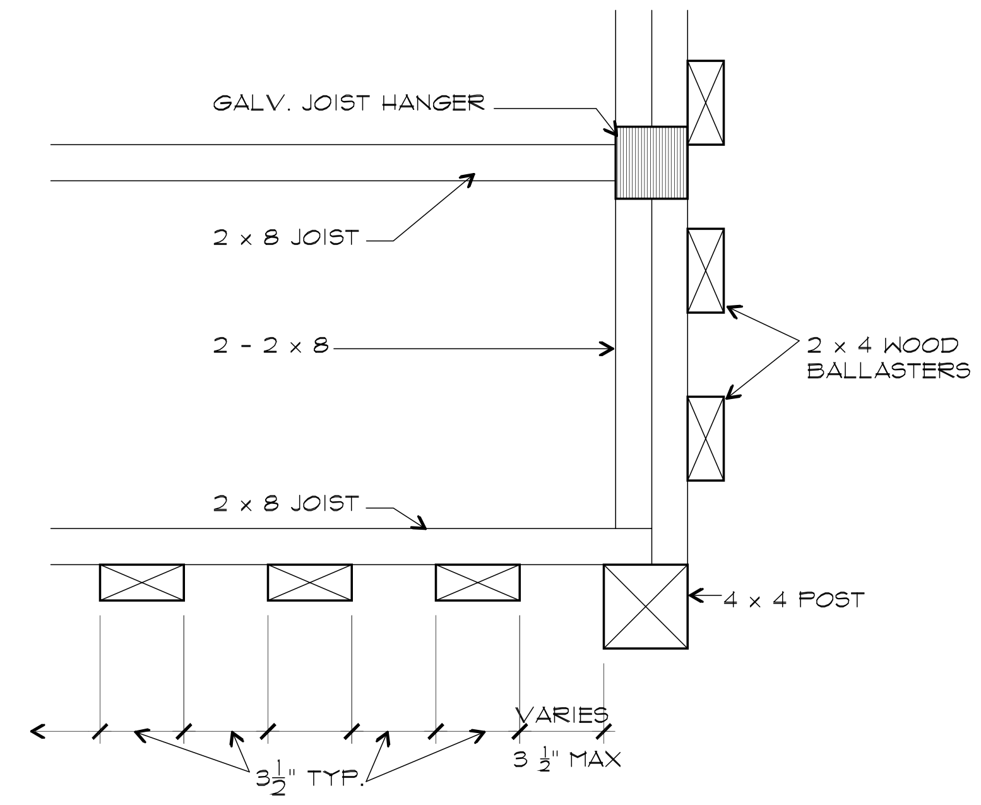
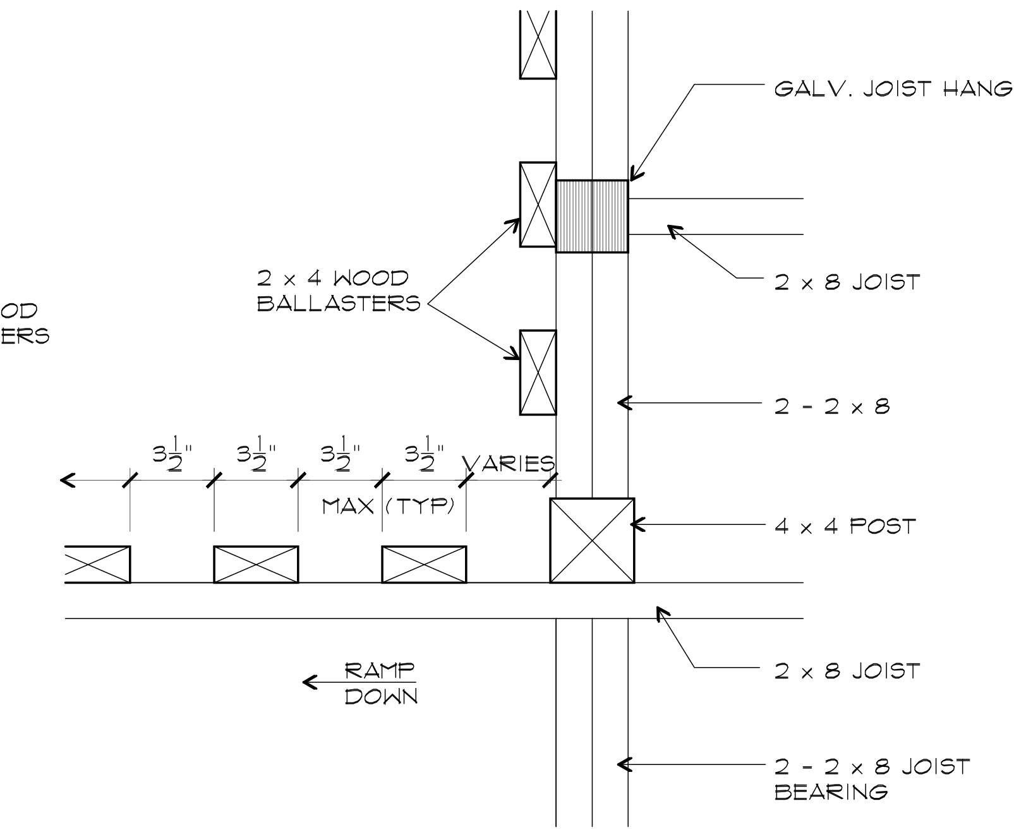
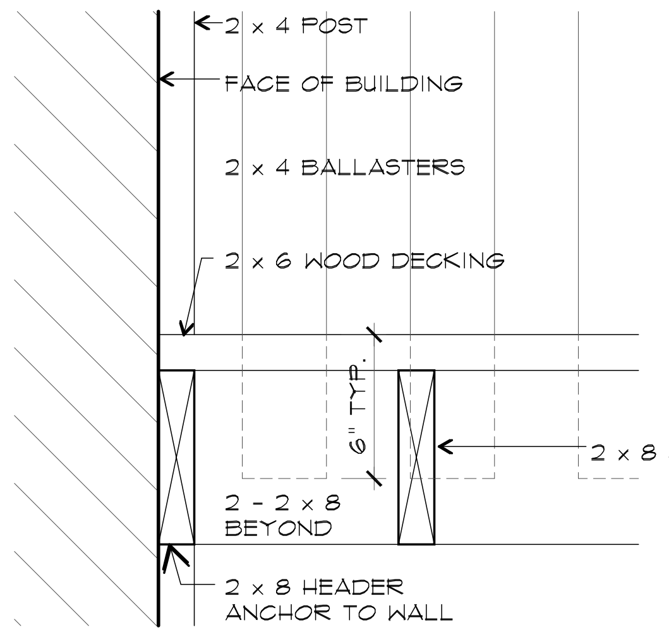


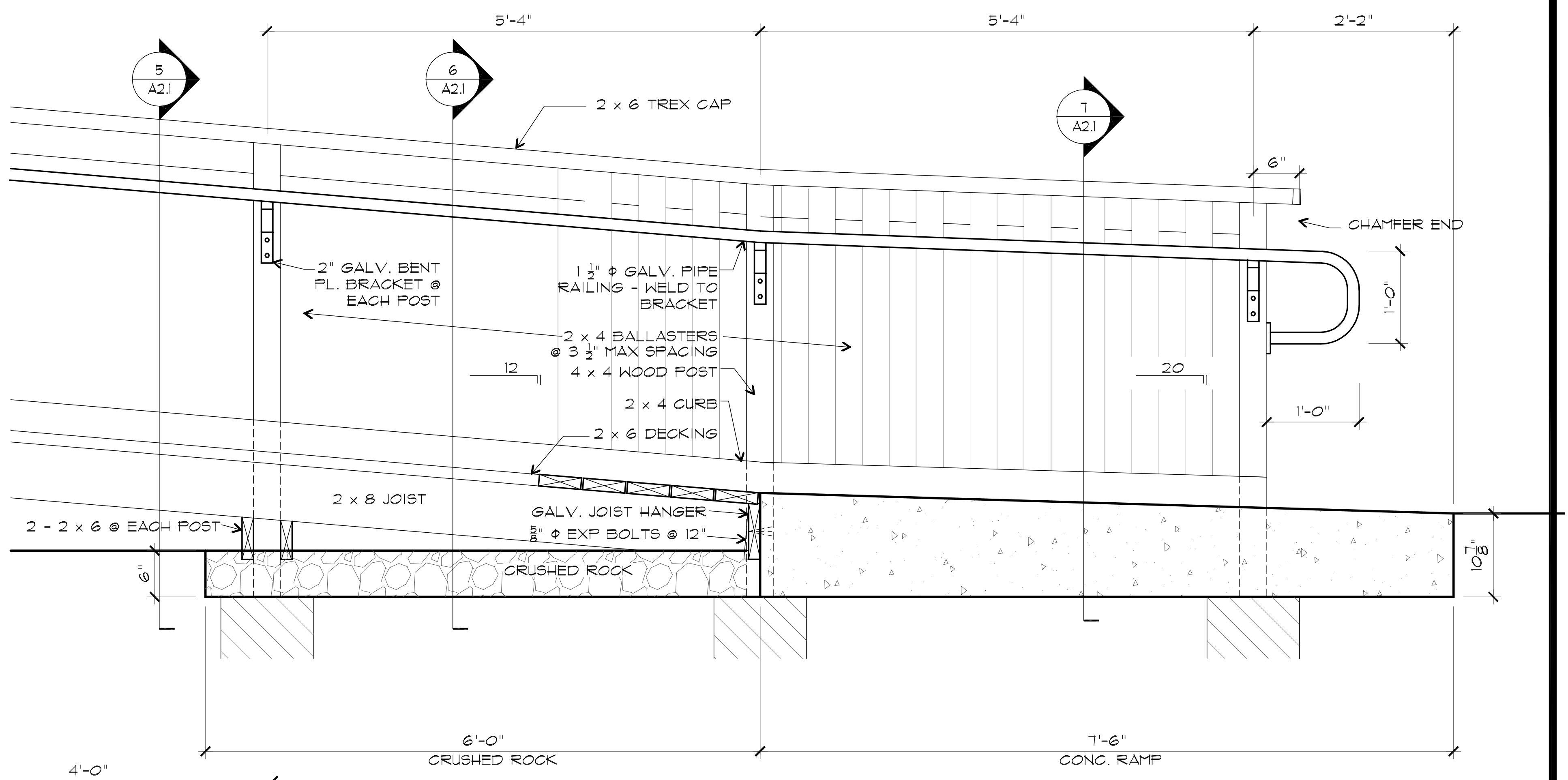
A DETAIL
1 1/2" = 1'-0"



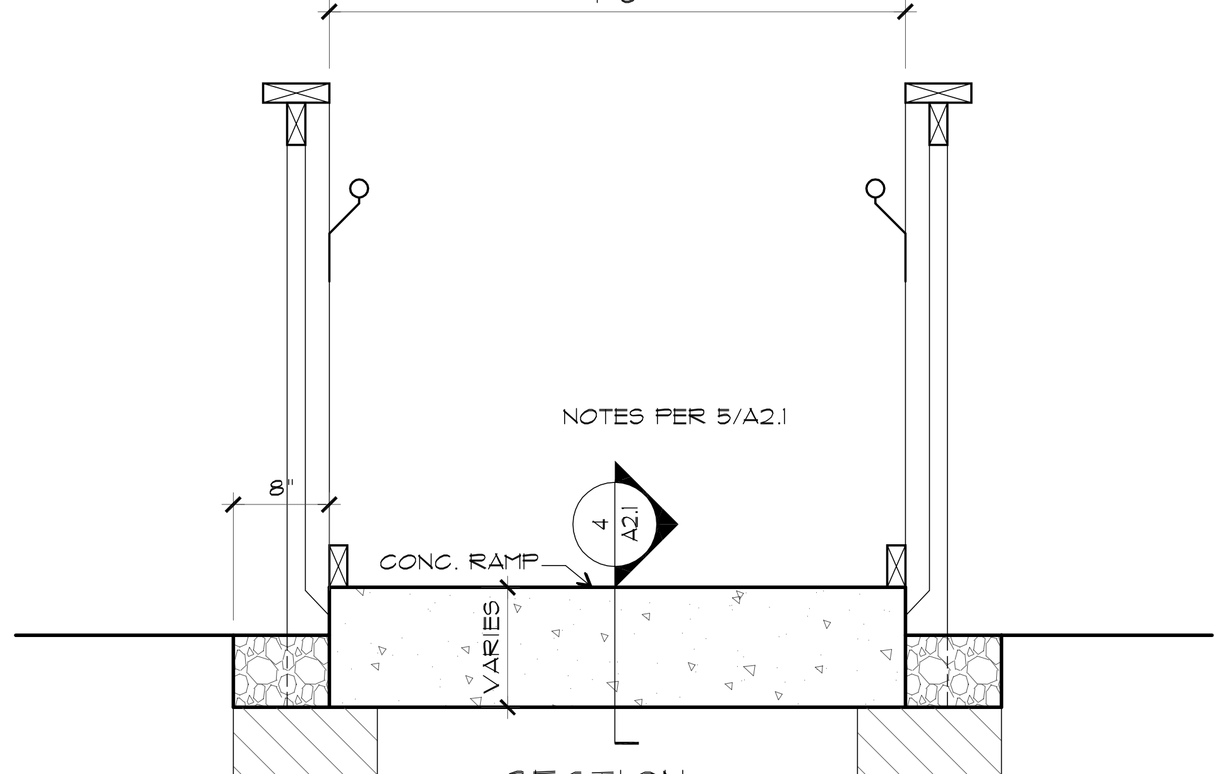
B DETAIL
1 1/2" = 1'-0"



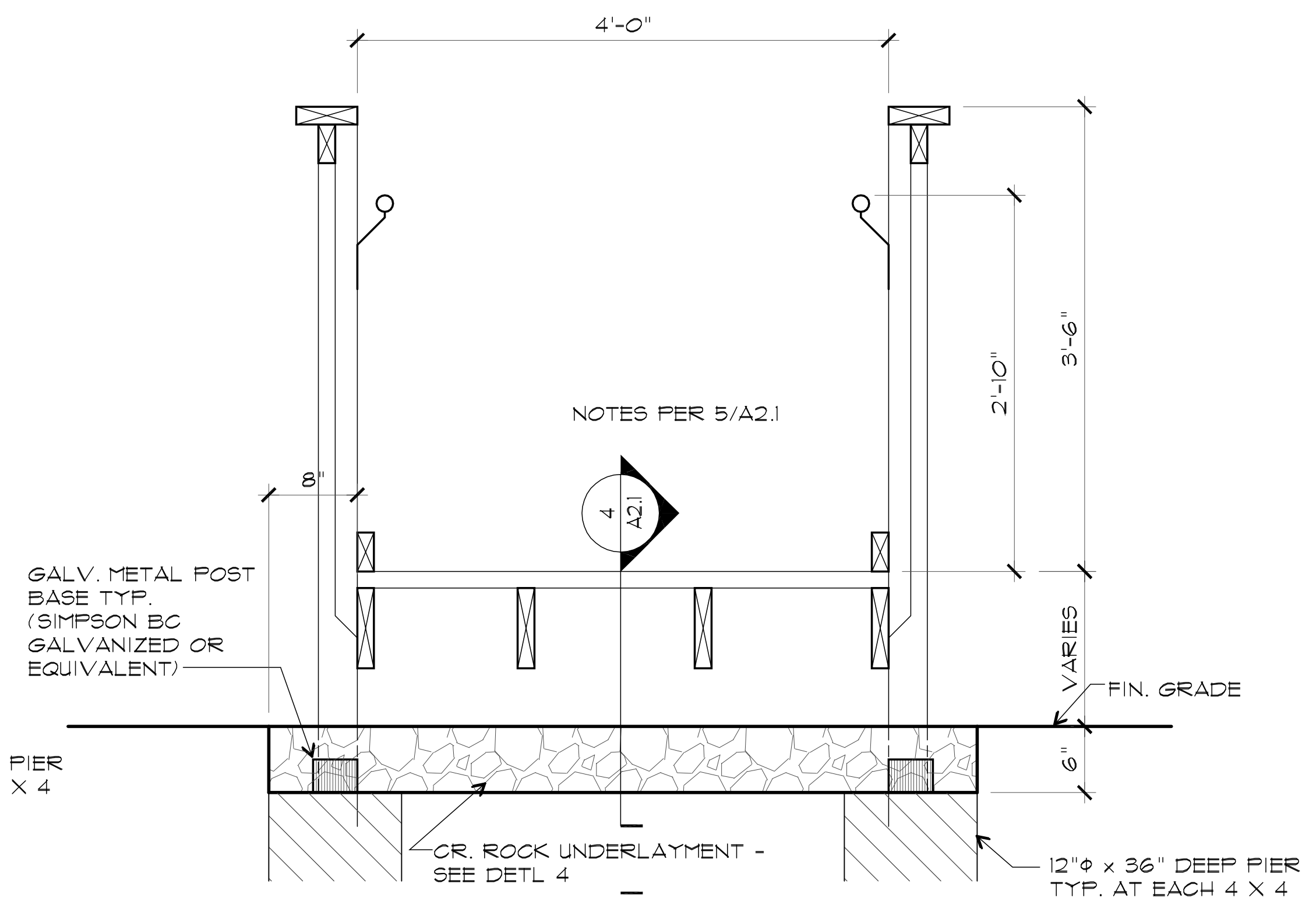
C DETAIL
1 1/2" = 1'-0"



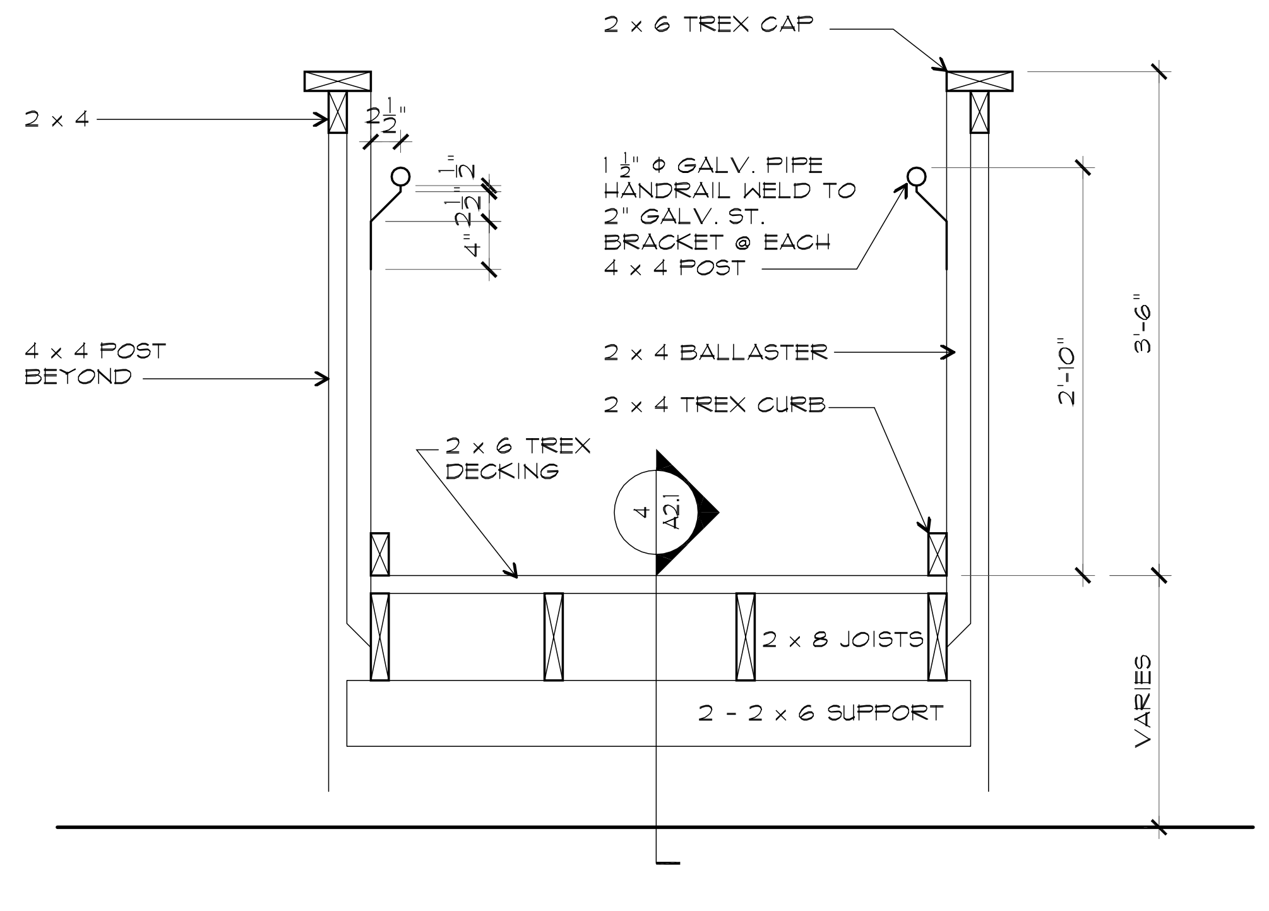
4 PARTIAL SECTION - RAMP BASE PAD
3/4" = 1'-0"



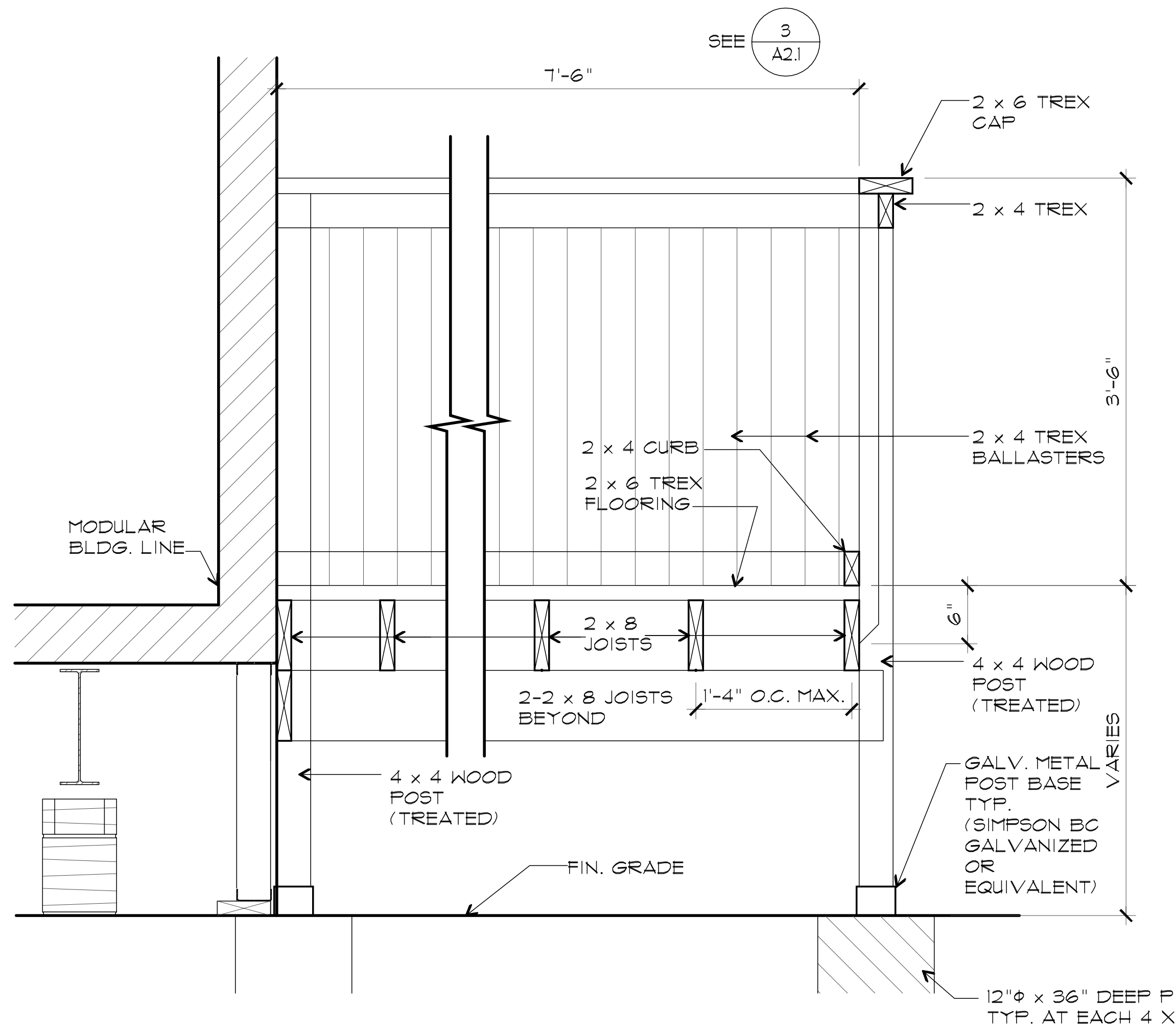
7 SECTION
3/4" = 1'-0"



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



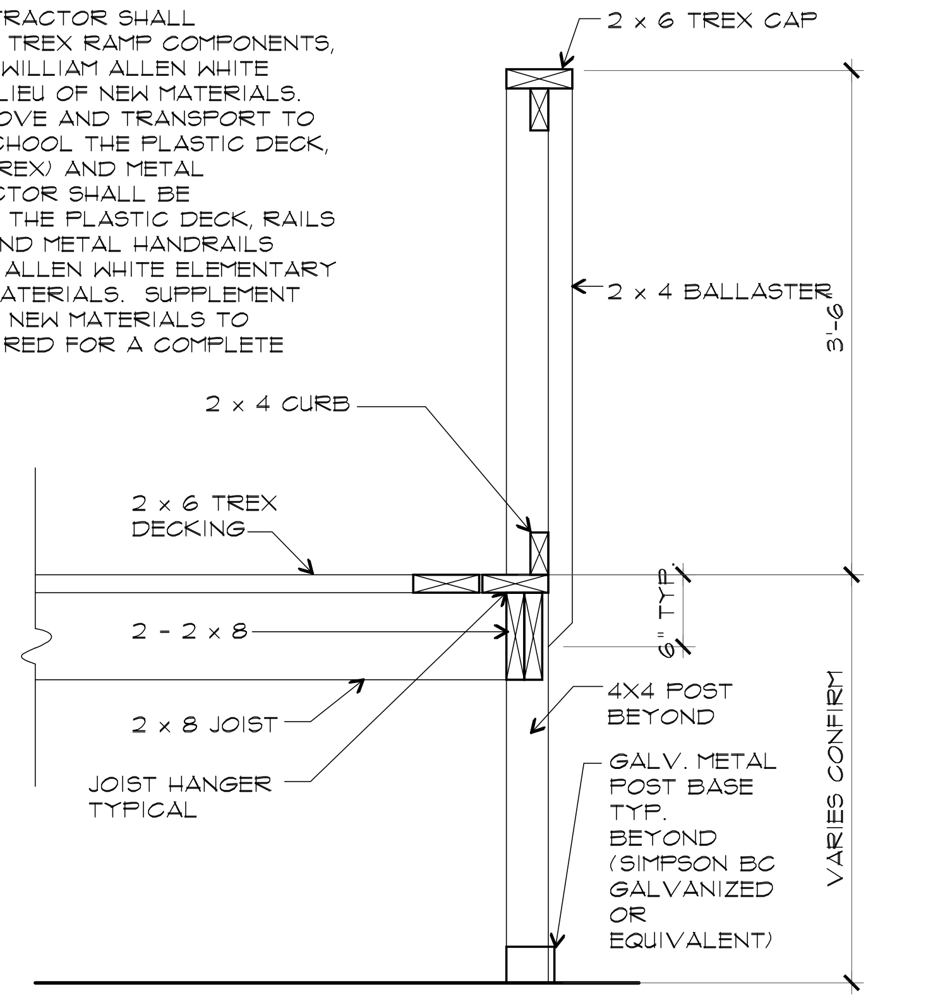
5 RAMP SECTION
3/4" = 1'-0"



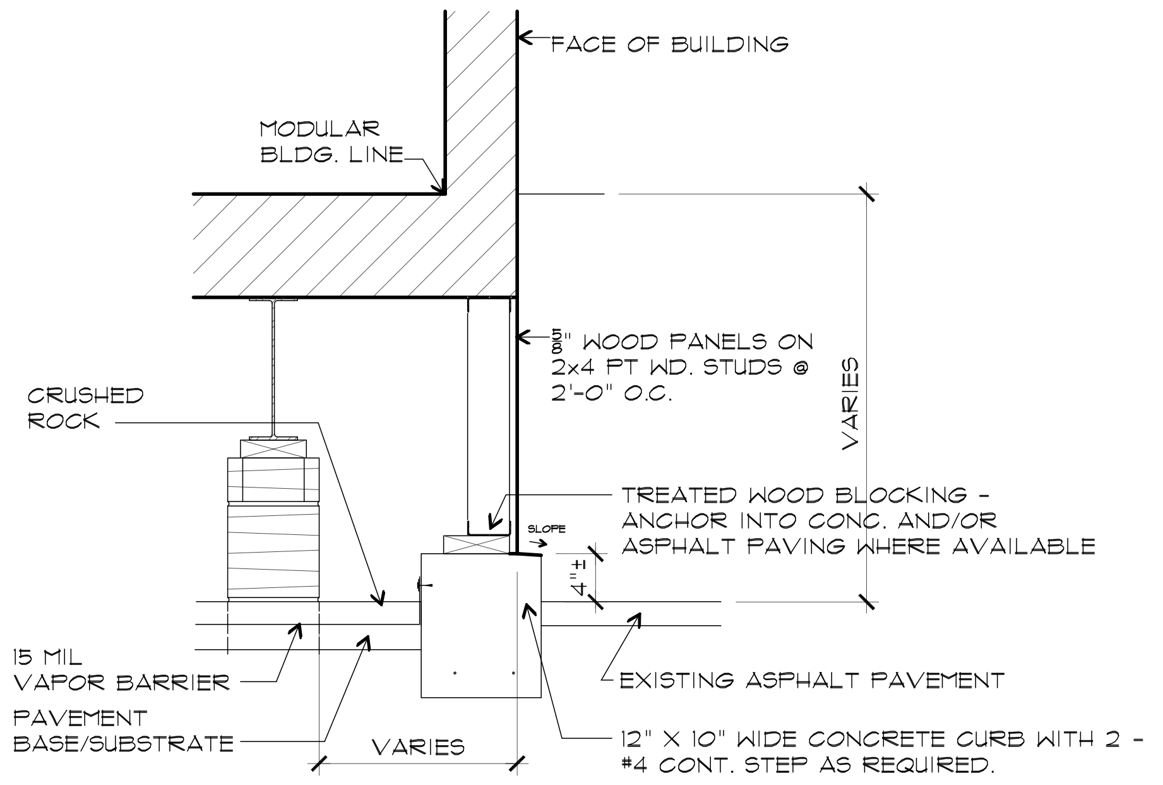
9 SECTION/ RAMP LANDING
3/4" = 1'-0"

FIN. GRADE

NOTE:
ALTERNATE #1 - THE CONTRACTOR SHALL RE-INSTALL THE EXISTING TREX RAMP COMPONENTS, CURRENTLY LOCATED AT WILLIAM ALLEN WHITE ELEMENTARY SCHOOL, IN LIEU OF NEW MATERIALS. CONTRACTOR SHALL REMOVE AND TRANSPORT TO PEARSON ELEMENTARY SCHOOL THE PLASTIC DECK, RAILS AND BALUSTERS (TREX) AND METAL HANDRAILS. THE CONTRACTOR SHALL BE RESPONSIBLE TO INSTALL THE PLASTIC DECK, RAILS AND BALUSTERS (TREX) AND METAL HANDRAILS SALVAGED FROM WILLIAM ALLEN WHITE ELEMENTARY SCHOOL IN LIEU OF NEW MATERIALS. SUPPLEMENT EXISTING MATERIALS WITH NEW MATERIALS TO MATCH EXISTING AS REQUIRED FOR A COMPLETE INSTALLATION

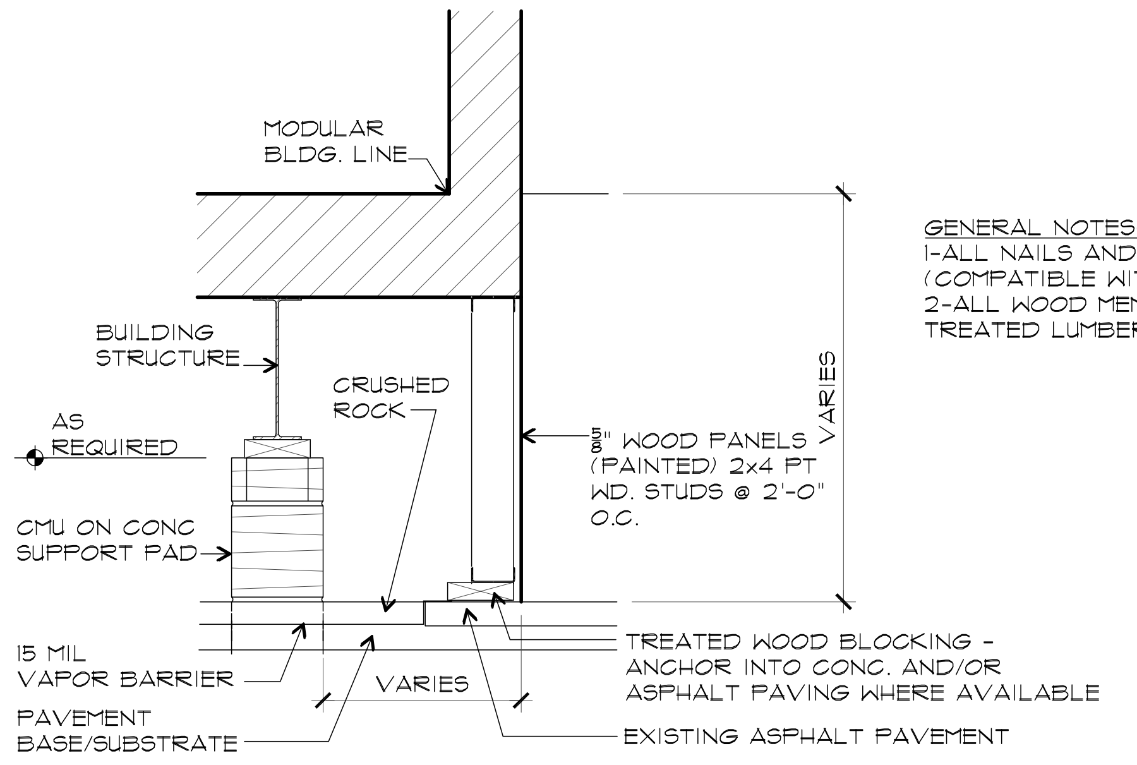


8 PLATFORM SECTION
3/4" = 1'-0"



12A PERIMETER CLOSURE DETAIL
3/4" = 1'-0" EAST, SOUTH AND NORTH SIDES

NOTE:
REINSTALL EXISTING ALUM. LOUVER (W/ INSECT SCREEN) AND EXHAUST FAN . PROVIDE ONE 24" W x 30"H ACCESS PANEL WITH HASP LOCK IN MODULAR BUILDING SKIRT.



GENERAL NOTES- TYPICAL
1-ALL NAILS AND SCREWS ARE TO BE GALVANIZED (COMPATIBLE WITH ACQ LUMBER).
2-ALL WOOD MEMBERS SHALL BE PRESSURE TREATED LUMBER (ACQ).

12 MODULAR BUILDING-SKIRT PERIMETER CLOSURE DETAIL
3/4" = 1'-0" NORTH SIDE

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GENERAL NOTES - STRUCTURAL

1. The contractor shall verify dimensions and conditions before construction and notify the engineer of any discrepancies, inconsistencies, or difficulties affecting the work before proceeding.

2. All design and construction work for this project shall conform to the requirements of the 2012 IBC, as amended by the City of Kansas City, Kansas

3. These drawings are for this specific project and no other use is authorized.

4. Concrete:

   A. All concrete shall develop a minimum ultimate compressive design strength of 3000 psi in 28 days, but not less than 475 pounds of cement shall be used per cubic yard of concrete regardless of strengths obtained, not over 6 1/2 gallons of water per 100 pounds of cement and not over 5 inches of slump.
   B. All concrete is reinforced concrete unless specifically called out as unreinforced. Reinforce all concrete not otherwise shown with same steel as in similar sections or areas. Any details not shown shall be detailed per ACI 315 and meet requirements of ACI 318, current editions.
   C. Contractor shall verify that all concrete inserts, reinforcing and embedded items are correctly located and rigidly secured prior to concrete placement.
   D. No aluminum items shall be embedded in any concrete.

5. Reinforcing Steel:

   A. All reinforcing steel shall conform to the requirements of ASTM A615 grade 60 steel except stirrups, which shall comply with the Concrete Reinforcing Steel Institute (CRSI) supplementary requirements for improved bendability.
   B. Clear minimum coverage of concrete over reinforcing steel shall be as follows:
      Concrete placed against earth ———— 3"
      Formed concrete against earth ———— 2"
      Other ———— 2"
      All coverage shall be nominal bar diameter minimum.

6. Foundations:

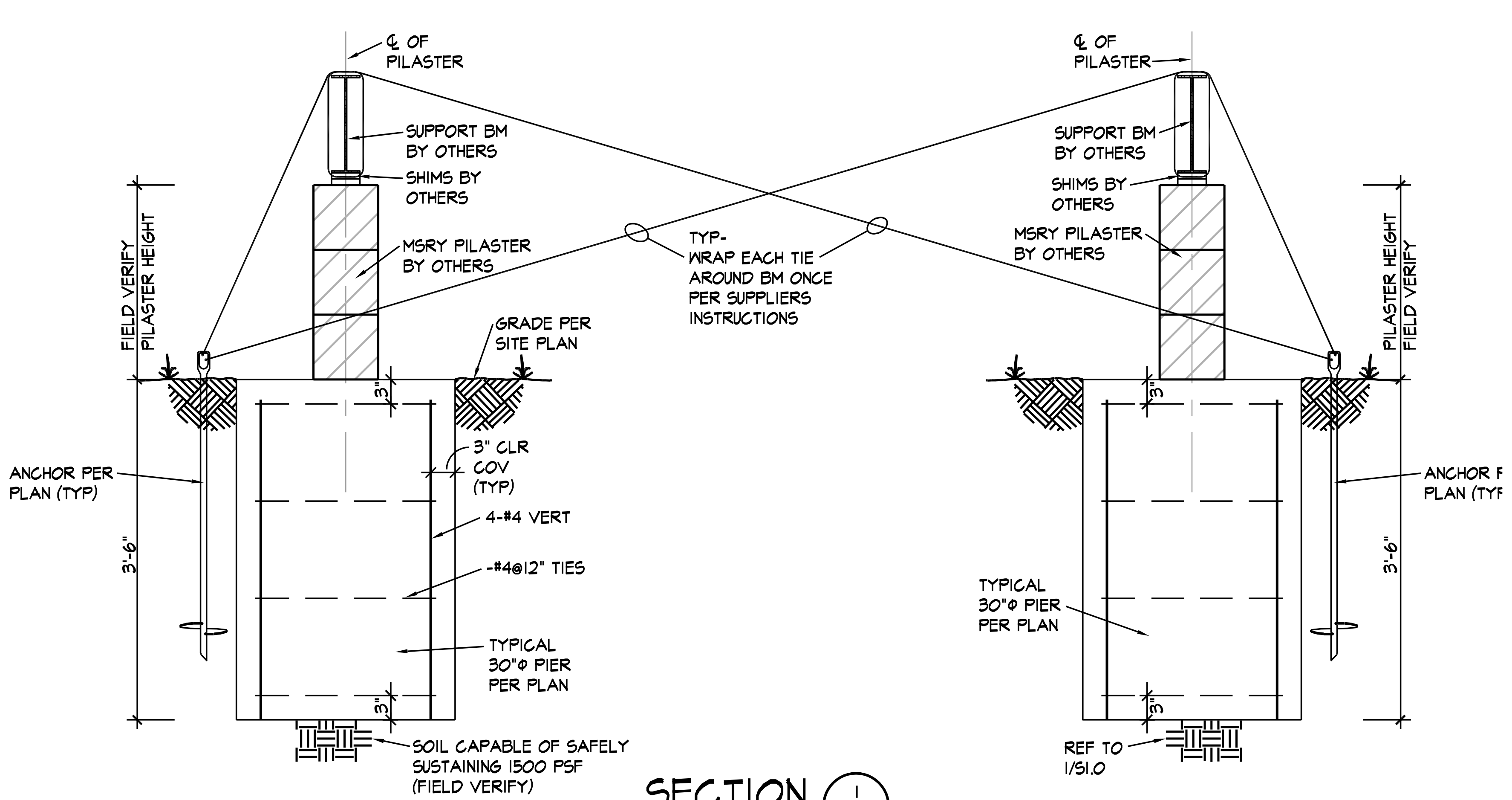
   A. Structural foundations consist of a network of straight shaft drilled piers (caissons) established on clays capable of safely supporting 1500 psf end bearing.
   B. Contractor shall provide for dewatering at excavations from either surface water or seepage.
   C. All foundation excavations shall be inspected by a qualified soil engineer, approved by the architect and/or structural engineer, prior to placement of steel or concrete. This inspection shall be at the owner's expense.

7. Concrete Block Masonry:

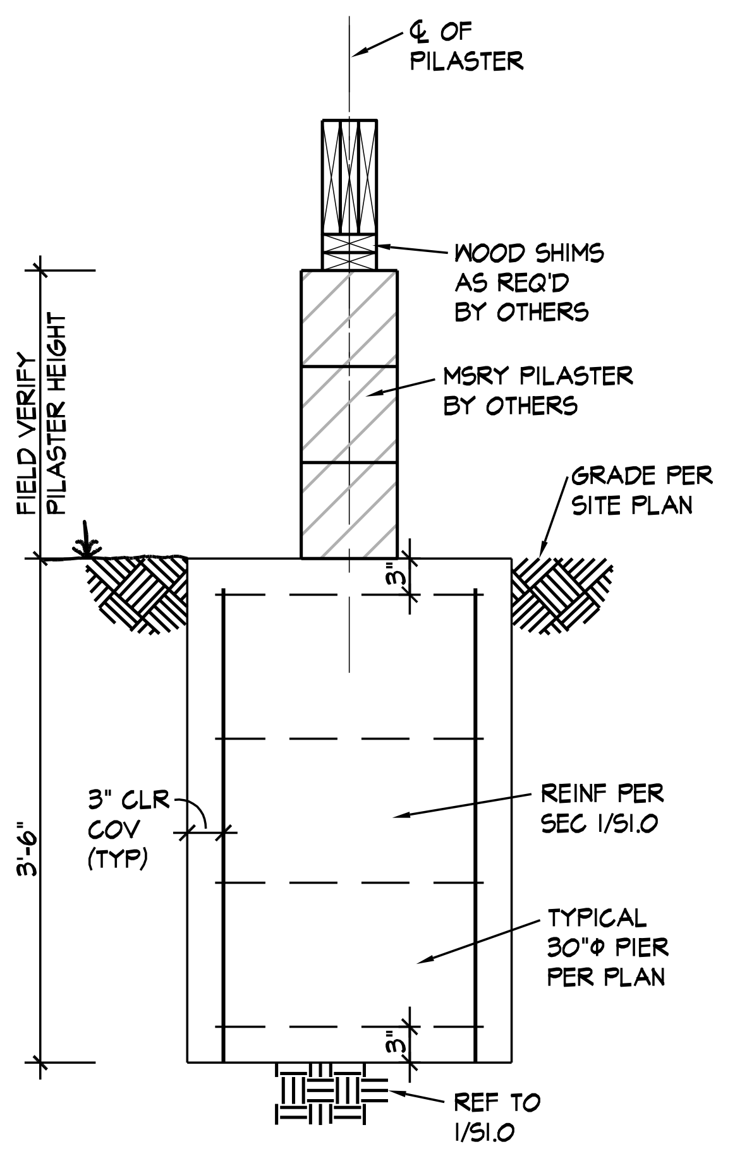
   A. Concrete block shall have a minimum compressive strength f'm of 2000 psi, laid up using type N mortar. All block shall be grouted solid.
   B. Grout, where noted above, shall have a minimum design ultimate compressive strength of 3000 psi at 28 day test and 3/8" maximum aggregate size.

8. Copyright and Disclaimer:

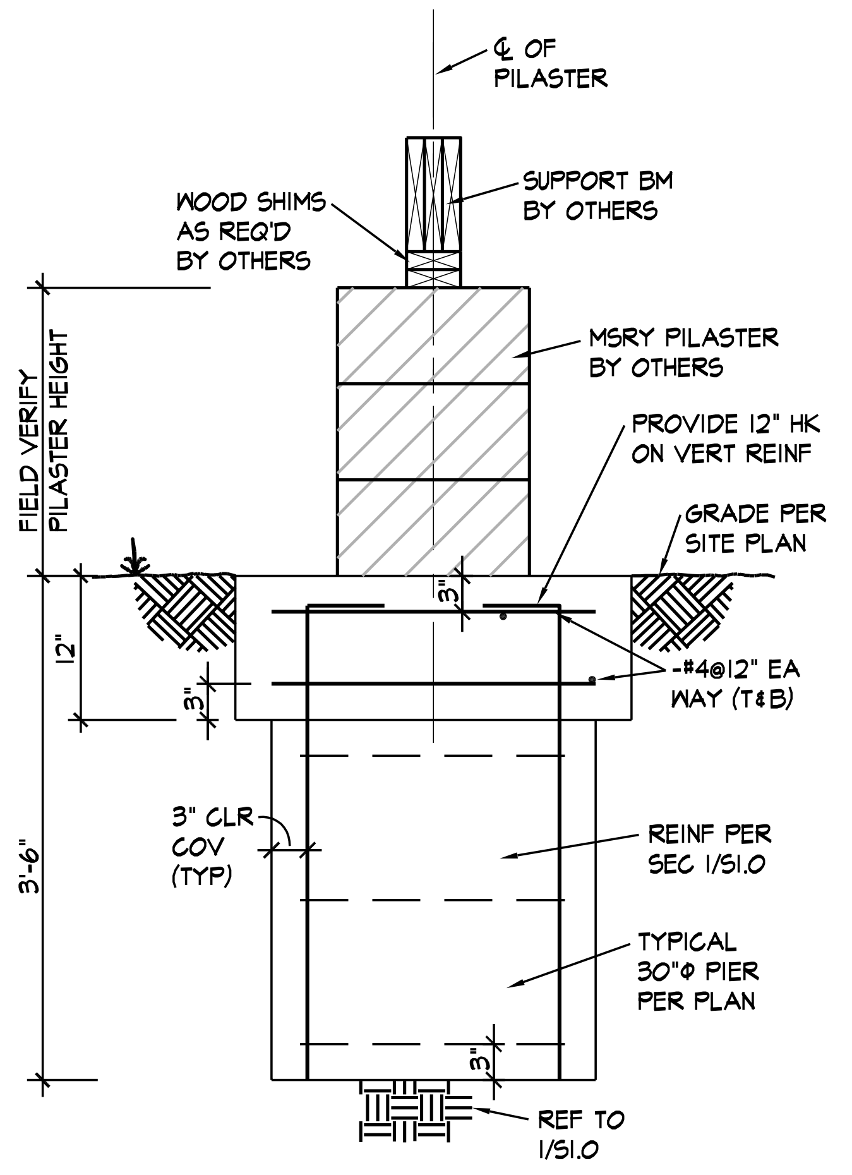
   A. All drawings in the structural set (S-series drawings) are the copyrighted work of Bob D. Campbell and company, Inc. These drawings may not be photographed, traced, or copies in any manner without the written permission of Bob D. Campbell and Company, Inc. Exception: Original drawings may be printed for distribution to the owner, architect, and general contractor for coordination, bidding, and construction. Subcontractors may not reproduce these drawings for any purpose or in any manner.
   B. I, Jeff L. Wright, P.E., registered engineer and a representative of Bob D. Campbell and Company, Inc., do hereby accept professional responsibility as required by the professional registration laws of this state for the structural design drawings consisting of S-series drawings. I hereby disclaim responsibility for all other drawings in the construction document package, they being the responsibility of other design professionals whose seals and signed statements may appear elsewhere in the construction document package.



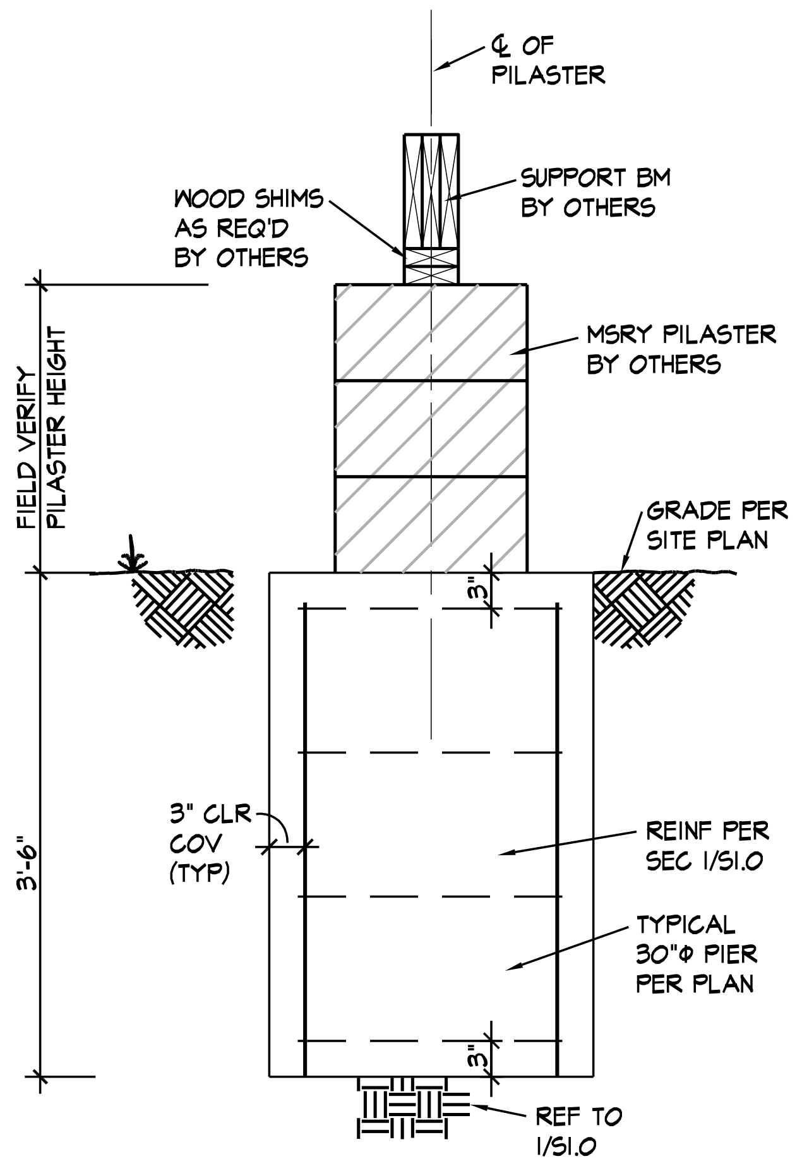
SECTION 1 S1.0
¾" = 1'-0"



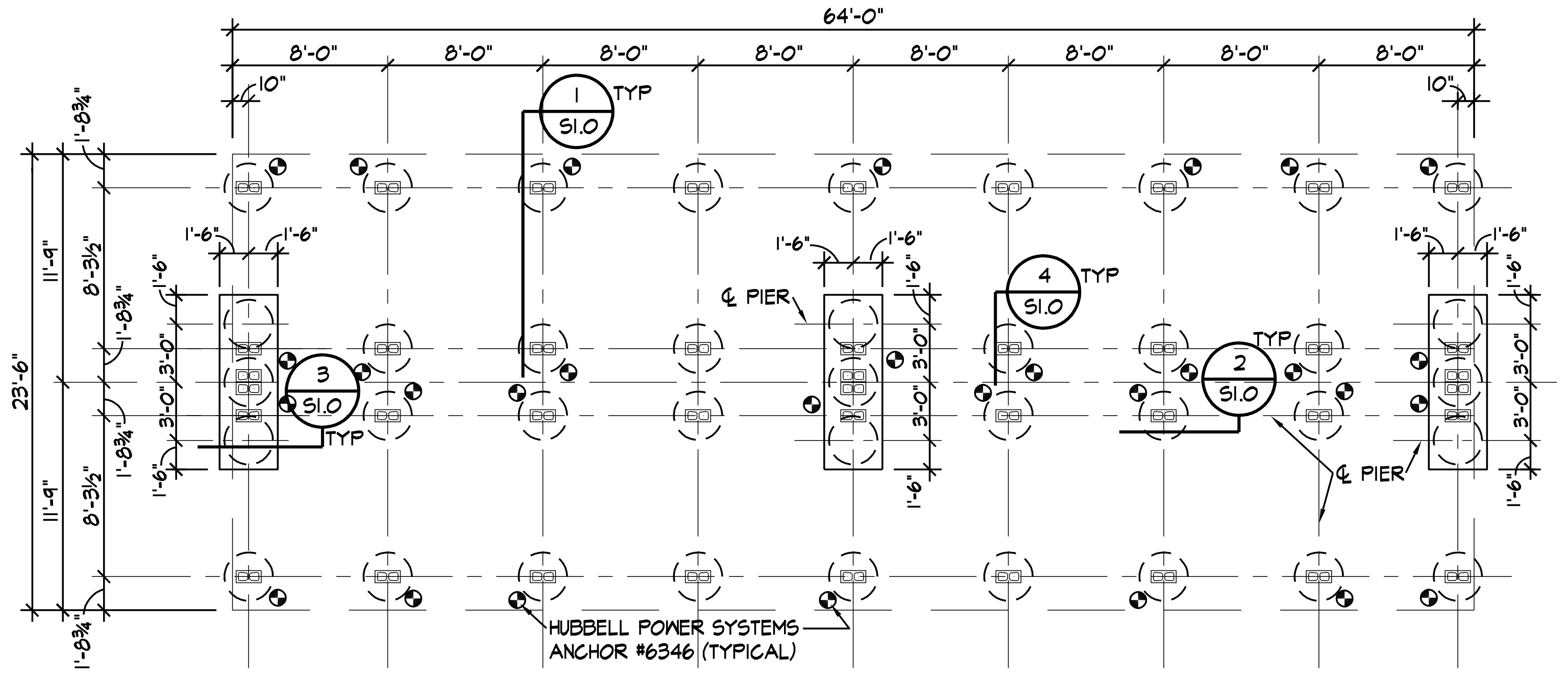
SECTION 2 S1.0
¾" = 1'-0"



SECTION 3 S1.0
¾" = 1'-0"



SECTION 4 S1.0
¾" = 1'-0"



PIER / PILASTER LAYOUT
1/8" = 1'-0"

NOTE:
1.) REFER TO GENERAL NOTES ON THIS SHEET.
2.) FIELD VERIFY PIER LAYOUT W/ PRE-FABRICATED BLDG MFG'R.

8/14/2020

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GENERAL CONSTRUCTION NOTES

1. ALL WORK SHALL COMPLY WITH LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA 70) AND ALL LOCAL BUILDING CODES.
2. SAWCUT AND TRENCH PARKING LOT AND SURFACES TO INSTALL PIPING AND CONDUITS. PATCH TO MAKE LIKE NEW AFTER INSTALLATION.
3. COORDINATE EXACT PIPING AND CONDUIT STUB–UP LOCATIONS AT MODULAR CLASSROOMS WITH ACTUAL EXISTING EQUIPMENT LOCATIONS IN MODULAR TO BE RELOCATED.
4. COORDINATE AND MAKE ALL FINAL CONNECTIONS TO MODULAR. ENSURE ALL SYSTEMS ARE IN PROPER WORKING ORDER.
5. EXISTING CIRCUITING MAY BE RE–USED WHERE POSSIBLE.
6. CONCEAL CIRCUITING IN WALLS WHERE POSSIBLE. FOR NEW DEVICES INSTALLED ON EXISTING BLOCK WALLS, CONCEAL CIRCUITING IN WIREMOLD.
7. PROVIDE EMPTY CONDUITS WITH PULLSTRINGS AND BUSHED ENDS.
8. THE CONTRACTOR SHALL COORDINATE THE EXACT ROUTING AND PATH OF PIPING AND CONDUITS WITH THE SITE LAYOUT AND WITH ALL TRADES. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING NECESSARY OFFSETS, TURNS, RISES AND DROPS FOR CONDUITS AND PIPING AS NEEDED TO CLEAR STRUCTURES AND OTHER SYSTEMS, EITHER NEW OR EXISTING.
9. EXISTING UNDERGROUND CONDUIT AND PIPING LOCATIONS ARE ESTIMATED BASED UPON REVIEW OF OLD PLANS AND FIELD EXAMINATION. FIELD VERIFY EXACT LOCATIONS DURING CONSTRUCTION AND PROVIDE ALL NECESSARY MODIFICATIONS.
10. COORDINATE EXACT LOCATIONS OF SMOKE DETECTORS WITH HVAC DIFFUSERS, LIGHTS, ETC., PER NFPA REQUIREMENTS.
11. PAINT NEW EXPOSED CONDUITS TO MATCH EXISTING SURROUNDING SURFACES.

NEW WORK KEYED NOTES

1 EXISTING 2" CONDUIT FOR TELECOMMUNICATIONS CABLING FROM EXISTING BUILDING. VERIFY EXISTING CONDUIT IS SUITABLE TO BE REUSED. PULL NEW TELECOMMUNICATIONS CABLING. CONTRACTOR IS TO VERIFY EXACT LENGTHS IN FIELD.

2 EXISTING 2" CONDUIT FOR EXTENSION OF FIRE ALARM AND INTERCOM SYSTEM CABLING FROM EXISTING BUILDING. VERIFY EXISTING CONDUIT IS SUITABLE TO BE REUSED. ROUTE CABLING CONCEALED EITHER ABOVE ACCESSIBLE CEILINGS OR IN SURFACE MOUNT WIREMOLD TO EQUIPMENT/DEVICE LOCATIONS. FIELD VERIFY EXACT ROUTING.

3 PULL NEW FIBER OPTIC CABLING FOR DATA FROM EXISTING BUILDING IDF TO MODULAR TRAILER IDF. CONFIRM EXACT CONNECTIONS REQUIRED IN FIELD AND WITH DISTRICT PRIOR TO ROUTING CONDUIT.

4 UTILITIES MAY NOT BE INSTALLED IN SAME TRENCH, U.N.O. HAVE EXISTING UTILITIES LOCATED BY UTILITY LOCATOR COMPANY PRIOR TO DIGGING. WHERE NEW WATER AND ELECTRICAL ARE RAN UNDERGROUND ADJACENT, THEY MUST BE SEPARATED BY 24" MIN. SIDE–TO–SIDE. COORDINATE EXACT ROUTING AND MAINTAIN ALL EXISTING CONDUITS AND PIPING ADJACENT.

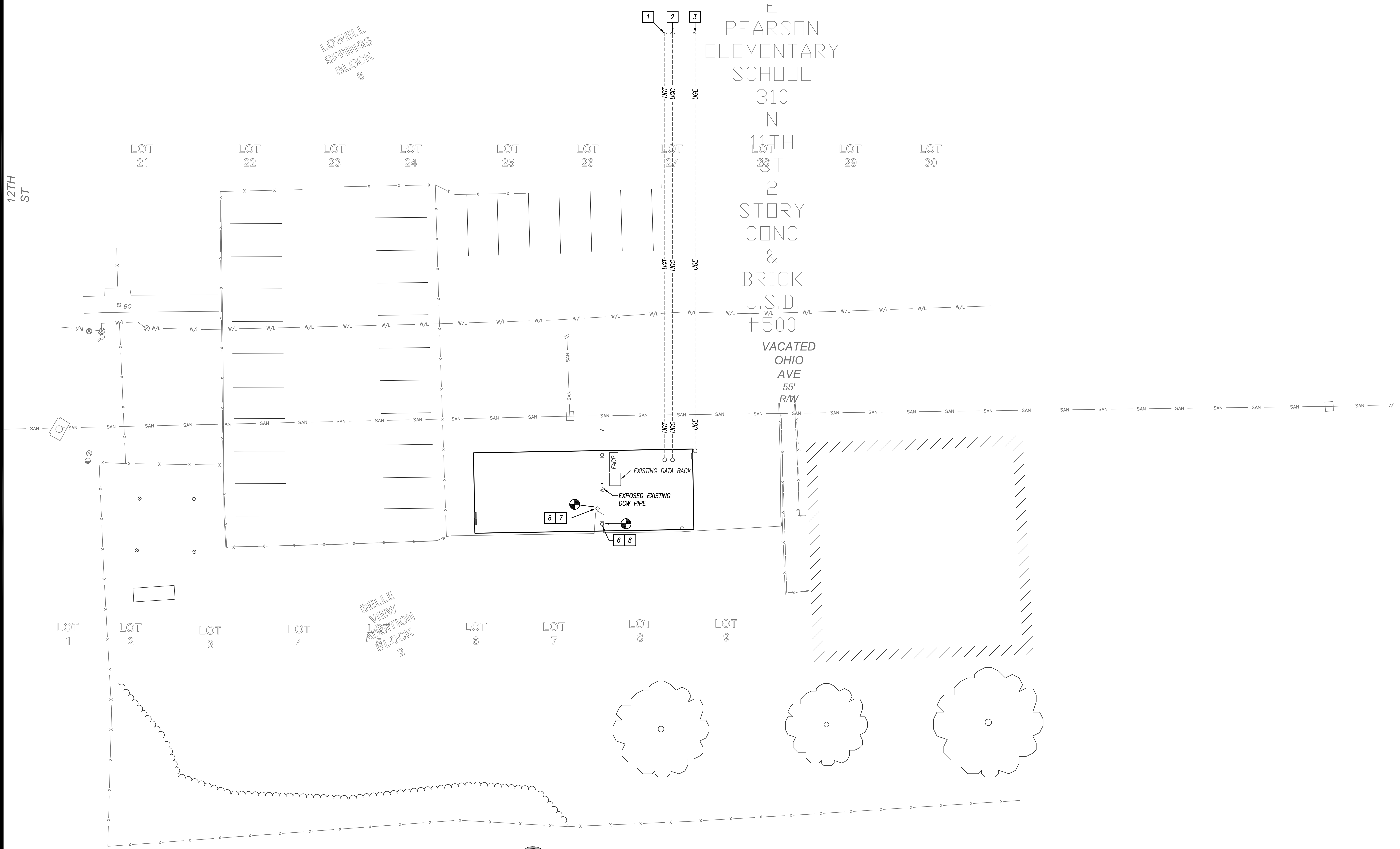
5 EXISTING 120V FIRE ALARM SYSTEM. PROVIDE RELAY, CONTACTORS, ETC., AND ASSOCIATED CABLING FOR ALARM TIE–IN TO MODULAR FIRE ALARM CONTROL PANEL. COORDINATE WORK WITH MANUFACTURER.

6 DOMESTIC COLD WATER CONNECTION TO TRAILER. VERIFY EXACT CONNECTION LOCATION WITH TRAILER. INSULATE AND HEAT TRACE ALL PIPING ABOVE GRADE THAT IS BELOW TRAILER IN CRAWLSPACE. INSULATE PIPING TO 36" BELOW GRADE ON RISER WITH 1" ARMAFLEX.

7 SANITARY CONNECTION TO TRAILER. VERIFY EXACT LOCATION AND CONNECTION REQUIREMENTS. INSULATE AND HEAT TRACE ALL PIPING UNDER TRAILER AND ABOVE GRADE. INSULATE RISERS TO HORIZONTAL CONNECTION BELOW GRADE WITH 1" ARMAFLEX.

NEW WORK KEYED NOTES (CONT.)

8 CONNECT HEAT TRACE CIRCUITING TO PANELBOARD INDICATED. REPLACE CIRCUIT BREAKER FOR HEAT TRACE WITH GFCI TYPE CIRCUIT BREAKER AND WIRE TO SAME.



SITE PLAN - MECHANICAL/ELECTRICAL

1/16" = 1'-0"

GENERAL DEMOLITION NOTES

1. REFER TO ARCHITECTURAL PLANS FOR ANY REQUIRED DEMOLITION REQUIREMENTS.
2. COORDINATE ALL DEMOLITION AND CONSTRUCTION WORK WITH OWNER.
3. CONTACT UTILITY LOCATING SERVICE TO LOCATE EXACT LOCATION OF EXISTING UTILITIES BELOW GRADE.
4. MAINTAIN ALL EXISTING DEVICES, EQUIPMENT, ASSOCIATED CIRCUITS ETC, SHOWN AS EXISTING TO REMAIN OR OTHERWISE UNRELATED TO THE SCOPE OF THE PROJECT IN WORKING ORDER.
5. CONTRACTOR SHALL REMOVE LAY–IN CEILINGS, LIGHT FIXTURES, ETC. AS REQUIRED FOR CONSTRUCTION AND REPLACE SAME AFTER CONSTRUCTION. EXISTING CONDUITS ABOVE CEILINGS SHALL BE RELOCATED AND/OR TEMPORARILY REMOVED TO FACILITATE THE INSTALLATION OF NEW EQUIPMENT.
6. NOTES AND DRAWINGS ARE BASED UPON A FIELD EXAMINATION OF THE SITE AND MAY NOT INDICATE ALL ITEMS. THE CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH THE SITE AND THE SCOPE OF WORK FOR THE CONTRACT PRIOR TO BID. ANY EXISTING CONDITION WHICH IS APPARENT OR COULD BE REASONABLY INFERRED FROM A VISIT TO THE SITE SHALL NOT BE THE BASIS FOR A CHANGE IN THE CONTRACT AMOUNT.
7. REFER TO PLAN FOR ANY ITEMS THAT MAY REQUIRE RELOCATION.
8. PROPERLY DISPOSE OF ALL DEMOLISHED ITEMS OFF SITE.
9. PROTECT ALL EXISTING SURFACES AND EQUIPMENT DURING CONSTRUCTION. EXISTING ITEMS SHALL BE ADEQUATELY PROTECTED, AS REQUIRED. ANY ITEMS DAMAGED OR MARRED SHALL BE ADEQUATELY CLEANED OR REPLACED TO THE OWNER'S SATISFACTION TO ORIGINAL CONDITION PRIOR TO CONSTRUCTION.
10. PATCH ANY HOLES IN STRUCTURE CREATED BY REMOVAL OF DUCTWORK, CONDUITS, PIPES, ETC.
11. ALL UNUSED ELECTRICAL CONDUIT AND WIRING DUE TO WORK HEREIN SHALL BE REMOVED BACK TO PANELBOARDS AND PROPERLY TERMINATED.

DEMOLITION KEYED NOTES

① DISCONNECT AND REMOVE ELECTRICAL SERVICE FEEDER CONDUIT AND CABLING BACK TO UTILITY POLE. BELOW GRADE CONDUIT MAY BE ABANDONED IN PLACE. COORDINATE WORK WITH ELECTRICAL UTILITY (BPU).

② DISCONNECT AND PULL FIBER OPTIC CABLE AND CONDUIT FOR DATA SERVICE BACK TO POINT OF RECONNECTION. PROTECT CABLE FOR REUSE TO SERVE NEW MODULAR CLASSROOMS. EXISTING MAIN SCHOOL BUILDING DATA SERVICE TO REMAIN UNAFFECTED. COORDINATE WORK WITH TELECOMMUNICATIONS UTILITY.

③ SALVAGE TELECOMMUNICATIONS EQUIPMENT; FIBER SWITCH, PATCH PANEL, ROUTER, CABLING, ETC., AND TURN OVER TO OWNER.

④ REUSE FIBER OPTIC CABLE, CONDUIT, PUNCH–DOWN BLOCKS, CONNECTORS, ETC., AS NEEDED FOR RECONNECTION TO NEW MODULAR CLASSROOMS. DISCONNECT AND REMOVE ANY UNUSED EQUIPMENT AND TURN OVER TO OWNER.

⑤ DISCONNECT AND REMOVE TELEPHONE SERVICE CABLE BACK TO SOURCE. ANY UNDERGROUND CONDUIT MAY BE ABANDONED IN PLACE.

⑥ EXISTING OVERHEAD LINE AND UTILITY POLE TO BE REMOVED BY UTILITY. E/C TO COORDINATE WORK.

⑦ DISCONNECT AND REMOVE EXISTING SIMPLEX 4009 FIRE ALARM EXTENDER PANEL, DEVICES, AND ASSOCIATED CABLING. SALVAGE AND TURN OVER TO OWNER.

⑧ DISCONNECT AND REMOVE EXISTING TRAILER PLUMBING CONNECTIONS AND UNDERGROUND PIPING. CAP PIPING BELOW GRADE AND ABANDON IN PLACE. FIELD VERIFY EXACT ROUTING AND DEPTH.

ELECTRICAL ALLOWANCE (INSIDE TRAILER WORK)

ALLOW THIRTY–TWO (32) HOURS LABOR AND $500.00 MATERIAL FOR THE FOLLOWING:
TRAILER CONNECTIONS: MAKE ALL ELECTRICAL CROSS OVER CONNECTIONS
GROUND ALL JUNCTION BOXES ABOVE CEILINGS
PROVIDE LIGHT FIXTURE SUPPORTS
ATTACH ALL MC CABLE TO STRUCTURE.

INTERCOM SCOPE OF WORK

1. REMOVE ANY AND ALL INTERCOM DEVICES FROM EXISTING MODULAR BUILDING.
2. PROVIDE NEW INTERCOM DEVICES (SPEAKERS AND CALL BUTTONS) AND WIRING TO MATCH EXISTING BUILDING SYSTEM MANUFACTURER IN EACH MODULAR CLASSROOM (2) AND EXTEND WIRING BACK TO HEAD END SYSTEM.

(4) CLASSROOMS: (1) CEILING SPEAKER EACH
(1) CALL BUTTON EACH
(1) CORRIDOR: (1) CEILING SPEAKER EACH

FIRE ALARM SCOPE OF WORK

1. REMOVE ANY AND ALL EXISTING FIRE ALARM DEVICES AND EXTENDER PANEL FROM EXISTING MODULAR BUILDING. SALVAGE EQUIPMENT AND DEVICES AND TURN OVER TO OWNER. REMOVE ALL ASSOCIATED CABLING. CONDUIT MAY BE REUSED.
2. PROVIDE NEW FIRE ALARM CONTROL PANEL, BATTERIES, DEVICES, COMPONENTS, AND ASSOCIATED CABLING. CONNECT VIA RELAYS TO THE EXISTING BUILDING FIRE ALARM SYSTEM. MONITOR VIA THE EXISTING BUILDING SECURITY SYSTEM. PROVIDE AND INSTALL THE FOLLOWING DEVICES AS A MINIMUM:

(4) RESTROOMS: (1) STROBE EACH
(1) CEILING MOUNTED SMOKE DETECTOR EACH
(4) CLASSROOMS: (1) COMBINATION HORN/STROBE EACH
(1) PULL STATION AT EACH EXTERIOR EXIT DOOR WITH TAMPERPROOF COVER
(1) CEILING MOUNTED SMOKE DETECTOR EACH
(1) CORRIDOR: (1) STROBE EACH
(1) CEILING MOUNTED SMOKE DETECTOR EACH

3. PROVIDE ALL PROGRAMMING AND MODIFICATIONS AS REQUIRED FOR A COMPLETE AND OPERATING SYSTEM.

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Date	8/14/20
Job Number	3-20053
Drawn By	GP
Checked By	MK

Revisions

Number	Date	Description

ME1.1

ELECTRICAL SPECIFICATIONS

SECTION 16000 – ELECTRICAL REQUIREMENTS

GENERAL REQUIREMENTS

A. ALL WORK SHALL BE IN ACCORDANCE W/ LATEST EDITION OF INTERNATIONAL BUILDING CODE, NATIONAL ELECTRICAL CODE, NFPA, CODES AS ADOPTED BY CITY, COUNTY, STATE & ALL OTHER APPLICABLE CODES.
B. ALL MATERIALS & EQUIPMENT SHALL BE NEW & SHALL BEAR U.L. LABEL WHERE APPLICABLE. PROVIDE WATERPROOF EQUIPMENT ENCLOSURES WHERE REQUIRED.
C. OBTAIN & PAY FOR ALL PERMITS REQUIRED FOR EXECUTION OF THIS WORK & SHALL MAKE ARRANGEMENTS FOR MODIFICATIONS TO ELECTRICAL CONNECTIONS TO BUILDING AS REQUIRED.
D. CONTRACTOR SHALL PROVIDE ALL LABOR & MATERIALS REQUIRED TO HAVE COMPLETE FUNCTIONING ELECTRICAL LIGHTING & POWER SYSTEMS TOGETHER W/ ALL ASSOCIATED EQUIPMENT & APPARATUS AS SHOWN ON PLANS.
E. WHERE AN ELECTRICAL DEVICE IS REQUIRED BY CODE BUT NOT SHOWN, IT SHALL BE PROVIDED AS THOUGH FULLY SHOWN & SPECIFIED.
F. CONTRACTOR SHALL VISIT SITE & OBSERVE CONDITIONS UNDER WHICH WORK WILL BE DONE. ANY DISCREPANCIES SHALL BE CALLED TO ARCHITECT'S ATTENTION. NO SUBSEQUENT ALLOWANCE WILL BE MADE IN THIS CONNECTION FOR ANY ERROR OR NEGLIGENCE ON CONTRACTOR'S PART.
G. FINAL ACCEPTANCE OF WORK SHALL BE SUBJECT TO CONDITION THAT ALL SYSTEMS, EQUIPMENT, APPARATUS & APPLIANCES OPERATE SATISFACTORILY AS DESIGNED & INTENDED. WORK SHALL INCLUDE REQUIRED ADJUSTMENT OF SYSTEMS & CONTROL EQUIPMENT INSTALLED UNDER THESE SPECIFICATIONS.
H. WARRANT TO OWNER QUALITY OF MATERIALS, EQUIPMENT, WORKMANSHIP & OPERATION OF EQUIPMENT PROVIDED UNDER THESE SPECIFICATIONS FOR ONE YEAR FROM & AFTER COMPLETION OF BUILDING & ACCEPTANCE OF MECHANICAL SYSTEMS BY OWNER.
I. ALL MATERIALS INSTALLED IN PLENUMS SHALL BE NONCOMBUSTIBLE OR HAVE FLAME/SMOKE INDEX OF NO MORE THAN 25/50 IN ACCORDANCE W/ ASTM E 84.

SECTION 16050 – EXCAVATION, TRENCHING AND BACKFILL

GENERAL REQUIREMENTS

A. PERFORM NECESSARY EXCAVATION TO RECEIVE WORK. PROVIDE NECESSARY SHEATHING, SHORING, CRIBBING, TARPAULINS, ETC. FOR THIS OPERATION, AND REMOVE AT COMPLETION OF WORK. PERFORM EXCAVATION IN ACCORDANCE WITH APPROPRIATE SECTION OF THESE SPECIFICATIONS, AND IN COMPLIANCE WITH OSHA SAFETY STANDARDS.
B. EXCAVATE TRENCHES OF SUFFICIENT WIDTH TO ALLOW AMPLE WORKING SPACE, AND NO DEEPER THAN NECESSARY FOR INSTALLATION OF WORK.
C. CONDUCT EXCAVATIONS SO NO WALLS OR FOOTINGS ARE DISTURBED OR INJURED.
D. BACKFILL EXCAVATIONS MADE UNDER OR ADJACENT TO FOOTING WITH SELECTED EARTH OR SAND AND TAMP TO COMPACTION REQUIRED BY A/E.
E. MECHANICALLY TAMP BACKFILL UNDER CONCRETE AND PAVINGS IN 6" LAYERS TO 95% STANDARD DENSITY.
F. BACKFILL TRENCHES AND EXCAVATIONS TO REQUIRED HEIGHTS WITH ALLOWANCE MADE FOR SETTLEMENT.
G. TAMP FILL MATERIAL THOROUGHLY AND MOISTENED AS REQUIRED FOR SPECIFIED COMPACTION DENSITY.
H. DISPOSE OF EXCESS EARTH, RUBBLE AND DEBRIS AS DIRECTED BY ARCHITECT.
I. WHEN AVAILABLE, REFER TO TEST HOLE INFORMATION ON ARCHITECTURAL DRAWINGS OR SPECIFICATIONS FOR TYPES OF SOIL TO BE ENCOUNTERED IN EXCAVATIONS.
J. RETURN SURFACES TO ORIGINAL CONDITIONS. REPLACEMENT OF GRASS SHALL BE WITH SOD TO MATCH EXISTING TURF TYPE.

SECTION 16100 – CONDUIT & CONDUCTORS

A. FOLLOW CIRCUITING SHOWN ON PLANS. USE NO CONDUIT SMALLER THAN 1/2" & NO CONDUCTORS SMALLER THAN #12 GA. UNLESS NOTED OTHERWISE.
B. WIRE SHALL BE IN NON–FLEXIBLE METALLIC CONDUIT (EMT, IMC OR RMC) FOR ALL CIRCUITS AND FEEDERS GREATER THAN 30A, LIGHT SWITCH RISERS, KITCHEN CIRCUITS & HOME RUNS.
C. CONDUIT INSTALLED BELOW GRADE SHALL BE SCHEDULE 80 PVC HEAVY WALL PLASTIC CONDUIT MEETING NEMA STANDARDS & UL LISTED FOR UNDERGROUND & EXPOSED USE. PROVIDE GRS RADIUS BENDS & RISERS AS CONDUITS RISE ABOVE GRADE OR ABOVE FLOOR SLAB.
D. PROVIDE INTERLOCKING SPACERS FOR MULT RUNS OF UG CONDUITS IN SAME TRENCH.
E. LIGHTING & RECEPTACLE CIRCUIT CONDUCTORS SHALL BE COPPER THWN/THHN 600 VOLT, 75 DEG C, COLOR CODED AS DESCRIBED UNDER APPLICABLE CODES. NO ROMEX, PLASTIC FLEX TUBING ETC PERMITTED. LIGHT FIXTURE WIRE INSULATION SHALL HAVE TEMP RATING NOT LESS THAN INDIVIDUAL FIXTURE MANUF RECOMMENDED RATING.
F. CIRCUITS W/ NO. 8 OR LARGER CONDUCTORS, MOTOR CIRCUITS, POWER & FEEDER CIRCUITS & BUILDING SERVICE FEEDERS SHALL BE COPPER THWN/THHN 600 VOLT, 75 DEG C.
G. ALL CONDUIT, JUNCTION BOXES, ETC. ABOVE CEILINGS SHALL BE SUPPORTED FROM STRUCTURE. PIPE SLEEVES, HANGERS & SUPPORTS SHALL BE FURNISHED & SET & CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER & PERMANENT LOCATIONS.

SECTION 16200 – GROUNDING

A. SUPPLEMENT GROUNDED NEUTRAL OF SECONDARY DISTRIBUTION SYSTEM W/ EQUIPMENT GROUNDING SYSTEM, INSTALLED SO THAT METALLIC STRUCTURES, ENCLOSURES, RACEWAYS, JUNCTION BOXES, OUTLET BOXES, CABINETS, MACHINE FRAMES, PORTABLE EQUIPMENT & OTHER CONDUCTIVE ITEMS OPERATE CONTINUOUSLY AT GROUND POTENTIAL & PROVIDE LOW IMPEDANCE PATH FOR GROUND FAULT CURRENTS.
B. SYSTEM SHALL COMPLY W/ NATIONAL ELECTRICAL CODE, DRAWINGS & AS SPECIFIED.
C. PROVIDE EQUIPMENT GROUND BUS IN BASE OF LOW VOLTAGE, SWITCHGEAR BRAZED OR OTHERWISE ADEQUATELY CONNECTED BY AN APPROVED METHOD TO GROUND RODS.
D. PROVIDE IN CONDUIT GREEN INSULATED COPPER GROUND CONDUCTOR TO MAIN METALLIC WATER SERVICE ENTRANCE & CONNECT BY MEANS OF ADEQUATE GROUND CLAMPS.
E. EQUIPMENT GROUNDING CONDUCTORS FOR BRANCH CIRCUIT HOME RUNS SHOWN ON DRAWINGS SHALL INDICATE AN INDIVIDUAL & SEPARATE GROUND CONDUCTOR FOR THAT BRANCH CIRCUIT WHICH SHALL BE TERMINATED AT BRANCH CIRCUIT PANELBOARD, SWITCHBOARD, OR OTHER DISTRIBUTION EQUIPMENT.
F. PROVIDE LOW VOLTAGE DISTRIBUTION SYSTEM W/ SEPARATE GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR FOR EACH SINGLE OR THREE–PHASE FEEDER. SINGLE PHASE 120 VOLT BRANCH CIRCUITS FOR LIGHTING & POWER SHALL CONSIST OF PHASE & NEUTRAL CONDUCTORS & GREEN GROUND CONDUCTOR INSTALLED IN COMMON CONDUIT WHICH SHALL SERVE AS GROUNDING CONDUCTOR.
G. GROUNDING CONDUCTORS SHALL BE AS SHOWN ON PLANS OR IF NOT SPECIFICALLY SHOWN SHALL BE NO SMALLER THAN THAT REQUIRED BY NEC.

SECTION 16300 – ELECTRICAL EQUIPMENT

A. JUNCTION BOXES & OUTLET BOXES SHALL BE GALVANIZED KNOCKOUT TYPE. LIGHTING FIXTURE BOXES IN CEILINGS SHALL NOT BE LESS THAN 4" OCTAGONAL KNOCKOUT TYPE. OUTLETS SHALL BE INSTALLED IN LOCATIONS SHOWN ON DRAWINGS EXCEPT OUTLETS MAY BE MOVED 4 FEET IN EITHER DIRECTION IF SO DIRECTED, WITHOUT ADDITIONAL COST. BOXES SHALL BE FLUSH MOUNTED ON WALLS FOR CONCEALED WORK. GANGABLE BOXES SHALL BE USED IN ALL GYPBOARD SURFACES.

PANELBOARDS

A. BRANCH CIRCUIT 208/240V PANELS SHALL BE CAPACITY SHOWN W/ TIN PLATED COPPER BUSSING & BRACED FOR MINIMUM OF 10,000A AIC OR AS OTHERWISE NOTED OR REQUIRED (SERIES RATED ACCEPTABLE). BOLT ON CIRCUIT BREAKERS. MINIMUM 20" WIDE W/ GALV STEEL ENCLOSURE W/ HINGED DOOR & KEYED LOCK. COORD TRIM WITH MOUNTING LOCATION. PANELS TO BE RECESSED WHENEVER POSSIBLE.
B. EQUIVALENT BY SQUARE D, SIEMENS, CUTLER HAMMER, OR GE.

CIRCUIT BREAKERS IN EXISTING PANELBOARDS

A. PROVIDE NEW CIRCUIT BREAKERS, FOR INSTALLATION IN EXISTING PANELBOARDS, OF SAME MANUFACTURER, TYPE & SHORT CIRCUIT CURRENT INTERRUPTING RATINGS AS EXISTING PANELBOARD CIRCUIT BREAKERS.

SECTION 16350 – ELECTRICAL IDENTIFICATION

A. MANUFACTURED LABELS FOR EACH PANELBOARD. PROVIDE TYPEWRITTEN PANEL SCHEDULES MOUNTED IN PANELS.
B. PRINTED TAPE STYLE LABEL FOR EACH RECEPTACLE INDICATING PANEL & CIRCUIT #.
C. MANUFACTURED LABELS FOR ALL DISCONNECT SWITCHES AND DISTRIBUTION PANEL CIRCUIT BREAKERS INDICATING EQUIPMENT SERVED.
D. BRANCH CIRCUITS – IDENTIFY EACH CIRCUIT W/ WIRE MARKERS WHEN ENCLOSURE LABEL AND WIRE COLORS DO NOT PROVIDE ENOUGH INFORMATION TO IDENTIFY EACH CIRCUIT WITHOUT TRACING. FEEDERS & BRANCH CIRCUIT HOME RUNS W/ WIRE MARKER W/ PANEL & CKT #. BOX COVERS ABOVE LAY–IN CEILINGS NEATLY MARKED W/ INDELIBLE MARKER.
E. FIRE ALARM – NAMEPLATE ON EACH FIRE ALARM TERMINAL CABINET. LABEL ALL WIRING.

SECTION 16400 – WIRING DEVICES

A. CONVENIENCE OUTLETS – SPEC GRADE 20 AMP DUPLEX W/ GROUND & SS WALL PLATES. OTHER OUTLETS SHALL BE VERIFIED W/ EQUIPMENT SUPPLIERS FOR PROPER NEMA CONFIGURATIONS. PROVIDE GFCI RATED DEVICES WHERE INDICATED AND AS REQ'D PER CODE.
B. EQUIVALENT DEVICES BY LEVITON, BRYANT, HUBBEL, WATTSTOPPER, LITHONIA, SENSOR SWITCH.

EXECUTION

A. ALL OUTLETS, SHALL BE MOUNTED W/ BOTTOM AT 18" AFF & SWITCHES W/ BOTTOM AT 44" ABOVE FINISHED FLOOR UNLESS NOTED OTHERWISE ON PLANS.

SECTION 16500 – LUMINAIRES, LAMPS & BALLASTS

LUMINAIRES

A. PROVIDE LIGHTING FIXTURES W/ LAMPS & ACCESSORIES REQ'D FOR HANGING. COORD MOUNTING OF LIGHTING FIXTURES W/ ARCHITECT & G/C. ADDITIONAL FIXTURE SUPPORTS SHALL BE PROVIDED BY E/C. SUPPORTS SHALL COMPLY W/ LATEST EDITION OF NEC. PROVIDE LIGHTING FIXTURE SECURING CLIPS AS REQUIRED. CONSULT ARCH PLANS FOR CEILING TYPES & PROVIDE SURFACE & RECESSED LIGHTING FIXTURES W/ APPROPRIATE MOUNTING COMPONENTS & ACCESSORIES.
B. EQUIVALENT LUMINAIRES BY HUBBELL, INFINITY, LITHONIA, WILLIAMS, COLUMBIA, EXITRONICS, LITEALARM, EXIDE.

LAMPS

A. LAMPS SHALL BE TYPE RECOMMENDED BY FIXTURE MANUF. LAMP NONE ABOVE MANUF RECOMMENDED MAX WATTAGE.
B. T–8 FLUOR – 32W, 75CRI MIN, 4100 DEG K, 2900 APPROX INITIAL LUMENS.
C. EQUIVALENT LAMPS BY G.E., VENTURE, PHILLIPS OR SYLVANIA.

BALLASTS

A. FLUORESCENT – ELECTRONIC, <20%THD
B. EQUIVALENT BY ADVANCE, G.E., MOTOROLA, OR MAGNETEK.

SECTION 16600 – FIRE ALARM SYSTEM

A. PROVIDE COMPLETE & OPERATIONAL MICROPROCESSOR BASED FIRE ALARM SYSTEM. SYSTEM SHALL HAVE CAPABILITY TO OPERATE SMOKE DETECTORS, INITIATE ALARMS FROM INITIATING DEVICES, CONTROL NOTIFICATION APPLIANCES, & PROVIDE THIRD PARTY/CENTRAL STATION MONITORING THROUGH DIGITAL ALARM COMMUNICATOR OR DIALER.
B. PROVIDE WITH BATTERY BACKUP FOR 24 HOURS OF OPERATION & 5 MINUTES OF ALARM.
C. SUBMIT SHOP DRAWINGS W/ WIRING DIAGRAMS & BATTERY CALCS FOR APPROVAL TO FIRE MARSHALL AND AHJ.
D. MANUFACTURER: SILENT KNIGHT, EST, SIEMENS, OR APPROVED EQUAL.

PRODUCTS

A. MICROPROCESSOR BASED FIRE ALARM CONTROL PANEL W/ INDICATION & NOTIFICATION CIRCUITS REQUIRED BASED ON DEVICES & DESCRIPTION HEREIN. COMPLETE CONTROL PANEL W/ POWER SUPPLY, BATTERIES, PROCESSOR, DIALER, ETC., IN SINGLE CABINET WITH HINGED LOCKABLE DOOR, SURFACE MOUNTED.
B. PHOTOELECTRIC CEILING MOUNTED SMOKE DETECTORS.
C. DOUBLE ACTION PULL STATIONS.
D. CAPABLE OF CONNECTION WITH REMOTE ANNUNCIATOR, RECESSED MOUNTED.
E. NOTIFICATION APPLIANCES – STROBES & COMBINATION HORN/STROBES. 15/75 CANDELA RATING UNLESS OTHERWISE NOTED OR REQUIRED. WEATHERPROOF WHERE EXTERIOR MOUNTED.
F. MODULES FOR MONITORING MISCELLANEOUS DEVICES.

EXECUTION

A. INSTALLED & TESTED PER NFPA 72 & APPLICABLE SECTIONS OF NFPA 70. PROVIDE COMPLETE FIRE ALARM SYSTEM AS DESCRIBED HEREIN & SHOWN TO BE WIRED, CONNECTED, & IN FIRST CLASS CONDITION. INCLUDE SUFFICIENT CONTROL UNIT(S), ANNUNCIATOR, MANUAL STATIONS, AUTOMATIC SMOKE DETECTORS, AUDIBLE & VISIBLE NOTIFICATION APPLIANCES, WIRING, TERMINATIONS, ELECTRICAL BOXES, & ALL NECESSARY MATERIAL FOR COMPLETE OPERATING SYSTEM.
B. SYSTEM SHALL BE UL LISTED.
C. SYSTEM WIRING: WIRE & CABLE SHALL BE LISTED FOR IT'S INTENDED USE BY AN APPROVAL AGENCY ACCEPTABLE TO AHJ & SHALL BE INSTALLED IN ACCORDANCE W/ APPROPRIATE ARTICLES FROM CURRENT APPROVED EDITION OF NEC.

SECTION 16700 – LOW VOLTAGE CABLING

A. PROVIDE CABLING IN TYPE AS DIRECTED BY SCHOOL DISTRICT FOR TELEVISION OUTLETS.
B. PROVIDE ALL NECESSARY CABLNG, EQUIPMENT, BOXES, CONNECTORS, COVERS, ETC. FOR COMPLETE SYSTEM.

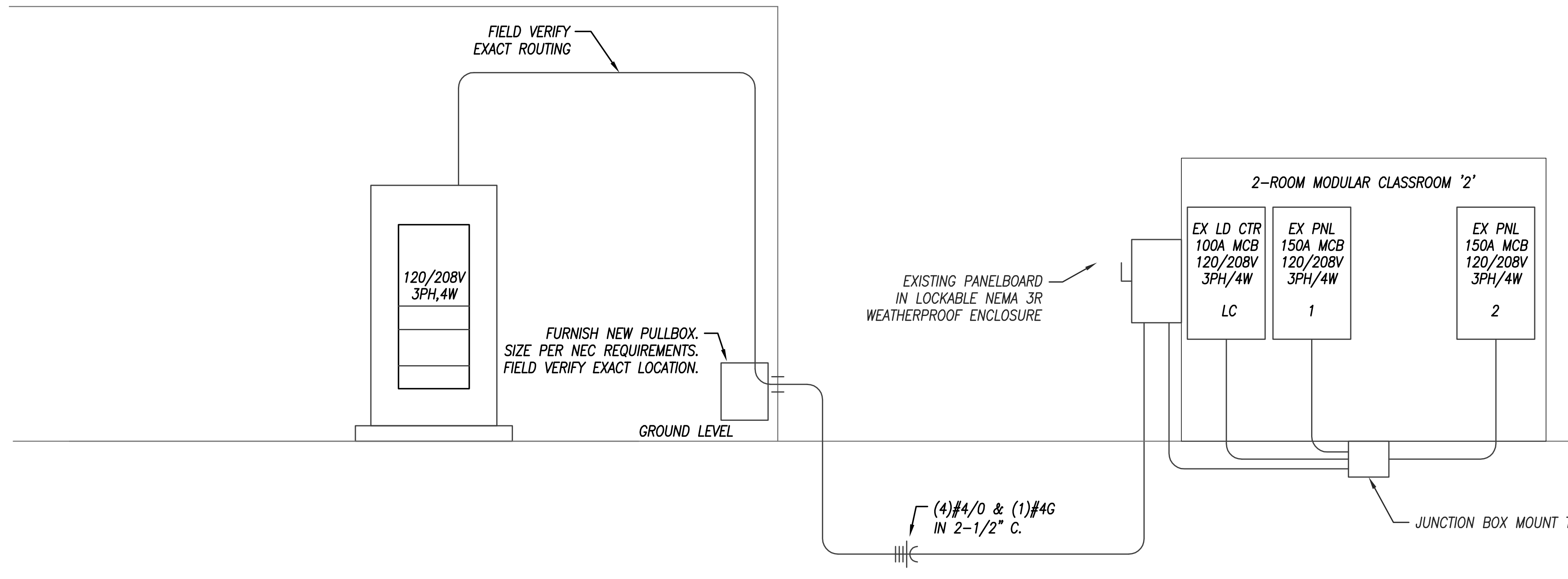
EXECUTION

A. CABLING SHALL BE INSTALLED CONCEALED IN EXISTING CONSTRUCTION.
B. CABLING SHALL BE UL LISTED FOR INTENDED USE & INSTALLED IN ACCORDANCE W/ APPROPRIATE ARTICLES FROM LATEST NEC.

ELECTRICAL SYMBOL LEGEND

SOME SYMBOLS AND ABBREVIATIONS ON THIS LEGEND MAY NOT BE USED

⌒	HOME RUN (2 #12, 1 #12 G UNLESS NOTED OTHERWISE)	⊖	DUPLEX RECEPTACLE	–F	MANUAL PULL STATION
⌒	INDICATES 2 PHASE, 1 NEUTRAL, AND 1 GROUND CONDUCTOR	⊕	LINE THRU DEVICE INDICATES ABOVE COUNTER	Ⓓ	CEILING SMOKE DETECTOR
—— OHE ——	OVERHEAD ELECTRICAL	⊟	QUADPLEX RECEPTACLE	⟨D⟩	DUCT SMOKE DETECTOR
---- UGE ---	UNDERGROUND ELECTRICAL	Ⓙ	JUNCTION BOX	⟨H⟩	HEAT DETECTOR
---- UGT ---	UNDERGROUND TELEPHONE CONDUIT	◁	TELEPHONE OUTLET (SINGLE–GANG BOX WITH (1) 3/4" CONDUIT TO ABOVE ACCESSIBLE CEILING)	⊠ 75	STROBE LIGHT WITH CANDELA RATING. 15cd RATING UNLESS OTHERWISE NOTED ON PLANS.
---- UGC ---	UNDERGROUND COMMUNICATIONS CONDUIT	◁	LINE THRU DEVICE INDICATES ABOVE COUNTER	⊠◁ 30	COMBINATION HORN/STROBE WITH CANDELA RATING. 15cd RATING UNLESS OTHERWISE NOTED ON PLANS.
---- DATA ---	UNDERGROUND DATA CONDUIT	◀	DATA OUTLET (DOUBLE–GANG BOX WITH (2) 3/4" CONDUITS TO ABOVE ACCESSIBLE CEILING)	□◁	HORN
▭	FLUORESCENT LIGHT FIXTURE	◀	TELEPHONE/DATA OUTLET (DOUBLE–GANG BOX WITH (2) 3/4" CONDUITS TO ABOVE ACCESSIBLE CLG.)	FACP	FIRE ALARM CONTROL PANEL
▬	FLUORESCENT STRIP FIXTURE	◀ 1D/1V	PHONE/DATA OUTLET WITH NUMBER OF PHONE/DATA JACKS AS INDICATED	FAEC	FIRE ALARM EXTENDER CABINET
⊙ ▣	SURFACE/RECESSED LIGHT FIXTURE	⊢⟨S⟩	WALL SPEAKER	□	DISCONNECT SWITCH. SIZE, NUMBER OF POLES, AND FUSING AS INDICATED ON PLANS.
⊢□ ⊢○	WALL–MOUNTED LIGHT FIXTURE	⟨S⟩	CEILING SPEAKER	◕	INDICATES CONNECT TO EXISTING
⊢⊗ ⊗	EXIT LIGHT	⊢⟨V⟩	VOLUME CONTROL	⟨M⟩	CEILING–MOUNTED MOTION SWITCH
⊼	BATTERY–OPERATED EMERGENCY LIGHT (WALL MTD)	I	INTERCOM CALL STATION	▨	SURFACE PANELBOARD
◁	REMOTE EMERGENCY LIGHT (WALL MTD)	RL EX	RELOCATED FIXTURE OR DEVICE EXISTING FIXTURE OR DEVICE	▨	RECESSED PANELBOARD
$	LIGHT SWITCH – SINGLE POLE	WP GFI	WEATHER PROOF GROUND FAULT INTERRUPT	■	SWITCHBOARD. FEEDER/MAIN CIRCUIT BREAKER SECTION AND DISTRIBUTION SECTION.
$_M	WALL–MOUNTED MOTION SWITCH	EM CM	EMERGENCY FIXTURE/DEVICE COORDINATE EXACT MOUNTING HEIGHT OF DEVICE		



PARTIAL ELECTRICAL RISER DIAGRAM

NO SCALE

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Tele: 913-492-2400 Fax: 913-492-2437

Kansas City, Kansas Public Schools USD 500
ME Pearson Elementary
Modular Classrooms
310 North 11th St - Kansas City, Kansas - 66102

Date 8/14/20
Job Number 3-20053
Drawn By GP
Checked By MK

Revisions

Number Date Description

pkmr ENGINEERS
PEARSON KENT MCKINLEY RAAF ENGINEERS LLC
8801 BALLENTINE, SUITE 200 OVERLAND PARK, KS 66214
913.492.2400 WWW.PKMRENG.COM
20.288

ME2.1

MECHANICAL SPECIFICATIONS

SECTION 15000 – MECHANICAL REQUIREMENTS
GENERAL REQUIREMENTS

A. ALL WORK SHALL BE IN ACCORDANCE W/ LATEST EDITION OF INTERNATIONAL BUILDING, MECHANICAL & PLUMBING CODES, CODES AS ADOPTED BY CITY, COUNTY, STATE & ALL OTHER APPLICABLE CODES.
B. FURNISH & INSTALL ALL LABOR & MATERIALS REQUIRED FOR COMPLETE, FUNCTIONING, MECHANICAL & PLUMBING SYSTEMS W/ ALL ASSOCIATED EQUIPMENT & APPARATUS AS SHOWN ON PLANS. "PROVIDE" MEANS TO FURNISH & INSTALL.
C. OBTAIN & PAY FOR ALL PERMITS REQUIRED FOR EXECUTION OF THIS WORK & SHALL MAKE ARRANGEMENTS FOR MODIFICATIONS TO WATER, GAS & SEWER CONNECTIONS TO BUILDING AS REQUIRED.
D. ALL MATERIALS SHALL BE NEW & SHALL BARE UL LABEL WHERE APPLICABLE.
E. VISIT SITE & OBSERVE CONDITIONS UNDER WHICH WORK WILL BE DONE. ANY DISCREPANCIES SHALL BE CALLED TO ARCHITECT'S ATTENTION. NO SUBSEQUENT ALLOWANCE WILL BE MADE IN CONTRACT FOR ANY ERROR OR NEGLIGENCE ON CONTRACTOR'S PART.
F. FINAL ACCEPTANCE OF WORK SHALL BE SUBJECT TO CONDITION THAT ALL SYSTEMS, EQUIPMENT, APPARATUS & APPLIANCES OPERATE SATISFACTORILY AS DESIGNED & INTENDED. WORK SHALL INCLUDE REQUIRED ADJUSTMENT OF SYSTEMS & CONTROL EQUIPMENT INSTALLED UNDER THESE SPECIFICATIONS.
G. WARRANT TO OWNER QUALITY OF MATERIALS, EQUIPMENT, WORKMANSHIP & OPERATION OF EQUIPMENT PROVIDED UNDER THESE SPECIFICATIONS FOR ONE YEAR FROM & AFTER COMPLETION OF BUILDING & ACCEPTANCE OF MECHANICAL SYSTEMS BY OWNER.

SECTION 15100 – PLUMBING
PIPING

A. WATER PIPING – ALL WATER PIPING SHALL BE 95–5 TIN–ANTIMONY JOINED TYPE L COPPER. INSULATE W/ FIBERGLASS W/ ASJ & PVC COVERS.THICKNESS IN ACCORDANCE W/ ASHRAE 90.1.
B. WASTE & VENT PIPING – CI BELL & SPIGOT OR HUBLESS CI W/ NEOPRENE GASKET FITTINGS W/ STAINLESS STEEL BANDS. SCHED 40 PVC W/ SOLVENT WELDS MAY BE USED WHERE ALLOWED BY LOCAL CODE. PVC NOT ALLOWED IN PLENUMS.

VALVES

A. EQUIVALENT VALVES LISTED ON CURRENT COMPARISON CHARTS OF SPECIFIED VALVE MANUFACTURERS BY MILWAUKEE, STOCKHAM, POWELL, RED–WHITE, CRANE, APOLLO, MUELLER, MUESSCO, WATTS, HAYS, ROCKWELL–NORDSTROM.
B. BALL VALVES – 2" & UNDER – BRONZE FULL PORT W/ TEFLON SEATS, BRONZE BALL & INSULATED HANDLE.

EXECUTION

A. PROVIDE UNIONS OR FLANGED JOINTS IN EACH PIPE LINE PRECEDING CONNECTIONS TO EQUIPMENT TO ALLOW REMOVAL FOR REPAIR OR REPLACEMENT. PROVIDE ALL SCREWED & CONTROL VALVES W/ UNIONS ADJACENT TO EACH CONNECTION. PROVIDE SCREWED END VALVES W/ UNION ADJACENT TO VALVE UNLESS VALVE CAN BE OTHERWISE EASILY REMOVED FROM LINE.
B. AFTER PIPING IS IN PLACE TEST LINES TO INSURE NO LEAKS.
C. ALL PIPING & EQUIPMENT SHALL BE SUPPORTED PROPERLY FROM STRUCTURE.
D. ESCUTCHEONS – PROVIDE NICKEL–BRASS OR CHROME PLATED ON ALL EXPOSED PIPES WHEN PASSING THRU WALL OR CEILING OF FINISHED ROOMS.
D. VERIFY FLOOR MATERIALS USED FROM ARCHITECTURAL PLANS & PROVIDE PROPER CLEANOUT TOPS, WHERE THEY OCCUR IN CARPET, QUARRY TILE, VINYL TILE OR CERAMIC TILE.
E. PROVIDE WATER HAMMER ARRESTORS FOR ALL PLUMBING BANKS W/ FIXTURES UTILIZING FLUSH VALVES IN ANY CAPACITY. LOCATE ARRESTER BETWEEN LAST TWO FIXTURES SERVED ON BRANCH LINE.

MECHANICAL SYMBOL LEGEND

SOME SYMBOLS AND ABBREVIATIONS ON THIS LEGEND MAY NOT BE USED

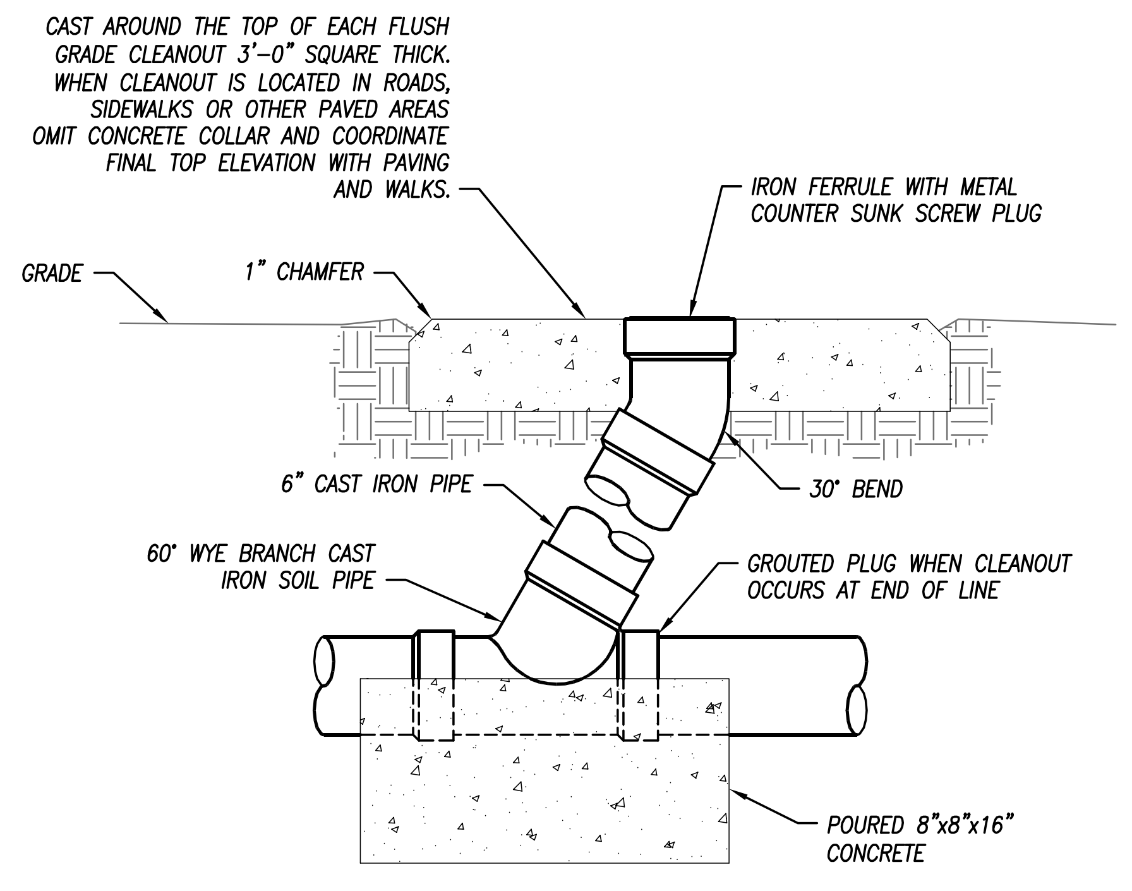
⊖	THERMOSTAT	—— G ——	GAS (NATURAL)	—▷◁—	SHUTOFF VALVE
⊖	TEMPERATURE SENSOR	—— · ——	DOMESTIC COLD WATER	——○	PIPING ELBOW UP
●	INDICATES CONNECT TO EXISTING	—— ·· ——	DOMESTIC HOT WATER	——⊃	PIPING ELBOW DOWN
FWCO FFCO	FLUSH WALL CLEAN OUT FLUSH FLOOR CLEAN OUT	—— SAN ——	WASTE ABOVE GRADE OR FLOOR	—┼┬┼—	PIPING TEE
FGCO VTR	FLUSH GRADE CLEAN OUT VENT THROUGH ROOF	- - - - SAN - - - -	WASTE BELOW GRADE OR FLOOR	—┐	PIPING ELBOW
AFF BG	ABOVE FINISHED FLOOR BELOW GRADE	—— V ——	PLUMBING VENT	—/—	CHECK VALVE
AFG AG	ABOVE FINISHED GRADE ABOVE GRADE	—— W ——	WATER SERVICE	RPZ	REDUCED PRESSURE BACKFLOW PREVENTER
WC–1 S–1	PLUMBING FIXTURE AND CALLOUT	——— HB	HOSE BIBB	DCBP	DOUBLE CHECK BACKFLOW PREVENTER
——┤ ◎	CLEAN OUT	——— WH	WALL HYDRANT	—— F ——	FIRE PROTECTION PIPING

PIPING MATERIAL SCHEDULE

PIPING							FITTINGS		MAX NORMAL WORKING		FIELD TEST	
SYSTEM	SIZE	TYPE	SCHED.	GRADE	ASTM	MATERIAL	MATERIAL	TYPE	PRESS	TEMP	PRESS	TIME
Building Sewer	4"–8"	BS	SDR–26	--	D–2241	PVC	PVC	NG	--	75	10'	1/2 hr.
Domestic Cold Water	1/2"–6"	L	--	--	B–88	CP	CP	SJ	85	40 to 55	130 lb.	1/2 hr.
Domestic Cold Below Grade	1/2"–6"	K	--	--	B–88	CP	CP	SS	85	40 to 55	120	1/2 hr.
Soil & Waste Above Grade	1–1/2"–6"	NH	SV	--	A–74	CI	CI	NH	--	75	10'	1/2 hr.
Soil & Waste Above Grade	2"–4"	S	40	--	D–2665–88	PVC	PVC	SW	--	75	10'	1/2 hr.
Soil & Waste Below Grade	2"–4"	S	40	--	D–2665–88	PVC	PVC	SW	--	75	10'	1/2 hr.

ABBREVIATIONS:

BLK – Black
BS – Bell & Spigot
CI – Cast Iron
CP – Copper
CS – Carbon Steel
DI – Ductile Iron
ERW – Electric Resistant Weld
F – Fusion Weld
GLV – Galvanized
MECH – Mechanical
MI – Malleable Iron
MJ – Mechanical Joint
NG – Neoprene Gasket
NH – No Hub
PVC – Polyvinyl Chloride
PC – Rolled Grooved Pipe Coupling
PE – Polyethylene
PP – Polypropylene
S – Socket Joint
SJ – Solder Joint 95–5 Tin–antimony
SL – Seamless
SS – Silver Solder
SV – Service Weight
SW – Solvent Weld
T – Threaded
W – Welded
V – Victaulic



FLUSH GRADE CLEANOUT DETAIL

NOT TO SCALE

KEVIN J. ZIMMERMAN
20675
8/14/2020

ACI
BOLAND
ARCHITECTS

1710 Wyandotte
Kansas City, MO 64108
T: 816.763.9600 F: 816.763.9757

ACI/Boland, Inc.
Kansas City | St. Louis
Licensee's Certificate of Authority Number:
A-508

CIVIL CONSULTANT

Renaissance Infrastructure Consulting - RIC
1815 McGee Street, Suite 200
Kansas City, MO 64108
Tele: 816-800-0950

STRUCTURAL CONSULTANT

Bob D. Campbell Engineers
4338 Belleview
Kansas City, MO 64111
Tele: 816-531-4144 Fax: 816-531-8572

MEP CONSULTANT

PKMR Engineers
13300 W. 98th Street
Lenexa, KS 66215
Tele: 913-492-2400 Fax: 913-492-2437

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ME2.2

6/14/06 KC
6-14-06 BOB
6-14-06 KW
6-14-06
6-14-06 R

WILLIAMS SCOTSMAN-WET CLASSROOM
24 X 68 (64)
PROJECT 06-103

General Construction Specifications

FRAME CONSTRUCTION:

QUANTITY AND SIZE: (2) 126412
TYPE: Outrigger and cross member at 48 in. O.C.
Main beams to be 99 1/2 in. O.C.
BEAM SIZE: 12 in. Jr. I-beam
AXLES: Quad 6000# rated with (2) brake (2) tag
HITCH: Detachable underslung
TIRES: 8x14.5 10 ply rated

FLOOR CONSTRUCTION:

FLOOR JOIST: 2x6 #2 SYP equal or better
FRAMING TYPE: Transverse
JOIST SPACING: 16 in. O.C.
FLOOR DECKING: Single layer 3/4 in. Sturd-I-floor.
Hold back decking _____ inches at each side of the mateline.
(0 inches or 1-1/2 inches only)
INSULATION: R-19 Kraft back fiberglass batt
BOTTOM BOARD: Mobilflex or equal
FLOOR COVERINGS:
100 SF 1/8 in. commercial grade tile.
Tile to be CHECKERBOARD AND 50% OFFSET.
Hold back tile _____ inches at each side of the mateline. Color to be __________.

1436 SF 26 oz. (or equal) carpet. Color to be __________.

EXTERIOR WALL CONSTRUCTION:

FRAMING: 2x4 #2 SYP equal or better at 16 in. O.C.
Double 2x4 #2 SYP equal or better top plate
Single 2x4 #2 SYP or better bottom
WALL SHEATHINGS: 3/8 in. CDX plywood
WALL SHEATHING No.2: Tyvek or equal housewrap
INSULATION: R-11 Kraft back fiberglass batt
EXTERIOR SIDINGS: .019 Aluminum.
Body color to be __________.
Trim color to be __________.
WALL COVERINGS: 5/8 in. Type-X vinyl covered gypsum with wrapped battens
(Hampton Gray, DaVinci Sage, or Seamist).
Color to be __________.
Covering Length 0 FT
Covering Height 0 FT

INTERIOR WALL CONSTRUCTION:

FRAMING: 2x4 #2 SYP equal or betterat 16" o.c.
Double 2x4 #2 SYP equal or better top plate
Single 2x4 #2 SYP or better bottom plate
OVERALL LENGTH: 94 FT
OVERALL HEIGHT: 8 FT

WALL COVERINGS: 5/8 in. Type-X vinyl covered gypsum with wrapped battens
(Hampton Gray, DaVinci Sage, or Seamist).
Color to be __________.
Covering Length 188 FT
Covering Height 8 FT
Standard white FRP panels over 5/8" MR Gypsum
Covering Length 50 FT
Covering Height 4 FT
BASE TRIM: 4 in. vinyl cove

ROOF CONSTRUCTION:

DESIGN LOAD: 30 p.s.f live load
RAFTER: Flat solid rafter
RAFTER SIZE: 2x6 #2 SYP equal or better
SPACING: 24" o.c.

MATE BEAM TYPE NO.1
MATE BEAM: Ridge Girders
HEIGHT: 24 IN
LENGTH: 64 FT
NO. OF LAYERS: 4
NO. OF BEAMS: 1
CEILINGS: 2 ft. x 4 ft. Standard T-Grid (Mineral Fiber Tile)
Installed at factory
INSULATION: R-19 fiberglass batt with support netting
SHEATHING: 7/16" FR-Deck (BLOCK ALL EDGES)
ROOFING: 45 mil Black single ply membraneadhered to FR-Deck
with Mule Hide Acrylic Water Base Bonding Adhesive
(100 sq. ft. per gallon)

EXTERIOR DOORS:

QUANTITY: (2) 36 in. Comm'l steel with 10 in. x 10 in. Window
Door color:__________
CLOSER: Hydraulic closer
PANIC: Panic hardware

ADDITIONAL EXTERIOR DOOR ITEMS INCLUDED IN QUOTED PRICE:
ITEM 1) Exterior door panic devices are Schlage 98NL with 20-057 keyway/ closer is LCN 4041 EDA.

INTERIOR DOORS:

DOOR TYPE No. 1
QUANTITY: (2) 36 in. X 80 in. Comm'l prefinished solid core with metal jamb
HARDWARE: Lever passage
CLOSER: Hydraulic closer

DOOR TYPE NO.2
QUANTITY: (2) 36 in. X 80in. Comm'l prefinished solid core with metal jamb
HARDWARE: Privacy passage

ADDITIONAL INTERIOR DOOR ITEMS INCLUDED IN QUOTED PRICE:
ITEM 1) Interior closet doors have Schlage D 70 PD RHO lockset with E keyway 626.
ITEM 2) Restroom doors have Schlage D 40 S RHO privacy levers with LCN 4041 626 EDA closers.

WINDOWS:

WINDOW NO.1
QUANITY: (4) Clear glass bronze finish vertical slider
Single glazed
24 IN X 52 IN
(4) Thin line metal mini-blinds.
Color to be (Gray, White, or Alabaster)

ADDITIONAL WINDOW ITEMS INCLUDED IN QUOTED PRICE:
ITEM 1) Windows are to be safety glazed.

ELECTRICAL

SERVICE: 120/230v. 60 Hz. Single phase
PANELS/LOAD CENTERS: (2) 150 Amp 1 Ph With main breaker.
SERVICE ENTRANCE: E.M.T. conduit thru floor.
(1) 100 Amp 1 Ph With main breaker.
SERVICE ENTRANCE: E.M.T. conduit thru floor.
RACEWAY: E.M.T. thin wall conduit with green ground
LIGHTS TYPE No.1: (12) 48 in. 4-tube diffused flourescent recessed lay-in
(T-8 bulbs and electronic ballasts)
LIGHTS TYPE No. 2: (2) Fluorescent exterior with photo cell
EXIT LIGHT: (2) Combo dual emergency light / exit light sign with battery backup
RECEPTACLE TYPE No.1: (17) 20a/125v Duplex
RECEPTACLE TYPE No.2: (2) 20a/125v Waterproof exterior
RECEPTACLE TYPE No.3: (2) 20a/125v GFCI protected
RECEPTACLE TYPE No.4: (6) 20a/125v quad wall mount
RECEPTACLE TYPE No.5: (1) 20a/125v Heat tape receptacle under unit
PHONE/COMM JACKS: (6) stubbed out above T-Grid with 3/4 in. EMT conduit

ADDITIONAL ELECTRICAL ITEMS INCLUDED IN QUOTED PRICE:
ITEM 1) Switching per code.
ITEM 2) One 24 x 24 J-bo with 2 inch conduit for telephone service.
ITEM 3) J-boxes to have pull strings (for alarms/tele/data by others on site).
ITEM 4) Two remote head emergency lights.
ITEM 5) Quad receptacles wired to 100 amp panel.

PLUMBING:

SUPPLY: Type L Hard Copper
D.W.V. SYSTEM: Poly vinyl chloride Schedule 40
WATER CLOSETS: (2) Handicapped tank type
LAVATORIES: (2) White vitreous wall hung w/ADA handles
WATER HEATERS: (1) 6 gallon electric with vacuum relief and drain pan
PAPER HOLDER: (2) Chrome single roll wall mount
GRAB BARS: (2) Sets
MIRRORS: (2) 24 in. x 36 in. with stainless steel frame

ADDITIONAL PLUMBING ITEMS INCLUDED IN QUOTED PRICE:
ITEM 1) Stub out only for water/dwv (for 1 water cooler by others on site).

HVAC:

HVAC UNITS: (2) END MOUNTS 36vp 3 ton cooling with a 15-kw electric heat strip
EXHAUST FANS: (2) 100 cfm ceiling mounted light combo
DUCT: 18 IN. X 9 IN.
1 1/2" Foil faced fiberglass (R-5 min.)
DIFFUSERS: (12) 24 in. X 24 in. 4-way lay-in
R/A GRILLS: (2) 14 in. X 8 in. Painted steel

ADDITIONAL HVAC ITEMS INCLUDED IN QUOTED PRICE:
ITEM 1) Plenum wall with ducted supply and return at units.
ITEM 2) Programmable thermostats.

CABINETS: NONE

ADDITIONAL CABINET ITEMS INCLUDED IN QUOTED PRICE:
ITEM 1) Two 48" x 96" marker boards / Four 48" x 48" tack boards.

SKIRTING: NONE

STATE LABELS: Third party plan review and state IBC certification to be included.

ADDITIONAL LABEL ITEMS INCLUDED IN QUOTED PRICE:
ITEM 1) Kansas labeled / 30 lb roof load / 90 mph wind load.

OPTION ITEMS NOT INLCUDED IN QUOTED PRICE:

1) .019 Aluminum skirting.

CLARIFICATIONS / NOTES:

1) All required crossovers to be completed by others on site.
2) All mateline connections to be completed by others on site.
3) Kansas labeled / 30 lb roof load / 90 mph wind load.

*** PLEASE NOTE THE FOLLOWING ***

1. Please read this quote carefully. Only those items specifically listed within this quotation are included.
2. Indicom Buildings, Inc. shall design and build according to the drawing(s) and specifications approved by the dealer/owner and stamped by the appropriate architect/engineer/design review agency requested.
3. Building modifications that may be required as a result of state, local or county amendments, ordinances, or interpretations that differ from the stamped drawings shall be the responsibility of the dealer/owner unless expressed in writing and agreed upon by Indicom Buildings, Inc. at the time of issuance of the purchase order.
4. Indicom Buildings, Inc. has not taken into account the proximity to existing buildings or assumed property lines. Any design changes needed on these issues will be the responsibility of the dealer/owner.
5. Warranty: Indicom Buildings, Inc. provides a one-year limited warranty that commences the date of completion at the factory. Please review the warranty for details.
6. Any and all work performed on site or elsewhere by parties other than Indicom Buildings, Inc. or its subcontractors is not warranted by Indicom Buildings, Inc.
7. Indicom Buildings, Inc. may substitute materials that are equal or better than those materials listed with written approved from G.E.
8. All smoke and/or fire detection/suppression systems are the responsibility of the dealer/owner.
9. Dealer/owner is responsible for supplying and/or installing the following items in accordance with applicable codes: a. main distribution panel, b. crawl space ventilation, c. crawl space access, d. blocking and anchoring, e. supply and waste lines below and/or outside the building, f. utility connections, g. adjustments to interior and exterior doors, h. balancing the HVAC, i. mateline close-ups and connections.

DATA PLATE

MANUFACTURE & ADDRESS (FOR WARRANTY INFORMATION)	INDICOM BUILDINGS, INC. P.O. BOX 1567 BURLESON, TX. 76028 IHB - 47
DRAT AGENCY : P.F.S.	ADDRESS: DALLAS, TX.
SERIAL No.	
DECAL No.	
DATE OF MFG.	
FLOOR LIVE LOAD	50 psf. (2000 lb concentrated) (100 psf. @ corridor)
WIND LOAD (V3s)	90mph (EXPOSURE-B)
ROOF LIVE LOAD	30 psf.
TYPE OF CONSTRUCTION	VB
OCCUPANCY USE GROUP	E
PERMISSABLE GAS (for equip.)	N/A
NAME AND DATE OF CODES	2003 IBC., 2003 IPC. 2003 IMC., 2002 NEC. 2003 IECC, 1994 TAS

SYSTEMS COMPLETED AT FACTORY:
STRUCTURAL(X) ELECTRICAL(X) PLUMBING(X)
H.V.A.C. (X)
SPECIAL CONDITIONS/LIMITATIONS

HEATING EQUIP. MFG.
HEATING MODEL
SEISMIC DESIGN CAT.: C

NOTE: DATA PLATE TO BE LOCATED ON PANEL BOX DOOR OF EACH MODULE. IF MODULE DOES NOT HAVE PANEL BOX THEN THE DATA PLATE SHALL BE PLACE ON THE INTERIOR SIDE OF THE EXTERIOR WALL AT THE HITCH END ABOVE THE T-GRID LOCATION.

NOTES:
1. SITE PLAN NOT AVAILABLE AT THIS TIME. BUILDING DESIGNED TO HAVE FIRE SEPARATION DISTANCE GREATER THAN 10 FT. IN ACCORDANCE WITH TABLE 602 OF THE 2003 IBC.
2. PORCHES, STEPS, AND RAMPS TO BE SUPPLIED AND INSTALLED BY OTHERS IN ACCORDANCE WITH THE 1994 TAS AND CH. 10 OF THE 2003 IBC.
3. PORTABLE FIRE EXTINGUISHERS TO BE SUPPLIED AND INSTALLED ON SITE BY OWNER IN ACCORDANCE WITH SECTION 906 OF THE 2003 IBC.
4. DRINKING FOUNTAIN OR BOTTLED WATER TO BE PROVIDED ON SITE BY OWNER.
5. ADDITIONAL HANDICAP TOILET FACILITIES PROVIDED IN ADJACENT BUILDING ON THE SAME PROPERTY.
6. ALL REST ROOM WALLS TO HAVE FRP WAINSCOT 48" HIGH.
7. TDLR DECAL TO BE LOCATED ON HITCH END AT CENTER LINE OF THE UNIT 4" ABOVE BOTTOM TRIM.
8. SERVICE SINK PROVIDED IN ADJACENT BUILDING ON THE SAME PROPERTY.

IECC REQUIREMENTS

CLIMATE ZONE: 4B
HDD: 1371

U-FACTORS: WINDOW 1 - 1.27
GLASS DOORS - 1.27
STEEL DOORS - 0.35

SHGC: WINDOW 1 - 0.75
GLASS DOORS - 0.75

SWITCHING SCHEMES: PER ELECTRICAL PLAN

FIXTURE TYPES: 4-TUBE FLUORESCENT WITH MAGNETIC BALLAST AND 34W T12 BULBS

HVAC EFFICIENCIES: MUST COMPLY WITH SECTION 803.2.2 OF THE 2003 IECC
HVAC SEER RATING: 10.0 MINIMUM

THERMOSTAT: MUST COMPLY WITH SECTION 803.2.3.1 OF THE 2003 IECC

DUCT INSULATION: NO VALUE REQUIRED FOR CONDITIONED SPACES

DUCT SEALING: MUST COMPLY WITH SECTION 803.2.8 OF THE 2003 IECC

WATER HEATERS: MUST COMPLY WITH SECTION 804 OF THE 2003 IECC

EXIT SIGNS: MUST COMPLY WITH SECTION 805.4 OF THE 2003 IECC (ENERGY CONSUMPTION LESS THAN 5W PER SIDE)

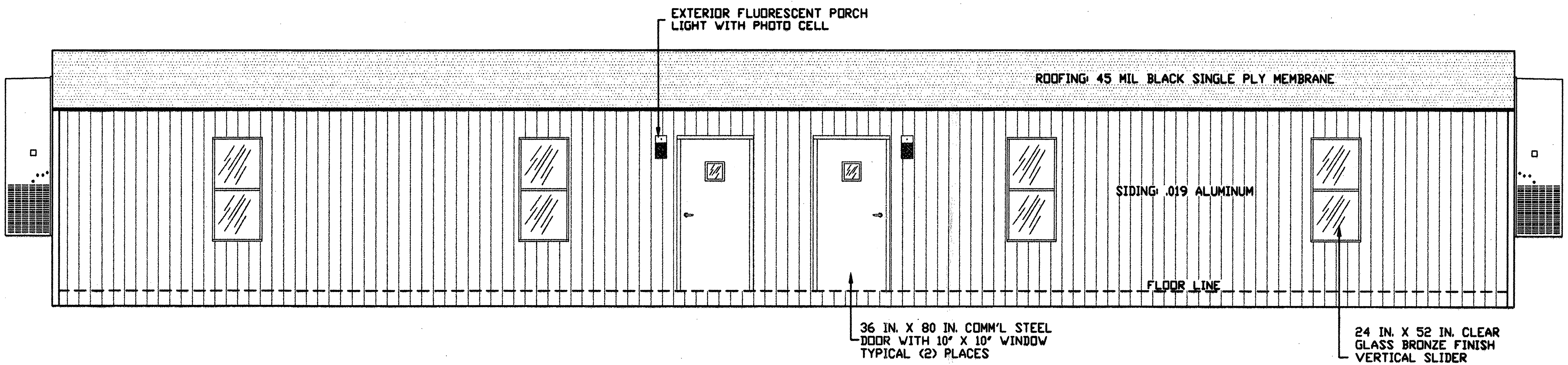
☐ APPROVED
☐ APPROVED EXCEPT AS NOTED
☐ REVISE AND RESUBMIT

BY:__________ DATE:__________

APPROVED DRAWINGS MUST BE RETURNED TO INDICOM BUILDINGS, INC. NO LATER THAN______ IN ORDER TO RETAIN CURRENT ESTIMATED PRODUCTION SCHEDULE.

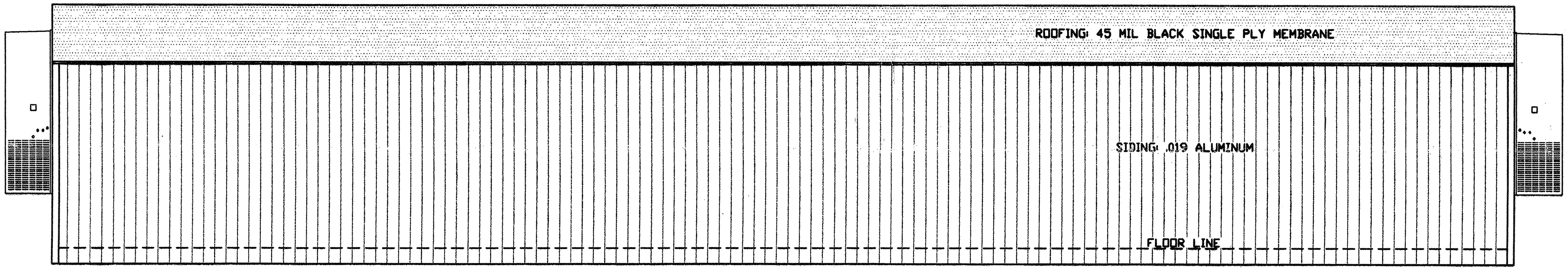
INDICOM BUILDINGS, INC.
INDUSTRIALIZED COMMERCIAL BUILDINGS
721 N. BURLESON BLVD - BURLESON, TX 76028
817-447-1213 FAX 817-447-2751

DEALER: WILLIAMS SCOTSMAN
KANSAS CITY
PROJECT: 24 X 68 (64)
WET CLASSROOM
PROJECT NUMBER:
06-103
SCALE:
AS NOTED
PLOT DATE:
6/12/2006
SALESMAN:
R.L.
DRAWN BY:
MJM
SERIAL NUMBERS:
SHEET:
1 OF 5



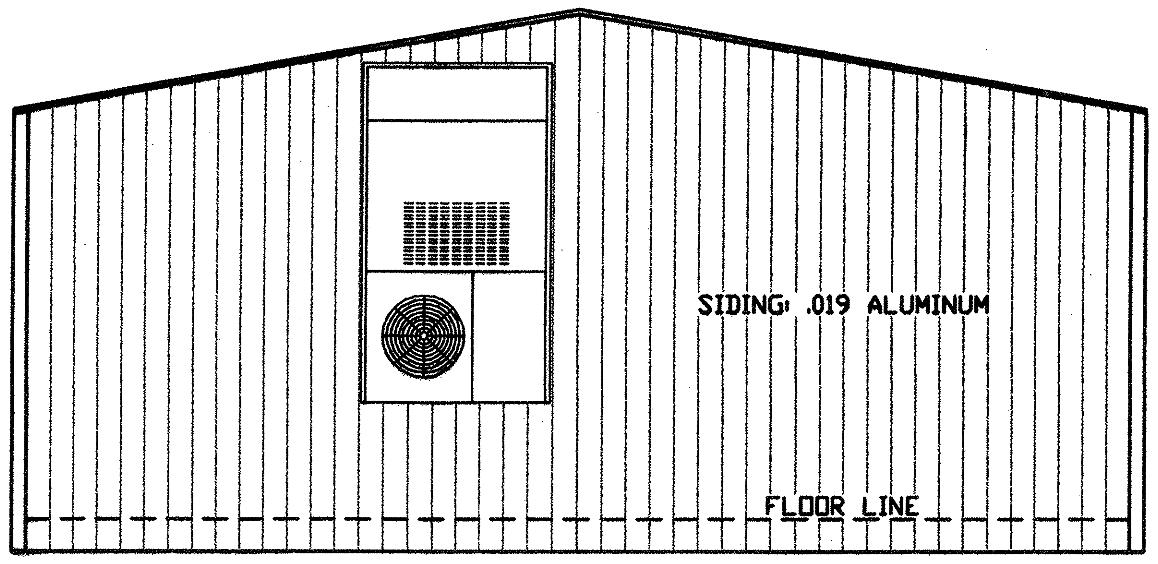
FRONT SIDE ELEVATION

1/4" = 1'-0"



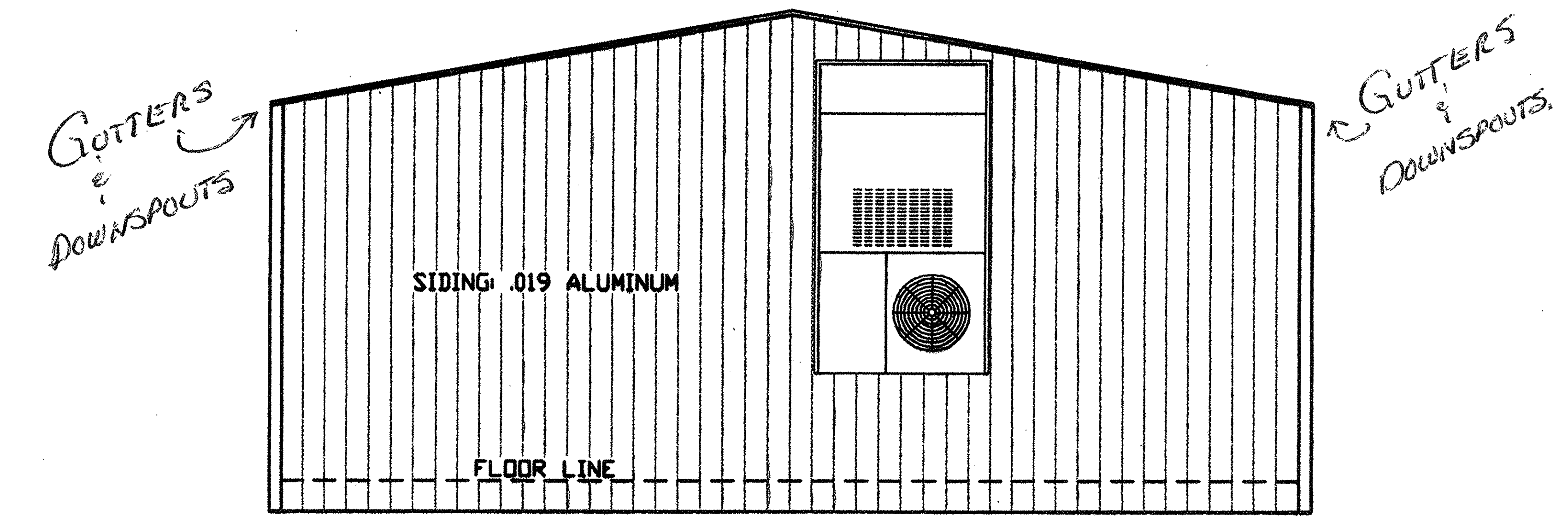
BACK SIDE ELEVATION

1/4" = 1'-0"



REAR END ELEVATION

1/4" = 1'-0"



HITCH END ELEVATION

1/4" = 1'-0"

INDICOM BUILDINGS, INC.
INDUSTRIALIZED COMMERCIAL BUILDINGS
721 N. BURLESON BLVD - BURLESON, TX 76028
817-447-1213 FAX 817-447-2751

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INDICOM BUILDINGS, INC., BURLESON, TX
P.O. BOX 1567
721 N. BURLESON BLVD.

DEALER: WILLIAMS SCOTSMAN
KANSAS CITY
PROJECT: 24 X 68 (64)
WET CLASSROOM
PROJECT NUMBER:
06-103

SCALE:
AS NOTED

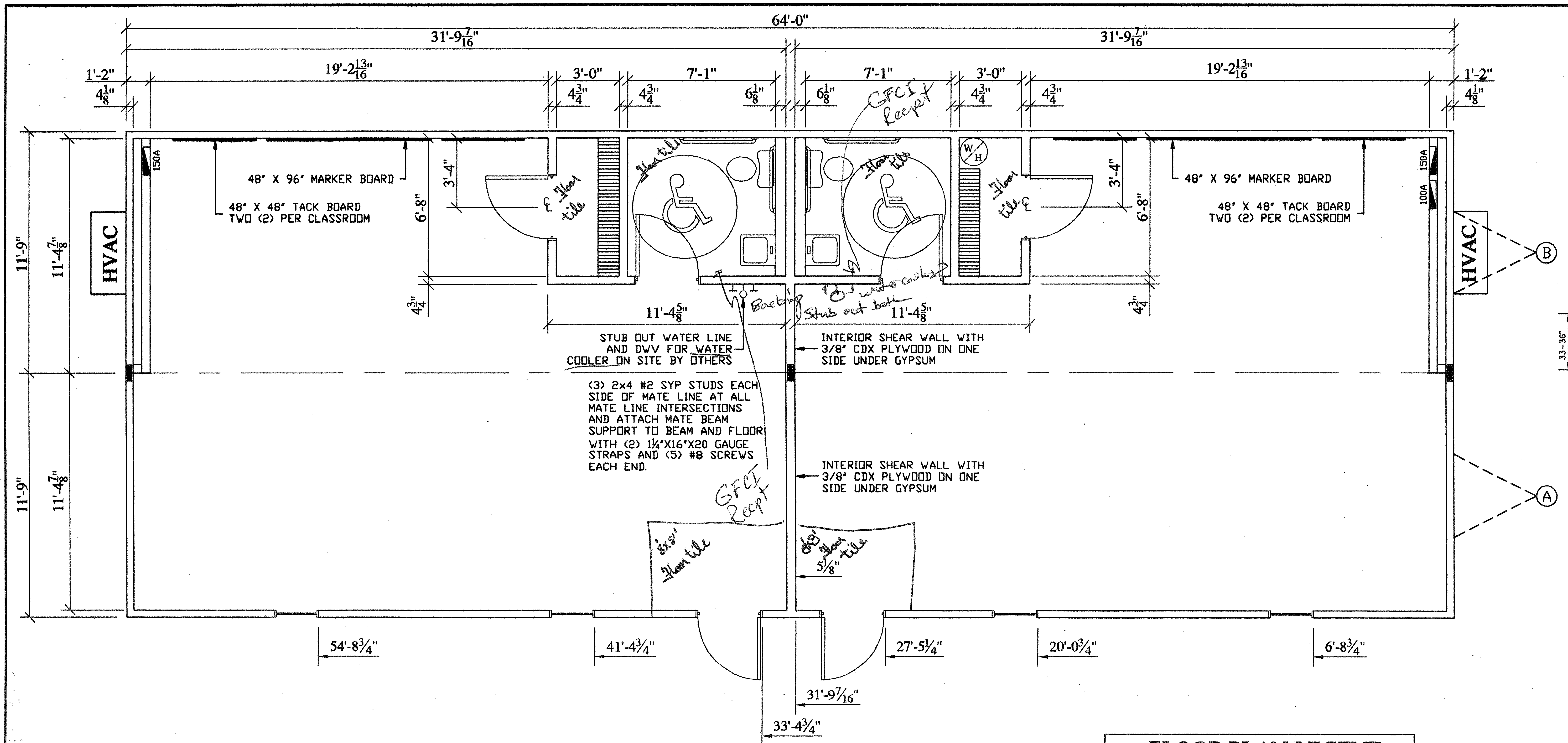
PLOT DATE:
6/12/2006

SALESMAN:
R.L.

DRAWN BY:
MJM

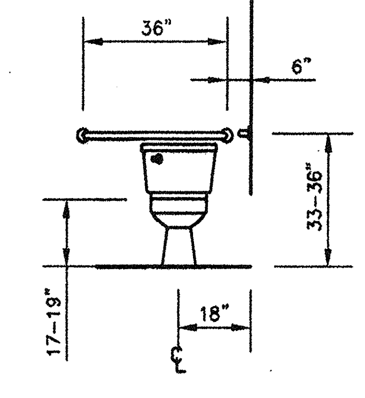
SERIAL NUMBERS:

SHEET:
2 OF 5

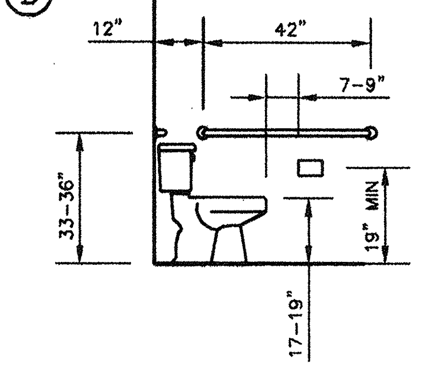


FLOOR PLAN

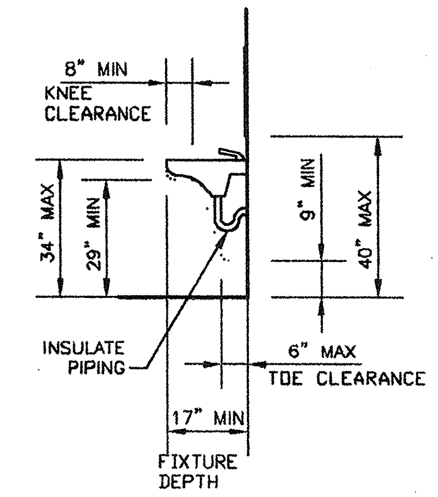
1/4" = 1'-0"



WATER CLOSET FRONT VIEW



WATER CLOSET SIDE VIEW

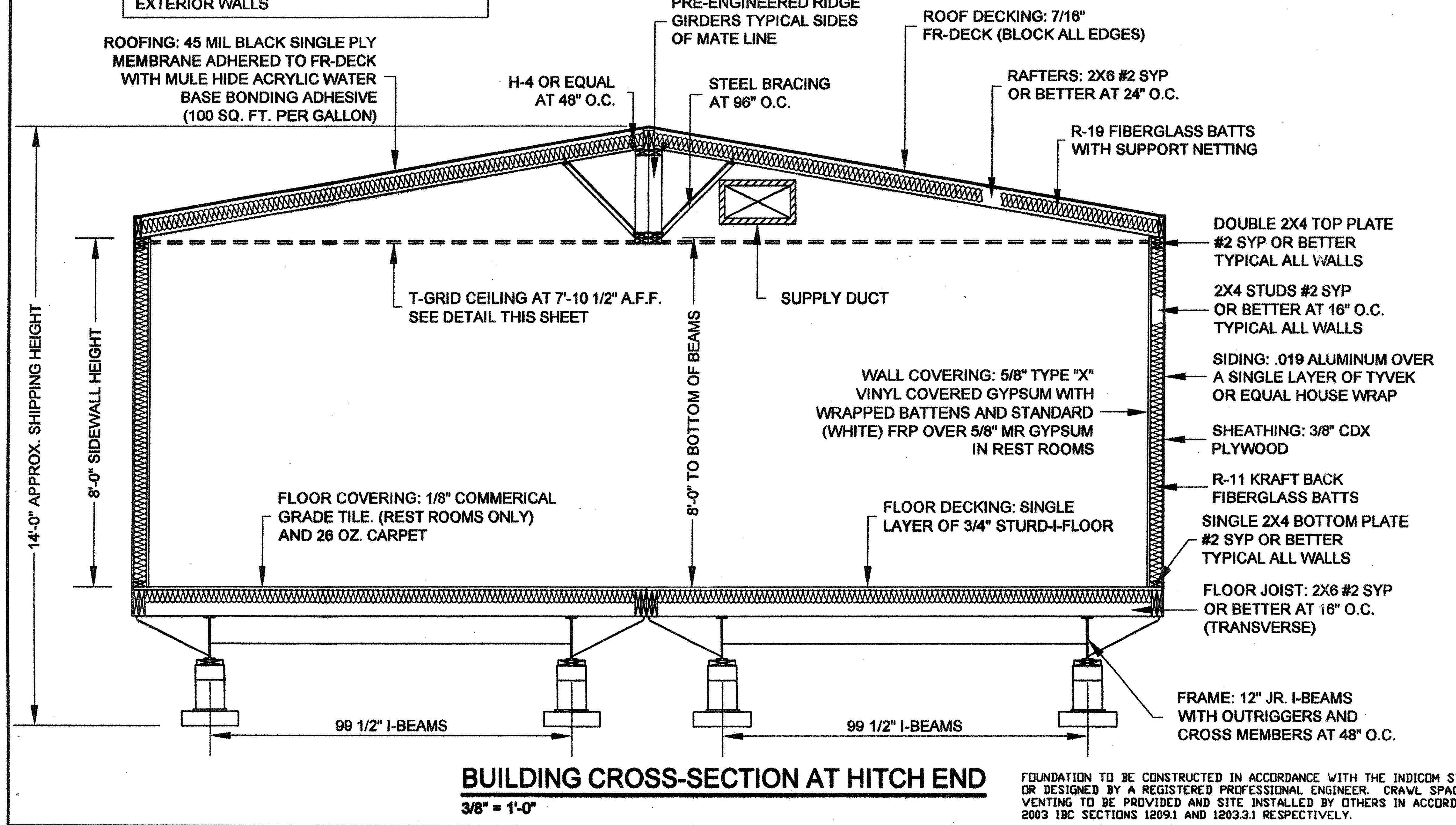


LAV CLEARANCES

FLOOR PLAN LEGEND

	HANDICAPPED TANK TYPE WATER CLOSET
	WHITE VITREOUS WALL HUNG LAVATORY WITH ADA HANDLES
W/H	6 GALLON ELECTRIC WATER HEATER WITH VACUUM RELIEF AND DRAIN PAN
	36" GRAB BAR
	42" GRAB BAR

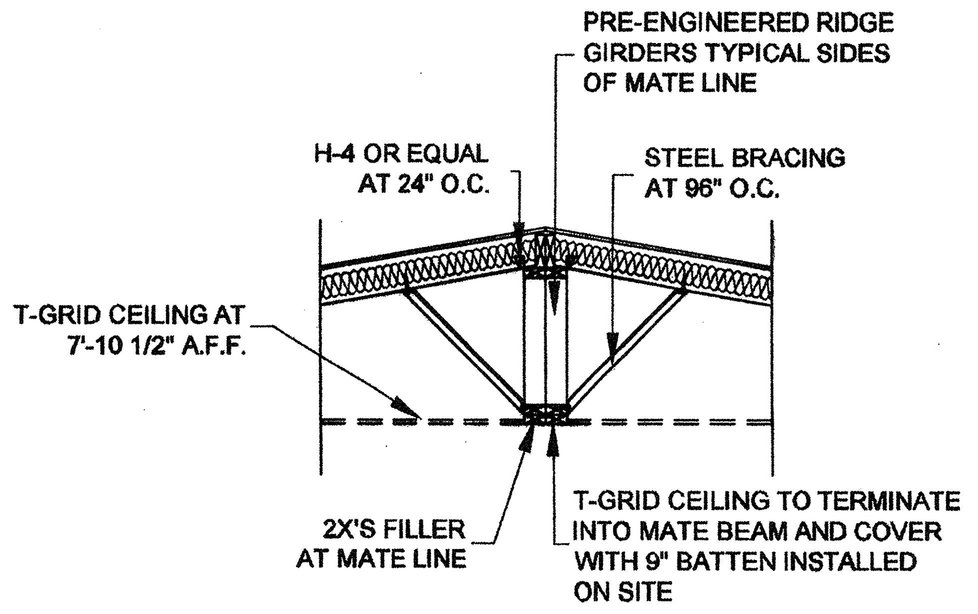
USE 16" X 1½" X 30 GAUGE STRAPS AT 16" O.C. WITH(12) 6d NAILS (6 UP AND 6 DOWN) ROOF TO WALL AND FLOOR TO WALL ALONG EXTERIOR WALLS



BUILDING CROSS-SECTION AT HITCH END

3/8" = 1'-0"

FOUNDATION TO BE CONSTRUCTED IN ACCORDANCE WITH THE INDICOM STATE PACKAGE OR DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER. CRAWL SPACE ACCESS AND VENTING TO BE PROVIDED AND SITE INSTALLED BY OTHERS IN ACCORDANCE WITH THE 2003 IBC SECTIONS 1209.1 AND 1203.3.1 RESPECTIVELY.



MATE BEAM DETAIL

3/8" = 1'-0"

SQUARE FOOTAGE: 1504
USE GROUP: E
CONSTRUCTION TYPE: VB
OCCUPANT LOAD: 23 (PER CLASSROOM)
WIND LOAD (V3s): 90 MPH (EXP. B)

GENERAL NOTES:
1. TIE DOWNS, AND/OR FOUNDATION ANCHORS TO CONFORM TO STANDARDS SET FORTH ON SHEETS IN-43 THROUGH IN-48 OF THE APPROVED INDICOM STATE PACKAGE.
2. MATE BEAM SPAN AND CONSTRUCTION TO CONFORM TO TABLES AND DATA ON SHEETS RF-5 THRU RF-9 OF THE INDICOM STATE PACKAGE.
3. SUPPORT COLUMNS REQUIREMENTS AND CONSTRUCTION TO CONFORM TO SHEETS WA-22 THRU WA-23 OF THE APPROVED INDICOM STATE PACKAGE.
4. SHEAR WALL LENGTH AND CONSTRUCTION DETERMINED BY DATA ON SHEETS WA-29 THOUGH WA-37 OF APPROVED INDICOM STATE PACKAGE.
5. ROOF SLOPE TO BE ¼" PER FOOT MINIMUM.
6. FOR RUBBER ROOF U.L. ASSEMBLY SEE SHEETS RF-17 THRU RF-19 OF THE INDICOM STATE PACKAGE.

INDICOM BUILDINGS, INC.
INDUSTRIALIZED COMMERCIAL BUILDINGS
721 N. BURLESON BLVD - BURLESON, TX 76028
817-447-1213 FAX 817-447-2751

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P.O. BOX 1567
721 N. BURLESON BLVD.

DEALER: WILLIAMS SCOTSMAN
KANSAS CITY
PROJECT: 24 X 68 (64)
WET CLASSROOM
PROJECT NUMBER:
06-103

SCALE:
AS NOTED

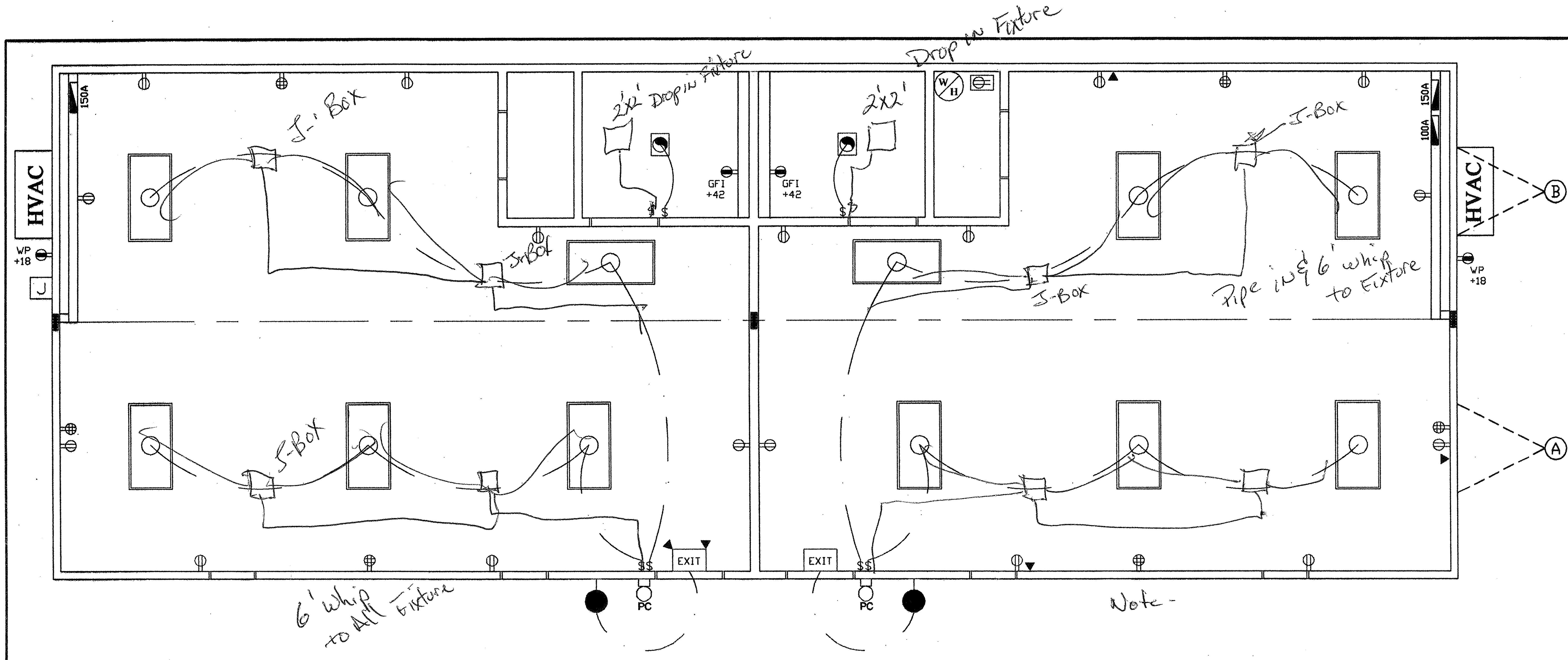
PLOT DATE:
6/12/2006

SALESMAN:
R.L.

DRAWN BY:
MJM

SERIAL NUMBERS:

SHEET:
3 OF 5



ELECTRICAL PLAN

1/4" = 1'-0"

ELECTRICAL LEGEND

○	4-TUBE DIFFUSED FLUORESCENT RECESSED LAY-IN (T-8 LAMPS AND ELECTRONIC BALLAST)	⌀	20A/125V DUPLEX RECEPTACLE MOUNTED AT 15" A.F.F.
PC	FLUORESCENT EXTERIOR PORCH LIGHT WITH PHOTOCELL	⌀ WP +15	20A/125V WEATHERPROOF RECEPTACLE MOUNTED AT 15" A.F.F.
◙	100 CFM CEILING MOUNTED LIGHT COMBO	⌀ WP +42	20A/125V GFI RECEPTACLE MOUNTED AT 42" A.F.F.
EXIT	COMBO DUAL EMERGENCY LIGHT/EXIT LIGHT WITH BATTERY BACKUP	⊕	20A/125V QUAD RECEPTACLE MOUNTED AT 15" A.F.F.
●	EXTERIOR REMOTE HEAD EMERGENCY LIGHT	▼	2X4 J-BOX WITH 3/4" EMT CONDUIT STUBBED OUT ABOVE CEILING. J-BOX MOUNTED AT 15" A.F.F. WITH PULL STRINGS
$	20A/125V SINGLE POLE SWITCH MOUNTED AT 48" A.F.F.	J	24X24 EXTERIOR MOUNTED J-BOX WITH 2" CONDUIT FOR TELEPHONE SERVICE
150A	All cooper wire 150A SINGLE PHASE PANEL BOX WITH MAIN BREAKER	T	PROGRAMMABLE THERMOSTAT MOUNTED AT 48" A.F.F.
100A	All Cooper wire 100A SINGLE PHASE PANEL BOX WITH MAIN BREAKER. (FOR QUAD RECEPTACLES ONLY)	HVAC	3 1/2 TON HVAC WITH 10KW ELECTRIC HEAT STRIP
⊖	20A/125V HEAT TAPE RECEPTACLE MOUNTED UNDER THE UNIT.		Heat Trace all Plummer Pipe Drain & Supply & Set Alarm in Closet next to Rest Room (Bell Alarm)

Cooper wire Feed to HVAC unit

No PVC Ran in ~~TRA~~ inside the Moblie for Electrical

Simplex System for Fire Alarm Connection made Available to MAIN Building

NOTE:
MAIN ELECTRICAL PANEL TO BE PROVIDED BY OTHERS AND SITE INSTALLED. PANEL TO SIZED AS SPEC'D BY CODE BASED ON LOADS SHOWN ON THIS SHEET, 'FEEDERS' TO SUB-PANELS ALSO TO BE PROVIDED BY OTHERS AND SIZED IN ACCORD. WITH THE NEC BASED ON LOADS SHOWN.

*FINAL GROUNDING TO BE COMPLETED BY OTHERS ON SITE IN ACCORDANCES WITH THE 2002 NEC.

*MINIMUM WIRE SIZE - #12 THHN.
*MINIMUM BREAKER SIZE - 20A
SIZING PER SHEETS E-1 THRU E-5
OF THE STATE PACKAGE.

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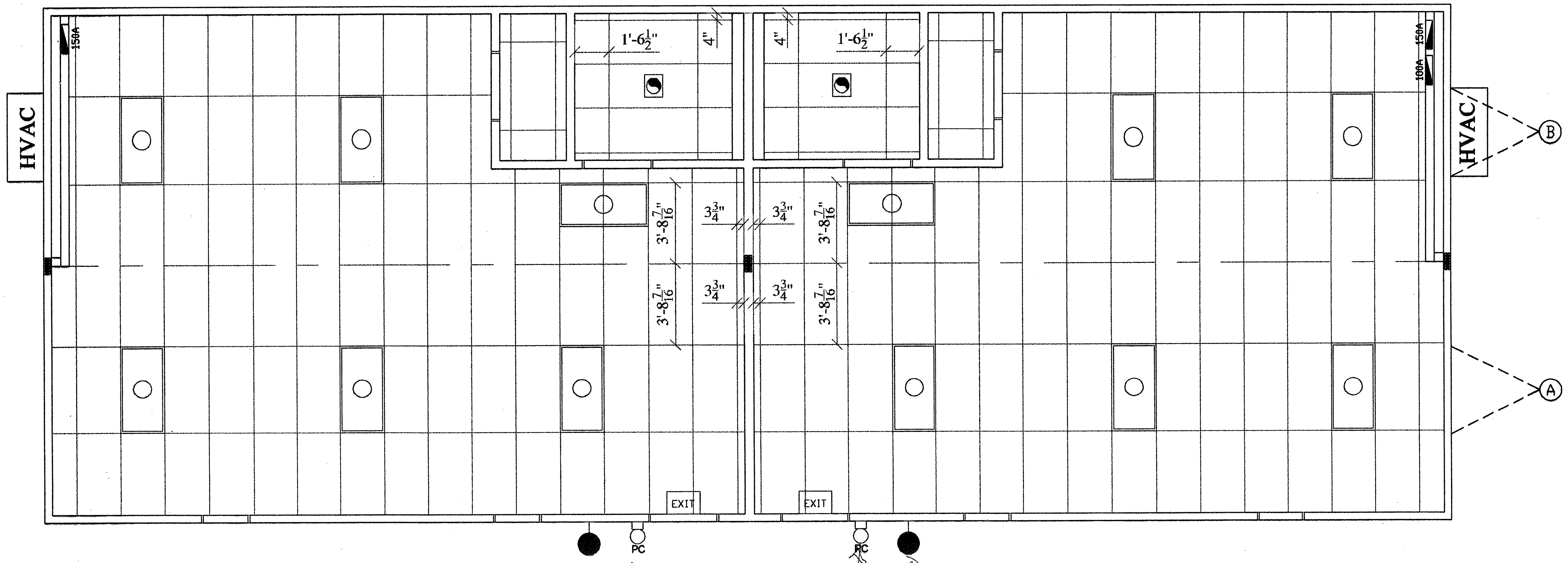

REFLECTED CEILING PLAN

1/4" = 1'-0"

VANDeL Proof Fixture

ELECTRICAL LEGEND

○	4-TUBE DIFFUSED FLUORESCENT RECESSED LAY-IN (T-8 LAMPS AND ELECTRONIC BALLAST)	⦶	20A/125V DUPLEX RECEPTACLE MOUNTED AT 15" A.F.F.
PC	FLUORESCENT EXTERIOR PORCH LIGHT WITH PHOTOCELL	◐ WP +15	20A/125V WEATHERPROOF RECEPTACLE MOUNTED AT 15" A.F.F.
◙	100 CFM CEILING MOUNTED LIGHT COMBO	◐ WP +42	20A/125V GFI RECEPTACLE MOUNTED AT 42" A.F.F.
EXIT	COMBO DUAL EMERGENCY LIGHT/EXIT LIGHT WITH BATTERY BACKUP	⊕	20A/125V QUAD RECEPTACLE MOUNTED AT 15" A.F.F.
●	EXTERIOR REMOTE HEAD EMERGENCY LIGHT	▼	2X4 J-BOX WITH 3/4" EMT CONDUIT STUBBED OUT ABOVE CEILING. J-BOX MOUNTED AT 15" A.F.F. WITH PULL STRINGS
$	20A/125V SINGLE POLE SWITCH MOUNTED AT 48" A.F.F.	J	24X24 EXTERIOR MOUNTED J-BOX WITH 2" CONDUIT FOR TELEPHONE SERVICE
150A	150A SINGLE PHASE PANEL BOX WITH MAIN BREAKER	Ⓣ	PROGRAMMABLE THERMOSTAT MOUNTED AT 48" A.F.F.
100A	100A SINGLE PHASE PANEL BOX WITH MAIN BREAKER. (FOR QUAD RECEPTACLES ONLY)	HVAC	3 1/2 TON HVAC WITH 10KW ELECTRIC HEAT STRIP
⊜	20A/125V HEAT TAPE RECEPTACLE MOUNTED UNDER THE UNIT.		

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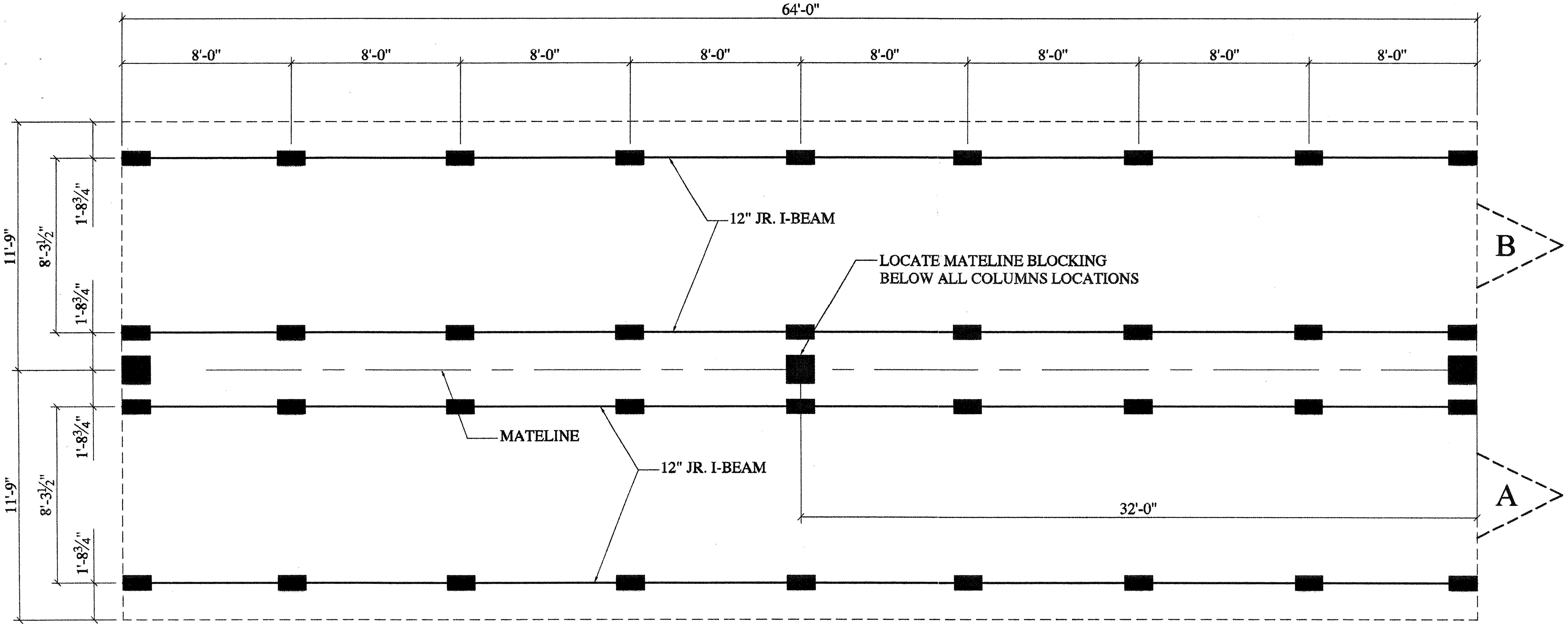

SUGGESTED BLOCKING PLAN

1/4" = 1'-0"

NOTE:
THIS IS A SUGGESTED BLOCKING PLAN ONLY. SITE CONDITIONS MAY REQUIRE ADDITIONAL BLOCKING. LOCAL PROFESSIONAL TO DESIGN ALL BLOCKING AND FOOTINGS IN ACCORD. W/ ALL LOCAL REQUIREMENTS AND SITE CONDITIONS.

▬ — INDICATES SUGGESTED MAXIMUM I-BEAM BLOCKING SPACING - PIERS & FOOTINGS DESIGNED BY LOCAL PROFESSIONAL IN ACCORD. W/ ALL LOCAL & STATE REQUIREMENTS BASED ON SITE CONDITIONS

■ — INDICATES MATE LINE BLOCKING (LOCATE UNDER ALL COLUMNS) - PIERS & FOOTINGS DESIGNED BY LOCAL PROFESSIONAL IN ACCORD. W/ ALL LOCAL & STATE REQUIREMENTS BASED ON SITE CONDITIONS

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