

A PROJECT OF THE
PEORIA PARK DISTRICT
PEORIA, ILLINOIS

**UTILITY STORAGE BUILDING
DONOVAN PARK
5808 N. KNOXVILLE AVE.
PEORIA, ILLINOIS**



PROJECT # 20-006
JULY 14, 2020

PROJECT MANUAL

PACKAGE # _____

PROJECT MANUAL INCLUDING SPECIFICATIONS FOR:

**UTILITY STORAGE BUILDING
DONOVAN PARK
5808 N. KNOXVILLE AVE.
PEORIA, ILLINOIS**

ARCHITECT:

APACE DESIGN ARCHITECTS + ENGINEERS
ATTN: DAVE VOORHEES
2112 E. WAR MEMORIAL DR.
PEORIA, ILLINOIS 61614
TELEPHONE: (309)685-4722

OWNER:

PLEASURE DRIVEWAY AND PARK DISTRICT OF PEORIA,
PEORIA, ILLINOIS

TRUSTEES:

ROBERT L. JOHNSON, SR., PRESIDENT
JACQUELINE J. PETTY
JOSEPH CASSIDY
JOYCE HARANT
MATTHEW P. RYAN
NANCY L. SNOWDEN
MIC WILLIAMS

PROJECT MANAGER:

BECKY FREDRICKSON
PLANNING, DESIGN & CONSTRUCTION DIVISION
BRADLEY PARK EQUIPMENT SERVICE
1314 N. PARK ROAD
PEORIA, ILLINOIS 61604
TELEPHONE: (309) 657-5274

ADMINISTRATIVE STAFF:

EMILY CAHILL, EXECUTIVE DIRECTOR
BRENT WHEELER, DEPUTY DIRECTOR
MATT FREEMAN, SUPERINTENDENT OF PARKS
KARRIE ROSS, SUPERINTENDENT OF FINANCE
AND ADMINISTRATIVE SERVICES
BECKY FREDRICKSON, SUPERINTENDENT OF PLANNING,
DESIGN AND CONSTRUCTION
SHALESSE PIE, SUPERINTENDENT OF HUMAN
RESOURCES

Address all communications regarding this work to the PROJECT MANAGER listed above.

ADVERTISEMENT FOR BIDS

Sealed bids will be received by the Peoria Park District, Peoria, Illinois, hereinafter known as the Owner, for the following project:

UTILITY STORAGE BUILDING
DONOVAN PARK
5808 N. KNOXVILLE AVE.
PEORIA, IL 61614

It is the intent of the Owner to receive Base Bids & Alternates for the project listed above.

Sealed bids will be received until Tuesday, August 4, 2020 at 1:00 pm prevailing time, by the Owner, at the Peoria Park District Administrative Office, 1125 W. Lake Ave., Peoria, Illinois 61614. (The Board Room clock shall be the official time keeping device in respect to the bid submission deadline.)

An electronic file including Bid Documents is available at www.peoriaparks-planning.org at no charge. Bid Documents, including Plans, Specifications and Interpretations for this project may be obtained at the Planning, Design & Construction Department, Bradley Park Equipment Service, 1314 N. Park Road, Peoria, IL 61604. Telephone (309) 686-3386. A non-refundable plan deposit of \$50.00 will be charged for each printed set of Bid Documents.

A list of planholders can be obtained upon request. This information will be available up to twenty-four (24) hours prior to the scheduled bid opening time. **After that deadline, no information pertaining to the project will be given.**

A 10% Bid Bond is required, and is to be included with the Bid Proposal. The successful Bidder will be required to furnish a 100% Performance Bond and a 100% Labor and Materials Payment Bond within ten (10) days of formal Award of Contract.

The general prevailing rate of wage for the Peoria area shall be paid for each craft or type of worker needed to execute this contract or perform this work as required by the State of Illinois Department of Labor. Additionally, it is required that provisions of the Illinois Preference Act, the Illinois Drug Free Workplace Act, and the Substance Abuse Prevention on Public Works Act must be adhered to. Bidders are also advised that contract documents for this project include the non-discrimination, equal opportunity and affirmative action provisions in the Human Rights Act and rules and regulations of the Department of Human Rights. The Peoria Park District is an AA/EEO organization and encourages participation by minority and female-owned firms.

The Peoria Park District reserves the right to reject any or all bids, waive technical deficiencies, informalities or irregularities or rebid any project.

PLEASURE DRIVEWAY AND PARK DISTRICT
OF PEORIA, ILLINOIS

BY: ROBERT L. JOHNSON, SR., President

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SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

1. INSTRUCTIONS TO BIDDERS

- A. "Instructions to Bidders", AIA Document A701, 1997 Editions, published by the American Institute of Architects, including revisions adopted before date of this Project Manual, is hereby made part of these specifications with same force and effect as though set forth in full.
- B. The following modifies, changes, deletes from or adds to the **Instructions to Bidders** (AIA Document A701, 1997 Edition). Where any Article of the Instructions to Bidders is modified or any Paragraph, Subparagraph or Clause thereof is modified or deleted by these Supplementary Conditions, the unaltered provisions of that Article, Paragraph, Subparagraph or Clause shall remain in effect.
- C. Parenthesis () indicates the appropriate section and Subparagraph of the Instructions to Bidders which each paragraph of the Supplementary Instructions to Bidders modifies or refers to.

2. PROJECT DESCRIPTION

- A. The Project description generally is as follows:
 - 1. **BASE BID:**
Provide and install pre-engineered wood and metal building. Work to include excavation, fill below all slabs and aprons, new concrete for footings, slab and aprons as required, electrical work, ventilation, plumbing work, finishes, backfill and rough grading.
 - 2. **ADD ALTERNATE:**
Add to Base Bid all labor, material, and equipment for an additional (2ea.) 8' (foot) bays (total 16') to the South end of the new building including the added overhead door, and all associated or related work per drawings.
- B. **PRE-BID MEETING :**
 - 1. A pre-bid meeting will be held at the site (access off of Northmoor Road across from former Midstate College) on Tuesday, July 21, 2020 at 9:00am.

3. CODES AND PERMITS

- A. **COSTS ASSOCIATED WITH REGULATORY COMPLIANCE.** All Work performed in connection with this Project shall be in compliance with the requirements of all applicable local, state, and federal laws, regulations, and rules, as well as the requirements of the Construction Documents. The Bid Price shall reflect all costs of compliance to those requirements, whether or not specifically stated in the Construction Documents or specific sections of the Project Manual.
- B. **PERMITS/FEES.** Work shall not commence until all required building (and/or other) permits have been secured by the Contractor and copies of these permits submitted to the Owner's Representative. Cost of permits is to be included in the Bid Price.

4. BID GUARANTY

The bid must be accompanied by a Bid Guaranty which shall not be less than 10% of the amount of the Bid. At the option of the Bidder, the 10% Guaranty may be a Certified Check, Cashier's Check, or a Bid Bond. The Bid Bond shall be secured by a Guaranty or a Surety Company acceptable to the Owner. No bid will be considered unless it is accompanied by the required Guaranty. Funds must be made payable to the order of the Owner. Cash deposits will not be accepted. The Bid Guaranty shall ensure the execution of the Agreement and the furnishing of the Surety Bond or Bonds by the successful Bidder, all as required by the Contract Documents.

5. AWARD OF CONTRACT/REJECTION OF BIDS:

The Contracts will be awarded on the basis of Paragraph 5.3 of the Instructions to Bidders and Paragraph 16 of the Supplementary Instructions to Bidders. The Bidders to whom the awards are made will be notified at the earliest possible date. The Owner, however, reserves the right to reject any and all Bids, to accept any combination of base bids and alternates and to waive any technical deficiencies, informalities, or irregularities in Bids received whenever such rejection or waiver is in its interest.

No bid shall be withdrawn for a period of sixty (60) days after the opening of bids without the consent of the Owner. The failure of the Bidder to submit a Bid Bond, Certified Check or Cashier's Check in the full amount to cover all proposals bid upon shall be sufficient cause for rejection of his bid. The award will be made contingent upon submittal and evaluation of Contractor's Qualification Statement, Bonds, Certificate of Insurance, Contractor Certification(s), including Peoria Park District Certificate of Equal Employment Opportunity Compliance for Contractors and Vendors, etc.

6. EXECUTION OF AGREEMENT:

Following the award and within ten (10) days after the prescribed forms are prepared and presented for signature by the Owner's Representative, the successful Bidder shall execute and return to the Owner's Representative the Agreement in the form included in the Contract Documents in such number of copies as the Owner may require. The Owner's Representative will provide Notice to Proceed after all bonds and any other required documents have been received by the Park District.

7. PERFORMANCE BOND/LABOR AND MATERIAL PAYMENT BOND & INSURANCE

- A. BONDS REQUIRED.** Having satisfied all conditions of award as set forth elsewhere in these Documents, the successful Bidder shall, within ten (10) calendar days after award of contract, furnish Surety Bonds in penal sums, each not less than the amount of the Contract as awarded as security for the faithful performance of the Contract (Performance Bond), and for the payment (Labor and Materials Payment Bond) of all persons, firms or corporations to whom the Contractor may become legally indebted for labor, materials, tools, equipment or services employed or used by him in performing the work.
- B. FORM OF BONDS.** Such bonds shall be in the same form as the samples included in the Project Manual and shall bear the same date as or a date subsequent to that of the Agreement. The current Power of Attorney for the person who signs for any Surety Company shall be attached to such Bonds. Bonds shall be signed by a Guaranty or Surety Company acceptable to the Owner.
- C. COST OF PERFORMANCE BOND/LABOR AND MATERIAL PAYMENT BOND.** All costs for the Performance Bond/Labor and Material Payment Bond shall be included in the submitted Bid Price.
- D. INSURANCE.** Insurance requirements for this project are addressed both in the Supplementary General Conditions and in "Attachment A.6", in the "Exhibits" section of this Project Manual.
 - a) In respect to the property ("builders risk") insurance coverages referenced in the Supplementary General Conditions: the successful Bidder **will** be required to provide such coverages as the work of the Project will be accomplished by **one** general contractor.
- E. TIME FRAMES.** The successful Bidder shall, within ten (10) days after award of contract by the Board of Trustees, submit Proof of Insurance coverages/Bonds in the form and amounts required to the Owner's Representative. Should the Bidder be unable to provide the required Proof of Insurance(s)/Bonds within the specified ten day period the Owner reserves the right, at its sole discretion, to withdraw its award of contract from that Bidder.

8. DEFAULT

- A.** The failure of the successful Bidders to execute the Agreement, supply the required Bonds or proof of required insurance coverage(s) within (ten) 10 days after award of contract, or within such extended period as the Owner may grant based upon reasons determined sufficient by the Owner, may constitute a default. In such case, award of contract will be transferred to the second lowest bidder.

9. CONTRACTOR'S QUALIFICATION STATEMENT

- A.** Contractor's Qualification Statement (AIA Document 305) shall be submitted by low bidder for evaluation prior to award of contract if so requested by the Owner or his representatives.

10. LIST OF SUBCONTRACTORS/PRODUCT & EQUIPMENT SUBSTITUTIONS

- A.** Each Bidder shall submit a "MAJOR SUBCONTRACTORS LIST" proposed to be used in the execution of the Work. If there will be no subcontractors, the Bidder shall state "No Subcontractors" on this form. The completed form is due with the Bid Proposal.
 - 1) Identify the trade name, address, telephone number, and category of work of each subcontractor.
 - 2) Failure to submit the "Major Subcontractors List" with the Bid Proposal may result in the rejection of the Bid.
 - 3) Delete Subparagraphs (6.3.1.1) and (6.3.1.2) from AIA A701.
- B.** The Bidder, by submission of a signed bid form, agrees to install all products and equipment by brand name or names specified in the Technical Specifications sections of this Project Manual. "Or equal" substitutions will be allowed only if approved in writing prior to the bid opening and listed in the "Substitutions" section of the Bid Form.

11. CONTRACT ADMINISTRATION FORMS/COSTS OF FORMS

- A. REQUIRED FORMS.** The following AIA forms will be used (AIA forms will be supplied by the Owner if requested, and charged to the Contractor at cost) in the administration of the project:
 - 1) **AIA Document A310:** "Bid Bond", February 1970 edition
 - 2) **AIA Document A305:** "Contractor's Qualification Statement", 1986 edition
 - 3) **AIA Document G702:** "Application and Certificate of Payment", May 1992 edition
 - 4) **AIA Document G703:** "Continuation Sheet", May 1992 edition
- B. OTHER FORMS.** Other contract administration forms (to be provided by the Owner unless otherwise noted) required for use in the Project are:
 - 1) **Major Subcontractors List**
 - 2) **Contractor's Affidavit**
 - 3) **Performance Bond**

- 4) **Labor and Material Payment Bond**
- 5) **Lien Waiver Forms**
- 6) **Weekly Workforce Report**
- 7) **Certified Payroll Form** (Contractor may use own form)
- 8) **Insurance Forms: As required in Attachment A (at end of Project Manual)** (will not be provided by Owner)
- 9) **Agreement Between Owner and Contractor**

Examples of these forms are included in the Project Manual.

12. CONSTRUCTION TIME AND LIQUIDATED DAMAGES CLAUSE:

- 2.5.1 PROJECT COMPLETION.** The Agreement will include the following paragraph(s) or language substantially the same, regarding construction time and liquidated damages:
- 1) **LIQUIDATED DAMAGES:** Owner and Contractor recognize that time is of the essence of this Agreement and that Owner will suffer financial loss if the Work is not Substantially Complete within the time specified below, plus any extensions thereof allowed in accordance with Article 8 of the General Conditions. They also recognize the delays, expense and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time.
 - 2) Accordingly, instead of requiring any such proof, Owner and Contractor agree that as Liquidated Damages for delay (but not as a penalty) Contractor shall pay Owner TWO HUNDRED AND FIFTY DOLLARS (\$250.00) for each calendar day that expires after One Hundred Eighteen (118) calendar days from Notice of Award until Substantial Completion is attained. The work is tentatively scheduled to begin on August 13, 2020 and be at Substantial Completion by December 8, 2020.
 - 3) After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work necessary to achieve Final Completion within TEN (10) calendar days or any proper extension thereof granted by Owner, Contractor shall pay Owner TWO HUNDRED AND FIFTY DOLLARS (\$ 250.00) dollars for each day that expires after the time specified.
 - 4) Owner and Contractor agree that the per day liquidated damage amounts set forth in subparagraphs "2" and "3" of this section constitute a reasonable forecast of the financial losses, actual costs and increased expenses the Owner may incur as a result of delayed Substantial or Final Completion of the Project.

13. PROJECT MANUAL/PLANS & SITE VISITATION

- A. A set of Bid Documents may be examined, at no charge, at the office of the Owner's Representative.
- B. **PLAN DEPOSIT.** An electronic file including Bid Documents is available at www.peoriaparks-planning.org at no charge. A printed set of Bid Documents, including Plans, Specifications and Interpretations for this project may be obtained at the Planning, Design & Construction Department, Bradley Park Equipment Service, 1314 N. Park Road, Peoria, IL 61604. Telephone (309)686-3386. A non-refundable plan deposit of \$50.00 will be charged for each printed set of Bid Documents.
- C. **FAMILIARITY WITH BID DOCUMENTS & SITE VISITATION.** Bidders, by submission of their Bids, represent that they have visited the site to acquaint themselves with the local conditions in which the Work is to occur, and that they are familiar with all the requirements of the Project, as defined in the Project Manual and the Plan(s).

14. OTHER MODIFICATIONS TO AIA-701/OTHER CONDITIONS

- A. Add the following sentence to (4.1.7): "Bidder shall submit two (2) completed copies of Bid Form and retain one (1) copy for his files."
- B. Delete Section (6.2) - "Owner's Financial Capability"; and last sentence of Paragraph (4.2.1.)
- C. In reference to (7.2.1), the Peoria Park District reserves the right of final approval of bonding companies.
- D. Delete paragraph (7.1.3).

15. EQUAL EMPLOYMENT OPPORTUNITY/SEXUAL HARASSMENT

- A. It is a goal of the Peoria Park District to encourage 12% participation of minorities and women on Peoria Park District construction projects through contracts and workforce. Good Faith Effort must be made to encourage the use of minority and women owned businesses as sub-contractors and suppliers on the project. Good Faith Effort is defined below:

Based on the trades and availability of contractors required to complete the project, a minimum of three minority/women owned firms must be contacted. The Park District's list of minority/women owned firms will be included in all bid documents.

The bidder shall negotiate in good faith with the potential minority/women owned firms by not imposing any conditions which are not similarly imposed on all other subcontractors and suppliers, or by denying benefits ordinarily conferred on subcontractors or suppliers for the type of work for which bids were solicited. Minority and women owned businesses must be notified at least 3 business days prior to bid opening to allow adequate time to review and provide bid.

On all bids over \$100,000.00, the bidder must complete and include in the bid, the **Minority/Women Owned Contact Sheet** form. This form will include name of companies contacted, the time and date companies were contacted, the method by which the companies were contacted, the response by the companies contacted, the area of work the companies were contacted about, and bid amounts received from the companies along with other comments.

The low bidder shall provide to the Park District upon request, copies of all correspondence including without limitation, faxes, letters, text messages, and emails sent to minority/women owned firms.

If a bidder does not provide the required documentation for Good Faith Effort, the bidder may be considered non-responsive and not a responsible bidder on this project. Park District staff may disqualify the bidder and move to the next low bidder.

Failure to complete and submit the following forms (provided in the bid packet) with the Bid may result in rejection of the bid.

- 1) **"Peoria Park District Certificate of Equal Employment Opportunity Compliance for Contractors and Vendors"** Form
- 2) **"Workforce Profile"** Form
- 3) **"Minority/Women Owned Contact Sheet"** Form

B. Effective July 1, 1993, every party to a public contract and every party bidding on public contracts is required to have a written **"Sexual Harassment Policy"**. A copy shall be submitted with the Bid. The Sexual Harassment Policy must contain:

- 1) A definition of sexual harassment under state law;
- 2) A description of sexual harassment utilizing examples;
- 3) A formalized complaint procedure;
- 4) A statement of victim's rights;
- 5) Directions on how to contact the Illinois Department of Human Rights - **Illinois companies**. Out-of-State companies must include directions on how to contact the enforcement agency within their state. Companies that issue a standard policy for all business locations must prepare an addendum providing directions on how to contact the appropriate enforcement agency.
- 6) A recitation that there cannot be any retaliation against employees who elect to file charges.

Recommendation: Your **"Sexual Harassment Policy"** should be drafted in language easy to understand and any revisions should be reviewed by legal counsel. A copy of your policy should be posted in a prominent and accessible location to assure all employees will be notified of the company's position.

In order to conduct business with the Peoria Park District, you must have a written "Sexual Harassment Policy" that conforms to the new Act.

FAILURE TO DO SO WILL DISQUALIFY YOU AS AN ELIGIBLE VENDOR.

16. BID SUBMISSION

A. DATE, TIME & PLACE OF RECEIVING BIDS. Bids will be received until the date and time listed in the "Advertisement for Bids", at which time they will be publicly opened, read aloud and recorded. The Bid Opening will be held at the place listed in the "Advertisement for Bids".

B. REQUIRED ITEMS. The following items must be included as part of the "BID":

- 1) Two (2) signed copies of the **BID FORM**. (Retain the third copy for your files.)
- 2) The **PEORIA PARK DISTRICT CERTIFICATE OF EQUAL EMPLOYMENT OPPORTUNITY COMPLIANCE FOR CONTRACTORS AND VENDORS** form.
- 3) The **WORKFORCE PROFILE** form.
- 4) The Bidder's **SEXUAL HARASSMENT POLICY**.

- 5) If the bid is over \$100,000.00 , the **MINORITY/WOMEN OWNED CONTACT SHEET** form.
 - 6) The **CERTIFICATION OF COMPLIANCE OF THE LISTED PROVISIONS AND LAWS** form.
 - 7) The **LIST OF SUBCONTRACTORS**. (Submit form and state "No Subcontractors" on the form, if none will be used.)
 - 8) The **BID GUARANTY**.
- C. **BID SUBMISSION.** The "BID" shall be enclosed in envelopes (outer and inner), both of which shall be sealed and clearly labeled with the following information, in order to prevent premature opening of the bid:
- "PROPOSAL"
 - NAME OF PROJECT
 - NAME OF BIDDER
 - DATE/TIME OF BID OPENING

END OF SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

Bid From: _____

PROJECT NO. 20-006
BID FOR: UTILITY STORAGE BUILDING
LOCATION: DONOVAN PARK

BID FORM

BID TO: PEORIA PARK DISTRICT

UNDERSIGNED:

1. Acknowledges receipt of:
 - A. Project Manual and Drawings for:

 - B. Addenda: No. _____ through No. _____
2. Has examined facility and the bid documents and shall be responsible for performing work specifically required of him by all parts of bidding documents including specifications for entire project, even though such work may be included as related requirements specified in other divisions or sections.
3. And agrees to enter into and execute Contract with Owner, if awarded on basis of this bid, and to:
 - A. Furnish Bonds and Insurance required by the Bidding & Contract Documents.
 - B. Accomplish work in accord with Contract.
 - C. Complete work within specified Contract time.
4. **CONTRACT TIME:** Contractor agrees to Substantially Complete ALL WORK as required by the Contract Documents per the Supplementary General Conditions and Supplementary Instructions to Bidders.
5. **BASE BIDS:**
 - A. Base Bid:
Bidder agrees to perform all building and site work, as set forth in the Project Manual and Drawings for the sum of:

_____ Dollars (\$_____.____)
6. **ALTERNATES:**
Bidder agrees to perform all building and/or site work items as set forth below. The prices submitted may be accepted either at the time of Base Bid approval or up to no later than ninety (90) days after award of the Bid; however, if not approved at the time of the award of the Base Bid, the contract times as set forth in the Project Manual and Drawings will be adjusted to compensate for the additional time taken in award of the Alternate:

Bid From: _____

PROJECT NO. 20-006
BID FOR: UTILITY STORAGE BUILDING
LOCATION: DONOVAN PARK

A. Add Alternate #1:

Add to the Base Bid all labor, material, and equipment for an additional (2ea.) 8' (foot) Bays (total 16') to the South end of the new building including the added overhead door, and all associated or related work.

_____ Dollars (\$_____.____)

7. **PROPOSED SUBSTITUTION LIST:**

Base Bid(s) and Alternates are understood to include only those product brands, items, and elements which are specified in the Bid Documents. The following is a list of substitute products, equipment or methods of construction which the Bidder proposes to furnish on this project, with difference in price being added or deducted from Base Bid(s).

Bidder understands that acceptance of any proposed substitution which has not been approved as an "equal" to the product brand, item, or element specified prior to bid opening is at Owner's option. Approval or rejection of any substitutions listed below will be indicated before executing Contract.

<u>ITEM</u>	<u>ADD</u>	<u>DEDUCT</u>
_____	\$_____	\$_____
_____	\$_____	\$_____
_____	\$_____	\$_____

8. **BIDDERS CHECKLIST:**

Did you visit the site?	Yes	No
Is Bid Security enclosed? (If applicable)	Yes	No
Is Peoria Park District Certificate of Equal Employment Opportunity Compliance for Contractors enclosed?	Yes	No
Is Workforce Profile enclosed?	Yes	No
Is Bidder's Sexual Harassment Policy enclosed?	Yes	No
If the bid is over \$100,000.00, the Minority/Women Owned Contact Sheet enclosed?	Yes	No
Is List of Subcontractors enclosed?	Yes	No
Is Certification of Compliance of the Listed Provisions and Laws form enclosed?	Yes	No

Bid From: _____

PROJECT NO. 20-006
BID FOR: UTILITY STORAGE BUILDING
LOCATION: DONOVAN PARK

9. **BIDDER INFORMATION:**

NAME OF BIDDER: _____

ADDRESS: _____

CITY, STATE, ZIP: _____

TELEPHONE NO.: _____

BY: _____
(Signature of Authorized Official)

TITLE: _____

BIDDER'S SEAL

WITNESS: _____

END OF BID FORM



Peoria Park District
Certificate of Equal Employment Opportunity Compliance
for
Contractors and Vendors

Disclosure of the information requested in this form is required by the Peoria Park District. Failure to properly complete and sign this form will result in it being returned unprocessed thereby resulting in a delay or denial of eligibility to bid.

As part of the Company's commitment to equal employment opportunity practices, this company does the following:

- Recruits, trains, upgrades, promotes and disciplines persons without regard to race, color, sex, religion, national origin, veteran status, age, mental or physical ability.
- Notifies all recruitment sources that all qualified applicants will be considered for employment without regard to race, color, sex, religion, national origin, veteran status, age, mental or physical ability.
- When advertising is used, specifies that all qualified applicants will be considered for employment without regard to race, color, sex, religion, national origin, veteran status, age, mental or physical ability.
- Notifies all labor organizations which furnish this company with any skilled or non-skilled labor of the Company's responsibility to comply with the equal employment opportunity requirements required in all contracts by the Peoria Park District.
- Notifies all of its sub-contractors of their obligation to comply with the equal employment opportunity requirements required in all contracts by the Peoria Park District.
- Has an affirmative action program that assures the company's fair employment practices are understood and carried out by all of its managerial, administrative and supervisory personnel.

Is the Company a minority/woman owned business (MBE/WBE)? ☐ NO ☐ YES, if yes ☐ MBE or ☐ WBE?

The Company does not discriminate against any employees or applicants for employment because of race, color, religion, sex, national origin, veteran status, age, mental or physical ability.

The Company does not maintain segregated facilities for any of its employees on the basis of race, religion, color, national origin, because of habit, local custom, or otherwise.

The Company has a written sexual harassment policy meeting the Illinois Department of Human Rights requirements.

By signing this form, the Company attests that it complies with all statements listed above as part of the Company's commitment to equal employment opportunity practices. The Company further agrees that it has completed the attached Workforce Profile Sheet truthfully, to the best of its knowledge.

Company Name

Company Address

Signature of Company Official

Name / Title

Telephone Number & Fax Number

Email Address

Rev. 9/2017

WORKFORCE PROFILE

Job Classifications	Black Employees		White Employees		Hispanic Employees		Native American Employees		Asian Employees		Other Employees		TOTAL EMPLOYEES	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
1. Officials, Managers, Supervisors														
2. Professionals														
3. Technicians														
4. Sales														
5. Office/Clerical														
6. White Collar Trainees:														
7. Skilled Crafts:														
8. Apprentices:														
9. On-the-job Trainees:														
10. Semi-skilled														
11. Service Workers														
12. Unskilled														
TOTALS														

Company Name: _____

WORKFORCE PROFILE INSTRUCTIONS

RACE/ETHNIC IDENTIFICATION

WHITE (not of Hispanic origin): All persons having origins in any of the original peoples of Europe, North Africa, or the Middle East.

BLACK (not of Hispanic origin): All persons having origins in any of the Black racial groups of Africa.

HISPANIC: All persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.

ASIAN or PACIFIC ISLANDER: All persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands. This area includes, for example, China, India, Japan, Korea, the Philippine Islands, and Samoa.

NATIVE AMERICAN or ALASKAN NATIVE: All persons having origins in any of the original peoples of North America, and who maintain cultural identification through tribal affiliation or community recognition.

DESCRIPTION OF JOB CLASSIFICATIONS

OFFICIALS, MANAGERS, AND SUPERVISORS - Occupations requiring administrative personnel who set broad policies, and exercise over-all responsibility for the execution of these policies, and direct individual departments or special phases of a firm's operations. Includes: officials, executives, middle management, plant managers, department managers/superintendents, salaried foremen who are members of management, purchasing agents and buyers, and kindred workers.

PROFESSIONALS - Occupations requiring either college graduation or experience of such kind and amount as to provide a comparable background. Includes: accountants/auditors, airplane pilots and navigators, architects, artists, chemists, designers, dietitians, editors, engineers, lawyers, librarians, mathematicians, natural scientists, personnel and labor relations workers, physical scientists, physicians, social scientists, teachers, and kindred workers.

TECHNICIANS - Occupations requiring combination of basic scientific knowledge and manual skill which can be obtained through about 2 years of post high school education, such as is offered in many technical institutes and junior colleges, or through equivalent on-the-job training. Includes: drafters, engineering aids, junior engineers, scientific assistants, surveyors, technical illustrators, technicians (medical, dental, electronic physical sciences), and kindred workers.

SALES WORKERS - Occupations engaging wholly or primarily in direct selling. Includes: advertising agents/salespersons, insurance agents/brokers, real estate agents/brokers, stock and bond salespersons, demonstrators, salespersons and sales clerks, and kindred workers.

OFFICE AND CLERICAL WORKERS - Includes all clerical type work regardless of level of difficulty, where the activities are predominantly non-manual though some manual work not directly involved with altering or transporting the products is included. Includes: bookkeepers, cashiers, collectors (bills and accounts), messengers and office couriers, office machine operators, shipping and receiving clerks, stenographers, typist and secretaries, telegraph and telephone operators, and kindred workers.

WHITE COLLAR TRAINEES - Persons engaged in formal training for official, managerial, professional, technical, sales, office and clerical occupations.

SKILLED CRAFTS - Manual worker of relatively high skill level having a thorough and comprehensive knowledge of the processes involved in their work. Exercise considerable independent judgment and usually receive an extensive period of training. Includes: the building trades hourly paid foremen and leadmen who are not members of management, mechanics and repairmen, skilled machining occupations, compositors and typesetters, electricians, engravers, job setters (metal), motion picture projectionists, pattern and model makers, stationary engineers, tailors and tailoresses, and kindred workers.

APPRENTICES - Persons employed in a program including work training and related instruction to learn a trade or craft which is traditionally considered an apprenticeship, regardless of whether the program is registered with a Federal or State agency.

ON-THE-JOB TRAINEES - Persons engaged in formal training for craftsmen when not trained under apprentice programs; semi-skilled, unskilled and service occupations.

SEMI-SKILLED WORKERS - Workers who operate machine or processing equipment or perform other factory-type duties of intermediate skill level which can be mastered in a few weeks and require only limited training.

SERVICE WORKERS - Workers in both protective and non-protective service occupations. Includes: attendants (hospital and other institution, professional and personal service), barbers, charwomen and cleaners, cooks (except household), counter and fountain workers, elevator operators, fire fighters, guards, watchmen and doorkeepers, stewards, janitors, police officers and detectives, porters, waiters and waitresses, and kindred workers.

UNSKILLED WORKERS - Workers in manual occupations which generally require no special training. Perform elementary duties that may be learned in a few days and require the application of little or no independent judgement. Includes: garage laborers, car washers and greasers, gardeners (except farm) and groundskeepers, longshoremen and stevedores, lumbermen, craftsmen and wood choppers, laborers performing lifting, digging, mixing loading and pulling operations, and kindred workers.

Minority/Women Owned Contact Sheet

Proof of Contact Efforts by General Contractor of MBE/WBE firms for the project

[illegible]

Company Name _____

PLEASE BE ADVISED!

Every party to a public contract and every party bidding on public contracts are required to have a written sexual harassment policy that contains:

- (1) a definition of sexual harassment under state law;
- (2) a description of sexual harassment utilizing examples;
- (3) a formalized complaint procedure;
- (4) a statement of victims rights;
- (5) directions on how to contact the Illinois Department of Human Rights – **Illinois companies. Out-of-State companies must include directions on how to contact the enforcement agency within their state.** Companies that issue a standard policy for all business locations must prepare an addendum providing directions on how to contact the appropriate enforcement agency.
- (6) a recitation that there cannot be any retaliation against employees who elect to file charges.

Recommendation: Your sexual harassment policy should be drafted in language easy to understand and any revisions should be reviewed by legal counsel. A copy of your policy should be posted in a prominent and accessible location to assure all employees will be notified of the company's position.

In order to conduct business with the PEORIA PARK DISTRICT, you must have a written sexual harassment policy that conforms to the new ACT.

**FAILURE TO DO SO
WILL DISQUALIFY YOU AS AN ELIGIBLE VENDOR!!!**

Please be advised, effective July 1, 1993, Governor Jim Edgar established under Executive Order Number 7 (Public Act 87-1257) that every party to a public contract and every party bidding on a public contract within the State of Illinois must have a written policy statement prohibiting sexual harassment. The following model policy statement is a draft copy provided for use in formulating your company's policy statement

SEXUAL HARASSMENT POLICY STATEMENT

It is the responsibility of each individual employee to refrain from sexual harassment and it is the right of each individual employee to work in an environment free from sexual harassment.

DEFINITION OF SEXUAL HARASSMENT

According to the Illinois Human Rights Act, sexual harassment is defined as:

Any unwelcome sexual advances or requests for sexual favors or any conduct of a sexual nature when

1. submission to such conduct is made either explicitly or implicitly a term or condition of an individual's employment;
2. submission to or rejection of such conduct by an individual is used as the basis for employment decision(s) affecting such individual; or
3. such conduct has the purpose or effect of substantially interfering with an individual's work performance or creating an intimidating, hostile, or offensive working environment.

The courts have determined that sexual harassment is a form of discrimination under Title VII of the U.S. Civil Rights act of 1964, as amended in 1991. One such example is a case where a qualified individual is denied employment opportunities and benefits that are, instead, awarded to an individual who submits (voluntarily or under duress) to sexual advances or sexual favors. Another example is where an individual is subjected to unwelcome sexual conduct in order to receive an employment opportunity.

Other conduct commonly considered to be sexual harassment includes.

- ⇒ Verbal: Sexual innuendoes, suggestive comments, insults, humor and jokes about sex, anatomy or gender-specific traits, sexual propositions, threats, repeated requests for dates, or statement about other employees, even outside of their presence, of a sexual nature.
- ⇒ Non-Verbal: Suggestive or insulting sounds (whistling), leering, obscene gestures, sexually suggestive bodily gestures, "catcalls", "smacking" or "kissing" noises.
- ⇒ Visual: Posters, signs, pin-ups, slogans of a sexual nature.
- ⇒ Physical: Touching, unwelcome hugging or kissing, pinching, brushing the body, coerced sexual intercourse or actual assault.

Sexual harassment most frequently involves a man harassing a woman. However, it can also involve a woman harassing a man or harassment between members of the same gender.

The most severe and overt forms of sexual harassment are easier to determine; however, some sexual harassment is more subtle and depends to some extent on individual perception and interpretation. The trend in the courts is to assess sexual harassment by a standard of what would offend a "reasonable woman" or a "reasonable man", depending upon the gender of the alleged victim.

An example of the most subtle form of sexual harassment is the use of endearments. The use of terms such as "honey", "darling", and "sweetheart" is objectionable to many women who believe that these terms undermine their authority and their ability to deal with men on an equal and professional level.

Another example is the use of a compliment that could potentially be interpreted as sexual in nature. Below are three statements that might be made about the appearance of a woman in the workplace:

Sexual Harassment Model Policy Statement

Page 2

- ⇒ “That’s an attractive dress you have on.”
- ⇒ “That’s an attractive dress. It really looks good on you.”
- ⇒ “That’s an attractive dress. You really fill it out well.”

The first statement appears to be simply a compliment. The last is most likely to be perceived as sexual harassment depending on individual perceptions and values. To avoid the possibility of offending an employee, it is best to follow a course of conduct above reproach, or to err on the side of caution.

RESPONSIBILITY OF INDIVIDUAL EMPLOYEES

Each individual employee has the responsibility to refrain from sexual harassment in the workplace. An individual employee who harasses a fellow worker is, of course, liable for his or her individual conduct. The harassing employee will be subject to disciplinary action up to and including discharge in accordance with company/organization policy or a collective bargaining agreement, as appropriate.

RESPONSIBILITY OF SUPERVISORY PERSONNEL

Each supervisor is responsible for maintaining a workplace free of sexual harassment. This is accomplished by promoting a professional environment and by dealing with sexual harassment as with all other forms of employee misconduct.

The courts have found companies/organizations as well as supervisors can be held liable for damages related to sexual harassment by a manager, supervisor, employee, or third party (an individual who is not an employee but does business with a company/organization, such as a contractor, customer, sales representative, or repair person).

Liability is based either on a company/organization's responsibility to maintain a certain level of control and discipline, or on the supervisor acting as an agent of the company/organization. As such, supervisors must act quickly and responsibly, not only to minimize their own liability, but also that the company/organization.

RESOLUTION OUTSIDE THE COMPANY/ORGANIZATION

It is hoped that most sexual harassment complaints and incidents can be resolved within a company/organization. However, an employee has the right to contact the Illinois Department of Human Rights (IDHR) or the U.S. Equal Employment Opportunity Commission (EEOC) about filing a formal complaint. An IDHR complaint must be filed within 180 days of the alleged incident(s) unless it is a continuing offense. A complaint with EEOC must be filed within 300 days.

Illinois Department of Human Rights

(217) 785-5100 – Springfield
(217) 785-5125 – TDD Springfield
(312) 814-6200 – Chicago
(312) 263-1579 – TDD Chicago

Illinois Human Rights Commission

(217) 785-4350 – Springfield
(217) 785-5125 – TDD Springfield
(312) 814-6269 – Chicago
(312) 814-4760 – TDD Chicago

U.S. Equal Employment Opportunity Commission

(312) 353-2613 – Chicago District Office
(800) 669-4000 – Toll Free Within State of Illinois
(800) 669-6820 – TDD Chicago

An employee who is suddenly transferred to a lower paying job or passed for promotion, after filing a complaint with IDHR or EEOC, may file a retaliation charge, also due 180 days (IDHR) or 300 days (EEOC) from the alleged retaliation.

An employee who has been physically harassed or threatened while on the job may also have grounds for criminal charges of assault and battery.

FALSE AND FRIVOLOUS COMPLAINTS

False and frivolous charges refer to cases where the accuser is using a sexual complaint to accomplish some end other than stopping sexual harassment. It does not refer to charges made in good faith which cannot be proven. Given the seriousness of the consequences for the accused, a false and frivolous charge is a severe offense that can itself result in disciplinary action.

DONOVAN UTILITY STORAGE BUILDING - Project Manual

CERTIFICATION OF COMPLIANCE
OF THE LISTED PROVISIONS AND LAWS

1) Illinois Drug Free Workplace Act of 1991

2) The Substance Abuse Prevention on Public Works Act Public Act 95-0635:

Prohibits the use of drugs and alcohol while performing work on a public works project.

The Contractor/Subcontractor has signed collective bargaining agreement for all of its employees that deal with the subject matter or the Contractor/Subcontractor has a prevention program that meets or exceeds the requirements of the Public Act for all employees not covered by a collective bargaining agreement.

3) Safety Compliance:

Contractor/Subcontractors will comply with any and all prevailing occupational safety and health standards. Such compliance may include a training component or require a written program of compliance.

4) Illinois Criminal Code, Illinois Compiled Statutes 720 ILCS 5/33E-3 and 5/33E-4:

Contractor/Subcontractor has not been barred from bidding on public contract as a result of bid rigging or bid rotating.

The undersigned representative of the Contractor/Vendor hereby certifies to comply with the laws and provisions listed above.

Contractor/Subcontractor

Name of Authorized Representative (type or print)

Signature of Authorized Representative

Date

MAJOR SUBCONTRACTORS LIST

The following tabulation of Major Subcontractors shall be attached and made a condition of the Bid. The Bidder expressly understands and agrees to the following provisions:

- A. If awarded a Contract as a result of this Bid, the major subcontractors used in the prosecution of the work will be those listed below.
- B. The following list includes all subcontractors who will perform work representing 5% (five percent) or more of the total Base Bid.
- C. The subcontractors listed below are financially responsible and are qualified to perform the work required.
- D. The subcontractors listed below comply with the requirements of the Contract Documents.
- E. Any substitutions in the subcontractors listed below shall be requested in writing by the Contractor and must be approved in writing by the Owner. No sub-subcontractors will be allowed unless specifically stated on the form. All pertinent financial, performance, insurance and other applicable information shall be submitted with the request for substitution(s). Owner shall respond to such requests within 14 calendar days following the submission of all necessary information to the full satisfaction of the Owner.
- F. Failure to submit the list of Major Subcontractors as stated herein shall constitute a material variation from the Invitation to Bid; and any such Bid may be rejected by the Owner.

Subcontractor Name	Address	Telephone	Area of Work	Minority/Women Owned Business (Yes/No)

(Attach additional sheets if required)

BIDDER: _____

END OF MAJOR SUBCONTRACTORS FORM

Directory of Minority & Women Owned Business Enterprises

Peoria Park District

Revised 6/2020

3 Keys Construction Tray Keys	MBE Concrete, Roadway Patching, Retaining Walls, Landscaping, Storm Sewer 2314 Lehman Rd., Peoria, IL 61604 threekeysconstruction@yahoo.com	309-472-2721
Absolute Risk Management Strategies Kelly Peterson	MBE Construction Safety, Job Site Safety Plan Development, Job Site Risk Assessment, Construction OSHA Training 416 Main St., Suite 533, Peoria, IL 61602	309-256-8471 309-222-4050 Cell
Adams Septic & Sewer Services, Inc. Michelle Adams	WBE Septic and Sewer Contractor 1641 N. Tiber Ridge Ct., East Peoria, IL 61611	309-691-6113
Aerial Work Services Company	MBE Landscaping and Seeding 13805 Wadsworth Road, Wadsworth, IL	847-662-5321 847-662-5321 Fax
AFE Construction, Inc. Tommy and Monica Arbuckle	WBE General Contractor WBE P.O. Box 199, Mackinaw, IL 61755	309-303-7065 866- 491-2209 Fax Tommy.afeinc@hotmail.com
A & L Salvage, Inc. Archie Brown	MBE Clean Up, Tree Cutting & Removal, Truck Salvaging 824 W. Brons Peoria, IL 61604	309-682-4412
Alexander Brothers Construction Co. Allester Alexander	MBE Concrete, Demolition, Excavation, Landscaping P.O. Box 1508, Peoria, IL 61605	309-673-6768 abrosconst@aol.com
Alexander & Sons Construction Leonard Alexander	MBE Driveways, Curbs, Foundations, Layouts, Sidewalks, etc. 2415 N. Linn Street, Peoria, IL 61604 Leonardalexander1467@yahoo.com	309-678-3004 773-628-9064 (cell)
Allworld Project Management LLC Ronnie Foster Jr.	MBE Highway, Street & Bridge Construction, Water & Sewer Line and Related Construction, Landscaping, Civil Engineering 415 South Front Street, Suite 121, Memphis, TN 38103 procurement@allworldmail.com	901-881-2985
A. Lucas & Sons Steel Margaret Hanley	WBE Structural Steel Fabrication 1328 SW Washington, Peoria, IL 61602	309-673-8547 309-673-7213 Fax Margaret@alucasiron.com
Ambri Inc. Robert J. Hunt. Jr.	MBE Drywall, Flooring, Painting, Cabinetry 9101 S. Nashville Ave., Oak Lawn, IL 60453	708-233-0217 Ph/ Fax
A Unique Maintenance Service Andrea McKnight	MBE Commercial and Industrial Construction Cleanup 1215 N. Sheridan Road, Suite A, Peoria, IL 61606	309-637-4400 309-637-1300 Fax 309-453-3393 Cell
Black Squirrel Services Inc. Aaron Watkins and Joshua Wessels	MBE Skid Steer, Landscaping, Blacktop, Striping, Sealcoating Crack Filling, Crack Routing & Concrete 2037 N. Aspen Road, Peoria, IL 61604	309-369-7817 blacksquirrel@yahoo.com
BMI Contractors & Assoc. Sammy Hobson	MBE Excavation, Concrete 1123 MacQueen., Peoria, IL 61604 bmicontractorsandassociates@comcast.net	309-657-4469 Ph 309-713-1569 Fax
Braun Excavating, Inc. Teresa Braun	WBE Demolition, Digging of Footings, Excavation, Pipe Laying 24 Gulf Stream, Bartonville, IL 61607	309-697-5454 309-697-6567 Fax
Brown, Leo Trucking, Inc. Leo Brown	MBE Trucking/Hauling P. O. Box 9057, Peoria, IL 61612	309-685-6710 309-685-0759 Fax
Buddy's Landscaping Dexter Davis	MBE Landscaping P. O. Box 1836, Bloomington, IL 61702	309-824-9211 309-454-3342 Fax Dexterdavis2@aol.com
Burnside Brothers Construction Terry Burnside	MBE Landscaping, General Construction 3563 SW Adams, Peoria, IL 61605	309-922-9390

C and G Concrete Construction Co. Inc. Patricia Slusher	WBE Concrete Rodney@cngconcrete.com	309-699-0384 309-699-6922 Fax 309-208-2646 Cell
Capitol Trucking Eddie Washington	MBE Trucking, Snow Removal 2803 Creston Lane, Peoria, IL 61604	309-339-5313
Central IL Construction Inc. Jessica Youngman	WBE Land Surveying 416 Germantown Rd., Germantown, IL 61548	309-383-3156
Central IL Consulting Jessica Youngman	WBE Land Surveying 416 Germantown Rd., Germantown, IL 61548	309-383-3156 youngman@mtco.com
Central IL Rebar Insulators Roger Fleming	MBE Structural Steel and Rebar Replacement 4719 Ridgelawn Place, Peoria, IL 61615	309-258-1379 888-387-5716 Fax 309-258-1379 Cell
Central Landscaping Donna Brandenburg	WBE Seeding, Landscaping 12512 Mendell Rd., Princeville, IL 61559	309-385-4832 309-385-2644 Fax
CJL Landscaping, Inc. Rebecca J. Kelch	WBE Landscaping 10902 W. U. S. Highway 150, Brimfield, IL 61517	309-691-9200 309-691-5131 Fax Meinders_81@yahoo.com jrdoering@att.net
Clevenger Contractors Inc. Verlee Clevenger Misty L. Daham	WBE Guardrail, Bridge Rail, Seeding, Fencing 355 Naples Rd., P.O. Box 19, Bluffs, IL 62621	217-754-3411 217-754-3537 Fax clever@irtc.net
CNS Forestry & Landscaping LLC Christine Schilling	WBE Landscaping, Seeding, Sodding, Tree Removal 1813 1000 th St., Lincoln, IL 62656	217-792-3808 217-792-3808 Fax
Concrete to Perfection Elonda Whitfield	WBE/MBE Designs on Concrete concretetoperfection@gmail.com	309-681-9508
Cordova Construction Tina Christopher	WBE Concrete Removal, Curb & Gutter Removal, Sidewalk Removal 2424 N. Ellory Road, Peoria, IL 61615	309-674-8810 309-208-3448 Cell
Cornerstone Builders & Developers Ron Touilly	WBE 6129 W. Southport Rd., Peoria, IL 61615	309-674-9000 309-673-7783 Fax
Creative Touch Painting Chris Ridge	MBE Painting Exterior/Interior 3318 N. Isabell Ave., Peoria, IL 61604	309-229-1253 309-643-7400 Cell info@creativetouchpnt.com
CSS (Construction Specialties & Services) Dave Suzuki	MBE Building Specialties, Design, Engineering, Estimating P. O. Box 120703 Peoria, IL 61614	309-685-8453
CWG Inc. Teresa Gustafson	WBE Demolition, Excavation, Trucking 24635 Cooper Rd., Morton, IL 61550	309-208-5461 Cell 309-208-8899 Cell tgusdesigns@yahoo.com
Davis Brothers Construction Company Russell Davis	MBE Trucking/Hauling 1522 W. Kettelle St. Peoria, IL 61605	309-683-6931
DECA Realty Eddie J. Washington	MBE Real Estate Broker, Appraiser 417 W. Main, Peoria, IL 61606	309-637-3322 309-682-3922 Fax
Design Air Inc. Courtney Eston	MBE Commercial Air Duct Cleaning 3806 W. Hearthwood Dr., Dunlap, IL 61525	309-693-8632 309-243-2102 Fax
Dunbar Transfer	WBE Trucking P.O. Box 315, Chillicothe, IL 61523-0315	309-303-5122
E & D Trucking and Hauling, Inc. Eddie Proctor	MBE Trucking/Hauling 1913 N. Idaho, Peoria, IL 61604	309-682-4336 309-251-6736 Cell
E. Davis Trucking Company Eric Davis	MBE Trucking edavistrucking@gmail.com	309-648-1450
Earth Care Unlimited, Inc. Monica Thornley	WBE Landscaping, Seeding, Sodding 3108 Panther Grove Rd, Ashland, IL 62612	217-452-7370 217-414-4321

Fire & Ice Heating and Air J.T. Toombs	MBE HVAC Maintenance, Installment 922 W. Smith St., Peoria, IL 61605	309-219-3708
Foster-Jacob Electric Emily Rudesill	WBE Electrical 826 W. Main St., Peoria, IL 61606	309-674-8129
Fuhrmann Engineering Inc. Kathy Shelter	WBE Civil Engineers / Land Surveyors 456 Fulton St., Suite 146	309-713-3498 Ext. 5
Flessner Electric	WBE Electrical 3600 S. Cameron Ln., Mapleton, IL 61547	309-697-2484
Foster-Jacob Electric Emily Rudesill	WBE Electrical 826 W. Main St., Peoria, IL 61606	309-674-8129 309-674-6890 Fax emilyj@fosterjacob.com
Garza Heating & Cooling	MBE HVAC 1304 S. Western Ave., Peoria, IL 61605	309-645-6294
Get Current Electrical Serv. Richard Rhodes	MBE Electrical 4210 N. Northbrook Ct. Richard_rhodes2001@yahoo.com	309-989-7931
Ronald A. Givens & Associates Ronald A. Givens	MBE Insurance & Investments 2616 N. Lehman, Peoria, IL 61602	309-685-4588 309-676-3152 Fax
GIVSCO Construction Ronald Givens	MBE General Contractor 2321 Lakeshore Dr., Pekin, IL 61554	309-620-9127 info@givSCO.com
Gutters & More	WBE 157 Thunderbird Ln., East Peoria, IL 61611	309-694-4000 309-694-3356 Fax
Hancock Trucking, Inc. Nancy Hancock	WBE Trucking/Hauling 30570 Hancock Road Mackinaw, IL 61755	309-447-6733
Hanley Steel, Inc. Jill Hanley	WBE Fabricated Structural and Miscellaneous Steel 8811 N. Industrial Rd., Peoria, IL 61615	309-692-5250 309-692-5251 Fax
Heart Technologies Jim Bainter, Brad Armstrong	WBE Data and Telephone, Communication and Construction 3105 N. Main Street, Peoria, IL 61611	309-427-7000 309-427-7007 Fax
Hermann & Associates Alisha Hermann	WBE Consultant Engineering 5835 N. Galena Rd., Peoria, IL 61614	309-687-5566 309-687-0571 Fax
Horan Construction, Inc. Susan Arnholt	WBE Carpentry, Concrete, Demolition, General, Wrecking 1720 W. Chanute Road Peoria, IL 61615	309-691-3133 309-691-1841 Fax
Illinois Mechanical Service & Design Beth Ward	WBE HVAC P.O. Box 10494, Peoria, IL 61612	309-713-3640 309-274-6941
Infrastructure Engineering Thu Truitt	MBE Civil Engineering 456 Fulton St., Suite 104, Peoria, IL 61602	309-637-9200 309-637-9210
Intech Innovations John McCrary	WBE Audio/Video Design and Integration Washington, IL 61571	309-370-6676 309-745-9691 Fax
Interlock Brick Paving Chris Joos	WBE Hardscaping, Landscaping, Excavating P.O. Box 6, Morton, IL 61550 chris@interlockbrickpaving.com	309-696-9264
JC Construction Frank Coates	MBE General 1810 Stever, Peoria, IL 61605	309-303-3919 Cell
JAKS Construction Inc John Spencer	Disabled Vet Full Service Concrete Cutting, Drilling & Sealing 19319 Great Crane Road, Bloomington, IL 61705	800-455-9662 309-455-9662 Fax 309-846-6382 Cell jaksinc@live.com
J & K Construction James Tillman	MBE General 4003 N. Rochelle, Peoria, IL 61615	309-685-8554 309-685-8554 Fax 309-264-3903 Cell j&kconst@comcast.net
J & J Construction Herman Johnson	MBE Concrete Removal, Curb & Gutter Removal, Demolition 1300 W. Aiken Avenue, Peoria, IL 61605	309-657-9228 309-676-8292 Fax 309-657-9228 Cell

JM Industrial Supply Ron Given	MBE Maintenance Items, Tools, Soaps 2323 Lakeshore, Pekin, IL 61554	309-346-5796 309-347-5100 Fax
Jones Electrical Contractors, Inc. Ronald Jones	MBE Electrical	309-339-7690 rj@joneselectricalco.com
Kahbeah Contracting & Trucking Larry Kahbeah	MBE Trucking/Hauling 510 N. Yates, P. O. Box 56, Tallula, IL 62688	217-634-4157 217-634-4157 Fax
Kerry Brown Trucking Leo K. Brown	MBE Tandem, Semi Dump, General Hauling Peoria, IL	309-251-6089 Cell leok.brown1957@gmail.com
Kreiling Roofing Co.	WBE Slate, Wood Shakes, Tile, Thatch, Custom Fabricated Copper and Steel, Residential and Commercial 2335 W. Altorfer Dr., Peoria, IL 61615	309-673-3649 309-692-2504 Fax 309-397-7747 Cell lmoore@kreiling.com
Leo Brown Trucking Inc Leo Brown	MBE Trucking PO Box 9057, Peoria, IL 61612	309-685-6710 309-685-0759 Fax 309-303-7111 Cell
LIZZ Trucking & Hauling Brandon Hines	MBE Trucking/Hauling lizztrucking@yahoo.com	309-208-5942
LNR Construction & Trucking Demonte Davis Lavael Randle Sr.	MBE Concrete, Trucking 2200 N. Linsley St., Peoria, IL 61605	309-682-6331 309-682-6331 Fax 309-678-3314 Cell
LV Enterprise John L. Palmer	MBE Trucking/Hauling 303 E. Archer Avenue, Peoria, IL 61603	309-657-2420 309-682-8872 Fax
M & A Plumbing Michael Abner	MBE Plumbing 6216 N. Devonshire Avenue, Peoria, IL 61615	309-689-0133 309-689-0133 Fax
M&K Heating & Cooling Reggie Williams	MBE HVAC 2406 W. Newman Parkway, Peoria, IL 61604	309-256-6129
M & L Plumbing Manzell Lawson	MBE Plumbing 1309 W. Lincoln, Peoria, IL 61605	309-674-8466
McGinnis Transportation Beth McGinnis	WBE Trucking, Tandem, 24" Box Truck 336 Riverview Drive, Creve Coeur, IL 61610	309-369-4465 309-694-1604 Fax
Michlyn Corporation Fred Danage	MBE Concrete, Landscaping, Lead Based Paint Abatement P.O. Box 5895, Peoria, IL 61601	309-829-2115 309-303-1561 Cell macdanage@yahoo.com
Mid-Illinois Companies, Corp. Debra Young	WBE Metal Framing, Insulation, Drywall, Plaster and Exterior Insulation, Acoustical Ceilings and Wall Panels, Painting and Wall Covering, Access Flooring 905 NE Adams St., Peoria, IL 61603	309-674-0717 309-674-5802 Fax dyoung@mic123.com
Midwest Construction Services Sheila Shover	M/WBE Traffic Control Products, Trucking/Hauling P. O. Box 4185, Bartonville, IL 61607	309-697-1000 309-697-1004 Fax
Millennia Professional Services of IL Paul Moreno	MBE Civil Engineering, Erosion Control, Landscaping, Sewer Construction, Surveying, Retaining Walls 850 N. Main St., Morton, IL 61550	309-321-8141 309-321-8142 Fax 309-303-8428 Cell pmoreno@mps-il.com
Molleck Electric	WBE Electrical 14926 W. Winchester Dr., Brimfield, IL 61517	309-446-3483
N.E. Rudd Trucking Nanette E Jenkins-Rudd	WBE Excavating, Hauling, Asphalt, Dirt, Gravel, Sand Milling ; Dumps and Tandems PO Box 14, Kingston Mines, IL 61539	309-389-4150 309-389-2849 Fax 309-360-7986 Cell
Ordaz Construction Co. Inc. Elizabeth Ordaz Mercer	WBE Concrete 8010 N. Sommer St., Peoria, IL 61615 lindahall@ordazconstruction.com	309-693-3338 309-693-5505 Fax
P.A. Atherton Construction Inc. Patricia Atherton	WBE Aggregate Pipe, Asphalt, Concrete, Demolition Excavation, Grading, Pavement Patching & Marking	309-822-8575 309-822-8782 Fax 309-645-9870 Cell

Porter, V. L. Vincent Porter	MBE Concrete, General 500 W. North, Suite 10, Springfield, IL 62704	217-744-8050
Prairie Engineers of Illinois PC Colleen Ayars	WBE Civil Engineering, Surveying ,Environmental Consulting 926 SW Adams Street, Suite 120, Peoria, IL 61602 www.prairieengineers.com	309-839-2642 217-718-4764 Fax
Reign Construction Bridget Booker	WBE/MBE Iron Worker 801 W. Main St., Suite A118, Peoria, IL 61606 bridget@reignconstructioninc.com	309-495-7982 309-495-7996 Fax 309-750-4846 Cell
RNS Electric Inc. Regina Slonneger	WBE Electrical 28558 Irish Lane, Washington, IL 61571	309-444-5200 309-444-5201 Fax
Rudd Trucking Nanette Jenkins-Rudd	WBE Trucking/Hauling P.O. Box 14, 107 Washington St., Kingston Mines, IL 61539	309-389-4150 309-389-2849 Fax
Rufus Construction Company Rufus Nelson	MBE Painting, Roofing, Remodeling 1819 S. Idaho Street, Peoria, IL 61605	309-673-6776 309-497-9453 Cell
Searle Trucking, Inc. Debbie Searle	WBE Trucking/Hauling P. O. Box 1084, Peoria, IL 61653	309-686-0708 309-688-5365 Fax
Serenity Electric	MBE Electrical PO Box 6521, Peoria, IL 61601 jamestaylor1955@yahoo.com	309-363-5067 309-363-5067 Cell
Sherwin Baker & Associates Inc. Sherwin Baker	MBE Engineering Technical Service, Construction Management 103 E. Archer, Peoria, IL 61603	309-688-4203 309-682-4203 Fax 309-678-2897 Cell sherwin_baker@yahoo.com
Tabitha Ventures, Inc. Edward O. Taiwo	MBE Asphalt, Concrete, Demolition, Earthwork, Electrical, Excavation, General, HVAC, Landscaping, Painting, Plumbing, Resurfacing, Roofing, Trucking/Hauling 100 N. Main Street, Suite 203, East Peoria, IL 61611	309-692-1473 309-692-1564 Fax information@tabithainc.com
TEMCO Heating & AC Ellen Robinson	WBE Heating & AC 913 Laramie St. Peoria, IL 61605	309-637-7746
The Communication Connection Jennifer Stone	WBE Communication, Wire and Cable, Electrical and Telephone Prod. 604 Filmore Street Harrisburg, PA 17104	717-561-7267
Third Hand Landscaping Tommy Harris	MBE Landscaping 2313 W. Lincoln, Peoria, IL 61605	309-673-6702
Three Cross Development J. T. Donelson	MBE Concrete, General, Sidewalk 1519 W. Millman Peoria, IL 61605	309-637-1238
Thompson Brothers Inc. Todd Thompson	MBE General Carpentry and Construction, Interior Finish Work, Millwork 221 Court St., Pekin, IL 61554	309-613-0254
Thornton Rave dba Illini Concrete Co. of Illinois	MBE Precast and Prestressed Concrete, Demolition, Excavating and Grading, Drainage, Aggregate Bases and Surfaces, Pavement Patching 929 E. Grove St., Suite A, Bloomington, IL 61701	309-585-2376 309-585-2472 Fax 309-706-9213 Cell thorntonrave01@gmail.com
Tillman Electric James Tillman	MBE Electrical 4003 N. Rochelle, Peoria, IL 61615	309-685-8554 309-264-3903 Cell
Willie Veneble Construction Willie Venable	MBE Construction, Concrete Removal, Demolition 1000 E. Wilcox, Peoria, IL 61605	309-686-1429 309-360-0757 Cell
Willis Electric Phyllis Willis	WBE Electrical P.O. Box 545, Chillicothe, IL 61523	309-579-2926

Peoria County Prevailing Wage Rates posted on 5/18/2020

Trade Title	Rg	Type	C	Base	Foreman	Overtime				H/W	Pension	Vac	Trng	Other Ins
						M-F	Sa	Su	Hol					
ASBESTOS ABT-GEN	All	BLD		27.50	29.00	1.5	1.5	2.0	2.0	8.50	21.41	0.00	0.80	
ASBESTOS ABT-GEN	All	HWY		31.27	32.77	1.5	1.5	2.0	2.0	8.50	23.88	0.00	0.80	
ASBESTOS ABT-MEC	All	BLD		32.78	35.28	1.5	1.5	2.0	2.0	13.42	12.20	0.00	0.72	
BOILERMAKER	All	BLD		41.00	44.00	2.0	2.0	2.0	2.0	7.07	20.57	1.50	1.24	
BRICK MASON	All	BLD		35.01	36.51	1.5	1.5	2.0	2.0	10.60	11.70	0.00	0.84	
CARPENTER	All	BLD		33.05	35.30	1.5	1.5	2.0	2.0	8.65	18.75	0.00	0.55	
CARPENTER	All	HWY		36.16	38.41	1.5	1.5	2.0	2.0	8.90	20.50	0.00	0.57	
CEMENT MASON	All	BLD		31.48	33.23	1.5	1.5	2.0	2.0	8.75	17.60	0.00	0.64	
CEMENT MASON	All	HWY		32.98	34.48	1.5	1.5	2.0	2.0	8.75	18.21	0.00	0.67	
CERAMIC TILE FINISHER	All	BLD		32.63	32.63	1.5	1.5	2.0	2.0	10.60	11.70	0.00	0.82	
ELECTRIC PWR EQMT OP	All	ALL		46.47	55.07	1.5	1.5	2.0	2.0	7.39	13.01	0.00	0.69	
ELECTRIC PWR GRNDMAN	All	ALL		31.69	55.07	1.5	1.5	2.0	2.0	6.95	8.87	0.00	0.48	
ELECTRIC PWR LINEMAN	All	ALL		51.67	55.07	1.5	1.5	2.0	2.0	7.55	14.47	0.00	0.78	
ELECTRIC PWR TRK DRV	All	ALL		33.25	55.07	1.5	1.5	2.0	2.0	7.00	9.31	0.00	0.50	
ELECTRICIAN	All	BLD		38.25	40.75	1.5	1.5	2.0	2.0	8.15	13.45	0.00	0.80	
ELECTRONIC SYSTEM TECH	All	BLD		29.90	31.90	1.5	1.5	2.0	2.0	7.45	12.55	0.00	0.40	
ELEVATOR CONSTRUCTOR	All	BLD		47.72	53.68	2.0	2.0	2.0	2.0	15.72	18.41	3.82	0.63	
GLAZIER	All	BLD		35.87	37.87	1.5	1.5	1.5	2.0	12.25	8.90	0.00	1.25	
HEAT/FROST INSULATOR	All	BLD		43.70	46.20	1.5	1.5	2.0	2.0	13.42	13.66	0.00	0.72	
IRON WORKER	All	BLD		32.81	34.71	1.5	1.5	2.0	2.0	11.26	17.07	0.00	0.74	
IRON WORKER	All	HWY		38.20	40.20	1.5	1.5	2.0	2.0	11.26	17.07	0.00	0.74	
LABORER	All	BLD		26.50	28.00	1.5	1.5	2.0	2.0	8.50	21.41	0.00	0.80	
LABORER	All	HWY		30.52	32.02	1.5	1.5	2.0	2.0	8.50	23.88	0.00	0.80	
LABORER, SKILLED	All	BLD		26.90	28.40	1.5	1.5	2.0	2.0	8.50	21.41	0.00	0.80	
LABORER, SKILLED	All	HWY		30.82	32.32	1.5	1.5	2.0	2.0	8.50	23.88	0.00	0.80	
LATHER	All	BLD		33.05	35.30	1.5	1.5	2.0	2.0	8.65	18.75	0.00	0.55	
MACHINERY MOVER	All	HWY		36.82	38.82	1.5	1.5	2.0	2.0	10.66	15.47	0.00	0.64	
MACHINIST	All	BLD		48.93	51.43	1.5	1.5	2.0	2.0	7.68	8.95	1.85	1.32	
MARBLE FINISHER	All	BLD		32.63	32.63	1.5	1.5	2.0	2.0	10.60	11.70	0.00	0.82	
MARBLE MASON	All	BLD		35.37	36.62	1.5	1.5	2.0	2.0	10.60	11.70	0.00	0.84	
MILLWRIGHT	All	BLD		32.53	34.78	1.5	1.5	2.0	2.0	8.65	19.62	0.00	0.55	

MILLWRIGHT	All	HWY		36.40	38.65	1.5	1.5	2.0	2.0	8.90	20.85	0.00	0.57	
OPERATING ENGINEER	All	BLD	1	40.74	43.74	1.5	1.5	2.0	2.0	10.25	20.65	0.00	3.60	
OPERATING ENGINEER	All	BLD	2	37.71	43.74	1.5	1.5	2.0	2.0	10.25	20.65	0.00	3.60	
OPERATING ENGINEER	All	BLD	3	32.70	43.74	1.5	1.5	2.0	2.0	10.25	20.65	0.00	3.60	
OPERATING ENGINEER	All	HWY	1	40.75	43.75	1.5	1.5	2.0	2.0	10.25	20.65	0.00	3.60	
OPERATING ENGINEER	All	HWY	2	37.72	43.75	1.5	1.5	2.0	2.0	10.25	20.65	0.00	3.60	
OPERATING ENGINEER	All	HWY	3	32.71	43.75	1.5	1.5	2.0	2.0	10.25	20.65	0.00	3.60	
PAINTER	All	ALL		37.35	39.35	1.5	1.5	1.5	2.0	12.10	9.30	0.00	1.35	
PAINTER - SIGNS	All	BLD		39.84	44.74	1.5	1.5	2.0	2.0	2.73	3.39	0.00	0.00	
PILEDRIVER	All	BLD		34.05	36.30	1.5	1.5	2.0	2.0	8.65	18.75	0.00	0.55	
PILEDRIVER	All	HWY		36.16	38.41	1.5	1.5	2.0	2.0	8.90	20.50	0.00	0.57	
PIPEFITTER	All	BLD		39.60	43.96	1.5	1.5	2.0	2.0	7.75	14.58	0.00	1.16	
PLASTERER	All	BLD		30.06	31.31	1.5	1.5	2.0	2.0	8.75	18.16	0.00	0.90	
PLUMBER	All	BLD		36.22	39.48	1.5	1.5	2.0	2.0	7.40	15.71	0.00	1.10	
ROOFER	All	BLD		31.50	34.65	1.5	1.5	2.0	2.0	9.50	10.20	0.00	0.30	
SHEETMETAL WORKER	All	BLD		34.19	35.90	1.5	1.5	2.0	2.0	10.12	17.74	0.00	0.98	
SIGN HANGER	All	HWY		36.82	38.82	1.5	1.5	2.0	2.0	10.66	15.47	0.00	0.64	
SPRINKLER FITTER	All	BLD		41.97	44.72	1.5	1.5	2.0	2.0	10.23	12.59	0.00	0.52	
STEEL ERECTOR	All	HWY		36.82	38.82	1.5	1.5	2.0	2.0	10.66	15.47	0.00	0.64	
STONE MASON	All	BLD		35.01	36.51	1.5	1.5	2.0	2.0	10.60	11.70	0.00	0.84	
TERRAZZO FINISHER	All	BLD		32.63	32.63	1.5	1.5	2.0	2.0	10.60	11.70	0.00	0.82	
TERRAZZO MASON	All	BLD		35.37	36.62	1.5	1.5	2.0	2.0	10.60	11.70	0.00	0.84	
TILE MASON	All	BLD		35.37	36.62	1.5	1.5	2.0	2.0	10.60	11.70	0.00	0.84	
TRUCK DRIVER	All	ALL	1	38.06	42.18	1.5	1.5	2.0	2.0	13.00	6.37	0.00	0.25	
TRUCK DRIVER	All	ALL	2	38.61	42.18	1.5	1.5	2.0	2.0	13.00	6.37	0.00	0.25	
TRUCK DRIVER	All	ALL	3	38.87	42.18	1.5	1.5	2.0	2.0	13.00	6.37	0.00	0.25	
TRUCK DRIVER	All	ALL	4	39.23	42.18	1.5	1.5	2.0	2.0	13.00	6.37	0.00	0.25	
TRUCK DRIVER	All	ALL	5	40.27	42.18	1.5	1.5	2.0	2.0	13.00	6.37	0.00	0.25	
TRUCK DRIVER	All	O&C	1	30.45	33.74	1.5	1.5	2.0	2.0	13.00	6.37	0.00	0.25	
TRUCK DRIVER	All	O&C	2	30.89	33.74	1.5	1.5	2.0	2.0	13.00	6.37	0.00	0.25	
TRUCK DRIVER	All	O&C	3	31.10	33.74	1.5	1.5	2.0	2.0	13.00	6.37	0.00	0.25	
TRUCK DRIVER	All	O&C	4	31.38	33.74	1.5	1.5	2.0	2.0	13.00	6.37	0.00	0.25	
TRUCK DRIVER	All	O&C	5	32.22	33.74	1.5	1.5	2.0	2.0	13.00	6.37	0.00	0.25	
TUCKPOINTER	All	BLD		35.01	36.51	1.5	1.5	2.0	2.0	10.60	11.70	0.00	0.84	

Legend

Rg Region

Type Trade Type - All, Highway, Building, Floating, Oil & Chip, Rivers

C Class

Base Base Wage Rate

OT M-F Unless otherwise noted, OT pay is required for any hour greater than 8 worked each day, Mon through Fri. The number listed is the multiple of the base wage.

OT Sa Overtime pay required for every hour worked on Saturdays

OT Su Overtime pay required for every hour worked on Sundays

OT Hol Overtime pay required for every hour worked on Holidays

H/W Health/Welfare benefit

Vac Vacation

Trng Training

Other Ins Employer hourly cost for any other type(s) of insurance provided for benefit of worker.

Explanations PEORIA COUNTY

The following list is considered as those days for which holiday rates of wages for work performed apply: New Years Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, Christmas Day and Veterans Day in some classifications/counties. Generally, any of these holidays which fall on a Sunday is celebrated on the following Monday. This then makes work performed on that Monday payable at the appropriate overtime rate for holiday pay. Common practice in a given local may alter certain days of celebration. If in doubt, please check with IDOL.

Oil and chip resealing (O&C) means the application of road oils and liquid asphalt to coat an existing road surface, followed by application of aggregate chips or gravel to coated surface, and subsequent rolling of material to seal the surface.

EXPLANATION OF CLASSES

ASBESTOS - GENERAL - removal of asbestos material/mold and hazardous materials from any place in a building, including mechanical systems where those mechanical systems are to be removed. This includes the removal of asbestos materials/mold and hazardous materials from ductwork or pipes in a building when the building is to be demolished at the time or at some close future date.

ASBESTOS - MECHANICAL - removal of asbestos material from mechanical systems, such as pipes, ducts, and boilers, where the mechanical systems are to remain.

CERAMIC TILE FINISHER, MARBLE FINISHER, TERRAZZO FINISHER

Assisting, helping or supporting the tile, marble and terrazzo mechanic by performing their historic and traditional work assignments required to complete the proper installation of the work covered by said crafts. The term "Ceramic" is used for naming the classification only and is in no way a limitation of the product handled. Ceramic takes into consideration most hard tiles.

ELECTRONIC SYSTEMS TECHNICIAN

Installation, service and maintenance of low-voltage systems which utilizes the transmission and/or transference of voice, sound, vision, or digital for commercial, education, security and entertainment purposes for the following: TV monitoring and surveillance, background/foreground music, intercom and telephone interconnect, field programming, inventory control systems, microwave transmission, multi-media, multiplex, radio page, school, intercom and sound burglar alarms and low voltage master clock systems.

Excluded from this classification are energy management systems, life safety systems, supervisory controls and data acquisition systems not intrinsic with the above listed systems, fire alarm systems, nurse call systems and raceways exceeding fifteen feet in length.

LABORER, SKILLED - BUILDING

The skilled laborer building (BLD) classification shall encompass the following types of work, irrespective of the site of the work: cutting & acetylene torch, gunnite nozzlemen, gunnite pump men & pots, kettlemen & carriers of men handling hot stuff, sandblaster nozzle men, sandblasting pump men & pots, setting up and using concrete burning bars, wood block setters, underpinning & shoring of existing buildings, and the unload-ing and handling of all material coated with creosote.

LABORER, SKILLED - HIGHWAY

The skilled laborer heavy & highway (HWY) classification shall encompass the following types of work,irrespective of the site of the work: jackhammer & drill operator, gunite pump & pot man, puddlers, vibrator men, wire fabric placer, sandblast pump & pot man, strike off concrete, unloading, handling & carrying of all creosoted piles, ties or timber, concrete burning bars, power wheelbarrows or buggies, asphalt raker, brickset-ters, cutting torchman (electric & acetylene), men setting lines to level forms, form setters, gunite nozzle man & sandblasting nozzle man, power man, and rip-rapping by hand.

TRUCK DRIVER - BUILDING, HEAVY AND HIGHWAY CONSTRUCTION Class 1. Drivers on 2 axle trucks hauling less than 9 ton. Air compressor and welding machines and brooms, including those pulled by separate units, truck driver helpers, warehouse employees, mechanic helpers, greasers and tiremen, pickup trucks when hauling materials, tools, or workers to and from and on-the-job site, and fork lifts up to 6,000 lb. capacity.

Class 2. Two or three axle trucks hauling more than 9 ton but hauling less than 16 ton. A-frame winch trucks, hydrolift trucks, vactor trucks or similar equipment when used for transportation purposes. Fork lifts over 6,000 lb. capacity, winch trucks, four axle combination units, and ticket writers.

Class 3. Two, three or four axle trucks hauling 16 ton or more. Drivers on water pulls, articulated dump trucks, mechanics and working forepersons, and dispatchers. Five axle or more combination units.

Class 4. Low Boy and Oil Distributors.

Class 5. Drivers who require special protective clothing while employed on hazardous waste work.

TRUCK DRIVER - OIL AND CHIP RESEALING ONLY.

This shall encompass laborers, workers and mechanics who drive contractor or subcontractor owned, leased, or hired pickup, dump, service, or oil distributor trucks. The work includes transporting materials and equipment (including but not limited to, oils, aggregate supplies, parts, machinery and tools) to or from the job site; distributing oil or liquid asphalt and aggregate; stock piling material when in connection with the actual oil and chip contract. The Truck Driver (Oil & Chip Resealing) wage classification does not include supplier delivered materials.

OPERATING ENGINEERS - BUILDING

Class 1. Cranes; Overhead Cranes; Gradall; All Cherry Pickers; Mechanics; Central Concrete Mixing Plant Operator; Road Pavers (27E - Dual Drum - Tri Batches); Blacktop Plant Operators and Plant Engineers; 3 Drum Hoist; Derricks; Hydro Cranes; Shovels; Skimmer Scoops; Koehring Scooper; Drag Lines; Backhoe; Derrick Boats; Pile Drivers and Skid Rigs; Clamshells; Locomotive Cranes; Dredge (all types) Motor Patrol; Power Blades - Dumore - Elevating and similar types; Tower Cranes (Crawler-Mobile) and Stationary; Crane-type Backfiller; Drott Yumbo and similar types considered as Cranes; Caisson Rigs; Dozer; Tournadozer; Work Boats; Ross Carrier; Helicopter; Tournapulls - all and similar types; Scoops (all sizes); Pushcats; Endloaders (all types); Asphalt

Surfacing Machine; Slip Form Paver; Rock Crusher; Heavy Equipment Greaser; CMI, CMI Belt Placer, Auto Grade & 3 Track and similar types; Side Booms; Multiple Unit Earth Movers; Creter Crane; Trench Machine; Pump-crete-Belt Crete-Squeeze Cretes-Screw-type Pumps and Gypsum; Bulker & Pump - Operator will clean; Formless Finishing Machine; Flaherty Spreader or similar types; Screed Man on Laydown Machine; Wheel Tractors (industrial or Farm-type w/Dozer-Hoe-Endloader or other attachments); F.W.D. & Similar Types; Vermeer Concrete Saw.

Class 2. Dinkeys; Power Launches; PH One-pass Soil Cement Machine (and similar types); Pugmill with Pump; Backfillers; Euclid Loader; Forklifts; Jeeps w/Ditching Machine or other attachments; Tunnelugger; Automatic Cement and Gravel Batching Plants; Mobile Drills (Soil Testing) and similar types; Gurries and Similar Types; (1) and (2) Drum Hoists (Buck Hoist and Similar Types); Chicago Boom; Boring Machine & Pipe Jacking Machine; Hydro Boom; Dewatering System; Straw Blower; Hydro Seeder; Assistant Heavy Equipment Greaser on Spread; Tractors (Track type) without Power Unit pulling Rollers; Rollers on Asphalt -- Brick Macadam; Concrete Breakers; Concrete Spreaders; Mule Pulling Rollers; Center Stripper; Cement Finishing Machines & CMI Texture & Reel Curing Machines; Cement Finishing Machine; Barber Green or similar loaders; Vibro Tamper (All similar types) Self-propelled; Winch or Boom Truck; Mechanical Bull Floats; Mixers over 3 Bag to 27E; Tractor pulling Power Blade or Elevating Grader; Porter Rex Rail; Clary Screed; Truck Type Hoptoe Oilers; Fireman; Spray Machine on Paving; Curb Machines; Truck Crane Oilers; Oil Distributor; Truck-Mounted Saws.

Class 3. Air Compressor; Power Subgrader; Straight Tractor; Trac Air without attachments; Herman Nelson Heater, Dravo, Warner, Silent Glo, and similar types; Roller: Five (5) Ton and under on Earth or Gravel; Form Grader; Crawler Crane & Skid Rig Oilers; Freight Elevators - permanently installed; Pump; Light Plant; Generator; Conveyor (1) or (2) - Operator will clean; Welding Machine; Mixer (3) Bag and Under (Standard Capacity with skip); Bulk Cement Plant; Oiler on Central Concrete Mixing Plant.

OPERATING ENGINEERS - HEAVY AND HIGHWAY CONSTRUCTION

CLASS 1. Cranes; Hydro Cranes; Shovels; Crane Type Backfiller; Tower, Mobile, Crawler, & Stationary Cranes; Derricks; Hoists (3 Drum); Draglines; Drott Yumbo & Similar Types considered as Cranes; 360 Degree Swing Excavator (Shears, Grapples, Movacs, etc.); Back Hoe; Derrick Boats; Pile Driver and Skid Rigs; Clam Shell; Locomotive - Cranes; Road Pavers - Single Drum - Dual Drum - Tri Batcher; Motor Patrols & Power Blades - Dumore - Elevating & Similar Types; Mechanics; Central Concrete Mixing Plant Operator; Asphalt Batch Plant Operators and Plant Engineers; Gradall; Caisson Rigs; Skimmer Scoop - Koering Scooper; Dredges (all types); Hoptoe; All Cherry Pickers; Work Boat; Ross Carrier; Helicopter; Dozer; Tournadozer; Tournapulls - all and similar types; Operation of Concrete and all Recycle Machines; Multiple Unit Earth Movers; Scoops (all sizes); Pushcats; Endloaders (all types); Asphalt Surfacing Machine; Slip Form Paver; Rock Crusher; Operation of Material Crusher, Screening Plants, and Tunnel Boring Machine; Heavy Equipment Greaser (top greaser on spread); CMI, Auto Grade, CMI Belt Placer & 3 Track and Similar Types; Side Booms; Asphalt Heater & Planer Combination (used to plane streets); Wheel Tractors (with Dozer, Hoe or Endloader Attachments); CAT Earthwork Compactors and Similar Types; Blaw Knox Spreader and Similar Types; Trench Machines; Pump Crete - Belt Crete - Squeeze Crete - Screw Type Pumps and Gypsum (operator will clean); Creter Crane; Operation of Concrete Pump Truck; Formless Finishing Machines; Flaherty Spreader or Similar Types; Screed Man on Laydown Machine; Vermeer Concrete Saw; Operation of Laser Screed; Span Saw; Dredge Leverman; Dredge Engineer; Lull or Similar Type; Hydro-Boom Truck; Operation of Guard Rail Machine; and Starting Engineer on Pipeline or Construction (11 or more pieces) including: Air Compressor (Trailer Mounted), All Forced Air Heaters (regardless of Size), Water Pumps (Greater than 4-1/2" or Total Discharge Over 4-1/2"), Light Plants, Generators (Trailer Mounted - Excluding Decontamination Trailer), Welding Machines (Any Size or Mode of Power), Conveyor, Mixer (any size), Stud Welder, Power Pac, etc, and Ground Heater (Trailer Mounted).

CLASS 2. Bulker & Pump; Power Launches; Boring Machine & Pipe Jacking Machine; Dinkeys; Operation of Carts, Powered Haul Unit for a Boring Machine; P & H One Pass Soil Cement Machines and Similar Types; Wheel Tractors (Industry or Farm Type - Other); Back Fillers; Euclid Loader; Fork Lifts; Jeep w/Ditching Machine or Other Attachments; Tunnelugger; Automatic Cement & Gravel Batching Plants; Mobile Drills - Soil Testing and Similar Types; Pugmill with Pump; All (1) and (2) Drum Hoists; Dewatering System; Straw Blower; Hydro-Seeder; Bump Grinders (self-propelled); Assistant Heavy Equipment Greaser; Apsco Spreader; Tractors (Track-Type) without Power Units Pulling Rollers; Rollers on Asphalt - Brick or Macadam; Concrete Breakers; Concrete

Spreaders; Cement Strippers; Cement Finishing Machines & CMI Texture & Reel Curing Machines; Vibro-Tampers (All Similar Types Self-Propelled); Mechanical Bull Floats; Self-Propelled Concrete Saws; Truck Mounted Power Saws; Operation of Curb Cutters; Mixers - Over Three (3) Bags; Winch and Boom Trucks; Tractor Pulling Power Blade or Elevating Grader; Porter Rex Rail; Clary Screed; Mule Pulling Rollers; Pugmill without Pump; Barber Greene or Similar Loaders; Track Type Tractor w/Power Unit attached (minimum); Fireman; Spray Machine on Paving; Curb Machines; Paved Ditch Machine; Power Broom; Self-Propelled Sweepers; Self-Propelled Conveyors; Power Subgrader; Oil Distributor; Straight Tractor; Truck Crane Oiler; Truck Type Oilers; Directional Boring Machine; Horizontal Directional Drill; Articulating End Dump Vehicles; Starting Engineer on Pipeline or Construction (6 -10 pieces) including: Air Compressor (Trailer Mounted), All Forced Air Heaters (regardless of Size), Water Pumps (Greater than 4-1/2" or Total Discharge Over 4-1/2"), Light Plants, Generators (Trailer Mounted - Excluding Decontamination Trailer), Welding Machines (Any Size or Mode of Power), Conveyor, Mixer (any size), Stud Welder, Power Pac, etc., and Ground Heater (Trailer Mounted).

CLASS 3. Straight Framed Truck Mounted Vac Unit (separately powered); Trac Air Machine (without attachments); Rollers - Five Ton and Under on Earth and Gravel; Form Graders; Bulk Cement Plant; Oilers; and Starting Engineer on Pipeline or Construction (3 - 5 pieces) including: Air Compressor (Trailer Mounted), All Forced Air Heaters (regardless of Size), Water Pumps (Greater than 4-1/2" or Total Discharge Over 4-1/2"), Light Plants, Generators (Trailer Mounted - Excluding Decontamination Trailer), Welding Machines (Any Size or Mode of Power), Conveyor, Mixer (any size), Stud Welder, Power Pac, etc., and Ground Heater (Trailer Mounted).

Other Classifications of Work:

For definitions of classifications not otherwise set out, the Department generally has on file such definitions which are available. If a task to be performed is not subject to one of the classifications of pay set out, the Department will upon being contacted state which neighboring county has such a classification and provide such rate, such rate being deemed to exist by reference in this document. If no neighboring county rate applies to the task, the Department shall undertake a special determination, such special determination being then deemed to have existed under this determination. If a project requires these, or any classification not listed, please contact IDOL at 217-782-1710 for wage rates or clarifications.

LANDSCAPING

Landscaping work falls under the existing classifications for laborer, operating engineer and truck driver. The work performed by landscape plantsman and landscape laborer is covered by the existing classification of laborer. The work performed by landscape operators (regardless of equipment used or its size) is covered by the classifications of operating engineer. The work performed by landscape truck drivers (regardless of size of truck driven) is covered by the classifications of truck driver.

SAMPLE ADDENDUM

Peoria Park District
Planning, Design and Construction Department
1314 N. Park Road
Peoria, IL 61604
Telephone: (309) 686-3386

ADDENDUM NO. _____

PROJECT TITLE: _____

ISSUANCE DATE: _____

LOCATION: _____

The proposed Contract Documents for this Work are modified as follows:

- I. **GENERAL INFORMATION:**
- II. **DRAWINGS:** (Delete/Change/Modify/Etc.)
- III. **PROJECT MANUAL/SPECIFICATIONS.:**
(Delete/Change/Modify/Etc.)
- IV. **INVITATION TO BID:** (Delete/Change/Modify/Etc.)

END OF ADDENDUM NO. _____

(Addendum may be bound into Project Manual, attached to front cover, faxed, mailed, emailed or delivered to bidders.)

Addendum No. _____
Page 1 of 1



Pleasure Driveway and Park District of Peoria, Illinois
Sample Agreement Between Owner and Contractor

This **AGREEMENT** for

UTILITY STORAGE BUILDING
DONOVAN PARK

is made as of the 13th day of August in the year of Two Thousand Twenty (2020)

Between the Owner:

PLEASURE DRIVEWAY AND PARK DISTRICT OF PEORIA, ILLINOIS
1125 W. LAKE AVENUE
PEORIA, IL 61614

And the Contractor:

PLANNING, DESIGN AND CONSTRUCTION DEPARTMENT
1314 N. PARK ROAD
PEORIA, IL 61604

The Owner's Representative is:

The Architect or Engineer is:

APACE DESIGN ARCHITECTS + ENGINEERS
2112 E. WAR MEMORIAL DR.
PEORIA, IL 61614

The Owner and Contractor agree as follows:

I. THE CONTRACT DOCUMENTS. The Contract Documents consist of this AGREEMENT, the Plans/Drawings for the Project dated July 14, 2020, all sections of the Project Manual dated July 14, 2020, including but not limited to the Instructions and Supplementary Instructions to Bidders, the Bid Form, the General Conditions (1997 AIA Document A201) and Supplementary General Conditions, the General Requirements, the Specifications, and other documents as enumerated in Section 10 and Attachment #1 of this AGREEMENT, and including addenda issued prior to the execution of this AGREEMENT. The Contract Documents form the CONTRACT between the Owner and the Contractor. The CONTRACT represents the entire and integrated contract for the construction of the Work of the Project between the parties hereto and supersedes prior proposals, contracts, negotiations, or representations, either written or oral.

II. THE WORK OF THE CONTRACT. The Contractor shall execute the entire Work described in the Contract Documents, unless modified in Section XI of this AGREEMENT.

III. BASIS OF PAYMENT. The Work of the CONTRACT shall be performed on a Lump Sum basis.

IV. CONTRACT SUM. The Owner shall pay the Contractor the sum of

--

(and incorporates the acceptance of bid alternates as defined in sub-paragraph "A", below) for the Contractor's performance of the Work required by the Contract Documents, subject to modifications made by Owner approved Change Orders. If this CONTRACT calls for a unit price basis of payment, the contract sum stated above shall be adjusted by Change Order based upon multiplying the unit prices submitted by the Contractor on the Bid Form (and included herein as an Attachment to this CONTRACT) times (x) the actual quantities installed.

A. ACCEPTANCE OF ALTERNATES. The contract sum stated above is based on the acceptance of the following alternates, which are described in the Project Manual:

<u>ITEM</u>	<u>ADD</u>	<u>DEDUCT</u>

V. DATES OF COMMENCEMENT AND COMPLETION OF THE WORK. The Owner's Representative will issue a written Notice to Proceed with the Work of the Project after receiving the required Performance Bond, Labor and Material Payment Bond, and Certificate of Insurance (in proper form and providing the required coverages and amounts from a company [or companies] acceptable to the Owner, and naming the Owner as an Additional Insured), and any other pre-construction submittals required by the Contract Documents. The Contractor hereby acknowledges and agrees that failure to provide such submittals in a timely manner shall not be cause to adjust the date(s) for completion of the Work.

- A. LIQUIDATED DAMAGES.** Owner and Contractor recognize that time is of the essence of this CONTRACT and that Owner will suffer financial loss if the Contractor has not achieved Substantial Completion and Final Completion of the Work within the time specified below, plus any extensions thereof allowed in accordance with Article 8 of the General Conditions. They also recognize the delays, expense and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time.
- B. SUBSTANTIAL COMPLETION.** Accordingly, instead of requiring any such proof, Owner and Contractor agree that as Liquidated Damages for delay (but not as a penalty), Contractor shall pay Owner TWO HUNDRED FIFTY dollars (\$250.00) for each calendar day that expires after ONE HUNDRED EIGHTEEN (118) calendar days from Notice of Award until Substantial Completion is attained. The work is tentatively scheduled to begin on August 13, 2020 and be at Substantial Completion by December 8, 2020.
- C. FINAL COMPLETION.** After Substantial Completion if Contractor shall neglect, refuse, or fail to complete the remaining Work necessary to achieve Final Completion within TEN (10) calendar days or any proper extension thereof granted by Owner, Contractor shall pay Owner TWO HUNDRED FIFTY dollars (\$250.00) for each day that expires after the time specified.

VI. PROGRESS PAYMENTS, REDUCTION OF RETAINAGE AND FINAL PAYMENT.

- A.** Unless otherwise specified elsewhere in the Contract Documents, the Contractor may submit monthly applications for progress payments ("Application for Payment") to the Owner's Representative. Each Application for Payment must be certified by the Architect or Engineer (if applicable), or the Owner's Representative if an Architect or Engineer has not been engaged for construction phase services. An Application for Payment shall be for a period of no less than one calendar month ending on the last day of the month, unless otherwise approved in writing by the Owner's Representative. Application forms shall be subject to Owner's approval. Each Application for Payment shall be based upon the Schedule of Values submitted by the Contractor, in accordance with the Contract Documents. The Schedule of Values shall be approved by the Owner's Representative and the Architect or Engineer (if applicable) in advance of the Contractor's first Application for Payment and the approved schedule shall be used by the Contractor as the basis for submitting payment requests. The Owner's Representative and/or

Architect/Engineer's (if applicable) approval of the Schedule of Values shall not constitute a complete check for accuracy, and shall not relieve the Contractor from responsibility for errors of any sort.

- B. An Application for Payment (certified by the Architect or Engineer, if applicable) shall be submitted to the Owner's Representative no later than the fifth (5th) day of the month following the period for which the application is being submitted. In such case, the Owner shall make the progress payment to the Contractor not later than the twentieth day of the next month. A progress payment request on an Application for Payment (certified by the Architect or Engineer, if applicable) received by the Owner's Representative after the fifth (5th) day of a month shall be made by the Owner not later than forty-five days after receipt by the Owner's Representative.
- C. Based upon its review of the certified (by the Architect or Engineer, if applicable) Application for Payment, the Owner shall make a progress payment to the Contractor in such amount as the Owner reasonably determines is properly due, subject to a retainage of ten percent (10%) of the value of the Work completed and covered by the Application for Payment, less the aggregate of previous payments in each case. In determining the amount properly due, the Owner shall consider the value of labor, materials and equipment incorporated in the Work, or properly allocable to materials and equipment suitably stored at the site or at some other location previously agreed upon in writing by the parties. The Owner's Representative shall have the sole right to determine that materials or equipment stored off-site have been properly delivered, protected, and/or secured. The Owner's Representative (or the Architect or Engineer, if applicable) may nullify or withhold a Certificate of Payment, in whole or in part, for the reasons set forth in Section 9.5 of the General Conditions. Upon Substantial Completion of the Work, the Owner shall pay the Contractor a sum sufficient to increase the total payments to ninety-five percent (95%) of the Contract Sum, less such amounts as the Owner's Representative shall determine for incomplete work and unsettled claims.

VII. Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner when **1)** the Contract has been fully performed by the Contractor except for the Contractor's responsibility to correct nonconforming Work as provided in Subparagraph 12.2.2 of the General Conditions and to satisfy other requirements, if any, which necessarily survive final payment; and **2)** a final Certificate of Payment has been issued by the Architect/Engineer or Owner's Representative; such final payment shall be made by the Owner not more than forty-five (45) days after the receipt of the final Certificate of Payment by the Owner.

VIII. CHANGE ORDERS. The Owner and Contractor agree that changes in the Work are sometimes required and necessary, and that timely: **a)** submission of proposed changes in the Work or the scope of Work by the Owner, **b)** pricing by the Contractor, **c)** review by the Owner's Representative and/or Architect/Engineer, and **d)** final approval by the Owner are necessary in order to assure that the Work of the Project is completed on schedule. The Contractor hereby acknowledges and agrees that an increase in the scope of the Work does not grant or imply an increase in the Contract Time, unless specifically so stated on the final approved Change Order. The Contractor also agrees that any and all Work which deviates from the plans and specifications and/or results in additional Work performed by Contractor's forces, including those of his sub-contractor's, will not result in additional expense to the Owner, unless finally approved both by the Owner and the Architect/Engineer (if applicable) prior to the additional Work being performed. No claim for an addition to the Contract Sum shall be valid unless approved by a written Change Order signed by the Owner and the architect/engineer (if applicable) prior to the additional Work being performed.

IX. TERMINATION OR SUSPENSION. The CONTRACT may be terminated by the Owner or the Contractor as provided by Article 14 of the General Conditions. The Work may be suspended by the Owner as provided in Article 14 of the General Conditions.

X. ENUMERATION OF CONTRACT DOCUMENTS. The Contract Documents, except for modifications issued after the execution of this Agreement, consist of:

- A. this Standard Form of Agreement Between Owner and Contractor, of the Pleasure Driveway and Park District of Peoria, Illinois.
- B. the Plans or Drawings titled Donovan Utility Storage Building, dated July 14, 2020, and enumerated in ATTACHMENT #1 - "LIST OF DRAWINGS".
- C. Supplementary and other Conditions of the CONTRACT, and the Specifications, are those found in the Project Manual titled "Utility Storage Building, Donovan Park", and dated July 14, 2020 enumerated as follows:
 - 1) Supplementary Instructions to Bidders
 - 2) Contractor's Proposal, as accepted by the Owner
 - 3) General Conditions of the Contract for Construction, AIA Document A201, 1997 Edition
 - 4) Supplementary General Conditions
 - 5) Major Subcontractor List
 - 6) Directory of Minority & Women Owned Business Enterprises
 - 7) Certification of Compliance for Listed Provisions and Laws
 - 8) Peoria Park District Certificate of Equal Employment Opportunity Compliance for Contractors and Vendors
 - 9) Workforce Profile
 - 10) Minority/Women Owned Contact Sheet
 - 11) Performance Bond
 - 12) Labor and Material Payment Bond
 - 13) Proof of Insurance
 - 14) Specifications: Division 010000, "General Requirements"; Divisions 020000-350000 as applicable
 - 15) Attachment A.6 - Insurance Requirements
 - 16) Peoria Park District Weekly Workforce Report
 - 17) Certified Payroll Form

XI. MISCELLANEOUS PROVISIONS. Other Provisions of this Agreement are as follows:

This AGREEMENT is entered into as of the day and year first written above and is executed in at least three original copies of which one is to be delivered to the Contractor, one to the Architect/Engineer (if any) for use in the administration of the CONTRACT, and one to the Owner.

OWNER:

CONTRACTOR :

(Signature)

(Signature)

ROBERT L. JOHNSON, SR., Park Board President

(Printed Name and Title)

ATTEST:

ATTEST:

ATTACHMENT #1 - LIST OF DRAWINGS

<u>Number</u>	<u>Title</u>	<u>Date</u>
G000	TITLE SHEET	7/14/20
C1	EXISTING CONDITIONS & DEMO PLAN	7/14/20
C2	SITE LAYOUT PLAN AND SWPPP PLAN	7/14/20
C3	DETAILS	7/14/20
A100	PLANS, ELEVATIONS	7/14/20
A101	ROOF PLAN, SCHEDULES & DETAILS	7/14/20
A102	SECTION	7/14/20
A103	SECTION	7/14/20
A400	REFLECTED CEILING PLAN	7/14/20
A600	INTERIOR ELEVATIONS AND DETAILS	7/14/20
V100	PLAN & DETAIL	7/14/20
P100	PLAN & SCHMATICS	7/14/20
E101	FLOOR PLAN – ELECTRICAL LIGHTING	7/14/20
E102	FLOOR PLAN – ELECTRICAL POWER	7/14/20
E200	PANEL SCHEDULES & SERVICE DIAGRAMS	7/14/20
E400	ELECTRICAL DETAILS	7/14/20
E500	MATERIAL SCHEDULES & GENERAL NOTES	7/14/20

PERFORMANCE BOND

**TO: PLEASURE DRIVEWAY AND PARK DISTRICT OF PEORIA
PEORIA, ILLINOIS**

KNOW ALL MEN BY THESE PRESENTS;

That _____

as Principal, and _____

as
corporation of the State of _____, as Surety, are held and firmly bound unto the
PLEASURE DRIVEWAY AND PARK DISTRICT OF PEORIA, PEORIA, ILLINOIS, as Oblige, in the amount of _____

(\$ _____), for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators,
successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal has by written agreement dated _____, 20 _____ entered into a contract
with Oblige for _____

in accordance with contract documents prepared by the Architect-Engineer, which Contract is by reference made a part hereof and
is hereinafter referred to as "the Contract".

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if Principal shall promptly and faithfully
perform the Contract and all changes thereof, and during the life of any guaranty or warranty required under the Contract, and, if
Principal shall fully secure and protect the Oblige from all liability and from all loss or expense of any kind, including all court
costs, engineering fees and attorneys' fees made necessary or arising from the failure, refusal or neglect of Principal to comply
with all obligations assumed by Principal in connection with the performance of the Contract and all changes thereof, then this
obligation shall be null and void; otherwise it shall remain in full force and effect.

Surety hereby waives notice of any changes in the Contract, including extensions of time for the performance thereof. Whenever
Principal shall be and is declared to be in default under the Contract, Oblige having performed Oblige's obligations thereunder,
Surety shall, after notice of such default, reserve all rights against all parties, take over and complete the Contract and become
entitled to payment of the balance of any monies due or to become due to such defined Principal in accordance with the progress
of the work.

A condition of this Bond is that the Principal shall faithfully perform in accordance with the prevailing wage clause provided in
the bid specification or Contract pursuant to Illinois Compiled Statutes 820 ILCS 130/1 *et. seq.*

No right of action shall accrue on this Bond to or for the use of any person or corporation other than the Oblige named
herein.

Signed and Sealed this _____ day of _____, 20 _____.

CONTRACTOR

Contractor Firm Name

By: _____
Signature

Title

SURETY

Surety Name

By: _____
Attorney-in-Fact

Resident Agent

ATTEST:

Corporate Secretary (Corporations only)

LABOR & MATERIAL PAYMENT BOND

**TO: PLEASURE DRIVEWAY AND PARK DISTRICT OF PEORIA
PEORIA, ILLINOIS**

KNOW ALL MEN BY THESE PRESENTS:

That: _____

as Principal, and _____

a corporation of the State of _____ as Surety, are held and firmly bound unto the PLEASURE DRIVEWAY AND PARK DISTRICT OF PEORIA, PEORIA, ILLINOIS, as Oblige, for the use and benefit of claimants as hereinafter defined in the amount of _____ Dollars (\$ _____), for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal has by written agreement dated _____, 20 _____, entered into a Contract with Oblige for _____

in accordance with contract documents prepared by the Architect-Engineer which Contract is by reference made a part hereof, and is hereinafter referred to as "the Contract".

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if Principal shall promptly pay for all laborers, workers and mechanics engaged in the work under the Contract, and not less than the general prevailing rate of hourly wages of a similar character in the locality in which the work is performed, as determined by the State of Illinois Department of Labor pursuant to the Illinois Compiled Statutes 820 ILCS 130/1 et. seq. and for all material used or reasonably required for use in the performance of the Contract, then this obligation shall be void; otherwise it shall remain in full force and effect.

1. A claimant is defined as any person, firm, or corporation having contracts with the Principal or with any of Principal's subcontractors for labor or materials furnished in the performance of the Contract on account of which this Bond is given.

2. Nothing in this Bond contained shall be taken to make the Oblige liable to any subcontractor, materialman or laborer, or to any other person to any greater extent than it would have been liable prior to the enactment of The Public Construction Bond Act, approved June 20, 1931, as amended; provided further, that any person having a claim for labor and materials furnished in the performance of the Contract shall have no right of action unless he shall have filed a verified notice of such claim with the Oblige within 180 days after the date of the last item of work or the furnishing of the last item of materials, which claim shall have been verified and shall contain the name and address of the claimant, the business address of the claimant within the State of Illinois, if any, or if the claimant be a foreign corporation having no place of business within the State the principal place of business of the corporation, and in all cases of partnership the names and residences of each of the partners, the name of the Contractor for the Oblige, the name of the person, firm or corporation by whom the claimant was employed or to whom such claimant furnished materials, the amount of the claim and a brief description of the public improvement for the construction or installation of which the Contract is to be performed. No defect in the notice herein provided for shall deprive the claimant of its right of action under the terms and provisions of this Bond unless it shall affirmatively appear that such defect has prejudiced the rights of an interested party asserting the same.

3. No action shall be brought on this Bond until the expiration of 120 days after the date of the last item of work or of the furnishing of the last item of material except in cases where the final settlement between the Oblige and the Contractor shall have been made prior to the expiration of the 120 day period, in which case action may be taken immediately following such final settlement; nor shall any action of any kind be brought later than 6 months after the acceptance by the Oblige of the work. Such suit shall be brought only in the circuit court of this State in the judicial district in which the Contract is to be performed.

4. Surety hereby waives notice of any changes in the Contract, including extensions of time for the performance thereof.

5. The amount of this Bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder.

6. The Principal and Surety shall be liable for any attorneys fees, engineering costs, or court costs incurred by the Obligee relative to claims made against this Bond.

Signed and Sealed this _____ day of _____, 20 _____.

CONTRACTOR

SURETY

Contractor Firm Name:

By: _____
Signature

By: _____
Attorney-in-Fact

Title

Resident Agent

ATTEST:

Corporate Secretary (Corporations only)

CONTRACTOR'S AFFIDAVIT

STATE OF ILLINOIS)
) SS
COUNTY OF PEORIA)

TO WHOM IT MAY CONCERN:

THE undersigned, being duly sworn, deposes and says that he is _____
_____ of the _____
who is the contractor for the _____
building located at _____
owned by _____.

That the total amount of the contract including extras is \$ _____ on which he has received payment of \$ _____ prior to this payment. That all waivers are true, correct and genuine and delivered unconditionally and that there is no claim either legal or equitable to defeat the validity of said waivers. That the following are the names of all parties who have furnished material or labor, or both, for said work and all parties having contracts or sub-contracts for specific portions of said work or for material entering into the construction thereof and the amount due or to become due to each, and that the items mentioned include all labor and material required to complete said work according to plans and specifications:

NAMES	WHAT FOR	CONTRACT PRICE	AMOUNT PAID	THIS PMT.	BALANCE DUE

TOTAL ALL LABOR AND MATERIAL TO COMPLETE

There are no other contracts for said work outstanding, and that there is nothing due or to become due to any person for material, labor or other work of any kind done or to be done upon or in connection with said work other than above stated.

Signed this _____ day of _____, 20 ____.

Signature: _____

Subscribed and sworn to before me this _____ day of _____, 20 ____.

Notary Public

FINAL WAIVER OF LIEN

STATE OF ILLINOIS)
) SS
COUNTY OF PEORIA)

TO WHOM IT MAY CONCERN:

WHEREAS, the undersigned _____ ha _____ been employed by THE
PEORIA PARK DISTRICT to furnish material and labor for the _____
at the premises commonly known as _____
located in the City of _____, County of Peoria, State of Illinois.

The undersigned, for and in consideration of _____
(\$ _____) Dollars, and other good and valuable considerations, the receipt whereof is hereby acknowledged,
do _____ hereby waive and release any and all lien or claim or right of lien under the statutes of the State of Illinois relating to
mechanics' liens, with respect to and on said above-described premises and improvements thereon and on the money, funds or
other considerations due or become due from the owner on account of labor or services, material, fixtures, apparatus or machinery
heretofore furnished or which may be furnished at any time hereafter by the undersigned for the above described premises.

Dated this _____ day of _____ 20 _____.

[Affix corporate seal here.]

(Name of sole owner, corporation or partnership)

ATTEST:

(Signature of secretary of corporation)

(Signature of sole owner or authorized
representative of corporation or partnership) (SEAL)

WAIVER OF LIEN

**GENERAL CONTRACTOR'S PARTIAL
TO COVER ONLY CERTAIN PAYMENTS**

STATE OF ILLINOIS)
) SS
COUNTY OF PEORIA)

TO ALL WHOM IT MAY CONCERN:

WHEREAS, the undersigned _____ has been employed
by THE PEORIA PARK DISTRICT to furnish material and labor for the _____ at
the premises commonly known as _____

_____ located in the City of Peoria, County of Peoria, and State of Illinois.

NOW, THEREFORE, the undersigned, for and in consideration of the sum of _____ Dollars, and other good and valuable considerations, the receipt whereof is hereby acknowledged by the undersigned, does hereby waive and release to the extent only of the aforesaid amount of _____ Dollars, paid simultaneously herewith, any and all lien or right or claim of lien under the statutes of the State of Illinois relating to mechanics' liens, with respect to and on said above-described premises, and the improvements thereon and on the money, funds, or other consideration due or to become due from the owner on account of labor, services, material, fixtures, apparatus or machinery, furnished by the undersigned, to or on account of the said owner, for the above-described premises, but only to the extent of the payment aforesaid.

Dated this _____ day of _____, 20 _____.

[Affix corporate seal here]

(Name of sole owner, corporation or partnership)

ATTEST:

(Signature of secretary of corporation)

(SEAL)
(Signature of sole owner or authorized
representative of corporation or partnership)

SUB-CONTRACTOR'S FINAL WAIVER OF LIEN

[illegible]

TO WHOM IT MAY CONCERN:

WHEREAS, the undersigned _____
(sub-contractor)
has _____ been employed by _____
(general contractor)
to furnish material and labor for the _____ at the
premises commonly known as _____, in the City of _____,
County of Peoria, State of Illinois.

The undersigned, for and in consideration of _____

_____ (\$ _____) Dollars, and other good and valuable considerations, the receipt whereof is hereby acknowledged, do _____ hereby waive and release any and all lien or claim or right of lien under the statutes of the State of Illinois relating to Mechanics Liens, on the above described premises and improvements thereon and on the money, funds or other considerations due or become due from the owner on account of labor or services, material, fixtures, apparatus or machinery heretofore furnished or which may be furnished at any time hereafter by the undersigned for the above described premises.

Dated this _____ day of _____, 20_____.

[Affix corporate seal here.]

ATTEST: _____

(Name of sole owner, corporation or partnership)

(Signature of sole owner or authorized
representative of corporation or partnership)

_____(SEAL)
(Signature of secretary of corporation)

SUB-CONTRACTOR'S PARTIAL
TO COVER ONLY CERTAIN PAYMENTS

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PEORIA PARK DISTRICT

Weekly Workforce Report

Instructions

This weekly workforce report must be completed and returned to the Peoria Park District project manager for each week that you are working on Peoria Park District property. You are to report only those employees that are actually working on the Peoria Park District project identified on this report. Do not report employees that are not working on the project identified on this report.

If you have further questions regarding this report, please contact the Owner's Project Manager.

I. Trade and Hour Breakdown Table

- List the different trades (carpenter, laborer, plumber, etc.) and report the number of hours by race/gender for each trade;
- Total the hours for each trade on the right.

II. New Hires by Race and Gender

- If additional employees are hired for the job, please record the number of employees hired by race/gender.

III. Total Project Employee Breakdown

- Please track total hours by race/gender for the project if project lasts longer than a week.

Weekly Workforce Report (Peoria Park District Form) Date:_____ Week Ending: _____

Contractor/Subcontractor:_____ Project: _____

Trade & Hour Breakdown:

TRADE	FEMALE HOURS	CAUCASIAN HOURS	AFRICAN- AMERICAN HOURS	HISPANIC HOURS	NATIVE AMERICAN HOURS	ASIAN, PAC. ISLANDER HOURS	TOTAL HOURS

New Hires by Race & Gender

TRADE	CAUCASIAN	AFRICAN- AMERICAN	HISPANIC	NATIVE AMERICAN	ASIAN, PACIFIC ISLANDER	MALE	FEMALE

Total Project Employee Breakdown

	CAUCASIAN	AFRICAN- AMERICAN	HISPANIC	NATIVE AMERICAN	ASIAN, PACIFIC ISLANDER	MALE	FEMALE



Certified Transcript of Payroll

IDOL Case File Number: _____ Payroll Start: _____

Payroll End: _____

Contractor and/or Subcontractor

Public Body Information

(Contract Number)

(Project Number)

(Project Location)

_____ (Company Name)		_____ (Contact Name)	
_____ (Street Address)		_____ (City)	
_____ (State)	_____ (Zipcode)	_____ (Telephone Number)	

_____ (Public Body Name)		_____ (Contact Name)	
_____ (Street Address)		_____ (City)	
_____ (State)	_____ (Zipcode)	_____ (Telephone Number)	

Report Hours for Each Day, Including Overtime Hours, List Hourly Prevailing Wage Rate and Hourly Fringe Benefits Allotments.

Worker Name, Address Last Four of SSN & Telephone Number		* Hours worked each day							Total Straight Time Hours	Total OT Hours	Hourly Wage Rate	OT Wage Rate	Per Pay Period	
		SUN	MON	TUE	WED	THR	FRI	SAT					Gross	Net
	PW													
	N													
Labor Classification _____		Hourly Fringe Benefit: Pension: _____ Health/Welfare: _____ Vacation: _____ Training: _____												
	PW													
	N													
Labor Classification _____		Hourly Fringe Benefit: Pension: _____ Health/Welfare: _____ Vacation: _____ Training: _____												
	PW													
	N													
Labor Classification _____		Hourly Fringe Benefit: Pension: _____ Health/Welfare: _____ Vacation: _____ Training: _____												

Please place an "F" by the hourly rate for fringe benefits paid to a Fund jointly managed by one or more labor organizations or employers in accordance with the federal Labor Management Relations Act (See instruction 4 for completing this form). In addition contractors/subcontractors who do not make contributions for covered fringe benefits to a fringe benefit fund that is jointly managed and jointly governed by one or more labor organizations or employers in accordance with the federal Labor Management Relations Act must provide the additional information set forth on the form on page 2 (see Instruction 5). Contractors/subcontractors who do not make contributions for fringe benefits on a per hour basis for each hour worked must convert such contributions to an annualized per hour basis for purpose of reporting on this form in accordance with instruction 5. You must keep original records showing start and end time each day.

***PW - Prevailing Hours Worked *N - Non Prevailing Hours Worked**



Certified Transcript of Payroll

AFFIDAVIT

Weekly Statement of Compliance

Date: _____

I, _____,
(name signatory party)
_____, do
(Title)

hereby state: that I pay or supervise the payment
of the persons employed on the public works
project _____;

(name of project)
that during the payroll period commencing on the
day of _____,
(day) (month) (year)

all persons employed on said project have been
paid the full weekly wages earned, that no
rebates have been or will be made either directly
or indirectly to or on behalf of said

(name of contractor or subcontractor)

from the full weekly wages earned by any person,
and that no deductions have been made either
directly or indirectly from the full weekly wages
earned by any persons, other than permissible
deductions as defined by Federal and/or State
Law. I further certify that this payroll is correct
and complete; that the wage rates contained
therein are not less than the actual rates herein
stated and that the classification set forth for each
laborers or mechanic conform to the work he/she
performed.

Signature

Digital Signature _____

FRINGES

Health Fund _____
Health Address _____
Health Sponsor _____
Health Admin _____

Pension Fund _____
Pension Address _____
Pension Sponsor _____
Pension Admin _____

401(k) Fund _____
401(k) Address _____
401(k) Sponsor _____
401(k) Admin _____

Vacation Fund _____
Vacation Address _____
Vacation Sponsor _____
Vacation Admin _____

SUBCONTRACTORS

Attach explanation of Monies paid, copy of contract
of billing, or other pertinent information.

Company Name: _____
Contact Person: _____

(Address)

(City) (State) (zipcode)
Telephone Number: _____

Company Name: _____
Contact Person: _____

(Address)

(City) (State) (zipcode)
Telephone Number: _____

Company Name: _____
Contact Person: _____

(Address)

(City) (State) (zipcode)
Telephone Number: _____

Company Name: _____
Contact Person: _____

(Address)

(City) (State) (zipcode)
Telephone Number: _____

Request for Taxpayer Identification Number and Certification

Give Form to the
requester. Do not
send to the IRS.

► Go to www.irs.gov/FormW9 for instructions and the latest information.

Print or type. See Specific Instructions on page 3.	1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.	
	2 Business name/disregarded entity name, if different from above	
	3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only one of the following seven boxes. <input type="checkbox"/> Individual/sole proprietor or single-member LLC <input type="checkbox"/> Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ► _____ Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is not disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner. <input type="checkbox"/> Other (see instructions) ► _____	4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3): Exempt payee code (if any) _____ Exemption from FATCA reporting code (if any) _____ <i>(Applies to accounts maintained outside the U.S.)</i>
	5 Address (number, street, and apt. or suite no.) See instructions.	Requester's name and address (optional)
	6 City, state, and ZIP code	
	7 List account number(s) here (optional)	

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number											
				-				-			
or											
Employer identification number											
					-						

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here	Signature of U.S. person ►	Date ►

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to www.irs.gov/FormW9.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (interest earned or paid)

- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, later.

By signing the filled-out form, you:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and
4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See *What is FATCA reporting*, later, for further information.

Note: If you are a U.S. person and a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien;
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States;
- An estate (other than a foreign estate); or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax under section 1446 on any foreign partners' share of effectively connected taxable income from such business. Further, in certain cases where a Form W-9 has not been received, the rules under section 1446 require a partnership to presume that a partner is a foreign person, and pay the section 1446 withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid section 1446 withholding on your share of partnership income.

In the cases below, the following person must give Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States.

- In the case of a disregarded entity with a U.S. owner, the U.S. owner of the disregarded entity and not the entity;
- In the case of a grantor trust with a U.S. grantor or other U.S. owner, generally, the U.S. grantor or other U.S. owner of the grantor trust and not the trust; and
- In the case of a U.S. trust (other than a grantor trust), the U.S. trust (other than a grantor trust) and not the beneficiaries of the trust.

Foreign person. If you are a foreign person or the U.S. branch of a foreign bank that has elected to be treated as a U.S. person, do not use Form W-9. Instead, use the appropriate Form W-8 or Form 8233 (see Pub. 515, *Withholding of Tax on Nonresident Aliens and Foreign Entities*).

Nonresident alien who becomes a resident alien. Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the payee has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement to Form W-9 that specifies the following five items.

1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.
2. The treaty article addressing the income.
3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.
4. The type and amount of income that qualifies for the exemption from tax.
5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.

Example. Article 20 of the U.S.-China income tax treaty allows an exemption from tax for scholarship income received by a Chinese student temporarily present in the United States. Under U.S. law, this student will become a resident alien for tax purposes if his or her stay in the United States exceeds 5 calendar years. However, paragraph 2 of the first Protocol to the U.S.-China treaty (dated April 30, 1984) allows the provisions of Article 20 to continue to apply even after the Chinese student becomes a resident alien of the United States. A Chinese student who qualifies for this exception (under paragraph 2 of the first protocol) and is relying on this exception to claim an exemption from tax on his or her scholarship or fellowship income would attach to Form W-9 a statement that includes the information described above to support that exemption.

If you are a nonresident alien or a foreign entity, give the requester the appropriate completed Form W-8 or Form 8233.

Backup Withholding

What is backup withholding? Persons making certain payments to you must under certain conditions withhold and pay to the IRS 24% of such payments. This is called "backup withholding." Payments that may be subject to backup withholding include interest, tax-exempt interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, payments made in settlement of payment card and third party network transactions, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

You will not be subject to backup withholding on payments you receive if you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return.

Payments you receive will be subject to backup withholding if:

1. You do not furnish your TIN to the requester,
2. You do not certify your TIN when required (see the instructions for Part II for details),
3. The IRS tells the requester that you furnished an incorrect TIN,
4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or
5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See *Exempt payee code*, later, and the separate Instructions for the Requester of Form W-9 for more information.

Also see *Special rules for partnerships*, earlier.

What is FATCA Reporting?

The Foreign Account Tax Compliance Act (FATCA) requires a participating foreign financial institution to report all United States account holders that are specified United States persons. Certain payees are exempt from FATCA reporting. See *Exemption from FATCA reporting code*, later, and the Instructions for the Requester of Form W-9 for more information.

Updating Your Information

You must provide updated information to any person to whom you claimed to be an exempt payee if you are no longer an exempt payee and anticipate receiving reportable payments in the future from this person. For example, you may need to provide updated information if you are a C corporation that elects to be an S corporation, or if you no longer are tax exempt. In addition, you must furnish a new Form W-9 if the name or TIN changes for the account; for example, if the grantor of a grantor trust dies.

Penalties

Failure to furnish TIN. If you fail to furnish your correct TIN to a requester, you are subject to a penalty of \$50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

Civil penalty for false information with respect to withholding. If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a \$500 penalty.

Criminal penalty for falsifying information. Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

Misuse of TINs. If the requester discloses or uses TINs in violation of federal law, the requester may be subject to civil and criminal penalties.

Specific Instructions

Line 1

You must enter one of the following on this line; **do not** leave this line blank. The name should match the name on your tax return.

If this Form W-9 is for a joint account (other than an account maintained by a foreign financial institution (FFI)), list first, and then circle, the name of the person or entity whose number you entered in Part I of Form W-9. If you are providing Form W-9 to an FFI to document a joint account, each holder of the account that is a U.S. person must provide a Form W-9.

a. **Individual.** Generally, enter the name shown on your tax return. If you have changed your last name without informing the Social Security Administration (SSA) of the name change, enter your first name, the last name as shown on your social security card, and your new last name.

Note: ITIN applicant: Enter your individual name as it was entered on your Form W-7 application, line 1a. This should also be the same as the name you entered on the Form 1040/1040A/1040EZ you filed with your application.

b. **Sole proprietor or single-member LLC.** Enter your individual name as shown on your 1040/1040A/1040EZ on line 1. You may enter your business, trade, or "doing business as" (DBA) name on line 2.

c. **Partnership, LLC that is not a single-member LLC, C corporation, or S corporation.** Enter the entity's name as shown on the entity's tax return on line 1 and any business, trade, or DBA name on line 2.

d. **Other entities.** Enter your name as shown on required U.S. federal tax documents on line 1. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on line 2.

e. **Disregarded entity.** For U.S. federal tax purposes, an entity that is disregarded as an entity separate from its owner is treated as a "disregarded entity." See Regulations section 301.7701-2(c)(2)(iii). Enter the owner's name on line 1. The name of the entity entered on line 1 should never be a disregarded entity. The name on line 1 should be the name shown on the income tax return on which the income should be reported. For example, if a foreign LLC that is treated as a disregarded entity for U.S. federal tax purposes has a single owner that is a U.S. person, the U.S. owner's name is required to be provided on line 1. If the direct owner of the entity is also a disregarded entity, enter the first owner that is not disregarded for federal tax purposes. Enter the disregarded entity's name on line 2, "Business name/disregarded entity name." If the owner of the disregarded entity is a foreign person, the owner must complete an appropriate Form W-8 instead of a Form W-9. This is the case even if the foreign person has a U.S. TIN.

Line 2

If you have a business name, trade name, DBA name, or disregarded entity name, you may enter it on line 2.

Line 3

Check the appropriate box on line 3 for the U.S. federal tax classification of the person whose name is entered on line 1. Check only one box on line 3.

IF the entity/person on line 1 is a(n) . . .	THEN check the box for . . .
• Corporation	Corporation
• Individual • Sole proprietorship, or • Single-member limited liability company (LLC) owned by an individual and disregarded for U.S. federal tax purposes.	Individual/sole proprietor or single-member LLC
• LLC treated as a partnership for U.S. federal tax purposes, • LLC that has filed Form 8832 or 2553 to be taxed as a corporation, or • LLC that is disregarded as an entity separate from its owner but the owner is another LLC that is not disregarded for U.S. federal tax purposes.	Limited liability company and enter the appropriate tax classification. (P= Partnership; C= C corporation; or S= S corporation)
• Partnership	Partnership
• Trust/estate	Trust/estate

Line 4, Exemptions

If you are exempt from backup withholding and/or FATCA reporting, enter in the appropriate space on line 4 any code(s) that may apply to you.

Exempt payee code.

- Generally, individuals (including sole proprietors) are not exempt from backup withholding.
- Except as provided below, corporations are exempt from backup withholding for certain payments, including interest and dividends.
- Corporations are not exempt from backup withholding for payments made in settlement of payment card or third party network transactions.
- Corporations are not exempt from backup withholding with respect to attorneys' fees or gross proceeds paid to attorneys, and corporations that provide medical or health care services are not exempt with respect to payments reportable on Form 1099-MISC.

The following codes identify payees that are exempt from backup withholding. Enter the appropriate code in the space in line 4.

- 1—An organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2)
- 2—The United States or any of its agencies or instrumentalities
- 3—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities
- 4—A foreign government or any of its political subdivisions, agencies, or instrumentalities
- 5—A corporation
- 6—A dealer in securities or commodities required to register in the United States, the District of Columbia, or a U.S. commonwealth or possession
- 7—A futures commission merchant registered with the Commodity Futures Trading Commission
- 8—A real estate investment trust
- 9—An entity registered at all times during the tax year under the Investment Company Act of 1940
- 10—A common trust fund operated by a bank under section 584(a)
- 11—A financial institution
- 12—A middleman known in the investment community as a nominee or custodian
- 13—A trust exempt from tax under section 664 or described in section 4947

The following chart shows types of payments that may be exempt from backup withholding. The chart applies to the exempt payees listed above, 1 through 13.

IF the payment is for . . .	THEN the payment is exempt for . . .
Interest and dividend payments	All exempt payees except for 7
Broker transactions	Exempt payees 1 through 4 and 6 through 11 and all C corporations. S corporations must not enter an exempt payee code because they are exempt only for sales of noncovered securities acquired prior to 2012.
Barter exchange transactions and patronage dividends	Exempt payees 1 through 4
Payments over \$600 required to be reported and direct sales over \$5,000 ¹	Generally, exempt payees 1 through 5 ²
Payments made in settlement of payment card or third party network transactions	Exempt payees 1 through 4

¹ See Form 1099-MISC, Miscellaneous Income, and its instructions.

² However, the following payments made to a corporation and reportable on Form 1099-MISC are not exempt from backup withholding: medical and health care payments, attorneys' fees, gross proceeds paid to an attorney reportable under section 6045(f), and payments for services paid by a federal executive agency.

Exemption from FATCA reporting code. The following codes identify payees that are exempt from reporting under FATCA. These codes apply to persons submitting this form for accounts maintained outside of the United States by certain foreign financial institutions. Therefore, if you are only submitting this form for an account you hold in the United States, you may leave this field blank. Consult with the person requesting this form if you are uncertain if the financial institution is subject to these requirements. A requester may indicate that a code is not required by providing you with a Form W-9 with "Not Applicable" (or any similar indication) written or printed on the line for a FATCA exemption code.

A—An organization exempt from tax under section 501(a) or any individual retirement plan as defined in section 7701(a)(37)

B—The United States or any of its agencies or instrumentalities

C—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities

D—A corporation the stock of which is regularly traded on one or more established securities markets, as described in Regulations section 1.1472-1(c)(1)(i)

E—A corporation that is a member of the same expanded affiliated group as a corporation described in Regulations section 1.1472-1(c)(1)(i)

F—A dealer in securities, commodities, or derivative financial instruments (including notional principal contracts, futures, forwards, and options) that is registered as such under the laws of the United States or any state

G—A real estate investment trust

H—A regulated investment company as defined in section 851 or an entity registered at all times during the tax year under the Investment Company Act of 1940

I—A common trust fund as defined in section 584(a)

J—A bank as defined in section 581

K—A broker

L—A trust exempt from tax under section 664 or described in section 4947(a)(1)

M—A tax exempt trust under a section 403(b) plan or section 457(g) plan

Note: You may wish to consult with the financial institution requesting this form to determine whether the FATCA code and/or exempt payee code should be completed.

Line 5

Enter your address (number, street, and apartment or suite number). This is where the requester of this Form W-9 will mail your information returns. If this address differs from the one the requester already has on file, write NEW at the top. If a new address is provided, there is still a chance the old address will be used until the payor changes your address in their records.

Line 6

Enter your city, state, and ZIP code.

Part I. Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. If you are a resident alien and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see *How to get a TIN* below.

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN.

If you are a single-member LLC that is disregarded as an entity separate from its owner, enter the owner's SSN (or EIN, if the owner has one). Do not enter the disregarded entity's EIN. If the LLC is classified as a corporation or partnership, enter the entity's EIN.

Note: See *What Name and Number To Give the Requester*, later, for further clarification of name and TIN combinations.

How to get a TIN. If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local SSA office or get this form online at www.SSA.gov. You may also get this form by calling 1-800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at www.irs.gov/Businesses and clicking on Employer Identification Number (EIN) under Starting a Business. Go to www.irs.gov/Forms to view, download, or print Form W-7 and/or Form SS-4. Or, you can go to www.irs.gov/OrderForms to place an order and have Form W-7 and/or SS-4 mailed to you within 10 business days.

If you are asked to complete Form W-9 but do not have a TIN, apply for a TIN and write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments. The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

Note: Entering "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon.

Caution: A disregarded U.S. entity that has a foreign owner must use the appropriate Form W-8.

Part II. Certification

To establish to the withholding agent that you are a U.S. person, or resident alien, sign Form W-9. You may be requested to sign by the withholding agent even if item 1, 4, or 5 below indicates otherwise.

For a joint account, only the person whose TIN is shown in Part I should sign (when required). In the case of a disregarded entity, the person identified on line 1 must sign. Exempt payees, see *Exempt payee code*, earlier.

Signature requirements. Complete the certification as indicated in items 1 through 5 below.

1. Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983.

You must give your correct TIN, but you do not have to sign the certification.

2. Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983. You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item 2 in the certification before signing the form.

3. Real estate transactions. You must sign the certification. You may cross out item 2 of the certification.

4. Other payments. You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments made in settlement of payment card and third party network transactions, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).

5. Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified tuition program payments (under section 529), ABLE accounts (under section 529A), IRA, Coverdell ESA, Archer MSA or HSA contributions or distributions, and pension distributions. You must give your correct TIN, but you do not have to sign the certification.

What Name and Number To Give the Requester

For this type of account:	Give name and SSN of:
1. Individual	The individual
2. Two or more individuals (joint account) other than an account maintained by an FFI	The actual owner of the account or, if combined funds, the first individual on the account ¹
3. Two or more U.S. persons (joint account maintained by an FFI)	Each holder of the account
4. Custodial account of a minor (Uniform Gift to Minors Act)	The minor ²
5. a. The usual revocable savings trust (grantor is also trustee)	The grantor-trustee ¹
b. So-called trust account that is not a legal or valid trust under state law	The actual owner ¹
6. Sole proprietorship or disregarded entity owned by an individual	The owner ³
7. Grantor trust filing under Optional Form 1099 Filing Method 1 (see Regulations section 1.671-4(b)(2)(i)(A))	The grantor*
For this type of account:	Give name and EIN of:
8. Disregarded entity not owned by an individual	The owner
9. A valid trust, estate, or pension trust	Legal entity ⁴
10. Corporation or LLC electing corporate status on Form 8832 or Form 2553	The corporation
11. Association, club, religious, charitable, educational, or other tax-exempt organization	The organization
12. Partnership or multi-member LLC	The partnership
13. A broker or registered nominee	The broker or nominee

For this type of account:	Give name and EIN of:
14. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments	The public entity
15. Grantor trust filing under the Form 1041 Filing Method or the Optional Form 1099 Filing Method 2 (see Regulations section 1.671-4(b)(2)(i)(B))	The trust

¹ List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

² Circle the minor's name and furnish the minor's SSN.

³ You must show your individual name and you may also enter your business or DBA name on the "Business name/disregarded entity" name line. You may use either your SSN or EIN (if you have one), but the IRS encourages you to use your SSN.

⁴ List first and circle the name of the trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.) Also see *Special rules for partnerships*, earlier.

***Note:** The grantor also must provide a Form W-9 to trustee of trust.

Note: If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.

Secure Your Tax Records From Identity Theft

Identity theft occurs when someone uses your personal information such as your name, SSN, or other identifying information, without your permission, to commit fraud or other crimes. An identity thief may use your SSN to get a job or may file a tax return using your SSN to receive a refund.

To reduce your risk:

- Protect your SSN,
- Ensure your employer is protecting your SSN, and
- Be careful when choosing a tax preparer.

If your tax records are affected by identity theft and you receive a notice from the IRS, respond right away to the name and phone number printed on the IRS notice or letter.

If your tax records are not currently affected by identity theft but you think you are at risk due to a lost or stolen purse or wallet, questionable credit card activity or credit report, contact the IRS Identity Theft Hotline at 1-800-908-4490 or submit Form 14039.

For more information, see Pub. 5027, Identity Theft Information for Taxpayers.

Victims of identity theft who are experiencing economic harm or a systemic problem, or are seeking help in resolving tax problems that have not been resolved through normal channels, may be eligible for Taxpayer Advocate Service (TAS) assistance. You can reach TAS by calling the TAS toll-free case intake line at 1-877-777-4778 or TTY/TDD 1-800-829-4059.

Protect yourself from suspicious emails or phishing schemes.

Phishing is the creation and use of email and websites designed to mimic legitimate business emails and websites. The most common act is sending an email to a user falsely claiming to be an established legitimate enterprise in an attempt to scam the user into surrendering private information that will be used for identity theft.

The IRS does not initiate contacts with taxpayers via emails. Also, the IRS does not request personal detailed information through email or ask taxpayers for the PIN numbers, passwords, or similar secret access information for their credit card, bank, or other financial accounts.

If you receive an unsolicited email claiming to be from the IRS, forward this message to phishing@irs.gov. You may also report misuse of the IRS name, logo, or other IRS property to the Treasury Inspector General for Tax Administration (TIGTA) at 1-800-366-4484. You can forward suspicious emails to the Federal Trade Commission at spam@uce.gov or report them at www.ftc.gov/complaint. You can contact the FTC at www.ftc.gov/idtheft or 877-IDTHEFT (877-438-4338). If you have been the victim of identity theft, see www.IdentityTheft.gov and Pub. 5027.

Visit www.irs.gov/IdentityTheft to learn more about identity theft and how to reduce your risk.

Privacy Act Notice

Section 6109 of the Internal Revenue Code requires you to provide your correct TIN to persons (including federal agencies) who are required to file information returns with the IRS to report interest, dividends, or certain other income paid to you; mortgage interest you paid; the acquisition or abandonment of secured property; the cancellation of debt; or contributions you made to an IRA, Archer MSA, or HSA. The person collecting this form uses the information on the form to file information returns with the IRS, reporting the above information. Routine uses of this information include giving it to the Department of Justice for civil and criminal litigation and to cities, states, the District of Columbia, and U.S. commonwealths and possessions for use in administering their laws. The information also may be disclosed to other countries under a treaty, to federal and state agencies to enforce civil and criminal laws, or to federal law enforcement and intelligence agencies to combat terrorism. You must provide your TIN whether or not you are required to file a tax return. Under section 3406, payers must generally withhold a percentage of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to the payer. Certain penalties may also apply for providing false or fraudulent information.

A complete copy of AIA Document A201, 1997 Edition, with Supplementary General Conditions incorporated, is available for review in the Peoria Park District's Planning, Design and Construction Office.

SUPPLEMENTARY GENERAL CONDITIONS

1. A. **"GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION"**, AIA Document A201, 1997 Edition, published by the American Institute of Architects, including revisions adopted before the date of the Project Manual, is hereby made part of these Specifications with same force and effect as though set forth in full.
 - B. The following modifies, changes, deletes from or adds to the General Conditions of the Contract for Construction (AIA Document A201, Fourteenth Edition, 1997). Where any Article of the General Conditions is modified or any Paragraph, Subparagraph or Clause thereof is modified or deleted by these Supplementary Conditions, the unaltered provisions of that Article, Paragraph, Subparagraph or Clause shall remain in effect.
 - C. Parenthesis () indicates the appropriate section and Subparagraph of the General Conditions which each paragraph of the Supplementary General Conditions modifies or refers to.
2. **INSERT THE FOLLOWING PHRASE TO PARAGRAPH (1.1.1) AFTER THE WORDS "The Contract Documents consist of the Agreement Between Owner and Contractor (hereinafter the Agreement)":**

“the Contractor's Bid, the Advertisement for Bids, the Instructions to Bidders, sample forms and addenda relating to these,”

DELETE THE LAST SENTENCE OF PARAGRAPH (1.1.1).

3. **ADD THE FOLLOWING SENTENCES TO END OF PARAGRAPH (1.2.1):**

The Contractor shall notify the Owner's Representative immediately if discrepancies are discovered. Full-size or large-scale details or drawings shall govern small-scale drawings that the former are intended to amplify. Dimensions from drawings shall not be determined by scale or rule. Where the Drawings and Specifications conflict with each other or with themselves, the Owner's Representative (in consultation with the Architect, if any) will decide which conflicting requirement governs. Should discrepancies or doubt occur, Contractor shall not proceed with the Work without clarification from the Owner. Contractor shall request clarification in a reasonable time to avoid delays and increases in the Contract Sum.

ADD THE FOLLOWING PARAGRAPHS TO SECTION (1.2):

1.2.4 If any item or material shown on the Drawings is omitted from the Specifications, or vice-versa (except when the Drawings and Specifications clearly exclude such omitted item), and when such item or material is clearly required to complete the detail shown or specified, the Contractor shall furnish and install such item or material of the type and quality established by the balance of the detail shown and specified at no increase to the Contract Sum.

1.2.5 Where a typical or representative detail is shown on the Drawings, this detail shall constitute the standard for workmanship and materials throughout those parts of the Work.

1.2.6 Any Summary of Work as outlined in the Specifications shall not be deemed to limit the work required by the Contract Documents. The Contractor and each Subcontractor shall be responsible for carefully examining all Drawings, including all details, plans, elevations, sections, schedules and diagrams for each particular type of work, and for coordinating the Work described in the Drawings, with the related Specifications. The Contractor shall also be responsible for determining the exact scope of work for each type of work per the Contract Documents and Contractor shall endeavor to check cross-references of work excluded from any division. The Contract Sum is deemed to be based on a complete installation. When additional details or instructions are clearly required to complete the work, the Contractor is deemed to have made an allowance in the Contract Sum for completion of such Work consistent with the local standard of care.

1.2.7 The Drawings are intended to show the arrangement, design and extent of the Work and are schematic in nature. They are not to be scaled for roughing-in measurements or used as shop drawings.

4. ADD THE FOLLOWING PARAGRAPH TO SECTION (1.5):

1.5.3 Neither any oral representation by or oral agreement with any officer, agent, or employee of Owner or Architect before execution of this Contract shall affect or modify any of the Contractor's rights or obligations hereunder. Contractor is not aware of any facts that make misleading or inaccurate in any material respect any information Owner or Architect has furnished to Contractor which would have a material adverse affect on the Contract Time or Contract Sum which Contractor has not advised Owner or Architect of, and if, during the course of the performance of the Work, Contractor learns of any such facts it will so advise Owner. Contractor shall not be entitled to any adjustments in the Contract Time or the Contract Sum as a consequence of Contractor's breach of the terms of this Subparagraph.

5. IN PARAGRAPH (1.6.1) DELETE THE WORD "Architect" IN THE FOURTH SENTENCE AND REPLACE IT WITH THE WORD "Owner".

DELETE SENTENCES #7, #8, #9 STARTING WITH "The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are"

6. DELETE PARAGRAPH (2.2.3) IN ITS ENTIRETY.

7. ADD THE FOLLOWING SENTENCE AT THE END OF PARAGRAPH (2.3.1):

"The Owner shall not be liable for any extra cost incurred by the Contractor by such an order."

8. IN PARAGRAPH (2.4.1) DELETE THE SECOND TO LAST SENTENCE.

9. IN PARAGRAPH (3.2.1, 3.2.2 AND 3.2.3) AFTER THE WORD "Architect" ADD THE WORDS "and Owner".

10. ADD THE FOLLOWING PARAGRAPHS TO SECTION (3.2):

3.2.4 Before starting any work, the Contractor shall examine work performed by others to which his work adjoins or is applied to and report to the Owner's Representative any conditions that will prevent the satisfactory accomplishment of his work. Failure to notify the Owner's Representative of deficiencies or faults in preceding work prior to commencing work shall constitute acceptance thereof and waiver of any claim of its unsuitability.

11. ADD THE FOLLOWING PARAGRAPHS TO SECTION (3.4):

3.4.4 Before ordering any material or doing any Work, the Contractor shall verify all measurements at the Project site and he shall be responsible for the correctness of same. No extra charge or compensation will be allowed to the Contractor on account of any difference between actual dimensions and the measurements shown on the Project Drawings.

3.4.5 The Contractor shall carefully inspect all materials delivered on and to the Project site and reject defective materials without waiting for the Owner's Representative or other representative of Owner to observe the materials.

12. ADD THE FOLLOWING PARAGRAPHS TO SECTION (3.5):

3.5.2 The Contractor agrees to assign to the Owner any and all manufacturer's warranties relating to materials and equipment furnished as part of the Work and further agrees to perform the Work in such manner so as to preserve any and all such manufacturer's warranties subject to installation directives and other terms of the Contract Documents. The Contractor agrees to deliver to the Owner, upon final payment, such assignments along with or as part of a reference manual, in form and detail reasonably acceptable to Owner, showing all such warranties and guarantees provided by the Contractor and Subcontractors. Such warranties and guarantees shall commence no sooner than the date of purchase from the supplier.

3.5.3 The warranty of Contractor provided in Paragraph 3.5 shall in no way limit or abridge the warranties of the suppliers of equipment and systems which are to comprise a portion of the Work, if they are broader, and all of such warranties shall be in form and substance as required by the Contract Documents. Contractor shall take no action or fail to act in any way which results in the termination or expiration of such third party warranties or which otherwise results in prejudice to the rights of the Owner under such warranties subject to installation directives and other terms of the Contract Documents. Contractor agrees to provide all notices required for the effectiveness of such warranties and shall include provisions in the contracts with the providers and manufacturers of such systems and equipment whereby Owner shall have a direct right of enforcement of such warranty obligations.

13. IN PARAGRAPH (3.6.1), DELETE THE WORD "Sales".

ADD THE FOLLOWING AT THE END OF PARAGRAPH (3.6.1):

The Peoria Park District is exempt from Federal, State and Local taxes. A certificate of exemption will be furnished upon request.

14. IN PARAGRAPH (3.10.2) BEFORE THE WORD "Architect's" ADD THE WORDS "Owner's and".

IN PARAGRAPH (3.10.2) AFTER THE WORD "Architect" ADD THE WORDS "and Owner's Representative".

ADD THE FOLLOWING PARAGRAPHS TO SECTION (3.10):

3.10.4 The construction schedule shall provide for the most expeditious and practicable execution of the Work. The Contractor shall also work closely with the Owner to confirm that the construction schedule accurately reflects the status of the Project. The Contractor's construction schedule shall be updated every month by the Contractor and submitted to the Owner.

- .1** Whenever it becomes apparent from the updated construction schedule that any substantial completion previously established by the construction schedule cannot be met, the Contractor shall, at the Owner's request, take any or all of the following actions with no increase to the Contract Sum or Contract Time (unless the delay is caused by an event set forth in paragraph 8.3 of these General Conditions thereby permitting adjustment of the Contract Sum and/or Contract Time under Paragraph 4.3.5 of these General Conditions):

- .1.1** Increase construction manpower to substantially return the Project to schedule;
- .1.2** Increase the number of working hours per shift, shifts per day or the amount of construction equipment or any combination of the foregoing which will substantially return the Project to schedule;
- .1.3** Reschedule activities to concurrently accomplish activities, to the maximum degree practicable, in the time required by the Contract Documents.

If the Contractor fails to take any of these actions Owner shall have the notice and other rights set forth in Paragraph 2.4.

15. IN PARAGRAPH (4.1.1) DELETE THE FIRST SENTENCE AND SUBSTITUTE THE FOLLOWING:

"The Architect, Owner's Representative, and Owner's Project Manager are defined in Paragraph C of "Section 01000 - General" of "Division 01000 - General Requirements".

16. IN PARAGRAPH (4.2.1) DELETE THE WORDS "and will be an Owner's Representative".

17. IN PARAGRAPH (4.2.2) DELETE THE WORDS "as a representative of the Owner".

18. IN PARAGRAPH (4.2.4) IN THE FIRST SENTENCE SUBSTITUTE THE WORD "Architect" FOR THE WORD "Owner" AND SUBSTITUTE THE WORD "Owner" FOR THE WORD "Architect".

19. IN PARAGRAPH (4.2.5) DELETE THE WORD "Architect's" AND "Architect" AND SUBSTITUTE THE WORDS "Owner Representative's" AND "Owner Representative".

20. IN PARAGRAPH (4.2.6) IN THE SECOND SENTENCE AFTER THE WORDS "will have authority" INSERT THE WORDS "upon written authorization from the Owner".

21. IN PARAGRAPH (4.2.8) DELETE THE WORD "prepare" AND SUBSTITUTE THE WORDS "assist the Owner's Representative in preparing".

22. IN PARAGRAPH (4.2.9) DELETE THE WORD "Architect" AND SUBSTITUTE WORDS "Owner's Representative, assisted by the Architect".

23. IN PARAGRAPH (4.2.11) IN THE FIRST SENTENCE DELETE THE WORDS "and decide".

24. IN PARAGRAPH (4.2.12) IN THE FIRST SENTENCE DELETE THE WORD "and decisions".

IN PARAGRAPH (4.2.12) IN THE SECOND SENTENCE DELETE THE WORDS "and initial decisions" AND "or decisions".

25. ADD PARAGRAPH TO SECTION (4.2):

4.2.14 Notwithstanding any other provision of this Agreement to the contrary, the Architect shall have no authority to order or approve any material deviation from the Contract Documents, whether or not such deviation affects the Contract Sum or other Substantial Completion Date (as defined herein). In the event any such deviation is sought, prior written approval from the Owner's Representative and the Owner must be obtained. The Architect may decide quality issues and may approve non-material deviations from the Contract Documents.

- 26. IN PARAGRAPH (4.3.4) IN THE FOURTH SENTENCE DELETE THE WORD "decision" AND SUBSTITUTE THE WORD "recommendation".**

IN PARAGRAPH (4.3.4) IN THE LAST SENTENCE DELETE THE WORD "determination" AND SUBSTITUTE THE WORD "recommendation".

- 27. DELETE PARAGRAPH (4.3.10) IN ITS ENTIRETY.**

- 28. DELETE PARAGRAPH (4.4.1) AND SUBSTITUTE THE FOLLOWING:**

"Claims, disputes and other matters in question between the Contractor and the Owner relating to the execution or progress of the Work or the interpretation of the Contract Documents shall be initially referred in writing to the Architect for a recommendation."

- 29. IN PARAGRAPH (4.4.2) AFTER "(2)" ADD THE WORD "recommend" AND CHANGE THE WORD "reject" TO "rejecting".**

IN PARAGRAPH (4.4.2) AFTER "(3)" ADD THE WORD "recommend" AND CHANGE THE WORD "approve" TO "approving".

IN PARAGRAPH (4.4.2) AT THE END OF THE SENTENCE DELETE THE WORD "resolve" AND ADD THE WORDS "make recommendation on".

- 30. IN PARAGRAPH (4.4.3) DELETE THE WORD "decision" AND SUBSTITUTE THE WORD "recommendation".**

- 31. IN PARAGRAPH (4.4.4) IN THE LAST SENTENCE DELETE THE WORDS "either reject or approve the Claim" AND SUBSTITUTE THE WORDS "provide a recommendation regarding the Claim in accordance with Paragraph 4.2.2".**

IN PARAGRAPH (4.4.4) AT THE END OF THE LAST SENTENCE DELETE THE WORDS "in whole or in part."

- 32. DELETE PARAGRAPHS (4.4.5) AND (4.4.6) IN THEIR ENTIRETY.**

- 33. IN PARAGRAPH (4.4.8) DELETE THE WORD "resolution" AND SUBSTITUTE THE WORDS "final recommendation".**

IN PARAGRAPH (4.4.8) AFTER THE WORD "Architect," ADD THE WORD "or".

IN PARAGRAPH (4.4.8) AT THE END OF THE SENTENCE DELETE THE WORDS "or by arbitration".

- 34. IN PARAGRAPH (4.5.1) DELETE THE WORD "decision" AND SUBSTITUTE THE WORD "recommendation".**

IN PARAGRAPH (4.5.1) DELETE THE WORDS "arbitration or".

35. IN PARAGRAPH (4.5.2) IN THE SECOND SENTENCE DELETE THE WORDS “a demand for arbitration” AND SUBSTITUTE THE WORDS “legal or equitable proceedings”.

IN PARAGRAPH (4.5.2) AFTER THE WORDS “proceed in advance of” DELETE THE WORDS “arbitration or”.

36. IN PARAGRAPH (4.5.3) DELETE THE FIRST SENTENCE.

37. DELETE SECTION (4.6) IN ITS ENTIRETY.

38. IN PARAGRAPH (5.2.1) DELETE THE FIRST SENTENCE AND SUBSTITUTE:

“The subcontractors/suppliers listed by the Contractor on the Major Subcontractor/Supplier List (submitted with the Bid) shall not be changed without the written consent of the Owner.”

IN PARAGRAPH (5.2.1) IN THE SECOND SENTENCE DELETE THE WORDS “Architect will” AND SUBSTITUTE THE WORDS “Owner’s Representative will”.

IN PARAGRAPH (5.2.1) IN THE SECOND SENTENCE AFTER THE WORDS “promptly reply to” ADD THE WORDS “any request made by”.

IN PARAGRAPH (5.2.1) IN THE SECOND SENTENCE AFTER THE WORDS “any such proposed” ADD THE WORDS “change in”.

IN PARAGRAPH (5.2.1) IN THE LAST SENTENCE DELETE THE WORDS “Owner or Architect” AND SUBSTITUTE THE WORDS “Owner’s Representative”.

IN PARAGRAPH (5.2.1) IN THE LAST SENTENCE DELETE THE WORD “promptly” AND ADD THE WORDS “within 10 calendar days (of receipt of written request for such change from the Contractor)”.

39. IN PARAGRAPH (6.2.2) BEFORE THE WORD “Architect” ADD THE WORDS “Owner and”.

40. IN PARAGRAPH (6.3.1) DELETE THE WORD “Architect” AND SUBSTITUTE THE WORD “Owner”.

41. IN PARAGRAPH (7.2.1) DELETE THE WORDS “the Architect” AND SUBSTITUTE THE WORDS “the Owner’s Representative”.

ADD THE FOLLOWING PARAGRAPHS TO SECTION (7.2):

7.2.3 A Change Order shall include all of the Contractor’s costs associated therewith.

7.2.4 The Contractor shall not accept any request for a Change Order from any person other than the Owner and may not perform any work asserted to constitute a change in the Work until the Owner has approved the Change Order in writing, unless the Owner authorizes the Contractor, in writing, to proceed with a change prior to the Owner's final approval. Notwithstanding anything to the contrary herein, the Contractor shall not charge for overtime services in the performance of any Change Order Work, unless the Owner has specifically authorized overtime in writing. Owner may competitively bid changes in the Work and Contractor, Subcontractor and suppliers shall provide Owner with all documents Owner requests to facilitate such competitive bidding of changes in the Work.

7.2.5 There shall be no change in the Work, whether an alteration or addition to the Contract Sum or to any amounts due under the Contract Documents or to a change in the Contract Time, unless and until such alteration or addition has been authorized by a written Change Order executed and issued in accordance and compliance with the requirements with this Article 7 or by written authorization to proceed with such change in the Work signed by the Owner or as otherwise provided pursuant to the Contract Documents. The requirements set forth in this Paragraph 7.2.5 are of the essence. No claim that the Owner has been unjustly enriched by any alteration or addition to the Work, whether or not any such unjust enrichment to the Work or to the Owner in fact exists, shall form the basis of any claim for an increase in any amount due under the Contract Documents or a change in the Contract Time, and the terms of a fully-executed Change Order shall be conclusive.

- 42. IN PARAGRAPH (7.3.1) DELETE THE WORDS "the Architect" AND SUBSTITUTE THE WORDS "the Owner's Representative".**
- 43. IN PARAGRAPH (7.3.4) DELETE THE WORDS "the Architect" AND SUBSTITUTE THE WORDS "the Owner's Representative".**
- 44. IN PARAGRAPH (7.3.6) IN THE FIRST SENTENCE DELETE THE WORD "determined" AND SUBSTITUTE THE WORD "recommended".**
- 45. IN PARAGRAPH (7.3.7) IN THE FIRST SENTENCE AFTER THE WORD "Architect" ADD THE WORDS "and the Owner's Representative".**
- 46. IN PARAGRAPH (7.3.8) DELETE THE WORDS "the Architect" AND SUBSTITUTE THE WORDS "the Owner's Representative".**
- 47. IN PARAGRAPH (7.3.9) DELETE THE WORD "determination" AND SUBSTITUTE THE WORD "recommendation".**
- 48. IN PARAGRAPH (8.1.3) DELETE THE WORD "Architect" AND SUBSTITUTE THE WORDS "Owner's Representative".**
- 49. ADD THE FOLLOWING PARAGRAPHS TO SECTION (8.2) .**

8.2.4 All work shall be "Substantially Complete" as required by the **Instructions to Bidders** and the **Agreement Between Owner and Contractor**.

8.2.5 It is further agreed that said completion schedule is reasonable, and the Contractor shall prosecute said work regularly, diligently and continuously at such rate of progress as will insure full completion thereof within the time specified.

8.2.6 Provided, however, the following exceptions:

- .1 Any preference, priority or allocation order duly issued by the United States Government.
- .2 Any unforeseeable cause beyond the control and without the fault or negligence of the Contractor, including acts of God, or of a public enemy, acts of the Owner, acts of another Contractor in performance of a separate contract with the Owner, fire, floods, epidemics, quarantine restrictions, strikes, freight embargoes and unusually severe weather. The criteria on which the unusually severe weather shall be based is the average precipitation/temperatures received in the project area, as recorded over a period of the last five (5) years at the local area United States Weather Station. Any extension of time due to unusually severe weather must be requested by the Contractor on the basis of documented records of the actual precipitation/temperatures during the contract time period, compared with the normal/average for the area. Also, the criteria shall include the number of excessive precipitation or extreme cold days (i.e., days in which the temperature would adversely affect the type of work being constructed) over the same period and whether or not the Contractor's force worked on said days or stage of construction was affected.
- .3 Any delays of subcontractors occasioned by any of the causes specified in this paragraph.

8.2.7 Provided further that the Contractor shall, within seven (7) days from the beginning of any such delay during the performance of the Contract, notify the Owner's Representative in writing of the alleged cause of such delay.

50. IN PARAGRAPH (8.3.1) DELETE THE WORDS “and arbitration”.

IN PARAGRAPH (8.3.1) DELETE THE WORD “determine” AND SUBSTITUTE THE WORD “recommend”.

51. DELETE PARAGRAPH (9.2.1) AND SUBSTITUTE THE FOLLOWING:

“Before the first Application for Payment, the Contractor shall submit to the Owner’s Representative a schedule of values allocated to various portions of the Work, prepared in such form and supported by such data to substantiate its accuracy as the Architect and Owner’s Representative may require. This schedule, unless objected to by the Architect and Owner’s Representative, shall be used as a basis for reviewing the Contractor’s Applications for Payment.”

52. IN THE FIRST SENTENCE OF (9.3.1), CHANGE "ten" TO "forty five”.

IN PARAGRAPH (9.3.1) IN THE FIRST SENTENCE DELETE THE WORD “Architect” AND SUBSTITUTE THE WORDS “Owner’s Representative”.

ADD THE FOLLOWING TO THE END OF PARAGRAPH (9.3.1):

Payment requests shall consist of AIA Documents #702 "Application and Certificate for Payment"; AIA #703 "Continuation Sheet"; Contractors Affidavit of Payment to Subcontractors and Suppliers; Weekly Workforce Reports; Certified Payroll Form; and Waivers of Lien. (Waivers of Lien are required from the general contractor in the full amount of the current payment application, and from all subcontractors, suppliers, or workers who provide more than \$10,000 of project material/labor of the Work. The waiver shall be in the amount(s) listed in the Contractor's Affidavit.) For final payment, the general contractor shall also provide a Waiver of Lien in the full amount of the contract price.

The Waiver of Lien and Contractor Affidavit forms used shall be the Peoria Park District's standard form(s): 1) "Final Waiver of Lien" (for general contractors), 2) "Waiver of Lien - General

Contractor's Partial To Cover Only Certain Payments", 3) "Sub-Contractor's Final Waiver of Lien", 4) "Waiver of Lien - Sub-Contractor's Partial To Cover Only Certain Payments, and 5) "Contractor's Affidavit". (These forms are included in the Project Manual, and are the required Waiver of Lien forms for the project.)

(If the Contractor is unable to provide the required sub-contractor waiver at the time the application for payment is submitted (preferred method) alternatively, it may be provided at the time that payment is delivered by the District. If the sub-contractor waiver(s) still cannot be provided at that time, the District will provide "two-party" checks in which the Contractor and the sub-contractor are named jointly as payees.)

Format of AIA #703 shall follow that of "Schedule of Values". (See Division 01000 Article IV.) All payment requests shall reflect retainage in the amount of 10% of completed work.

53. IN PARAGRAPH (9.3.1.1) DELETE THE WORDS “or by interim determination of the Architect, but not yet included in Change Orders”.

54. ADD THE FOLLOWING SUB-PARAGRAPHS TO PARAGRAPH (9.3.1):

9.3.1.3 Upon Substantial Completion, the Owner will pay 95% percent of the amount due to the Contractor on account.

9.3.1.4 Monthly progress payments will be made by the Owner on projects lasting more than sixty days (from award of the bid to the Substantial Completion date given in the Supplementary Instructions to Bidders).

55. ADD THE FOLLOWING SUB-PARAGRAPHS TO PARAGRAPH (9.3.2):

9.3.2.1 Material stored on site will be considered for payment only when a Schedule of Stored Materials with appropriate values accompany the payment request as an attachment.

9.3.2.2 All material and work covered by partial payments made shall thereupon become the sole property of the Owner, but this provision shall not be construed as relieving the Contractor from the sole responsibility for the care and protection of material and work upon which payments have been made or the restoration of any damaged work, or as a waiver of the contract.

56. IN PARAGRAPH (9.4.1) DELETE THE WORDS “Architect” AND “Architect’s” AND SUBSTITUTE THE WORDS “Owner’s Representative” AND “Owner’s Representative’s”.

IN PARAGRAPH (9.4.1) DELETE THE PHRASE "with a copy to the Contractor".

57. IN THE FIRST SENTENCE OF PARAGRAPH (9.4.2) DELETE THE WORD “Architect”.

IN THE FIRST SENTENCE OF PARAGRAPH (9.4.2) AFTER THE WORDS “Architect’s” ADD THE WORDS “and Owner’s Representative’s”.

IN THE FOURTH SENTENCE OF PARAGRAPH (9.4.2) DELETE THE WORDS “Architect has” AND SUBSTITUTE THE WORDS “Owner’s Representative and Architect have”.

58. IN PARAGRAPH (9.5.1) DELETE THE WORDS “Architect” AND “Architect’s” AND SUBSTITUTE THE WORDS “Owner’s Representative AND “Owner’s Representative’s”.

- 59. IN PARAGRAPHS (9.6.1, 9.6.3, AND 9.6.4) DELETE THE WORDS “Architect” AND SUBSTITUTE THE WORDS “Owner’s Representative”.**
- 60. IN PARAGRAPH (9.7.1) DELETE THE WORD “Architect” AND SUBSTITUTE THE WORDS “Owner’s Representative”.**
- IN PARAGRAPH (9.7.1) DELETE THE WORDS “or awarded by arbitration”.**
- 61. IN PARAGRAPH (9.8.2) DELETE THE WORD “Architect” AND SUBSTITUTE THE WORDS “Owner’s Representative”.**
- 62. IN THE FIRST SENTENCE OF PARAGRAPH (9.8.3) DELETE THE WORD “Architect” AND SUBSTITUTE THE WORDS “Owner’s Representative assisted by the Architect”.**
- IN THE SECOND AND THIRD SENTENCES OF PARAGRAPH (9.8.3) DELETE THE WORDS “Architect’s” and “Architect” AND SUBSTITUTE THE WORDS “Owner’s Representative’s” and “Owner’s Representative”.**
- 63. IN PARAGRAPH (9.8.4) DELETE THE WORD “Architect” AND SUBSTITUTE THE WORDS “Owner’s Representative”.**
- 64. IN PARAGRAPH (9.9.1) DELETE THE WORD “Architect” AND SUBSTITUTE THE WORDS “Owner’s Representative”.**
- 65. IN PARAGRAPH (9.10.1) IN THE FIRST SENTENCE AFTER THE FIRST TWO APPEARANCES OF THE WORD ‘Architect’ ADD THE WORDS “and Owner’s Representative”.**
- IN PARAGRAPH (9.10.1) DELETE THE THIRD AND FOURTH APPEARANCES OF THE WORD “Architect” and “Architect’s” AND SUBSTITUTE THE WORDS “Owner’s Representative” and “Owner’s Representative’s”.**
- IN PARAGRAPH (9.10.1) AFTER THE FIFTH APPEARANCE OF THE WORD “Architect’s” ADD THE WORDS “and Owner’s Representative’s”.**
- IN THE LAST SENTENCE OF PARAGRAPH (9.10.1) DELETE THE WORD “Architect’s” AND SUBSTITUTE THE WORDS “Owner’s Representative’s”.**
- 66. IN PARAGRAPH (9.10.2) DELETE THE WORD “Architect” AND SUBSTITUTE THE WORD “Owner’s Representative”.**
- 67. ADD THE FOLLOWING SUB-PARAGRAPH TO PARAGRAPH (9.10.2):**
- 9.10.2.1** When all items including items noted within Division 1000 General Requirements are found to be complete and in conformance with the Contract Documents, a final payment will be issued.
- 68. IN PARAGRAPH (9.10.3) DELETE THE WORD “Architect” AND SUBSTITUTE THE WORDS “Owner’s Representative”.**
- 69. IN PARAGRAPH (11.1.1) IN THE FIRST SENTENCE AFTER THE PHRASE “as will protect the Contractor” ADD THE WORDS “Architect and Owner”.**

- 70. IN PARAGRAPH (11.1.2), IN THE FIRST SENTENCE DELETE THE WORDS “limits of liability specified in the Contract Documents” AND SUBSTITUTE THE WORDS “limits required in ‘Attachment A – Project Specific Insurance Requirements’ (which is included as the last section of the Project Manual and the requirements therein shall be made part of the Contract Documents),”.**

IN PARAGRAPH (11.1.2) AFTER THE FIRST SENTENCE ADD:

“In addition, if any of the work occurs within fifty feet of an active railroad line and the Contractor’s general liability coverages provide for exclusions of coverage when working on or near a railroad, the Contractor shall provide a separate Railroad Protective Liability Insurance Policy naming the railroad as the insured party, with the coverage limits required by that railroad.”

- 71. IN PARAGRAPH (11.1.3), AFTER THE WORDS “Certificates of insurance” ADD THE WORDS “and endorsements to the insurance policy(s) which are”.**

IN PARAGRAPH (11.1.3) AFTER THE WORDS “acceptable to the Owner” ADD THE WORDS “and naming the Owner, their agents and consultants as additional insured”.

ADD THE FOLLOWING SUB-PARAGRAPHS TO PARAGRAPH (11.1)

11.1.4 The Contractor may, at his option, furnish Owner’s Protective Liability Insurance in lieu of naming the Owner Additional Insured on the Contractor’s policy, as required above. This insurance shall protect the Owner from claims as set forth in Paragraph 11.1.1 of the General Conditions, and to the limits required herein, as shown in “Attachment A”.

11.1.5 The Contractor shall furnish two copies of each of the required Certificates or Endorsements for each copy of the Agreement which shall specifically set forth evidence of all coverage required by the Contract Documents. The form of the Certificate(s) or Endorsement(s) shall be those as required in “Attachment A”. The Contractor shall also furnish to the Owner copies of any endorsements which limit coverage, or are subsequently issued amending coverage or limits of coverage.

- 72. DELETE PARAGRAPHS (11.3.1, 11.3.2, AND 11.3.3) IN THEIR ENTIRETY.**

- 73. DELETE PARAGRAPH (11.4.1) AND SUBSTITUTE:**

“If the work of the project is being completed by one general or prime contractor rather than multiple prime contractors, the Contractor shall purchase and maintain property insurance upon the entire Work at the site to the full replacement value thereof. Such insurance shall be in a company or companies against which the Owner has no reasonable objection. This insurance shall include the interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Work.

- 74. AT THE END OF PARAGRAPH (11.4.1.1) ADD THE FOLLOWING SENTENCE: “The form of policy for this coverage shall be “Completed Value”.**

- 75. DELETE PARAGRAPH (11.4.1.2) IN ITS ENTIRETY.**

76. DELETE PARAGRAPH (11.4.1.3) IN ITS ENTIRETY AND SUBSTITUTE:

“If by the terms of this insurance any mandatory deductibles are required, or if the Contractor should elect, with the concurrence of the Owner, to increase the mandatory deductible amounts or purchase this insurance with voluntary deductible amounts, the Contractor shall be responsible for payment of the amount of all deductibles in the event of a paid claim. If separate contractors are added as insureds to be covered by this policy, the separate contractors shall be responsible for payment of appropriate part of any deductibles in the event claims are paid on their part of the Project.”

77. DELETE PARAGRAPHS (11.4.3, 11.4.4, AND 11.4.5) IN THEIR ENTIRETY.

78. DELETE PARAGRAPH (11.4.6) AND SUBSTITUTE:

“The Contractor shall file two certified copies of all policies with the Owner before exposure to loss can occur. If the Owner is damaged by the failure of the Contractor to maintain such insurance and to so notify the Owner, then the Contractor shall bear all reasonable costs properly attributable thereto.

79. DELETE PARAGRAPHS (11.4.7, 11.4.8, 11.4.9, AND 11.4.10) IN THEIR ENTIRETY.

80. DELETE PARAGRAPH (11.5.1) AND SUBSTITUTE:

“The Contractor shall furnish a Performance Bond and a separate Labor and Material Payment Bond, each for one hundred percent (100%) of the Contract Sum. Form of these bonds shall be as provided by the Owner in the Project Manual and no other form will be accepted. The Surety shall be authorized to do business in the State of Illinois and be acceptable to the Owner.

81. IN PARAGRAPH (12.1.1) DELETE THE WORD “Architect’s” AND SUBSTITUTE WORDS “Owner’s Representative’s and Architect’s”. DELETE THE WORD “Architect” AND SUBSTITUTE THE WORDS “Owner’s Representative”.

82. IN PARAGRAPH (12.1.2) AFTER THE WORD “Architect” ADD THE WORDS “and Owner’s Representative”.

83. IN PARAGRAPH (12.2.1.1) AFTER THE WORD “Architect” ADD THE WORDS “and Owner’s Representative”.

84. IN PARAGRAPH (13.5.4) AFTER THE WORD “Architect” ADD THE WORDS “and Owner’s Representative”.

85. IN PARAGRAPH (14.1.1.3) DELETE THE WORD “Architect” AND SUBSTITUTE THE WORDS “Owner’s Representative”.

86. IN PARAGRAPH (14.2.2) DELETE THE PHRASE “, upon certification by the Architect that sufficient cause exists to justify such action,”.

87. IN PARAGRAPH (14.2.4) DELETE THE WORD “Architect” AND SUBSTITUTE THE WORDS “Owner’s Representative”.

88. DELETE PARAGRAPH (14.4.3) IN ITS ENTIRETY AND SUBSTITUTE:

In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination. In no event, however, will such amounts exceed the Contract Sum reduced by the amount of prior payments except for increases pursuant to the claims procedure in the Contract Documents. Subcontracts, subsubcontracts, and purchase orders will contain appropriate provisions for termination for convenience under this Paragraph 14.4.

89. ADD THE FOLLOWING ARTICLE 15: LABOR, SAFETY AND WAGE STANDARDS TO THE GENERAL CONDITIONS OF THE CONTRACT:

**ARTICLE 15
LABOR, WAGE, SAFETY, AND OTHER STANDARDS**

15.1 LABOR STANDARDS. All employers shall comply with the Employment of Illinois Workers on Public Works Act [30 ILCS 570/1 to 570/7].

15.2 WAGE STANDARDS.

15.2.1 PREVAILING WAGE ACT: Wages and benefits to employees shall comply with all Federal and State of Illinois statutes pertaining to public works projects and specifically: Wages of Employees on Public Works [820 ILCS 130/1 - 12].

15.2.2 Not less than the prevailing rate of wages as determined by the Park District or the Department of Labor shall be paid to all laborers, workers and mechanics performing work under this contract. All contractor's bonds shall include a provision as will guarantee the faithful performance of such prevailing wage clause as provided by this bid specification or contract.

15.2.3 The terms "general prevailing rate of hourly wages", "general prevailing rate of wages" or "prevailing rate of wages" when used in this Act mean the hourly cash wages plus fringe benefits for training and apprenticeship programs approved by the U.S. Department of Labor, Bureau of Apprenticeship and Training, health and welfare, insurance, vacations and pensions paid generally, in the locality in which the work is being performed, to employees engaged in work of a similar character on public works.

15.2.4 PREVAILING WAGE ACT/FOIA
Contractors and subcontractors shall submit certified payroll on a monthly basis to the Park District in compliance with requirements of 820 ILCS 130/5. These records will be kept by the Park District for three years and may be reviewed by others through the Freedom of Information Act (FOIA). The Park District will exclude employee's address, telephone number, and social security number from public inspection.

15.3 SAFETY STANDARDS.

15.3.1 PROTECTION OF PERSONS AND PROPERTY: The Contractor and his subcontractors shall, at all times, comply with applicable provisions of Federal, State and Local laws.

15.3.1.1 The Contractor and his sub-contractors shall have written programs complying with Occupational Safety and Health Administration standards and/or Illinois Department of Labor requirements including, but not limited to the following: hazardous communications, hearing conservation, respirator use, confined space entry, scaffolding, ladders, ventilation, flammable and combustible liquids, and lockout/tagout. The

Contractor shall submit documentation of their programs at the request of the Owner's Representative, or Occupational Safety and Health Administration and/or Illinois Department of Labor officials.

15.4 EQUAL EMPLOYMENT OPPORTUNITY/AFFIRMATIVE ACTION/SEXUAL HARASSMENT

15.4.1 During the performance of the contract, the contractor agrees to the following:

15.4.1.1 That it will not discriminate against any employee or applicant for employment because of race, color, religion, sex, marital status, national origin or ancestry, age, physical or mental handicap unrelated to ability, or an unfavorable discharge from military service; and further that it will examine all job classifications to determine if minority persons or women are under-utilized and will take appropriate affirmative action to rectify any such under-utilization.

15.4.1.2 That, if it hires additional employees in order to perform his contract or any portion thereof, it will determine the availability (in accordance with the Rules and Regulations of the Illinois Department of Human Rights) of minorities and women in the area(s) from which it may reasonably recruit and it will hire for each job classification for which employees are hired in such a way that minorities and women are not under-utilized.

15.4.1.3 That, in all solicitations or advertisements for employees placed by it or on its behalf, it will state that all applicants will be afforded equal opportunity without discrimination because of race, color, religion, sex, marital status, national origin or ancestry, age, physical or mental handicap unrelated to ability or an unfavorable discharge from military service.

15.4.1.4 That it will have a written sexual harassment policy to include at the minimum, the following:

15.4.1.4.1 a definition of sexual harassment under the law;

15.4.1.4.2 a description of sexual harassment utilizing examples;

15.4.1.4.3 a formalized complaint procedure;

15.4.1.4.4 a statement of victim's rights;

15.4.1.4.5 directions on how to contact the Illinois Department of Human Rights. Out-of-state companies must provide directions for filing with the enforcement agency within their state. Companies that issue a standard policy for all business locations must prepare an addendum providing directions on how to contact the appropriate enforcement agency; and

15.4.1.4.6 A recitation that there cannot be any retaliation against employees who elect to file charges.

15.4.1.4.7 In addition, it is recommended that the employer post a copy of the sexual harassment policy in a prominent and accessible location and distribute it in a manner to assure notice to all employees on an annual basis.

15.4.1.4.8 The Illinois Human Rights Act specifically provides that all documents may meet, but cannot exceed, the sixth grade literacy level. Therefore, the employers sexual harassment policy must be stated in plain language and in "laymen's terms".

15.4.1.5 That it will send to each labor organization or representative of workers with which it has or is bound by a collective bargaining or other agreement or understanding, a notice advising such labor organization or representative of the contractor's obligations under the Illinois Human Rights Act and the Department's Rules and Regulations. If any such labor organization or representative fails or refuses to cooperate with the contractor in its efforts to comply with such Act and Rules and Regulations, the contractor will promptly so notify the Department and the contracting agency and will recruit employees from other sources when necessary to fulfill its obligations thereunder.

15.4.1.6. That it will submit reports as required by the Department's Rules and Regulations, furnish all relevant information as may from time to time be requested by the Department or the contracting agency, and in all respects comply with the Illinois Human Rights Act and the Department's Rules and Regulations.

15.4.1.7. That it will permit access to all relevant books, records, accounts and work sites by personnel of the contracting agency and the Department for purposes of investigation to ascertain compliance with the Illinois Human Rights Act and the Department's Rules and Regulations.

15.4.1.8. That it will include verbatim or by reference the provisions of this clause in every subcontract it awards under which any portion of the contract obligations are undertaken or assumed, so that such provisions will be binding upon such subcontractor. In the same manner as with other provisions of this contract, the contractor will be liable for compliance with applicable provisions of this clause by such subcontractors; and further it will promptly notify the contracting agency and the Department in the event any subcontractor fails or refuses to comply therewith. In addition, the contractor will not utilize any subcontractor declared by the Illinois Human Rights Commission to be ineligible for contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations.

15.4.2 In the event of the contractor's non-compliance with the provisions of the Illinois Human Rights Act, the contractor may be declared ineligible for future contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporation, and the contract may be cancelled or voided in whole or in part, and such other sanctions or penalties may be imposed or remedies invoked as provided by statute or regulations.

END OF SUPPLEMENTARY GENERAL CONDITIONS

DIVISION 010000 GENERAL REQUIREMENTS

SECTION 010000 - GENERAL

A. SUMMARY OF THE WORK

1. The Work covered under this Contract consists of that work described by the Invitation to Bid, the Instructions/Supplemental Instructions to Bidders, the Bid/Proposal Form, the General/Supplemental Conditions of the Contract, these General Requirements, the Plans, and the Technical Specifications.
2. The Contractor shall be responsible for all items incidental to the scope of the Work intended by the bidding documents as per A.1 above, including but not limited to, expenses incurred by the requirements of various Sections of Division 010000, unless specifically stated otherwise herein.
3. Changes to the Work as required by approved Change Orders shall be at the expense of the Owner, however, requests for additional payments made after the fact will not be considered.

B. OCCUPANCY BY OWNER.

1. The Owner reserves the right to occupy any portion of the project before it has been entirely completed, with the understanding that such occupancy shall in no way constitute acceptance of the work, in whole or in part, or of any work performed under the Contract, provided that such occupancy does not substantially interfere with completion of the work by the Contractor.

SECTION 012300 – ALTERNATES

A. Alternates to the Bid are set forth in the Supplementary Instructions to Bidders and are listed in the Bid Form.

1. Accepted Alternates have been incorporated into the Agreement.

B. Bid Alternate pricing, as set forth in the Supplementary Instructions to Bidders and the Bid Form, shall be good for a minimum of 90 calendar days after the date of the Bid opening, and the Owner reserves the right to accept Alternates up to that time.

SECTION 012600 - CHANGE ORDERS

A. OWNER'S REPRESENTATIVE'S FIELD ORDERS

1. From time to time during progress of the Work the Owner's Representative may issue an "Owner's Representative's Field Order" which interprets the Contract Documents or orders minor changes in the Work without change in Contract Sum or Contract Time.
2. Should the Contractor consider that a change in Contract Sum or Contract Time is required he shall submit an itemized proposal to the Owner's Representative **immediately and before proceeding with the Work**. If the proposal is found to be satisfactory and in proper order, the Field Order will be superseded by a Change Order.

B. PROPOSAL REQUESTS

1. From time to time during the progress of work the Owner's Representative may issue a "Proposal Request" for an itemized quotation for changes to the Work which may result in a change to the Contract Sum or Contract Time. This document **is not a Change Order** and is not a direction to proceed with the changes described therein.

C. CHANGE ORDERS

1. Change Orders are written documents describing changes in the Work, in the Contract Sum, in the Contract Time of Completion, or any combination thereof. Change Orders must be signed by both the Owner and the Architect/Owner's Representative prior to proceeding with the Work subject to the Change Order. **REQUESTS FOR "EXTRA'S" OR OTHER ADDITIONAL PAYMENTS OVER AND ABOVE THE CURRENT CONTRACT SUM WILL NOT BE CONSIDERED WITHOUT THE PRIOR, WRITTEN APPROVAL OF BOTH THE OWNER AND THE OWNER'S REPRESENTATIVE.**
 - a) INITIATION. Change Orders may be initiated by a "Field Order" or "Proposal Request" per paragraphs "A" and "B" above. In addition, either the Contractor or Owner (or Owner's Representative) may initiate a Change Order through:
 - 1) Discovery of a discrepancy in the Contract Documents,
 - 2) Discovery of concealed conditions or,
 - 3) Discovery, during the course of the Work, of methods of accomplishing the Work in a better or more economical manner.
 - b) PROCESSING CHANGE ORDERS.
 - 1) Change Orders will be dated and will be numbered in sequence.
 - 2) The Change Order will describe the change or changes, or will refer to the Proposal Requests or Field Orders involved.
 - 3) The Owner's Representative will issue three copies of each Change Order to the Contractor.
 - 4) The Contractor promptly shall sign all three copies and return them to the Owner's Representative.
 - 5) The Owner and Owner's Representative will retain two signed copies in their files, and will forward one signed copy to the Contractor.
 - 6) Should the Contractor disagree with the stipulated change in Contract Sum or change in Contract Time of Completion, or both:
 - i) The Contractor promptly shall return all three of the Change Orders, unsigned by him, to the Owner's Representative with a letter signed by the Contractor stating the reason or reasons for the Contractor's disagreement.
 - ii) The Contractor's disagreement with the Change Order shall not in any way relieve the Contractor of his responsibility to proceed with the change as ordered and to seek settlement of the dispute under pertinent provisions of the Contract Documents.

SECTION 012900 – PAYMENT PROCEDURES

A. SCHEDULE OF VALUES

1. Prior to the start of construction, submit a proposed Schedule of Values to the Owner's Representative which shows a detailed breakdown of the agreed Contract Sum showing values allocated to each of the various parts of the Work, as specified herein and in other provisions of the Contract Documents.
 - a) The Schedule of Values is required to be compatible (in the same format) with the Application for Payment "Continuation Sheet", AIA G703.
2. If not requested to submit additional data or to modify the submitted Schedule of Values within ten (10) days of submittal, the initially submitted Schedule shall be deemed approved.

B. APPLICATIONS FOR PAYMENT

1. Progress payments will be made only if specifically called for in the Agreement. In all other cases, the Contractor may submit an Application for Payment (3 copies) upon Substantial Completion (95% of the Contract Sum), with the balance of the Contract Sum to be paid at Final Completion.
 - a) **Paragraph #52 of the Supplementary General Conditions defines the documentation required for each payment request.**
 - b) Applications for payment shall be delivered to the Owner's Project Manager at:

Department of Planning, Design, and Construction
Peoria Park District
Bradley Park Equipment Service
1314 N. Park Road
Peoria, Illinois 61604

SECTION 013100 - PROJECT MEETINGS

A. PRECONSTRUCTION CONFERENCE

1. Conduct a preconstruction conference prior to the start of the Work, at the location of the Work. Provide attendance by the designated personnel of the Contractor, including Sub-contractor's and/or suppliers of major components of the Work, if requested by the Owner's Representative.
 - a) **AGENDA.** Discuss items of significance that could affect progress including such topics as:
 - 1) Tentative construction schedule.
 - 2) Critical Work sequencing.
 - 3) Designation of responsible personnel.
 - 4) Procedures for processing field decisions and Change Orders.
 - 5) Procedures for processing Applications for Payment.
 - 6) Distribution of Contract Documents.
 - 7) Submittal of Shop Drawings, Product Data and Samples.
 - 8) Preparation of record documents.
 - 9) Use of the premises.
 - 10) Office, Work and storage areas.
 - 11) Equipment deliveries and priorities.
 - 12) Safety procedures.
 - 13) First aid.
 - 14) Security.
 - 15) Housekeeping.
 - 16) Working hours.
 - 17) Permits and Permitting Agency Requirements

B. PROJECT MEETINGS

1. Project Meetings will be held per the schedule determined at the Preconstruction Conference, or as needed for proper coordination and administration of the project.
 - a) **AGENDA**
 - 1) Review and correct or approve minutes of the previous progress meeting.
 - 2) Review progress of the Work since last meeting, including status of submittals for approval.
 - 3) Identify problems which impede planned progress.
 - 4) Develop corrective measures and procedures to regain planned schedule.
 - 5) Complete other current business.

C. REPORTING

1. Distribute copies of the minutes of each meeting to each party present, and to other parties who should have been present, no later than three business days after each meeting.

SECTION 013300 - SUBMITTALS

- A. Requirements for shop drawings, samples, mock-ups, product data, etc., relative to specific elements or components of the work are called out in the various sections of the Technical Specifications.
 1. Submit items to allow for Owner's Representative's review and approval, potential re-submission if full approval is not given, ordering, delivery, fabrication time, etc., so as to allow the Work to proceed in a timely manner and in conformance with the project schedule.
- B. **OTHER CONTRACTOR SUBMITTALS**
 1. Unless otherwise modified the Contractor shall also submit:
 - a) A "bar chart" type proposed construction schedule, within ten days after award of the Bid.
 - b) Other submittals as required by other section of Division 010000.
- C. Submission of the required Bonds and Certificate of Insurance are to be made prior to the Owner's issuance of a Notice to Proceed.

SECTION 014000 – QUALITY/REGULATORY REQUIREMENTS

- A. GENERAL: Contractors shall comply with all laws, rules and regulations governing the work.
1. When Contractor observes that contract documents are at variance with specified codes, notify Owner's Representative in writing immediately. Owner's Representative will issue all changes in accord with General Conditions.
 2. When Contractor performs any work knowing or having reason to know that the work is contrary to such laws, rules and regulations and fails to so notify the Owner's Representative, Contractor shall pay all costs arising therefrom. However, it will not be the Contractor's primary responsibility to make certain that the contract documents are in accord with such laws, rules and regulations.
- B. SAFETY:
1. Comply with all federal, state, and local laws, rules and regulations governing the installation/construction of the work.
 2. Develop and utilize safety program and training for workmen and sub-contractor employees.
- C. TESTING
1. TESTS AND INSPECTIONS REQUIRED
 - a) Provide all tests and inspections required by governmental agencies having jurisdiction, as required by provisions of the Contract Documents and/or as specifically required by sections of the Technical Specifications.
 2. PAYMENT FOR TESTING
 - a) Include within the Contract Sum an amount sufficient to cover all testing, re-testing, and inspections required by the Contract documents and/or the Technical Specifications. Additionally pay for all testing and inspections required by all governmental agencies having jurisdiction.
 - 1) The Owner will pay for any testing and inspecting specifically requested by the Owner's Representative which are over and above those described in Paragraph 1.a) above.
 - 2) When initial tests (over and above those defined by 1.a) above) requested by the Owner's Representative indicate non-compliance with the Contract Documents, costs of initial tests associated with that non-compliance will be deducted by the Owner from the Contract Sum, and subsequent retesting occasioned by the non-compliance shall be performed by the same testing laboratory and the costs thereof shall be paid by the Contractor.
 3. WAIVER OF INSPECTION AND/OR TESTS
 - a) Specified inspections and/or tests may be waived only by the specific written approval of the Owner's Representative, and **such waivers will be expected to result in credit to the Owner equal to normal cost of such inspection and/or test.**

SECTION 014200 - REFERENCE STANDARDS AND DEFINITIONS

- A. Copies of Standards: Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to that entity's construction activity. Copies of applicable standards are not bound with the Contract Documents.
1. Where copies of standards are needed for performance of a required construction activity the Contractor shall obtain copies directly from the publication source.
 2. Although copies of standards needed for enforcement of requirements may be included as part of required submittals the Architect reserves the right to require the Contractor to submit additional copies as necessary for enforcement of requirements.
- B. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Where such acronyms or abbreviations are used in the Specifications or other Contract Documents they mean the recognized name of the trade association standards generating organization authority having jurisdiction or other entity applicable to the context of the text provision. Refer to the Encyclopedia of Associations, published by Gale Research Co. available in most libraries.
- C. Definitions: Architect, Owner's Representative, and Owner's Project Manager
1. **ARCHITECT:** The Architect shall be the person or entity designated by the Owner as the Owner's Representative and shall be identified as such in the Agreement Between Owner and Contractor, and is referred to throughout the Contract Documents as if singular in number and masculine in gender.
 2. **OWNER'S REPRESENTATIVE:** The duties of the Owner's Representative as listed in the Project Manual, include but are not limited to, construction phase observation and technical administration services.
 - a) **LIMITS OF AUTHORITY:** The Owner's Representative shall be authorized to provide approvals and interpretations concerning the plans, specifications and progress of the Work as bid, but is not authorized to change the scope of the Work on behalf of the Owner.
 3. **OWNER'S PROJECT MANAGER:** The Owner's Project Manager will represent, act on behalf of, and provide interface between the Owner and the Contractor in respect to contract administration and/or other matters which affect the scope of the Work.
 - a) Unless defined otherwise in the Project Manual, the Owner's Project Manager shall be a designated member of the Planning, Design, and Construction Division of the Peoria Park District.
 - b) The Owner's Project Manager will also be the Owner's Representative and will provide construction phase observation and technical administration services, if a consultant Architect has not been engaged to do so, by the Owner.

SECTION 015000 – TEMPORARY FACILITIES & CONTROLS

- A. MOBILIZATION
1. Furnish all labor, tools, materials, equipment, and incidentals necessary for preparatory work.
 2. Provide and establish personnel, equipment, supplies, materials, offices or buildings, and other facilities necessary to work on the project.
 3. Demobilize all of the above and remove temporary facilities at the completion of the project.
- B. BARRIERS, PROTECTION OF SITE AND PROPERTY
1. GENERAL
 - a) Owner's improvements to remain, existing utilities, as well as adjacent site improvements shall be protected from damage by barriers, guards and coverings. Damaged work shall be replaced or repaired to condition prevailing at time of signing of contract, at no additional cost to Owner.

- b) Provide 6' high, continuous chain link or orange plastic (used materials acceptable) construction fence to prohibit unauthorized personnel or public entry from the site of the Work. (Substitutions may be considered; submit request in writing to the Owner's Representative.)
- c) Contractor shall provide, erect and maintain additional planking, fences, protective canopies, railings, shoring, lights, warning signs, etc., as needed for the protection of adjacent property and the public.

2. LANDSCAPE PROTECTION

- a) All live, healthy trees, shrubs, etc. on the site or on the street fronts of the site, not specified to be removed and not interfering with installation of new work required hereunder, shall be protected against injury from construction operations.
- b) All shade trees which are to remain and which are liable to damage during the building operations, shall be properly boxed and protected from damage during the course of construction work as directed by the Park District. **No site-related work shall occur until the required tree protection (fencing, boxing, etc.) has been installed and approved by the Owner or his representative.**
 - 1) LIQUIDATED DAMAGES: The Owner reserves the right to charge the Contractor for damage to existing trees, and to deduct the charges from the amounts due the Contractor, based on the following schedule:
 - aa) Broken limbs 1" or over in diameter: \$50 per caliper inch of limb
 - bb) Trenching or grading within the tree dripline or 20' from the trunk, whichever is less, of trees 4" or over in caliper diameter: \$100 per tree/per foot within dripline, or within 20' minimum if applicable
 - cc) Damage to tree trunks, including "barking", nicking, gouging, etc. \$150 per caliper inch of tree, per each injury

3. BARRIERS/CONSTRUCTION FENCE MATERIALS

- a) 2" open mesh chain link fence, 72" high minimum, galvanized, with appropriately sized posts; gates where indicated.
- b) Alternate barrier fencing materials may be acceptable, however, no additional payments will be made on account of approval of alternate barrier/safety fencing materials.
- c) Materials may be new or used, if in serviceable condition.

4. WATCHMAN SERVICE

- a) The Owner will not be responsible for loss due to theft or other damage which is not covered under Property Insurance. The Contractor shall make such arrangements for watchman service as he considers necessary and he shall be responsible for all loss or damage of his property, equipment, material, etc., at the site, and he shall make good such damage or loss without any additional cost to the Owner.

5. EXISTING IMPROVEMENTS - PROTECTION

- a) The Contractor shall be entirely responsible for all injuries to water pipes, electric conduits or cables, drains, sewers, gas mains, poles, telephones and telegraph lines, streets, pavements, sidewalks, curbs, culverts, retaining walls, building walls, foundation walls, or other structures of any kind met with during the progress of the Work, and shall be liable for damages to public or private property resulting therefrom.

C. CONSTRUCTION ACCESS, ROADS, AND PARKING AREAS

1. CONTRACTOR'S USE OF PREMISES

- a) The Contractor shall require that all personnel who will enter upon the Owner's property certify their awareness of and familiarity with the requirements of this Section.

2. CONSTRUCTION ACCESS

- a) To avoid traffic conflict with vehicles of the Owner's employees and customers, and to avoid over-loading of streets and driveways elsewhere on the Owner's property, limit the access of trucks and equipment to the route shown (IF SHOWN) on the Drawings as "Access Route". If access route is not shown on the Drawings, coordinate construction access and routes with the Owner's Project Manager.
- b) Do not permit such vehicles to park on any street or other area of the Owner's property except in the area shown on the Drawings as "Contractor's Parking Area". If not shown on the drawings, the Contractor's Parking Area shall be as designated by the Owner's Project Manager.
- c) Provide adequate protection for curbs and sidewalks over which trucks and equipment pass to reach the job site.

3. SECURITY

- a) Restrict the access of all persons entering upon the Owner's property in connection with the Work to the Access Route and to the actual site of the Work.

D. TEMPORARY ENVIRONMENTAL CONTROLS

1. GENERAL

- a) Provide temporary environmental controls at the site of the Work to ensure that construction operations have no harmful effects on adjacent properties and on members of the public who may come in proximity to the Work, and/or the employees of the Owner who are engaged in regular daily tasks and operations and are unable to be relocated to another work site during construction operations.
- b) Owner reserves the right to stop the Work, at the Contractor's expense, until the Contractor provides necessary control measures for the conditions listed below; additionally, the Owner reserves the right to perform or have performed necessary control measures, should the Contractor refuse to do so at the time requested and to deduct the cost of those expenses from the amount due the Contractor.

2. DUST CONTROL

- a) Provide dust control materials to minimize dust from construction operations. Prevent air-borne dust from dispersing into the atmosphere.

3. WATER CONTROL

- a) Control surface water to prevent damage to the project, the site and adjoining properties.
 - 1) Control fill, grading, and ditching to direct surface drainage away from excavations, pits, tunnels, and other construction areas; direct drainage to proper runoff channels or storm drainage utilities.
- b) Provide, operate and maintain hydraulic equipment of adequate capacity to control surface water.
- c) Dispose of drainage water in a manner to prevent flooding, erosion silting, or runoff of silt or sediment or other damage to all portions of the site or to adjoining properties.

4. RODENT CONTROL

- a) Provide rodent control to prevent infestation of construction or storage areas.
 - 1) Use methods and materials which will not adversely affect conditions at the site or on adjoining properties.

5. DEBRIS CONTROL

- a) Maintain all areas free of extraneous debris, waste, and rubbish.

6. POLLUTION CONTROL

- a) Prevent contamination of soil, water or atmosphere by the discharge of noxious substances from construction operations.
- b) Provide equipment and personnel, perform emergency measures to contain all spillages, and to remove contaminated soils or liquids.
 - 1) Excavate and dispose of all contaminated earth off-site. Replace with suitable compacted fill and topsoil.
- c) Take special measures, as necessary, to prevent harmful substances from entering public waters, including lakes, streams, intermittent drainage channels, and storm or sanitary sewers.

7. EROSION CONTROL

- a) Plan and execute construction and earthwork in a manner to control surface drainage from cuts and fills, and from borrow and waste disposal areas, to prevent erosion and sedimentation.
 - 1) Schedule the Work to minimize the areas of bare soil exposed at one time, if possible.
 - 2) Provide temporary control measures such as berms, dikes, and drains to prevent runoff of silt or sediment from the site.
 - 3) Comply with Section 015713.

E. PROJECT IDENTIFICATION AND SIGNAGE

1. GENERAL

- a) Provide and install project identification sign, if located and/or called out on the Drawings.

2. SUBMITTALS

- a) Provide shop drawing(s) of proposed sign/sign installation to Owner's Representative for approval, prior to installation

3. INSTALLATION

- a) Provide project sign as detailed on Drawings
- b) If not detailed on Drawings provide project identification sign per the following minimum requirement:
 - 1) Content
 - aa) Name of project
 - bb) Name of Owner
 - cc) Name of Architect(s) and major consultants
 - dd) Names of Contractor and major subcontractors
 - ee) Allow additional 200 characters of text explaining the project
 - 2) Construction
 - aa) Size: 4' x 8'
 - bb) Materials: Min. 5/8" AC DFPA Exterior Plywood, with (2) 4" x 4" x 12' long pressure treated post supports
 - cc) Paint: paint front and back, seal edges, provide content as approved by Owner's Representative. Conform to recognized sign painting standards in selection of paint materials. Use only professional sign painter with three years minimum experience to apply sign graphics and lettering.
 - 3) Install sign in a manner consistent with length of time of construction operations. Remove sign and fill post holes at project completion.

F. FIELD OFFICES

1. TEMPORARY FACILITIES

Provide and pay for temporary (new, or used if in serviceable condition) facilities and controls needed for the Work, if called out on the Drawings, which may include, but are not necessarily limited to:

- a) Temporary utilities such as heat, water, electricity, and telephone;
- b) Field office for the Contractor's personnel (required if shown on the Drawings; otherwise at the Contractor's option and expense).
 - 1) Conform with requirements for Engineer's Field Office Type B, as defined in Article 646.04 of the Standard Specifications for Road and Bridge Construction - Illinois Department of Transportation.
- c) Sanitary facilities;
- d) Enclosures such as tarpaulins, barricades, and canopies;
- e) Temporary fencing of the construction site;
- f) Project sign.

2. Comply with Federal, State, and local codes and regulations.

- a) Maintain temporary facilities and controls in proper and safe condition throughout the progress of the work. The Contractor is responsible for conformance with all safety codes and regulations for all Work under his jurisdiction, including that of Sub-Contractors.

3. Locate temporary facilities as shown on the Drawings, or as approved by the Owner's Representative if not shown on the Drawings.

SECTION 015713 – EROSION & SEDIMENT CONTROL

A. RELATED DOCUMENTS

- 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. SUMMARY

- 1. This Section includes the following:
 - a) Site erosion and sediment control
 - b) Silt fencing
 - c) Ditch checks
 - d) Erosion control blankets
 - e) Culvert and inlet protection
 - f) Stabilized entrance
- 2. Related Sections include the following:
 - a) Division 31 – Earthwork.
 - b) Division 32 – Exterior Improvements.

3. Erosion and Sediment Control Statement: The Peoria Park District takes the issue of construction related erosion and sediment control extremely seriously. The Peoria Park District is a community leader in the conservation and protection of our area's natural resources. This project will be watched closely by both staff and citizens for compliance with erosion and sediment control regulations and specifications.

C. QUALITY ASSURANCE

1. Materials and methods of construction shall comply with the following standards:
- a) Illinois Department of Transportation
 - b) City of Peoria

D. PRODUCTS

1. Silt Fencing
- a) Fabric for silt fencing shall consist of woven or nonwoven filaments of polypropylene, polyester, or polyethylene. Fabric shall be resistant to degradation by ultraviolet light and heat exposure. Fabric shall be rot, insect, and mildew proof, and have a high resistance to tearing.
 - 1) Fabric shall comply with the following physical properties:

aa) Grab tensile strength (lb) – ASTM D4632	200 (min)
bb) Grab elongation @ break (%) – ASTM D4632	12
cc) Burst strength (psi) – ASTM D751	250 (min)
dd) Trapezoidal tear strength (lb) – ASTM D4533	75
ee) Width (ft)	3.5 (min)
ff) Weight (oz/sq. yd) – ASTM D3776	4.0
gg) Equivalent opening size	30 (nonwoven)
hh) (EOS) sieve no. – Corps of Engrs. CS-02215	50 (woven)
2. Ditch Checks
- a) Ditch checks will consist of silt fencing with the addition of wire reinforcement.
 - b) Wire shall be 9 gauge.
 - c) Alternate: Straw bales may be used in lieu of silt fencing
3. Posts
- a) Posts shall be standard "T" or "U" steel posts or wood with a minimum cross section of 3 square inches. Posts shall be a minimum of 60" in length. Posts shall be driven a minimum of 24" into the ground.
4. Erosion Control Blankets
- a) Excelsior Blanket: Excelsior blanket shall consist of a machine produced mat of wood excelsior of 80% 6" or longer fiber length. The wood from which the excelsior blanket is cut shall be properly cured to achieve adequately curled and barbed fibers.
 - 1) The blanket shall be of consistent thickness, with the fiber evenly distributed over the entire area of the blanket. The excelsior blanket shall be covered on the top side with a 90 day biodegradable extruded plastic mesh netting having an approximate minimum opening of 16 x 16 mm (5/8 x 5/8 in.) to an approximate maximum opening of 50 x 25 mm (2 x 1 in.). The netting shall be substantially adhered to the excelsior blanket by a knitting process using biodegradable thread or by an applied degradable adhesive. The netting shall be substantially adhered to the excelsior by a knitting process using biodegradable thread. The netting shall be entwined with the excelsior blanket for maximum strength and ease of handling.
 - 2) The excelsior blanket shall comply with the following:

aa) Minimum width, ± 25 mm (1 in.)	600 mm (24 in.)
bb) Minimum mass ± 10%	0.34 kg/sm (0.63 lb/sq yd)
cc) Minimum length of roll, approximately	45 m (150 ft)
 - 3) The excelsior blanket shall be smolder resistant.
5. Culvert And Inlet Protection
- a) Culvert protection shall consist of a ditch check immediately upstream of every culvert entrance. Ditch check shall be installed to protect culvert interior from sedimentation.
 - b) Inlet protection shall consist of purpose made devices by:
 - Dandy Products, Inc.
 - P. O. Box 1980
 - Westerville, Ohio 43086-1980
 - Phone: 1-800-591-2284
 - Fax: 740-881-2791
 - www.dandyproducts.com
 - dlc@dandyproducts.com
 - or
 - NILEX, Inc.
 - 15171 E. Fremont Drive
 - Centennial, CO 80112
 - Phone: 1-800-537-4241
 - Fax: 303-766-1110
 - www.nilex.com
 - denver@nilex.com
- c) "Or Equal" substitutions may be made with prior approval of Owner's Representative.
6. Stabilized Entrance
- a) Stabilized entrance shall consist of coarse aggregate laid over geotextile fabric.
 - b) Dimensions: 70' long by 14' wide.
 - c) Geotextile Fabric: as per requirements of "silt fencing".
 - d) Aggregate: IDOT Class CA-1, CA-2, cA-3, or CA-4.

E. EXECUTION

1. Site Erosion And Sediment Control

- a) Contractor is responsible for fulfilling terms of City of Peoria Erosion Control Permit and all applicable portions of the "Erosion, Sediment, and Stormwater Control Ordinance of the City of Peoria".
- b) Install control devices as shown on erosion control plan.
- c) Install additional measures as needed to control erosion and sedimentation on the site.
2. Silt Fencing Installation
 - a) Install silt fencing according to details in plans. The silt fence shall be entrenched to a minimum depth of 8".
 - b) The silt fence shall be installed on the contour, with the ends extending up-slope.
 - c) Install silt fencing before commencing site clearing work.
3. Ditch Check Installation
 - a) Install ditch checks according to details in plans.
 - b) Install ditch checks at locations shown on plans.
 - c) Install additional ditch checks as needed to control erosion within drainage swales as site conditions and weather dictate.
 - d) Install ditch checks immediately after swales are graded.
4. Erosion Control Blankets Installation
 - a) Install erosion control blankets as needed to control erosion in drainage swales and at the direction of the Owner's Representative.
 - b) Anchor stakes shall be driven at a spacing of 2 feet on center.
5. Culvert And Inlet Protection Installation
 - a) Install culvert protection at upstream entrances to all culverts.
 - b) Install culvert protection to intercept waterborne silt and sediment and prevent it from entering culvert pipes.
 - c) Install immediately after culvert installation.
 - d) Install inlet protection according to manufacturer's written instructions at each inlet immediately after inlet construction.
6. Stabilized Construction Entrance Installation
 - a) Install stabilized construction entrance and other approved measures as necessary to limit tracking of soil on to all paved surfaces.
 - b) Comply with all City of Peoria codes limiting tracking of soil on to City streets.
7. Maintenance
 - a) Inspect silt fences after each rainfall. Repair fencing, failures, end runs, and erosion cuts immediately.
 - b) Remove soil from silt fencing after each rainfall.
 - c) Erosion control maintenance and repair shall be considered incidental to the contract.
 - d) Tracked soil and sediment shall be removed from all paved surfaces on a daily basis.
 - e) Replace or provide new erosion and sediment control measures as needed during construction to provide protection to site and surrounding property for the entire time of construction, or until project is complete.
8. Close-Out
 - a) Remove silt fencing and other erosion and sediment control devices after lawn or seeding has been established.
 - b) Soil deposits remaining in place after silt fence is no longer required shall be dressed to conform to existing grade, and seeded with appropriate seed material.

SECTION 016000 – PRODUCT REQUIREMENTS

A. MATERIALS AND EQUIPMENT

1. STANDARD SPECIFICATIONS
 - a) Reference herein to known standard specifications of governmental agencies or technical societies shall refer to the latest edition of such specifications, adopted and published at date of these Specifications.
2. MANUFACTURED ARTICLES
 - a) All manufactured articles, materials and equipment to be incorporated in the work shall be new (unless otherwise specified) and of the quality specified and shall be used, erected, installed, connected, cleaned and conditioned as directed by and in conformity with job conditions to produce the best results obtainable.
 - 1) Field measurements for all special products and materials which requires close tolerances or fitting into other items or components of the Work shall be taken on the job by the party furnishing the materials.
3. QUALITY ASSURANCE
 - a) Per the Supplementary Instructions to Bidders, the Bidder by submission of a signed bid form, agrees to install products and equipment by brand and model name or names specified in the Technical Specifications, Divisions 02-35. Substitutions are allowed only in conformance to the following:
 - 1) Proprietary Specification Requirement: Where only a single product or manufacturer is named, provide the product indicated. No substitutions will be permitted.
 - 2) Semiproprietary Specification Requirement: Where two or more products or manufacturers are named, provide one of the products indicated. No substitutions will be permitted.
 - aa) Where either of the two cases above prevail, and the named product is accompanied by "or approved equal" substitutions will be allowed only upon written approval of the Owner's Representative prior to submission of bids.
 - 3) Non-Proprietary Specification Requirement: When the Specifications lists products or manufacturers that are available and are accompanied by "or equal", the Contractor may propose any available product that complies with the Specifications' requirements; however, the Owner's Representative shall determine if the produced item complies with those requirements.
 - 4) Descriptive Specification Requirement: Where Specifications describe a product or assembly listing exact characteristics required, with or without use of a brand, trade, or model name, provide a product or assembly that provides the characteristics and otherwise complies with the Contract Documents.
 - 5) Performance Specification Requirement: Where Specifications require compliance with performance requirements, provide products or assembly that comply with these requirements and are recommended by the manufacturer for the application indicated.
 - 6) Compliance with Standards, Codes, and Regulations: Where the Specifications only require compliance with an imposed code, standard, or regulation, select a product that complies with the standard, code, or regulation specified.
 - b) VISUAL MATCHING AND SELECTION. Where the Specifications require matching an established sample or call for "as selected", the Owner's Representative's decision will be final on whether a proposed product matches satisfactorily.

- B. STORAGE AND PROTECTION
1. GENERAL
 - a) Contractor shall provide and maintain:
 - 1) Storage for materials and equipment to be installed in Project.
 - 2) Protection and security for stored materials and equipment, on and off site.
 - 3) Protection of existing on-site elements to remain.
 - 4) Protection of adjacent properties improvements
 2. METHODS
 - a) Store off grade and cover with impervious material all moisture or water vulnerable materials.
 - b) Store finished products and equipment in an enclosed building, on or off site.
 - c) Maintain integrity of shipping cartons until ready for installation.
 - d) Provide separate storage for combustible and non-combustible products.
 - e) Follow storage recommendations of product and equipment manufacturers.
 - f) Other methods shall be subject to Owner's prior written approval.
 3. The Contractor shall maintain an emergency phone number where a contact person can be notified at any time, Sundays and holidays included, of an emergency condition due to the work which requires immediate repair or protection.
- C. SUBSTITUTIONS
1. See "SECTION 016000 – A. MATERIALS AND EQUIPMENT" for requirements pertaining to substitution of specified materials, products, equipment, etc.
 2. Contractor may propose substitute materials, products, equipment, etc., after award of the Bid; however, such proposals are expected to result in a cost savings to the Owner and/or higher quality Work at no additional cost to the Owner.
- D. WARRANTIES AND BONDS
1. GENERAL
 - a) This Section specifies general administrative and procedural requirements for warranties and bonds required by the Contract Documents, including manufacturer's standard warranties on products and special warranties.
 - b) Warranties for the Work and products and installations of each Contractor shall be one (1) year unless specified otherwise in the individual Sections of Divisions 02 through 35.
 - c) Disclaimers and Limitations:
 - 1) Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and Contractors required to countersign special warranties with the Contractor.
 - 2) The responsibility of the Contractor in respect to the required warranties shall not be relieved or limited in any way by the failure of installed components, equipment, materials, etc., due to naturally occurring and/or re-occurring conditions at the site or area of the Work including, but not limited to:
 - aa) ground and soil conditions, especially as related to frost heave;
 - bb) high wind velocities (except those exceeding velocities normally used for calculating wind loading at the site of the Work);
 - cc) rain and water damage (unless caused by winds exceeding normal design limits);
 - dd) ice/snow loading on structures
 - ee) and other naturally occurring or re-occurring site conditions
 - 3) The Contractor shall notify the Owner's Representative, prior to the award of the contract, of any part or component of the Work that is, in his opinion, not designed to accommodate the existing, naturally occurring, or re-occurring conditions of the site, and whether or not a change in the proposed methods of construction, types of equipment, etc., will affect the bid price.
 - aa) Should the proposed change in construction methods, equipment type, etc., result in additional expense, the Owner reserves the right to request proposals from the other bidders and to make award the contract based on the bid amount which includes the proposed change.
 2. WARRANTY REQUIREMENTS
 - a) Related Damages and Losses: When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.
 - b) Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
 - c) Replacement cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of the Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.
 - d) Owner's Recourse: Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights or remedies.
 - aa) Rejection of Warranties: The Owner reserves the rights to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.
 - e) The Owner reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment is required on such Work or part of the Work, until evidence is presented that entities required to countersign such commitments are willing to do so.
 - f) For specific warranty requirements related to landscape materials, refer to the applicable Section.
 3. SUBMITTALS

- a) Submit written warranties to the Owner's Representative prior to the date certified for Substantial Completion. If the Owner's Representative's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of the Owner's Representative.
 - 1) When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Owner's Representative within fifteen days of completion of that designated portion of the Work.
- b) Form of Submittal: At Final Completion, compile two copies of each required warranty and bond properly executed by the Contractor, or by the Contractor, Subcontractor, supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Project Manual.
- c) Bind warranties and bonds in heavy-duty, commercial quality, durable 3-ring vinyl covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2" by 11" paper.
- d) Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the 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 the installer.
- e) Identify each binder on the front and the spine with the typed or printed title "WARRANTIES AND BONDS", the project title or name, and the name of the Contractor.
- f) When operating and maintenance manuals are required for warranted construction, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

SECTION 017300 – EXECUTION

A. GEOTECHNICAL DATA

1. If the Owner has caused borings or other subsurface investigations to be made, the data or report pursuant to these investigations will be included in the Project Manual, as an Appendix, and labeled as such.
2. The Owner and Owner's Representative do not guarantee the accuracy or validity of the data, nor do they assume any responsibility for the Contractor's interpretation of the data.
3. The Contractor's may, at his option, perform additional subsurface investigation, however, it shall be at the Contractor's sole expense.

B. FIELD ENGINEERING

Provide such field engineering services as are required for proper completion of the Work including, but not limited to:

1. Establishing and maintaining lines and levels
2. Structural design of shores, forms, and similar items provided by the Contractor as part of his means and methods of construction.
3. Verify layout information shown on the Drawings, in relation to the property survey and existing benchmarks and control points. Preserve permanent reference points during construction.

C. COORDINATION OF TRADES AND SUB-CONTRACTORS

1. The Contractor shall be responsible for the proper fitting of all work and for the coordination of the operation of all trades, sub-contractors, or materials and men engaged upon the work. He shall be prepared to guarantee to each of his subcontractors the dimensions which may be required for fitting of their work to all surrounding work and shall do, or cause his agents to do, all cutting, fitting, adjusting and patching necessary to make the several parts of the work come together properly and fit the work to receive, or be received by that of other contractors.
2. When two or more prime contracts are being executed at one time in such manner that the work on one contract may interfere with the work of another, the Owner's Representative shall decide which contractor shall cease work and which shall continue, or whether the work on both contracts may progress at the same time and in what manner.
 - a) The Contractor shall not cause any unnecessary hindrance or delay to any other contractors on the premises, and shall be responsible for all damages done to the work of other contractors caused by him or by his employees.

D. REFERENCE AND CONTROL POINTS PROVIDED BY OWNER

In addition to layout procedures provided by the Contractor for proper performance of the Contractor's responsibilities:

1. Locate and protect existing control points before starting work on the site.
2. Preserve permanent reference points during progress of the Work.
3. Do not change or relocate reference points or items of the Work without specific approval from the Owner's Representative.
4. Promptly advise the Owner's Representative when a reference point is lost or destroyed, or requires relocation because of other changes in the Work.
5. Upon direction of the Owner's Representative, require the field engineer to replace reference stakes or markers.
6. Locate such replacement according to the original survey control.

E. REFERENCE AND CONTROL POINTS PROVIDED BY THE CONTRACTOR

1. If not provided by the Owner (and defined as the responsibility of the Owner in the Contract Documents) establish sufficient general reference points in the form of permanent bench marks, grade stakes or other markers as will enable the Contractor to proceed with the Work.
2. The Contractor may lay out his own work, or cause the Work to be laid out by a qualified party such as a Registered Land Surveyor or a Professional Engineer, as necessary.
3. The Contractor shall establish and be responsible for all lines, elevations and measurements of the structure utilities, installations, and other Work executed by him under the contract.
 - a) Exercise proper precautions to verify the figures and dimensions shown on the drawings before laying out the work; be responsible for any error resulting from failure to exercise such precaution.

SECTION 017329 - CUTTING AND PATCHING

A. CHASES AND OPENINGS

1. The Contractor is responsible for the provision and/or coordination of all chases, openings and recesses required by work of his own forces, subcontractors or separate contractors.
 - a) Each subcontractor or separate contractor shall be responsible for furnishing advance information to the General Contractor as to exact dimensions and locations of such chases and openings, and shall provide and set in place all necessary sleeves, inserts and forms.

- b) Openings shall be accurately located, neatly cut, and no larger than necessary. Provide all rebuilding, patching, refinishing and painting required to restore the construction to original condition.
- 2. Provide shoring, bracing, and support as required to maintain structural integrity of the project.
- 3. Provide protection from cutting and patching operations as required for other portions of the project; protect the Work and existing improvements in proximity to the cutting and patching operations from the elements.

SECTION 017419 – CONSTRUCTION WASTE MANAGEMENT & DISPOSAL

A. PERIODIC CLEANING

- 1. Each Contractor shall clean up after his own work as needed and/or ensure that sub-contractors clean up after their work and remove accumulations of waste, debris, and rubbish caused by construction operations.
 - a) Remove all waste, rubbish and debris on a daily basis (if needed), as they accumulate, and after completion of the Work.

B. PROJECT COMPLETION

- 1. On completion of the project, the entire job shall be cleaned up and left in perfect condition, including adjacent areas.
 - a) Marred surfaces shall be patched or repaired and touched up to match adjoining surfaces.
 - b) All rubbish shall be removed from the site before acceptance.
 - c) New surfaces and/or exposed elements of the Work shall be protected from stain and marring. These surfaces shall be cleaned to the satisfaction of the Owner's Representative or replaced if said stains or mars are unable to be completely removed

C. GOVERNMENTAL REGULATIONS

- 1. Conduct cleaning and disposal operations in compliance with Federal, State and local ordinances and anti-pollution laws and regulations.

SECTION 017700 - PROJECT CLOSEOUT

A. GENERAL

Work includes:

- 1. Substantial Completion.
- 2. Final Completion
- 3. Closeout submittals.
- 4. Instruction

B. SUBSTANTIAL COMPLETION

- 1. Prepare and submit the list ("punch-list") required by the first sentence of Paragraph 9.8.2 of the General Conditions.
 - a) Within a reasonable time after receipt of the list the Owner's Representative will inspect to determine status of completion. Should the Owner's Representative determine that the Work is not Substantially Complete:
 - 1) The Owner's Representative will so notify the Contractor, in writing, giving the reasons therefore.
 - 2) Remedy the deficiencies and notify the Owner's Representative when ready for reinspection.
 - 3) The Owner's Representative will reinspect the Work.
 - b) When the Owner's Representative concurs that the Work is Substantially Complete:
 - 1) The Owner's Representative will prepare a "Certificate of Substantial Completion" on AIA form G704, accompanied by the Contractor's list of items to be completed or corrected, as verified and approved by the Owner's Representative.
 - 2) The Owner's Representative will submit the Certificate to the Owner and to the Contractor for their written acceptance of the responsibilities assigned to them in the Certificate.

C. FINAL COMPLETION

- 1. Prepare and submit the notice required by the first sentence of Paragraph 9.10.1 of the General Conditions.
 - a) Verify that the Work is complete including, but not necessarily limited to, the items mentioned in Paragraph 9.8.2 of the General Conditions. Certify that:
 - 1) the Contract Documents have been reviewed;
 - 2) the Work has been inspected for compliance with the Contract Documents;
 - 3) the Work has been completed in accordance with the Contract Documents;
 - 4) equipment and systems have been tested as required, and are operational;
 - 5) the Work is completed and ready for final inspection.
 - b) The Owner's Representative will make a final inspection to verify status of completion and if all "punch-list" items have been completed, and upon receipt of the Contractor's Final Application for Payment, issue a Certificate of Final Completion. Should the Owner's Representative determine that the Work is incomplete or defective:
 - 1) The Owner's Representative will so notify the Contractor, in writing, listing the incomplete or defective work.
 - 2) Remedy the deficiencies promptly, and notify the Owner's Representative when ready for reinspection.
 - c) FINAL APPLICATION FOR PAYMENT
 - 1) Submit a final Application for Payment to the Owner's Representative, showing all adjustments to the Contract Sum.
 - 2) If needed, the Owner's Representative will prepare a final Change Order showing adjustments to the Contract Sum which were not made previously by Change Orders.
 - 3) Include final waivers of lien from the Contractor, sub-contractors, and major suppliers.
 - 4) Final payment will not be released until all close-out submittals have been made, final cleaning has been performed, and required instruction(s) to Owner's personnel have been accomplished.

D. CLOSEOUT SUBMITTALS

- 1. When the Owner's Representative determines that the Work is acceptable under the Contract Documents, he will request the Contractor to make closeout submittals. Closeout submittals include, but are not necessarily limited to:
 - a) Project record documents described in "Section 017839".
 - b) Operation and maintenance manuals/data as described in "Section 017823".

- c) Warranties and bonds as described in "Section 016000".
- d) Keys and keying schedule;
- e) Spare parts and materials extra stock;
- f) Evidence of compliance with requirements of governmental agencies having jurisdiction including, but not necessarily limited to:
 - 1) Certificates of Inspection, as required
 - 2) Certificate(s) of Occupancy
- g) Certificates of Insurance for products and completed operations;
- h) Evidence of payment and release of liens.
 - 1) Consent of Surety to Final Payment
 - 2) Contractor's Final Waiver of Lien
 - 3) Separate releases or Waivers of Lien for sub-contractors, suppliers and others with lien rights against the Owner, together with a list of those parties.
- i) List of subcontractors, service organizations, and principal vendors, including names, addresses, and telephone numbers where they can be reached for emergency service at all times including nights, weekends, and holidays.

SECTION 017823 - OPERATING/MAINTENANCE MANUALS & INSTRUCTION

A. GENERAL

- 1. Compile operating/product data and related information appropriate for Owner's maintenance and operation of products and equipment provided under the Contract.
- 2. Instruct Owner's personnel in operation and maintenance of products, equipment and systems.
- 3. OPERATIONS AND MAINTENANCE DATA REQUIRED:
 - a) Operating and maintenance manuals are required for each area of Work which is listed below, if that area of Work is included within the scope of Work of the project:
 - 1) HVAC
 - 2) Plumbing – including water supply, sewage and waste disposal
 - 3) Electrical
 - 4) Landscape irrigation system
 - 5) Fire sprinkler system
 - 6) Communications equipment and systems
 - 7) Materials and finishes

B. OPERATIONS/MAINTENANCE MANUALS - FORM OF SUBMITTAL

- 1. Prepare operating and maintenance manuals in the form of an instructional manual, utilizing heavy-duty, durable 3-ring vinyl covered loose-leaf binders, for use by the Owner's operating personnel. Organize into suitable sets of manageable size. Where possible, assemble instructions for similar equipment into a single binder. Provide when drawings or diagrams are required as part of the manual.
- 2. Provide sturdy manila or kraft envelope, accordion type file folder, or cardboard file boxes, properly labeled, of sufficient size to contain all submittals.
- 3. Submit one copy of data in final form at least fifteen days before final inspection. This copy will be returned within fifteen days after final inspection, with comments. After final inspection make corrections or modifications to comply with the Owner's Representative's comments and submit three copies of each approved manual to the Owner's Representative
- 4. WARRANTIES, BONDS AND SERVICE CONTRACTS
 - a) Provide a copy of each warranty, bond or service contract in the appropriate manual for the information of the Owner's operating personnel. Provide written data outlining procedures to be followed in the event of product failure. List circumstances and conditions that would affect validity of the warranty or bond. Provide list for each product containing name, address, and phone number of:
 - 1) Contractor.
 - 2) Subcontractor.
 - 3) Maintenance contractor, as appropriate.
 - 4) Local supply source for parts and replacement.
 - b) Identify area of responsibility of each contractor.

C. MANUAL FOR MATERIALS AND FINISHES

- 1. Submit two (2) copies of complete manual in final form.
- 2. Refer to individual Specification Sections for additional requirements on care and maintenance of materials and finishes.
- 3. Content for products, applied materials and finishes:
 - a) Manufacturer's data, giving full information on products.
 - 1) Catalog number, size, composition.
 - 2) Color and texture designations.
 - 3) Information for re-ordering special-manufactured products.
- 4. Instructions for care and maintenance.
 - a) Manufacturer's recommendations for types of cleaning agents and methods.
 - b) Cautions against cleaning agents and methods detrimental to product.
 - c) Recommended cleaning and maintenance schedule.
- 5. Moisture-Protection and Weather-Exposed Products: Provide complete manufacturer's data with instructions on inspection, maintenance and repair of products exposed to the weather or designed for moisture-protection purposes.
- 6. Manufacturer's Data: Provide manufacturer's data giving detailed information, including the following, as applicable:
 - a) Applicable standards.
 - b) Chemical composition.
 - c) Installation details.
 - d) Inspection procedures.
 - e) Maintenance information.

- f) Repair procedures.

D. INSTRUCTION

1. Instruct the Owner's personnel in proper operation and maintenance of systems, equipment, and similar items which were provided as part of the Work including, but not limited to;
 - a) Mechanical
 - b) Water supply
 - c) Electrical service/distribution and lighting
 - d) Other items or systems as required in individual sections of the Technical Specifications
2. Instructions for the Owner's Personnel: For instruction of the Owner's operating and maintenance personnel, use experienced instructors thoroughly trained and experienced in the operation and maintenance of the equipment or system involved.

SECTION 017839 - PROJECT RECORD DOCUMENTS (AS-BUILTS)

A. DOCUMENTS REQUIRED AT SITE

1. The Contractor shall maintain at the job site one copy of all Drawings, Specifications, Addenda, approved Shop Drawings, Change Orders, and other Contract modifications.
 - a) Each of these project record documents shall be clearly marked "**Project Record Copy**"
 - b) Shall be maintained in good condition
 - c) shall be available at all times for inspection by the Park District, and shall not be used for construction purposes.

- B. Project-record drawings shall be marked up to show significant changes made during construction progress, referenced to visible and accessible features of the structures. Project-record drawings shall be kept current and no work shall be concealed until required information has been recorded.

- C. Record-documents shall be submitted in satisfactory condition to the Park District at the completion of the project. **FINAL COMPLETION OF THE PROJECT WILL NOT BE ATTAINED, AND FINAL PAYMENT WILL BE WITHHELD, UNTIL PROJECT "AS-BUILTS" ARE SUBMITTED TO AND APPROVED BY THE OWNER'S REPRESENTATIVE.**

END OF GENERAL REQUIREMENTS

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Phased construction.
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.

1.2 PROJECT INFORMATION

A. Project Identification: Donovan Utility Storage Building, #2015904.22.

1. Project Location: Donovan Park, 5805 N. Knoxville Ave., Peoria IL., 61614.

B. Owner: Peoria Park District, 1125 W. Lake Ave., Peoria, IL 61614.

1. Owner's Representative: Rebecca Fredrickson , 309-686-3386.

C. Architect: apaceDesign Architects + Engineers, 2112 E. War Memorial Drive, Peoria, IL 61614, 309-685-4722.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

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

1. Project consists of providing and installing pre-engineered wood and metal building at Donovan Park facility. It will include excavation, fill below all slabs and aprons, new concrete for footings, slab and aprons as required, electrical work, ventilation, plumbing work, finishes, backfill and rough grading. Placement of top soil, final grading, and seeding are by owner.

B. Type of Contract.

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

1.4 WORK UNDER SEPARATE CONTRACTS

A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract or other contracts. Coordinate the Work of this Contract with work performed under separate contracts.

1. No other work at this time.

1.5 ACCESS TO SITE

- A. General: Contractor shall have full use of Project site 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 work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
 1. Limits: Confine construction operations to project work limited. Connections of utilities may be required beyond project limited and shall be coordinated with Owner a minimum 72 hours in advance and require a written notice to proceed from the Owner.
 2. Driveways, Walkways and Entrances: Keep driveways 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, unless Owner's approves areas in writing.
 - 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.
- C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

1.6 COORDINATION WITH OCCUPANTS

- A. Owner Limited Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed portions of the Work, prior to Substantial Completion of the Work, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and limited occupancy shall not constitute acceptance of the total Work.
 1. Architect will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied prior to Owner acceptance of the completed Work.
 2. Obtain a Certificate of Occupancy from authorities having jurisdiction before limited Owner occupancy.
 3. Before limited Owner occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, Owner will operate and maintain mechanical and electrical systems serving occupied portions of Work.
 4. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of Work.

1.7 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: Limit work to normal business working hours of 7:00 a.m. to 5:00 p.m., Monday through Friday, unless otherwise indicated.
- 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 Owner not less than two days in advance of proposed utility interruptions.
 2. Obtain Architect'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 Owner not less than two days in advance of proposed disruptive operations.
 2. Obtain Owner's written permission before proceeding with disruptive operations.
- E. Nonsmoking Building: Smoking is not permitted within the property.
- F. Controlled Substances: Use of tobacco products and other controlled substances on Project site is not permitted.

1.8 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.

3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

SECTION 012300 - ALTERNATES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for alternates.

1.2 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.

1.3 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. **Add Alternate Bid No. 1:** Add to the Base Bid all labor, material, and equipment for an additional (2) 8'(Foot) Bays (total 16' feet) to the South end of the new building including the added overhead door, and all associated or related work. Also reference Drawings.

END OF SECTION 012300

SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes cast-in-place concrete for Building Elements only, including formwork, reinforcement, concrete materials, mixture design, placement procedures, finishes and testing for the following:
 - 1. Footings.
 - 2. Foundation Walls.
 - 3. Slab-on-grade.
- B. Related Requirements:
 - 1. Section 312000 "Earth Moving" for drainage fill under slabs-on-grade.
 - 2. Section 033543 "Bonded Abrasive Polished Concrete" For interior concrete floor slabs-on-grade.
 - 3. See CPAA Recommendations for the Design Specification and Placement of Concrete Floor Slab.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Design Mixtures: For each concrete mixture.
- C. Steel Reinforcement Shop Drawings: Placing Drawings that detail fabrication, bending, and placement.

1.3 INFORMATIONAL SUBMITTALS

- A. Material certificates.
- B. Material test reports.

1.4 QUALITY ASSURANCE

- A. 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."

- B. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
- C. Concrete Testing Service: Contractor shall engage and pay for a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.

1.5 PRECONSTRUCTION TESTING

- A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing on concrete mixtures.

1.6 FIELD CONDITIONS

- A. Cold-Weather Placement: Comply with ACI 306.1.
 - 1. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
- B. Hot-Weather Placement: Comply with ACI 301.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

- A. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
 - 1. ACI 301.
 - 2. ACI 117.

2.2 FORM-FACING MATERIALS

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

2.3 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.
- B. Plain-Steel Welded-Wire Reinforcement: ASTM A 1064/A 1064M, plain, fabricated from as-drawn steel wire into flat sheets.

- C. 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."

2.4 CONCRETE MATERIALS - BUILDING ELEMENTS

A. Cementitious Materials:

- 1. Portland Cement: ASTM C 150/C 150M, Type I.

B. Normal-Weight Aggregates: ASTM C 33/C 33M, graded.

- 1. Maximum Coarse-Aggregate Size: 1-1/2 inches (38 mm) nominal.
- 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and that do 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.

D. Water: ASTM C 94/C 94M and potable.

2.5 VAPOR RETARDERS

- A. Sheet Vapor Retarder: Polyethylene sheet, ASTM D 4397, not less than 15 mils thick.

2.6 CURING MATERIALS

- A. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- B. Water: Potable.
- C. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A. Shall be compatible and suitable for polishing of concrete. Coordinate between trades.

2.7 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.

2.8 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**.
- B. Cementitious Materials: Use fly ash, pozzolan, slag cement, and silica fume as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 40 percent.
- C. Admixtures: Use admixtures according to manufacturer's written instructions.
 - 1. Use 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 and concrete with a w/c ratio below 0.50.

2.9 CONCRETE MIXTURES FOR BUILDING ELEMENTS

- A. Normal-Weight Concrete:
 - 1. Minimum Compressive Strength: **4000 psi (27.6 MPa)** at 28 days.
 - 2. Maximum W/C Ratio: 0.45.
 - 3. Slump Limit: **4 inches (100 mm)** for concrete with verified slump of **2 to 4 inches (50 to 100 mm)** before adding high-range water-reducing admixture or plasticizing admixture, plus or minus **1 inch (25 mm)**.
 - 4. Air Content (for foundations, exterior slabs, and footings only): 5.5 percent, plus or minus 1.5 percent at point of delivery for **1-1/2-inch (38-mm)** nominal maximum aggregate size.
 - 5. No air content shall be used at interior building slab. See also CPAA Requirements.

2.10 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.11 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.

PART 3 - EXECUTION

3.1 FORMWORK INSTALLATION

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301 (ACI 301M), 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 (ACI 117M).
- C. Do not chamfer exterior corners and edges of permanently exposed concrete.

3.2 EMBEDDED ITEM INSTALLATION

- 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.

3.3 VAPOR-RETARDER INSTALLATION

- A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E 1643 and manufacturer's written instructions.
 1. Lap joints 6 inches (150 mm) and seal with manufacturer's recommended tape.

3.4 STEEL REINFORCEMENT INSTALLATION

- A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

3.5 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.
- C. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

3.6 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections are completed.
- B. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is 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. Consolidate placed concrete with mechanical vibrating equipment according to **ACI 301** (**ACI 301M**).

3.7 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
 - 1. Apply to concrete surfaces not exposed to public view.
- B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
 - 1. Apply to concrete surfaces exposed to public view.
- C. Rubbed Finish: Apply the following to smooth-formed-finished as-cast concrete where indicated:
 - 1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
 - 2. Grout-Cleaned Finish: Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes. Mix 1 part portland cement to 1-1/2 parts fine sand with a 1:1 mixture of bonding admixture and water. Add white portland cement in amounts determined by trial patches, so color of dry grout matches adjacent surfaces. Scrub grout into voids and remove

excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.

3. Cork-Floated Finish: Wet concrete surfaces and apply a stiff grout. Mix 1 part portland cement and 1 part fine sand with a 1:1 mixture of bonding agent and water. Add white portland cement in amounts determined by trial patches, so color of dry grout matches adjacent surfaces. Compress grout into voids by grinding surface. In a swirling motion, finish surface with a cork float.

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

3.8 FINISHING FLOORS AND SLABS

- A. General: This floor is to be diamond polished. Reference Concrete Polishing Association of America (CPAA) Recommendations for Design, Specification and Placement of Concrete Floor Slabs.
- B. Scratch Finish: Not used
- C. Float Finish: See CPAA document
- D. Trowel Finish: See CPAA document
 1. Apply a trowel finish to surfaces to be diamond polished.
 2. Finish and measure surface in accordance with CPAA document.
 3. Comply with flatness and levelness tolerances for trowel-finished floor surfaces in accordance with CPAA document.

3.9 CONCRETE PROTECTION 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 (ACI 301M) for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for remainder of curing period.
- D. 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.
2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period, using cover material and waterproof tape.
3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
 - a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacture.
4. 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.

3.10 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.

3.11 FIELD QUALITY CONTROL

- A. Special Inspections: Contractor shall engage and pay for a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.

3.12 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 before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms

remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.

- D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
- E. 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 lap over adjacent absorptive covers.
 - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
 - b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
 - c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project.
 - 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
 - a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project.
 - 4. 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.

3.13 JOINT FILLING

- A. Prepare, clean, and install joint filler according to manufacturer's written instructions.

- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.

3.14 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 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 in any dimension to solid concrete. Limit cut depth to 3/4 inch. 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 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 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 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 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 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.
- 3.15 FIELD QUALITY CONTROL
- A. Testing and Inspecting: Contractor shall engage and pay for a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. 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., but less than 25 cu. yd, plus one set for each additional 50 cu. yd. or fraction thereof.
 - 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.
 2. Slump: ASTM C 143; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
 3. 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.
 4. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.

5. Compression Test Specimens: ASTM C 31.
 - a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
6. Compressive-Strength Tests: ASTM C 39; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.
7. 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.
8. 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.
9. 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.
10. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
11. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42 or by other methods as directed by Architect.
12. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
13. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

END OF SECTION 033000



CPAA RECOMMENDATIONS FOR THE DESIGN, SPECIFICATION, AND PLACEMENT OF CONCRETE FLOOR SLABS

The successful completion of a diamond polished floor is dependent on two important factors:

- The quality of the concrete floor slab on which the diamond polishing will take place.
- The quality of the applied products and polishing equipment combined with the skill and abilities of the polishing company.

CPAA offers guide specifications to design professionals and the construction industry that addresses the second of these two important factors, however, the diamond polishing company has no control over the design, specification, or placement of the concrete floor slabs that are to be polished. To address the first of these two important factors, CPAA recommends the following design and construction recommendations be evaluated for inclusion in the Division 03 cast-in-place concrete specifications prepared by the project structural engineer.

DIAMOND POLISHED CONCRETE IS NOT TERRAZZO

A diamond polished concrete floor is not like terrazzo:

- Terrazzo is mixture of matrix and aggregates that are topically applied to a concrete floor then polished; diamond polishing is a process of finishing the concrete floor using grinding and polishing equipment along with concrete chemicals.
- Application of terrazzo and diamond polishing covers the concrete floor that was placed months earlier and followed by the construction of a building over it, however the terrazzo will cover the concrete floor but the diamond polishing finished the concrete floor that is there.
- The cementitious or epoxy matrix color can be selected for terrazzo, however, the concrete floor slabs is a product of the local concrete producer and there is very little, if any, ability to influence the color.
- Aggregates for terrazzo can be selected, however, the aggregates for diamond polished floors is the aggregate normally used by the concrete producer.

The point is that a diamond polished concrete floor cannot be thought of as a terrazzo floor. It is a different process that is not a covering and depends on heavily on the quality of the concrete.

EARTH SUBGRADE

CPAA recommends fine grading the subgrade uniformly flat using a laser device.

Imperfections in the subgrade surface, such as rises and depressions, could cause variations in the thickness of the concrete which increases the possibility of cracking because of restricted movement. A uniformly flat subgrade surface reduces the potential of cracking because the concrete slab can expand and contract with minimal friction. While cracks can be filled during the polishing process, they cannot be made invisible by the polishing contractor.

Also, depressions in the subgrade could allow bleed water to pool on top of the below slab vapor barrier during plastic state of concrete which could cause blemishes in the concrete surface because of the differential curing and drying. Blemishes such as this cannot be eliminated by the polishing contractor.

BELOW SLAB VAPOR BARRIER

Moisture movement from earth subgrade through the concrete slab-on-grade to the concrete surface is a major problem in the flooring covering industry today, and can adversely affect a polished finish as well. A high-performance vapor barrier between the subgrade and the concrete is extremely important, therefore CPAA recommends a membrane that is rated Class A according to *ASTM E1745 - 09 Standard Specification for Water Vapor Retarders Used in Contact with Solid or Granular Fill under Concrete Slabs* that has the following properties:

- Permeance: Not more than 0.1 perms (grains/sq ft/hr/in-Hg) after conditioning testing according to Section 7.1 of *ASTM E154 - 08a Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover*.
- Thickness: Not less than 15 mils.
- Tensile Strength: Not less than 45 lbf/in.
- Puncture Resistance: 2200 grams.

Installation of the vapor barrier should comply with *ASTM E1643 - 09 Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs*.

CONCRETE MIX DESIGN

In addition to ACI standards for mixing concrete, CPAA recommends the following:

- For the portion of the concrete that will be polished, each mix ingredient should be from the same source, from the same respective batch, and each delivered to the concrete producer in one delivery.
- Type I portland cement according to *ASTM C150 - 09 Standard Specification for Portland*

Cement.

- A water-to-cement (W/C) ratio is .45.
- One of the strengths of diamond polished concrete is the range of aggregates that can be exposed, therefore a uniformly graded mix of not less than 3 aggregate sizes - fine, intermediate, and large - will yield the best visual quality. It should be understood that since aggregates are heavy and there is a cost for transporting aggregate from its source to the batch plant is a factor in the cost of the concrete, locally available aggregates are used to produce concrete. This is an important design consideration because, depending on the project location, there may be few, if any, opportunities for other aggregates to be used in the concrete mix.
- The mix should not be air entrained.
- Inclusion of admixtures, plasticizers, slag, fly ash, or other products replacing portions of the portland cement in the concrete mix is not recommended. If any of these are used, the total volume should not exceed 20 percent of the portland cement volume.
- Admixtures should not be calcium chloride based.
- If an integral color is included in the concrete mix, the minimum batch size should be 3 cubic yards.
- During batching, the incoming material consistency should be monitored and controlled.
- The compressive strength should not be less than 3,500 psi.

PLACING CONCRETE

In addition to ACI standards for placing concrete, CPAA recommends the following:

- Transit mixer drums should be properly washed out after each concrete mix discharge and before a new batch is loaded.
- Water added by the transit mixer driver should be monitored and controlled.
- During mixing, transporting, and placing the concrete mix, monitor and control the temperature to not more than 85 degrees F.
- The slump at the point of discharge should be 5 inches, plus or minus 1/2 inch.

FINISHING CONCRETE

In addition to ACI standards for finishing concrete, CPAA recommends the following:

- After placement of the concrete mix, strike off the surface using a laser screed, then bull float at

90 degrees to the screed pull direction, vib and consolidate, and level to specified elevation. A 10 foot check rod is recommended, however, if not available bull floats should be 6 foot long; smaller bull floats may be used on sloping surfaces.

- When placing concrete mix at edges, use a 36 inch long metal or wood edged screed and run parallel with the formwork or edge after the initial screeding and before floating. Hand floating should be parallel to the edge and performed in 24 inch increments to avoid lifting or depressing the surface. Avoid pulling excessive amounts of the concrete mix to the edges by either not using hand tools more than 24 inches from the edge, or floating in a fan direction.
- When little or no bleed water is present and concrete mix has sufficiently hardened to support finishing equipment without causing imperfections in the surface, begin machine floating using pans and make two passes.
- To improve the possibility of achieving the specified flatness/levelness requirements, check and re-straighten if necessary using a 10 foot or longer highway straight edge or bump cutter.
- When machine floating edges, use pans and overrun the formed edge by 5 inches. For both walk-behind and riding equipment, make the first pass along the edge with the left side, or cutting side, of the equipment to pull down high spots of the surface. Make a second pass along the edge with the right side, or filling side, of the equipment to fill low spots in the surface.
- Steel trowel the surface in three passes without burning the surface or burning the aggregate (plastic trowel blades will prevent burning the aggregate).
- Lightly hand or machine tool edges construction joints and exercise care that edges are not depressed or chattered along bulkheads, formed edges, columns, and pipe penetrations.
- Do not dust the finished surface with dry portland cement or sand to accelerate curing and drying.

CONCRETE CURING AND DRYING

CPAA recommends evaporation control and wet curing concrete slabs according to *ACI 308R-01: Guide to Curing Concrete (Reapproved 2008)* without the use of topically applied curing compounds. While topically applied curing compounds may assist with curing during the first few days after concrete placement, they retard concrete drying in the weeks and months after curing and may cause the slab to be too wet when the time comes for diamond polishing or floor covering application.

Densifiers and hardeners should not be applied to concrete.

FLOOR FLATNESS/LEVELNESS CRITERIA

CPAA recommends specifying the following tolerances:

	Specified Overall Value	Minimum Local Value
F _F Floor Flatness	50	35

F _L Floor Levelness	30	20
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The floor flatness and levelness should be tested within 8 hours after completion of the final troweling operation according to *ASTM E1155 - 96(2008) Standard Test Method for Determining F_F Floor Flatness and F_L Floor Levelness Numbers* by an independent testing agency experienced with the testing procedure and possessing the necessary equipment.

Additionally, a remedy for out-of-tolerance work should be specified.

CONTRACTION JOINTS

Based on independent studies, CPAA recommends saw-cutting slabs as soon as possible after finishing using a saw blade that has a **triangular arbor configuration** to reduce edge raveling or dislodging aggregates at the following spacing to minimize slab curling and cracking:

Slab thickness, inches	Spacing, feet on centers each way
4	10
6	12
8	15

Since concrete shrinks during curing and drying in two directions, cracks are minimized when the area between contraction joints is as close to a square as possible.

PROTECTION

CPAA recommends the concrete finishing specification include a requirement that the finished concrete slab comply with the damage and stain prevention provisions specified in the diamond polishing concrete floors specification.

SECTION 033543 - BONDED ABRASIVE POLISHED CONCRETE FLOORS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Products and procedures for bonded abrasive polishing concrete floors using multi-step wet/dry mechanical process, scoring of concrete, and accessories indicated, specified, or required to complete polishing.

1.2 DEFINITIONS

- A. Terminology: As defined by CPAA.
- B. Polished Concrete: The act of changing a concrete floor surface, with or without aggregate exposure, to achieve a specified level of gloss.
- C. Bonded Abrasive Polished Concrete: The multi-step operation of mechanically grinding, honing, polishing of a concrete floor surface with bonded abrasives to cut a concrete floor surface and to refine each cut to the maximum potential to achieve a specified level of finished gloss as defined by the CPAA. This yields the most durable finish and requires the least amount of maintenance.

1.3 SUBMITTALS

- A. Product Data: Manufacturer's technical literature for each product indicated, specified, or required. Include manufacturer's technical data, application instructions, and recommendations.
- B. Installer Qualifications: Data for company, principal personnel, experience, and training specified in PART 1 "Quality Assurance" Article.
- C. Field Quality Control - Dynamic Coefficient of Friction Test Reports: Reports of testing specified in PART 3 "Field Quality Control" Article.
- D. Field Quality Control - Static Coefficient of friction test reports: report of testing specified in Part 3 "Field Quality Control" article.
- E. Maintenance Data: For inclusion in maintenance manual required by Division 01.
 - 1. Include instructions for maintenance of installed work, including methods and frequency recommended for maintaining optimum condition under anticipated use.
 - 2. Include precautions against cleaning products and methods which may be detrimental to finishes and performance.

1.4 QUALITY ASSURANCE

- A. Polisher Qualifications:

1. Experience: Company experienced in performing specified work similar in design, products, and extent to scope of this Project; with a record of successful in-service performance; and with sufficient production capability, facilities, and personnel to produce specified work.
 2. Supervision: Maintain competent supervisor who is at Project during times specified work is in progress, and is currently certified as Craftsman - Level I or higher by CPAA.
 3. Manufacturer Qualification: Approved by manufacturer to apply liquid applied products.
- B. Walkway Auditor: Certified by CPAA or NFSI to test bonded abrasive polished concrete floors for dynamic and static coefficient of friction according to ANSI B101.1 and B101.3.
- C. Coefficient of Friction: Achieve following coefficient of friction by field quality control testing in accordance to the following standards:
1. ANSI B101.1 Static Coefficient of Friction - Achieve a minimum of .42 for level floor surfaces.
 2. ANSI B101.3 Dynamic Coefficient of Friction - Achieve a minimum of .35 for level floor surfaces.
- D. Field Mock-up: Before performing work of this Section, provide following field mock-up to verify selections made under submittals and to demonstrate aesthetic effects of polishing. Approval does not constitute approval of deviations from Contract Documents, unless Architect specifically approves deviations in writing.
1. Form, reinforce, and cast concrete slab for (2) 10 foot square field mock-ups to demonstrate the expected range of finish, color, and appearance.
 2. Concrete shall be same mix design as scheduled for Project.
 3. Placement and finishing work shall be performed by same personnel as will place and finish concrete for Project.
 4. Mock-up shall be representative of work to be expected.
 5. Perform grinding, honing, and polishing work as scheduled for Project using same personnel as will perform work for Project.
 6. Approval is for following aesthetic qualities:
 - a. Compliance with approved submittals.
 - b. Compliance with specified aggregate exposure.
 - c. Compliance with specified finished gloss level.
 - d. Compliance with specified color.
 7. Obtain Architect's approval before starting work on Project.

8. Protect and maintain approved field mock-ups during construction in an undisturbed condition as a standard for judging completed work.
- E. Pre-Installation of Concrete Conference: Prior to placing concrete for areas scheduled for polishing, conduct conference at Project to comply with requirements of applicable Division 01 Sections.
 1. Required Attendees:
 - a. Owner.
 - b. Architect.
 - c. Contractor, including supervisor.
 - d. Concrete producer.
 - e. Concrete finisher, including supervisor.
 - f. Concrete polisher, including supervisor.
 - g. Technical representative of liquid applied product manufacturers.
 - h. Walkway auditor.
 2. Minimum Agenda: Polisher shall demonstrate understanding of work required by reviewing and discussing procedures for, but not limited to, following:
 - a. Tour field mock-up and representative areas of required work, discuss and evaluate for compliance with Contract Documents, including substrate conditions, surface preparations, sequence of procedures, and other preparatory work performed by other installers.
 - b. Review Contract Document requirements.
 - c. Review approved submittals and field mock-up.
 - d. Review procedures, including, but not limited to:
 - 1) Applicable Division 03 Section on cast-in-place concrete
 - a. Specific mix design.
 - b. Specified curing methods/procedures.
 - c. Projected 3, 10, and 28 day compression strength test related to specified aggregates exposure for finished floor and project phasing.
 - d. Protection of concrete substrate during construction and prior to polishing process
 - e. Project phasing and scheduling for each step of grinding, honing and polishing operations including, but not limited to:
 - i. Quality of qualified personnel committed to project.
 - ii. Quality and size of grinders committed to project.
 - iii. Proper disposal of concrete slurry and/or concrete dust.
 - f. Details of each step of grinding, honing, and polishing operations.
 - i) Application of color.
 - ii) Application of liquid applied products.

iii) Protecting polished concrete floors after polishing work is complete.

3. Reports: Record discussions, including decisions and agreements reached, and furnish copy of record to each party attending.

1.5 FIELD CONDITIONS

A. Damage and Stain Prevention: Take precautions to prevent damage and staining of concrete surfaces to be polished.

1. Prohibit use of markers, spray paint, and soapstone.
2. Prohibit improper application of liquid membrane film forming curing compounds.
3. Prohibit vehicle parking over concrete surfaces.
4. Prohibit pipe-cutting operations over concrete surfaces.
5. Prohibit storage of any items over concrete surfaces for not less than 28 days after concrete placement.
6. Prohibit ferrous metals storage over concrete surfaces.
7. Protect from petroleum, oil, hydraulic fluid, or other liquid dripping from equipment working over concrete surfaces.
8. Protect from acids and acidic detergents contacting concrete surfaces.
9. Protect from painting activities over concrete surfaces.

B. Environmental Limitations: Comply with manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting liquid applied product application.

PART 2 - PRODUCTS

2.1 LIQUID APPLIED PRODUCTS

A. Liquid Densifier: An Aqueous solution of Silicon Dioxide dissolved in one of the following Hydroxides that penetrates into the concrete surface and reacts with the Calcium Hydroxide to provide a permanent chemical reaction that hardens and densifies the wear surface of the cementitious portion of the concrete. All of the following have the same chemistry varying only by the alkali used for solubility of the Silicon Dioxide.

1. Sodium Silicate
2. Potassium Silicate
3. Lithium Silicate
4. Alkaline solution of Colloidal Silicates or Silica

B. Clear Water-based silicate solution that penetrates concrete and reacts with calcium hydroxide to lock in color particles.

- C. Sealer-Impregnating Protection: Non film forming stain and food resistant penetrating sealer designed to be applied to densified and polished concrete which meets the requirements of OSHA for slip resistance as tested by ASTM D 2047 and stain resistance of ASTM D 1308.

2.2 ACCESSORIES

- A. Repair Material: A product that is designed to repair cracks and surface imperfections. The specified material must have sufficient bonding capabilities to adhere after the polishing to the concrete surface and provide abrasion resistance equal to or greater than the surrounding concrete substrate.
- B. Grout Material: A thin mortar used for filling spaces. Acceptable products shall be:
- a. Epoxy, urethane, polyurea, or polyaspartic resins.
 - b. Latex or acrylic binders mixed with cement dust from previous grinding steps.
 - c. Silicate binders mixed with cement dust from previous grinding steps.
- C. Protective Cover: Non-woven, puncture and tear resistant, polypropylene fibers laminated with a multi-ply, textured membrane, not less than 18 mils in thickness.

2.3 POLISHING EQUIPMENT

- A. Field Grinding and Polishing Equipment:
1. A multiple head, counter rotating, walk behind or ride on machine, of various size and weights, with diamond tooling affixed to the head for the purpose of grinding concrete. Excludes janitorial maintenance equipment.
 2. If dry grinding, honing, or polishing, use dust extraction equipment with flow rate suitable for dust generated, with squeegee attachments.
 3. If wet grinding, honing, or polishing, use slurry extraction equipment suitable for slurry removal and containment prior to proper disposal.
- B. Edge Grinding and Polishing Equipment: Hand-held or walk-behind machines which produces same results, without noticeable differences, as field grinding and polishing equipment.
- C. Burnishing Equipment: High speed walk-behind or ride-on machines capable of generating 1000 to 2000 revolutions per minute and with sufficient head pressure of not less than 20 pounds to raise floor temperature by 20 degrees F.
- D. Diamond Tooling: Abrasive tools that contain industrial grade diamonds within a bonded matrix (such as metallic, resinous, ceramic, etc) that are attached to rotating heads to refine the concrete

substrate.

1. Bonded Abrasive: Abrasive medium that is held within a bonding that erodes away to expose new abrasive medium as it is used.
2. Metal Bond Tooling: Diamond tooling that contains industrial grade diamonds with a metallic bonded matrix that is attached to rotating heads to refine the concrete substrate. These tools are available in levels of soft, medium, and hard metallic matrices that are matched with contrasting concrete substrates (i.e. hard matrix/soft concrete, medium matrix/medium concrete, soft matrix/hard concrete) and are typically used in the grinding and early honing stages of the polishing process.
3. Resin Bond Tooling: Diamond tooling that contains industrial grade diamonds within a resinous bonded matrix (poly-phenolic, ester-phenolic, thermoplastic-phenolic) that is attached to rotating heads to refine the concrete substrate. Resin bond tooling does not have the soft/medium/hard characteristics of metal bond tooling and are typically used for the later honing and polishing stages of the polishing process.
4. Hybrid Tooling: Diamond tooling that combines metal bond and resin bond that has the characteristics of both types of tooling. These types of tools are typically used as either transitional tooling from metal bond tools to resin bond tools or as a first cut tool on smooth concrete surfaces.
5. Transitional Tooling: Diamond tooling that is used to refine the scratch pattern of metal bond tooling prior to the application of resin bond tooling in an effort to extend the life of resin bond tooling and to create a better foundation for the polishing process.
6. Abrasive Pad: An abrasive pad, resembling a typical floor maintenance burnishing pad, that has the capability of refining the concrete surface on a microscopic level that may or may not contain industrial grade diamonds. These pads are typically used for the maintenance and/or restoration of previously installed polished concrete flooring.

PART 3 -EXECUTION

3.1 EXAMINATION

A. Acceptance of Surfaces and Conditions:

1. Examine substrates to be polished for compliance with requirements and other conditions affecting performance.
 - a. Concrete Finished Floor Flatness according to applicable Division 03 Section on cast-in-place concrete.
 - b. Concrete curing methods according to applicable Division 03 Section on cast-in-place concrete.
 - c. Concrete Compression strength per according to applicable Division 03 Section on cast-in-place concrete.

B. Proceed only when unsatisfactory conditions have been corrected in a manner complying with Contract Documents.

- C. Starting work within a particular area will be construed as acceptance of surface conditions.

3.2 PREPARATION

A. Cleaning New Concrete Surfaces:

1. Prepare and clean concrete surfaces.
2. Provide sound concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, paint splatter, and other contaminants incompatible with liquid applied products and polishing.

3.3 POLISHING CONCRETE FLOORS

- A. Perform all polishing procedures to ensure a consistent appearance from wall to wall.

B. Initial Grinding:

1. Use grinding equipment with metal or semi-metal bonded tooling.
2. Begin grinding in one direction using sufficient size equipment and diamond tooling to meet specified aggregate exposure class.
3. Make sequential passes with each pass perpendicular to previous pass using finer grit tool with each pass, up to 100 grit metal bonded tooling.
4. Achieve maximum refinement with each pass before proceeding to finer grit tools.
5. Clean floor thoroughly after each pass using dust extraction equipment properly fitted with squeegee attachment or walk behind auto scrubber suitable to remove all visible loose debris and dust.
6. Continue grinding until aggregate exposure matches approved field mock-ups.

C. Treating Surface Imperfections:

1. Mix patching compound or grout material with dust created by grinding operations, manufacturer's tint, or sand to match color of adjacent concrete surfaces.
2. Fill surface imperfections including, but not limited to, holes, surface damage, small and micro cracks, air holes, pop-outs, and voids with grout to eliminate micro pitting in finished work.
3. Work compound and treatment until color differences between concrete surface and filled surface imperfections are not reasonably noticeable when viewed from 10 feet away under lighting conditions that will be present after construction.

- D. Liquid Densifier Application: Apply undiluted to point of rejection, remove excess liquid, and allow curing according to manufacturers instructions.

E. Grout Grinding:

1. Use grinding equipment and appropriate grit and bond diamond tooling.

2. Apply grout, forced into the pore structure of the concrete substrate, to fill surface imperfections.
3. Clean floor thoroughly after each pass using dust extraction equipment properly fitted with squeegee attachment or walk behind auto scrubber suitable to remove all visible loose debris and dust.

F. Honing:

1. Use grinding equipment with hybrid or resin bonded tooling.
2. Hone concrete in one direction starting with a 100 grit tooling and make as many sequential passes as required to remove scratches, each pass perpendicular to previous pass, up to 400 grit tooling reaching maximum refinement with each pass before proceeding to finer grit tooling.
3. Clean floor thoroughly after each pass using dust extraction equipment properly fitted with squeegee attachment or walk behind auto scrubber suitable to remove all visible loose debris and dust.

G. Polishing:

1. Use polishing equipment with resin-bonded tooling.
2. Begin polishing in one direction starting with 800 grit tooling.
3. Make sequential passes with each pass perpendicular to previous pass using finer grit tooling with each pass until the specified level of gloss has been achieved.
4. Achieve maximum refinement with each pass before proceeding to finer grit pads.
5. Clean floor thoroughly after each pass using dust extraction equipment properly fitted with squeegee attachment or walk behind auto scrubber suitable to remove all visible loose debris and dust.
6. Stain Protection: Uniformly apply and remove excessive liquid according to manufacturer's instructions. Final film thickness should be less than .05 mils after cure.
7. Final Polish: Using burnishing equipment and finest grit abrasive pads, burnish to uniform reflective sheen matching approved field mock-up.

H. Final Polished Concrete Floor Finish:

1. Aggregate Exposure Class C - Medium Aggregate Finish: Remove not more than 1/8 inch of concrete surface by grinding and polishing resulting in majority of exposure displaying medium aggregate with no, or small amount of, large aggregate at random locations.

2. Finished Gloss Level 3 - High Gloss Appearance:

- a. Procedure: Recommended not less than 4 steps with full refinement of each diamond tool with one application of densifier.
- b. Gloss Measurement: Determine the specular gloss by incorporating the following:

1.) Reflective Clarity Reading: Not less than 65

according to ASTM D5767 prior to the application of sealers.

- 2.) Reflective Sheen Reading: Not less than 35 according to ASTM D523 prior to the application of sealers.

- I. Scoring: Score decorative jointing in concrete surfaces 1/16 inch deep with diamond blades to match pattern indicated. Rinse until water is clear. A max. 10'x10' scoring or 100 s.f.

3.6 FIELD QUALITY CONTROL

- A. Field Testing: Engage a qualified walkway auditor to perform field testing to determine if polished concrete floor finish complies with specified coefficient of friction;

1. ANSI B101.1 for static coefficient of friction
2. ANSI B101.3 for dynamic coefficient of friction

3.7 CLOSEOUT ACTIVITIES

- A. Maintenance Training: CPAA Craftsman shall train Owner's designated personnel in proper procedures for maintaining polished concrete floor.

3.8 PROTECTION

- A. Covering: After completion of polishing, protect polished floors from subsequent construction activities with protective covering.

END OF SECTION

SECTION 055000 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Miscellaneous steel framing and supports.
2. Metal bollards.

B. Products furnished, but not installed, under this Section include the following:

1. Anchor bolts, steel pipe sleeves, slotted-channel inserts, and wedge-type inserts indicated to be cast into concrete or built into unit masonry.

1.2 ACTION SUBMITTALS

A. Product Data: For the following:

1. Paint products.
2. Grout.
3. Metal Bollards.

B. Shop Drawings: Show fabrication and installation details. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on exterior metal fabrications by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects.

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

2.2 METALS

A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

- B. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- C. Stainless-Steel Bars and Shapes: ASTM A 276, Type 304.
- D. Steel Pipe: ASTM A 53/A 53M, Standard Weight (Schedule 40) unless otherwise indicated.
- E. Zinc-Coated Steel Wire Rope: ASTM A 741.
 - 1. Wire-Rope Fittings: Hot-dip galvanized-steel connectors with capability to sustain, without failure, a load equal to minimum breaking strength of wire rope with which they are used.
- F. Slotted Channel Framing: Cold-formed metal box channels (struts) complying with MFMA-4.
 - 1. Size of Channels: 1-5/8 by 1-5/8 inches (41 by 41 mm)] [As indicated.
 - 2. Material: Cold-rolled steel, ASTM A 1008/A 1008M, structural steel, Grade 33 (Grade 230); 0.067-inch (1.7-mm)] minimum thickness; coated with rust-inhibitive, baked-on, acrylic enamel.

2.3 FASTENERS

- A. General: Unless otherwise indicated, provide Type 304 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633 or ASTM F 1941 (ASTM F 1941M), Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.
 - 1. Provide stainless-steel fasteners for fastening aluminum.
 - 2. Provide stainless-steel fasteners for fastening stainless steel.
- B. Cast-in-Place Anchors in Concrete: Either threaded type or wedge type unless otherwise indicated; galvanized ferrous castings, either ASTM A 47/A 47M malleable iron or ASTM A 27/A 27M cast steel. Provide bolts, washers, and shims as needed, all hot-dip galvanized per ASTM F 2329.
- C. Post-Installed Anchors: Torque-controlled expansion anchors or chemical anchors.
 - 1. 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.
 - 2. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 2 (A4) stainless-steel bolts, ASTM F 593 (ASTM F 738M), and nuts, ASTM F 594 (ASTM F 836M).
- D. Slotted-Channel Inserts: Cold-formed, hot-dip galvanized-steel box channels (struts) complying with MFMA-4, 1-5/8 by 7/8 inches (41 by 22 mm) by length indicated with anchor straps or studs not less than 3 inches (75 mm) long at not more than 8 inches (200 mm) o.c. Provide with temporary filler and tee-head bolts, complete with washers and

nuts, all zinc-plated to comply with ASTM B 633, Class Fe/Zn 5, as needed for fastening to inserts.

2.4 MISCELLANEOUS MATERIALS

- A. Shop Primers: Provide primers that comply with Section 099123 "Interior Painting," and Section 099600 "High-Performance Coatings."
- B. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.
- C. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187/D 1187M.
- D. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107/C 1107M. Provide grout specifically recommended by manufacturer for interior and exterior applications.
- E. Concrete: Comply with requirements in Section 033000 "Cast-in-Place Concrete" for normal-weight, air-entrained, concrete with a minimum 28-day compressive strength of 3000 psi (20 MPa).

2.5 FABRICATION, GENERAL

- A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Use connections that maintain structural value of joined pieces.
- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges. Remove sharp or rough areas on exposed surfaces.
- C. Weld corners and seams continuously to comply with the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended.
- D. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Locate joints where least conspicuous.
- E. Fabricate seams and other connections that are exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- F. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors not less than 8 inches (200 mm) from ends and corners of units and 24 inches (600 mm) o.c.

2.6 MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.
- B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.
- C. Fabricate steel girders for wood frame construction from continuous steel shapes of sizes required.
 - 1. Where wood nailers are attached to girders with bolts or lag screws, drill or punch holes at maximum of 24 inches (600 mm) o.c.

2.7 METAL BOLLARDS

- A. Fabricate metal bollards from Schedule 40 steel pipe.
 - 1. Cap bollards with 1/4-inch- (6.4-mm-) thick steel plate.
- B. Fabricate sleeves for bollard anchorage from steel pipe with 1/4-inch- (6.4-mm-) thick steel plate welded to bottom of sleeve.
- C. Prime bollards with primer specified in Section 099113 "Exterior Painting."
- D. Hot Dip Galvanized Bollards.

2.8 FINISHES, GENERAL

- A. Finish metal fabrications after assembly.

2.9 STEEL AND IRON FINISHES

- A. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A 153/A 153M for steel and iron hardware and with ASTM A 123/A 123M for other steel and iron products.
- B. Shop prime iron and steel items not indicated to be galvanized unless they are to be embedded in concrete, sprayed-on fireproofing, or masonry, or unless otherwise indicated.
 - 1. Shop prime with primers specified in Section 099600 "High-Performance Coatings" are indicated.
- C. Preparation for Shop Priming: Prepare surfaces to comply with requirements indicated below:

1. Exterior Items: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 2. Items Indicated to Receive Zinc-Rich Primer: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 3. Items Indicated to Receive Primers Specified in Section 099600 "High-Performance Coatings": SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 4. Other Items: SSPC-SP 3, "Power Tool Cleaning."
- D. Shop Priming: Apply shop primer to comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- C. Field Welding: Comply with the following requirements:
 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 2. Obtain fusion without undercut or overlap.
 3. Remove welding flux immediately.
 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction.
- E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.

3.2 INSTALLING METAL BOLLARDS

- A. Fill metal-capped bollards solidly with concrete and allow concrete to cure seven days before installing.

- B. Anchor bollards in concrete with pipe sleeves preset and anchored into concrete. Fill annular space around bollard solidly with nonshrink grout.
- C. Anchor bollards in place with concrete footings. Place concrete and vibrate or tamp for consolidation. Support and brace bollards in position until concrete has cured.
- D. Fill bollards solidly with concrete, mounding top surface to shed water.

3.3 ADJUSTING AND CLEANING

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780/A 780M.

END OF SECTION 055000

Section 06 10 00 - Rough Carpentry

PART 1 - GENERAL

1.1 WORK INCLUDES

- A. Base Bid:
 - 1. General Contractor Provide:
 - a. Framing with dimension lumber.
 - b. Wood blocking and nailers.
 - c. Plywood backing panels.

1.2 RELATED WORK

- A. Specified Elsewhere:
 - 1. Section 06 16 00 - Sheathing.
 - 2. Section 13 34 20 - Post Framed Buildings.

1.3 DEFINITIONS

- A. Exposed Framing: Framing Not Concealed by other construction.
- B. Dimension Lumber: Lumber of 2" nominal or greater but less than 5" nominal in least dimension.
- C. Lumber grading agencies, and the abbreviations used to reference them, include the following:
 - 1. NELMA: Northeastern Lumber Manufacturer Association.
 - 2. NLGA: National Lumber Grades Authority.
 - 3. RIS: Redwood Inspection Service.
 - 4. SPIB: The Southern Pipe Inspection Bureau.
 - 5. WCLIB: West Coast Lumber Inspection Bureau.
 - 6. WWPAA: Western Wood Products Association.

1.4 SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product.
 - 1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements

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. Provide dressed lumber, S4S, unless otherwise indicated.
- B. Maximum Moisture Content of Lumber: 15 percent unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

- A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2[for interior construction not in contact with the ground, Use Category UC3b for exterior construction not in contact with the ground, and Use Category UC4a for items 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.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that 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 items indicated on Drawings, and the following:
 - 1. Wood sills, sleepers, blocking, furring, and similar concealed members in contact with masonry or concrete.
 - 2. Wood floor plates that are installed over concrete slabs-on-grade.

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 beyond the centerline of the burners at any time during the test.
 - 1. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
 - 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.
- 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 qualified testing agency.
- E. Application: Treat items indicated on Drawings, and the following:
 - 1. Concealed blocking.
 - 2. Plywood backing panels.

2.4 DIMENSION LUMBER FRAMING

- A. Non-Load-Bearing Interior Partitions: Construction or No. 2 grade.
 - 1. Species:
 - a. Mixed southern pine; SPIB.
 - b. Northern species; NLGA.
 - c. Eastern softwoods; NeLMA.
 - d. Western woods; WCLIB or WWPA.

2.5 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. Rooftop equipment bases and support curbs.
- B. For items of dimension lumber size, provide Construction or No. 2 grade lumber of any species.
 - 1. Mixed southern pine; No. 2 grade; SPIB.
 - 2. Eastern softwoods; No. 2 Common grade; NeLMA.
 - 3. Northern species; No. 2 Common grade; NLGA.
 - 4. Western woods; Construction or No. 2 Common grade; WCLIB or WWPA.

2.6 PLYWOOD BACKING PANELS

- A. Equipment Backing Panels: DOC PS 1, fire-retardant treated, in thickness indicated or, if not indicated, not less than 3/4-inch nominal thickness.
 - 1. Plywood shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

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 rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
- B. Power-Driven Fasteners: NES NER-272.
- C. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.
- D. Expansion Anchors: Anchor bolt and sleeve assembly of material stated below with capability to sustain, without failure, a load equal to times the load imposed when installed in concrete as determined by testing per ASTM E488 conducted by an independent testing agency.
 - 1. Material: Carbon-Steel components, zinc plated to comply with ASTM B633, Class FE/Zn5.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.
- B. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- C. Framing with Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.
- D. Install fire-retardant treated plywood backing panels with classification marking of testing agency exposed to view.
- E. Shear Wall Panels: Install shear wall panels to comply with manufacturer's written instructions.
- F. Metal Framing Anchors: Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.
- G. Do not splice structural members between supports unless otherwise indicated.
- H. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
- I. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.
- J. Securely attach rough 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.
 - 3. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.

3.2 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 rough carpentry from weather. If, despite protection, rough carpentry becomes sufficiently wet that moisture content exceeds that specified, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

apaceDesign Architects + Engineers
Project No. 2015904.22

ROUGH CARPENTRY
Section 061000

END OF SECTION 06 10 00

Section 06 16 00 - Sheathing

PART 1 - GENERAL

1.1 WORK INCLUDES

- A. Base Bid:
 - 1. General Contractor Provide:
 - a. Wall sheathing.

1.2 SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

PART 2 - PRODUCTS

2.1 WOOD PANEL PRODUCTS

- A. Orientated Strand Board: DOC PS2.

2.2 WALL SHEATHING

- A. Oriented-Strand-Board Wall Sheathing: Exposure 1 sheathing.

2.3 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
 - 1. For wall sheathing, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.
- B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.
- C. Securely attach to substrate by 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."
- D. Coordinate wall sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.

3.2 WOOD STRUCTURAL PANEL INSTALLATION

- A. General: Comply with applicable recommendations in APA Form No. E30, "Engineered Wood Construction Guide: for type of structural - use panels and applications indicated.
- B. Fastening Methods: Fasten panels as indicated below:
 - 1. Wall Sheathing:
 - a. Nail to wood framing. Apply a continuous bead of glue to framing members at edges of wall sheathing panels.

END OF SECTION 06 16 00

SECTION 064116 - PLASTIC-LAMINATE-FACED ARCHITECTURAL CABINETS

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. Plastic-laminate-faced architectural cabinets.
 - 2. Wood furring, blocking, shims, and hanging strips for installing plastic-laminate-faced architectural cabinets unless concealed within other construction before cabinet installation.
- B. Related Requirements:
 - 1. Section 061000 "Rough Carpentry" for wood furring, blocking, shims, and hanging strips required for installing cabinets and concealed within other construction before cabinet installation.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product, including high-pressure decorative laminate and cabinet hardware and accessories.
- B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
 - 1. Show details full size.
 - 2. Apply AWI Quality Certification Program label to Shop Drawings.
- C. Samples for Initial Selection:
 - 1. Plastic laminates.
 - 2. PVC edge material.
- D. Samples for Verification:
 - 1. Plastic laminates, 8 by 10 inches, for each type, color, pattern, and surface finish.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer and fabricator.
- B. Woodwork Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.

1.5 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate products similar to those required for this Project and whose products have a record of successful in-service performance. Shop is a certified participant in AWI's Quality Certification Program.
- B. Installer Qualifications: Fabricator of products.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver cabinets until painting and similar operations that could damage woodwork have been completed in installation areas. If cabinets must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Field Conditions" Article.

1.7 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install cabinets until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
- B. Field Measurements: Where cabinets are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
 - 1. Locate concealed framing, blocking, and reinforcements that support cabinets by field measurements before being enclosed, and indicate measurements on Shop Drawings.
- C. Established Dimensions: Where cabinets are indicated to fit to other construction, establish dimensions for areas where cabinets are to fit. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.8 COORDINATION

- A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that cabinets can be supported and installed as indicated.

PART 2 - PRODUCTS

2.1 PLASTIC-LAMINATE-FACED ARCHITECTURAL CABINETS

- A. Quality Standard: Unless otherwise indicated, comply with the "Architectural Woodwork Standards" for grades of architectural plastic-laminate cabinets indicated for construction, finishes, installation, and other requirements.
 - 1. Provide labels and certificates from AWI certification program indicating that woodwork complies with requirements of grades specified.
 - 2. The Contract Documents contain selections chosen from options in the quality standard and additional requirements beyond those of the quality standard. Comply with those selections and requirements in addition to the quality standard.
- B. Grade: Custom.
- C. Type of Construction: Frameless.
- D. Cabinet, Door, and Drawer Front Interface Style: Flush overlay.
- E. Reveal Dimension: As indicated.
- F. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or if not indicated, as required by woodwork quality standard.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Formica Corporation.
 - b. Lamin-Art, Inc.
 - c. Wilsonart International; Div. of Premark International, Inc.
 - d. Nevamar.
- G. Laminate Cladding for Exposed Surfaces:
 - 1. Horizontal Surfaces: Grade HGL.
 - 2. Postformed Surfaces: Grade HGP.
 - 3. Vertical Surfaces: Grade VGS.
 - 4. Edges: PVC edge banding, 0.12 inch thick, matching laminate in color, pattern, and finish.
 - 5. Pattern Direction: Vertically for drawer fronts, doors, and fixed panels.
- H. Materials for Semiexposed Surfaces:
 - 1. Surfaces Other Than Drawer Bodies: High-pressure decorative laminate, NEMA LD 3, Grade VGS.
 - a. Edges of Plastic-Laminate Shelves: PVC edge banding, 0.12 inch thick, matching laminate in color, pattern, and finish.
 - b. For semiexposed backs of panels with exposed plastic-laminate surfaces, provide surface of high-pressure decorative laminate, NEMA LD 3, Grade VGS.
 - 2. Drawer Sides and Backs: Thermoset decorative panels with PVC or polyester edge banding.
 - 3. Drawer Bottoms: Thermoset decorative panels.

- I. Dust Panels: 1/4-inch plywood or tempered hardboard above compartments and drawers unless located directly under tops.
- J. Concealed Backs of Panels with Exposed Plastic-Laminate Surfaces: High-pressure decorative laminate, NEMA LD 3, Grade BKL.
- K. Drawer Construction: Fabricate with exposed fronts fastened to subfront with mounting screws from interior of body.
 - 1. Join subfronts, backs, and sides with glued rabbeted joints supplemented by mechanical fasteners.
- L. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
 - 1. As selected by Architect from laminate manufacturer's full range in the following categories:
 - a. Solid colors, matte finish.
 - b. Wood grains, matte finish.
 - c. Patterns, matte finish.
 - 2. Total Colors/Patterns: Two.

2.2 WOOD MATERIALS

- A. Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of woodwork and quality grade specified unless otherwise indicated.
 - 1. Wood Moisture Content: 4 to 9 percent.
- B. Composite Wood and Agrifiber Products: Provide materials that comply with requirements of referenced quality standard for each type of woodwork and quality grade specified unless otherwise indicated.
 - 1. Particleboard: ANSI A208.1, Grade M-2.
 - 2. Thermoset Decorative Panels: Particleboard or medium-density fiberboard finished with thermally fused, melamine-impregnated decorative paper and complying with requirements of NEMA LD 3, Grade VGL, for test methods 3.3, 3.4, 3.6, 3.8, and 3.10.

2.3 CABINET HARDWARE AND ACCESSORIES

- A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets except for items specified in Section 087111 "Door Hardware (Descriptive Specification)."
- B. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, 135 degrees of opening, self-closing.
- C. Back-Mounted Pulls: BHMA A156.9, B02011.
- D. Wire Pulls: Back mounted, solid metal, 4 inches long, 5/16 inch in diameter.
- E. Adjustable Shelf Standards and Supports: See Drawings.

- F. Shelf Rests: BHMA A156.9, B04013; Metal, two-pin type with shelf hold-down clip.
- G. Drawer Slides: BHMA A156.9.
 - 1. Grade 1HD-100 and Grade 1HD-200: Side mounted; full-extension type; zinc-plated-steel ball-bearing slides.
 - 2. For drawers more than 3 inches high but not more than 6 inches high and not more than 24 inches wide, provide Grade 1HD-100.
 - 3. For drawers more than 6 inches high or more than 24 inches wide, provide Grade 1HD-200.
- H. Door Locks: BHMA A156.11, E07121.
- I. Drawer Locks: BHMA A156.11, E07041.
- J. Door and Drawer Silencers: BHMA A156.16, L03011.
- K. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.
- L. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.

2.4 MISCELLANEOUS MATERIALS

- A. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln dried to less than 15 percent moisture content.
- B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide metal expansion sleeves or expansion bolts for post-installed anchors. Use nonferrous-metal or hot-dip galvanized anchors and inserts at inside face of exterior walls and at floors.
- C. Adhesives: Do not use adhesives that contain urea formaldehyde.
- D. Adhesive for Bonding Plastic Laminate: Contact cement.
 - 1. Adhesive for Bonding Edges: Hot-melt adhesive or adhesive specified above for faces.

2.5 FABRICATION

- A. Fabricate cabinets to dimensions, profiles, and details indicated.
- B. Complete fabrication, including assembly and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
- C. Shop-cut openings to maximum extent possible to receive hardware, appliances, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce

accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Before installation, condition cabinets to average prevailing humidity conditions in installation areas.
- B. Before installing cabinets, examine shop-fabricated work for completion and complete work as required.

3.2 INSTALLATION

- A. Grade: Install cabinets to comply with same grade as item to be installed.
- B. Assemble cabinets and complete fabrication at Project site to the extent that it was not completed in the shop.
- C. Install cabinets level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches
- D. Scribe and cut cabinets to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
- E. Anchor cabinets to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing. Use fine finishing nails for exposed fastening, countersunk and filled flush with woodwork.
 - 1. Use filler matching finish of items being installed.
- F. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.
 - 1. Install cabinets with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
 - 2. Fasten wall cabinets through back, near top and bottom, and at ends not more than 16 inches o.c. with No. 10 wafer-head sheet metal screws through metal backing or metal framing behind wall finish.

3.3 ADJUSTING AND CLEANING

- A. Repair damaged and defective cabinets, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.
- B. Clean, lubricate, and adjust hardware.

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C. Clean cabinets on exposed and semiexposed surfaces.

END OF SECTION 064116

Section 07 21 00 - Thermal Insulation

PART 1 - GENERAL

1.1 WORK INCLUDES

- A. Base Bid:
 - 1. General Contractor Provide:
 - a. Foam-plastic board insulation at perimeter under floor slab.
 - b. Glass-fiber blanket insulation at office walls only.

1.2 RELATED WORK

- A. Specified Elsewhere:
 - 1. 03 30 00 - Cast-in-Place Concrete.
 - 2. 13 34 20 - Post-Frame Building System.
 - 3. 31 20 00 - Earth Moving.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.

PART 2 - PRODUCTS

2.1 FOAM-PLASTIC BOARD INSULATION (FOUNDATION/UNDERSLAB)

- A. Extruded-Polystyrene Board Insulation: ASTM C 578, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E 84.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. DiversiFoam Products; Mendota, IL.
 - b. Dow Chemical Company (The).
 - c. Owens Corning; Rockford, IL (foam insulation only).
 - d. Pactiv Building Products; Lake Forest, IL.
 - 2. Type X, 15 psi (foundation).
 - 3. Type VI, 40 psi (underslab).

2.2 GLASS-FIBER BLANKET INSULATION

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. CertainTeed Corporation.
 - 2. Guardian Building Products, Inc.
 - 3. Johns Manville.
 - 4. Knauf Insulation.
 - 5. Owens Corning.
- B. Reinforced-Foil Faced, Glass Fiber Blanket Insulation: ASTM C 665, Type III (reflective faced), Class A (faced surface with a flame-spread index of 25 or less) Category 1 (membrane is a vapor barrier), faced with foil serim, soil-scrim kraft, or foil serim polyethylene, R value of R21.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and applications indicated.
- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.
- C. Extend insulation to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- D. Provide sizes to fit applications indicated and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units to produce thickness indicated unless multiple layers are otherwise shown or required to make up total thickness.

3.2 INSTALLATION OF BELOW-GRADE INSULATION

- A. On vertical surfaces, set insulation units loosely laid according to manufacturer's written instructions.
 - 1. If not otherwise indicated, extend insulation a minimum of 24 inches below exterior grade line.
- B. On horizontal surfaces, loosely lay insulation units according to manufacturer's written instructions. Stagger end joints and tightly abut insulation units.
 - 1. If not otherwise indicated, extend insulation a minimum of 36 inches in from exterior walls.

3.3 INSTALLATION OF INSULATION FOR FRAMED CONSTRUCTION

- A. Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.
- B. Foam-Plastic Board Insulation: Seal joints between units by applying adhesive, mastic, or sealant to edges of each unit to form a tight seal as units are shoved into place. Fill voids in completed installation with adhesive, mastic, or sealant as recommended by insulation manufacturer.
- C. Glass-Fiber Blanket Insulation: Install in cavities formed by framing members according to the following requirements:
 - 1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.
 - 2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
 - 3. Maintain 3-inch clearance of insulation around recessed lighting fixtures not rated for or protected from contact with insulation.
 - 4. For wood-framed construction, install blankets according to ASTM C 1320 and as follows:

- a. With faced blankets having stapling flanges, secure insulation by inset, stapling flanges to sides of framing members.
 - b. With faced blankets having stapling flanges, lap blanket flange over flange of adjacent blanket to maintain continuity of vapor retarder once finish material is installed over it.
5. Vapor-Retarder-Faced Blankets: Tape joints and ruptures in vapor-retarder facings, and seal each continuous area of insulation to ensure airtight installation.
- a. Exterior Walls: Set units with facing placed toward interior of construction.
- D. Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation using the following materials:

END OF SECTION 07 21 00

Section 072500 - Weather Barriers

PART 1 - GENERAL

1.1 SUMMARY

- A. Base Bid:
 - 1. General Contractor Provide:
 - a. Building wrap.
 - b. Flexible flashing around openings.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 WATER-RESISTIVE BARRIER

- A. Building Wrap: ASTM E 1677, Type I air barrier; with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, when tested according to ASTM E 84; UV stabilized; and acceptable to authorities having jurisdiction.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Dow Chemical Company (The); Styrofoam Weathermate Plus Brand Housewrap.
 - b. DuPont (E. I. du Pont de Nemours and Company); Tyvek HomeWrap and HeaderWrap.
 - c. Ludlow Coated Products; R-Wrap Protective House Wrap.
 - d. Pactiv, Inc.; GreenGuard Value Wrap - (Illinois Manufacturer).
 - e. Raven Industries Inc.; Fortress Pro Weather Protective Barrier.
 - f. Reemay, Inc.; Typar HouseWrap.
 - 2. Water-Vapor Permeance: Not less than 50 g through 1 sq. m of surface in 24 hours per ASTM E 96/E 96M, Desiccant Method (Procedure A).
- B. Building-Wrap Tape: Pressure-sensitive plastic tape recommended by building-wrap manufacturer for sealing joints and penetrations in building wrap.

2.2 MISCELLANEOUS MATERIALS

- A. Flexible Flashing: Self-adhesive butyl rubber or rubberized-asphalt compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.025 inch.
 - 1. Products: Subject to compliance with requirements, provide one of the following:

- a. DuPont (E. I. du Pont de Nemours and Company); DuPont Flashing Tape.
- b. Raven Industries Inc.; Fortress Flashshield.
- c. Carlisle Coatings & Waterproofing; CCW-705-TWF Thru-Wall Flashing.
- d. Fiberweb, Clark Hammerbeam Corp.; Aquaflash 500.
- e. Fortifiber Building Systems Group; Fortiflash 25.

PART 3 - EXECUTION

3.1 WATER-RESISTIVE BARRIER INSTALLATION

- A. Cover sheathing with water-resistive barrier as follows:
 - 1. Cut back barrier 1/2 inch on each side of the break in supporting members at expansion- or control-joint locations.
 - 2. Apply barrier to cover vertical flashing with a minimum 4-inch overlap unless otherwise indicated.
- B. Building Paper: Apply horizontally with a 2-inch overlap and a 6-inch end lap; fasten to sheathing with galvanized staples or roofing nails.
- C. Building Wrap: Comply with manufacturer's written instructions.
 - 1. Seal seams, edges, fasteners, and penetrations with tape.
 - 2. Extend into jambs of openings and seal corners with tape.

3.2 FLEXIBLE FLASHING INSTALLATION

- A. Apply flexible flashing where indicated to comply with manufacturer's written instructions.
 - 1. Lap seams and junctures with other materials at least 4 inches except that at flashing flanges of other construction, laps need not exceed flange width.
 - 2. Lap flashing over water-resistive barrier at bottom and sides of openings.
 - 3. Lap water-resistive barrier over flashing at heads of openings.

END OF SECTION 072500

Section 079200 - Joint Sealants

PART 1 - GENERAL

1.1 WORK INCLUDES

- A. Base Bid:
 - 1. General Contractor Provide:
 - a. Silicone joint sealants.
 - b. Urethane joint sealants.
 - c. Preconstruction adhesion testing.

1.2 RELATED WORK

- A. Specified Elsewhere:
 - 1. Section 13 34 20 - Post-Frame Building System.

1.3 PRECONSTRUCTION TESTING

- A. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers eight samples of materials that will contact or affect joint sealants. Use ASTM C 1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
- B. Preconstruction Field-Adhesion Testing: Before installing sealants, field test their adhesion to Project joint substrates. 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.

1.4 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Samples: For each kind and color of joint sealant required.
- 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.
- D. Product test reports.
- E. Preconstruction compatibility and adhesion test reports.
- F. Preconstruction field-adhesion test reports.
- G. Field-adhesion test reports.
- H. Warranties.

1.5 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Qualified according to ASTM C 1021 to conduct the testing indicated.
- B. Preinstallation Conference: Conduct conference at Project site.

1.6 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.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. 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.
 - 1. Suitability for Immersion in Liquids. Where sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247. Liquid used for testing sealants is deionized water, unless otherwise indicated.

2.2 SILICONE JOINT SEALANTS

- A. Mildew-Resistant Neutral-Curing Silicone Joint Sealant: ASTM C 920.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. BASF Building Systems.
 - b. Dow Corning Corporation.
 - c. GE Advanced Materials - Silicones.
 - d. May National Associates, Inc.
 - e. Pecora Corporation.
 - f. Polymeric Systems, Inc.
 - g. Schnee-Morehead, Inc.
 - h. Sika Corporation; Construction Products Division.
 - i. Tremco Incorporated.
 - 2. Type: Single component (S) or multicomponent (M).
 - 3. Grade: Nonsag (NS).
 - 4. Class: 50.
 - 5. Uses Related to Exposure: Nontraffic (NT).

2.3 URETHANE JOINT SEALANTS

- A. Urethane Joint Sealant: ASTM C 920.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. BASF Building Systems.
 - b. Bostik, Inc.
 - c. Lyntal, International, Inc.
 - d. May National Associates, Inc.
 - e. Pacific Polymers International, Inc.
 - f. Pecora Corporation.
 - g. Polymeric Systems, Inc.
 - h. Schnee-Morehead, Inc.
 - i. Sika Corporation; Construction Products Division.
 - j. Tremco Incorporated.

2.4 JOINT SEALANT BACKING

- A. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer.

2.5 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 Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.
 1. Remove laitance and form-release agents from concrete.
 2. 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.
- 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.

3.2 INSTALLATION

- A. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- B. 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.
- C. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- D. 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.
- E. Tooling of Nonsag 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.
- F. 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.

3.3 FIELD QUALITY CONTROL

- A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:
 - 1. Extent of Testing: Test completed and cured sealant joints as follows:
 - a. Perform ten tests for the first 1000 feet of joint length for each kind of sealant and joint substrate.
 - b. Perform 1 test for each 1000 feet of joint length thereafter or 1 test per each floor per elevation.
 - 2. 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.

- B. Evaluation of Field-Adhesion Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.4 JOINT-SEALANT SCHEDULE

- A. Joint-Sealant Application: Exterior joints in horizontal traffic surfaces, including, but not limited to the following:
 - 1. Joint Locations:
 - a. Isolation and contraction joints in cast-in-place concrete slabs.
 - b. Joints between different materials listed above.
 - c. Other joints as indicated.
 - 2. Joint Sealant: Multi-component pourable urethane..
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- B. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces.
 - 1. Joint Sealant: Multi-component nonsag urethane.
 - 2. 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 nontraffic surfaces.
 - 1. Joint Locations, include, but are not limited to the following:
 - a. Control and expansion joints on exposed interior surfaces of exterior walls.
 - b. Perimeter joints of exterior openings.
 - c. Vertical joints on exposed surfaces of interior unit masonry and partitions.
 - d. Perimeter joints between interior wall surfaces and frames of interior doors and windows.
 - e. Other joints as indicated.
 - 2. Joint Sealant: Multi-component nonsag urethane.
 - 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 nontraffic surfaces.
 - 1. Joint Sealant Location:
 - a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
 - b. Other joints as indicated.
 - 2. Joint Sealant: Mildew Resistant Neutral-Curing Silicone.
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

END OF SECTION 07 9 200

Section 081113 - Hollow Metal Doors And Frames

PART 1 - GENERAL

1.1 WORK INCLUDES

- A. Base Bid:
 - 1. General Contractor Provide:
 - a. Standard hollow metal doors and frames.

1.2 RELATED WORK

- A. Specified Elsewhere:
 - 1. Section 08 71 00 - Door Hardware.
 - 2. Section 09 91 13 - Field Painting of Hollow Metal Doors and Frames.
 - 3. Section 13 34 20 - Post-Frame Building System.

1.3 DEFINITIONS

- A. Minimum Thickness: Minimum thickness of base metal without coatings according to NAAMM-HMMA 803 or SDI A250.8.

1.4 SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Include elevations, door edge details, frame profiles, metal thicknesses, preparations for hardware, and other details.
- C. Schedule: Prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Ceco Door Products; an Assa Abloy Group company.
 - 2. Curries Company; an Assa Abloy Group company.
 - 3. Republic Doors and Frames.
 - 4. Steelcraft; an Ingersoll-Rand company.

2.2 EXTERIOR HOLLOW-METAL DOORS AND FRAMES

- A. Extra-Heavy-Duty Doors and Frames: SDI A250.8, Level 3.
 - 1. Physical Performance: Level A according to SDI A250.4.
 - 2. Doors:
 - a. Type: As indicated in the Door and Frame Schedule.
 - b. Thickness: 1-3/4 inches.
 - c. Face: Metallic-coated steel sheet, minimum thickness of 0.053 inch, with minimum A40 coating.
 - d. Edge Construction: Model 1, Full Flush.
 - e. Core: Polyurethane.
 - 3. Thermal-Rated Doors: Provide doors fabricated with thermal-resistance value (R-value) of not less than 2.1 deg F x h x sq. ft./Btu when tested according to ASTM C 1363.

- 4. Frames:
 - a. Materials: Metallic-coated steel sheet, minimum thickness of 0.053 inch, with minimum A40 coating.
 - b. Construction: Full profile welded.
- 5. Exposed Finish: Prime.

2.3 FRAME ANCHORS

- A. Jamb Anchors:
 - 1. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.
- B. Floor Anchors: Formed from same material as frames, minimum thickness of 0.042 inch, and as follows:
 - 1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.

2.4 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 defects; pickled and oiled.
- C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B.
- D. Frame Anchors: ASTM A 879/A 879M, Commercial Steel (CS), 04Z coating designation; mill phosphatized.
 - 1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.
- E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.
- F. Power-Actuated Fasteners in Concrete: From corrosion-resistant materials.
- G. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing).
- H. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15-mil dry film thickness per coat.

2.5 FABRICATION

- A. Fabricate hollow-metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
- B. Hollow-Metal Doors:

1. Exterior Doors: Provide weep-hole openings in bottoms of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.
- C. Hollow-Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
 1. Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
 2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
 3. Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor; however, for slip-on drywall frames, provide anchor clips or countersunk holes at bottoms of jambs.
 4. Jamb Anchors: Provide number and spacing of anchors as follows:
 - a. Stud-Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
 - 1) Three anchors per jamb up to 60 inches high.
 - 2) Four anchors per jamb from 60 to 90 inches high.
 - 3) Five anchors per jamb from 90 to 96 inches high.
 - 4) Five anchors per jamb plus one additional anchor per jamb for each 24 inches or fraction thereof above 96 inches high.
 - b. Compression Type: Not less than two anchors in each frame.
 5. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers.
 - a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
 - b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.
- D. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.
 1. Reinforce doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.
 2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.

2.6 STEEL FINISHES

- A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
 1. Shop Primer: SDI A250.10.
 - a. Confirm compatibility with finish painting.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Hollow-Metal Frames: Install hollow-metal frames of size and profile indicated. Comply with SDI A250.11 or NAAMM-HMMA 840 as required by standards specified.
 1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction

is complete, remove temporary braces, leaving surfaces smooth and undamaged.

- a. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
 - b. Install frames with removable stops located on secure side of opening.
 - c. Install door silencers in frames before grouting.
 - d. Remove temporary braces necessary for installation only after frames have been properly set and secured.
 - e. Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
 - f. Field apply bituminous coating to backs of frames that will be filled with grout containing antifreezing agents.
2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.
- a. Floor anchors may be set with power-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
3. Stud Partitions: Solidly pack mineral-fiber insulation inside frames.
4. Installation Tolerances: Adjust hollow-metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
- a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
 - c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.
- B. Hollow-Metal Doors: Fit hollow-metal doors accurately in frames, within clearances specified below. Shim as necessary.
1. Non-Fire-Rated Steel Doors:
- a. Between Door and Frame Jambs and Head: 1/8 inch plus or minus 1/32 inch.
 - b. Between Edges of Pairs of Doors: 1/8 inch to 1/4 inch plus or minus 1/32 inch.
 - c. At Bottom of Door: 5/8 inch plus or minus 1/32 inch.
 - d. Between Door Face and Stop: 1/16 inch to 1/8 inch plus or minus 1/32 inch.

3.2 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise unacceptable.
- B. Remove grout and other bonding material from hollow-metal work immediately after installation.

- C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- D. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.
- E. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

END OF SECTION 081113

SECTION 083113 - ACCESS DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Access doors and frames for walls.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
- C. Samples: For each door face material.
- D. Schedule: Types, locations, sizes, latching or locking provisions, and other data pertinent to installation.

PART 2 - PRODUCTS

2.1 ACCESS DOORS AND FRAMES FOR WALLS AND CEILINGS

- A. 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:
 - 1. Access Panel Solutions.
 - 2. Acudor Products, Inc.
 - 3. Alfab, Inc.
 - 4. Babcock-Davis.
 - 5. Cendrex Inc.
 - 6. Elmdor/Stoneman Manufacturing Co.; Div. of Acorn Engineering Co.
 - 7. Jensen Industries; Div. of Broan-Nutone, LLC.
 - 8. J. L. Industries, Inc.; Div. of Activar Construction Products Group.
 - 9. Karp Associates, Inc.
 - 10. Larsen's Manufacturing Company.
 - 11. Maxam Metal Products Limited.
 - 12. Metropolitan Door Industries Corp.
 - 13. MIFAB, Inc.
 - 14. Milcor Inc.
 - 15. Nystrom, In.
 - 16. Williams Bros. Corporation of America (The).
- B. Source Limitations: Obtain each type of access door and frame from single source from single manufacturer.

C. Flush Access Doors with Exposed Flanges:

1. Basis-of-Design Product: J L Industries TM-Multipurpose Access Panel.
2. Assembly Description: Fabricate door to fit flush to frame. Provide manufacturer's standard-width exposed flange, proportional to door size.
3. Locations: Wall.
4. Door Size: See Drawings.
5. Metallic-Coated Steel Sheet for Door: Nominal 0.064 inch, 16 gage.
 - a. Finish: Factory finish.
6. Frame Material: Same material, thickness, and finish as door.
7. Hinges: Manufacturer's standard.

D. Hardware:

1. Latch: Cam latch by hex-head wrench with interior release.

2.2 MATERIALS

- A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- B. Rolled-Steel Floor Plate: ASTM A 786/A 786M, rolled from plate complying with ASTM A 36/A 36M or ASTM A 283/A 283M, Grade C or D.
- C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum G60 or A60 metallic coating.
- D. Frame Anchors: Same type as door face.
- E. Inserts, Bolts, and Anchor Fasteners: Hot-dip galvanized steel according to ASTM A 153/A 153M or ASTM F 2329.

2.3 FABRICATION

- A. General: Provide access door and frame assemblies manufactured as integral units ready for installation.
- B. Metal Surfaces: For metal surfaces exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.
- C. Doors and Frames: Grind exposed welds smooth and flush with adjacent surfaces. Furnish attachment devices and fasteners of type required to secure access doors to types of supports indicated.
- D. Latching Mechanisms: Furnish number required to hold doors in flush, smooth plane when closed.

2.4 FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- D. Steel and Metallic-Coated-Steel Finishes:
 - 1. Factory Prime: Apply manufacturer's standard, fast-curing, lead- and chromate-free, universal primer immediately after surface preparation and pretreatment.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Comply with manufacturer's written instructions for installing access doors and frames.
- B. Install doors flush with adjacent finish surfaces or recessed to receive finish material.

3.2 ADJUSTING

- A. Adjust doors and hardware, after installation, for proper operation.
- B. Remove and replace doors and frames that are warped, bowed, or otherwise damaged.

END OF SECTION 083113

Section 083613 - Sectional Doors

PART 1 - GENERAL

1.1 WORK INCLUDES

- A. Base Bid:
 - 1. General Contractor Provide:
 - a. Manual operated 1.75" - 3" thick insulated sectional doors and supports guides, and hardware, including lockable keyed latches/handles.

1.2 RELATED WORK

- A. Specified Elsewhere:
 - 1. Section 055000 "Metal Fabrications" for miscellaneous steel supports.

1.3 PERFORMANCE REQUIREMENTS

- A. General Performance: Sectional doors shall meet performance requirements specified without failure due to defective manufacture, fabrication, installation, or other defects in construction and without requiring temporary installation of reinforcing components.
- B. Structural Performance: Exterior sectional doors shall withstand the effects of gravity loads, and the following loads and stresses within limits and under conditions indicated according to ASCE/SEI 7.
 - 1. Wind Loads: Uniform pressure (velocity pressure) of 20 lbf/sq. ft., acting inward and outward.
 - a. Basic Wind Speed: 90 MPH.
 - b. Importance Factor: 1.5.
 - c. Exposure Category: C.
- C. Air Infiltration: Maximum rate not more than indicated when tested according to ASTM E 283.
 - 1. Air Infiltration: Maximum rate of 0.04 cfm/sq. ft. at 15 and 25 mph.

1.4 SUBMITTALS

- A. Product Data: For each type and size of sectional door and accessory.
- B. Shop Drawings: For each installation and for special components not dimensioned or detailed in manufacturer's product data. Include plans, elevations, sections, details, and attachments to other work.
 - 1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, location and size of each field connection.
- C. Samples: For each exposed product and for each color and texture specified.
 - 1. Include similar samples of accessories involving color selection.
- D. Delegated-Design Submittal: For sectional doors indicated to comply with performance requirements and design criteria, including analysis data

signed and sealed by a State of Illinois Structural engineer responsible for their preparation.

1. Detail fabrication and assembly of seismic restraints.
2. Summary of forces and loads on walls and jambs.

E. Qualification Data: For Qualified Installer.

F. Seismic Qualification Certificates: For sectional doors, accessories, and components, from manufacturer.

G. Warranties: Sample of special warranties.

H. Maintenance Data: For Section Doors to include in Maintenance Manual.

1.5 QUALITY ASSURANCE

A. Source Limitations: Obtain Sectional Doors from single source from manufacturer.

1. Obtain operations and hardware from same sectional door manufacturer.

B. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for both installation and maintenance of units required for this Project.

C. Standard for Sectional Doors: Fabricate sectional doors to comply with DASMA 102 unless otherwise indicated.

D. Regulatory Requirements: Comply with applicable provisions in the US Architectural and Transportation Barriers Compliance Board's Americans with Disabilities Act (ADA) and Architectural Barriers (ABA) Accessibility Guidelines for Buildings and Facilities, Illinois Accessibility Code and ICC/ANSI A117.1.

1.6 WARRANTY

A. Manufacturer's standard form in which manufacturer agrees to repair sectional door or replace section door that fail in materials or workmanship within specified warranty period.

1. Warranty Period: One year.

B. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace operator or operator components of sectional doors that fail in materials or workmanship within specified warranty period.

1. Warranty Period: One year from date of Substantial Completion.

C. Special Finish Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components that show evidence of deterioration of factory-applied finishes within specified warranty period.

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

PART 2 - PRODUCTS

2.1 STEEL DOOR SECTIONS

- A. Exterior Section Faces and Frames: Fabricate from manufacturer's standard zinc-coated (galvanized), cold-rolled, steel sheet.
 - 1. Roll horizontal meeting edges to a continuous, interlocking, keyed, rabbeted, shiplap, or tongue-in-groove weathertight seal, with a reinforcing flange return.
 - 2. For insulated doors, provide sections with continuous thermal-break construction, separating the exterior and interior faces of door.
- B. Section Ends and Intermediate Stiles: Enclose open ends of sections with channel end stiles formed from galvanized-steel sheet welded to door section. Provide intermediate stiles formed from galvanized-steel sheet, cut to door section profile, and welded in place. Space stiles not more than 48 inches apart.
- C. Reinforce bottom section with a continuous channel or angle conforming to bottom-section profile and allowing installation of astragal.
- D. Reinforce sections with continuous horizontal and diagonal reinforcement, as required to stiffen door and for wind loading. Provide galvanized-steel bars, struts, trusses, or strip steel, formed to depth and bolted or welded in place. Ensure that reinforcement does not obstruct vision lites.
- E. Provide reinforcement for hardware attachment.
- F. Thermal Insulation: Insulate interior of steel sections with door manufacturer's standard insulation, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, according to ASTM E 84. Enclose insulation completely within steel sections that incorporate the following interior facing material, with no exposed insulation:
 - 1. Interior Facing Material: Zinc-coated (galvanized), cold-rolled, commercial steel (CS) sheet.

2.2 TRACKS, SUPPORTS, AND ACCESSORIES

- A. Tracks: Manufacturer's standard, galvanized-steel track system of configuration indicated, sized for door size and weight, designed for lift type indicated and clearances shown on Drawings. Provide complete track assembly including brackets, bracing, and reinforcement for rigid support of ball-bearing roller guides for required door type and size. Slot vertical sections of track spaced 2 inches apart for door-drop safety device. Slope tracks at proper angle from vertical or design tracks to ensure tight closure at jambs when door unit is closed.
- B. Track Reinforcement and Supports: Galvanized-steel track reinforcement and support members. Secure, reinforce, and support tracks as required for door size and weight to provide strength and rigidity without sag, sway, and vibration during opening and closing of doors.
- C. Weatherseals: Replaceable, adjustable, continuous, compressible weather-stripping gaskets of flexible vinyl, rubber, or neoprene fitted to bottom and top of sectional door unless otherwise indicated.

- D. Windows: Manufacturer's standard window units of type and size indicated and in arrangement shown. Provide removable stops of same material as door-section frames.

2.3 HARDWARE

- A. General: Provide heavy-duty, corrosion-resistant hardware, with hot-dip galvanized, stainless-steel, or other corrosion-resistant fasteners, to suit door type.
- B. Hinges: Heavy-duty, galvanized-steel hinges at each end stile and at each intermediate stile, according to manufacturer's written recommendations for door size. Attach hinges to door sections through stiles and rails.
- C. Rollers: Heavy-duty rollers with steel ball-bearings in case-hardened steel races, mounted with varying projections to suit slope of track. Provide 2-inch- diameter roller tires for 2-inch- wide track.

2.4 LOCKING DEVICES

- A. Locking Device Assembly: Fabricate with cylinder lock, spring loaded dead bolt, operating handle, cam plate, and adjustable locking bars to engage thru slots in track.
 - 1. Lock Cylinders: Keyed to Owner's desire.
 - 2. Keys: Three.

2.5 COUNTERBALANCE MECHANISM

- A. Torsion Spring: Counterbalance mechanism consisting of adjustable-tension torsion springs mounted on torsion shaft made of steel tube or solid steel. Provide springs designed for number of operation cycles indicated.
- B. Cable Drums and Shaft for Doors: Cast-aluminum or gray-iron casting cable drums mounted on torsion shaft and grooved to receive door-lifting cables as door is raised. Mount counterbalance mechanism with manufacturer's standard ball-bearing brackets at each end of torsion shaft.
- C. Cables: Galvanized-steel lifting cables.
- D. Cable Safety Device: Include, on each side-edge of door, a device designed to automatically stop door if either lifting cable breaks.
- E. Bracket: Provide anchor support bracket as required to connect stationary end of spring to the wall and to level the shaft and prevent sag.
- F. Provide a spring bumper at each horizontal track to cushion door at end of opening operation.

2.6 MANUAL DOOR OPERATORS

- A. General: Equip door with manual operator by Door Manufacturer.

- B. Push Up Operation: Lift handles and pull rope for raising and lower doors, with counterbalance mechanism designed so that required lift of pull for door operation does not exceed 25 lbs. (111N).

2.7 DOOR ASSEMBLY

- A. Steel Sectional Door: Sectional door formed with hinged sections.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. C.H.I. Overhead Doors, Arthur, IL.
 - b. Overhead Door Corporation.
 - c. Raynor, Dixon, IL.
 - d. Wayne-Dalton Corp.
 - e. Haas Door Co.
- B. Operation Cycles: Not less than 50,000.
- C. R-Value: 16.4 minimum.
- D. Steel Sections: Zinc-coated (galvanized) steel sheet, formed into sections 31.75" - 2" inches thick.
 - 1. Exterior-Face Surface: Manufacturer's: Standard.
 - 2. Interior Facing Material: Zinc-coated (galvanized) steel sheet.
- E. Track Configuration: Normal headroom or low, if required.
- F. Weatherseals: Fitted to bottom and top and around entire perimeter of door.
- G. Windows: Approximately 24 by 8 inches, with curved corners, and spaced apart the approximate distance as indicated on Drawings; in one row at height indicated on Drawings; installed with insulated glazing of clear float glass.
- H. Locking Devices: Equip door with outside keyed cylinder locking and handle with bars to slotted interior track.
- I. Manual Door Operator: Chain-hoist operator.
- J. Door Finish:
 - 1. Baked-Enamel Kynar Finish: Color and gloss as selected by Architect from manufacturer's full range.
 - 2. Finish of Interior Facing Material: Match finish of exterior section face.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install sectional doors and operating equipment complete with necessary hardware, anchors, inserts, hangers, and equipment supports; according to manufacturer's written instructions and as specified.
- B. Tracks: Provide sway bracing, diagonal bracing, and reinforcement as required for rigid installation of track and door-operating equipment. Repair galvanized coating on tracks according to ASTM A 780.

- C. Adjust hardware and moving parts to function smoothly so that doors operate easily, free of warp, twist, or distortion. Adjust doors and seals to provide weathertight fit around entire perimeter.

3.2 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's representative/maintenance personnel to adjust, operate, and maintain sectional doors.

END OF SECTION 08 36 13

SECTION 085200 - WOOD WINDOWS

1.1 SUMMARY

- A. Section includes **aluminum-clad** wood windows.

1.2 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at **Project site**.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Include plans, elevations, sections, hardware, accessories, insect screens, operational clearances, and details of installation, including anchor, flashing, and sealant installation.
- C. Samples: For each exposed product and for each color specified.

1.4 INFORMATIONAL SUBMITTALS

- A. Product test reports.
- B. Sample warranties.

1.5 WARRANTY

- A. Manufacturer's Warranty: Manufacturer agrees to repair or replace wood windows that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period:
 - a. Window: **10** years from date of Substantial Completion.
 - b. Glazing Units: **10** years from date of Substantial Completion.
 - c. Aluminum-Cladding Finish: **20** years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 WINDOW PERFORMANCE REQUIREMENTS

- A. Product Standard: Comply with AAMA/WDMA/CSA 101/I.S.2/A440 for definitions and minimum standards of performance, materials, components, accessories, and fabrication unless more stringent requirements are indicated.

1. Window Certification: WDMA certified with label attached to each window.
- B. Performance Class and Grade: AAMA/WDMA/CSA 101/I.S.2/A440 as follows:
 1. Minimum Performance Class: **LC**.
 2. Minimum Performance Grade: **30**.
- C. Thermal Transmittance: NFRC 100 maximum whole-window U-factor of **0.30 Btu/sq. ft. x h x deg F (1.71 W/sq. m x K)**.
- D. Solar Heat-Gain Coefficient (SHGC): NFRC 200 maximum whole-window SHGC of **0.40**.

2.2 WOOD WINDOWS

- A. Aluminum-Clad Wood Windows:
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Andersen Windows; Andersen Corporation.
 - b. Eagle.
 - c. Marvin Windows and Doors.
 - d. Pella Corporation.
- B. Operating Types: **Double Hung**.
- C. Frames and Sashes: Fine-grained wood lumber complying with AAMA/WDMA/CSA 101/I.S.2/A440; kiln dried to a moisture content of not more than 12 percent at time of fabrication; free of visible finger joints, blue stain, knots, pitch pockets, and surface checks larger than **1/32 inch (0.8 mm)** deep by **2 inches (51 mm)** wide; water-repellent preservative treated.
 1. Exterior Finish: **Aluminum-clad wood**.
 - a. Aluminum Finish: **Manufacturer's standard fluoropolymer two-coat system with fluoropolymer color topcoat containing not less than 70 percent PVDF resin by weight and complying with AAMA 2605.**
 - b. Color: **As selected by Architect from manufacturer's full range.**
 2. Interior Finish: **Manufacturer's standard stain-and-varnish finish**.
 - a. Exposed Unfinished Wood Surfaces: **Pine.**
 - b. Color: **As selected by Architect from manufacturer's full range.**
- D. Insulating-Glass Units: ASTM E2190.
 1. Glass: ASTM C1036, Type 1, Class 1, q3.

- a. Tint: **Clear.**
 - b. Kind: Fully tempered.
 2. Lites: **Two.**
 3. Filling: Fill space between glass lites with **argon.**
 4. Low-E Coating: **Pyrolytic on second surface.**
 - E. Glazing System: **Manufacturer's standard factory-glazing system that produces weathertight seal.**
 - F. Hardware, General: Provide manufacturer's standard corrosion-resistant hardware sized to accommodate sash weight and dimensions.
 1. Exposed Hardware Color and Finish: **As selected by Architect from manufacturer's full range.**
 - G. Hung Window Hardware:
 1. Counterbalancing Mechanism: AAMA 902.
 2. Locks and Latches: Operated from the inside only.
 3. Tilt Hardware: Releasing tilt latch allows sash to pivot about horizontal axis.
 - 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 greatest extent possible. For application of hardware, use fasteners that match finish hardware being fastened.
- 2.3 INSECT SCREENS
- A. General: Fabricate insect screens to integrate with window frame. Provide screen for each operable exterior sash. Screen wickets are not permitted.
 1. Type and Location: **Full, outside for double-hung** sashes.
 - B. Aluminum Frames: Complying with SMA 1004 or SMA 1201.
 1. Finish for Interior Screens: Baked-on organic coating in **color selected by Architect from manufacturer's full range.**
 2. Finish for Exterior Screens: **Baked-on organic coating in color selected by Architect from manufacturer's full range.**
 - C. Glass-Fiber Mesh Fabric: **18-by-14 (1.1-by-1.4-mm) or 18-by-16 (1.0-by-1.1-mm)** mesh of PVC-coated, glass-fiber threads; woven and fused to form a fabric mesh resistant to corrosion, shrinkage, stretch, impact damage, and weather deterioration. Comply with ASTM D3656/D3656M.
 1. Mesh Color: **Manufacturer's standard.**

2.4 FABRICATION

- A. Fabricate wood windows in sizes indicated. Include a complete system for installing and anchoring windows.
- B. Glaze wood windows in the factory.
- C. Weather strip each operable sash to provide weathertight installation.
- D. Mullions: Provide mullions and cover plates, matching window units, complete with anchors for support to structure and installation of window units. Allow for erection tolerances and provide for movement of window units due to thermal expansion and building deflections. Provide mullions and cover plates capable of withstanding design wind loads of window units.
- 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 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 E2112.
- 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.
- C. Adjust operating sashes and hardware for a tight fit at contact points and weather stripping for smooth operation and weathertight closure.
- D. Clean exposed surfaces immediately after installing windows. Remove excess sealants, glazing materials, dirt, and other substances.
- E. Remove and replace sashes if glass has been broken, chipped, cracked, abraded, or damaged during construction period.

END OF SECTION 085200

SECTION 08 7100 – FINISH HARDWARE

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes:

1. Standard Builders Hardware
2. Thresholds and Weatherstripping
3. Templates
4. Hardware Schedule
5. Keying System

B. Related Sections:

1. Division 1 Section “Product Data and Samples”
2. Division 8 Section “Steel Doors and Frames”

1.2 REFERENCES:

A. Reference and Standards: Where cited, and except as modified by Project Specifications, applicable standards of following organizations apply:

1. American National Standards Institute (ANSI)
2. Builders Hardware Manufacturers Association (BHMA)
3. Door Hardware Institute (DHI)
4. National Fire Protection Association (NFPA)
5. Steel Door Institute (SDI)
6. Underwriters Laboratories (UL)
7. Illinois Accessibility Code 1997
8. BOCA-National Building Code 1996

1.3 SYSTEM DESCRIPTION:

A. Performance Requirements:

1. Provide hardware for fire-rated openings in compliance with NFPA 80.
2. Provide hardware tested and listed by Underwriters Laboratories or other approved testing agency.
3. Provide hardware for fire-rated openings conforming to UL10C positive pressure fire testing.

1.4 SUBMITTALS:

A. Make submittals in accord with Division 1.

- B. Hardware Schedule: Submit six copies of a typed vertical style hardware schedule on 8-1/2 x 11 sheets. Schedule openings by door number and locations. Indicate door and frame material, dimensions, hand, degree of opening, label condition and special information. Hardware items shall include product description and number, finish, hand, size, keying, template and special requirements. The scheduling sequence and format shall be as recommended by DHI.
- C. Samples: Upon Architect / Engineer's request, submit samples showing function, finish, and design of proposed hardware items. Samples remain suppliers property and will be returned to him prior to project completion.
- D. Samples and Templates: Furnish to manufacturer of wood and metal doors and frames as required for proper hardware reinforcement and preparation of their work. If required, furnish physical hardware to the door and frame manufacturer for application.
- E. Catalog Cuts: Submit two sets of each type of hardware item used.
- F. Keying Schedule: Submit keying system schedule after approval by Owner.
- G. Riser/Wiring Diagrams
 - 1. Riser diagrams complete with door and frame elevations and complete operational description of openings scheduled with electrified hardware.
 - 2. Wiring diagrams showing point to point terminations.
Note: Schedules submitted without above requirements will be considered incomplete and will not be reviewed.
- H. Certifications: Arrange for hardware supplier to visit site and certify following:
 - 1. Hardware is installed and operating in a satisfactory manner.
 - 2. Hardware installed is as listed on approved door hardware submittal, including changes and revisions approved by Architect during construction.
 - 3. Submit certifications in writing addressed to Owner in care of Architect.

1.5 QUALITY ASSURANCE:

- A. Qualifications:
 - 1. Contractor is responsible for:
 - a. Proper application and fit of door and specialty hardware in locations as indicated on drawings or as specified.
 - b. Items not specifically mentioned, but necessary to complete work are to be furnished matching in quality and finish of specified

- items in similar locations.
 - c. Coordinate dimensions between hardware items.
 - d. Furnish and install only hardware items listed on approved door hardware submittal.
2. Contractor's selection of hardware supplier:
- a. Select recognized builders hardware supplier who has been furnishing hardware in area of project for a period not less than five years.
 - b. Recognized supplier to have on staff an Architectural Hardware Consultant (AHC) certified by the Door and Hardware Institute.
 - c. Hardware supplier's AHC to be available at all reasonable times during course of work to meet personally with Owner, Architect or Contractor for hardware consultation.
- B. Pre Installation Conference: Arrange for hardware supplier to meet with installer and discuss installation of hardware, templates and any unique hardware applications.

1.6 DELIVERY, STORAGE AND HANDLING:

- A. Delivery: Deliver items in manufacturer's original package. Each item Individually packaged and carefully marked for intended opening and use. Each item complete with necessary screws, bolts, keys, instructions, and where necessary, installation templates.
- B. Storage: Protect materials on the job and during installation. Provide a secure, locked, dry storage area or room in the building. Store off the floor on temporary shelving.
- C. Handling: Handle items in a manner to prevent damage. Marred, defaced, damaged, and defective items will be rejected.

1.7 WARRANTY:

- A. Special Warranties: Submit manufacturer's standard written product warranty signed by manufacturer's authorized official, guaranteeing to repair or replace defective products during following warranty periods.
 - 1. Door Closers – 30 Year Warranty
 - 2. Door Closers with Electric Components – 2 Year Warranty
 - 3. Exit Devices – 3 Year Warranty (excluding electrified devices)

PART 2 – PRODUCTS

2.1 MANUFACTURERS:

- A. Catalog numbers of manufacturers listed in Column 1 have been used in the hardware sets to establish quality required. Manufacturers listed in Columns 2 & 3 are approved substitutes.
- B. It is the intent that approved door hardware be provided for every door on the project. Doors inadvertently omitted from the schedule shall be provided with hardware equal to doors of similar function.

<u>ITEM</u>	<u>1</u>	<u>2</u>	<u>3</u>
Hinges	Hager	Stanley	Ives
Continuous Hinges	Hager	Pemko	Ives
Locks	Schlage	No Substitute	
Exit Devices	Von Duprin	No Substitute	
Closers	LCN	No Substitute	
Magnetic Wall Holders	LCN	Rixson	ABH
Push, Pull, Kickplates	Hager	Hiawatha	Rockwood
Overhead Stops	GJ	Rixson	ABH
Stops, Flush Bolts	Ives	Hager	Rockwood
Weatherstrip, Thresholds	National	Pemko	Hager

- C. Designations: Following abbreviations to identify list manufacturers.

ABH	Architectural Builders Hdwe., Elk Grove Village, IL
GJ	Glynn-Johnson Corp., Indianapolis, IN
Hager	C. Hager & Sons, St. Louis, MO
Hiawatha	Hiawatha Metalcraft, Bloomington, MN
Ives	Ives, Indianapolis, IN
LCN	LCN Closers, Princeton, IL
National	National Guard, Memphis, TN
Pemko	Pemko Mfg., Memphis, TN
Rixson	Rixson Corp., Charlotte, NC
Rockwood	Rockwood Mfg., Rockwood, PA
Schlage	Schlage Lock Co., Colorado Springs, CO
Stanley	Stanley Hdwe., New Britain, CT
Von Duprin	Von Duprin, Indianapolis, IN

2.2 MATERIALS:

- A. Screws, Fasteners, and Tools:
 - 1. Finish exposed fasteners to match item fastened. Make fasteners of the same metal as item fastened, except use stainless steel for aluminum items.
- B. Hinges:

1. Interior door hinges: steel, plated .134 minimum thickness except as noted. Provide heavy weight .180 minimum thickness on doors wider than 3'0. Exterior door hinges: heavy weight .180 minimum thickness. Hinge size 4-1/2 x 4-1/2 unless otherwise noted in this schedule.
2. Provide quantities as follows unless otherwise noted in the schedule:
 - a. For doors up to 60 inches in height, provide 1 pair of hinges; for doors 60 inches to 90 inches in height, provide 1-1/2 pairs of hinges; for doors over 90 inches and up to 120 inches in height, provide 1 additional hinge for each 30 inches of height.

3. Manufacturers / Series:

<u>Hager</u>	<u>Stanley</u>	<u>Ives</u>
BB1279	FBB179	5BB1
BB1168	FBB168	5BB1HW
BB1191	FBB191	5BB1

C. Locks and Latches:

1. Locks and Latches: Heavy duty cylindrical type, in accord with ANSI / BHMA standard A-156.2, Series 4000, Grade 1. Locks and cylinders are Schlage full-size interchangeable core.
2. Manufacturers / Series:
Schlage
ND Series "Rhodes"

D. Exit Devices:

1. Provide Von Duprin exit devices with features, functions and options as shown in the hardware sets.
2. Exit Devices: Of the push pad design with grooved interior mechanism case. Device shall incorporate a fluid dampener which decelerates the push pad on its return stroke eliminating most noise associated with the device operation. Provide glass bead kits to provide clearance for raised glass trim.
3. Lever trim shall incorporate a break away feature. When locked the rigid lever will break away when more than 35 pounds of torque is applied.

E. Closers:

1. Provide LCN door closers with features, functions and options shown in

the hardware sets.

2. Materials and construction: High strength cast iron cylinder with full rack and pinion action. Spring power adjustable to 50%. Provide separate non-critical screw valves for regulation of latch speed, sweep speed, and back check. Hydraulic fluid type requiring no seasonal adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
3. Provide brackets, drop plates, spacer blocks, and accessories required to insure proper installation.
4. Parallel arms: Extra duty forged steel main arm, forearm and shoe.
5. Provide door closers on fire labeled openings.

F. Pull Plates:

1. Pull plates: 4 x 16 .050 stainless steel with square corners. Grip one inch diameter solid bar stock 8 inch CTC.
2. Cut for cylinder or turnpiece when required.
3. Manufacturers / Series:

<u>Hager</u>	<u>Hiawatha</u>	<u>Rockwood</u>
34G	200F x 535B	100 x 70C

G. Push Plates:

1. Push plates: 4 inches wide x 16 inches high (except reduce width to one inch less than lock stile when required). Stainless steel .050 with square corners.

H. Kickplates:

1. Kickplates: .050 stainless steel 10 inches high (except reduce height ½ inch less than bottom rail when required) x 2 inches less than door width on singles and 1 inch less on pairs. Fasteners full threaded, countersunk, undercut, stainless steel, sheet metal screws.

I. Stops, Flush Bolts, Dust Proof Strikes:

1. Manufacturers / Series:

<u>Ives</u>	<u>Hager</u>	<u>Rockwood</u>
WS402CVX	234W	400

WS402CCV	230W	403
358	283D	557
438	243F	442
458	282D	555
DP2	280X	570

J. Thresholds:

1. Extruded aluminum. ½ x 5 inch with extra support leg.
2. Provide with stainless steel machine screws and machine screw lead anchors.

3. Manufacturers / Series:

<u>National</u>	<u>Pemko</u>
425E	171A

K. Door Bottoms, Weatherstripping, and Seals:

1. Manufacturers / Series:

<u>National</u>	<u>Pemko</u>
200NA	315CN
5050B	S88D
16A	346C

2.3 FINISHES:

	<u>US SYMBOL</u>	<u>ANSI SYMBOL</u>	<u>DESCRIPTION</u>
Hinges, Exterior	US32D	630	Satin Stainless Steel
Hinges, Interior	US26D	626	Satin Chrome
Exit Devices	US26D	626	Satin Chrome
Locks	US26D	626	Satin Chrome
Closers	AL	689	Alum. Powder Coat
O.H. Holders	US32D	630	Satin Stainless Steel
Stops, Flush Bolts	US26D	626	Satin Chrome
Push,Pull,Kickplates	US32D	630	Satin Stainless Steel

2.4 KEYS AND KEYING:

- A. Cylinders: Schlage patented “Everest” keyed to a master system as required by user. Provide a maximum of 2 keys per cylinder.

PART 3 – EXECUTION

3.1 EXAMINATION:

- A. Verify doors and frames are ready to receive work and dimensions are as indicated on shop drawings or as instructed by manufacturers.
- B. Verify power supply is available to electrically operated devices.
- C. Beginning of installation means acceptance of existing conditions.

3.2 INSTALLATION:

A. General:

1. Install each hardware item in accordance with each manufacturer’s instructions and recommendations.
2. Install no hardware until substrate finishes are complete.
3. Wherever cutting and fitting is required to install hardware onto or into surfaces, which are later to be painted or otherwise finished, install each item completely then remove and stored during application of finishes; Reinstall upon completion of finishing operations.
4. Set items level, plumb and true to line and location.
5. Adjust and reinforce attachment substrate as necessary for a secure installation.
6. Drill and countersink items not factory prepared for fasteners.
7. Space fasteners and anchors per manufacturer’s instructions and in accordance with industry standards.
8. Do not install hardware on doors, which have been improperly prepared.
9. Attach wall mounted hardware to concealed wall blocking. Do not install wall mounted hardware where wall blocking has not been installed and arrange for blocking to be installed before proceeding.

B. Fire-Rated Openings:

1. In addition to previous requirements, conform to NFPA 80 and BOCA covering installations of fire door assemblies.
2. Refer to instructions from door and frame manufacturer’s regarding special hardware installation requirements, including function holes, undercutting and minimum clearances between hardware cutouts.

- C. Installation Templates, Instruction Sheets and Schedules: Retain copies of templates, instruction sheets, schedules, installation details and similar data

regarding hardware, maintenance and servicing. See Part 1 under Contract Closeout Submittals for assembly and distribution of data.

- D. Mounting Heights: Heights given are centerline heights up from finish floor unless stated otherwise: Heights given "Number to Number" indicate one height within limits given. Where heights of items are not listed, install in accordance with recommendations of DHI.

1.	Bottom Hinge	10 to 13 inches from floor
2.	Top Hinge	7-1/2 to 11-3/4 inches from head
3.	Intermediate Hinge	Equally spaced
4.	Lock Lever	38 to 40-5/16 inches
5.	Deadlocks	46 to 48 inches
6.	Push Bar	42 inches
7.	Push Plate	45 inches
8.	Pull	42 inches

- E. Installation Requirements: In addition to mounting heights specified above, install hardware as follows:

1. Hinges:
 - a. Hang doors within following tolerances: 1/8" maximum between door and frame, and 1/8" maximum between meeting edges of pairs of doors.
 - b. Provide under door clearance at fire assemblies per NFPA 80.
 - c. Where shimming is necessary for proper door / frame installation, use only metal shims.
 - d. Install electric hinges or pivots as center hinge or second hinge from bottom where doors have 2 pairs of hinges.
2. Locks: Install only curved lip strikes and dust box behind each strike.
3. Exit Devices:
 - a. Center exit device cases on door stiles, and equally spaced from each door edge, unless required otherwise by manufacturer's templates or instructions.
 - b. Locate power transfers in door and frame centered on exit devices.
4. Closers:
 - a. Install closers to permit maximum degree of door swing allowed by job conditions. Follow manufacturer's instructions.
5. Door Stops:
 - a. Install stops to permit maximum degree of door swing allowed by job conditions.

- b. Locate floor stops so as not to create a tripping hazard, and to catch door at a point 6 inches in from latch edge, but in no case further than 1/3 door width measured from latch edge.
 - c. Wall stops intended for knobs and levers are to be located centered on spindle.
- 6. Doorplates: (Armor, Kick and Mop Plates)
 - a. Armor and kick plates: Install on push side of single acting doors.
 - b. Unless otherwise indicated install 1/4 inch up from door bottom.
- 7. Threshold:
 - a. Scribe and cut to fit profiles of door jambs with mitered corners and precision made joints.
 - b. Join units with concealed welds or concealed mechanical devices.
 - c. Cut smooth openings for mullions, bolts and similar items.
 - d. At exterior doors and elsewhere as indicated, set thresholds in bed of butyl rubber sealant, completely fill voids to exclude moisture.
 - e. At exterior doors, install bevel of threshold aligned with exterior face of door, unless indicated otherwise by detail or threshold manufacturer's instructions.
 - f. Install thresholds level.
 - g. Do not install thresholds over carpet. At fire rated doors do not install the thresholds over any finish material, unless material is noncombustible, e.g. ceramic tile, terrazzo or concrete.

F. Miscellaneous Hardware:

- 1. Magnetic Release Door Holders:
 - a. Coordinate with electrical.
 - b. Refer to manufacturer's graphic chart for mounting locations of both wall and door portions of holders.
- 2. Push / Pull Sets: Center push / pull sets on doors stiles unless noted otherwise on plans. Mount push bar centered 42 inches above finished floor.

3.3 FIELD QUALITY CONTROL:

A. Tests:

- 1. Electric Closers: Test voltages at each door and note voltage at each. Arrange for and correct power supply where operating voltages are less than 23 volts or greater than 25 volts.
- 2. Magnetic Release Door Holders: Test each magnetic release after

installation and note holding force. Magnetic holders, which do not have a 25-pound minimum holding force are to have voltage checked at each holder, and condition corrected.

B. Manufacturer's Field Service:

1. Closer: After air handling system has been balanced arrange for closer to be finally adjusted by person trained by closer manufacturer or closer manufacturer's representative.
 - a. Adjust closer to take 3 seconds minimum for door to swing from a 70 degree position to 3" from latching position.
 - b. Adjust closer not to exceed 5 lbs. opening force.
Exception: Fire doors as required to close & latch.

3.4 ADJUSTING:

A. Adjusting & Cleaning:

1. Adjust and check each item of hardware and each door to insure proper operation and function of each unit.
2. Lubricate moving parts with graphite-type lubricant unless otherwise recommended by manufacturer.
3. Replace hardware, which cannot be lubricated and adjusted to operate freely and smoothly.
4. Final Adjustment:
 - a. Whenever hardware installation is made more than 1 month prior to acceptance of work, make final adjustment and check of hardware during week immediately prior to acceptance, unless otherwise directed by Architect.
 - b. Clean and re-lubricate operation items as necessary to restore proper functioning and finish of hardware and doors.
 - c. Make final adjustment of locksets and closers to compensate for operation of heating and ventilating systems under supervision of manufacturer's representative.

3.5 PROTECTION AND CLEANING:

A. Installed Hardware: Protect door hardware against damage.

B. Installed Doors:

1. Do not prop doors open using any item wedged between hinge jamb and door.

2. Use only rubber stops, cardboard or rope.
 3. Do not use unprotected wood wedges under wood doors.
 4. Do not use bare wire or other unprotected means of securing doors in open position, which may mar door or hardware.
- C. Job Acceptance: Prior to acceptance of job, clean hardware surfaces on both interior and exterior doors of mortar, plaster, paint caulking and other contaminants. Replace hardware damaged after installation where finish cannot be restored after cleaning.

3.6 HARDWARE SCHEDULE:

- A. Provide and install hardware conforming to project specifications in sets according to the following schedule.

HDWE. SET 01

Doors 01, 04

Each Door to Have:

- | | |
|---|------------------------|
| | Hinges BB1191 NRP |
| 1 | Entrance Lock ND53PD |
| 1 | Latch Guard 341D-US32D |
| 1 | Closer 4111-S-H-CUSH |
| 1 | Kickplate |
| 1 | Threshold 425E |
| 1 | Door Sweep 200NA |
| 1 | Weatherstrip 5050B |
| 1 | Rain Drip 16A |

HDWE. SET 02

Door 05

Each Door to Have:

- | | |
|---|-----------------------|
| | Hinges BB1279 |
| 1 | Push Plate 30S 4 x 16 |
| 1 | Pull Plate 34G 4 x 16 |
| 1 | Closer 4111-H |
| 1 | Kickplate |
| 1 | Wall Stop |

HDWE. SET 03

Door 06

Each Door to Have:

- Hinges BB1279
- 1 Office Lock ND50PD
- 1 Wall Stop

HDWE. SET 04

Door 07

Each Door to Have:

- Hinges BB1279
- 1 Passage Set ND10S
- 1 Closer 4011
- 1 Kickplate
- 1 Threshold 425E
- 1 Door Sweep 200NA
- 1 Gasket 5050B
- 1 Wall Stop

HDWE. SET 05

Door 08

Each Door to Have:

- Hinges BB1279
- 1 Privacy Set ND40S
- 1 Closer 4011-H
- 1 Kickplate
- 1 Wall Stop

HDWE. SET 06

Door 09

Each Door to Have:

- Hinges BB1279
- 1 Entrance Lock ND53PD
- 1 Kickplate
- 1 Wall Stop

HDWE. SET 07

Door 07

Each Door to Have:

- Hinges BB1279
- 1 Entrance Lock ND53PD
- 1 Closer 4011
- 1 Kickplate
- 1 Threshold 425E
- 1 Door Sweep 200NA
- 1 Gasket 5050B
- 1 Wall Stop

END SECTION 08 7100

SECTION 092900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Interior gypsum board.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.

PART 2 - PRODUCTS

2.1 INTERIOR GYPSUM BOARD

- A. General: Complying with ASTM C 36/C 36M or ASTM C 1396/C 1396M, as applicable to type of gypsum board indicated and whichever is more stringent.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. G-P Gypsum.
 - b. Lafarge North America Inc.
 - c. National Gypsum Company.
 - d. USG Corporation.
- B. Type X:
 - 1. Thickness: 5/8 inch (typical); 1/2 inch (where indicated).
 - 2. Long Edges: Tapered and featured (rounded or beveled) for prefilling.

2.2 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.
 - 1. Material: Galvanized or aluminum-coated steel sheet or rolled zinc.
 - 2. Shapes:
 - a. Cornerbead.
 - b. LC-Bead: J-shaped; exposed long flange receives joint compound.
 - c. L-Bead: L-shaped; exposed long flange receives joint compound.
 - d. U-Bead: J-shaped; exposed short flange does not receive joint compound.
 - e. Expansion (control) joint.

2.3 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475/C 475M.
- B. Joint Tape:
 - 1. Interior Gypsum Wallboard: Paper.
- C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
 - 1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.

2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.
 - a. Use setting-type compound for installing paper-faced metal trim accessories.
3. Fill Coat: For second coat, use setting-type, sandable topping compound.
4. Finish Coat: For third coat, use setting-type, sandable topping compound.

2.4 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
 1. Use adhesives that have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- C. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.

PART 3 - EXECUTION

3.1 APPLYING AND FINISHING PANELS, GENERAL

- A. Comply with ASTM C 840.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch- wide spaces at these locations, and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

3.2 APPLYING INTERIOR GYPSUM BOARD

- A. Install interior gypsum board in the following locations:
 1. Type X: Typical vertical and horizontal surfaces.

3.3 INSTALLING TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.
 1. For bidding purposes, include 100 lin. ft. of control joint.
- C. Interior Trim: Install in the following locations:
 1. Cornerbead: Use at outside corners, unless otherwise indicated.
 2. LC-Bead: Use at exposed panel edges.

3. L-Bead: Use where indicated.
4. U-Bead: Use at exposed panel edges.

3.4 FINISHING GYPSUM BOARD

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints, rounded or beveled edges, and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below:
 1. Level 4: At panel surfaces that will be exposed to view, unless otherwise indicated.
 - a. Primer and its application to surfaces are specified in other Division 09 Sections.

3.5 PROTECTION

- A. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- B. Remove and replace panels that are wet, moisture damaged, and mold damaged.
 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 092900

SECTION 095113 - ACOUSTICAL PANEL CEILINGS

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 acoustical panels and exposed suspension systems for interior ceilings.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each component indicated and for each exposed finish required, prepared on Samples of sizes indicated below:
 - 1. Acoustical Panels: Set of 6-inch square. Samples of each type, color, pattern, and texture.
 - 2. Exposed Suspension-System Members, Moldings, and Trim: Set of 6-inch long Samples of each type, finish, and color.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For finishes to include in maintenance manuals.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Acoustical Ceiling Units: Full-size panels equal to 2 percent of quantity installed.
 - 2. Suspension-System Components: Quantity of each exposed component equal to 2 percent of quantity installed.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical panels, suspension-system components, and accessories to Project site and store them in a fully enclosed, conditioned space where they will be protected against damage from

moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.

- B. Before installing acoustical panels, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical panels carefully to avoid chipping the edges or damaging units in any way.

1.7 FIELD CONDITIONS

- A. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain each type of acoustical ceiling panel and its supporting suspension system from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Flame-Spread Index: Class A according to ASTM E 1264.
 - 2. Smoke-Developed Index: 450 or less.

2.3 ACOUSTICAL PANELS (SAT-1) (All AREAS/SPACES EXCEPT TOILET ROOM)

- A. Basis of Design Product: Subject to compliance with requirements, provide Armstrong World Industries, Inc. "Mesa High CAC" #686 or comparable product by one of the following:
 - 1. CertainTeed Corporation.
 - 2. Chicago Metallic Corporation.
 - 3. Rockfon (Roxul Inc.).
 - 4. Tectum Inc.
 - 5. United States Gypsum Company.
- B. Acoustical Panel Standard: Provide manufacturer's standard panels according to ASTM E 1264 and designated by type, form, pattern, acoustical rating, and light reflectance unless otherwise indicated.
- C. Classification: Provide panels as follows:

1. Type and Form: Type III, mineral base with painted finish; Form 2, water felted.
 2. Pattern: CE (perforated, small holes and lightly textured). Fine-textured, non-directional.
- D. Color: White.
- E. Light Reflectance (LR): Not less than 0.85.
- F. Ceiling Attenuation Class (CAC): Not less than 40.
- G. Noise Reduction Coefficient (NRC): Not less than 0.60.
- H. Edge/Joint Detail: Angled Tegular.
- I. Thickness: **3/4 inch.**
- J. Modular Size: **24 by 24 inches.**
- K. Antimicrobial Treatment: "BioBlock Plus." Manufacturer's standard broad spectrum, antimicrobial formulation that inhibits fungus, mold, mildew, and gram-positive and gram-negative bacteria and showing no mold, mildew, or bacterial growth when tested according to ASTM D 3273, ASTM D 3274, or ASTM G 21 and evaluated according to ASTM D 3274 or ASTM G 21.

2.4 ACOUSTICAL PANELS (SAT-2) (AT TOILET ROOM)

Basis of Design Product: Subject to compliance with requirements, provide Armstrong World Industries, Inc. "Clean Room VL Perforated" #869 or comparable product by one of the following:

1. American Gypsum.
 2. CertainTeed Corporation.
 3. Chicago Metallic Corporation.
 4. Rockfon (Roxul Inc.).
 5. Tectum Inc.
 6. United States Gypsum Company.
- B. Acoustical Panel Standard: Provide manufacturer's standard panels according to ASTM E 1264 and designated by type, form, pattern, acoustical rating, and light reflectance unless otherwise indicated.
- C. Classification: Provide panels as follows:
1. Type and Form: Type IV, mineral base with membrane-faced overlay; Form 2, water felted; with vinyl overlay on face.
 2. Pattern: CE (perforated, small holes and smooth texture). Non-directional.
- D. Color: White.
- E. Light Reflectance (LR): Not less than 0.78.
- F. Ceiling Attenuation Class (CAC): Not less than 35.

- G. Noise Reduction Coefficient (NRC): Not less than .55.
- H. Edge/Joint Detail: Square.
- I. Thickness: 5/8 inch.
- J. Modular Size: 24 by 24 inches.
- K. Antimicrobial Treatment: "BioBlock Plus". Manufacturer's standard broad spectrum, antimicrobial formulation that inhibits fungus, mold, mildew, and gram-positive and gram-negative bacteria and showing no mold, mildew, or bacterial growth when tested according to ASTM D 3273, ASTM D 3274, or ASTM G 21 and evaluated according to ASTM D 3274 or ASTM G 21.
- L. Sag Resistance: "HumiGuard Plus".

2.5 METAL SUSPENSION SYSTEM (SAT-1, SAT-2)

- A. Basis of Design Product: Subject to compliance with requirements, provide Armstrong World Industries, Inc. "Prelude XL, 15/16" Exposed Tee System" or comparable product by one of the following:
 - 1. CertainTeed Corporation.
 - 2. Chicago Metallic Corporation.
 - 3. United States Gypsum Company.
- B. Metal Suspension-System Standard: Provide manufacturer's standard, direct-hung, metal suspension system and accessories according to ASTM C 635/C 635M and designated by type, structural classification, and finish indicated.
- C. Wide-Face, Capped, Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet; prepainted, electrolytically zinc coated, or hot-dip galvanized, G30 (Z90) coating designation; with prefinished 15/16-inch- (24-mm-) wide metal caps on flanges.
 - 1. Structural Classification: Intermediate-duty system.
 - 2. End Condition of Cross Runners: Override (stepped] or butt-edge type.
 - 3. Face Design: Flat, flush.
 - 4. Cap Material: Cold-rolled steel.
 - 5. Cap Finish: Painted white.

2.6 ACCESSORIES

- A. Attachment Devices: Size for five times the design load indicated in ASTM C 635/C 635M, Table 1, "Direct Hung," unless otherwise indicated.
- B. Wire Hangers, Braces, and Ties: Provide wires as follows:
 - 1. Zinc-Coated, Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.

2. Size: Wire diameter sufficient for its stress at three times hanger design load (ASTM C 635/C 635M, Table 1, "Direct Hung") will be less than yield stress of wire, but not less than [~~0.106-inch~~ (2.69-mm-) diameter wire.

2.7 METAL EDGE MOLDINGS AND TRIM

- A. 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:
 1. Armstrong World Industries, Inc.
 2. CertainTeed Corporation.
 3. Chicago Metallic Corporation.
 4. Fry Reglet Corporation.
 5. Gordon, Inc.
 6. United States Gypsum Company.
- B. Roll-Formed, Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations, formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension-system runners.
 1. Edge moldings at all SAT-1 and SAT-2 perimeter walls - "Shadow Molding" Hemmed with prefinished exposed flanges.
 - a. Basis-of-Design: Armstrong #7897 Reveal 1/2", with 15/16" flange. Color: White.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, including structural framing to which acoustical panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical panel ceilings.
- B. Examine acoustical panels before installation. Reject acoustical panels that are wet, moisture damaged, or mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using

less-than-half-width panels at borders unless otherwise indicated, and comply with layout shown on reflected ceiling plans.

3.3 INSTALLATION

- A. Install acoustical panel ceilings according to ASTM C 636/C 636M and manufacturer's written instructions.
- B. Suspend ceiling hangers from building's structural members and as follows:
 - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
 - 2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 - 3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension-system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices.
 - 4. Secure wire hangers to ceiling-suspension members and to supports above with a minimum of three tight turns. Connect hangers directly to structure or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
 - 5. Secure flat, angle, channel, and rod hangers to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices that are secure and appropriate for both the structure to which hangers are attached and the type of hanger involved. Install hangers in a manner that will not cause them to deteriorate or fail due to age, corrosion, or elevated temperatures.
 - 6. Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-in-place hanger inserts, postinstalled mechanical or adhesive anchors, or power-actuated fasteners that extend through forms into concrete.
 - 7. When steel framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.
 - 8. Do not attach hangers to steel deck tabs.
 - 9. Do not attach hangers to steel roof deck. Attach hangers to structural members.
 - 10. Space hangers not more than 48 inches (1200 mm) o.c. along each member supported directly from hangers unless otherwise indicated; provide hangers not more than 8 inches (200 mm) from ends of each member.
 - 11. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
- C. Secure bracing wires to ceiling suspension members and to supports with a minimum of four tight turns. Suspend bracing from building's

structural members as required for hangers, without attaching to permanent metal forms, steel deck, or steel deck tabs. Fasten bracing wires into concrete with cast-in-place or postinstalled anchors.

- D. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.
 - 1. Apply acoustical sealant in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.
 - 2. Screw attach moldings to substrate at intervals not more than 16 inches (400 mm) o.c. and not more than 3 inches (75 mm) from ends. Miter corners accurately and connect securely.
 - 3. Do not use exposed fasteners, including pop rivets, on moldings and trim.
- E. Install suspension-system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.
- F. Install acoustical panels with undamaged edges and fit accurately into suspension-system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide precise fit.
 - 1. For square-edged panels, install panels with edges fully hidden from view by flanges of suspension-system runners and moldings.
 - 2. For reveal-edged panels on suspension-system runners, install panels with bottom of reveal in firm contact with top surface of runner flanges.
 - 3. Paint cut edges of panel remaining exposed after installation; match color of exposed panel surfaces using coating recommended in writing for this purpose by acoustical panel manufacturer.

3.4 ERECTION TOLERANCES

- A. Suspended Ceilings: Install main and cross runners level to a tolerance of 1/8 inch in 12 feet, non-cumulative.
- B. Moldings and Trim: Install moldings and trim to substrate and level with ceiling suspension system to a tolerance of 1/8 inch in 12 feet, non-cumulative.

3.5 CLEANING

- A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension-system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage.
- B. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 095113

SECTION 096513 - RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Resilient base.
 - 2. Resilient molding accessories.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples: For each type of product indicated, in manufacturer's standard-size Samples but not less than 12 inches long, of each resilient product color, texture, and pattern required.

1.3 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: As determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.
 - 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

1.4 PROJECT CONDITIONS

- A. Maintain ambient temperatures within range recommended by manufacturer in spaces to receive resilient products.
- B. Until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer.
- C. Install resilient products after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 RESILIENT BASE - RB

- A. Resilient Base:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Burke Mercer Flooring Products; Division of Burke Industries, Inc.
 - b. Flexco, Inc.
 - c. Johnsonite.
 - d. Roppe Corporation, USA.
 - e. VPI, LLC; Floor Products Division.
- B. Resilient Base Standard: ASTM F 1861.
 - 1. Material Requirement: Type TV (vinyl, thermoplastic).
 - 2. Manufacturing Method: Group I (solid, homogeneous).
 - 3. Style: Cove (base with toe).

- C. Minimum Thickness: 0.125 inch.
- D. Height: 4 inches.
- E. Lengths: Cut lengths 48 inches long or coils in manufacturer's standard length.
- F. Outside Corners: Job formed.
- G. Inside Corners: Job formed.
- H. Finish: Matte, manufacturer's standard.
- I. Colors and Patterns: As selected by Architect from full range of industry colors. Three colors total.

2.2 RESILIENT MOLDING ACCESSORY

- A. Resilient Molding Accessory:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Burke Mercer Flooring Products; Division of Burke Industries, Inc.
 - b. Flexco, Inc.
 - c. Johnsonite.
 - d. Roppe Corporation, USA.
 - e. VPI, LLC; Floor Products Division.
- B. Description: Carpet edge for glue-down applications. Reducer strip for resilient floor covering. Transition strips.
- C. Material: Vinyl.
- D. Profile and Dimensions: As required for transition from one dissimilar height flooring material to adjacent material.
- E. Colors and Patterns: As selected by Architect from full range of industry colors.

2.3 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.

- B. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.
- C. Do not install resilient products until they are same temperature as the space where they are to be installed.
 - 1. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
- D. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation.

3.2 RESILIENT BASE INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient base.
- B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
- C. Install resilient base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.
- D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- E. Do not stretch resilient base during installation.

3.3 RESILIENT ACCESSORY INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient accessories.
- B. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of carpet and resilient floor covering that would otherwise be exposed.

3.4 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protection of resilient products.
- B. Cover resilient products until Substantial Completion.

END OF SECTION 096513

SECTION 099113 - 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: Gas pipe, hangers, and valves by meter and gas pipe. Hollow metal frames and doors and louvers.
 - 2. Galvanized Steel: Exterior Bollards.
 - 3. Plastic: Furnace vents. Plumbing vents on roof.
 - 4. Foam plastic refrigerant pipe insulation to HVAC units.

1.3 DEFINITIONS

- A. MPI Gloss Level 1: Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.
- B. MPI Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- C. MPI Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.
- D. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.
- E. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.
- F. MPI 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.
 - 1. Include printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.

2. Indicate VOC content.
 - 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.
 2. Apply coats on Samples in steps 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: Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.
- 1.5 MAINTENANCE MATERIAL SUBMITTALS
- A. Paint: Turn over all unused paint to Owner. Label original containers with exact product and its location installed in building.
- 1.6 DELIVERY, STORAGE, AND HANDLING
- A. 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.
- 1.7 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. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Benjamin Moore & Co.
 2. Diamond Vogel Paints.
 3. Dulux (formerly ICI Paints); a brand of AkzoNobel.

4. Glidden Professional.
5. M.A.B. Paints.
6. PPG Architectural Finishes, Inc.
7. Pratt & Lambert.
8. Rust-Oleum Corporation; a subsidiary of RPM International, Inc.
9. Sherwin-Williams Company (The).
10. Zinsser; Rust-Oleum Corporation.

2.2 PAINT, GENERAL

- A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products Lists."
- B. Material Compatibility:
 1. Materials for use within each paint system shall be 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, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.
- C. VOC Content: For field applications, paints and coatings shall comply with VOC content limits of authorities having jurisdiction in regulation with the State of Illinois Environmental Protection Agency and Ozone Transport Commission and the following VOC content limits:
 1. Nonflat Paints and Coatings: 150 g/L.
 2. Primers, Sealers, and Undercoaters: 200 g/L.
 3. Rust-Preventive Coatings: 250 g/L.
 4. Industrial Maintenance Coatings: 340 g/L.
- D. Colors: As selected by Architect from manufacturer's full range.

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. Maximum Moisture Content of Substrates: When measured with an electronic meter as follows:
 1. Wood: 15 percent.
- C. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
- D. 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 Architectural Painting Specification 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 but not less than the following:
 1. SSPC-SP 2.
 2. SSPC-SP 3.
 3. SSPC-SP 7/NACE No. 4.
 4. SSPC-SP 11.
- E. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. 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.
- G. Wood Substrates:
 1. Scrape and clean knots. Before applying primer, apply coat of knot sealer recommended in writing by topcoat manufacturer for exterior use in paint system indicated.
 2. Sand surfaces that will be exposed to view, and dust off.
 3. Prime edges, ends, faces, undersides, and backsides of wood.
 4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

- H. Plastic Trim Fabrication Substrates: Remove dust, dirt, and other foreign material that might impair bond of paints to substrates.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
 - 3. Paint both sides and edges of exterior doors and entire exposed surface of exterior door frames.
 - 4. Paint entire exposed surface of window frames and sashes.
 - 5. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
 - 6. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. Tint undercoats same color as topcoat, but tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. 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.

3.4 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 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. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 EXTERIOR PAINTING SCHEDULE

A. Steel and Iron Substrates:

1. Water-Based Light Industrial Coating System:

- a. Prime Coat: Primer, rust inhibitive, water based MPI #107.
- b. Intermediate Coat: Light industrial coating, exterior, water based, matching topcoat.
- c. Topcoat: Light industrial coating, exterior, water based, semi-gloss (MPI Gloss Level 5), MPI #163.

B. Galvanized-Metal Substrates:

1. Water-Based Light Industrial Coating System:

- a. Prime Coat: Primer, galvanized, water based, MPI #134.
- b. Intermediate Coat: Light industrial coating, exterior, water based, matching topcoat.
- c. Topcoat: Light industrial coating, exterior, water based, semi-gloss (MPI Gloss Level 5), MPI #163.

C. Copper Substrates:

1. Water-Based Light Industrial Coating System:

- a. Prime Coat: Primer, quick dry, for aluminum, MPI #95.
- b. Intermediate Coat: Light industrial coating, exterior, water based, matching topcoat.
- c. Topcoat: Light industrial coating, exterior, water based, semi-gloss (MPI Gloss Level 5), MPI #163.

D. Wood Substrates: Architectural woodwork and Wood board siding.

1. Latex System MPI EXT 6.3A:

- a. Prime Coat: Primer, alkyd for exterior wood, MPI #5.
- b. Intermediate Coat: Latex, exterior, matching topcoat.
- c. Topcoat: Latex, exterior, semi-gloss (MPI Gloss Level 5), MPI #11.

E. Plastic Trim Fabrication Substrates:

1. Water-Based Light Industrial Coating System:

- a. Prime Coat: Primer, bonding, water based, MPI #17.
- b. Intermediate Coat: Light industrial coating, exterior, water based, matching topcoat.
- c. Topcoat: Light industrial coating, exterior, water based, semi-gloss (MPI Gloss Level 5), MPI #163.

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Job No. 2015904.22

EXTERIOR PAINTING
Section 099113

END OF SECTION 099113

SECTION 099123 - INTERIOR 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 interior substrates:
 - 1. Steel: Shop-primed doors and hollow metal frames, glazing stops, access panels, exposed conduit and piping.
 - 2. Gypsum board: Walls, soffits, and ceilings.
 - 3. Exposed electrical and mechanical items including PVC surface raceway and insulation. Exposed ceiling items; copper, steel, galvanized steel ductwork, hangers, and piping.
 - 4. High-performance paint at Toilet Rooms, sink locations, and Janitor.
 - 5. Galvanized Metal.
 - 6. All factory-primed items.
- B. Related Requirements:
 - 1. Section 099300 "Staining and Transparent Finishing" for surface preparation and the application of wood stains and transparent finishes on interior wood substrates.

1.3 DEFINITIONS

- A. MPI Gloss Level 1: Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.
- B. MPI Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- C. MPI Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- D. MPI 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. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.

- F. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.
- G. MPI 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.
 - 1. Include Printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.
 - 2. Indicate VOC content.
- B. Samples for Initial Selection: For each type of topcoat product.
- C. Samples for Verification: For each type of paint system and in each color and gloss of topcoat.
 - 1. Submit Samples on rigid backing, 8 inches (200 mm) square.
 - 2. Apply coats on Samples in steps 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: Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Paint: Turn over all unused paint to Owner. Label original containers with exact product and its location installed in building.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. 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.

1.7 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 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. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Benjamin Moore & Co.
 - 2. Diamond Vogel Paints.
 - 3. Dulux (formerly ICI Paints); a brand of AkzoNobel.
 - 4. Glidden Professional.
 - 5. M.A.B. Paints.
 - 6. PPG Architectural Finishes, Inc.
 - 7. Pratt & Lambert.
 - 8. Rust-Oleum Corporation; a subsidiary of RPM International, Inc.
 - 9. Sherwin-Williams Company (The).
 - 10. Zinsser; Rust-Oleum Corporation.
- B. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to products listed in the Interior Painting Schedule for the paint category indicated.

2.2 PAINT, GENERAL

- A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products Lists."
- B. Material Compatibility:
 - 1. Materials for use within each paint system shall be 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, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.
- C. VOC Content: For field applications that are inside the weatherproofing system, paints and coatings shall comply with VOC content limits of authorities having jurisdiction, in regulation with the State of Illinois Environmental Protection Agency and Ozone Transport Commission, and the following VOC content limits:
 - 1. Nonflat Paints and Coatings: 150 g/L.
 - 2. Primers, Sealers, and Undercoaters: 200 g/L.
 - 3. Rust-Preventive Coatings: 400 g/L.
 - 4. Industrial Maintenance Coatings: 340 g/L.

- D. Colors: As selected by Architect from manufacturer's full range.
 - 1. Ten percent of surface area could be painted with deep tones.
 - 2. Multiple colors to be selected. See Drawing Sheet IF100.

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. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - 1. Gypsum Board: 12 percent.
- C. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
- D. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
- 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 Architectural Painting Specification 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 if any.
- 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 but not less than the following:
 - 1. SSPC-SP 2.
 - 2. SSPC-SP 3.
 - 3. SSPC-SP 7/NACE No. 4.
 - 4. SSPC-SP 11.
- E. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. 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 to recommendations in "MPI Manual."
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 - 3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
 - 4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
 - 5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. 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.
- E. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
 - 1. Paint the following work where exposed in equipment rooms:
 - 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.
 - h. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
2. Paint the following work where exposed in occupied spaces:
- a. Equipment, including panelboards.
 - b. Uninsulated metal piping.
 - c. Uninsulated plastic piping.
 - d. Pipe hangers and supports.
 - e. Metal conduit.
 - f. Plastic conduit.
 - g. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
 - h. Other items as directed by Architect.
3. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.

3.4 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 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. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 INTERIOR PAINTING SCHEDULE

A. Steel Substrates:

1. Water-Based Light Industrial Coating System:

- a. Prime Coat: Primer, rust-inhibitive, water based.

- 1) Sherwin Williams Co., Pro-Industrial Pro-Cryl Universal Acrylic Primer B66-310 Series.

- b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.

- c. Topcoat: Light industrial coating, interior, water based, semi-gloss.

- 1) Sherwin Williams Co., Pro-Industrial Pre-Catalyzed Water Based Epoxy; Single Component (no mixing) K46 Series.

B. Gypsum Board Substrates:

1. Latex over Latex Sealer System:

- a. Prime Coat: Primer sealer, latex, interior, MPI #50.
- b. Intermediate Coat: Latex, interior, matching topcoat.
- c. Topcoat: Latex, interior (MPI Gloss Level 3) MPI #52. Satin/Eggshell.

2. High-Performance Architectural Latex System: Men 107 and Women 108.

- a. Prime Coat: Primer sealer, latex, interior, MPI #50.
- b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
- c. Topcoat: Latex, interior, high performance architectural, semi-gloss (MPI Gloss Level 5), MPI #141.

C. Galvanized-Metal Substrates:

1. Latex over Waterborne Primer System:

- a. Prime Coat: Primer, galvanized, water based.
- b. Intermediate Coat: Latex, interior, matching topcoat.
- c. Topcoat: Latex, interior, (Gloss Level 3), MPI #52. Satin/Eggshell.

END OF SECTION 099123

SECTION 101423 - PANEL SIGNAGE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Room-identification signs.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For panel signs.
 - 1. Include fabrication and installation details and attachments to other work.
 - 2. Show sign mounting heights and accessories.
 - 3. Show message list, typestyles, graphic elements, including raised characters and Braille, and layout for each sign at least half size. Show manufacturer's drawing of each sign type. Show sign layout including sign copy, size of characters and overall size.
- C. Samples: For each exposed product and for each color and texture specified.
- D. Sign Schedule: Use same designations specified or indicated in sign schedule at end of this section.

1.3 CLOSEOUT SUBMITTALS

- A. Maintenance data.

1.4 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: One year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Accessibility Standard: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines for Buildings and Facilities and ICC A117.1 for signs.

2.2 SIGNS

- A. Manufacturers: Subject to compliance with requirements, provide products by one the following:
 - 1. Advance Corporation; Braille-Tac Division.
 - 2. APCO Graphics, Inc.
 - 3. ASI Sign Systems, Inc.

4. Best Sign Systems Inc.
5. InPro Corporation.
6. Mohawk Sign Systems.

B. Room-Identification Sign S-1 thru S-3: Exterior-rated sign with smooth, uniform surfaces; with message and characters having uniform faces, sharp corners, and precisely formed lines and profiles; and as follows:

1. Laminated-Sheet Sign: Photopolymer face sheet with raised graphics laminated to phenolic backing sheet to produce composite sheet. Polymer resin layer is laminated to phenolic. One piece construction utilizing an aqueous developing process to produce raised numbers and letters with corresponding Grade II Braille, and pictograms, all complying with ADA.
 - a. Composite-Sheet Thickness: Manufacturer's standard for size of sign.
 - b. Color(s): As selected by Architect from manufacturer's full range.
2. Sign-Panel Perimeter: Finish edges smooth.
 - a. Edge Condition: Beveled.
 - b. Corner Condition in Elevation: Square.
3. Mounting: Surface mounted to wall with countersunk stainless steel flathead through fasteners.

2.3 PANEL-SIGN MATERIALS

- A. Acrylic Sheet: ASTM D 4802, Type UVF (UV filtering).

2.4 ACCESSORIES

- A. Fasteners and Anchors: Manufacturer's standard as required for secure anchorage of signage, noncorrosive and compatible with each material joined, and complying with the following:
1. All signs are considered for exterior exposure, furnish nonferrous-metal, stainless-steel or hot-dip galvanized devices unless otherwise indicated.
 2. Sign Mounting Fasteners:
 - a. Through Fasteners: Exposed metal fasteners, with type of head indicated, installed in predrilled holes.

2.5 FABRICATION

- A. General: Provide manufacturer's standard sign assemblies according to requirements indicated.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Install signs using mounting methods indicated and according to manufacturer's written instructions.
1. Install signs level, plumb, true to line, and at locations and heights indicated, with sign surfaces free of distortion and other defects in appearance.
 2. Install signs so they do not protrude or obstruct according to the accessibility standard.

3. Before installation, verify that sign surfaces are clean and free of materials or debris that would impair installation.
 4. Install at heights and locations according to ADA accessibility guidelines.
- B. Mounting Methods:
1. Through Fasteners: Drill holes in substrate using predrilled holes in sign as template. Countersink holes in sign if required. Place sign in position and flush to surface. Install through fasteners and tighten.
- C. Remove temporary protective coverings and strippable films as signs are installed.

SIGNAGE SCHEDULE

- A. Provide the following panel signs; reference drawing for locations.
1. Include sign copy, plus Braille and characters to comply with ADA standards. Do not include room numbers.
 2. Fonts shall be manufacturer's standard, sans serif option.

S-1: Room Identification Sign with A.D.A. pictogram: 8" x 6".

<u>Room Number</u>	<u>Sign Copy</u>
105	UNISEX TOILET ROOM

S-2: Room identification sign: 3"H x length required to incorporate all copy.

<u>Room Number</u>	<u>Sign Copy</u>
106	JANITOR/MECHANICAL

S-3: Room identification sign: 3" H x length required to incorporate all copy.

<u>Room Number</u>	<u>Sign Copy</u>
100	STORAGE

END OF SECTION 101423

SECTION 102800 - TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Public-use washroom accessories.
- B. Owner-Furnished Material: Owner-Provided/Contractor-Installed; product not specified herein.
 - 1. Movable waste can.
 - 2. Paper towel dispenser.
 - 3. Soap dispenser.
 - 4. Toilet tissue dispense.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.
 - 1. Identify locations using room designations indicated.
 - 2. Identify products using designations indicated.
- C. Maintenance data.
- D. Warranty: Sample of special warranty.

1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

PART 2 - PRODUCTS

2.1 PUBLIC-USE WASHROOM ACCESSORIES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. A & J Washroom Accessories, Inc.
 - 2. American Specialties, Inc.
 - 3. Bobrick Washroom Equipment, Inc.
 - 4. Bradley Corporation.
- B. Grab Bar:
 - 1. Basis-of-Design Product: Bradley, 812 Series.
 - 2. Mounting: Flanges with concealed fasteners.
 - 3. Material: Stainless steel, 0.05 inch thick.
 - a. Finish: Smooth, No. 4 finish (satin) on ends and slip-resistant texture in grip area.
 - 4. Outside Diameter: 1-1/2 inches.
 - 5. Configuration and Length: As indicated on Drawings.
- C. Mirror Unit:

1. Basis-of-Design Product: Bradley, 781 Series.
2. Frame: Stainless-steel angle, 0.05 inch thick.
 - a. Corners: Welded and ground smooth.
3. Hangers: Produce rigid, tamper- and theft-resistant installation, using method indicated below.
 - a. One-piece, galvanized-steel, wall-hanger device with spring-action locking mechanism to hold mirror unit in position with no exposed screws or bolts.
4. Size: 24 x 36 inches.

2.2 Warm Air Dryers:

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Excel or A/E approved equivalent 5 days prior to bid date.
- B. H.D. (hand dryers): 1 total
 1. Basis of Design: Excel; Xlerator.
 2. Description: A.D.A compliant Xlerator with recess kit.
 3. Recessed to accommodate 4" projection maximum.
 4. Model # XL-SB-ECO with noise reduction nozzle.
 5. Mounting height 43" A.F.F. to bottom of dryer.
 6. Adjust and lubricate per manufacturer recommendations.
 7. 110V., 4-5 amps.
 8. Warranty: 5 years.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.
- B. Grab Bars: Install to withstand a downward load of at least 250 lbf, when tested according to ASTM F 446.
- C. Hand Dryers: Install according to manufacturer's written instructions.

END OF SECTION 102800

SECTION 123623.13 - PLASTIC-LAMINATE-CLAD COUNTERTOPS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes plastic-laminate countertops.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product, including high-pressure decorative laminate.
- B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
- C. Samples:
 - 1. Plastic laminates, for each color, pattern, and surface finish.

1.3 QUALITY ASSURANCE

- A. Fabricator Qualifications: Certified participant in AWI's Quality Certification Program.
- B. Installer Qualifications: Fabricator of products.

1.4 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install countertops until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

PART 2 - PRODUCTS

2.1 PLASTIC-LAMINATE COUNTERTOPS

- A. Quality Standard: Unless otherwise indicated, comply with the "Architectural Woodwork Standards" for grades indicated for construction, installation, and other requirements.
- B. Grade: Custom.
- C. High-Pressure Decorative Laminate: NEMA LD 3, Grade HGS.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Formica Corporation.
 - b. Lamin-Art, Inc.
 - c. Wilsonart International; Div. of Premark International, Inc.
 - d. Nevamar.
- D. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:

1. As selected by Architect from manufacturer's full range in the following categories:
 - a. Solid colors, matte finish.
 - b. Wood grains, matte finish.
 - c. Patterns, matte finish.
 2. Colors: One color/pattern to be selected; different from base and wall cabinets.
- E. Edge Treatment: 3-mm (0.12 mm) PVC edging matching laminate in color, pattern and finish.
- F. Core Material at Sinks: Particleboard made with exterior glue.
- G. Core Thickness: 3/4 inch.
 1. Build up countertop thickness to 1-1/2 inches at front, back, and ends with additional layers of core material laminated to top.
- 2.2 WOOD MATERIALS
- A. Wood Products: Provide materials that comply with requirements of referenced quality standard unless otherwise indicated.
 1. Wood Moisture Content: 5 to 10 percent.
- B. Composite Wood:
 1. Particleboard: ANSI A208.1, Grade M-2, and Grade M-2.
- 2.3 MISCELLANEOUS MATERIALS
- A. Adhesives: Do not use adhesives that contain urea formaldehyde.
- 2.4 FABRICATION
- A. Fabricate countertops to dimensions, profiles, and details indicated. Provide front and end overhang of 1 inch over base cabinets.
- B. Complete fabrication, including assembly, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
- C. Shop cut openings to maximum extent possible to receive appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.
 1. Seal edges of openings in countertops with a coat of varnish.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Before installation, condition countertops to average prevailing humidity conditions in installation areas.

3.2 INSTALLATION

- A. Grade: Install countertops to comply with same grade as item to be installed.
- B. Assemble countertops and complete fabrication at Project site to the extent that it was not completed in the shop.
 - 1. Provide cutouts for appliances, plumbing fixtures, electrical work, and similar items.
 - 2. Seal edges of cutouts by saturating with varnish.
- C. Field Jointing: Prepare edges to be joined in shop so Project-site processing of top and edge surfaces is not required.
 - 1. Secure field joints in plastic-laminate countertops with concealed clamping devices located within 6 inches of front and back edges and at intervals not exceeding 24 inches. Tighten according to manufacturer's written instructions to exert a constant, heavy-clamping pressure at joints.
- D. Install countertops level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches.
- E. Scribe and cut countertops to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
- F. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
 - 1. Install countertops with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
 - 2. Seal junctures of tops, splashes, and walls with mildew-resistant silicone sealant or another permanently elastic sealing compound recommended by countertop material manufacturer.

END OF SECTION 123623.13

Section 133420 - Post-Frame Building SystemsGENERAL

1.1 WORK INCLUDES

- A. Base Bid:
 - 1. General Contractor Provide:
 - a. Furnish and install post-frame building system (indicated on Drawings as "Pre-Engineered Wood Building").

1.2 RELATED WORK

- A. Specified Elsewhere:
 - 1. Section 03 30 00 - Cast In-Place Concrete.
 - 2. Section 06 10 00 - Rough Carpentry.
 - 3. Section 06 16 00 - Sheathing.
 - 4. Section 07 21 00 - Thermal Insulation.
 - 5. Section 07 92 00 - Joint Sealants.
 - 6. Section 08 11 13 - Hollow Metal Doors.
 - 7. Section 08 36 13 - Sectional Doors.
 - 8. Section 08 71 00 - Door Hardware.
 - 9. Section 09 91 13 - Exterior Painting.
 - 10. Section 23 34 23 - Fans.
 - 11. Section 31 20 00 - Earth Moving.

1.3 GENERAL DESCRIPTION OF BUILDING SYSTEM

- A. Primary Framing:
 - 1. Posts embedded below grade to depth per designer of record.
- B. Post Frame Type:
 - 1. Clear span post-frame with trusses connected directly to posts.
 - 2. Clear span post-frame with trusses attached to headers.
- C. Roof Pitch: 4" to 12" main span.
- D. Secondary Framing: Purlins and other items as detailed.
- E. Lateral Bracing: For resisting and distributing lateral forces.
- F. Wall Details:
 - 1. Exterior Sheathing: Preformed steel panels.
 - 2. Interior Sheathing: Preformed steel panels.
 - 3. Insulated: No insulation at Storage Room. R21 Minimum at Office.
- G. Roof Details:
 - 1. General: Manufactured approved Ridge Vent.
 - 2. Exterior Sheathing: Preformed steel panels.
 - 3. Ceiling Sheathing: 5/8" Type-X at Office with vapor barrier and Pre-formed metal liner/soffit panel at rinsate over 5/8"OSB.
 - 4. Insulated: No insulation at Storage Room. R38 Blown-in.
- H. Accessories: Vented pre-finished soffits, gutters and downspouts, including hangers and brackets.
 - 1. Coordinate with grilles specified in Section 23 33 00 Air Duct Accessories.

2. Coordinate with exhaust fans and curbs specified in Section 23 34 23 Fans.

1.4 REFERENCES

- A. AWC (NDS) - National Design Specification for Wood Construction.
- B. IBC - International Building Code.
- C. ANSI/ASCE 7 - Minimum Loads of Buildings and Other Structures.
- D. ANSI/TPI 1 - National Design Standard for Metal Plate Connected Wood Truss Construction.
- E. APA - Engineered Wood Construction Guide.
- F. APA - PDS 04 - Panel Design Specification.
- G. APA - Roof Sheathing Fastening Schedules for Wind Uplift.
- H. ASAE EP 484 - Diaphragm Design of Metal-Clad, Post-Frame Rectangular Buildings. ASABE Standards. St. Joseph, MI.
- I. ASAE EP 486. Post and Pole Foundation Design: Shallow Post Foundation Design. ASABE Standards. St. Joseph, MI.
- J. ASAE EP 559 - Design Requirements and Bending Properties for Mechanically Laminated Columns. ASABE Standards. St. Joseph, MI.
- K. ASCE 32 - Design and Construction of Frost Protected Shallow Foundations.
- L. ASTM A 123 - Specification for Zinc (Hot-Dip Galvanized) Coating on Iron and Steel Products.
- M. ASTM A 153 - Specification for Zinc (Hot-Dip Galvanized) Coating on Iron and Steel Hardware.
- N. ASTM A 653/A 653M - Specification for Steel Sheet, Zinc-coated Galvanized or Zinc-iron alloy-coated Galvanealed by the Hot-Dip Process.
- O. ASTM C665 - Specification for Mineral-Fiber Blanket Thermal Insulation.
- P. ASTM F 1667 - Specification for Driven Fasteners: Nails, Spikes and Staples.
- Q. AWPA U1 - USE CATEGORY SYSTEM: User Specification for Treated Wood Products.
- R. BCSI, Building Component Safety Information. Guide for Good Practice for Handling, Installing, Restraining and Bracing of Metal Plate Connected Wood Trusses.
- S. Climate Atlas of the US 1968. Department of Commerce - ESSA and Technical Papers 25, 37, 41 and 49. US Department of Commerce.

- T. Dipper.NWS.NOAA.gov/hdsc/pfds/orb/two-letter-state-abbreviation_pfds.html. National Weather Service Rainfall Data Website.
- U. ANSI/AITC A 190.1 - Structural Glued Laminated Timber.
- V. EWS X 450 - Product Guide - Glulam for Light Frame Construction and Manufactured Housing.
- W. NFBA - Accepted Practices for Post-Frame Building Construction: Framing Tolerances.
- X. NFBA - Accepted Practices for Post-Frame Building Construction: Metal Panels and Trim Installation Tolerances.
- Y. SSPC - Paint 20 - Zinc Rich Primers (Type I, "Inorganic", and Type II, "Organic"); Society for Protective Coatings; 1991 (Part of Steel Structures Painting Manual, Vol. Two).
- Z. ACI 318 - Building Code Requirements for Structural Concrete.

1.5 DESIGN REQUIREMENTS

- A. The building shall be designed by the Designer of Record (the Contractor's licensed structural engineer) as a complete system. All structural members and connections shall be the responsibility of the Designer of Record. All components of the system shall be specified by the Designer of Record. This includes, but is not limited to, components such as foundations, primary framing, secondary framing and lateral bracing.
- B. Design Code:
 - 1. Design load application shall be in accordance with 2012 edition of IBC.
- C. Building Category:
 - 1. For purposes of design load calculation, the building shall be classified as Type II in accordance with the 2012 edition of IBC.
- D. Dead Loads:
 - 1. The dead load shall be the weight of the post-frame building system materials as determined by the Designer of Record.
- E. Collateral Loads:
 - 1. The collateral load shall be a minimum 5 psf or as shown on the bid specification drawings. Collateral loads shall not be carried by the roof sheathing.
- F. Live Loads:
 - 1. The building roof structural members shall be capable of supporting a minimum uniform gravity live load of 25 psf.
- G. Snow Loads:
 - 1. The design snow load shall be based on a design ground snow load of 25 psf using an exposure factor of 1.0, importance factor of 1.0, and temperature factor of 1.1 per 2012 edition of IBC per the Designer of Record.

- H. Wind Load:
 - 1. The design wind speed for the post-frame building system shall be 90 mph, based on the three second gust, an importance factor of 1.0, and an exposure category of C for an enclosed, building per the 2012 edition of IBC and the Designer of Record.
 - I. Seismic Loads:
 - 1. The seismic load shall be based on seismic design Category B, seismic site Class D, spectral acceleration parameters $S_s=0.17$ and $S_1 = 0.06$, occupancy Category II and building type response modification coefficient, per the 2012 edition of IBC per the Designer of Record.
 - J. Deflection requirements shall be in accordance with the applicable provisions of the 2012 edition of IBC.
- 1.6 SUBMITTALS - NOTE: The Contractor's design drawings and design calculations shall bear the seal and signature of a structural engineer licensed in the **State of Illinois**.
- A. Design Drawings: Indicate assembly dimensions, locations of structural members, connections, attachments, openings, cambers, loads, wall and roof system dimensions, panel layout, general construction details, anchorages and method of anchorage, installation and; framing anchor bolt settings, sizes and locations from datum, and foundation loads.
 - B. Product Data: Provide data on profiles, component dimensions, fasteners, and color selection.
- 1.7 QUALITY ASSURANCE
- A. Structural framing and sheathing shall be the design of a structural engineer licensed in Illinois.
 - B. The builder shall have specialized experience in the construction of post-frame building systems for a period of at least ten years.
- 1.8 WARRANTY
- A. The Building Manufacturer shall supply a warranty to the Using Agency which shall provide that the Manufacturer with:
 - 1. For a period of fifty years:
 - a. Absorb repair or replacement costs; including material and labor, if any preservative treated lumber fails due to decay or insect attack.
 - b. Repair, or at its discretion, replace free of charge the building framework, including the roofing and/or siding panels, if directly damaged by snow loads.
 - 2. For a period of twenty years to repaint free of charge:
 - a. Any manufacturer's coated panel on which corrosion due to pollutants in the atmosphere had resulted in red rust.
 - b. Any panel on which under conditions of normal weathering, chalking has occurred in excess of eight units (ASTM D-659).
 - c. Any panel on which under conditions of normal weathering, color change has occurred in excess of five units (ASTM D-2244).

- d. Any roofing or siding panel on which the paint has separated from the panels due to checking or peeling.
- e. Any trims, gutters and downspouts, which have failed under any four methods above.
- 3. For a period of five years:
 - a. Repair, or at its discretion, replace free of charge the building framework, including roofing and/or siding panels, if directly damaged by wind loads, unless damage is caused by flying or falling objects.
- 4. For a period of one year:
 - a. Repair other building parts that prove to be defective in materials or workmanship.
- 5. The manufacturer shall not be liable for damage due to deterioration caused by interior chemical vapors and/or dust, damage by flying or falling objects, or collateral damage to interior walls, ceiling, partitions, overhead doors, equipment and/or contents or cost of preparing of the site.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with specified requirements, the following manufacturers are acceptable.
 - 1. Hein Post Frame Structure, Peoria, IL, Phone 309-208-5232.
 - 2. Lester Buildings, 7811 Judd Road, Pecatonica, IL 61063, Phone 800-826-4439.
 - 3. Morton Buildings, Inc., 252 W Adams Street, Morton, IL, 61550-1804, Phone 309-263-7474.
 - 4. Borkholder Buildings, (Local) 407 East Mount Vernon Street, Metamora, IL 61548, (309) 367-2373.

2.2 MATERIALS - POST FOUNDATION

- A. Post foundation materials shall be pressure preservative treated wood posts and concrete footer pads.
- B. Concrete in all post foundation components shall have minimum compressive strength of 3000 psi per IBC.
- C. Wood products used in foundations must be protected with pressure preservative chemical treatments to retention levels for Use Category UC4B or better per AWP-A-U1.
- D. Backfill around below grade portions of post foundations shall be native material.

2.3 MATERIALS - POSTS

- A. Wall posts are Glued-laminated structural wood products identified in the 2015 edition NDS.
- B. Portions of wood posts below grade and less than 8" above grade must be protected with pressure preservative chemical treatments to retention levels for Use Category UC4B or better per AWP-A-U1.

- C. All in place structural performance required connection hardware in the portion of the post below grade and 8" or less above grade shall be hot dipped galvanized per ASTM 153 per Designer of Record.

2.4 MATERIALS - SKIRTBOARDS

- A. Skirtboards are solid sawn products identified in the 2005 edition of NDS.
- B. Wood skirtboards must be pressure preservative treated with preservative chemical treatments and to retention levels per AWPA-UC4A or better.
- C. All connection hardware used to attach the skirtboards shall be hot dipped galvanized per ASTM 153.

2.5 MATERIALS - WALL GIRTS

- A. Wall girts are solid sawn structural wood products identified in the 2005 edition of NDS.
- B. Wall girts shall satisfy the wind load requirements specified herein plus any additional lateral loadings exerted by stored materials acting directly on the wall sheathing.
- C. All wall girts less than 8" above grade must be pressure preservative treated with preservative chemical treatments and to retention levels for Use Category UC-4B or better per ASPA-U1.
- D. Wall girts are placed directly on the outside face of wall columns per the Designer of Record.
- E. Wall girts are attached to the posts with fastener schedules specified by the Designer of Record.
- F. All in place structural performance required connection hardware in the girts 8" or less above grade shall be hot dipped galvanized per ASTM 153.
- G. All in place structural performance required connection hardware in the portion of copper-based pressure-treated girts 8" or more above grade shall be hot dipped galvanized per ASTM 153.
- H. All in place structural performance required connection hardware in the portion of untreated girts 8" or above grade shall be hot dipped galvanized per ASTM 153.

2.6 MATERIALS - POST HEADERS

- A. Post Headers: One of the following:
 - 1. Solid sawn, glued-laminated or structural composite lumber wood products identified in the 2015 edition of NDS.
 - 2. Parallel chord plate connected trusses designed in accordance with the 2015 edition of NDS.
 - 3. Wide flange steel girders.
- B. Post headers are attached to post with connector hardware per the Designer of Record.

2.7 MATERIALS - WALL SHEATHING

- A. Wall sheathing shall satisfy the wind load requirements specified herein under Article "Design Requirements" plus any additional lateral loadings exerted by materials acting directly on the wall sheathing.
- B. Wall sheathing consists of ribbed steel panels attached to outside edge of wall girts in accordance with manufacturer's specifications.
- C. Metal sheathing substrate shall be G-90 per ASTM 653/A 653M per Designer of Record. Thickness: 29 ga.
 - 1. Fasteners used to through-fasten painted steel screws.
 - a. EPDM washered, center drive, painted stainless steel screws.
 - b. Screw heads shall have neoprene washers with screw face color to match panel color.
- D. Exterior Surfaces: The exterior wall finish shall be pre-painted metal: Pre-coated steel with polyvinylidene fluoride (PVDF) finish with color from manufacturer's standard colors selected by Owner's Rep. and/or Architect.

2.8 MATERIALS - WALL INSULATION (At Office Areas Only)

- A. Type and Quantity: Wall insulation shall be ASTM C665 conforming, batt glass fiber type, faced with reinforced foil with UL flame spread classification of 25 or less where exposed and shall have a material R-value of 21 hr-ft²-f/Btu per Designer of Record.
- B. Reflective insulation shall be installed in the wall and shall be installed relative to the other insulation materials per the Designer of Record.

2.9 MATERIALS - PRIMARY ROOF FRAMING

- A. All roof framing shall satisfy the load requirements specified herein except dead load for purlins only includes contributions from the purlins and sheathing and other roof coverings.
- B. The primary roof framing shall consist of metal plate connected wood trusses designed and fabricated in accordance with TPII per the Designer of Record.

2.10 MATERIALS - ROOF PURLINS

- A. Roof purlins shall satisfy the load requirements specified herein except dead load for purlins includes only the contributions from the purlins, sheathing, and other roof covering.
- B. Roof purlins shall be solid sawn structural wood products identified in the 2005 edition of NDS per the Designer of Record.
- C. Roof purlins shall be placed directly on the top of trusses with strong axis oriented per shop drawings.
- D. Roof purlins shall be attached to the truss with fastener types and schedules per the Designer of Record.

2.11 MATERIALS - ROOF SHEATHING

- A. All roof sheathing shall satisfy the load requirements specified herein except dead load only includes contributions from the sheathing and other sheathing coverings.
- B. Roof sheathing consists of ribbed steel panels to top edge of roof purlins in accordance with manufacturer's specifications. Thickness: minimum 29 ga.
 - 1. Fasteners used to through-fasten painted steel panels:
 - a. EPDM washered, center drive, painted stainless steel screws.
 - b. Screw heads shall have neoprene washers with screw face color to match panel color.
- C. Metal roof sheathing substrate shall be AZ55 ASTM A792 per Designer of Record. Thickness: Minimum 29 ga.
- D. Exterior Surfaces: The exterior roof finish shall be pre-painted metal: Pre-coated steel of polyvinylidene fluoride (PVDF) finish with color from manufacturer's standard colors selected by Owner's Rep. and/or Architect.
- E. Interior Surfaces: Metal panels: Pre-coated steel with was coat of (polyester)acrylic).

2.12 MATERIAL ATTIC INSULATION

- A. Type and Quantity: (At Office Areas only) Attic insulation shall be blown-in cellulose with exposed surfaces protected with a liner with UL flame spread classification of 25 or less and shall have a material R Value of 38 hr-ft²-F/BTU

2.13 MATERIALS - TRIMS, DOWNSPOUTS AND GUTTERS

- A. Trim materials include flashings, internal and external corners, closure pieces, fascia, infills, and caps. All trim shall be compatible with the wall/roofing sheathing and sheathing finish materials per product supplier. Die-formed steel from the same quality material as the siding panel. Gauge same as siding.
 - 1. Gutters, Downspouts and Brackets: Fabricate to cross sections required by SMACNA for sizing appropriately per Chapter 1 Roof Drainage Systems.
 - a. Fabricate from one of the following factory coil coated materials:
 - 1) Aluminum: .032" minimum.
 - 2) Galvanized: 29 gauge minimum.
 - 2. Accessories: Provide wire ball strainer at each downspout.

2.14 PERSONNEL DOORS AND FRAMES

- A. Doors and frames are specified in Section 081113 - Hollow Metal Doors and Frames.

2.15 VEHICULAR DOORS

- A. Vehicular doors are specified in Section 083613 - Sectional Doors.

2.16 FABRICATION

- A. Built-Up Wood Post Headers: Fabricate using wood grade and numbers and type fasteners per the Designer of Record.
- B. Nail-Laminated Wood Posts: Fabricate per Designer of Record.
- C. Roof Trusses: Fabricate per TPI 1.
- D. Glued-Laminated Products: Fabricate per ANSI/AITC A 190.1.

2.17 SNOW GUARDS

- A. Snow Guards: Prefabricated non-corrosive units designed to be adhesively installed without penetrating metal roof panels.
 - 1. Surface-Mounted, Stainless steel-powder coated, Stop-Type Snow Guards: Stops designed for attachment to pan surface of metal roof panels using construction adhesive, silicone or polyurethane sealant, or adhesive tape.
 - a. Products: Subject to compliance with requirements, provide one of the following:
 - 1) SNOBLOX.
 - 2) Sno-Gem, Inc.
 - 3) Zaleski Snow Guards.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Inspection:
 - 1. Before start of installation, Contractor shall carefully inspect installed Work of all trades affecting construction of the post frame building. Verify that all such work is complete to the pint where installation of the post-frame building may properly commence.
 - 2. Verify that the work of this section amy be installed in accordance with all applicable codes and regulations, and with original design as shown and indicated on the shop drawings approved by the Designer of Record.
 - 3. Discrepancies: In the event of a discrepancy, installer shall immediately notify the Designer of Record. Installation shall not proceed until discrepancies and/or unsatisfactory conditions have been fully resolved and/or approved as agreed by the Designer of Record and the installation.

3.2 ERECTION

- A. General: Work shall proceed in accordance with Contractor's current, written instructions and as per approved design specifications and approved shop drawings for erection of post-frame building systems.
 - 1. Install all foundations, roof and wall structural elements, building components, and accessories as shown in the approved design shop drawings or in component supplier instruction sheets.
 - 2. Install all connections between structural components per design drawings.
 - 3. Install purlins and wall girts in the orientation shown in the shop drawings.

4. Handle, install and brace all trusses during construction according to TPI's, HIB-Post Frame document.
 5. Install required roof bracing as shown on the shop drawings.
 6. If applicable, install individual web member permanent lateral restraint at the locations shown on the sealed truss shop drawings.
 7. If applicable, install diagonal bracing to appropriate individual web members for permanent lateral restraint as specified by the Designer of Record.
 8. Install permanent wind bracing in the wall system as shown on the shop drawings.
- B. Adjust all operating components as required to ensure that they operate in accordance with manufacturer's or supplier's recommendations.
- C. Install all framing components to within tolerances recommended in the NFBA Framing Tolerances standard, "Accepted Practices for Post Frame Building Construction: Framing Tolerances".
- D. Install all metal panel and metal trim components to within tolerances recommended in NFBA's Cladding Tolerances standard, "Accepted Practices for Post-Frame Building Construction: Metal Panel and Trim Installation Tolerances".
- E. Install all wood structural panels to within tolerances recommended in APA PDS.
- F. Provide temporary restraint and bracing for the roof trusses during construction.
- G. Provide temporary wall bracing during construction.
- H. Do not field cut or modify structural members without approval of the Designer of Record.
- I. All roof and wall accessories to be installed weathertight.
- J. Gutter, downspout, flashings and trim.
1. Install gutters and downspouts, flashings and trim in accordance with manufacturer's instructions, and SMACNA "Architectural Sheet Metal Manual".
 2. Provide concealed fasteners, where possible, set units true to line, and level as indicated.
 3. Install work with laps, joints and seams that will be permanently watertight and weather resistant.
- 3.3 CLEANING AND PROTECTION
- A. Cleaning: General Contractor shall clean all building elements, components and/or surfaces in areas with "more than normal construction amount" of foreign matter such as dirt, dust or other surface debris. "More than normal" dirt, debris and other blemishes are defined as being visible by a majority of normal-sighted individuals when viewed under natural noonday lighting from an at-grade position no closer than 15' to the blemish in question.

1. Touch up all marred, abraded, or otherwise damaged finishes as deemed necessary and in accordance with the definition for "more than normal" above, so that evidence of such damage is eliminated.
2. At the completion of Work, remove trash, debris, and all excess materials, cartons and/or items so that all areas of work are clean.
3. Protection: Provide protective measures, as required, so the wood post-frame building is without damage or deterioration at the time of Substantial Completion.

END OF SECTION 13 34 20

SECTION 220529 - SUPPORTS AND ANCHORS FOR PLUMBING

PART 1 - GENERAL

1.01 WORK INCLUDES

- A. Base Bid:
 - 1. Contractor Provide:
 - a. Supports for plumbing pipe and equipment.
 - b. Sleeves and seals for plumbing piping in walls.
 - c. Escutcheons on plumbing piping.

1.02 RELATED WORK

- A. Specified Elsewhere:
 - 1. 220700 - Plumbing Insulation.
 - 2. 221100 - Domestic Water Piping.
 - 3. 221119 - Domestic Water Piping Specialties.
 - 4. 221300 - Sanitary Piping.
 - 5. 221319 - Sanitary Waste Pipe Specialties.
 - 6. 223300 - Water Heaters
 - 7. 224000 - Plumbing Fixtures.
 - 8. Sheet C-200 of the drawing set.

1.03 SYSTEM DESCRIPTION

- A. Definitions:
 - 1. Plumbing piping includes domestic hot and cold hot water piping.

1.04 REFERENCES

- A. AISC - American Institute of Steel Construction.
- B. ASME B31.9 - Building Services Piping
- C. ASTM F708 - Design and Installation of Rigid Pipe Hangers.

1.05 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Product Data: Provide manufacturers catalog data including load capacity. Submit pipe supports not listed in this specification.

1.06 REGULATORY REQUIREMENTS

- A. Conform to Illinois Plumbing Code for support of plumbing piping.

1.07 COORDINATION

- A. Sleeves:
 - 1. Coordinate placement with concrete trades.
- B. Insulation:
 - 1. It is not acceptable for piping with cold surfaces not to be insulated through hangers. Provide hangers specified for insulation to be large enough to pass insulation through or to have built in layers of insulating material that can be sealed to.

1.08 RECORD DRAWINGS - See Sections 221100 and 221300

PART 2 - PRODUCTS

2.01 MANUFACTURER & PERFORMANCE

- A. Unless otherwise specified the manufacturer's number specified or scheduled is listed merely as an aid to prospective bidders. In most cases it is an incomplete number and relies upon the written description to fully define the item. Where model numbers define a single manufactured item which does not include the items include in the written description, the model number shall be modified as required to most closely meet the described requirements.

2.02 PIPE HANGERS AND SUPPORTS

- A. Acceptable Manufacturers.
 - 1. B-Line.
 - 2. Grip Strut.
 - 3. Fee and Mason.
 - 4. Grinnel.
 - 5. Unistrut.
- B. Hanger Description :
 - 1. Side mounted brackets for attachment to wood joist shall be bolt through steel angle or malleable iron bracket equal to B-Line B-3060 or B-3062.
 - 2. Strut supports shall be primed, unless noted otherwise, in 14 or 12 gauge rolled carbon steel (unless noted otherwise) with galvanized die-formed accessory clamps, inserts and fasteners.
 - 3. "J-Hooks" for 2" pipe and smaller shall be 1/4" thick by 1-1/4" wide steel rated for 200 lbs each.
 - 4. Hold down straps shall be die-stamped of galvanized sheet steel or formed of galvanized malleable iron.
 - 5. At Contractors option, attachment to wood joist shall be 1/4" to 3/8" lag screws with connection for 3/8" hanger rod from side or inline.
 - 6. Lag-screw anchors with oversized heads tapped for 3/8" rod shall be acceptable for load not exceeding 300 lbs. These shall be zinc plated carbon steel with wood. 1-1/4" minimum wood thread meeting AISI 1022 and National Coarse 3/8" National Coarse thread rod socket meeting AISI 1018-1022.
- C. Plumbing Piping:
 - 1. Conform to ASME B31.9 ASTM F708 and Illinois Plumbing Code.
 - 2. Hangers for Pipe Sizes 1-1/2" and Over: Carbon steel, adjustable, clevis.
 - 3. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods and neoprene inserts.
 - 4. Vertical Support: Steel riser clamp or steel strut with accessory clips and neoprene inserts.
 - 5. Rough-in Supports: Pressure treated lumber at least 3/4" thick x 3-1/2" wide or 1-1/2" x 1-1/2" without flaws, for screwed connection of drop ear elbows and hold down straps noted below.
 - 6. Floor Hold Downs: Hold down straps as specified.
 - 7. Hangers for Pipe Sizes 1/2" to 1-1/2", Carbon steel, adjustable swivel.
 - 8. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.
 - 9. Preformed straps shall be copper sheet or molded heat resistant PVC or nylon in a semicircular shape for an individual pipe with mounting ears. Install with black drywall screws.
 - 10. Wall Supports for Horizontal Pipe: "J-Hooks" or struts, see drawing. Neoprene inserts for insulated pipe shall be full depth of insulation

specified.

2.03 ACCESSORIES

- A. Hanger Rods: Mild steel continuous threaded.
- B. Auxiliary Steel and Trapeze Hangers.
 - 1. Shall be Schedule 40 steel pipe or rolled steel shapes complying with AISC manual.
 - 2. Manufactured struts shall be rolled of 12, 14, or 16 gauge material to meet loading required or as noted on Drawings or otherwise specified. It shall have a hot dipped galvanized or epoxy coating or shall be prime painted. Requirements noted on drawing details shall supersede minimal requirements noted in this specification.
- C. Acceptable Products.
 - 1. B-Line.
 - 2. Uni-strut.
 - 3. Grip Strut.

2.04 ANCHORS

- A. Masonry or concrete type for pipe or equipment supports. Shall be wedge type with either studs or National coarse female thread. Alternative type shall be self drilling expansion type. Anchors shall be U. L. listed.
- B. Masonry or concrete type for securing escutcheons to masonry shall be "nail-in" type. Unit shall consist of broad head on hollow zinc alloy core with steel drive pin. Provide with dielectric washer.

2.07 SLEEVES

- A. Sleeves for Pipes through Walls Rated at less than one hour. Schedule 40 PVC or 22 gauge galvanized sheet steel.

2.08 SEALANTS

- A. Exterior moisture sealant - Shall be non-hardening silicone type rated for temperatures of -40 degrees F to 250 degrees F. Material shall be available in white, gray, brown, and black colors. Material shall be sunlight resistant.
- B. Interior sealant shall be silicone type rated for temperatures of 0 degrees F to 250 degrees F. Material shall be available in white, clear, gray, brown or black.
- C. Sealants used for sealing plumbing fixtures to walls shall be white silicone rated for temperatures of 200 degrees F. It shall be mildew and fungus resistant and comply with The FDA (Food & Drug Administration) Standard No. 21 and The National Sanitation Foundation (NSF) Standard Rating C2.

G. Manufacturer

	<u>Exterior Sealant</u>	<u>Interior Sealant</u>	<u>Fixture Sealant</u>
1. Tremco	Spectrum 2	Spectrum 1	----
2. 3M	2000	FS-195	----
	150	FS-195	
3. General Electric	SCS1000	SCS1000	1700
4. Dow Corning	999A	999A	786
7. Dap	----	----	Defender

8. Pecora 864 AC-20 898

2.09 ESCUTCHEONS

- A. For piping - Shall be chrome finished split faced plastic.

PART 3 - EXECUTION

3.01 APPLICATION

A. Plumbing Pipe:

1. Shall be supported in accord to the Illinois Plumbing Code and this specification.
2. Plastic waste pipe 2" and less shall be supported on 5'-0" centers.
3. Copper tube 1" and smaller shall be supported independent of fixtures, and at a maximum of 5'-0" centers.
4. Hot and cold water pipes below concrete and steel structure shall be supported with clevis type hangers or on trapeze hangers with cold water pipe. Provide insulation shields where pipe is insulated.
5. Where cold water pipe passes through strut clamps. Provide neoprene inserts or oversized pipe sleeves that pass insulation continuously.

B. Hanger Rod:

1. Hanger rod size shall be: 3/8" for pipe up to 2" in size and loads up to 360 lbs;

3.02 ANCHORS

- A. Use anchors in concrete floors.
- B. Drill hole clean of loose material. Install anchor, flush with surface. Size hole in accord to manufacturers' recommendation. Physically test anchor by pulling against it. Loose anchors will not be accepted.

3.03 PIPE HANGERS AND SUPPORTS

- A. Utilize hangers in accord to Application paragraphs.
- B. Install hangers to provide minimum 1/2" space between finished covering and adjacent work.
- C. Place hangers within 12" of each horizontal elbow.
- D. Use hangers with 1-1/2" minimum vertical adjustment.
- E. Support vertical piping such that it cannot be deflected more than 1/8" from center by hand pressure.
- F. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.
- G. Support riser piping independently of connected horizontal piping.
- H. Provide copper plated hangers and supports for copper piping. Provide hard neoprene inserts secured with strut. Insert shall completely cover pipe and match insulation thickness as closely as manufactured standards allow.

- I. Locate hangers for pipe movement without disengagement of supported pipe.
- J. Provide "rough-in" supports in chases. Support pipe from studding. Use copper or PVC straps and wood blocking. Solder type supports shall not be used. Pipes shall be fastened to the wood blocking by copper or nylon straps specified. Use of drop ear elbows and tees is required per drawings.
- K. Provide auxiliary steel to span structure where required. Provide in accord to Paragraph 3.06 below.
- L. Secure upper attachment from the top side of steel joists, and the top or bottom of steel beams. Use concrete anchors for the upper attachment under concrete structure.
- M. Do not use perforated hangers strap.

3.04 SLEEVES, SEALS, FIRESTOPPING & ESCUTCHEONS

- A. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.
- B. Exterior wall penetrations shall be sealed with colored silicone between pipe and sleeve. Pack interior of sleeve with fiberglass batt.
- C. Provide escutcheon on exposed interior penetrations. Secure escutcheons into place with bead of sealant under. Wipe away exposed sealant.
- D. The annular area around pipe which penetrate walls which extend continuously to the roof deck but which are un-rated shall be packed tightly with fiberglass batt, or shall be sealed tightly with caulking.
- E. Sleeves passing through slab on grade construction shall be terminated at finish floor level.

3.05 AUXILIARY STEEL AND EQUIPMENT SUPPORTS

- A. Hanging Equipment and Materials:
 - 1. Shall be supported from the top or upper side of wood joists.
 - 2. Auxiliary steel shall be manufactured strut, rolled steel shapes or schedule 40 steel piping. Strut shall be sized in accord to the manufacturer's literature unless shown otherwise on Drawings. Rolled shapes or pipe supports shall be in accord to the following chart.
 - 3. Auxiliary Steel Chart (Pipe Diameter and Angle Size)

PIPE SIZE	LOAD POUNDS	30" SPAN	60" SPAN	90" SPAN	120" SPAN
≤ 3"	≤ 474	1" 1"x1"x1/4"	1-1/2" 1-1/2"x1- 1/2"x1/4"	2-1/2" 2"x2"x1/4"	3" 3"x3"x1/4"

- B. Equipment supports shall be as shown on drawings, and specified.
- C. Paint supports for equipment and pipe gray.
- D. Remove rust, scale and protective coatings before painting. Paint with one coat of primer and two top coats. Apply per manufacturer's instructions.

3.06 FLASHING

A. Coordinate with General Trades.

END OF SECTION 220529

SECTION 220700 - PLUMBING INSULATION

PART 1 - GENERAL

1.01 WORK INCLUDES

- A. Base Bid:
 - 1. Contractor Provide:
 - a. Insulation of both new hot and cold water pipe.

1.02 RELATED WORK

- A. Specified Elsewhere:
 - 1. 225290 - Supports and Anchors for Plumbing.
 - 2. 221100 - Domestic Water Piping.

1.03 SYSTEM DESCRIPTION

- A. Definitions:
 - 1. Domestic water piping includes hot and cold water piping.
- B. Description:
 - 1. Cold water piping will extend between the water service entry and the toilet rooms, hydrants and kitchenette.
 - 2. Hot water and hot water return piping will exist between the water heaters and the fixtures.

1.04 QUALITY ASSURANCE

- A. Material shall have UL listings stamped on material or packing containers.
- B. Inspect finished insulation to assure specified tolerance is met. A/E will verify. If A/E notes tolerances are exceeded, entire system shall be re-inspected and corrections made.

1.05 REGULATORY REQUIREMENTS

- A. ASTM C177 - Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus.
- B. ASTM C547 - Standard Specification for Mineral Fiber Preformed Pipe Insulation.
- C. ASTM E84 - Surface Burning Characteristics of Building Materials.
- D. ASTM E96 - Water Vapor Transmission of Materials.
- E. ASHRAE 90-1-2016 - Energy Efficient Design of New Buildings Except Low Rise Residential Buildings.
- F. International Energy Conservation Code 2018

1.06 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Product Data: Provide product description, list of materials and thickness for each service, and locations. Show compliance with all specified standards. Show K-Value, maximum temperature, permeability, surface burning characteristics, flame spread and smoke density. Provide MSDS sheets for adhesives and paints. Show material is asbestos free. Submit product data for covers and accessories.

- C. Manufacturer's Installation Instructions: Indicate procedures which ensure acceptable workmanship and installation standards will be achieved.
- D. Provide name of insulating contractor and value of insulation work on Contractor's Schedule of Values.

1.07 QUALIFICATIONS

- A. Installer: Workman skilled in performing the work of this section.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site in original factory packaging, labeled with manufacturer's identification, including product density fire ratings and thickness. Keep separated.
- B. Store insulation in original wrapping and protect from weather and construction traffic.
- C. Protect insulation against dirt, water, chemical, and mechanical damage.

1.09 ENVIRONMENTAL REQUIREMENTS

- A. Maintain ambient temperatures and conditions required by manufacturers of adhesives, mastics, and insulation cements.
- B. Maintain temperature during and after installation for minimum period of 24 hours.

PART 2 - PRODUCTS

2.01 MANUFACTURER & PERFORMANCE

- A. Unless otherwise specified the manufacturer's number specified or scheduled is listed merely as an aid to prospective bidders. In most cases it is an incomplete number and relies upon the written description to fully define the item. Where model numbers define a single manufactured item which does not include the items include in the written description, the model number shall be modified as required to most closely meet the described requirements.

2.02 FIBERGLASS

- A. Shall conform to ASTM C547 Type 1, at 100 degrees F. K-value shall be no more than .25 BTU/hr/in degrees F. Material shall be rated for temperatures up to 650 degrees F. Jacket or insulation shall not promote microbial growth per ASTM C 1338.
- B. Vapor barrier shall be fiberglass reinforced foil faced scrim craft paper. Jacket permeance shall be limited to .02 perm, per ASTM E96 procedure A.
- C. Flame spread shall be no more than 25. Smoke developed rating shall be no more than 50. These per ASTM E 84.
- D. Accessory elbow covers shall be .02" thick PVC with flame spread and smoke developed ratings as noted above.
- E. Insulation shall be premolded to thickness listed in application table. Vapor barrier shall have pre-glued adhesive strips. If staples are required by the manufacturer, the system shall include a vapor barrier cover for the staples.

F. Acceptable Products:

	Insulation	Covers
1. Knauf	1000 degrees pipe insulation	---
2. Johns-Manville	Micro-Lok	---
3. Owen-Corning	SSL-II	---
4. Zeston	---	Losmoke Covers

PART 3 - EXECUTION

3.01 ENVIRONMENTAL CONDITIONS

- A. Work shall be done when temperatures are within the limits set by the manufacturer.

3.02 PREPARATION

- A. Verify that piping has been tested before applying insulation materials.
- B. Verify that surfaces are clean, foreign material removed, and dry.

3.03 INSTALLATION

- A. Install materials in accordance with manufacturer's instructions.
- B. On exposed piping, locate insulation and cover seams in least visible locations.
- C. Insulated cold pipes conveying fluids below ambient temperature: (cold water).
1. Maintain vapor barrier, align insulation and seal without gaps.
 2. Insulate fittings, joints, and valves with insulation of like material and thickness as adjacent pipe. Miter angles.
 3. Continue insulation through walls, sleeves, pipe hangers, and other pipe penetrations.
 4. Insulate entire system including fittings, and valves.
 5. Seal inserts at strut supports to adjacent insulation.
- D. For insulated pipes conveying fluids above ambient temperature: (Hot water).
1. Where pipe is exposed insulate in same manner as for cold water, except that valves and unions need not be covered.
 2. Within ceiling spaces and chases insulate main piping and branch piping. Valves, fittings, and unions need not be insulated.
- E. Provide galvanized shields steel pipe hangers.
- F. Finish insulation at supports, protrusions, and interruptions.
- G. All joints shall be made with adhesive. Raw edges shall not be exposed.

3.04 APPLICATION

PIPING SYSTEMS	INSULATION TYPE Inch	PIPE SIZE	THICKNESS Inch
A. Domestic hot water pipe.	Fiberglass	All Sizes	1"
B. Domestic Cold Water Pipe	Fiberglass	4" and less	1/2"

3.05 FIELD QUALITY CONTROL

- A. No gaps will be allowed in cold pipe insulation. No more than 1-12" x 1/16" gap per 100 feet of insulated hot pipe will be allowed.

END OF SECTION 220700

SECTION 221100 - DOMESTIC WATER PIPING

PART 1 - GENERAL

1.01 WORK INCLUDES

A. Base Bid:

1. Contractor Provide:

- a. Hot and Cold water pipe within the building
- b. Water service pipe between the Illinois American Shut off valve and the connection to the building cold water.
- c. Sleeve for water service pipe into the building.

1.02 DESCRIPTION

A. Definitions

1. Domestic Water - Includes hot, cold, and hot water return.
2. Plumbing Contractor = Plumbing Subcontractor or Plumbing Trade.
3. Domestic water mains are that piping used to convey water to branch mains and points of use.
4. Domestic water branch pipe is that pipe used in rooms with fixtures.

1.03 RELATED WORK

A. Specified Elsewhere:

1. 220529 - Supports and Anchors for Plumbing.
2. 220553 - Identification for Plumbing Piping and Equipment.
3. 220700 - Plumbing Insulation.
4. 221110 - Domestic Water Piping Specialties.
5. 224000 - Plumbing Fixtures.
6. 221120 - Domestic Water Equipment.
7. Sheet C-2 of the Drawing Set

1.04 REFERENCES

- A. ANSI B31.9 - Building Service Piping.
- B. ASME B16.22 - Wrought Copper and Bronze Solder-Joint Pressure Fittings
- C. ASME B16.51 - Copper and Copper Alloy Press-Connect Pressure Fittings.
- D. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings.
- E. ASTM B32-92 - Solder Metal.
- F. ASTM B88 - Seamless Copper Water Tube.

1.05 COORDINATION

A. With Illinois American Water Company

1. See Domestic water service notes on sheet C200.

2. Have building water sleeve in place for continuous water service from

the water meter.

1.05 SUBMITTALS

- A. Submit under provisions Section 013300.
- B. Product Data: Provide data on valves and piping accessories. Provide manufacturers catalog information. Indicate valve data and ratings.
- C. Tests:
 - 1. Provide a witnessed pressure test of water piping. Test as required by the Illinois Plumbing Code.
 - 2. Provide an original copy of the bacteriological report required by the Illinois Plumbing Code.
- D. Schedule of Values:
 - 1. Provide a separate dollar value of all water piping work used on this job as part of the Schedule of Values.

1.06 PROJECT RECORD DOCUMENTS

- A. Submit under provisions of Section 017839
- B. Record actual locations of valves. Record locations of valves concealed above lay in ceilings.
- C. Obtain A/E review of record documents before or at each pay progress meeting.

1.07 QUALITY ASSURANCE

- A. Valves: Manufacturer's name and pressure rating marked on valve body.

1.08 REGULATORY REQUIREMENTS

- A. Perform Work in accordance with State of Illinois Plumbing Code.

1.09 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site under provisions of Section 016000
- B. Accept valves on site in shipping containers with labeling in place. Inspect for damage.
- C. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.
- D. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

1.10 ENVIRONMENTAL REQUIREMENTS

- B. Do not utilize solvent weld products when dry wall sanding is underway.

PART 2 - PRODUCTS

2.01 MANUFACTURER & PERFORMANCE

- A. Unless otherwise specified the manufacturer's number specified or scheduled is listed merely as an aid to prospective bidders. In most cases it is an incomplete number and relies upon the written description to fully define the item. Where model numbers define a single manufactured item which does not include the items include in the written description, the model number shall be modified as required to most closely meet the described requirements.

2.02 WATER PIPING, ABOVE GRADE

- A. Copper Tubing: ASTM B88, Type L, hard drawn.
1. Fittings: ASME B16.18, cast bronze, or ASME B16.22, wrought copper and bronze.
 2. Joints: ASTM B32-92, solder, lead-free and antimony-free.
 3. Acceptable Products: Solder
 - a. Taracorp Tarament Sterling.
 - b. Oatey Silver.
 4. At Contractor's option fittings shall be wrought copper press connected type with EPDM "O"-Ring type gaskets. Fittings shall have indicators that verify connections have been made. Fittings shall be rated for operating pressures of 200 psi and temperature ranges of - 20 degrees F to 250 degrees F. Fittings shall comply with ASME B16.51.
 5. Acceptable Products:

	Press Fittings	Solder Fittings
a. Viega	ProPress	--
b. Apollo	Xpress	--
c. Mueller	StreamlinePRS	Streamline
d. Nibco	--	WROT/Cast 0198

2.03 FLANGES, UNIONS, AND COUPLINGS

- A. Pipe Size 2" and Under:
1. Ferrous pipe: 150 psig malleable iron threaded unions.
 2. Copper tube and pipe: 150 psig bronze unions with soldered joints.
- B. Dielectric Connections: Brass flange with copper solder end, gaskets, dielectric flange bolt inserts, washers and stainless steel bolts.

2.04 VALVES

- A. Ball Valves up to and including 3": Bronze 600# wog, 150# swp two piece body, stainless steel or chrome plated full port bronze ball, teflon seats and stuffing box ring, lever handle, solder or threaded ends.
- B. Swing Check up to and including 2": Bronze body rated for 150 # wog with wye configuration, bronze disc, integral seat and threaded or solder ends.
- C. Vertical Check: Bronze body rated for 200 psig with straight configuration, soft seat, stainless steel or bronze spring and bronze plug.

D. Acceptable Products:

	<u>Ball</u>	<u>Swing Check</u>	<u>Vertical Check</u>
1. Apollo	Model 77 Series	---	61-500 Series

2.05 STRAINERS

A. Shall be bronze construction acceptable by NSF. Strainer screen shall be No. 20 stainless steel mesh. Pressure rating shall be 150 psig.

B. Sizes 2" and smaller shall have female NPT ends.

C. Acceptable Products:

1. Conbraco 85-5-5-5 Series
2. Watts Series 777

2.06 UNDER GROUND PIPING

A. Sleeve shall be Schedule 40 PVC with solvent weld fittings as specified in Section 221300.

B. Pipe shall be as specified in the Domestic Water Service Notes on Sheet C200.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine areas and conditions under which plumbing piping is to be installed.

B. Verify existing piping at new connection points is in sound condition.

C. Verify placement of fixtures and equipment to determine locations of rough-in connections.

D. Correct any unsatisfactory conditions before beginning installation of piping products of this section. Commencement of installation indicated acceptance of conditions.

3.02 PREPARATION

A. Ream pipe and tube ends. Remove burrs.

B. Remove scale and dirt, on inside and outside, before assembly.

C. Prepare piping connections to equipment with flanges or unions.

D. Valves:

1. Remove shipping materials.
2. Examine valve (interior and exterior) to verify that valve is clean and corrosion free.
3. Verify that valves operable through full open and close positions.

3.03 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Provide non-conducting dielectric connections wherever jointing dissimilar metals.

- C. Route piping in orderly manner and maintain gradient.
- D. Install piping to conserve building space and not interfere with use of space. Install pipe parallel or at right angles to building walls. Diagonal runs shall be as shown on drawings.
- E. Group piping whenever practical at common elevations.
- F. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment. Install fittings at changes in direction. Install swing joints at branch connections to mains.
- G. Conceal pipe where new chases and walls and furring are provided. Pipe on existing wall is exposed.
- H. Connecting components of unequal size: Install standard reducers or increasers, correctly sized for application indicated.
- I. Clearances:
 - 1. Provide adequate space around piping to allow proper application of insulation.
 - 2. Finished piping insulation minimum clearance: 1", all around.
- J. Support and anchor pipe as specified in Section 220529.
- K. Joints:
 - 1. Copper Pipe:
 - a. Press Fittings:
 - 1) Shall be made in accord with fitting manufacturer's instruction using tools recommended by that manufacturer.
 - b. Sweat Fittings:
 - 1) Solder shall be full depth of fitting socket.
 - 2) Joints shall be "wiped" and form a neat fillet.
- L. Domestic Water Piping System:
 - 1. Install on interior side of building insulation. Do not install in ventilated attics or crawl space unless called out on drawings.
 - 2. Pitch: 1/32"-per-foot (1/4 percent) or greater to drain point. Do not trap. Provide valves at drain point.
 - 3. General-purpose valves:
 - a. Install valves with stems horizontal or above horizontal. Do not install inverted.
 - b. Position valves to allow easy access. Provide additional support where required.
 - c. Provide valves as shut offs to all equipment and as indicated.
 - d. Allow clearance for insulation at handles.
 - 4. Connections:
 - a. Piping runouts to fixtures: Install runouts to fixtures. Size piping, as required.
 - b. Mechanical equipment: Provide connections to equipment as required.
 - 5. Install underground piping as single continuous piece within PVC sleeve with long sweep 90 degrees els to above the floor. Install without kinking.

3.05 APPLICATION

- A. Install unions downstream of valves and at equipment or apparatus connections. Use in accessible locations only.

B. Install valves for shut-off to isolate equipment and in vertical risers.
See drawings for other locations.

C. Application Chart:

1. Hot and Cold water Above the floor.	Copper	Sweat Solder
2. Domestic water service	Polyethylene As noted on C200	Brass compression type

A. Slope water piping and arrange to drain at low points.

3.07 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM.

A. Do in accord with the Illinois Plumbing Code.

END OF SECTION 221100

SECTION 221119 - DOMESTIC WATER PIPING SPECIALTIES

PART 1 - GENERAL

1.01 WORK INCLUDES

- A. Base Bid:
 - 1. Contractor Provide:
 - a. Hydrants
 - b. Backflow preventer and its first commission.

1.02 DESCRIPTION

- A. Definitions:
 - 1. Plumbing Contractor = Plumbing Subcontractor for this work.
- B. Frost proof hydrants shall be located to the out-of-doors and garage where shown.
- C. The back flow preventer shall be located on the building service, as shown, to protect the water main.

1.03 RELATED WORK

- E. Specified Elsewhere:
 - 1. 221100 - Water Piping.
 - 2. 224000 - Plumbing Fixtures.

1.04 REFERENCES

- A. ANSI/ASSE 1019 - Wall Hydrants, Frost Proof Automatic Draining Anti-Backflow Types.
- B. AWWA C506- Backflow Prevention Devices- Reduced Pressure Principle and Double Check Valve type.

1.05 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Product Data: Provide component sizes, rough-in requirements, service sizes, and finishes.
- C. Manufacturer's Installation Instructions: Indicate assembly and support requirements.

1.06 PROJECT RECORD DOCUMENTS

- A. Submit under provisions of Section 017839. Record actual location of pump.

1.07 OPERATION AND MAINTENANCE DATA

- A. Submit under provisions of Section 017823 (1.05) (the General Conditions).

- B. Maintenance Data: Include installation instructions, spare parts lists, exploded assembly views.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site under provisions of Section 016000 Accept specialties on site in original factory packaging. Inspect for damage.

1.09 EXTRA MATERIALS

- A. Furnish under provisions of Section 017700.
- B. Provide two loose keys for each hydrant.

PART 2 - PRODUCTS

2.01 MANUFACTURER & PERFORMANCE

- A. Unless otherwise specified the manufacturer's number specified or scheduled is listed merely as an aid to prospective bidders. In most cases it is an incomplete number and relies upon the written description to fully define the item. Where model numbers define a single manufactured item, which does not include the items include in the written description, the model number shall be modified as required to closely meet the described requirements.

2.02 HYDRANTS

- A. Exposed Wall Hydrant: ANSI/ASSE 1019; non-freeze, self-draining, with rough bronze finish, removable loose key, lock shield and integral vacuum breaker with hose thread spout. Provide with surface mounting plate and wall clamp. Coordinate wall depth with general trades.
- B. Acceptable Products:
 - Exposed
 - 1. Josam 71350
 - 2. Woodford Model 30

2.03 BACKFLOW PREVENTERS

- A. Reduced Pressure Principle: Approved per ASSE 1013; Lead free bronze body with corrosion resistant internal parts and stainless steel springs; 2 independently operating check valves with intermediate relief valve. Provide with lead free bronze strainer with stainless steel screen, air gap fitting and ball valves
- B. Acceptable Products: See drawings

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install all devices per manufacturer's instruction.
- B. Install backflow preventers with centerline no more than 2'-6" above the floor. Route air gap drain to above the mop sink.

3.01 TESTING

A. Commission Back Flow Preventer per Illinois Plumbing Code.

END OF SECTION 221119

SECTION 221300 - SANITARY PIPING

PART 1 - GENERAL

1.01 WORK INCLUDES

- A. Base Bid:
 - 1. Contractor Provide:
 - a. New sanitary sewer and vent system.
 - b. Connection to sanitary sewer service pipe specified on Drawing C-2.
 - c. Bedding material, required for laying pipe, in excess of that furnished with the structure.

1.02 DESCRIPTION

- A. Definitions
 - 1. Sanitary piping includes waste and vent piping in building.
 - 2. Sanitary service pipe is that pipe outside of building leading to the GSPD main.
 - 3. Plumbing Contractor = Plumbing Subcontractor or Plumbing Trade.

1.03 RELATED WORK

- A. Specified Elsewhere:
 - 1. 220529 - Supports and Anchors for Plumbing.
 - 2. 220553 - Identification for Plumbing Piping and Equipment.
 - 3. 220700 - Plumbing Insulation.
 - 4. 221100 - Domestic water Piping
 - 5. 221300 - Sanitary Waste Piping Specialties.
 - 6. 224000 - Plumbing Fixtures.
 - 7. Drawing C-2

1.04 REFERENCES

- A. ANSI B31.9 - Building Service Piping.
- B. ASTM D1785 - Poly Vinyl Chloride (PVC) Plastic Pipe, Schedules 40, 80, and 120.
- C. ASTM D2466 - Poly Vinyl Chloride (PVC) Plastic Pipe Fittings, Schedule 40.
- D. ASTM D2564 - Solvent Cements for Poly Vinyl Chloride (PVC) Plastic Pipe and Fittings.
- E. ASTM D2855 - Making Solvent-Cemented Joints with Poly Vinyl Chloride (PVC) Pipe and Fittings.
- F. ASTM F477 - Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

1.05 SUBMITTALS

- A. Submit under provisions Section 013300.
- B. Product Data: Provide data on no hub connectors and piping accessories. Provide manufacturers catalog information.

1.06 PROJECT RECORD DOCUMENTS

- A. Submit under provisions of Section 017839
- B. Record actual locations of cleanouts. Record lateral and vertical locations of underfloor pipe. Locate in relation to walls and surfaces which extend beyond concealing surfaces.
- C. Obtain A/E review of record documents before or at each pay progress meeting.

1.07 QUALITY ASSURANCE

- B. Valves: Manufacturer's name and pressure rating marked on valve body.

1.08 REGULATORY REQUIREMENTS

- A. Perform Work in accordance with State of Illinois Plumbing Code.
- B. Sanitary sewer service work shall be done in accord to the regulations and specifications set forth by the Greater Peoria Sanitary District.

1.09 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site under provisions of Section 016000.
- B. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.
- C. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

1.10 ENVIRONMENTAL REQUIREMENTS

- A. Do not utilize solvent weld products when dry wall sanding or other dusty activity is underway.

PART 2 - PRODUCTS

2.01 MANUFACTURER & PERFORMANCE

- A. Unless otherwise specified the manufacturer's number specified or scheduled is listed merely as an aid to prospective bidders. In most cases it is an incomplete number and relies upon the written description to fully define the item. Where model numbers define a single manufactured item, which does not include the items include in the written description, the model number shall be modified as required to closely meet the described requirements.

2.02 PLASTIC PIPING FOR WASTE AND VENT

- A. Non Pressure PVC Pipe: Solid; not Foam Core, Schedule 40 DWV ASTM D 1785.
 - 1. Fittings PVC ASTM D 2665
 - 2. Joints: ASTM D2855, solvent weld with ASTM D2564 solvent supply.
- B. Connector Fittings:
 - 1. Shall be "no-hub" type.
 - 2. Shall be one piece neoprene gaskets with full stainless steel housings and stainless steel band clamps. Assembly shall comply with ASTM and CISPI 310.

C. Acceptable Products:

1. Charlotte Figure NH-1.
2. Clamp-All Hi-Torq 80/125.
3. Tyler No hub coupling assembly.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine areas and conditions under which waste and vent piping is to be installed.
- B. Verify existing piping at new connection points is in sound condition.
- C. Verify placement of fixtures and equipment to determine locations of rough-in connections.

3.02 PREPARATION

- A. Ream pipe and tube ends. Remove burrs. Bevel PVC pipe.
- B. Remove scale and dirt, on inside and outside, before assembly.
- C. Prepare piping connections to equipment with flanges or unions.

3.03 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Route piping in orderly manner and maintain gradient.
- C. Install piping to conserve building space and not interfere with use of space. Install pipe parallel or at right angles to building walls. Diagonal runs shall be as shown on drawings.
- D. Group piping whenever practical at common elevations.
- E. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment. Install fittings at changes in direction.
- F. Conceal pipe where new chases and walls and furring are provided.
- G. Connecting components of unequal size: Install standard reducers or increasers, correctly sized for application indicated. Do not use bushings. Do not reduce size of drainage piping in the direction of flow.
- H. Support and anchor pipe as specified in Section 220529.
- I. Joints:
 1. PVC pipe:
 - a. Solvent-welded joints: Conform to requirements of ASTM D 2855.
- J. Soil, Waste, and Vent System:
 1. Pitch: Pitch pipe in accord to Plumbing Code of the State of Illinois.
2. Underground Building Drains:
 1. Locate connection of sewer pipe to existing pipe.

2. Start drain installation at system's lowest point. Maintain alignment and grade indicated and provide uninterrupted continuity of invert.

K. Bedding and Backfill

1. Use clean sand that would pass through a #8 sieve.
2. Provide a minimum of a 3" thick granular cradle around the pipe invert; with a minimum of 3" compacted fill on top. Maintain compaction density required by structural drawings.

3.04 APPLICATION

A. Application Chart:

<u>Use Description</u>	<u>Pipe Type</u>	<u>Fitting Type</u>
1. Sanitary and Vent Pipe within Building	Schedule 40 PVC	Solvent Weld PVC

3.06 ERECTION TOLERANCES

- A. Establish invert elevations, slopes for drainage to 1/8" per foot for waste piping 4" and larger. Smaller waste piping shall be 1/4" per foot.

END OF SECTION 221300

SECTION 221319 - SANITARY WASTE PIPING SPECIALTIES

PART 1 - GENERAL

1.01 WORK INCLUDES

- A. Base Bid:
 - 1. Contractor Provide:
 - a. Floor drain.
 - b. Cleanouts.

1.02 DESCRIPTION

- A. Definitions:
 - 1. Plumbing Contractor = Plumbing Subcontractor for this work.
 - 2. Finished areas are those with floors other than unstained concrete and include areas like toilet rooms.
 - 3. Unfinished areas are those with floors that are unstained and sealed concrete which do not have any other surface finish like tile or sheet vinyl.

1.03 RELATED WORK

- A. Specified Elsewhere:
 - 1. 220529 - Supports and Anchors for Plumbing.
 - 2. 220700 - Plumbing Insulation.
 - 3. 221300 - Sanitary Piping.
 - 4. 224000 - Plumbing Fixtures.

1.04 REFERENCES

- A. ANSI A112.21.1 - Floor Drains.

1.05 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Product Data: Provide component sizes, rough-in requirements, service sizes, and finishes.
 - a. Show floor drain body and strainer type.
 - b. Show limitations for securing into concrete.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site under provisions of Section 016000.
- B. Accept specialties on site in original factory packaging. Inspect for damage.

1.07 COORDINATION

- A. With other trades:
 - 1. Set heights of drains and cleanouts before concrete work is done.
 - 2. Coordinate with finish floor trades. Turn square tops minimally to just below the level of finished floor material.
 - 3. Make sure heights are maintained after concrete work is completed.

PART 2 - PRODUCTS

2.01 MANUFACTURER & PERFORMANCE

- A. Unless otherwise specified the manufacturer's number specified or scheduled is listed merely as an aid to prospective bidders. In most cases it is an incomplete number and relies upon the written description to fully define the item. Where model numbers define a single manufactured item which does not include the items include in the written description, the model number shall be modified as required to most closely meet the described requirements.

2.02 FLOOR DRAINS

A. Toilet Room Drains:

1. Shall have "on-grade" PVC base adaptor with a solvent weld lower connection. Provide with a plugged trap primer outlet. Base shall accommodate an adjustable coring sleeve with both external and intern threads. Provide with a temporary plug for use during concrete installation.
2. Strainer shall be 6" square nickel bronze polished top with heel proof grid and vandal resistant screws.

B. Acceptable Products:

- | | |
|----------------|--------------------|
| | <u>Toilet Room</u> |
| 1. Sioux Chief | 832-2PNR |

2.03 CLEANOUTS

A. Floor Cleanouts in Unfinished Spaces Shall:

1. Have on grade PVC base adaptor with a solvent weld lower connection.
2. Base shall have an adjustable coring sleeve with internal and external threads.
3. Have heavy duty scoriated cast iron adjustable round cover with removable plug..

B. Floor Cleanouts in Finished Spaces Shall:

1. Be same construction as noted above except top shall be square nickel bronze scoriated cover. Cleanouts designated for carpeted floors shall have carpet flange.

C. Acceptable Products:

- | | | |
|----------------|------------------|---------------|
| | <u>Equip. Rm</u> | <u>Finish</u> |
| | <u>Floor.</u> | <u>Floor.</u> |
| 1. Sioux Chief | 837 | 832 |

PART 3 - EXECUTION

3.01 PREPARATION

- A. Coordinate forming of floor construction to receive drains to required invert elevations.
1. Drains in toilet rooms and work rooms shall be just under finished floor by no more than 1/4 turn of drain top.
 2. Protect drain strainer from construction.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Extend floor cleanouts to finished floor surface. Top shall be just under finish floor by no more than 1/4 turn of adjustable top. Extend wall cleanouts to break inner surface of drywall or backer board. Lubricate threaded cleanout plugs with mixture of graphite and linseed oil. Ensure clearance at cleanout for rodding of drainage system. Ensure plug can be removed from the opening.
- C. Drains:
 - 1. Provide floor drains with deep seal traps unless specified otherwise.
 - 2. Prime drain traps in Equipment rooms and toilets with vegetable oil.

END OF SECTION 221319

SECTION 223300 - WATER HEATERS

PART 1 - GENERAL

1.01 WORK INCLUDES

- A. Base Bid:
 - 1. Contractor Provide:
 - a. Point of use instantaneous electric water heater serving lavatory and mop sink and a point of use instantaneous electric water heater serving the kitchenette sink.

1.02 RELATED WORK

- A. Specified Elsewhere:
 - 1. 221100 - Water Piping.
 - 2. 221119 - Domestic Water Piping Specialties.
 - 3. 224000 - Plumbing Fixtures.

1.03 REFERENCES

- A. ANSI/ASHRAE 90A - Energy Conservation in New Building Design.
- B. ASME Section VIII D - Pressure Vessels; Boiler and Pressure Vessel Codes.
- C. ANSI/NFPA 54 - National Fuel Gas Code.
- D. ANSI/NFPA 70 - National Electrical Code.

1.04 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Product Data:
 - 1. Include dimension drawings of water heaters indicating dimensions, accessory components and connections to other equipment and piping.
 - 2. Provide electrical characteristics and connection requirements.
 - 3. Provide data on all accessory components.
- C. Manufacturer's Installation Instructions.
- D. Provide individual line item cost for installation of water heaters on the Schedule of Values.

1.05 OPERATION AND MAINTENANCE DATA

- A. Submit under provisions of Section 017823.
- B. Include the following information:
 - 1. Instructions for starting and operating equipment.
 - 2. Operating limits which, if exceeded, may result in hazardous or unsafe conditions.
 - 3. Cleaning and preventive maintenance schedule and procedures.
 - 4. List of special tools, maintenance materials, and parts.
 - 5. Guide for troubleshooting of operating problems.

1.06 REGULATORY REQUIREMENTS

- A. Perform Work in accordance with Illinois Plumbing Code as modified by the

City of Peoria and the 2018 International Energy Conservation Code.

- B. Ensure products and installation of specified products are in conformance with recommendations and requirements of the following organizations:
 - 1. National Sanitation Foundation (NSF).
 - 2. National Electrical Manufacturers' Association (NEMA).
 - 3. Underwriters Laboratories (UL).

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site under provisions of Section 016000.
- B. Keep water heater covers protected from dents and scratches.

1.08 WARRANTY

- A. Actual warranty shall be a minimum of 1 year for this commercial type project. Warranties in excess of this amount shall be passed on to the Owner.

PART 2 - PRODUCTS

2.01 MANUFACTURER & PERFORMANCE

- A. Unless otherwise specified the manufacturer's number specified or scheduled is listed merely as an aid to prospective bidders. In most cases it is an incomplete number and relies upon the written description to fully define the item. Where model numbers define a single manufactured item which does not include the items include in the written description, the model number shall be modified as required to most closely meet the described requirements.

2.05 POINT OF USE HEATERS

- A. Shall be electric tank-less type controlled so that output temperature ranges from 105 to 110 degrees F.
- B. See drawing for required capacity.
- C. Shall have threaded connections.
- D. Shall have Nickel chrome elements contained with-in a replaceable cartridge. Provide with a replaceable filter at the inlet. Assembly shall be rated for operation at 150 psi.
- D. Shall have capacities noted on drawings.
- E. Acceptable Product: See Drawing Notes.

PART 3 - EXECUTION

3.01 WATER HEATER INSTALLATION

- A. Install water heaters in accordance with manufacturer's instructions and to NSF, ANSI/NFPA 54, UL, and Illinois Plumbing Code requirements.
- B. Coordinate with plumbing piping and related and electrical work to achieve operating system.
- C. Isolate heaters with valves.
- E. Pipe heaters to allow future removal.

END OF SECTION 223300

SECTION 224000 - PLUMBING FIXTURES

PART 1 - GENERAL

1.01 WORK INCLUDES

- A. Base Bid:
 - 1. Contractor Provide:
 - a. Toilet room fixtures and trim.
 - b. Mop Sink and trim.
 - c. Blocking in walls to support lavatory, sink faucet and stops.
 - d. Kitchen sink, faucet, and trim.
- B. Work by Others.
 - 1. Countertops shall be furnished and hung per Section 064023.

1.02 RELATED WORK

- A. Specified Elsewhere:
 - 1. 064116 - Plastic laminate Faced Architectural Cabinets
 - 2. 220529 - Supports and Anchors for Plumbing.
 - 3. 221100 - Domestic Water Piping.
 - 4. 221119 - Domestic Water Piping Specialties.
 - 5. 221300 - Sanitary Piping.
 - 6. 221319 - Sanitary Water Piping Specialties.

1.03 DESCRIPTION

- A. Definitions:
 - 1. Plumbing Contractor = Plumbing Subcontractor for this work.
 - 2. Trim includes those devices which are attached to fixtures and are integral with the fixture function. Examples are as follows:
 - a. Sink and lavatory trim includes faucets, sprayers, basket strainers, tail pieces, p-traps, stops and risers.
 - b. Water closet trim includes flush valves, stops and risers, seats, and bolt covers.
 - 3. Sinks have bowls with drains over which faucets deliver domestic hot and cold water.
 - 4. Lavatories resemble sinks; but their exclusive use is for handwashing.
- B. Architectural drawings show symbols where most fixtures are located. The symbol is not necessarily the correct graphic representation. This specification defines fixture type.

1.04 REFERENCES

- A. ASME A112.18.1 - Finished and Rough Brass Plumbing Fixture Fittings.
- B. ANSI/ASME A112.19.2 - Vitreous China Plumbing Fixtures.
- C. ANSI/ASME A112.19.5 - Trim for Water-Closet Bowls, Tanks, and Urinals (Dimensional Standards).

1.05 REGULATORY REQUIREMENTS

- A. Illinois Plumbing Code.
- B. Illinois Accessibility Code/ADA.

1.06 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Product Data: Provide catalogue illustrations of fixtures, sizes, rough-in dimensions, utility sizes, trim, and finishes.
- C. Provide certifications that ADA requirements and specified standards are met.
- D. Provide separate line item for Contractors Schedule of Values.

1.07 OPERATION AND MAINTENANCE DATA

- A. Submit under provisions of Section 017823.
- B. Maintenance Data: Include fixture trim exploded view and replacement parts lists.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site under provisions of Section 016000.
- B. Accept fixtures on site in factory packaging. Inspect for damage. Institute procedures for replacement of damaged fixtures immediately.
- C. Protect installed fixtures from damage by securing areas and by leaving factory packaging in place to protect fixtures and prevent use.

1.09 COORDINATION

- A. Rough-in coordination shall be made using reviewed and accepted product data and shop drawings.
- B. Provide toilet, lavatory and sink dimensions to general trades so that wall locations can be nominally adjusted. See notes on drawings.

1.10 EXTRA MATERIALS

- A. Furnish under provisions of Section 017823.
- B. Provide one sets of faucet washers. Deliver to Owners representative. Obtain signed receipt.

PART 2 - PRODUCTS

2.01 MANUFACTURER & PERFORMANCE

- A. Unless otherwise specified the manufacturer's number specified or scheduled is listed merely as an aid to prospective bidders. In most

cases it is an incomplete number and relies upon the written description to fully define the item. Where model numbers define a single manufactured item which does not include the items included in the written description, the model number shall be modified as required to most closely meet the described requirements.

2.02 WATER CLOSETS: See Drawings.

A. Floor Mounted Tank Type.

1. Water Closet WC-1 shall be 2 piece white vitreous china with elongated front bowl; A bolt-on flush tank with syphon jet flushing action, with a maximum of 1.6 gallons per flush; Trap way shall be minimum of 2" and be fully glazed. Water spot shall be minimum of 9 x 8. "Rough-In" shall be 12". Flush mechanism shall be gravity type.
2. Water Closet rim shall be minimum be 16.5" to 17.125" above the floor. Flush handle shall be on left side of tank (while facing toilet).
3. Provide with white cover caps.

B. Seats:

1. Seats for WC-1 shall be institutional form curved solid grade white anti-microbial plastic with integral bumpers and open front. Hinges shall be stainless steel non hold open type. Bolts shall be stainless steel with conical self-centering locking nuts and washers.

C. Acceptable Products: (Commercial Water Closets)

Manufacturer/Model	WC-1
1. American Standard	Cadet Ovation
2. Kohler	Equal
3. Gerber	Avalanche

D. Acceptable Products: (Seats)

1. Bemis	3100
2. Church	1955

2.03 LAVATORIES

- A. Lavatories shall be white vitreous china with flat faucet deck drilled for 4" centers for either center feed faucet with tubular connections or dual fed faucets with 1/2" NPT. Unit shall have integral front overflow drain.

- B. LAV-1 lavatories shall be 20" x 18". It shall be listed as ADA Compliant by manufacturers. It shall have mounting bracket for wall support. It shall have integral backsplash and soap shelf.

C. Acceptable Products:

ADA	
Wall-mount 20 x 18	
1. American Standard	Lucerne
2. Kohler	Kingston
3. Gerber	Monticello

D. Lavatory Faucets:

1. Faucets) shall have lead-free cast brass chrome plated body. Spouts shall extend a minimum of 4". Configuration shall be 4" center set deck mount. Valve handles shall be chrome plated and color indexed. Faucet connections shall be 1/2" NPT. Faucet valves shall be

interchangeable with those for sink faucets where cartridge has the same action.

2. LAV-1 faucets shall be two handle type with 90 or 180 degree valve action and washerless valves. Valve handles shall be color coded for temperature, shall be brass lever blade type and shall meet ADA requirements for ease of operation. Faucet shall be repairable from top of deck. Valves shall have 1/4 turn non-rising stem action using a replaceable machined brass cartridge with O-ring seals or stainless steel and ceramic cartridges.

Acceptable Products:

(LAV 1)
Above Deck
Two Handle

- a. Chicago 802 Series
 - b. Moen 8210F12 Series
 - c. Delta 21C Series
- H. Drainage trim shall be chrome plated 17 gauge cast brass with swivel connections. Furnish with wall escutcheons. Tail piece for LAV-1 shall be offset type with strainer. Acceptable Products - McGuire, Engineered Brass Company, or Cambridge Brass.
- I. Supplies and stops shall be chrome plated angle type with chrome plated flexible connectors, wheel handle and connections to match piping and faucets. Furnish with wall escutcheons. Acceptable Products McGuire, Engineered Brass Company or Cambridge.
- J. Handicapped Lavatory Trim Covers.
1. Shall conform to ADA. Article 4.19.4.
 2. Shall be molded vinyl or vinyl covered foam sheeting formed to P-Trap, tail pieces (straight or offset) off set and stops. Fasteners shall be nylon wire ties or plastic sex bolts.
 3. Acceptable Products:
 - a. Plumberex Pro-Extreme or Handi-Shield.
 - b. Engineered Brass Company Institutional.
 - c. TCI Products Skal & Gard.

2.05 WORK SINKS

- A. Mop Sinks: Shall be die molded or inorganic fiber and filler and polyester resin binder. Size shall be 24" x 36" x 10". Front shall have stainless steel bumper guard. Sides against wall shall have stainless steel wall guards. Drain shall be lead caulk or neoprene insert type. Strainer shall be flat stainless steel style.
- B. Mop Sink Faucet: Shall be rough chromed brass with adjustable center mounts, lever handles integral stops and vacuum breaker, pail hook, hose thread, and wall support.
- C. Acceptable Products (Sinks):
- | | |
|-------------------|----------|
| | Mop Sink |
| 1. Fiat | MSB |
| 2. Stern-Williams | MTB |
| 4. Crane | MSB |
| 5. Florestone | MSR |
| 6. Mustee | 65M |

G. Acceptable Products (Faucets):

- | | |
|------------|------------|
| | Mop Sink |
| 1. Chicago | 897 Series |
| 2. Symmons | S-2490 |

2.06 COUNTER SINKS

A. Bowl:

1. Shall be minimum of 22 gauge 304 nickel bearing stainless steel with radius vertical coved corners and integral faucet deck. Underside shall be sound deadened. Deck shall have 4 faucet holes on 4" centers. Drain openings shall be 3-1/2". Provide hidden compression screwdriver operated fasteners on minimum of 8" centers around perimeter of sink rim.
3. Sink SK-1 shall be 25" x 22" x 5" to 6-1/2" deep. Drain connection shall be 3-1/2" toward rear of bowl. Exact bowl depth and hand of rear drain connection is at Contractor's option.

B. Trim:

1. Tail piece and P-trap and continuous waste shall be fully removable with slip joints and compression nuts. Material shall be 17 gauge chrome plated cast brass. Size shall be 1-1/2".
2. Drain baskets shall be chrome plated brass or stainless steel with neoprene stopper, 1-1/2" connection with other parts all metal.
3. Supplies and stops shall be chrome plated type with chrome plated flexible connectors, wheel handles, solder inlet and compression female outlet.

- C. Faucet shall be under deck mounted with 8" center set, high arch swivel spout with soft flow aerator. Outlet shall be minimum of 9" above sink deck and extend minimum of 8" from center of faucet. Valves shall be quarter turn type and shall be interchangeable with those specified for lavatories. Deck covers shall be gasketed to sink. Handles shall be wrist blade type with hot and cold indicators. Furnish with remote trigger spray outlet with nylon reinforced hose.

D. Acceptable Products (Sinks):

- | | |
|----------|------------|
| | SK-1 |
| 1. Elkay | GE12522 |
| 2. Just | Equivalent |

G. Acceptable Products (Faucets):

- | | |
|------------|-------------------|
| | <u>Water Fall</u> |
| 1. Chicago | 200 AHA8 Series |
| 2. Delta | Equivalent |
| 3. Moen | Equivalent |

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that walls and floor finishes are prepared and ready for installation of fixtures.

3.02 PREPARATION

- A. Rough-in fixture piping connections in accordance with minimum sizes indicated in fixture rough-in schedule for particular fixtures.

3.03 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install each fixture with trap, easily removable for servicing and cleaning.
- C. Provide chrome plated flexible supplies to fixtures with loose key stops, reducers, and escutcheons. Mount stops to drop eared elbows screwed to blocking.
- D. Sinks with cut cabinet tops without damaging surface. Coordinate with cabinet top supplier. Secure sink rim. Provide bead of sealant under sink rim.
- E. Seal fixtures to wall and floor surfaces with white silicone fungicidal sealant.
- F. Tuck backsplash 1/2" below water cooler deck. Secure with adhesive around exposed perimeter.
- G. Provide 2x treated wood blocking to support lavatories, faucets, and similar situations, wood blocking shall back hanger and span all contact points.

3.04 INTERFACE WITH OTHER PRODUCTS

- A. Review kitchen casework shop drawings. Confirm location and size of fixtures and openings before rough-in and installation.

3.05 ADJUSTING

- A. Adjust stops or valves for intended water flow rate to fixtures without splashing, noise, or overflow.

3.06 CLEANING

- A. At completion clean plumbing fixtures and equipment.

3.07 PROTECTION OF FINISHED WORK

- A. Do not permit use of fixtures.

3.08 FIXTURE HEIGHTS

- A. Install fixtures to heights above finished floor as indicated.

- B. Water-Closet: Are floor mounted.
1. Rough in flush valve at 12 Inches above rim.
 2. Rough-in stop for tank toilets 8" above finished floor.

- C. Lavatory:
1. All 34" to top of basin rim.
 2. Rough-in stops 15" above finished floor.

3.09 FIXTURE ROUGH-IN SCHEDULE

	<u>HOT WATER</u>	<u>COLD WATER</u>	<u>WASTE</u>	<u>VENT</u>
Lavatory	1/2"	1/2"	1-1/2"	1-1/4"
Service Sink	1/2"	1/2"	3"	1-1/2"
Kitchen Sinks	1/2"	1/2"	2"	1-1/2"
Water Closet		1/2"	3 or 4"	2"

END OF SECTION 224000

Section 230529 - Supports and Anchors for HVAC

1. - GENERAL

1.01 WORK INCLUDES

A. Base Bid:

1. Contractor Provide:

- a. Supports for equipment and duct.
- b. Sleeves and seals for penetrations involving ducts.
- c. Curbs for roof fan penetrations.

1.2 RELATED WORK

A. Specified Elsewhere:

- 1. 13 34 20 - Post-Frame Building Systems.
- 2. 23 34 00 - Fans.
- 3. 23 31 00 - Ductwork.

1.3 SUBMITTALS

A. Submit under provisions of Owner's Division 1 Specifications.

B. Product Data: Provide manufacturers catalog data including load capacity.

1.4 REGULATORY REQUIREMENTS

A. International Mechanical Code 2015 for support of HVAC duct.

1.5 COORDINATION

A. Coordinate selection and placement of roof curbs with supplier and installer of Post Frame Building.

2. - PRODUCTS

2.1 PIPE HANGERS AND SUPPORTS

A. Acceptable Manufacturers.

- 1. B-Line.
- 2. Grip Strut.
- 3. Fee and Mason.
- 4. Grinnel.
- 5. Unistrut.

B. Hanger Description:

- 1. Side mounted brackets for attachment to wood joist shall be bolt through steel angle or malleable iron bracket.
- 2. At Contractors option, attachment to wood joist shall be 1/4" to 3/8" lag screws with connections for 3/8" hanger rod from side or inline.
- 3. Lag-screw anchors with oversized heads tapped for 3/8" rod are acceptable for load not exceeding 300 lbs. These shall be zinc plated carbon steel with wood. 1-1/4" minimum wood thread meeting AISI 1022 and National Coarse 3/8" National Coarse thread rod socket meeting AISI 1018-1022.

2.2 ACCESSORIES

- A. Hanger Rods: Mild steel continuous threaded national coarse thread.
 - 1. Nuts shall be SAE Grade 3 minimum with cadmium plating and national coarse thread.
 - 2. Lock washers shall be cadmium plated split spring type sized for the rod.
- B. Auxiliary Steel and Trapeze Hangers.
 - 1. Manufactured struts shall be rolled of 12, 14, or 16 gauge material to meet loading required or as noted on Drawings or otherwise specified. It shall have a hot dipped galvanized coating.
- C. Acceptable Products.
 - 1. B-Line.
 - 2. Uni-strut.
 - 3. Grip Strut.

2.3 SEALANTS

- A. Exterior moisture sealant - Shall be non-hardening silicone type rated for temperatures of -40 degrees F to 250 degrees F. Material shall be available in white, gray, brown, and black colors. Material shall be sunlight resistant.
- B. Manufacturer

	Exterior Sealant
1. Tremco	Spectrum 2
2. 3M	2000 150
3. General Electric	SCS1000
4. Dow Corning	999A

2.4 ESCUTCHEONS

- A. For ductwork - Shall be galvanized angle sized to overlap entire opening.

2.5 ROOF CURBS

- A. Shall match fan caps of fans in Section 233400 with roof profile of post and frame building.
- B. Shall be for gable top installation.
- C. Shall have interior sleeves sized for backdraft damper provided with fan.
- D. Shall be constructed of 18 gauge galvanized steel with continuously welded water tight seams, built-in cricket and 1-1/2' 3 lb. density fiberglass insulation.
- E. Acceptable Manufacturers:
 - 1. KCC Manufacturing.
 - 2. Pate.
 - 3. Roof Products System (RPS).
 - 4. Thybar.

3. - EXECUTION

3.1 APPLICATION

- A. Hanger Rod:

1. Hanger rod size shall be: 3/8" for loads up to 360 lbs.

3.2 HANGERS AND SUPPORTS

- A. Utilize hangers in accord to Application paragraphs.
- B. Place hangers within 12" of each horizontal elbow.
- C. Support vertical duct such that it cannot be deflected.
- D. Provide auxiliary steel to span structure where required. Provide in accord to strut manufacturer's published data.
- E. Secure upper attachment from the top side of wood joists.
- F. Do not use perforated hanger strap.

3.4 SEALS & ESCUTCHEONS

- A. Exterior and interior wall penetrations shall be sealed with colored silicone between pipe and sleeve. Pack interior of sleeve with fiberglass batt.
- B. Provide escutcheon on exposed interior penetrations. Secure escutcheons into place with bead of sealant under. Wipe away exposed sealant.
- C. The annular area around ducts which penetrate walls or ceiling which extend continuously to the roof deck shall be packed tightly with fiberglass batt, and be sealed tightly with caulking.

END OF SECTION 23 05 29

SECTION 230553 - IDENTIFICATION FOR HVAC PIPE AND EQUIPMENT

PART 1 - GENERAL

1.01 WORK INCLUDES

- A. Base Bid:
 - 1. Contractor Provide:
 - a. Marker labeling on all equipment

1.02 RELATED WORK

- A. Specified Elsewhere.
 - 1. 230900 Temperature Controls
 - 2. 233400 - Fans.

PART 2 - PRODUCTS - None

PART 3 - EXECUTION

3.01 PREPARATION

- A. Painted, paper or rubber surfaces shall be wiped clean.
- B. Clean wire ends free of lubricants and dirt.

3.02 INSTALLATION

- A. Identify cabling, concealed or exposed, with markers. Use plain English names like "Nitrogen Dioxide Control"

3.02 MARKER LABELING

- A. Using an indelible pen label the inside surface of access panels and hoods of all Fans and their controls.
 - 1. The nitrogen dioxide detector shall be labeled as controlling the fans in the unheated storage space.

END OF SECTION 230553

Section 230593 - Testing, Adjusting & Balancing for HVAC

1. - GENERAL

1.1 WORK INCLUDES

- A. Base Bid:
 - 1. General Contractor Provide:
 - a. Test and balance new exhaust systems shown on drawings.
 - b. Test and balance new fans serving exhaust systems.

1.2 RELATED WORK

- A. Specified Elsewhere:
 - 1. 23 09 00 - Temperature Controls.
 - 2. 23 31 00 - Ductwork.
 - 3. 23 33 00 - Air Duct Accessories.
 - 4. 23 34 00 - Fans.

1.3 SYSTEM DESCRIPTION

- A. Summary:
 - 1. Test and Balance shall:
 - a. Verify maximum and minimum exhaust airflow in each building.
 - b. Verify fans and equipment are functioning per design and manufacturer's performance data.
- B. Intent of work is to:
 - 1. Verify ventilation and exhaust flows are as specified.
 - 2. Leave the Park District with a functioning system.
- C. Definitions:
 - 1. Air balance - testing and adjusting air system components to achieve design parameters or to evenly distribute available air. Includes both flow and temperature measurements recording of measurements, and adjustment of system to achieve specified air flows.
 - 2. Calibration - Comparison of the measured values of an instrument with a known quantity.
 - 3. Testing - measurement of air flow, pressure differential, electric current and voltage which show how much work a fan is doing.

1.4 QUALITY ASSURANCE

- A. Air balance firm shall have personnel certified in accord to one of the standards referenced under REGULATORY REQUIREMENTS or shall be a registered professional Engineer experienced with this type of work.
- B. Personnel doing work on site shall have certifications noted above.
- C. Instrumentation used for testing and balancing shall be calibrated no more than one month before date of use.
- D. The Peoria Park District and Architect/Engineer reserve the right to pick two different measurements to be remade after the test and balance report is submitted. If one of the two selected measurements are found to be more than 50 percent different than those submitted in the report the entire balance report shall be redone.
- E. Payment for at least ten percent balance work will not be made until building has been turned over to the Owner.

- F. The Architect/Engineer will compare measured fan characteristics against the manufacturer's published fan curves and tabulated data. Test data which falls outside of the manufacturer's published curves may require retesting subject the Architect/Engineer review.

1.5 REGULATORY REQUIREMENTS AND STANDARDS

- A. AABC - National Standards for Total System Balance.
- B. ADC - Test Code for Grilles, Registers, and Diffusers.
- C. ASHRAE 111 - Practices for Measurement, Testing, Adjusting, and Balancing of Building Heating, Ventilation, Air-conditioning, and Refrigeration Systems.
- D. NEBB - Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems.
- E. SMACNA - HVAC Systems Testing, Adjusting, and Balancing.
- F. SMARTA - Sheet Metal, Air Conditioning and Roofing Contractors Trade Association of Illinois.
- G. TABIC - Testing and Balancing Institute for Certification.

1.6 SUBMITTALS

- A. Submit name and qualification certificate of air balance technician who actually does work. Do this at least ten working days before work is to be done.
- B. Test Reports: Indicate data on standardized form following AABC. SMACNA, SMARTA or TABIC.
- C. Provide written certification from installing contractors systems are in correct working condition and ready for test.
- D. Field Reports: Indicate deficiencies in systems that would prevent proper testing, adjusting, and balancing of systems and equipment to achieve specified performance.
- E. Prior to commencing work, submit report forms or outlines indicating adjusting, balancing, and equipment data required.
- F. Submit draft copies of report for review prior to final acceptance of Project. Provide as a PDF. Provide final copies for A/E and for inclusion in operating and maintenance manuals.
- G. Submit cost of balance work as line item on contractor's schedule of values. Provide name of balance contractor that time.
- H. Provide final reports in soft cover, letter size, three-hole binder manuals, complete with index page, with cover identification at front and side.
- I. Include detailed procedures, agenda, and sample report forms prior to commencing system balance.

1.7 PROJECT CONDITIONS

- A. Building/Construction Conditions:

1. All portions of systems shall be complete before balance work is begun. Ceilings shall be in place. Grill shall be in place.
2. Balance work which does not involve heating or cooling apparatus shall be accomplished when ambient temperatures are above 20 degrees F and less than 80 degrees F.

1.8 SEQUENCING

- A. Do not do work until systems are complete.
- B. Work with temperature installer to balance devices under all operational sequences.

2. - PRODUCTS

2.1 MANUFACTURER & PERFORMANCE

- A. Not Used.

3. - EXECUTION

3.1 EXAMINATION

- A. Verify that systems are complete and operable before commencing work. Ensure the following conditions:
 1. Systems are started and operating in a safe and normal condition.
 2. Temperature control systems are installed complete and operable.
 3. Proper thermal overload protection is in place for electrical equipment.
 4. Fans are rotating correctly.
 5. Grilles are installed and connected.
 6. Duct system leakage is minimized.
- B. Submit field reports immediately by telephone and email. Report defects and deficiencies noted during performance of services which prevent system balance. Do not report defects and deficiencies in written reports except as preliminary situations for which remedies were found.
- C. Beginning of work means acceptance of existing conditions.

3.2 PREPARATION

- A. Provide instruments required for testing, adjusting, and balancing operations. Make instruments available to Architect/Engineer to facilitate spot checks during testing.
- B. Provide additional balancing devices as required.

3.3 FIELD QUALITY CONTROL

- A. Air Handling Systems: Adjust to within plus or minus five percent of design for return and exhaust systems.

3.4 ADJUSTING

- A. Ensure recorded data represents actual measured or observed conditions.
- B. After adjustment, take measurements to verify balance has not been disrupted or that such disruption has been rectified.

- C. Leave systems in proper working order, replacing covers, closing doors to electrical switch boxes, and restoring controllers and to specified settings.
- D. At final inspection, recheck random selections of data recorded in report. Recheck points or areas as selected and witnessed by the Owner and/or Architect/Engineer.

3.5 AIR SYSTEM PROCEDURE

- A. Adjust exhaust systems to provide required volumes.
- B. Measure air quantities at air inlets with calibrated flow hood. Do not use velocity traverse of duct without express consent of the Architect/Engineer.
- C. Vary total system air quantities by adjustment of fan speed. Adjust motor speed control or change motor speed leads as required.
- D. Measure static air pressure conditions on exhaust.

3.6 TESTING AND BALANCING

- A. Motors:
 - 1. Check and record full load amperes.
 - 2. Report any motors which are overloaded, defective, or operating within their service safety factor.
- B. At Fans:
 - 1. Measure:
 - a. Air flow.
 - b. Total static pressure.
 - c. RPM.
- C. All work for related equipment shall be done on the same day and time.

3.7 REPORTS

- A. Report forms:
 - 1. Title Page:
 - a. Project name and location.
 - b. name of test and balance technician.
 - c. Report date.
 - 2. Summary Comments:
 - a. Final performance.
 - b. Notable characteristics of system.
 - c. Nomenclature used throughout report.
 - d. Test conditions.
 - 3. Instrument List:
 - a. Instrument.
 - b. Manufacturer.
 - c. Model number.
 - d. Serial number.
 - e. Range.
 - f. Calibration date.
 - 4. Electric Motors:
 - a. Manufacturer.
 - b. Model/Frame.
 - c. HP/BHP.
 - d. Phase, voltage, current, both nameplate and actual.
 - e. RPM.

- f. Service factor.
 - g. Starter size, rating, heater elements.
5. Exhaust Fan Data:
- a. Location.
 - b. Manufacturer.
 - c. Unit number.
 - d. Air flow, specified and actual.
 - e. Total static pressure specified and actual.
 - f. Fan RPM.
 - g. Current loading of motor.

END OF SECTION 23 05 93

Section 230900 - Temperature Controls

1. - GENERAL

1.1 WORK INCLUDES

A. Base Bid:

1. Contractor Provide:

- a. Nitrogen dioxide/carbon monoxide controls to operate garage fan systems.
- b. All wire conduit and cable required to complete systems.
- c. Commissioning and startup of fan control systems and the equipment they control.
- d. Miscellaneous assorted control connections and wiring and devices to make system function.

1.2 RELATED WORK

A. Specified Elsewhere:

1. 23 05 93 - Testing, Adjusting Balancing for HVAC.
2. 23 34 23 - Fans.

1.3 REFERENCES

- A. ANSI/NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

1.4 SYSTEM DESCRIPTION

A. Exhaust Fans:

1. The small exhaust fans shall operate continuously. It shall draw whatever air it needs in through cracks around doors.
2. The larger exhaust fan shall cycle as required to flush diesel and gasoline fumes as detected by Nitrogen dioxide/carbon monoxide detectors/controls. Open doors shall be utilized for make-up air.
3. Toilet exhaust fans shall operate in conjunction with light switch. (furnished with the fan or by electrical trade.)

1.5 SUBMITTALS

- A. Submit under provisions of the Owner's Division 1 specifications.

- B. Shop Drawings: Indicate complete operating data, system drawings, wiring diagrams, and written detailed operational description of sequences.

- C. Product Data: Include description and engineering data for each control system component. Include sizing as requested.

D. Schedule of Values:

1. Shall list the name of the business entity whose employees actually perform the work listed in this section.
2. Separate line items with applicable costs shall be listed for each of the following:
 - a. Submission of shop drawings and product data.
 - b. Material and equipment costs.
 - c. Installation labor of materials and equipment.
 - d. Startup/commissioning of HVAC systems.
 - e. Training of Owner's personnel and preparation of training materials and maintenance manuals.

1.6 PROJECT RECORD DOCUMENTS

- A. Submit record documents under provisions of Owner's Division 1 Specification.
- B. Accurately record actual location of control components, including safety devices, thermostats, and sensors.
- C. Revise shop drawings to reflect actual installation and operating sequences.

1.7 OPERATION AND MAINTENANCE DATA

- A. Submit operation and maintenance data under provisions of Owner's Division 1 Specification.
- B. Include systems descriptions, set points, and controls settings and adjustments.
- C. Include inspection period, cleaning methods, recommended cleaning materials, and calibration tolerances.
- D. Format and Content:
 - 1. The manual shall include data for only those controllers and systems actually installed. Manufacturer's standard publications shall be highlighted to reflect the system actually used and edited to delete the systems, controllers and equipment not actually used. A cover sheet or sheets which define the correct equipment is acceptable but does not fill the requirements noted above for editing and highlighting.
 - 2. The manual shall be 8-1/2" x 11" paper size, or shall be bound into an 8-1/2" x 11" folder.
 - 3. There shall be a separate section for each type of equipment. Equipment names used for the work shall be noted on maintenance manuals.
 - 4. Provide manual in a PDF format as well. Preliminary submittal shall be in PDF format.

1.8 OWNER INSTRUCTION AND COMMISSIONING

- A. System Operation:
 - 1. Controls and equipment which is controlled shall be fully operational and tested by the respective trades which installed the devices. Corrective work shall be performed. Contractor shall review work of all related trades. Work like "bumping" motors and energizing controls to determine if systems will function shall be completed. Notify equipment installers of non-functioning items. This shall be done prior to substantial completion.
 - 2. Obtain from the Owner a list of those individuals who are authorized to provide schedules to the contractor and to receive instructions regarding system operation.
- B. Owner Instruction:
 - 1. Instruction shall be provided on at least one occasion.
 - 2. Provide a blank Owner Attendance Record for all personnel who attend training session.
 - 1. Notify the Owner at least two weeks before instructional sessions are needed. Coordinate instructional time at Owner's convenience during normal workday.
 - 2. Simply telling whomever of the Owner's personnel who may be on site when the hardware installation is complete does not meet this specification.

- C. Training Material:
 - 1. Shall include description of each operating mode of the system.
 - 2. Shall include a glossary of terms which are particular to the project and operation of the systems.
 - 3. Shall include troubleshooting potential problems.
 - 4. Shall include photographs and drawings of the systems as they are actually installed.
 - 5. Shall utilize the same identification symbols as actually installed.
 - 6. Shall cover routine maintenance. Provide separate reproducible check lists for daily, weekly, monthly and yearly maintenance.
 - 7. Include name and telephone number of trained individual who will answer questions on the project.
- D. Training Medium:
 - 1. Provide instruction in written form. Provide four paper copies and a PDF copy.
- E. Obtain a signed attendance sheet for each training session. Turn a copy of these sheets over to the A/E and the Owner.

1.9 QUALIFICATIONS

- A. Installing Contractor:
 - 1. Shall have local service capability which can service a control problem within two hours of being called by the Using Agency.
 - 2. Shall have the "In-House" capability of troubleshooting controllers' installed.

1.10 SEQUENCING AND SCHEDULING

- A. Sequence work to ensure installation of components is complementary to installation of similar components in other systems.
- B. Coordinate work and ensure system is completed and commissioned by Date of Substantial Completion.
- C. Coordinate installation of system components with installation of mechanical systems equipment such as air handling units and air terminal units.

1.11 WARRANTY

- A. Provide two year warranty for all parts and labor beginning with the date of substantial completion.

1.12 COORDINATION

- A. Temperature control system protocol shall be carefully coordinated with that provided by terminal heating/cooling unit manufacturers.

2. - PRODUCTS

2.1 COMPOSITE SYSTEMS

- A. Systems shall consist of controllers integrated with electronic sensors and electric operators and power relays.
- B. Wiring shall be in accord to Division 26. Cable for electric signal shall be no less than 18 gauge. Cable for electronic signal shall be shielded and acceptable to the control system manufacturer. Jacket color shall not be red or blue or green.

2.2 CONTROLLERS

- A. Shall be stand-alone type.
- B. Nitrogen Dioxide/Carbon Monoxide Gas Detection and Control:
 - 1. Shall operate as a package control with integral or remote sensors, pilot relay output, direct reading display, adjustment and calibration mechanisms, alarms and enclosure.
 - 2. Shall operate with 120 volt single phase electric power supply which is either factory installed or recommended and furnished by a factory authorized representative for field installation. Interior controls shall operate at 24 volts.
 - 3. Enclosure for unit and power supply shall be a minimum of a NEMA 1.
 - 4. Separate sensors shall detect nitrogen dioxide and carbon monoxide. They shall either be contained within the control with appropriate aspiration mechanisms or shall be remote mounted. Sensors shall be field replaceable.
 - 5. Display shall indicate the concentration of nitrogen dioxide and carbon monoxide in parts per million.
 - 6. Unit shall be capable of operation at temperatures across a minimum range of -4 to 122 degrees F and relative humidity's between 10 percent and 90 percent.
 - 7. Alarms shall be both audible and visual and shall include an alarm acknowledgement/silencing feature.
 - 8. Each sensor shall have a low and a high alarm level with independent SPDT contacts per alarm level.
 - 9. Provide dry contact output. Contacts shall be rated for a minimum of 5 amperes at 24 volts.
- D. Acceptable Products: Nitrogen Dioxide Detector
 - 1. Honeywell E³ Point
 - 2. Monoxivent FDS-SA-CO-NO2

2.3 SWITCHES AND RELAYS

- A. Relays shall have DPDT contacts rated for 30 amperes at 120 volts. Provide with a 24 volt coil and a NEMA 1 enclosure.
- B. Acceptable Products:
 - 1. Dayton 5X846 w/Enclosure
 - 2. Square D 8501 CT Series/UE1
 - 3. Allen Bradley 700-HG Series

2.4 CONTROL TRANSFORMERS

- A. Shall have 120 volt input voltage and 24 volt output voltage. Power rating shall be 40 VA.
- B. Shall have 1/2" NPT stub conduit or foot connection for mounting. Provide with NEMA 1 enclosure.
- C. Primary connection shall be wire pig tails. Secondary connection shall be screw terminals or wire pig tails.
- D. Acceptable Products:
 - 1. Functional Devices Inc. TR40VA Series.
 - 2. Dayton 4VZE5.
 - 3. Kele 691 Series.

2.5 SEQUENCE OF OPERATION

- A. Exhaust Fans:
 - 1. Small exhaust fan shall operate manually through its manual motor starter.
 - 2. Manually vary speed of fan with accessory motor dimmer supplied by fan manufacturer.
 - 3. Large exhaust fan:
 - a. Shall energize upon a call from the nitrogen dioxide controller sensing a concentration of nitrogen dioxide of over .7 parts per million or a carbon monoxide concentration of over 25 parts per million.

3. - EXECUTION

3.1 EXAMINATION

- A. Verify that systems are ready to receive work.
- B. Beginning of installation means installer accepts existing conditions.

3.2 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Gas detectors shall be mounted with their tops noted on Drawings.
- C. Provide junction boxes for wire connections. Provide EMT conduit on walls and inaccessible ceiling spaces of new construction.
- D. All wire ends shall be labeled and coded to match installation drawings. Wires extending to remote switches and thermostats shall be labeled or coded to indicate line side and switched side.
- E. After completion of installation, test and adjust control equipment. Submit data showing set points and final adjustments of controls.

END OF SECTION 23 09 00

SECTION 233100 - DUCTWORK

PART 1 - GENERAL

1.01 WORK INCLUDES

- A. Base Bid:
 - 1. Contractor Provide:
 - a. Provision of new sheet metal exhaust duct.

1.02 RELATED WORK

- A. Specified Elsewhere:
 - 1. 230529 - Supports and Anchors for HVAC.
 - 2. 230593 - Testing, Adjusting and Balancing for HVAC.
 - 3. 233000 - Air Duct Accessories.
 - 4. 233423 - Fans
 - 5. 233723 - HVAC Gravity Ventilators

1.03 SYSTEM DESCRIPTION

- A. Definitions:
 - 1. Ventilating Contractor = Ventilating Subcontractor.
 - 2. Exhaust Ductwork - That duct downstream of exhaust registers and grilles which discharges to the out-of-doors.
 - 3. Exposed duct is that which can be seen from the floor of public and employee spaces. It does not include equipment rooms, garages, storage rooms or utility spaces.
 - 4. Concealed duct is that above ceilings or within walls.

1.04 QUALITY ASSURANCE

- A. Installers and Fabricators shall be fully familiar with S.M.A.C.N.A Construction Standards.

1.05 REGULATORY REQUIREMENTS AND STANDARDS

- A. NFPA 90A - Installation of Air Conditioning and Ventilating Systems.
- B. SMACNA - HVAC Duct Construction Standards - Metal and Flexible.
- C. UL 181 - Factory-Made Air Ducts and Connectors.
- D. International Mechanical Code 2012.

1.06 SUBMITTALS

- A. Submit under provisions of Section 013300
- B. Product Data:
 - 1. Provide data for manufactured duct and fittings.
 - 2. Provide material safety data sheets for sealants.

1.07 PROJECT RECORD DOCUMENTS

- A. Submit under provisions of Section 017839
- B. Record actual locations of ducts and changes in duct size.

PART 2 - PRODUCTS

2.01 MANUFACTURER & PERFORMANCE

- A. Unless otherwise specified the manufacturer's number specified or scheduled is listed merely as an aid to prospective bidders. In most cases it is an incomplete number and relies upon the written description to fully define the item. Where model numbers define a single manufactured item which does not include the items include in the written description, the model number shall be modified as required to most closely meet the described requirements.

2.02 MATERIALS

- A. Galvanized Steel Ducts: ASTM A525 and ASTM A527 galvanized steel sheet, lock-forming quality, having G60 zinc coating of in conformance with ASTM A90.
- B. Steel Ducts: ASTM A366.
- C. Fasteners: Rivets, bolts, or sheet metal screws. Match material type of metal.
- D. Sealants - shall be flexible setting water based, water resistant type compatible with ducts sealed. Shall have flame spread no more than 5.0 when .020" thick. Shall have anti-microbial agents. Material shall be listed and labeled in accordance to UL 181 A, B or C as applicable.

2.03 DUCTWORK FABRICATION

- A. Fabricate and support in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, and as indicated. Provide duct material, gages, reinforcing, and sealing for operating pressures indicated. Duct shall be able to accommodate pressures of plus/minus 2" of water gauge without collapse or leaks. Minimum gauges shall be in accord to SMACNA and ASHRAE standard except as noted on Drawings.
- B. Increase duct sizes gradually, not exceeding 30 degrees divergence.
- C. Exposed duct shall be made with a minimum of joints and seams. Joint clip ends shall be removed where they overlap the width and/or height of the duct. Longitudinal seams shall be sealed and hammered tight per installation paragraph below.
- F. Remove excess sealant, fabrication and installation marks, stamps and labels, and printed steel manufacturer's labels from the outer surfaces of exposed ductwork.

2.04 MANUFACTURED DUCTWORK AND FITTINGS

- A. Manufacture in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, and as indicated. Provide duct material, gages, reinforcing, and sealing for operating pressures indicated. Shall be rated for positive pressure of 6" of water gauge and negative pressures of 2" of water gauge.

B. Round Ducts:

1. Construction shall be of galvanized steel Duct shall be round with Snap lock linear seams. Sizes: 8" diameter and smaller shall be minimum of 26 gauge.
2. Fittings shall be made with adjustable lock seams of material at least one gauge heavier than adjoining pipe.
3. Duct shall be rated for 2" positive pressure.

PART 3 - EXECUTION

3.01 APPLICATION

- A. Galvanized steel duct shall be used throughout except as noted below.

3.02 INSTALLATION

- A. Install manufactured duct in accordance to manufacturer's instruction except where this specification requires additional work.
- B. Duct seams and joints shall be hammered, rolled or sealed airtight. All transverse and longitudinal joints in exhaust ducts shall be sealed with sealant specified. Fittings and connections to equipment shall be sealed tight. Joints in adjustable round elbows shall be sealed tight. No leaks will be allowed.
- C. Apply duct sealant according to manufacturer's instruction. Allow sealant material to acclimate before application. Do not install when space temperature is less than 40 degrees F. Remove excess material.
- D. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities.
- F. Use crimp joints with bead of sealant for joining round duct.
- G. Filter Racks:
1. Shall be construction and installed to accommodate replacement of filters without interference from adjoining devices.
 2. Shall support filter on minimum of two sides.

3.03 FIELD QUALITY CONTROL

- A. Visual Inspection - Contractor shall provide visual inspection of work as it progresses to insure supports, sizes, configuration and tightness specified is maintained. A/E will occasionally inspect for same qualities.
- B. If Testing and Balancing performed in Section 230593 shows fan horsepower and pressure curves do not match the volumetric readings obtained at the inlets and outlets the ducts, the ducts shall be re-inspected visually.
- C. Whenever Testing and Balancing or Owner inspections determine there may be leaks in the duct system, seal openings found. Redoing Test and Balance work is an acceptable method of proving duct is airtight.

END OF SECTION 233100

Section 233300 - Air Duct Accessories

1. - GENERAL

1.1 WORK INCLUDES

- A. Base Bid:
 - 1. General Contractor Provide:
 - a. Bird screens.

1.2 RELATED WORK

- A. Specified Elsewhere:
 - 1. 23 31 00 - Ductwork.

1.3 REGULATORY REQUIREMENTS AND STANDARDS

- A. International Mechanical Code 2015.
- B. NFPA 90A - Installation of Air Conditioning and Ventilating Systems.
- C. NFPA 70 - National Electrical Code.
- D. SMACNA - HVAC Duct Construction Standards - Metal and Flexible.

2. - PRODUCTS

2.1 BIRD SCREENS

- A. Screen material shall be wire cloth.
 - 1. Wire cloth shall be 19 gauge galvanized wire woven in a .25" mesh pattern.

3. - EXECUTION

3.1 INSTALLATION

- A. Bird Screens
 - 1. Hem edges within continuous 24-gauge double thickness frame. Press frame sides closed within a brake clamp. Install drive screws or rivets at frame corners to prevent frames from disconnecting from one-another.

END OF SECTION 23 33 00

SECTION 233423 - FANS

PART 1 - GENERAL

1.01 WORK INCLUDES

- A. Base Bid:
 - 1. Contractor Provide:
 - a. Roof mounted exhaust fan.
 - b. Inline centrifugal exhaust fans.
 - c. Ceiling exhaust fan.

1.02 RELATED WORK

- A. Specified Elsewhere:
 - 1. 233100 - Ductwork.
 - 2. 233300 - Air Duct Accessories.
 - 3. 230593 - Testing, Adjusting and Balancing for HVAC.

1.03 REFERENCES

- A. AMCA 99 - Standards Handbook.
- B. AMCA 211 - Laboratory Methods of Testing Fans for Rating Purposes.
- C. AMCA 261 - Directory of Products Licensed to bear the AMCA Certified Ratings Seal.
- D. AMCA 300 - Test Code for Sound Rating Air Moving Devices.
- E. AMCA 311 - Method of Publishing Sound Ratings for Air Moving Devices.
- F. NEMA MG1 - Motors and Generators.
- G. NFPA 70 - National Electrical Code.
- H. UL 705 - Power Ventilators.

1.04 DESCRIPTION

- A. Definition:
 - 1. Ventilating Contractor = Ventilating Subcontractor for this work.

1.05 SUBMITTALS

- A. Submit under provisions of the Owner's Division 1 Specification.
- B. Product Data: Provide data on fans and accessories including fan curves with specified operation point clearly plotted, sound power levels at rated capacity, and electrical characteristics and connection requirements. Fan curves are required. Single points will not be acceptable.
- C. Manufacturer's Installation Instructions.
- D. Submit line item price for fans on the Schedule of Values. Identify supplier vendor.

1.06 OPERATION AND MAINTENANCE DATA

- A. Submit under provisions of the Owner's Division 1 specifications.
- B. Maintenance Data: Include instructions for lubrication, motor and drive replacement, spare parts list, and wiring diagrams.

1.07 COORDINATION

- A. With Electrical Trades:
 - 1. Deliver switches and speed controls for installation.
 - 2. Confirm rough-in location of devices.
- B. With General Trades:
 - 1. Locate roof and wall penetrations.
 - 2. Furnish curbs for installation.

PART 2 - PRODUCTS

2.01 MANUFACTURER & PERFORMANCE

- A. Unless otherwise specified the manufacturer's number specified or scheduled is listed merely as an aid to prospective bidders. In most cases it is an incomplete number and relies upon the written description to fully define the item. Where model numbers define a single manufactured item which does not include the items include in the written description, the model number shall be modified as required to most closely meet the described requirements.

2.02 PRODUCT REQUIREMENTS

- A. Performance Ratings: Conform to AMCA 211 and bear the AMCA Certified Rating Seal.
- B. Sound Ratings: AMCA 311, tested to AMCA 300, and bear the AMCA Certified Sound Rating Seal.
- C. Fabrication: Conform to AMCA 99.
- D. UL Compliance: UL listed and labeled, designed, manufactured, and tested in accordance with UL 705.

2.03 ROOF FANS

- A. Hooded Propeller Fans:
 - 1. Shall have spun aluminum hood and venturi and an aluminum base, with 16 gauge 1/2" mesh bird screen. Provide with 14 gauge steel motor mount frame insulated with rubber-in-shear isolators. Motor cover shall be spun aluminum.
 - 2. Drive shall be direct.
 - 3. Motor shall be high efficiency heavy duty drip proof type. Motors 1/2 horsepower and less shall have permanently lubricated sealed bearings.
 - 4. Electrical Components:
 - a. Provide electrical wireway from under curb cap to motor compartment.
 - b. Provide motor speed control to match motor.
 - c. Provide NEMA disconnect under hood.
 - 5. Propeller blade shall be cast aluminum air foil or deep pitch fabricated design with a cast hub. Blades shall be factory secured

with set screws and roll pins. Hub shall be secured to the motor shaft with 2 set screws or a taper lock bushing. Assembly shall be statically and dynamically balanced.

B. Acceptable Products:

- | | |
|---------------|-----------|
| | Propeller |
| 1. Greenheck | AE |
| 2. Loren Cook | AQD |

C. Accessories:

1. Gravity actuated dampers shall have aluminum blades, nylon bearings and felt edge seals.
2. Curbs shall be as specified in 230529.

2.04 CENTRIFUGAL FANS

A. Plastic Inline Centrifugal Fans.

1. Shall have tubular/"barrel" configuration. Housing shall be constructed of UL-recognized UV protected thermoplastic resin. Provide with mounting bracket and cylindrical end connections.
2. Impeller shall be backward inclined centrifugal type.
3. Motor shall have sealed long life bearings and be type that can accept a speed control. Provide with integral junction box for electrical connection.
4. Provide separate speed control matched to fan motor.

B. Acceptable Products

- | | |
|-------------|-----------|
| 1. Fantech | FR Series |
| 2. Vents-Us | VK Series |

C. Centrifugal Ceiling Fans:

1. Fan wheel shall be forward curved; Mechanically fastened and/or welded; Statically and dynamically balanced; Keyed to motor shaft.
2. Motor: Totally enclosed, fan cooled NEMA motor with thermal overload protections.
3. Fan drive shall be direct driven from motor.
4. Fan housing shall be constructed of galvanized steel with minimum of 1/2" of coated fiberglass acoustical liner.
5. Electrical Characteristics and Components:
 - a. Motor: Shall be open drip proof type with built-in thermal protection. Shall be capable of accepting speed control. Shaft bearings shall be permanently lubricated. Motor shaft shall be in a vertical position. Discharge shall be round.
 - b. Wiring Terminations: Provide terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated. Enclose terminal lugs in terminal box sized to NFPA 70.
 - c. Disconnect Switch: Cord and plug in housing for thermal overload protected motor. Provide accessories noted on Drawings.
 - d. Time switch shall have 10 minutes timed "off" feature and shall control lighting instantaneously.
 - e. Speed control shall be rated for fractional horsepower capable of reducing fan speed to at least 50 percent of rated speed.
6. Grille: Punched aluminum with baked white enamel finish. Fasteners shall be screw type.
7. Backdraft damper shall be integral with fan discharge.

C. Acceptable Products:

1. Cook Gemini
2. Greenheck SP

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Roof Fans:
 1. Secure with stainless steel lag screws to roof curb.
 2. Install backdraft dampers on inlet to roof fans.
- C. In-line Fans:
 1. Support from structure above. Use equipment supports specified in 220529. Support independently from ceiling and ductwork.
 2. Provide draw band connections. Do not screw into housing. Seal draw band connection.
- D. Do not operate fans for any purpose until duct work is clean, filters in place, bearings lubricated, and fan has been test run under observation.

END OF SECTION 233423

SECTION 233723 - HVAC GRAVITY VENTILATORS

PART 1 - GENERAL

1.01 WORK INCLUDES

- A. Base Bid:
 - 1. Contractor Provide:
 - a. Fabricated Exhaust vents

1.02 RELATED WORK

- A. Specified Elsewhere:
 - 1. 230593 - Testing Adjusting and Balancing for HVAC.
 - 2. 233100 - Ductwork.
 - 3. 233000 - Air Duct Accessories.

1.03 REFERENCES

- A. ADC 1062 - Certification, Rating and Test Manual.
- B. AMCA 500 - Test Method for Louvers, Dampers and Shutters.
- C. ARI 650 - Air Outlets and Inlets.
- D. ASHRAE 70 - Method of Testing for Rating the Air Flow Performance of Outlets and Inlets.
- E. NFPA 90A - Installation of Air Conditioning and Ventilating Systems.

1.04 COORDINATION

- A. Finite Location of vent on the wall shall be determined, prior to installation.

1.05 SUBMITTALS

- A. Submit under provisions of Section 013300
 - 1. Height and width dimensions of vent and verification that Sub-contractors and general contractors have verified these items.
- B. Submittals without evidence of contractor verification will be returned for verifications to be attached

PART 2 - PRODUCTS

2.01 MANUFACTURER & PERFORMANCE

- A. Unless otherwise specified the manufacturer's number specified or scheduled is listed merely as an aid to prospective bidders. In most cases it is an incomplete number and relies upon the written description to fully define the item. Where model numbers define a single manufactured item, which does not include the items include in the written description, the model number shall be modified as required to meet the described requirements.

2.02 VENTS

- A. Construction shall be minimum of .025" aluminum sheet with natural finish. Finish shall be capable of accepting field applied paint.
- B. Configuration shall have a round starting collar secured to a hemmed vertical back panel. Vent shall have a "right tri-angle" or trapezoidal sectional shape. The vertical back panel shall form the longer of the "right angle" legs. The shortest leg shall be horizontal and be open. The hypotenuse or opposite sides of the section and the sides of the vent that extend from the back panel shall be formed of a single sheet of aluminum. All seams shall contain metal sides within the hem of the back panel.
- C. Provide with aluminum insect screen.
- D. Provide with an integral gravity back draft damper.
- E. Acceptable Products:
 - 1. Broan 613/639/641/647885/642/643 series
 - 2. Greenheck Equal
 - 3. Loren Cook Equal

PART 3 - EXECUTION

3.01 PREPARATION

- A. Determine position of Vent.
- B. Provide sleeve on the downstream side of the vent to be installed with the Vent.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Vent sleeves in new walls shall be installed in coordination with the general trades. Inner end shall extend within the building; outer end of sleeve shall be flush.

END OF SECTION 233713

SECTION 238300- ELECTRIC HEATERS

PART 1 - GENERAL

1.01 WORK INCLUDES

- A. Base Bid:
 - 1. Contractor Furnish and Physically mount fan forced wall heater.
 - 2. Coordinate with electric trade for electrical connection of the Heaters.

1.02 RELATED WORK

- A. Specified Elsewhere:
 - 1. Division 26 - Electrical

1.03 REFERENCES

- A. U L 499 - Standard for Electric Heating Appliances
- B. ANSI/ASHRAE 90A - 2016 - Energy Conservation in new Building Design. (Except Low Rise Residential Buildings)

1.04 DESCRIPTION

- A. Definitions:
 - 1. HVAC Contractor = Heating Contractor = Ventilating Subcontractor =Heating Subcontractor for this work.
 - 2. Electrical trade = Electrical contractor = Electrical sub-Contractor for this work

1.05 SUBMITTALS

- A. Submit shop drawings under provisions of Section 013300.
- B. Submit product data indicating rated capacities, operating characteristics, weights specialties and accessories, electrical nameplate data, and wiring diagrams. Show certification of compliance with referenced standard.

1.07 OPERATION AND MAINTENANCE DATA

- A. Submit operation and maintenance data under provisions of Section 017823.
- B. Include start-up instructions, maintenance instructions, parts lists, controls, and accessories.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site under provisions of Section 016000.
- B. Comply with manufacturer's installation instructions for rigging, unloading, and transporting units.
- C. Protect units on site from physical damage.

1.09 WARRANTY

- A. Provide one-year parts and labor warranty per the General Conditions.

PART 2 - PRODUCTS

2.01 MANUFACTURER & PERFORMANCE

- A. Unless otherwise specified the manufacturer's number specified or scheduled is listed merely as an aid to prospective bidders. In most cases it is an incomplete number and relies upon the written description to fully define the item. Where model numbers define a single manufactured item, which does not include the items include in the written description, the model number shall be modified as required to most closely meet the described requirements.

2.02 MANUFACTURERS See notes on Drawings for the basis of Design.

2.03 FAN FORCED ELECTRIC HEATERS

- A. Units shall be self-contained, packaged, factory assembled and pre-wired units suitable for indoor use. Each shall have a cabinet, fan, heating coil, hanger accessories, prewired thermostatic controls, safety devices and shut off switch.
- B. Fan Forced Wall Heater shall:
 - 1. Have a heavy gauge galvanized steel back box sized to mount between wall studs on 16-inch centers or to attach directly blocking or studs.
 - 2. Have a heavy-duty, powder painted, louvered steel cover. Color shall be white.
 - 3. Provide surface mount frame for cover around back box if heater is not mounted in a wall. Surface mount frame finish shall match cover.
 - 4. Have inner frame which mounts a prewired assembly of the fan and heating element, motor and controls.
 - 5. Have an 80/20 nickel- chromium heating element enclosed in a steel sheath with copper brazed fins. The element shall cover the entire airflow discharge area.
 - 6. Have an aluminum propeller fan secured directly to the motor shaft. Motor shall be impedance protected and have permanently lubricated bearings.
 - 7. Controls shall include a single throw on-off switch concealed behind the front cover. Controls shall also include thermostatic controls. Office and conference type rooms shall have programmable 7 day or (5/1+1) day, 4 period per day, capability. Mechanical room and vestibule thermostats shall be bi-metallic snap-action type. Fan shall energize after the heating element has reached its operating temperature and continues to operate the fan after the call for heat has been satisfied. Provide with a manual re-set thermal cut out and a thermal fuse.
 - 8. Have a compliance rating for the entire assembly from an independent testing agency.
 - 9. See Schedule on Drawings for performance requirements

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Mount wall heater in position shown. Adjust nominally as required to fit between studs. Mount with bottom 6 inches from the floor.

END OF SECTION 238126

SECTION 260500 - COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.01 SUMMARY

A. Contractor Provide Base Bid:

1. Labor and materials for complete electrical systems. These materials include, but are not limited to: circuit breakers, devices, boxes, conduit, conductors, connectors, fittings, and anchors, as required and indicated in these specifications and/or shown on the Electrical Drawings.
2. Power connections and control equipment and wiring as required for equipment provided under other sections or by Owner.
3. All minor system components reasonably required for the proper functioning and/or safe operation of the systems and to meet all related codes and ordinances.
4. Required system and component testing as required in these specifications and/or related codes and ordinances.
5. Coordination with other trade contractors.
6. Sleeves for raceways and cables.

1.02 RELATED WORK

A. Specified elsewhere:

1. 260519 - Low-Voltage Electrical Power Conductors and Cables
2. 260526 - Grounding and Bonding for Electrical Systems
3. 260529 - Hangers and Supports for Electrical Systems
4. 260533 - Raceway and Boxes for Electrical Systems
5. 260553 - Identification for Electrical Systems
6. 262416 - Panelboards
7. 262726 - Wiring Devices
8. 265100 - Interior Lighting
9. 265600 - Exterior Lighting

1.03 REFERENCES - LATEST EDITIONS

- A. NFPA 70 - National Electrical Code.
- B. Americans With Disabilities Act - (ADA).
- C. International Building Code (IBC).
- D. Illinois Accessibility Code.
- E. Illinois Energy Conservation Code (IECC).
- F. All other Contract Documents - including Construction Drawings.

1.04 VERIFICATION OF POINTS

- A. Before submitting his bid, Contractor shall visit the site to carefully verify all exposed points of existing utilities and new connections. Contractor shall verify concealed or buried points of connection as near

as possible. Verify these points, as to locations, size, type, depth, operating characteristics, and complications; including, but not limited to:

1. Present site conditions.
2. Present electrical utility distribution system and requirements.
3. Work associated with equipment provided under other sections or by Owner.

PART 2 - PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Provide all information requested.
- B. When two or more items of same material or equipment are required, they shall be of the same manufacturer. Product manufacturer uniformity does not apply to raw materials, bulk materials, wire, conduit, fittings, sheet metal, steel bar stock, welding rods, solder, fasteners, motors for dissimilar equipment units, and similar items used in Work, except as otherwise indicated.
- C. Provide products compatible within systems, with interconnected systems, and with other connected items.
- D. Provide permanent operational data nameplate on each item of power operated equipment, indicating manufacturer, product name, model number, serial number, capacity, operating and power characteristics, labels of tested compliances, and similar essential data. Locate nameplates in an accessible location.

2.02 PRODUCT OPTIONS AND SUBSTITUTIONS

- A. Options and Substitutions shall be done per the Division 1 instructions.
- B. All product substitutions shall include any incurred costs by the Contractor, any sub-contractor, other trades, Owner, or Owner's consultants. No increase in cost or contract shall be allowed for modifications or corrections, due to approval of Contractor requested or submitted substitutions.

2.03 ELECTRICAL SUBMITTALS

- A. Submit per specification Division 1 requirements.
- B. Electrical equipment submittals shall include a clear item description - not just catalog number.
- C. Catalog pages must be clearly marked to indicate the exact product being proposed with all necessary accessories and options identified and selected. Pages including multiple products or options, where selections are not indicated may be rejected for re-submittal.

2.04 DELIVERY, STORAGE AND HANDLING

- A. Deliver products to project site with proper identification, including; names, model numbers, types, grades, compliance labels, and similar information needed for distinct identifications; adequately packaged and protected to prevent damage during shipment, storage, and handling.
- B. Store equipment and materials at the site, unless off-site storage is authorized in writing. Protect stored equipment and materials from damage.
- C. Coordinate deliveries of electrical materials and equipment to minimize construction site congestion. Limit each shipment of materials and equipment to the items and quantities needed for the smooth and efficient flow of installations.

PART 3 - EXECUTION

3.01 COORDINATION

- A. Coordinate all work per requirements of Division 1.
- B. See mechanical and architectural specifications, drawings, and submittals, for work concerning the connection of electrical power and any required controls.
- C. Contractor shall verify electrical characteristics and requirements (name plate data) of equipment furnished by others (FBO) for proper coordination and equipment operation. Contractor shall confirm requirements of final equipment furnished by others (FBO) and shall select associated electrical devices accordingly. Before any work is installed, and before any equipment is purchased, The Contractor shall carefully check specifications and plans for every trade and job condition, and any lack of coordination between his work, the plans, specifications, or job conditions shall be immediately reported to the Architect/Engineer in writing.
- D. Contractor shall coordinate equipment connection requirements with approved equipment submittals, prior to rough-in.

3.02 ROUGH-IN

- A. Verify final locations and electrical characteristics for rough-ins with field measurements and with the requirements of the actual equipment to be connected.
- B. Refer to equipment specifications, of other divisions, for rough-in requirements.
- C. Coordinate rough-ins for Owner provided equipment.

3.03 ELECTRICAL INSTALLATIONS

- A. Comply with NECA 1.
- B. Measure indicated mounting heights to bottom of unit for suspended items and to center of unit for wall-mounted items.

- C. Coordinate electrical equipment and materials installation with other building components.
- D. Right-of-way: Give to piping systems installed at a required slope.
- E. Verify all dimensions by field measurements.
- F. Arrange for chases, slots, and openings in other building components to allow for electrical installations.
- G. Coordinate the installation of required supporting devices and sleeves to be set in poured-in-place concrete and other structural components, as they are constructed.
 - 1. Sleeves for raceways and cables: Steel pipe sleeves - ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends.
 - 2. Grout: Nonmetallic, shrinkage-resistant, ASTM C 1107, factory-packaged nonmetallic aggregate, noncorrosive, non-staining, mixed with water to consistency suitable for application and a 30-minute working time.
 - 3. Sleeve installation for electrical penetrations:
 - a. Electrical penetrations occur when raceways, cables, and wireways penetrate concrete slabs, concrete or masonry walls, or fire-rated floor and wall assemblies.
 - b. Concrete slabs and walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.
 - c. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.
 - d. Fire-rated assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.
 - e. Cut sleeves to length for mounting flush with both surfaces of walls.
 - f. Extend sleeves installed in floors 2 inches above finished floor level, unless noted otherwise.
 - g. Seal space outside of sleeves with grout for penetrations of concrete and masonry. Promptly pack grout solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect grout while curing.
 - h. Interior penetrations of non-fire-rated walls and floors shall be sealed in the annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint.
 - i. Fire-rated-assembly penetrations shall maintain the indicated fire rating of the walls, partitions, ceilings, or floors at point of raceway or cable penetrations, using sleeves with firestop materials.
 - j. Roof-penetration sleeves: Seal penetration of individual raceways and cables with flexible boot-type flashing unites applied in coordination with roofing work.
 - k. Above-ground, exterior wall penetrations: Seal penetrations using steel pipe sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

1. Underground, exterior wall penetrations: Install PVC pipe sleeves. Size sleeves for 1-inch annular clear space between sleeve and raceway or cable for installing mechanical sleeve seals.
 - H. Sequence, coordinate, and integrate installations of electrical materials and equipment for efficient flow of the Work.
 - I. Coordinate the cutting and patching of building components to accommodate the installation of electrical equipment and materials.
 - J. Where mounting heights are not detailed or dimensioned, install electrical services and overhead equipment to provide the maximum headroom possible.
 - K. Install electrical equipment for compliance with code-required clearances and to facilitate maintenance and repair or replacement of equipment components. As much as practical, connect equipment for ease of disconnecting, with minimum of interference with other installations.
 - L. Provide access panels and doors for electrical items behind finished surfaces or otherwise concealed.
 - M. Coordinate the installation of electrical materials and equipment above ceilings with suspension system, mechanical equipment, other systems and structural components.
 - N. Drawings for work under Divisions 260000 are Diagrammatic and are intended to convey scope of work and indicate general arrangement of conduit, boxes, equipment, lighting fixtures, and other work included in the contract.
 1. See details and schedules on drawings and specifications for meanings of abbreviations, additional requirements, and information. Check civil, architectural, structural, mechanical, and other electrical drawings for scale, space limitations, beams, door swings, windows, ductwork, coordination, and additional information, and report any discrepancies or conflicts to Architect/Engineer prior to submitting bid.
 2. The Contractor shall install and completely wire all equipment furnished by others (FBO) in accordance with the Manufacturer's wiring diagrams and as required for a complete operating installation. Contractor shall verify and coordinate electrical characteristics and requirements of (FBO) equipment prior to ordering associated equipment or rough-in of conduit and wiring to avoid conflicts.
- 3.04 RECORD DOCUMENTS
- A. Provide record documents as required by this Article and Division 1 specifications.
 - B. Mark Drawings to indicate revisions to conduit size and location both exterior and interior, actual equipment locations, dimensioned to column lines, concealed equipment dimensioned to column lines, distribution and

branch electrical circuitry, fuse and circuit breaker size and arrangements, support and hanger details, Change Orders, and concealed control system devices.

- C. Accurately mark locations of underground, or under floor electrical conduits and conductors. Provide dimensions from fixed points of reference.
- D. On-site record mark ups shall be monitored for compliance with record keeping requirements.

3.05 OPERATION AND MAINTENANCE DATA

- A. Procedures and requirements for preparation and submittal of maintenance manuals shall be done as required by Division 1.
- B. In addition to the information required by Division 1 specifications, include the following information when requested:
 - 1. Description of function, normal operating characteristics and limitations, performance curves, engineering data and tests, and complete nomenclature and commercial numbers of all replaceable parts.
 - 2. Manufacturer's printed operating procedures to include start-up, break-in, and routine and normal operating instructions.
 - 3. Maintenance procedures for routine preventative maintenance and troubleshooting, disassembly, repair, and reassembly, aligning and adjusting instructions.

3.06 WARRANTIES

- A. Procedures and submittal requirements for warranties shall be done, as required by the Division 1 specifications, and as pertains to specific warranties. See individual equipment specifications for warranty requirements.
- B. Compile and assemble the warranties specified in Divisions 260000 into a file folder labeled for this project.
- C. Provide complete warranty information, for each product or equipment item, to include date of beginning of warranty or bond; duration of warranty or bond; and names, addresses, and telephone numbers and procedures for filing a claim and obtaining warranty services.
- D. Except as modified in individual specification sections:
 - 1. All materials and workmanship shall be warranted for 1 year.
 - 2. All warranties begin upon official date of substantial completion, allowing Owner's beneficial use of the work.
 - 3. Warranted materials shall be provided for replacement within 30 days of notice of failure to Contractor (or as specifically allowed by Owner's Representative).
 - 4. The first year of warranted items shall include materials and labor for replacement/repair and shall be responded to, within 10 working days of notice of problem to Contractor.
 - 5. Warranty material replacements shall not diminish Owner's stock of extra items.

3.07 CLEANING

- A. General requirements for final cleaning shall be done as required by Division 1.
- B. Maintain clean work space with daily cleanup of all occupied areas.

3.08 TESTING

- A. Provide testing and documented results as required by each specification section or applicable codes, laws, and ordinances.
- B. Provide testing and documented results as required or recommended by manufacturer(s) for certification or warranty.

END OF SECTION 260500

SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Building wires and cables rated 600 V and less.
 - 2. Connectors, splices, and terminations rated 600 V and less.
 - 3. Conductors required for all new general power and lighting circuits required or indicated.
 - 4. Conductors required for connections to both motorized and non-motorized equipment requiring power.

1.2 DEFINITIONS

- A. EPDM: Ethylene-propylene-diene terpolymer rubber.
- B. NBR: Acrylonitrile-butadiene rubber.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Qualification Data: For testing agency.
- C. Field quality-control test reports.

1.4 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Alcan Products Corporation; Alcan Cable Division.
 - 2. American Insulated Wire Corp.; a Leviton Company.
 - 3. General Cable Corporation.

4. Senator Wire & Cable Company.
5. Southwire Company.

B. Copper Conductors: Comply with NEMA WC 70.

C. Conductor Insulation: Comply with NEMA WC 70 for Types THHN-THWN.

D. Multi-conductor Metal-Clad (MC) Cable: Not permitted except for pre-manufactured fixture and motorized equipment connections (not to exceed 6'-0" in length).

E. Cables Not Allowed:

1. Armored Cable (AC).
2. Flat Cable Assemblies (FC).
3. Flat Conductor Cable (FCC).
4. Integrated Gas Spacer Cable (IGS).
5. Metal-Clad Cable (MC), except as noted above.
6. Mineral-Insulated, Metal-Sheathed Cable (MI).
7. Nonmetallic-Sheathed Cable (NM, NMC, NMS).
8. Underground Feeder Cable (UF).
9. Nonmetallic Extensions.
10. Concealed Knob-and-Tube.
11. Open Wiring on Insulators.

2.2 CONNECTORS AND SPLICES

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

1. AFC Cable Systems, Inc.
2. Hubbell Power Systems, Inc.
3. Ideal Industries, Inc.
4. O-Z/Gedney; EGS Electrical Group LLC.
5. 3M; Electrical Products Division.
6. Tyco Electronics Corp.

B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

A. Feeders: Copper. Stranded for all conductors.

B. Branch Circuits: Copper. Stranded for all conductors.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

- A. Service Entrance: Type THHN-THWN, XHHW, single conductors in raceway.
- B. Exposed Feeders: Type THHN-THWN, single conductors in raceway.
- C. Feeders Concealed in Ceilings and Walls, Partitions: Type THHN-THWN, single conductors in raceway.
- D. Feeders Below Slabs-on-Grade, and Underground: Type THHN-THWN, single conductors in raceway.
- E. Exposed Branch Circuits: Type THHN-THWN, single conductors in raceway.
- F. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-THWN, single conductors in raceway. Metal-clad cable is not permitted, except for light fixture connection whips and final equipment connections.
- G. Branch Circuits Below Slabs-on-Grade, and Underground: Type THHN-THWN, single conductors in raceway.
- H. Cord Drops and Portable Appliance Connections: Type SO, hard service cord with stainless-steel, wire-mesh, strain relief device at terminations to suit suspended applications.
- I. Class 1 Control Circuits: Type THHN-THWN, in raceway.
- J. Class 2 Control Circuits: Type THHN-THWN, in raceway.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

- A. Conceal cables in finished walls, ceilings, and floors, unless otherwise indicated.
- B. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- C. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

3.4 CONNECTIONS

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

- B. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
- C. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches of slack.

3.5 FIELD QUALITY CONTROL

- A. Perform tests and inspections and prepare test reports.
- B. Tests and Inspections:
 - 1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
- C. Test Reports: Prepare a written report to record the following:
 - 1. Test procedures used.
 - 2. Test results that comply with requirements.
 - 3. Test results that do not comply with requirements and corrective action taken to achieve compliance with requirements.
- D. Remove and replace malfunctioning materials and retest as specified above.

END OF SECTION 260519

SECTION 260526 - GROUNDNG AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 WORK INCLUDES

- A. Base Bid:
 - 1. General Contractor Shall Provide:
 - a. Installation of new service grounding electrodes.
 - b. Installation of new remote building grounding electrodes.
 - c. Installation of new equipment grounding conductors.
 - d. Installation of new bonding conductors.
 - e. Installation of accessories to bonding and grounding connections.

1.2 RELATED DOCUMENTS

- A. Drawings and other specification sections.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.

1.4 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. All new grounding and bonding materials and equipment shall be listed by a nationally recognized testing agency (NRTL).

PART 2 - PRODUCTS

2.1 CONDUCTORS

- A. Insulated Conductors: Copper or tinned-copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.
- B. Bare Copper Conductors:
 - 1. Solid Conductors: ASTM B 3.
 - 2. Stranded Conductors: ASTM B 8.
 - 3. Tinned Conductors: ASTM B 33.
 - 4. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch in diameter.

5. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
6. Bonding Jumper: Copper tape, braided conductors, terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.
7. Tinned Bonding Jumper: Tinned-copper tape, braided conductors, terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.

2.2 CONNECTORS

- A. Listed and labeled by a nationally recognized testing laboratory acceptable to authorities having jurisdiction for applications in which used, and for specific types, sizes, and combinations of conductors and other items connected.
- B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy.
- C. Bonding Grounding Bushings:
 1. Malleable iron/Steel construction for threaded Rigid Galvanized Steel or IMC Conduit.
 2. With bushing insulator rated for 150-degrees Celsius.
 3. With Mounting Set Screw.
 4. With Lay-In Lug and Clamping Screw.
- D. NRTL listed compression connection is acceptable.

2.3 GROUNDING ELECTRODES

- A. Ground Rods: Copper-clad steel; 10' x 3/4" inches in diameter.

PART 3 - EXECUTION

3.1 APPLICATIONS

- A. Conductors: Install stranded conductors unless otherwise indicated.
- B. Grounding Conductors: Install bare tinned-copper conductor, No. 8 AWG minimum.
 1. Clamp to ground rod.
- C. Conductor Terminations and Connections:
 1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
 2. Underground Connections: Bolted connectors.

3.2 EQUIPMENT GROUNDING

- A. Install insulated equipment grounding conductors with all feeders and branch circuits.

- B. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:
 - 1. Feeders and branch circuits.
 - 2. Lighting circuits.
 - 3. Receptacle circuits.
 - 4. Single-phase motor and appliance branch circuits.
 - 5. Flexible raceway runs.

3.3 INSTALLATION

- A. Grounding Conductors: Route along shortest and straightest paths possible, unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- B. Ground Rods: Drive rods until tops are 12 inches below final grade, unless otherwise indicated.
- C. Bonding Grounding Bushings: Furnish and install bonding bushings at each end of conduits enclosing the grounding electrode conductor indicated on the drawing.

3.4 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections and prepare test reports:
 - 1. After installing grounding electrode and grounding conductor, but before permanent electrical circuits have been energized, test for compliance with requirements.
 - 2. Test completed grounding system at feeder disconnect enclosure grounding terminal, and at ground rod. Make tests at ground rod before any conductors are connected.
 - a. Measure ground resistance not less than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.
 - b. Perform tests by fall-of-potential method according to IEEE 81.
 - 3. Prepare dimensioned drawings locating ground rod. Include the driven depth, and include observations of weather and other phenomena that may affect test results. Describe measures taken to improve test results.
- B. Report measured ground resistances that exceed the following values:
 - 1. Power and Lighting Equipment or System with Capacity 500 kVA and less: 10 ohms.
- C. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.

END OF SECTION 260526

SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 WORK INCLUDES

- A. Base Bid:
 - 1. General Contractor Shall Provide:
 - a. Hangers and supports for electrical equipment and systems.
 - b. Stainless steel or non-metallic materials for corrosive atmosphere applications.

1.2 RELATED DOCUMENTS

- A. Drawings and other specification sections.

1.3 DEFINITIONS

- A. EMT: Electrical Metallic Tubing.
- B. IMC: Intermediate Metal Conduit.
- C. PVC/RNC: Polyvinylchloride/Rigid Non-Metallic Conduit
- D. RGC/RMC: Rigid Galvanized Conduit/Rigid Metal Conduit.

1.4 PERFORMANCE REQUIREMENTS

- A. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.
- B. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.
- C. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project, with a minimum structural safety factor of five times the applied force.

1.5 QUALITY ASSURANCE

- A. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

- A. Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Allied Tube & Conduit.
 - b. Cooper B-Line, Inc.; a division of Cooper Industries; Highland, IL.
 - c. ERICO International Corporation.
 - d. GS Metals Corp.
 - e. Thomas & Betts Corporation.
 - f. Unistrut; Tyco International, Ltd.
 - g. Wesanco, Inc.
 - 2. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
 - 3. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-4.
 - 4. Channel Dimensions: Selected for applicable load criteria.
 - 5. Use stainless steel or fiberglass materials for slotted support systems in corrosive atmosphere applications.
- B. Raceway Supports: As described in NECA 1 and NECA 101.
- C. Conduit Support Devices: Steel and malleable-iron hangers, clamps, and associated fittings, designed for types and sizes of raceway to be supported. Use stainless steel or non-metallic support devices in salt dome applications.
- D. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.
- E. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:
 - 1. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) Eaton Cooper B-Line, Inc.; a division of Cooper Industries; Highland, IL.
 - 2) Empire Tool and Manufacturing Co., Inc.
 - 3) Hilti Inc.
 - 4) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc, Glendale Heights, IL.
 - 5) MKT Fastening, LLC.

2. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
3. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
4. Toggle Bolts: All-steel springhead type.
5. Hanger Rods: Threaded steel.

2.2 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

- A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.

PART 3 - EXECUTION

3.1 APPLICATION

- A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.
- B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT, IMC, and RMC as scheduled in NECA 1, where its Table 1 lists maximum spacings less than stated in NFPA 70. Minimum rod size shall be 1/4 inch in diameter.
- C. Multiple Raceways: Install trapeze-type supports fabricated with steel slotted or other support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.
 1. Secure raceways to these supports with two-bolt conduit clamps, single-bolt conduit clamps, or single-bolt conduit clamps using spring friction action for retention in support channel.

3.2 SUPPORT INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.
- B. Raceway Support Methods: In addition to methods described in NECA 1, EMT, IMC, and RMC may be supported by openings through structure members, as permitted in NFPA 70.
- C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.

- D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
 - 1. To Wood: Fasten with lag screws or through bolts.
 - 2. To Existing Concrete: Expansion anchor fasteners.
 - 3. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate.
- E. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.3 PAINTING

- A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
 - 1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils.
- B. Touchup: Comply with requirements in painting Sections for cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal.
- C. Galvanized Surfaces: Clean bolted connections and abraded areas, and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 260529

SECTION 260533 - RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 WORK INCLUDES

A. Base Bid:

1. General Contractor Shall Provide:

- a. Installation of new junction and pull boxes, fittings, enclosures, device outlet boxes, and associated support materials, for electrical wiring.
- b. Installation of conduit and raceways for all new electrical conductors, with associated fittings and accessories.

1.2 RELATED DOCUMENTS

Drawings and other specification sections.

1.3 DEFINITIONS

- A. EMT: Electrical metallic tubing.
- B. FMC: Flexible metal conduit.
- C. IMC: Intermediate metal conduit.
- D. LFMC: Liquid tight flexible metal conduit.
- E. RNC/PVC: Rigid Non-metallic/poly-vinyl-chloride conduit.
- F. RMC/RGS: Rigid metallic conduit/Rigid galvanized steel.
- G. MC Cable: Metal-clad cable.

1.4 SUBMITTALS

- A. Product Data: For boxes larger than 6", hinged-cover enclosures and cabinets.
- B. Shop Drawings: For floor boxes and enclosures and cabinets, provide drawings with dimensions, conduit entrance points, and attachment locations.

1.5 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 METAL CONDUIT AND TUBING

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. AFC Cable Systems, Inc.
 - 2. Alflex Inc.
 - 3. Allied Tube & Conduit; a Tyco International Ltd. Co.; Harvey, IL.
 - 4. Anamet Electrical, Inc.; Anaconda Metal Hose; Mattoon, IL.
 - 5. Electri-Flex Co.; Roselle, IL
 - 6. O-Z Gedney; a unit of General Signal.
 - 7. Republic Conduit, Inc. West Chicago, IL
 - 8. SP Products, Inc.; Elk Grove Village, IL.
 - 9. Wheatland Tube Company, Chicago, IL.
- B. RMC: ANSI C80.1.
- C. IMC: ANSI C80.6.
- D. EMT: ANSI C80.3.
- E. FMC: Zinc-coated steel or aluminum.
- F. LFMC: Flexible steel conduit with PVC jacket.
- G. Fittings for Conduit (Including all Types and Flexible and Liquidtight), EMT: NEMA FB 1; listed for type and size raceway with which used, and for application and environment in which installed.
 - 1. Fittings for EMT: Steel compression type.

2.2 NONMETALLIC CONDUIT AND TUBING

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. AFC Cable Systems, Inc.
 - 2. Anamet Electrical, Inc.; Anaconda Metal Hose; Mattoon, IL.
 - 3. Arnco Corporation.
 - 4. CANTEX Inc.
 - 5. CertainTeed Corp.; Pipe & Plastics Group.
 - 6. Condux International, Inc.
 - 7. ElecSYS, Inc.

8. Electri-Flex Co.; Roselle, IL
9. Lamson & Sessions; Carlon Electrical Products.
10. Manhattan/CDT/Cole-Flex.
11. RACO; a Hubbell Company.
12. Thomas & Betts Corporation.

- B. PVC/RNC: NEMA TC 2, Type EPC-40-PVC, unless otherwise indicated.
- C. Fittings for RNC: NEMA TC 3; match to conduit or tubing type and material.

2.3 BOXES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Carlon; Thomas & Betts.
 2. Cooper Crouse-Hinds; Div. of Cooper Industries, Inc.; Lisle, IL.
 3. EGS/Appleton Electric; Rosemont, IL.
 4. Erickson Electrical Equipment Company; Elk Grove Village, IL.
 5. Garvin Industries, Inc.; Chicago, IL
 6. Hubbell Incorporated; Killark Electric Manufacturing Co. Division.
 7. O-Z/Gedney; a unit of General Signal.
 8. RACO; a Hubbell Company.
 9. Robroy Industries, Inc.; Enclosure Division.
 10. Spring City Electrical Manufacturing Company.
 11. Woodhead, Daniel Company; Woodhead Industries, Inc. Subsidiary, Northbrook, IL.
- B. Sheet Metal Outlet and Device Boxes: NEMA OS 1.
- C. Cast-Metal Outlet and Device Boxes: NEMA FB 1, ferrous alloy or aluminum, Type FD, with gasketed cover.
- D. Non-metallic Outlet and Device Boxes: PVC, Type FD, with gasketed cover.
- E. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

- A. Outdoors: Apply raceway products as specified below, unless otherwise indicated:
1. Exposed Conduit: Rigid or Intermediate Metal conduit (RMC/IMC).
 2. Concealed Conduit, Aboveground: RNC/PVC.
 3. Underground Conduit: RNC, Type EPC-40-PVC, direct buried, unless otherwise specified on drawings.
 4. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.
 5. Connection between buildings: RNC.

- B. Comply with the following indoor applications, unless otherwise indicated:
 - 1. Exposed, Not Subject to Physical Damage: EMT.
 - 2. Connection to Vibrating Equipment (Including Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC, except use LFNC in damp or wet locations.
 - 3. Damp or Wet Locations: RNC.
 - 4. Locations where corrosive atmospheres are present: RNC.
 - 5. Raceways for Concealed General Purpose Distribution of Low-Voltage conductors: EMT.
 - 6. Boxes and Enclosures: NEMA 250, Type 4, nonmetallic in damp or wet locations.
- C. Conduits/Raceways Not Permitted:
 - 1. Electrical Nonmetallic Tubing (ENT).
- D. Minimum Raceway Size: 3/4-inch trade size, unless noted otherwise.
- E. Raceway Fittings: Compatible with raceways and suitable for use and location.

3.2 INSTALLATION

- A. Comply with NECA 1 for installation requirements applicable to products specified in Part 2 except where requirements on Drawings or in this Article are stricter.
- B. Keep raceways at least 6 inches away from parallel runs of flues.
- C. Complete raceway installation before starting conductor installation.
- D. Install no more than the equivalent of three 90-degree bends in any conduit run.
- E. Conceal conduit within finished walls and floors, for devices on exterior walls, unless otherwise indicated. Route exposed for interior devices and connections.
- F. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors, including conductors smaller than No. 4 AWG.
- G. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire.
- H. RNC conduit bends shall be done with factory fittings or with factory approved heat box, specifically intended for PVC conduit bending. Any conduit showing heat damage or reduced capacity at bends, shall be replaced.

- I. Flexible Conduit Connections: Use maximum of 72 inches of flexible conduit for lighting fixtures, equipment subject to vibration, noise transmission, or movement; and for motors.
 - 1. Use LFMC in damp or wet locations subject to severe physical damage.
 - 2. Use LFMC in damp or wet locations not subject to severe physical damage.
 - 3. Use LFNC in locations with corrosive atmosphere.

3.3 PROTECTION

- A. Provide final protection and maintain conditions that ensure coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.
 - 1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
 - 2. Repair damage to paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION 260533

PART 1 - GENERAL

1.1 WORK INCLUDES

- A. Base Bid:
 - 1. General Contractor Shall Provide:
 - a. Identification for conductors.
 - b. Warning labels and signs.
 - c. Equipment identification labels.
 - d. Wiring device circuit identification labels.
 - e. Miscellaneous identification products.

1.2 RELATED DOCUMENTS

- A. Drawings and other specification sections.

1.3 QUALITY ASSURANCE

- A. Comply with NFPA 70.
- B. Comply with 29 CFR 1910.145.

1.4 COORDINATION

- A. Coordinate identification names, abbreviations, colors, and other features with requirements in the Contract Documents, Shop Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual, and with those required by codes, standards, and 29 CFR 1910.145. Use consistent designations throughout Project.
- B. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.
- C. Coordinate installation of identifying devices with location of access panels and doors.

PART 2 - PRODUCTS

2.1 WARNING LABELS AND SIGNS

- A. Comply with NFPA 70 and 29 CFR 1910.145.
- B. Self-Adhesive Warning Labels: Factory printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment, unless otherwise indicated.

- C. Baked-Enamel Warning Signs: Preprinted aluminum signs, punched or drilled for fasteners, with colors, legend, and size required for application. 1/4-inch grommets in corners for mounting. Nominal size, 7 by 10 inches.
- D. Warning labels and signs shall include, but are not limited to, the following legends:
 - 1. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES."
 - 2. Arc-Flash Hazard Warning: "WARNING - ARC FLASH HAZARD - APPROPRIATE PPE REQUIRED - FAILURE TO COMPLY CAN RESULT IN DEATH OR INJURY - REFER TO NFPA 70E"

2.2 EQUIPMENT IDENTIFICATION LABELS

- A. Self-Adhesive, Engraved, Laminated Acrylic or Melamine Label: Adhesive backed, with white letters on a black background. Minimum letter height shall be 3/8 inch.

2.3 BRANCH CIRCUIT CONDUCTOR COLOR CODE LABELS

- A. Self-adhesive or engraved label with conductor color code information per NFPA 70 - 210.5(C). Apply to branch circuit electrical panel cover.

2.4 MISCELLANEOUS IDENTIFICATION PRODUCTS

- A. Cable Ties: Fungus-inert, self-extinguishing, 1-piece, self-locking, Type 6/6 nylon cable ties.
 - 1. Minimum Width: 3/16 inch.
 - 2. Tensile Strength: 50 lb, minimum.
 - 3. Temperature Range: Minus 40 to plus 185 deg F.
 - 4. Color: Black, except where used for color-coding.
- B. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 - EXECUTION

3.1 APPLICATION

- A. Power-Circuit Conductor Identification: For conductors No. 1/0 AWG and larger in pull and junction boxes use color-coding conductor tape marker tape. Identify source and circuit number of each set of conductors. For single conductor cables, identify phase in addition to the above.
- B. Branch-Circuit Conductor Identification: Where there are conductors for more than three branch circuits in same junction or pull box, use

color-coding conductor tape. Identify each ungrounded conductor according to source and circuit number.

- C. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment.
 - 1. Labeling Instructions:
 - a. Indoor Equipment: Self-adhesive, engraved, laminated acrylic or melamine label. Unless otherwise indicated, provide a single line of text with 1/2-inch- high letters on 1-1/2-inch- high label; where 2 lines of text are required, use labels 2 inches high.
 - 2. Equipment to Be Labeled:
 - a. Panelboards.
 - b. Disconnect switches.
- D. Provide warning label on panelboard for required clearance/working space.
- E. Wiring device circuit identification: Provide machine printed adhesive label on each wiring device cover plate, with clear background and black, minimum 1/8" high, lettering.

3.2 INSTALLATION

- A. Verify identity of each item before installing identification products.
- B. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.
- C. Apply identification devices to surfaces that require finish after completing finish work.
- D. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.
- E. Color-Coding for Phase and Voltage Level Identification, 600 V and Less: Use the colors listed below for ungrounded service, feeder, and branch-circuit conductors.
 - 1. Color shall be factory applied or, for sizes larger than No. 10 AWG if authorities having jurisdiction permit, field applied.
 - 2. Colors for 120/240-V Circuits:
 - a. Phase A: Black.
 - b. Phase B: Red.

3. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.

END OF SECTION 260553

SECTION 262416 - PANELBOARDS

PART 1 - GENERAL

1.1 WORK INCLUDES

- A. Base Bid:
 - 1. General Contractor Shall Provide:
 - a. Demolition and removal of existing electrical panelboard and related materials.
 - b. Installation of new Lighting and appliance branch-circuit panelboard.

1.2 RELATED DOCUMENTS

- A. Drawings and other specification sections.

1.3 SUBMITTALS

- A. Product Data: For each type of panelboard, switching and overcurrent protective device, accessory, and component indicated. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.
- B. Shop Drawings: For panelboards and related equipment.
 - 1. Include dimensioned plans, elevations, sections, and details. Show tabulations of installed devices, equipment features, and ratings.
 - 2. Detail enclosure types and details for types other than NEMA 250, Type 1.
 - 3. Detail bus configuration, current, and voltage ratings.
 - 4. Short-circuit current rating of panelboards and overcurrent protective devices.
 - 5. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
 - 6. Include wiring diagrams for power, signal, and control wiring.
- C. Panelboard Circuit Directories: For installation in panelboards. Submit final versions after load balancing.
- D. Operation and Maintenance Data: For panelboards and components to include in emergency, operation, and maintenance manuals.
 - 1. Manufacturer's written instructions for testing and adjusting overcurrent protective devices.
 - 2. Time-current curves, including selectable ranges for each type of overcurrent protective device that allows adjustments.

1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain panelboards, overcurrent protective devices, components, and accessories from single source from single manufacturer.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- C. Comply with NEMA PB 1.
- D. Comply with NFPA 70.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Remove loose packing and flammable materials from inside panelboards.
- B. Handle and prepare panelboards for installation according to NECA 407 and NEMA PB 1.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations:
 - 1. Rate equipment for continuous operation under the following conditions unless otherwise indicated:
 - a. Ambient Temperature: Not exceeding plus 104 deg F.
- B. Service Conditions: NEMA PB 1, usual service conditions, as follows:
 - 1. Ambient temperatures within limits specified.
 - 2. Altitude not exceeding 6600 feet.
- C. Interruption of Existing Electric Service: Do not interrupt electric service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electric service according to requirements indicated:
 - 1. Notify Architect and Owner's representative no fewer than two weeks in advance of proposed interruption of electric service.
 - 2. Do not proceed with interruption of electric service without the Architect and Owner's written permission.
 - 3. Comply with NFPA 70E.

1.7 COORDINATION

- A. Coordinate the demolition, layout, and installation of panelboards and components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, encumbrances to workspace clearance requirements, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR PANELBOARD

- A. Enclosure: Surface-mounted cabinet.
 - 1. NEMA 1 enclosure.
 - 2. Hinged Front Cover: Entire front trim hinged to box and with standard door within hinged trim cover.
 - 3. Directory Card: Inside panelboard door, mounted in transparent card holder.
 - 4. Keys: Two for panelboard cabinet lock.
 - 5. Circuit Breakers: Reference panel schedule for breaker quantities and ratings.
- B. Incoming Mains Location: Bottom or top.
- C. Phase, Neutral, and Ground Buses:
 - 1. Material: Hard-drawn copper, 98 percent conductivity.
 - 2. Equipment Ground Bus: Adequate for feeder and branch-circuit equipment grounding conductors; bonded to box.
- D. Conductor Connectors: Suitable for use with conductor material and sizes.
 - 1. Material: Hard-drawn copper, 98 percent conductivity.
 - 2. Main and Neutral Lugs: Mechanical type.
 - 3. Ground Lugs and Bus-Configured Terminators: Mechanical type.
- E. Service Equipment Label: NRTL labeled for use as service equipment.
- F. Future Devices: Mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.
- G. Panelboard Short-Circuit Current Rating: 18,000 amperes, symmetrical, verified with utility service rating.

2.2 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARD

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Eaton - Culter Hammer; Glendale Heights, IL
 - 2. GE
 - 3. Siemens
 - 4. Square D; Schneider Electric; Palatine, IL.
- B. Panelboards: NEMA PB 1:
 - 1. Lighting and appliance branch-circuit type.
- C. Mains: 400 amp bus, 400 amp/2 pole breaker.
- D. Branch Overcurrent Protective Devices: Plug-on or bolt-down circuit breakers, replaceable without disturbing adjacent units.
- E. Doors: Concealed hinges; secured with flush latch with tumbler lock. Constructed for NEMA 1 enclosure rating.

2.3 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

- A. Manufacturers: Match to panel board:
- B. Molded-Case Circuit Breaker (MCCB): Listed with a NRTL, with interrupting capacity to meet listed fault current. Reference drawings for panel schedule and additional information.
 - 1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits.
 - 2. Molded-Case Circuit-Breaker (MCCB) Features and Accessories:
 - a. Standard frame sizes, trip ratings, and number of poles.
 - b. Lugs: Mechanical style, suitable for number, size, trip ratings, and conductor materials.
 - c. Undervoltage Trip: Set to operate at 35 to 75 percent of rated voltage without intentional time delay.
 - d. Multipole units enclosed in a single housing or factory assembled to operate as a single unit.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Receive, inspect, handle, and store panelboard according to NECA 407 and NEMA PB 1.1.
- B. Examine panelboards before installation. Reject panelboards that are damaged or rusted or have been subjected to water saturation.

- C. Examine elements and surfaces to receive panelboard for compliance with installation tolerances and other conditions affecting performance of the Work.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install panelboard and accessories according to NECA 407 and NEMA PB 1.1.
- B. Mount top of branch panel trim a maximum of 72 inches above finished floor unless otherwise indicated.
- C. Mount panelboard cabinet plumb and rigid without distortion of box.
- D. Install overcurrent protective devices and controllers not already factory installed.
- E. Install filler plates in unused spaces.
- F. Arrange conductors in gutters into groups and bundle and wrap with wire ties after completing load balancing. The ungrounded and grounded circuit conductors of each multi-wire branch circuit shall be grouped by cable ties or similar means in at least one location within the panelboard or other point of origination.
- G. Comply with NECA 1.

3.3 IDENTIFICATION

- A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs complying with Division 26 Section "Identification for Electrical Systems."
- B. Create a directory to indicate installed circuit loads after balancing panelboard loads; incorporate Owner's final room designations. Obtain approval before installing. Use a computer or typewriter to create directory; handwritten directories are not acceptable. Directory must meet requirements of NEC 408.4. Drawing panel schedules are generally not intended to be substitutes for the final panel circuit directories.
- C. Panelboard Nameplates: Label panelboard with a nameplate complying with requirements for identification specified in Division 26 Section "Identification for Electrical Systems."

3.4 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Acceptance Testing Preparation:
 - 1. Test continuity of each circuit.
- C. Tests and Inspections:
 - 1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
 - 2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
- D. Panelboards will be considered defective if they do not pass tests and inspections.

3.5 ADJUSTING

- A. Adjust moving parts and operable component to function smoothly, and lubricate as recommended by manufacturer.
- B. Load Balancing: After Substantial Completion, but not more than 60 days after Final Acceptance, measure load balancing and make circuit changes.
 - 1. Measure as directed during period of normal system loading.
 - 2. Perform load-balancing circuit changes outside normal occupancy/working schedule of the facility and at time directed.
 - 3. After circuit changes, recheck loads during normal load period. Record all load readings before and after changes and submit test records.
 - 4. Tolerance: Difference exceeding 20 percent between phase loads, within a panelboard, is not acceptable. Rebalance and recheck as necessary to meet this minimum requirement.

END OF SECTION 262416

SECTION 262726 - WIRING DEVICES

PART 1 - GENERAL

1.1 WORK INCLUDES

- A. Base Bid:
 - 1. General Contractor Shall Provide:
 - a. Specification Grade receptacles, receptacles with integral GFCI, toggle switches, and associated device plates.

1.2 RELATED DOCUMENTS

- A. Drawings and other specification sections.

1.3 DEFINITIONS

- A. EMI: Electromagnetic interference.
- B. GFCI: Ground-fault circuit interrupter.
- C. Pigtail: Short lead used to connect a device to a branch-circuit conductor.
- D. RFI: Radio-frequency interference.
- E. PIR: Passive Infrared

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Field quality-control test reports.
- C. Operation and Maintenance Data: For wiring devices to include in all manufacturers' packing label warnings and instruction manuals that include labeling conditions.

1.5 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of wiring device and associated wall plate through one source from a single manufacturer. Insofar as they are available, obtain all wiring devices and associated wall plates from a single manufacturer and one source.

- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a NRTL, and marked for intended use.
- C. Comply with NFPA 70.

1.6 COORDINATION

- A. Receptacles for existing equipment or equipment provided under other sections: Match plug configurations.

PART 2 - PRODUCTS

2.1 STRAIGHT BLADE RECEPTACLES

- A. Convenience Receptacles, heavy-duty, specification grade, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 configuration 5-20R.
- B. Manufacturers:
 - 1. Cooper-Eaton: #5362
 - 2. Hubbell: #5362
 - 3. Legrand-Pass & Seymour: #5362

2.2 GFCI RECEPTACLES

- A. General Description: Straight blade, feed-through type. Comply with NEMA WD 1, NEMA WD 6, Class A, and include indicator light that is lighted when device is tripped.
- B. Duplex GFCI Convenience Receptacles, 125 V, 20 A:
- C. Manufacturers:
 - 1. Eaton - Cooper: #WRVGF20
 - 2. Hubbell: #GFR5362
 - 3. Legrand-Pass & Seymour: #PT2095HG

2.3 TOGGLE SWITCHES

- A. Heavy-Duty, specification grade, 1-pole and 3-way toggle switch, 277 V, 20 A: Comply with NEMA WD 1, NEMA WD 6.
- B. Manufacturers:
 - 1. Eaton - Cooper: 1-pole #AH1221; 3-way #AH1223
 - 2. Hubbell: 1-pole #1221; 3-way #1223
 - 3. Legrand - Pass & Seymour: 1-pole #PS20AC; 3-way #PS20AC3

2.4 WALL PLATES

- A. Single and combination types to match corresponding wiring devices.
 - 1. Plate-Securing Screws: Metal with head color to match plate finish.
 - 2. Material for Unfinished Spaces: Galvanized steel.
 - 3. Weatherproof receptacle applications: Cast aluminum or non-metallic 'while-in-use' lift cover, and listed and labeled for use in "wet locations." The outlet box hood installed shall be identified as "Extra Duty" and be in accordance with the National Electrical Code NFPA 70 Article 406.9(B)(1).
 - 4. Weatherproof switch applications on metal box: Cast aluminum with lever type external handle operator and perimeter gasket. The outlet box hood installed shall be identified as "Extra Duty" and be in accordance with the National Electrical Code NFPA 70 Article 404.4(A).
 - 5. Weatherproof switch applications on non-metallic box: PVC with lever type external handle operator and perimeter gasket. The outlet box hood installed shall be identified as "Extra Duty" and be in accordance with the National Electrical Code NFPA 70 Article 404.4(A).

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Comply with NECA 1, including the mounting heights listed in that standard, unless otherwise noted.
- B. Coordination with Other Trades:
 - 1. Take steps to insure that devices and their boxes are protected. Do not place wall finish materials over device boxes and do not cut holes for boxes with routers that are guided by riding against outside of the boxes.
- C. Conductors:
 - 1. Do not strip insulation from conductors until just before they are spliced or terminated on devices.
 - 2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
 - 3. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtails.
 - 4. Existing Conductors:
 - a. Cut back and pigtail, or replace all damaged conductors.
 - b. Straighten conductors that remain and remove corrosion and foreign matter.
 - c. Pigtail existing conductors is permitted provided the outlet box is large enough.
- D. Device Installation:

1. Replace all devices that have been in temporary use during construction or that show signs that they were installed before building finishing operations were complete.
2. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
3. Do not remove surface protection, such as plastic film and smudge covers, until the last possible moment.
4. Connect devices to branch circuits using pigtails that are not less than 6 inches in length.
5. When there is a choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, 2/3 to 3/4 of the way around terminal screw.
6. Use a torque screwdriver when a torque is recommended or required by the manufacturer.
7. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
8. Tighten unused terminal screws on the device.
9. When mounting into metal boxes, remove the fiber or plastic washers used to hold device mounting screws in yokes, allowing metal-to-metal contact.

E. Receptacle Orientation:

1. Install ground pin of vertically mounted receptacles up, and on horizontally mounted receptacles to the right.

F. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical.

3.2 IDENTIFICATION

- A. Comply with Division 26 Section "Identification for Electrical Systems."

3.3 FIELD QUALITY CONTROL

A. Perform tests and inspections and prepare test reports.

1. Test Instrument for Convenience Receptacles: Digital wiring analyzer with digital readout or illuminated LED indicators of measurement.

B. Tests for Convenience Receptacles:

1. Line Voltage: Acceptable range is 105 to 132 V.
2. Percent Voltage Drop under 15-A Load: A value of 6 percent or higher is not acceptable.
3. Ground Impedance: Values of up to 2 ohms are acceptable.
4. GFCI Trip: Test for tripping values of 5mA.
5. Using the test plug, verify that the device and its outlet box are securely mounted.

6. The tests shall be diagnostic, indicating damaged conductors, high resistance at the circuit breaker, poor connections, inadequate fault current path, defective devices, or similar problems. Correct circuit conditions, remove malfunctioning units and replace with new ones, and retest as specified above.

END OF SECTION 262726

SECTION 265100 - INTERIOR LIGHTING

PART 1 - GENERAL

1.1 WORK INCLUDES

A. Base Bid:

1. General Contractor Shall Provide:
 - a. Interior LED lighting fixtures and light engines/drivers.
 - b. Lighting fixture supports.

1.2 RELATED DOCUMENTS

- A. Drawings and other specification sections.

1.3 DEFINITIONS

- A. CRI: Color-rendering index.
- B. CU: Coefficient of utilization.
- C. LER: Luminaire efficacy rating.
- D. Luminaire: Complete lighting fixture, including driver housing, if provided.

1.4 SUBMITTALS

- A. Product Data: For each type of lighting fixture, arranged in order of fixture designation. Include data on features, accessories, finishes, and the following:
1. Physical description of lighting fixture including dimensions.
 2. Driver/light engine.
 3. Energy-efficiency data (lumens/watt for LED fixtures).
 4. Life, output, and energy-efficiency data for light engines.
 5. Internet links to Photometric data, in IESNA format, based on laboratory tests of each lighting fixture type and accessories identical to those indicated for the lighting fixture as applied in this Project.
 - a. For indicated fixtures, photometric data shall be certified by a qualified independent testing agency. Photometric data for remaining fixtures shall be certified by the manufacturer.
 - b. Photometric data shall be certified by a manufacturer's laboratory with a current accreditation under the National

Voluntary Laboratory Accreditation Program (NVLAP) for Energy
Efficient Lighting Products.

- B. Operation and Maintenance Data: For lighting equipment and fixtures to include in emergency, operation, and maintenance manuals.
- C. Warranties: Special warranties specified in this Section.

1.5 QUALITY ASSURANCE

- A. Luminaire Photometric Data Testing Laboratory Qualifications: Provided by manufacturers' laboratories that are accredited under the National Volunteer Laboratory Accreditation Program for Energy Efficient Lighting Products.
- B. Luminaire Photometric Data Testing Laboratory Qualifications: Provided by an independent agency, with the experience and capability to conduct the testing indicated, that is an NRTL as defined by OSHA in 29 CFR 1910.7.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- D. Comply with NFPA 70.

1.6 COORDINATION

- A. Coordinate layout and installation of lighting fixtures with other construction, including equipment, and partition assemblies.

1.7 WARRANTY

- A. Special Warranty for LED fixtures: Manufacturer's standard form in which fixture manufacturer agrees to repair or replace fixtures failing in materials or workmanship within specified warranty period (Five years from date of Substantial Completion).
- B. Special Warranty for Electronic Drivers: Manufacturer's standard form in which LED driver manufacturer agrees to repair or replace units that fail in materials or workmanship within specified warranty period (Five years from date of Substantial Completion).

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. As defined in lighting fixture schedule, on drawings.

2.2 LIGHTING FIXTURES AND COMPONENTS, GENERAL REQUIREMENTS

- A. Metal Parts: Free of burrs and sharp corners and edges.
- B. Sheet Metal Components: Steel, unless otherwise indicated. Form and support to prevent warping and sagging.
- C. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit opening without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during maintenance and when secured in operating position.
- D. Reflecting surfaces shall have minimum reflectance as follows, unless otherwise indicated:
 - 1. White Surfaces: 85 percent.
- E. Plastic Diffusers:
 - 1. Acrylic Lighting Diffusers: 100 percent virgin acrylic plastic. High resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation, impact resistant.
 - a. Lens Thickness: At least 0.125 inch minimum unless different thickness is indicated.
 - b. UV stabilized.
 - 2. Polycarbonate diffusers:
 - a. UV stabilized to prevent yellowing and brittleness.

2.3 LED FIXTURES

- A. Minimum lumen output rating listed in fixture schedule descriptions.
- B. Maximum input wattage listed in fixture schedule descriptions.
- C. Fixture data shall be produced in compliance with IESNA LM70.
- D. Color temperature range indicated in fixture schedule descriptions; minimum 70 CRI rating.
- E. Electronic driver with surge protection circuitry and universal input voltage (120-277 volts ac).

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Lighting fixtures: Set level, plumb, and square with walls.

- B. Connect wiring according to Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."

END OF SECTION 265100

SECTION 265600 - EXTERIOR LIGHTING

PART 1 - GENERAL

1.1 WORK INCLUDES

A. Base Bid:

1. General Contractor Shall Provide:
 - a. Exterior LED luminaires with light engines and electronic drivers.
 - b. Luminaire-mounted photoelectric relays.

1.2 RELATED DOCUMENTS

- A. Drawings and other specification sections.

1.3 DEFINITIONS

- A. CRI: Color-rendering index.
- B. HID: High-intensity discharge.
- C. Luminaire: Complete lighting fixture.

1.4 SUBMITTALS

- A. Product Data: For each luminaire and support component, arranged in order of lighting unit designation. Include data on features, accessories, finishes, and the following:
1. Physical description of luminaire, including materials, dimensions, and verification of indicated parameters.
 2. Details of attaching luminaires and accessories.
 3. Details of installation and construction.
 4. Luminaire materials.
 5. Photometric data based on laboratory tests of each luminaire type, complete with indicated and accessories.
 - a. For indicated luminaires, photometric data shall be certified by a qualified independent testing agency. Photometric data for remaining luminaires shall be certified by manufacturer.
 - b. Photometric data shall be certified by manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products.
 6. Photoelectric relays.
 7. Fixture data including: life, output, and energy-efficiency data.

8. Means of attaching luminaires to supports, and indication that attachment is suitable for components involved.

- B. Operation and Maintenance Data: For luminaires to include in emergency, operation, and maintenance manuals.
- C. Warranty: Special warranty specified in this Section.

1.5 QUALITY ASSURANCE

- A. Luminaire Photometric Data Testing Laboratory Qualifications: Provided by manufacturers' laboratories that are accredited under the National Volunteer Laboratory Accreditation Program for Energy Efficient Lighting Products.
- B. Luminaire Photometric Data Testing Laboratory Qualifications: Provided by an independent agency, with the experience and capability to conduct the testing indicated, that is an NRTL as defined by OSHA in 29 CFR 1910.7.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- D. Comply with IEEE C2, "National Electrical Safety Code."
- E. Comply with NFPA 70.

1.6 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace products that fail in materials or workmanship; that corrode; or that fade, stain, perforate, erode, or chalk due to effects of weather or solar radiation within specified warranty period. Manufacturer may exclude lightning damage, hail damage, vandalism, abuse, or unauthorized repairs or alterations from special warranty coverage.
 - 1. Warranty Period for Luminaires: Five years from date of Substantial Completion.
 - 2. Warranty Period for Metal Corrosion: Five years from date of Substantial Completion.
 - 3. Warranty Period for Color Retention: Five years from date of Substantial Completion.

1.7 MANUFACTURERS

- A. As defined in Luminaire Schedule, on drawing Sheet E-1.

1.8 LUMINAIRES, GENERAL REQUIREMENTS

- A. Luminaires shall comply with UL 1598 and be listed and labeled for installation in wet locations by an NRTL acceptable to authorities having jurisdiction.
- B. Comply with IESNA RP-8 for parameters of lateral light distribution patterns indicated for luminaires.
- C. Metal Parts: Free of burrs and sharp corners and edges.
- D. Sheet Metal Components: Corrosion-resistant aluminum, unless otherwise indicated. Form and support to prevent warping and sagging.
- E. Housings: Cast aluminum, weather- and light-tight enclosures that will not warp, sag, or deform in use.
- F. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to open without use of special tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during opening and when secured in operating position. Doors shall be removable for cleaning or replacing lenses.
- G. Exposed Hardware Material: Stainless steel.
- H. Plastic Parts: High resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
- I. Lenses and Refractors Gaskets: Use heat- and aging-resistant resilient gaskets to seal and cushion lenses and refractors in luminaire doors.
- J. Luminaire Finish: Manufacturer's standard paint applied to factory-assembled and -tested luminaire before shipping.
- K. Factory-Applied Finish for Aluminum Luminaires: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
 - 1. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
 - 2. Class I, Color Anodic Finish: AA-M32C22A42/A44 (Mechanical Finish: medium satin; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, integrally colored or electrolytically deposited color coating 0.018 mm or thicker) complying with AAMA 611.
 - a. Color: Dark bronze.
 - 3. Minimum Starting Temperature: Minus 40 deg F.

PART 2 - EXECUTION

2.1 LUMINAIRE INSTALLATION

- A. Install lamps in each luminaire.
- B. Fasten luminaire to indicated structural supports.
- C. Adjust luminaires that require field adjustment or aiming.

2.2 CORROSION PREVENTION

- A. Aluminum: Do not use in contact with earth or concrete. When in direct contact with a dissimilar metal, protect aluminum by insulating fittings or treatment.

2.3 GROUNDING

- A. Attach associated branch circuit equipment grounding conductor to fixture ground screw.

2.4 FIELD QUALITY CONTROL

- A. Inspect each installed fixture for damage. Replace damaged fixtures and components.
- B. Illumination Observations: Verify normal operation of lighting units after installing luminaires and energizing circuits with normal power source.
 - 1. Verify operation of photoelectric controls.

END OF SECTION 265600

Section 312000 - Earth Moving

PART 1 - GENERAL

1.1 WORK INCLUDES

A. Base Bid

1. General Contractor Provide:

- a. Preparing subgrades for Owner provided/installed aprons, final topsoil, turf and grasses.
- b. Excavating and backfilling for buildings and structures.
- c. Drainage course for concrete slabs-on-grade.
- d. Subbase course for concrete walks and pavements.
- e. Excavating and backfilling for any utility trenches (electrical).
- f. Owner will provide testing of all subgrade, base and sub-base compaction executed by contractor.
- g. Owner will provide/perform final finish grading, topsoil and turf/seeding. Contractor coordinate and Contractor provide rough grading within tolerances to allow proper topsoil/grading depth/elevations ($\pm 4"$ of topsoil).

1.2 RELATED WORK

A. Specified Elsewhere:

1. Geotechnical Data.
2. 31 23 14 - Excavating, Backfilling, and Compacting for Structures.

1.3 DEFINITIONS

A. Backfill: Soil material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Aggregate layer placed between the subbase course and hot-mix asphalt paving.

C. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Drainage Course: Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.

- 2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.
- G. Fill: Soil materials used to raise existing grades.
- H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.
- I. Subbase Course: Aggregate layer placed between the subgrade and base course for hot-mix asphalt pavement, or aggregate layer placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.
- J. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.
- K. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.4 QUALITY ASSURANCE

- A. Preexcavation Conference: General Contractor to conduct conference at Project site.

1.5 PROJECT CONDITIONS

- A. Utility Locator Service: Notify utility locator service for area where Project is located before beginning earth moving operations.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Satisfactory Soils: Soil Classification Groups GW, GP, GM, SW, SP, and SM according to ASTM D 2487, or a combination of these groups; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.
- C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487, or a combination of these groups.
 - 1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.
- D. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.

- E. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1-1/2-inch sieve and not more than 8 percent passing a No. 200 sieve.
- F. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.
- G. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.
- H. Drainage Course: Narrowly graded mixture of washed crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.

2.2 ACCESSORIES

- A. Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility; colored to comply with local practice or requirements of authorities having jurisdiction.
- B. Detectable Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored to comply with local practice or requirements of authorities having jurisdiction.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth moving operations.
- B. Protect and maintain erosion and sedimentation controls during earth moving operations.
- C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

3.2 EXCAVATION, GENERAL

- A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

3.3 EXCAVATION FOR STRUCTURES

- A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.
 1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.
- B. Excavations at Edges of Tree- and Plant-Protection Zones:
 1. Excavate by hand to indicated lines, cross sections, elevations, and subgrades. Use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.

3.4 EXCAVATION FOR WALKS AND PAVEMENTS

- A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.5 EXCAVATION FOR UTILITY TRENCHES

- A. Excavate trenches to indicated gradients, lines, depths, and elevations.
- B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit unless otherwise indicated.
 1. Clearance: 12 inches each side of pipe or conduit.
- C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.
 1. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material, 4 inches deeper elsewhere, to allow for bedding course.
- D. Trenches in Tree- and Plant-Protection Zones:
 1. Hand-excavate to indicated lines, cross sections, elevations, and subgrades. Use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.
 2. Do not cut main lateral roots or taproots; cut only smaller roots that interfere with installation of utilities.

3.6 SUBGRADE INSPECTION

- A. Proof-roll subgrade below the building slabs and pavements with a pneumatic-tired dump truck to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.
- B. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.7 UNAUTHORIZED EXCAVATION

- A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi, may be used when approved by Architect.
 - 1. Fill unauthorized excavations under other construction, pipe, or conduit as directed by Architect.

3.8 STORAGE OF SOIL MATERIALS

- A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.9 UTILITY TRENCH BACKFILL

- A. Place backfill on subgrades free of mud, frost, snow, or ice.
- B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.
- C. Trenches under Footings: Backfill trenches excavated under footings and within 18 inches of bottom of footings with satisfactory soil; fill with concrete to elevation of bottom of footings. Concrete is specified in Section 03 30 00 "Cast-in-Place Concrete".
- D. Trenches under Roadways: Provide 4-inch- thick, concrete-base slab support for piping or conduit less than 30 inches below surface of roadways. After installing and testing, completely encase piping or conduit in a minimum of 4 inches of concrete before backfilling or placing roadway subbase course. Concrete is specified in Division 03 "Cast-in-Place Concrete".
- E. Place and compact initial backfill of subbase material, free of particles larger than 1 inch in any dimension, to a height of 12 inches over the pipe or conduit.
 - 1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

- F. Place and compact final backfill of satisfactory soil to final subgrade elevation.
- G. Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

3.10 SOIL FILL

- A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.
- B. Place and compact fill material in layers to required elevations as follows:
 - 1. Under grass and planted areas, use satisfactory soil material.
 - 2. Under walks and pavements, use satisfactory soil material.
 - 3. Under steps and ramps, use engineered fill.
 - 4. Under building slabs, use engineered fill.
 - 5. Under footings and foundations, use engineered fill.

3.11 SOIL MOISTURE CONTROL

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.
 - 1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
 - 2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.12 COMPACTION OF SOIL BACKFILLS AND FILLS

- A. Place backfill and fill soil materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
- B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.
- C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:
 - 1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill soil material at 95 percent.
 - 2. Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 92 percent.
 - 3. Under turf or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 82 percent.
 - 4. For utility trenches, compact each layer of initial and final backfill soil material at 85 percent.

3.13 GRADING

- A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
- B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
 - 1. Turf or Unpaved Areas: Plus or minus 1 inch.
 - 2. Walks: Plus or minus 1 inch.
 - 3. Pavements: Plus or minus 1/2 inch.
- C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch when tested with a 10-foot straightedge. Owner will perform final finish grading and top soil. Coordinate.

3.14 SUBBASE AND BASE COURSES UNDER PAVEMENTS AND WALKS

- A. Place subbase course and base course on subgrades free of mud, frost, snow, or ice.
- B. On prepared subgrade, place subbase course and base course under pavements and walks as follows:
 - 1. Shape subbase course and base course to required crown elevations and cross-slope grades.
 - 2. Place subbase course and base course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
 - 3. Compact subbase course and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

3.15 DRAINAGE COURSE UNDER CONCRETE SLABS-ON-GRADE

- A. Place drainage course on subgrades free of mud, frost, snow, or ice.
- B. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows:
 - 1. Place drainage course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
 - 2. Compact each layer of drainage course to required cross sections and thicknesses to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

3.16 FIELD QUALITY CONTROL

- A. Testing Agency: Owner shall engage a qualified geotechnical engineering testing agency to perform tests and inspections. Contractor shall coordinate with Owner Rep. and A/E for schedule to tests
- B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.

- C. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Architect.
- D. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.

3.17 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
 - 1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.18 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Using Agency's property.

END OF SECTION 312000

SECTION 313116 - TERMITE CONTROL

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Soil treatment with termiticide.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated. Include the EPA-Registered Label for termiticide products.
- B. Product certificates.
- C. Soil Treatment Application Report: Include the following:
 - 1. Date and time of application.
 - 2. Moisture content of soil before application.
 - 3. Termiticide brand name and manufacturer.
 - 4. Quantity of undiluted termiticide used.
 - 5. Dilutions, methods, volumes used, and rates of application.
 - 6. Areas of application.
 - 7. Water source for application.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: A specialist who is licensed according to regulations of authorities having jurisdiction to apply termite control treatment and products in jurisdiction where Project is located and who employs workers trained and approved by manufacturer to install manufacturer's products.
- B. Regulatory Requirements: Formulate and apply termiticides and termiticide devices according to the EPA-Registered Label.

1.4 WARRANTY

- A. Soil Treatment Special Warranty: Manufacturer's standard form, signed by Applicator and Contractor, certifying that termite control work, consisting of applied soil termiticide treatment, will prevent infestation of subterranean termites. If subterranean termite activity or damage is discovered during warranty period, re-treat soil and repair or replace damage caused by termite infestation.
 - 1. Warranty Period: Ten years from date of Substantial Completion.

1.5 MAINTENANCE SERVICE

- A. Continuing Service: Beginning at Substantial Completion, provide 12 months' continuing service including monitoring, inspection, and re-treatment for occurrences of termite activity. Provide a standard continuing service agreement. State services, obligations, conditions, terms for agreement period, and terms for future renewal options.

PART 2 - PRODUCTS

2.1 SOIL TREATMENT

- A. Termiticide: Provide an EPA-Registered termiticide, complying with requirements of authorities having jurisdiction, in an aqueous solution formulated to prevent termite infestation. Provide quantity required for application at the label volume and rate for the maximum termiticide concentration allowed for each specific use, according to product's EPA-Registered Label.
 - 1. Products: Subject to compliance with requirements, provide products by one the following:
 - a. BASF Corporation, Agricultural Products; Termidor.
 - b. Bayer Environmental Science; Premise 75.
 - c. FMC Corporation, Agricultural Products Group; Talstar.
 - d. Syngenta; Demon TC.

PART 3 - EXECUTION

3.1 APPLICATION, GENERAL

- A. General: Comply with the most stringent requirements of authorities having jurisdiction and with manufacturer's EPA-Registered Label for products.

3.2 APPLYING SOIL TREATMENT

- A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for moisture content of soil per termiticide label requirements, interfaces with earthwork, slab and foundation work, landscaping, utility installation, and other conditions affecting performance of termite control.
- B. Proceed with application only after unsatisfactory conditions have been corrected.
- C. Soil Treatment Preparation: Remove foreign matter and impermeable soil materials that could decrease treatment effectiveness on areas to be treated. Loosen, rake, and level soil to be treated except previously compacted areas under slabs and footings. Termiticides may be applied before placing compacted fill under slabs if recommended in writing by termiticide manufacturer.
 - 1. Fit filling hose connected to water source at the site with a backflow preventer, complying with requirements of authorities having jurisdiction.
- D. Application: Mix soil treatment termiticide solution to a uniform consistency. Provide quantity required for application at the label volume and rate for the maximum specified concentration of termiticide, according to manufacturer's EPA-Registered Label, to the following so that a continuous horizontal and vertical termiticidal barrier or treated zone is established around and under building construction. Distribute treatment evenly.
 - 1. Slabs-on-Grade: Under ground-supported slab construction, including footings, building slabs, and as an overall treatment.

- Treat soil materials before concrete footings and slabs are placed.
2. Foundations: Adjacent soil, including soil along the entire inside perimeter of foundation walls; along both sides of interior partition walls; around plumbing pipes and electric conduit penetrating the slab; around interior column footers, piers, and chimney bases; and along the entire outside perimeter, from grade to bottom of footing. Avoid soil washout around footings.
 3. Penetrations: At expansion joints, control joints, and areas where slabs will be penetrated.
- E. Avoid disturbance of treated soil after application. Keep off treated areas until completely dry.
- F. Protect termiticide solution, dispersed in treated soils and fills, from being diluted until ground-supported slabs are installed. Use waterproof barrier according to EPA-Registered Label instructions.
- G. Post warning signs in areas of application.
- H. Reapply soil treatment solution to areas disturbed by subsequent excavation, grading, landscaping, or other construction activities following application.

END OF SECTION 313116

ATTACHMENT A.6

INSURANCE REQUIREMENTS
ROUTINE CONSTRUCTION, MAINTENANCE AND REPAIR PROJECTS

Contractor shall obtain insurance of the types and in the amounts listed below.

A. COMMERCIAL GENERAL AND UMBRELLA LIABILITY INSURANCE

Contractor shall maintain commercial general liability (CGL) and, if necessary, commercial umbrella insurance with a limit of not less than \$1,000,000 each occurrence. If such CGL insurance contains a general aggregate limit, it shall apply separately to this project/location.

CGL insurance shall be written on Insurance Services Office (ISO) occurrence form CG 00 01 10 93, or a substitute form providing equivalent coverage, and shall cover liability arising from premises, operations, independent contractors, products-completed operations, personal injury and advertising injury, and liability assumed under an insured contract (including the tort liability of another assumed in a business contract).

Owner shall be included as an insured under the CGL, using ISO additional insured endorsement CG 20 10 or a substitute providing equivalent coverage, and under the commercial umbrella, if any. This insurance shall apply as primary insurance with respect to any other insurance or self-insurance afforded to Owner.

There shall be no endorsement or modification of the CGL limiting the scope of coverage for liability arising from pollution, explosion, collapse, or underground property damage.

B. CONTINUING COMPLETED OPERATIONS LIABILITY INSURANCE

Contractor shall maintain commercial general liability (CGL) and, if necessary, commercial umbrella liability insurance with a limit of not less than \$1,000,000 each occurrence for at least one (1) year following substantial completion of the work.

Continuing CGL insurance shall be written on ISO occurrence form CG 00 01 10 93, or substitute form providing equivalent coverage, and shall, at minimum, cover liability arising from products-completed operations and liability assumed under an insured contract.

Continuing CGL insurance shall have a products-completed operations aggregate of at least two times its each occurrence limit.

Continuing commercial umbrella coverage, if any, shall include liability coverage for damage to the insured's completed work equivalent to that provided under ISO form CG 00 01.

C. BUSINESS AUTO AND UMBRELLA LIABILITY INSURANCE

Contractor shall maintain business auto liability and, if necessary, commercial umbrella liability insurance with a limit of not less than \$1,000,000 each accident. Such insurance shall cover liability arising out of any auto including owned, hired and non-owned autos.

Business auto insurance shall be written on Insurance Services Office (ISO) form CA 00 01, CA 00 05, CA 00 12, CA 00 20, or a substitute form providing equivalent liability coverage. If necessary, the policy shall be endorsed to provide contractual liability coverage equivalent to that provided in the 1990 and later editions of CA 00 01.

D. WORKERS COMPENSATION INSURANCE

Contractor shall maintain workers compensation as required by statute and employers liability insurance. The commercial umbrella and/or employers liability limits shall not be less than \$1,000,000 each accident for bodily injury by accident or \$1,000,000 each employee for bodily injury by disease.

If Owner has not been included as an insured under the CGL using ISO additional insured endorsement CG 20 10 under the Commercial General and Umbrella Liability Insurance required in this Contract, the Contractor waives all rights against Owner and its officers, officials, employees, volunteers and agents for recovery of damages arising out of or incident to the Contractor's work.

E. GENERAL INSURANCE PROVISIONS

- 1. Evidence of Insurance.** Prior to beginning work, Contractor shall furnish Owner with a certificate(s) of insurance and applicable policy endorsement(s), executed by a duly authorized representative of each insurer, showing compliance with the insurance requirements set forth above.

All certificates shall provide for 30 days written notice to Owner prior to the cancellation or material change of any insurance referred to therein. Written notice to Owner shall be by certified mail, return receipt requested.

Failure of Owner to demand such certificate, endorsement or other evidence of full compliance with these insurance requirements or failure of Owner to identify a deficiency from evidence that is provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.

Owner shall have the right, but not the obligation, of prohibiting Contractor or any subcontractor from entering the project site until such certificates or other evidence that insurance has been placed in complete compliance with these requirements is received and approved by Owner.

Failure to maintain the required insurance may result in termination of this Contract at Owner's option.

With respect to insurance maintained after final payment in compliance with a requirement above, an additional certificate(s) evidencing such coverage shall be promptly provided to Owner whenever requested.

Contractor shall provide certified copies of all insurance policies required above within 10 days of Owner's written request for said copies.

- 2. Acceptability of Insurers.** For insurance companies which obtain a rating from A.M. Best, that rating should be no less than A VII using the most recent edition of the A.M. Best's Key Rating Guide. If the Best's rating is less than A VII or a Best's rating is not obtained, the Owner has the right to reject insurance written by an insurer it deems unacceptable.
- 3. Cross-Liability Coverage.** If Contractor's liability policies do not contain the standard ISO separation of insureds provision, or a substantially similar clause, they shall be endorsed to provide cross-liability coverage.
- 4. Deductibles and Self-Insured Retentions.** Any deductibles or self-insured retentions must be declared to the Owner. At the option of the Owner, the Contractor may be asked to eliminate such deductibles or self insured retentions as respects the Owner, its officers, officials, employees, volunteers and agents or required to procure a bond guaranteeing payment of losses and other related costs including but not limited to investigations, claim administration and defense expenses.
- 5. Subcontractors.** Contractor shall cause each subcontractor employed by Contractor to purchase and maintain insurance of the type specified above. When requested by the Owner, Contractor shall furnish copies of certificates of insurance evidencing coverage for each subcontractor.

F. INDEMNIFICATION

To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner and the Architect and their officers, officials, employees, volunteers and agents from and against all claims, damages, losses and expenses including but not limited legal fees (attorney's and paralegal's fees and court costs), arising

out of or resulting from the performance of the Contractor's work, provided that any such claim, damage, loss or expense (1) is attributable to bodily injury, sickness, disease or death, or injury to or destruction of tangible property, other than the work itself, including the loss of use resulting therefrom and (2) is caused in whole or in part by any wrongful or negligent act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, except to the extent it is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity which would otherwise exist as to any party or person described in this Paragraph. Contractor shall similarly protect, indemnify and hold and save harmless the Owner, its officers, officials, employees, volunteers and agents against and from any and all claims, costs, causes, actions and expenses including but not limited to legal fees, incurred by reason of Contractor's breach of any of its obligations under, or Contractor's default of, any provision of the Contract.

SAMPLE LIABILITY INSURANCE ENDORSEMENT

The following spaces preceded by an asterisk (*) need not be completed if this endorsement and policy have the same inception date.

ATTACHED TO AND FORMING PART OF POLICY NUMBER	*EFFECTIVE DATE OF ENDORSEMENT	*ISSUED TO
--	-----------------------------------	------------

This endorsement changes the policy. Please read it carefully.

AUTOMATIC ADDITIONAL INSURED

The following provision is added to (SECTION II), Who Is An Insured.

5. Any entity you are required in a written contract (hereinafter called Additional Insured) to name as an insured is an insured but only with respect to liability arising out of your premises, "your work" for the Additional Insured, or acts or omissions of the Additional Insured in connection with the general supervision of "your work" to the extent set forth below.
- a. The Limits of Insurance provided on behalf of the Additional Insured are not greater than those required by such contract.
 - b. The coverage provided to the Additional Insured(s) is not greater than that customarily provided by the policy forms specified in and required by the contract.
 - c. All insuring agreements, exclusions and conditions of this policy apply.
 - d. In no event shall the coverages or Limits of Insurance in this Coverage Form be increased by such contract.

Except when required otherwise by contract, this insurance does not apply to:

- 1) "Bodily injury" or "property damage" occurring after
 - a) All work on the project (other than service, maintenance or repairs) to be performed by or on behalf of the Additional Insured(s) at the site of the covered operations has been completed; or
 - b) That portion of "your work" out of which the injury or damage arises has been put to its intended use by any person or organization other than another contractor or subcontractor engaged in performing operations for a principal as a part of the same project.
- 2) "Bodily injury" or "property damage" arising out of any act or omission of the Additional Insured(s) or any of their employees, other than the general supervision of work performed for the Additional Insured(s) by you.
- 3) "Property damage" to
 - a) Property owned, used or occupied by or rented to the Additional Insured(s);
 - b) Property in the care, custody or control of the Additional Insured(s) or over which the Additional Insured(s) is for any purpose exercising physical control; or

- c) “Your work” for the Additional Insured(s).

With respect to Additional Insureds who are architects, engineers or surveyors, this insurance does not apply “bodily injury”, “property damage”, “personal injury” or “advertising injury” arising out of the rendering of or the failure to render any professional services by or for you, including:

- a) The preparing, approving, or failing to prepare or approve maps, drawings, opinions, reports, surveys, change orders, designs or specifications; and
- b) Supervisory, inspection or engineering services.

Any coverages provided hereunder shall be excess over any other valid and collectible insurance available to the Additional Insured(s) whether primary, excess, contingent or on any other basis unless a contract specifically requires that this insurance be primary or you request that it apply on a primary basis.

No person or organization is an Additional Insured with respect to the conduct of any current or past partnership or joint venture that is not shown as a Named Insured in the Declarations.

END OF ATTACHMENT A.6

**REPORT OF SUBSURFACE EXPLORATION
AND SITE
DEVELOPMENT RECOMMENDATIONS
DONOVAN PARK STORAGE BUILDING
PEORIA, ILLINOIS
BY
WHITNEY & ASSOCIATES
PEORIA, ILLINOIS**

**PREPARED
FOR**

Ms. Rebecca Fredrickson
Peoria Park District
1314 North Park Road
Peoria, Illinois 61604

DATE

July 1, 2020



Local Knowledge, Collaborative Approach, Excellent Results

July 1, 2020

Ms. Rebecca Fredrickson
Peoria Park District
1314 North Park Road
Peoria, Illinois 61604

Re: Geotechnical Engineering
Report of Site Investigation
Donovan Park Storage Building
Peoria, Illinois

Dear Ms. Fredrickson:

Pursuant to your request, our geotechnical engineering firm has performed a subsurface soils and ground water investigation in conjunction with an evaluation of these subsurface conditions for the above referenced site.

The results of our investigation and evaluation indicate that a shallow, drilled pier foundation system is appropriate for the proposed storage building. Few, if any, excavation or construction problems are anticipated at the proposed site as a result of the subsurface soil and ground water conditions encountered, provided all of the recommendations outlined in this report are satisfied.

If any questions or comments arise in regard to this geotechnical engineering report, or if any additional information is desired, please do not hesitate to contact us at your convenience.

Respectfully submitted,

WHITNEY + IMEG



(By) 
James R. Krusemark, P. E.

JRK: rma

Enclosures

**REPORT OF SUBSURFACE EXPLORATION
AND SITE
DEVELOPMENT RECOMMENDATIONS
DONOVAN PARK STORAGE BUILDING
PEORIA, ILLINOIS
BY
WHITNEY & ASSOCIATES
PEORIA, ILLINOIS**

INTRODUCTION

This geotechnical engineering report presents the summary of a subsurface soils and ground water investigation performed at the site for the proposed Donovan Park Storage Building in Peoria, Illinois. Included in this report are the results of our field and laboratory tests as well as a summary of the data that was obtained during the investigation. In addition, this engineering report includes our recommendations regarding the proposed site development, foundation construction and potential construction problems which may exist as a result of either adverse soil and/or ground water conditions present at the proposed site.

This subsurface soils and ground water investigation included the drilling of two (2) exploratory soil borings for the proposed structure on June 17, 2020, which extended to a depth of sixteen (16) feet below the existing ground surface. During the drilling and sampling phase of the investigation, tests, visual classifications and analyses of the various soil types encountered were performed by our personnel and their results were recorded on the enclosed Soil Boring Logs.

The soil samples obtained in the field were returned to our materials testing laboratory where they were further subjected to engineering tests and evaluation. An



analysis of the field and laboratory tests was conducted by our geotechnical engineer and this engineering report was prepared which presents our recommendations and our substantiating data regarding the earthwork operations and foundation construction.

EXISTING SITE AND SUBSURFACE CONDITIONS

At the present time, the site for the proposed building exists as a lawn area within the northeastern corner of the park and near the intersection of West Northmoor Road with North Knoxville Avenue. In the area of Boring B-1, approximately twelve (12) inches of Sandy Silty Clay Organic Topsoil with some fine Gravel and Crushed Limestone was noted at the existing surface grade whereas approximately ten (10) inches of brown, Lean Clay Organic Topsoil was noted at the surface grades of Boring B-2.

SUBSURFACE SOIL CONDITIONS

As may be observed from the enclosed Soil Boring Logs, considerable variation in the subsurface conditions exists within the limit of this relatively small area. Probable fill materials, consisting of a Lean Clay (Silty Clay Loam) soil type were noted to a depth of approximately four (4) feet from the existing surface grades in Boring B-1. Native, cohesive soils were encountered near the surface grades of Boring B-2, as well as below the fill materials discussed above, which extended to depths ranging from approximately ten (10) to fourteen (14) feet. These soils were primarily classified as a Lean Clay (Silty Clay to Silty Clay Loam) soil type as well as a seam or pocket of Silty Clay (Silt) type soils at the lower extent of this mantle in Boring B-1. As the exploratory borings were extended into the subsoils, medium- to coarse-grained Sand with considerable Silt was noted at the lower extent of Boring B-1 whereas preconsolidated glacial till soils, classified as a Lean Clay With Sand soil type, were encountered at a depth of approximately ten (10) feet in Boring B-2 and extended in depth until this boring was discontinued by our drill crew personnel.



The consistency of the probable fill materials was classified as very stiff whereas the native, normally consolidated soils ranged from medium to stiff. Upon encountering the glacial till soils, the consistency ranged from stiff to very stiff and the relative density of the limited granular soils was classified as medium-density. Standard penetration tests, designated as "N" values, ranged from 4 to 8 blows per foot within the normally consolidated soils near the existing surface grades and from 8 to 15 blows per foot within the glacial till and granular soils encountered at the lower extent of the borings.

A somewhat high range of natural moisture contents was recorded for the soils encountered near the existing surface grades. The natural moisture contents of the probable fill materials and normally consolidated soils ranged from 26 to 28 percent and would be considered well above an estimated optimum moisture content of approximately 17 to 20 percent for the typical soil types encountered. Upon encountering the glacial till soils, natural moisture contents ranging from 13 to 15 percent were recorded and these soils would be considered slightly above their respective optimum moisture content range of approximately 11 to 14 percent.

GROUND WATER CONDITIONS

It may also be observed from the Soil Boring Logs that ground water was encountered at the site. The presence of ground water in the open bore holes was checked after the completion of the drilling operations and after a brief time lapse. The bore holes were subsequently backfilled and capped which prevented long-term ground water monitoring. These readings and site observations indicate that the ground water level at the site currently appears to exist at a depth of approximately four (4) to six (6) feet below the existing surface grades. Some variation in the ground water levels may be anticipated however due to typical seasonal fluctuations. Few, if any, excavation or construction problems are anticipated as a result of the ground water conditions due to the fact that



construction of the drilled pier foundation system will most likely take place above the ground water levels.

DISCUSSIONS

FIELD DRILLING PROCEDURES

The exploratory soil borings were conducted with an ATV-mounted, rotary auger drill rig using eight-inch diameter, hollow-stem, continuous-flight auger attachments. By using these hollow-stem augers, our drill crew was able to retrieve relatively undisturbed soil samples in advance of the auger cutting head as well as determine the approximate depth at which ground water was encountered. Also, by using the hollow stem augers, the depth of water could be obtained upon removal of the augers from the bore holes after a time lapse of preferably 24 hours.

FIELD SAMPLING PROCEDURES

Representative soil samples were obtained at approximately two and one-half (2.5) feet intervals until the borings were discontinued by our drill crew personnel. Standard split-barrel soil samplers (ASTM D-1586) were used in the investigation to obtain the soil samples. In addition, the split-barrel samplers were used to determine the number of blows per foot "N" of standard penetration into the subsoils, using a 140-pound, automatic hammer dropping freely 30 inches per stroke. The results of these standard penetration tests indicate a comparative consistency of the soils and thereby provide a basis for estimating the relative shear strength and compressibility characteristics of the soil profile components.

TESTING PROCEDURES

The cohesive soil samples obtained during the field investigation were tested in unconfined compression with the aid of a calibrated, compression testing machine to determine their relative shear strength characteristics. A hand penetrometer was also used to assist our geotechnical engineer in determining the relative consistency of the soils. Natural moisture content and dry density tests were also conducted on the representative



soil samples obtained. The results of all of the field and laboratory tests are shown on the Soil Boring Logs included in the Appendix of this report. All tests were conducted in accordance with current ASTM specifications and procedures.

SOIL CLASSIFICATION

The Unified Soil Classification System (USCS) in conjunction with the United States Bureau of Soils and Chemistry (USBSC) classification system were used to describe the soils encountered in the soil borings. The soils were identified in the field and further verification or refinement of these classifications was made in the laboratory. The soils encountered in the borings have been described in accordance with the textural classification charts included in the Appendix of this report. A Soil Mechanics Classification sheet is also included in the Appendix which will aid in clarifying the descriptions of the various soils. All of the soils were classified visually.

The enclosed Soil Boring Logs provide descriptions of the subsurface conditions at the exploratory boring locations and variations from these conditions may be encountered throughout the site. The lines of stratification indicated on the Soil Boring Logs represent the approximate boundaries of the soil types although the transition between the materials may be gradual.

SOIL BORING LOCATIONS AND ELEVATIONS

The locations of the exploratory soil borings with respect to the proposed structure were established by personnel from the Peoria Park District in conjunction with Whitney & Associates personnel. A Plot Plan sheet illustrating the locations of the exploratory soil borings has been included in the Appendix of this report. The approximate ground surface elevations of the borings, as indicated on the Soil Boring Logs, have been referenced to the U.S.G.S. datum from topographical information provided on the preliminary site plan. Corresponding depths below the existing ground surface have also been depicted on the Soil Boring Logs.



DESIGN CONSIDERATIONS

A few preliminary design parameters relating to the type of structure were known at the time of this engineering report preparation. It is our understanding that the proposed storage building is to consist of an approximately 40 feet by 64 feet post-frame structure with a metal veneer. Concrete floor slabs-on-grade established at an approximate elevation of 797.5 are anticipated for the proposed structure. Conventional, drilled pier foundations are considered appropriate for support of the proposed building. Engineered structural fills must also be included in the overall site development to provide adequate structural support for the floor slabs-on-grade and surrounding service drives as well as to ensure that the structure is adequately elevated above the adjacent ground areas to the extent that positive surface water drainage away from the structure exists at all times in the future.

RECOMMENDATIONS

The following recommendations are made in regard to the proposed site development and foundation work. These recommendations are based on the data which was obtained in the subsurface investigation and the laboratory tests which were conducted on select representative soil samples.

EARTHWORK OPERATIONS

Throughout the limits of the proposed building and pavement areas, it is recommended that the organic topsoil be removed to a depth of approximately ten (10) inches. Removal of all significant tree roots is also recommended during the initial site development. It is further recommended that the subgrade soils be scarified and recompacted to 95 percent of standard Proctor maximum dry density (ASTM D-698) prior to placement of the engineering structural fills. Should any soft or unstable materials be observed during the subgrade preparation, it is recommended that these soils be



reprocessed and recompactd or removed and replaced with engineered structural fills as discussed below.

Where engineered structural fills will be required to satisfy the proposed subgrade elevations, it is recommended that the fills consist of select cohesive soils or pit-run sands and gravels which are to be placed in eight (8)-inch thick layers near their respective moisture content range. It is also recommended that the structural fill materials, as well as the finished subgrade in any areas requiring excavation cuts, be compacted near optimum moisture content to 98 percent of standard Proctor maximum dry density (ASTM D-698).

Where excavations are made for pipes, conduits, etc. beneath the concrete slabs-on-grade, these trenches must be backfilled with cohesionless sands and adequately compacted. It is also recommended that a four (4) inch minimum blanket of free-draining sands exist beneath all slabs-on-grade floors and again are compacted to 98 percent of standard Proctor maximum dry density (ASTM D-698).

All downspouts which collect runoff water from the roof areas must be directed away from the foundation system at all times. Positive surface water management practices must be established at this building site which includes, but is not limited to, the diversion of all surface waters away from the structure at all times in the future. It is imperative that no waters be allowed to impound adjacent to any foundation system. This requirement of design must be satisfied at all times both during construction as well as upon completion of the project.

FOUNDATION DESIGN INFORMATION

It is recommended that the proposed Donovan Park Storage Building in Peoria, Illinois, be supported on a system of conventional, drilled pier concrete foundations established within the native soils. It is further recommended that the bases of the



foundations established on these soils be proportioned to utilize a maximum, NET Allowable Soil Bearing Pressure of 2000 pounds per square foot.

Bank-poured foundations are recommended to aid in generating the recommended soil bearing pressure. Removal of all soils disturbed during the foundation excavation is also considered essential prior to the concrete placement. It is further recommended that the bases of the concrete foundations throughout the proposed building be established at a minimum depth of forty-two (42) inches below the final, exterior ground surface elevations to satisfy normal frost penetration requirements.

The weight of the concrete in the foundations and the depth of surcharge below the existing ground surface have been taken into consideration and compensated for in the bearing value specified. The bearing pressure recommended is a net pressure in that it reflects the bearing capacities of the soils at the depths specified with a reasonable factor of safety included.

Based upon our working knowledge of the general area, it is our opinion that an International Building Code (IBC) Site Class "D" is appropriate for this site. It should be noted however that this area is not a high-risk seismic zone and the general area has experienced minimal seismic events.

A preliminary estimate of the potential settlements has been made by our geotechnical engineer and it has been estimated that total settlement should not exceed one (1.0) inch; differential settlements of less than one-half (0.5) of an inch may possibly be anticipated, assuming that all requirements as set forth in this report are satisfied. It should be reiterated however that the compaction requirements and site development recommendations as specified must be satisfied and are important from the standpoint of curtailing settlement of not only the proposed concrete floor slabs-on-grade, but also the drilled pier concrete foundation system.



SUMMARY

A subsurface investigation and evaluation of the soil and ground water conditions has been conducted at the site for the proposed Donovan Park Storage Building in Peoria, Illinois. Site development and foundation design criteria has been recommended and potential design and construction considerations have been discussed in some detail. The exploration and analyses of the subsurface conditions presented in this engineering report are considered of sufficient detail and scope to form a reasonable basis for design evaluation. The observations and comments submitted within this geotechnical engineering report are based upon the subsurface soil and ground water information which was obtained as well as the preliminary design details which have been furnished by the Owner's representative.

Any revisions in the plans for the proposed site development from those enumerated in this engineering report should be brought to the attention of our geotechnical engineer so that it can be determined if changes or alterations in the recommendations will be required and additional evaluations reviewed or proposed. Should deviations from the noted subsurface conditions be encountered during construction, it is mandatory that they be brought to the attention of our personnel for further evaluation. On-site construction observation and testing by personnel from our construction materials testing firm is also recommended to substantiate the design recommendations presented in this report.

* * * * *



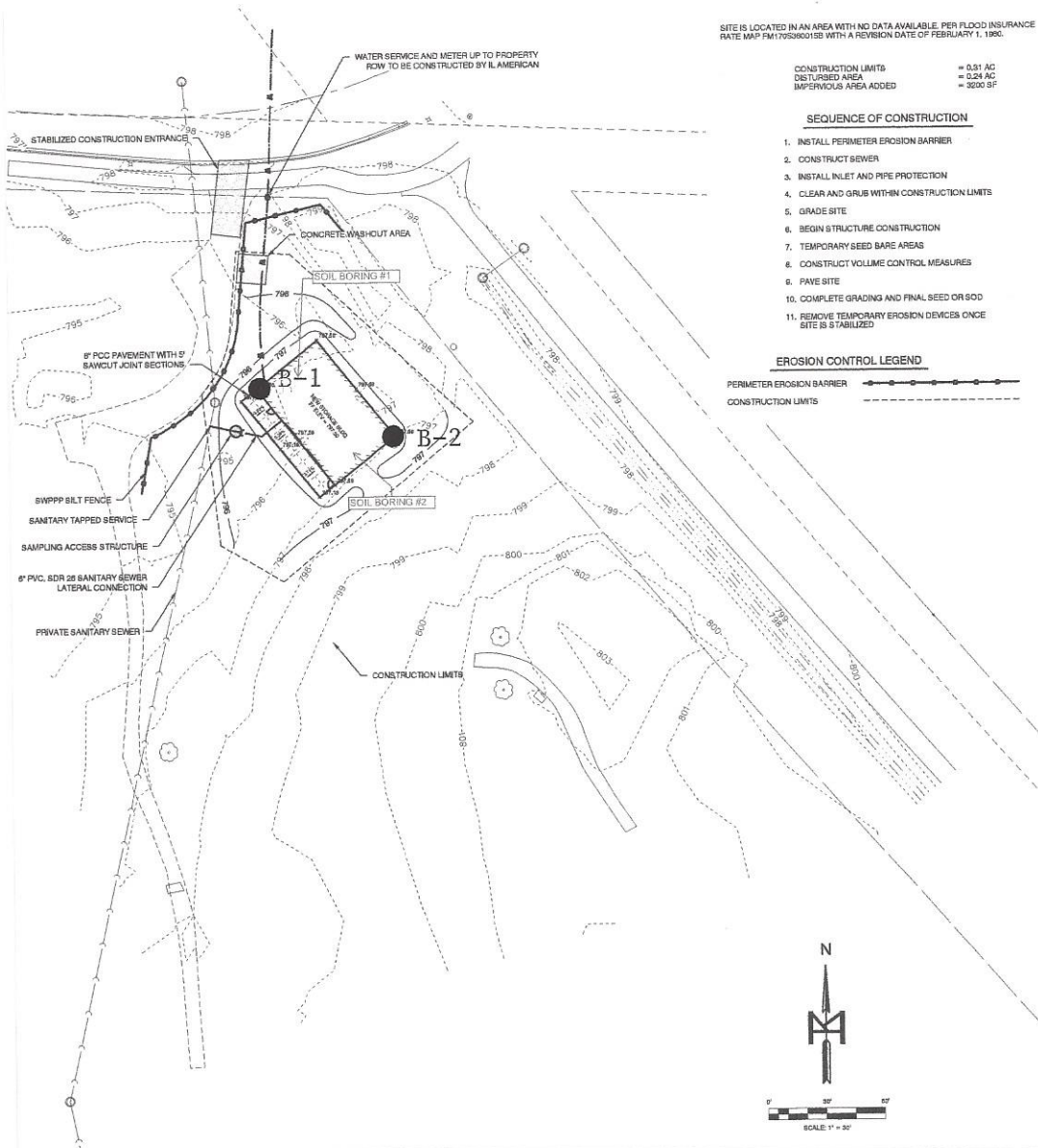
PROJECT
Donovan Park Storage
Building

PROJECT LOCATION
Peoria, Illinois



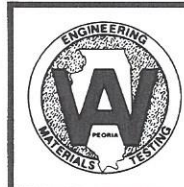
DATE July 1, 2020
W. & A. FILE NO. 8329
SCALE None

PLOT PLAN



● Exploratory Soil Boring Locations

BORING NO. B-01
DATE 06-17-2020
W. & A. FILE NO. 8329
SHEET 1 **OF** 2



WHITNEY & ASSOCIATES

INCORPORATED

2406 West Nebraska Avenue
 PEORIA, ILLINOIS 61604

BORING LOG

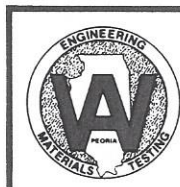
PROJECT DONOVAN PARK STORAGE BUILDING **LOCATION** Peoria, Illinois
BORING LOCATION See Plot Plan Sheet **DRILLED BY** Fehl
BORING TYPE Hollow Stem Augers With Auto Hammer **WEATHER CONDITIONS** Partly Sunny & Mild
SOIL CLASSIFICATION SYSTEM USCS / USBSC **SEEPAGE WATER ENCOUNTERED AT ELEVATION** (-)12.0 Ft.
GROUND SURFACE ELEVATION 796+ **GROUND WATER ELEVATION AT** 1 **HRS.** (-) 8.2 Ft.
BORING DISCONTINUED AT ELEVATION 780+ **GROUND WATER ELEVATION AT COMPLETION** (-)10.3 Ft.

DESCRIPTION	DEPTH IN FEET	SAMPLE TYPE	N	Qp	Qu	Dd	Mc
Brown SANDY SILTY CLAY Organic Topsoil With Fine Gravel and Crushed Limestone	12"						
Very Stiff, Dark Gray LEAN CLAY - CL (Silty Clay Loam) Probable Fill	3	SS	8	2.6	2.4	98	22
Stiff, Gray, Dark Gray and Light Brown LEAN CLAY - CL (Silty Clay)	6	SS	7	2.1	1.9	95	25
Medium, Light Brown and Gray Mottled Dark Brown LEAN CLAY - CL (Silty Clay Loam)	9	SS	5	0.9	0.7	92	28
	12	SS	4	0.7	0.6	91	28
Stiff, Light Brown and Gray SILTY CLAY - CL-ML (Silt)	15	SS	6	1.2	1.0	101	22
Medium-Density, Light Brown, Medium- To Coarse- Grained SAND With Considerable Silt - SM	18	SS	15	-	-	-	12
EXPLORATORY BORING DISCONTINUED							

N - BLOWS DELIVERED PER FOOT BY A 140 LB. HAMMER
 FALLING 30 INCHES
 SS - SPLIT SPOON SAMPLE
 ST - SHELBY TUBE SAMPLE

Qp - CALIBRATED PENETROMETER READING - T.S.F.
 Qu - UNCONFINED COMPRESSIVE STRENGTH - T.S.F.
 Dd - NATURAL DRY DENSITY - P.C.F.
 Mc - NATURAL MOISTURE CONTENT - %

WHITNEY & ASSOCIATES
 PEORIA, ILLINOIS



WHITNEY & ASSOCIATES

INCORPORATED

2406 West Nebraska Avenue
PEORIA, ILLINOIS 61604

BORING LOG

BORING NO. B-02

DATE 06-17-2020

W. & A. FILE NO. 8329

SHEET 2 OF 2

PROJECT DONOVAN PARK STORAGE BUILDING

LOCATION Peoria, Illinois

BORING LOCATION See Plot Plan Sheet

DRILLED BY Fehl

BORING TYPE Hollow Stem Augers With Auto Hammer

WEATHER CONDITIONS Partly Sunny & Mild

SOIL CLASSIFICATION SYSTEM USCS / USBSC

SEEPAGE WATER ENCOUNTERED AT ELEVATION None

GROUND SURFACE ELEVATION 797+

GROUND WATER ELEVATION AT - HRS. -

BORING DISCONTINUED AT ELEVATION 781+

GROUND WATER ELEVATION AT COMPLETION None

DESCRIPTION	DEPTH IN FEET	SAMPLE TYPE	N	Qp	Qu	Dd	Mc
Brown LEAN CLAY Organic Topsoil	10"						
Stiff, Light Brown and Gray Mottled Dark Brown LEAN CLAY - CL (Silty Clay)	3	SS	6	1.3	1.2	96	25
Medium, Light Brown and Gray LEAN CLAY - CL (Silty Clay Loam)	6	SS	4	0.8	0.7	94	27
Stiff, Light Brown and Gray LEAN CLAY - CL (Silty Clay Loam)	9	SS	6	1.3	1.1	97	25
Stiff, Brown LEAN CLAY WITH SAND - CL (Glacial Till)	12	SS	8	2.1	1.9	117	15
Very Stiff, Brown LEAN CLAY WITH SAND - CL (Glacial Till)	15	SS	11	2.8	2.6	120	13
		SS	9	2.6	2.5	119	14
EXPLORATORY BORING DISCONTINUED	18						

N - BLOWS DELIVERED PER FOOT BY A 140 LB. HAMMER
FALLING 30 INCHES

SS - SPLIT SPOON SAMPLE

ST - SHELBY TUBE SAMPLE

Qp - CALIBRATED PENETROMETER READING - T.S.F.

Qu - UNCONFINED COMPRESSIVE STRENGTH - T.S.F.

Dd - NATURAL DRY DENSITY - P.C.F.

Mc - NATURAL MOISTURE CONTENT - %

WHITNEY & ASSOCIATES
PEORIA, ILLINOIS

TELEPHONE
309 673-2131

TESTS
DESIGN
REPORTS
ANALYSIS
INSPECTION
CONSULTATION
INVESTIGATIONS



WHITNEY & ASSOCIATES INCORPORATED

2406 West Nebraska Avenue
PEORIA, ILLINOIS 61604

SPECIALISTS IN
SOILS - PORTLAND CEMENT CONCRETE
STEEL - BITUMINOUS CONCRETE
CONSTRUCTION MATERIALS
AGGREGATES - ASPHALT - POZ-O-PAC

SOILS AND GRAVEL SURVEYS
MATERIALS QUALITY CONTROL
SOIL MECHANICS AND
FOUNDATION ENGINEERING
DRILLING - CORING - TESTING

MAJOR DIVISIONS	GROUP SYMBOLS	DESCRIPTIONS
COARSE - GRAINED SOILS (MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE)	GW	WELL - GRADED GRAVELS, GRAVEL - SAND MIXTURES
	GP	POORLY - GRADED GRAVELS, GRAVEL - SAND MIXTURES
	GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
	GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SW	WELL - GRADED SANDS, GRAVELLY SANDS
	SP	POORLY - GRADED SANDS, GRAVELLY SANDS
	SM	SILTY - SANDS, SAND - SILT MIXTURES
	SC	CLAYEY - SANDS, SAND - CLAY MIXTURES
FINE - GRAINED SOILS (MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE)	ML	INORGANIC SILTS AND FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS
	CL	INORGANIC CLAYS, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
	OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS
	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SILTY SOILS, ELASTIC SILTS
	CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
	OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, SILTS
HIGHLY ORGANIC SOILS (LIQUID LIMIT GREATER THAN 50)	PT	PEAT AND OTHER HIGHLY ORGANIC SOILS

COARSE - GRAINED SOILS CLASSIFICATION

FRACTION SMALLER THAN
NO. 200 SIEVE SIZE

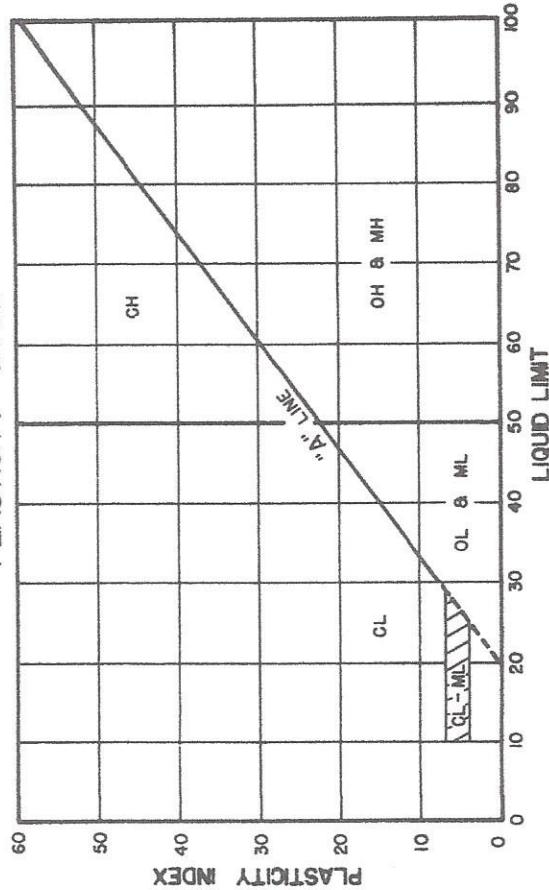
LESS THAN 5% GW, GP, SW, SP
MORE THAN 12% GM, GC, SM, SC
BETWEEN 5% & 12% BORDERLINE CASES
REQUIRING DUAL
SYMBOLS

$$GW-CU = \frac{D_{60}}{D_{10}} \text{ GREATER THAN } 4; C_c = \frac{(D_{30})^2}{D_{60}D_{10}} \text{ BETWEEN } 1 \text{ \& } 3$$

$$SW-CU = \frac{D_{60}}{D_{10}} \text{ GREATER THAN } 6; C_c = \frac{(D_{30})^2}{D_{60}D_{10}} \text{ BETWEEN } 1 \text{ \& } 3$$

UNIFIED
SOIL CLASSIFICATION SYSTEM
DEVELOPED BY
DR. ARTHUR CASAGRANDE

PLASTICITY CHART



TELEPHONE
309 673-2131

TESTS
DESIGN
REPORTS
ANALYSIS
INSPECTION
CONSULTATION
INVESTIGATIONS

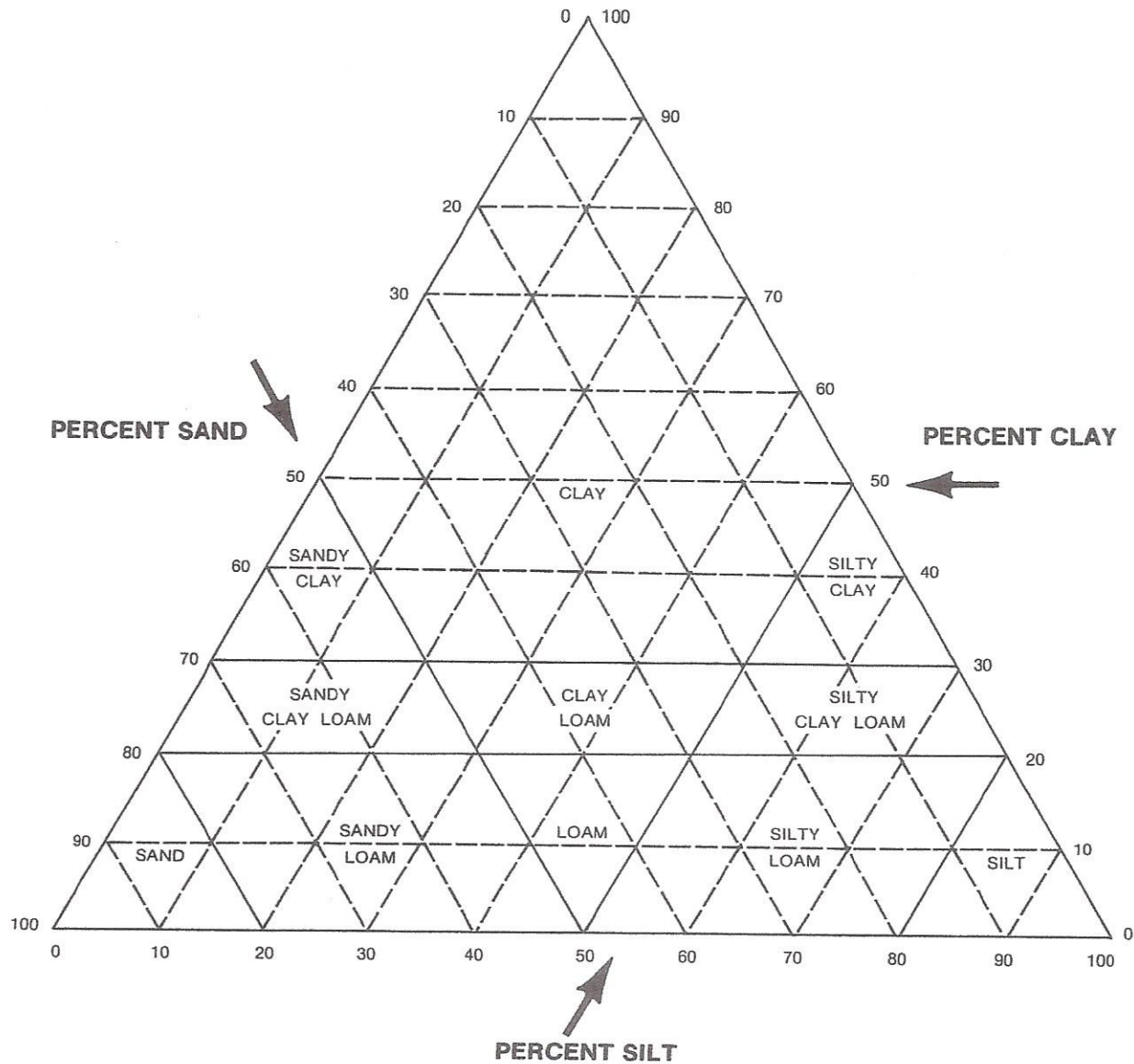


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SPECIALISTS IN
SOILS - PORTLAND CEMENT CONCRETE
STEEL - BITUMINOUS CONCRETE
CONSTRUCTION MATERIALS
AGGREGATES - ASPHALT - POZ-O-PAC

SOILS AND GRAVEL SURVEYS
MATERIALS QUALITY CONTROL
SOIL MECHANICS AND
FOUNDATION ENGINEERING
DRILLING - CORING - TESTING



TRIANGULAR TEXTURAL CLASSIFICATION CHART

DEVELOPED BY
UNITED STATES BUREAU OF SOILS AND CHEMISTRY
(U.S.B.S.C.)

WHITNEY & ASSOCIATES
PEORIA, ILLINOIS

TELEPHONE

309-673-2131

TESTS * INVESTIGATIONS
ANALYSIS * DESIGN * EVALUATIONS
CONSULTATION * REPORTS * INSPECTIONS
ARBITRATION * EXPERT WITNESS TESTIMONY

SOILS * PORTLAND CEMENT CONCRETE
BITUMINOUS CONCRETE * STEEL
ASPHALT * AGGREGATES * EMULSIONS
POZOLANIC MATERIALS * LIME

**WHITNEY & ASSOCIATES****INCORPORATED**

2406 West Nebraska Avenue
PEORIA, ILLINOIS 61604-3193

TELEFAX

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GEOTECHNICAL ENGINEERING
CONSTRUCTION QUALITY CONTROL
SUBSURFACE EXPLORATIONS
ENVIRONMENTAL INVESTIGATIONS

MONITORING WELL INSTALLATIONS
BUILT-UP ROOF INVESTIGATIONS
WELDER CERTIFICATIONS
INSURANCE INVESTIGATIONS

SOIL MECHANICS CLASSIFICATION SYSTEMS**TEXTURAL CLASSIFICATION**

DESCRIPTION	SIZE
BOULDERS	LARGER THAN 3.0 IN.
COARSE GRAVEL	0.75 IN. — 3.0 IN.
FINE GRAVEL	NO. 4 SIEVE — 0.75 IN.
COARSE SAND	NO. 10 SIEVE — NO. 4 SIEVE
MEDIUM SAND	NO. 40 SIEVE — NO. 10 SIEVE
FINE SAND	NO. 200 SIEVE — NO. 40 SIEVE
SILT	LESS THAN NO. 200 SIEVE — NONPLASTIC
CLAY	LESS THAN NO. 200 SIEVE — PLASTIC

QUANTITY CLASSIFICATION

DESCRIPTION	PERCENT
TRACE	0 - 5
SMALL AMOUNT	5 - 10
SOME	10 - 15
CONSIDERABLE	15 - 20
SUBORDINATE TEXTURAL CLASSIFICATION	OVER 20

RELATIVE DENSITY CLASSIFICATION — COHESIONLESS SOILS

N. BLOWS / FT.	RELATIVE DENSITY
0 - 4	VERY LOOSE
4 - 10	LOOSE
10 - 30	MEDIUM
30 - 50	DENSE
OVER 50	VERY DENSE

*** CONSISTENCY CLASSIFICATION — COHESIVE SOILS**

N. BLOWS / FT.	CONSISTENCY	Q _u , TONS / SQ. FT.
0 - 2	VERY SOFT	0.00 - 0.25
2 - 4	SOFT	0.25 - 0.50
4 - 8	MEDIUM	0.50 - 1.00
8 - 15	STIFF	1.00 - 2.00
15 - 30	VERY STIFF	2.00 - 4.00
OVER 30	HARD	OVER - 4.00

*** NOTE:**

THIS CLASSIFICATION SYSTEM IS TO BE USED SOLELY AS A GUIDE AND IS NOT ADEQUATE FOR PURPOSES OF DESIGN.

Donovan Utility Storage Building

Peoria Park District
5808 N. Knoxville Ave.
Peoria, IL 61614

JOB No.

Donovan Storage Facility - 2015904.22

DATE

14 July 2020

ARCHITECT/ENGINEER

apaceDesign ARCHITECTS + ENGINEERS
2112 E. War Memorial Dr.
Peoria, IL 61614
tel 309.685.4722
fax 309.685.4784

INDEX OF DRAWINGS:

GENERAL

G000 - TITLE SHEET

CIVIL

C1 - EXISTING CONDITIONS AND DEMO. PLAN
C2 - SITE LAYOUT PLAN AND SWPPP PLAN
C3 - DETAILS

ARCHITECTURAL

A100 - PLANS, ELEVATIONS
A101 - ROOF PLAN, SCHEDULES & DETAILS
A102 - SECTION
A103 - SECTION
A400 - REFLECTED CEILING PLAN
A600 - INTERIOR ELEVATIONS AND DETAILS

MECHANICAL

V100 - PLAN & DETAIL
P100 - PLAN & SCHEMATICS

ELECTRICAL

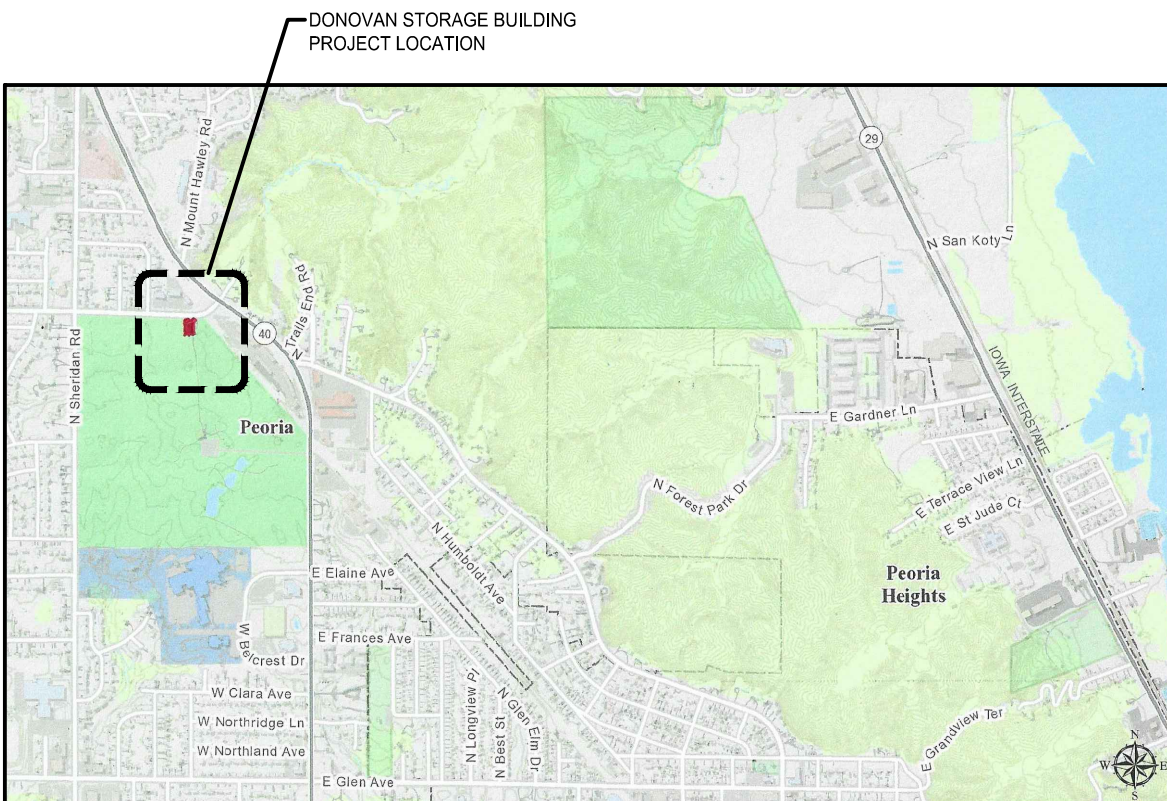
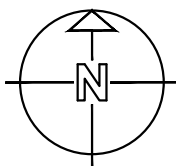
E101 - FLOOR PLAN - ELECTRICAL LIGHTING
E102 - FLOOR PLAN - ELECTRICAL POWER
E200 - PANEL SCHEDULES & SERVICE DIAGRAMS
E400 - ELECTRICAL DETAILS
E500 - MATERIAL SCHEDULES AND GENERAL NOTES

BUILDING CODE REVIEW - 2012 INTERNATIONAL BUILDING CODE

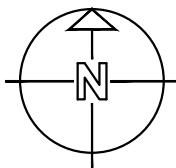
- BUILDING PERMIT INFORMATION - IBC 2012, IECC 2018, IMC 2012
- PROPERTY ZONED - R2
- BUILDING TOTAL GROSS SQ. FEET - 3,200
- STORAGE USE AREA 2,487 SQ. FT.
- OFFICE USE AREA 582 SQ. FT.
- OCCUPANT LOAD MAX. PER TABLE 1,004.2
- BUSINESS (OFFICE) 100 GROSS SQ.FT. PER PERSON = 6 PEOPLE
- STORAGE (AS BUILDING USE) - 300 GROSS SQ.FT. PER PERSON = 9 PEOPLE
- TOTAL OCCUPANT LOAD = 15 PEOPLE
- TABLE 503: 5,500 SQ. FT. MAX / 1 STORY / TYPE 5B CONSTRUCTION
- UTILITY BUILDING - U
- FIRE ALARM DETECTION NOT REQ'D PER 907.2
- TABLE 508.4 REQUIRED FIRE SEPARATION OF OCCUPANCIES - 2HR SEPARATION REQ'D BETWEEN. USE GROUP U+B.
- CORRIDOR FIRE RATING NOT REQ'D SINCE BUILDING SERVES LESS THAN 30 OCCUPANTS.
- COMMON PATH OF EGRESS TRAVEL TABLE 1014.3 < 30 PEOPLE = 100FT.
- EXIT ACCESS TRAVEL DISTANCE - TABLE 1016.2 (U = 300FT. / B = 200FT.)
- DEAD END CORRIDORS; MAX. 20'-0"
- EGRESS WIDTH TABLE 1018.2 - CORRIDOR WIDTH SHALL BE MIN. 44"
- BUILDING ENVELOPE FENESTRATION
- OFFICE AREAS IS CONDITIONED / UTILITY STORAGE AREA IS NOT CONDITIONED - STORAGE AREA IS NOT REQUIRED TO MEET THE ENERGY CODE (UNCONDITIONED SPACES ADJACENT TO CONDITIONED SHALL APPLY)
- WALLS - WOOD STUD AND R20 FIBERGLASS BATT @ OFFICE
- TABLE C402.1.4 BLDG. OPAQUE SWINGING DOORS - UFACTOR MAX .37



LOCATION IN STATE



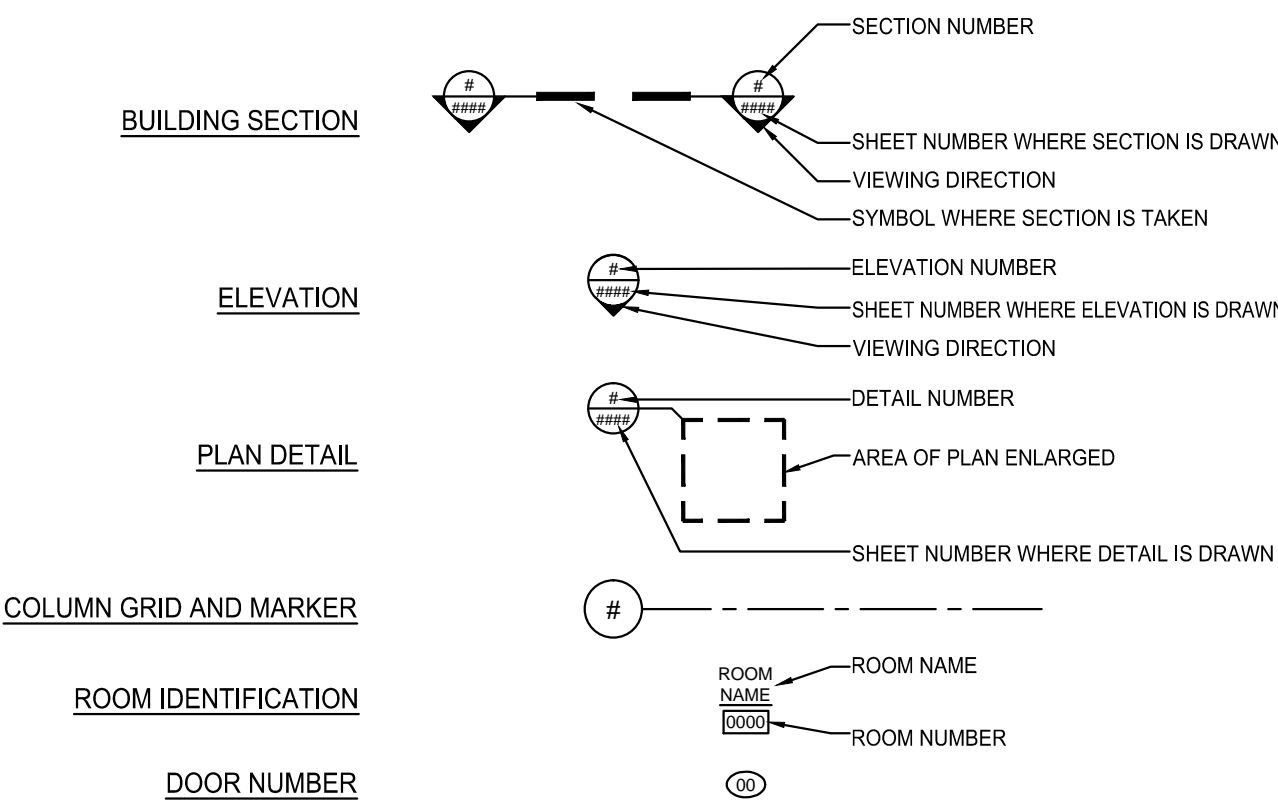
LOCATION IN CITY



ABBREVIATIONS:

A.D.A.	AMERICANS WITH DISABILITIES ACT	L.F.	LINEAR FEET
A.F.F.	ABOVE FINISHED FLOOR	MANUF.	MANUFACTURE (R)
ALT.	ALTERNATE	MAS.	MASONRY
ALUM.	ALUMINUM	MAX.	MAXIMUM
APPROX.	APPROXIMATE	M.B.	MARKER BOARD
ARCH.	ARCHITECT (URAL)	MECH.	MECHANICAL
BRNG.	BEARING	MIN.	MINIMUM
B.O.	BY OWNER	MISC.	MISCELLANEOUS
C	CENTER LINE	MTL.; MET.	METAL
C/C	CENTER-TO-CENTER	MNTD.	MOUNTED
C.G.	CORNER GUARD	No.	NUMBER
C.R.	CLASSROOM	N.I.C.	NOT IN CONTRACT
CLNG.	CEILING	O.C.	ON CENTER
CLR.	CLEAR (ANCE)	OPNG.	OPENING
C.M.U.	CONCRETE MASONRY UNIT	OPP.	OPPOSITE
COL(S).	COLUMN (S)	O.D.	OUTSIDE DIAMETER
COMP.	COMPRESSED, COMPACTED	O.S.B.	ORIENTED STRAND BOARD
CONC.	CONCRETE	P.LAM.	PLASTIC LAMINATE
CONSTR.	CONSTRUCTION	PLUMB.	PLUMBING
CONT.	CONTINUE (OUS)	PLYWD.	PLYWOOD
COORD.	COORDINATE	PNT., PT.	PAINT
CPT.	CARPET	P.C.	PORTLAND CEMENT
C.T.	CERAMIC TILE	RAD.	RADIUS
DBL.	DOUBLE	REINF.	REINFORCE (D); (ING)
DEP.	DEEP	REQD.	REQUIRED
DEMO	DEMOLITION	REF.	REFERENCE
DET.	DETAIL	R.B.	RESILIENT BASE
DIA.	DIAMETER	RM.	ROOM
DR. (S)	DOOR (S)	R.T.U.	ROOF-TOP UNIT
D.S.	DOWNSPOUT	SCHED.	SCHEDULE (D)
DN.	DOWN	SLNT.	SEALANT
E.A.	EACH	S.F.	SQUARE FEET
E.F.	EXHAUST FAN	SHT.	SHEET
E.I.F.S.	EXTERIOR INSULATION FINISH SYSTEM	SIM.	SIMILAR
ELEC.	ELECTRICAL	S.C.WD.	SOLID-CORE WOOD
EL., ELEV. (S)	ELEVATION (S)	SPEC.	SPECIFICATION (S)
EQ.	EQUAL	SO.	SQUARE
EQUIP.	EQUIPMENT	S.STL.	STAINLESS-STEEL
EXIST.	EXISTING	STL.	STEEL
EXT.	EXTERIOR	STOR.	STORAGE
F.B.	FACE-BRICK	STRUCT.	STRUCTURAL
F.D.	FLOOR DRAIN; FILE DRAWER	SUSP.	SUSPENDED
FDN.	FOUNDATION	T.	TALL
F.E.C.	FIRE EXTINGUISHER CABINET	T+G	TONGUE-AND-GROOVE
FIN.	FINISHED (ED)	T.B.	TACK BOARD
FLR. (ING)	FLOOR (ING)	T.B.R.	TO BE REMOVED
F.R.P.	FIBERGLASS RE-INFORCED PANEL	THK.	THICK (NESS)
FTG.	FOOTING	T.O.	TOP OF
GA.	GAUGE	TYP.	TYPICAL
GALV.	GALVANIZED	U.O.N.	UNLESS OTHERWISE NOTED
G.B.	GYPSON BOARD	V.B.	VINYL BASE
GL.	GLASS; GLAZING	V.C.T.	VINYL COMPOSITION TILE
GYP.	GYPSON	VERT.	VERTICAL
H.	HIGH	VEST.	VESTIBULE
HGT.	HEIGHT	W.C.	WALL COVERING
HR.	HOUR	W.W.F.	WELDED WIRE FABRIC
HORIZ.	HORIZONTAL	W.	WIDTH
H.M.	HOLLOW METAL	W/	WITH
JNT.	JOINT	WIN. (S)	WINDOW (S)
INSUL.	INSULATION	W/O	WITHOUT
L.	LENGTH	WD.	WOOD

ARCHITECTURAL LEGEND:



MATERIAL DESIGNATIONS:

	CONCRETE		ROUGH WOOD (DISCONTINUOUS)
	SAND OR GROUT		ROUGH WOOD (CONTINUOUS)
	GRAVEL FILL		CONCRETE MASONRY UNITS (CMU)
	INSULATION (RIGID)		FACE BRICK
	INSULATION (BATT.)		

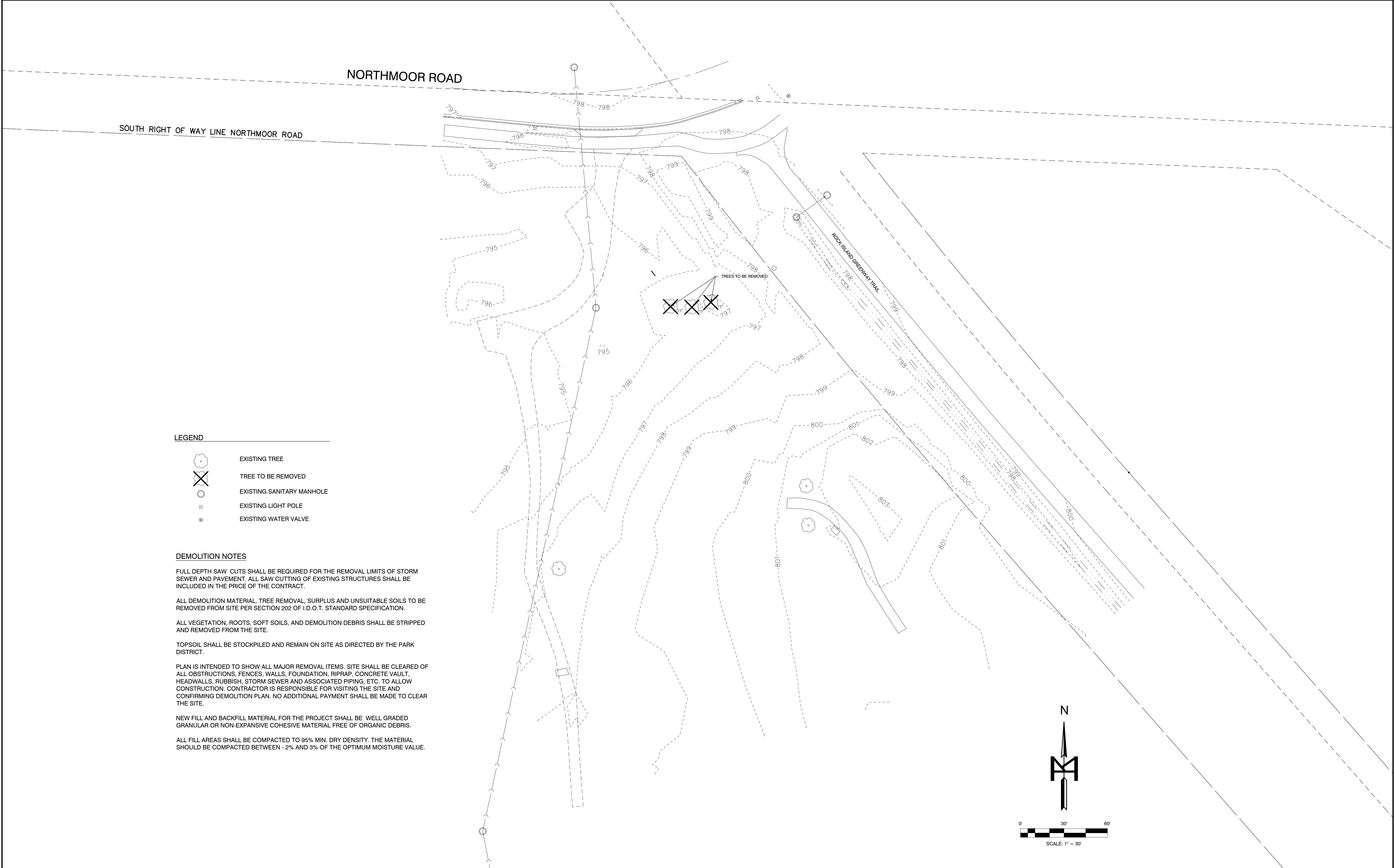
apaceDesign
architects
engineers
designers
2112 E. War Memorial Drive
Peoria, IL 61614
T: 309.685.4722 F: 309.685.4784



TITLE SHEET
Donovan Utility Storage Building
Peoria Park District
Peoria, IL 61614

NO.	ISSUE	DATE
1	BID DOCUMENTS	07.14.20

EXPIRES 11.30.20	
DATE	07.14.2020
PROJECT NO.	2015904.22
DRAWN BY	DAC
CHECKED	DBV
APPROVED	SJM
SHEET	
G000	
1 OF 1	



LEGEND

- EXISTING TREE
- TREE TO BE REMOVED
- EXISTING SANITARY MANHOLE
- EXISTING LIGHT POLE
- EXISTING WATER VALVE

DEMOLITION NOTES

FULL DEPTH SAW CUTS SHALL BE REQUIRED FOR THE REMOVAL LIMITS OF STORM SEWER AND PAVEMENT. ALL SAW CUTTING OF EXISTING STRUCTURES SHALL BE INCLUDED IN THE PRICE OF THE CONTRACT.

ALL DEMOLITION MATERIAL, TREE REMOVAL, SURPLUS AND UNSUITABLE SOILS TO BE REMOVED FROM SITE PER SECTION 202 OF I.D.O.T. STANDARD SPECIFICATION.

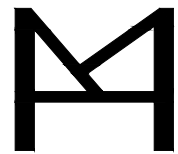
ALL VEGETATION, ROOTS, SOFT SOILS, AND DEMOLITION DEBRIS SHALL BE STRIPPED AND REMOVED FROM THE SITE.

TOPSOIL SHALL BE STOCKPILED AND REMAIN ON SITE AS DIRECTED BY THE PARK DISTRICT.

PLAN IS INTENDED TO SHOW ALL MAJOR REMOVAL ITEMS. SITE SHALL BE CLEARED OF ALL OBSTRUCTIONS, FENCES, WALLS, FOUNDATION, RIPRAP, CONCRETE VAULT, HEADWALLS, RUBBISH, STORM SEWER AND ASSOCIATED PIPING, ETC. TO ALLOW CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR VISITING THE SITE AND CONFIRMING DEMOLITION PLAN. NO ADDITIONAL PAYMENT SHALL BE MADE TO CLEAR THE SITE.

NEW FILL AND BACKFILL MATERIAL FOR THE PROJECT SHALL BE WELL GRADED GRANULAR OR NON-EXPANSIVE COHESIVE MATERIAL FREE OF ORGANIC DEBRIS.

ALL FILL AREAS SHALL BE COMPACTED TO 95% MIN. DRY DENSITY. THE MATERIAL SHOULD BE COMPACTED BETWEEN - 2% AND 3% OF THE OPTIMUM MOISTURE VALUE.



MOHR & KERR ENGINEERING & LAND SURVEYING, P.C.
5901 N. Prospect Road, Suite 6B
Peoria, Illinois 61614
www.mohrandkerr.com

Office: (309) 692-8500
Fax: (309) 692-8501
Professional Design Firm #184.005091

REV.	DATE	NATURE OF REVISION	CHECKED
FILE NAME: N:\20-119 APACE Donovan\Civil3d\DESIGN APACE DONAVAN 20-119.dwg Jul 07, 2020			

SURVEYED	MKELS
DRAWN	JRV
CHECKED	SDK
SCALE	1" = 30'
DATE	7/14/2020

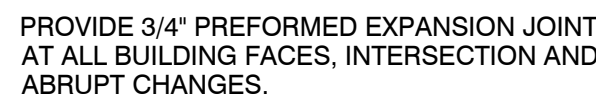
CLIENT:

APACE DONAVAN PARK
PEORIA PARK DISTRICT

TITLE:

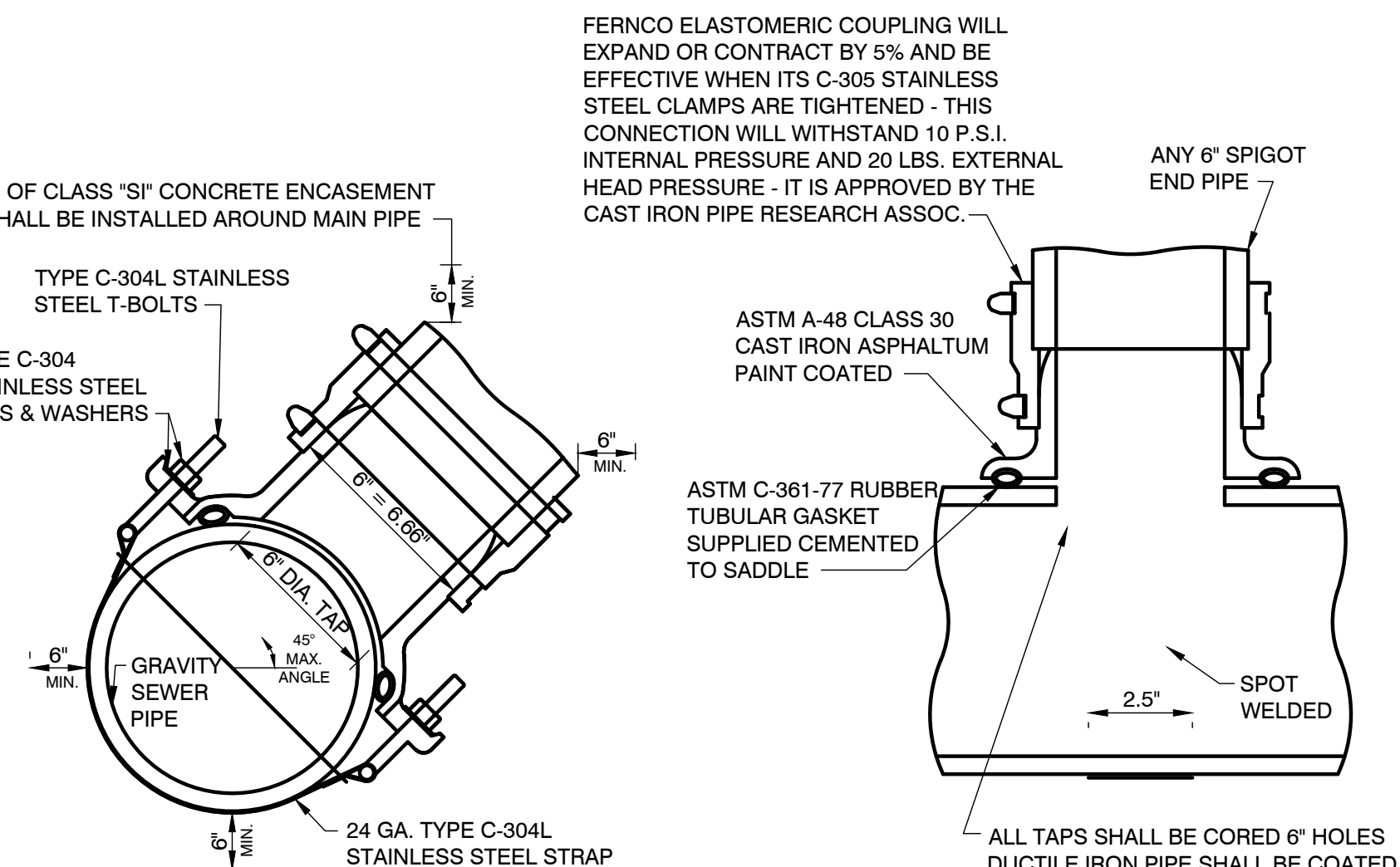
EXISTING CONDITIONS AND DEMO PLAN

PROJECT NO.	20-119
SHEET	1 OF 3
DRAWING NO.	C1



P.C.C. PAVEMENT, 6"

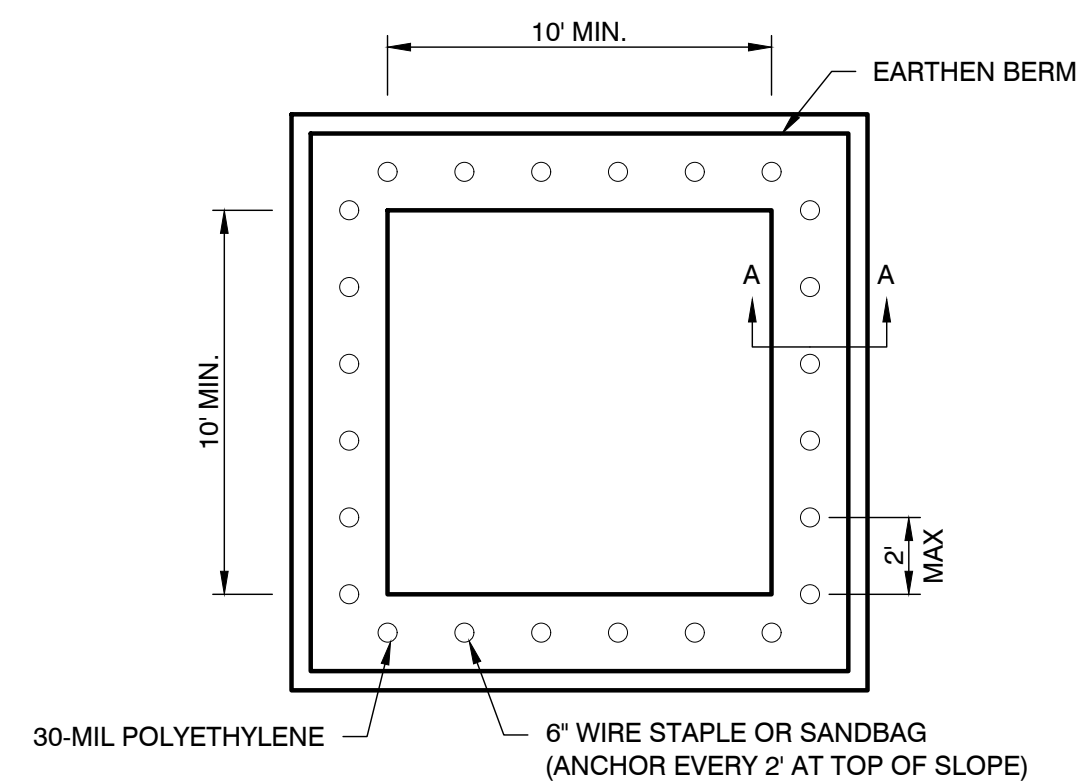
NOT TO SCALE



NOTE: TAPPED CONNECTION MUST BE APPROVED BY THE SANITARY DISTRICT

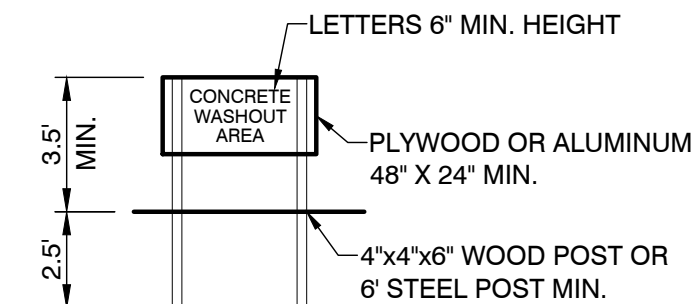
SANITARY TAPPED SERVICE DETAIL

NOT TO SCALE



PLAN VIEW

SCALE: 1:5

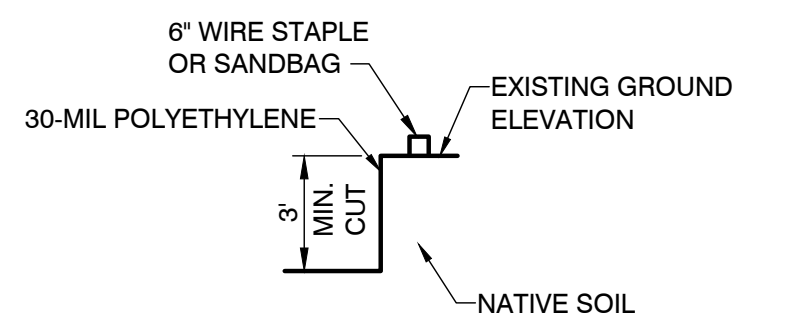
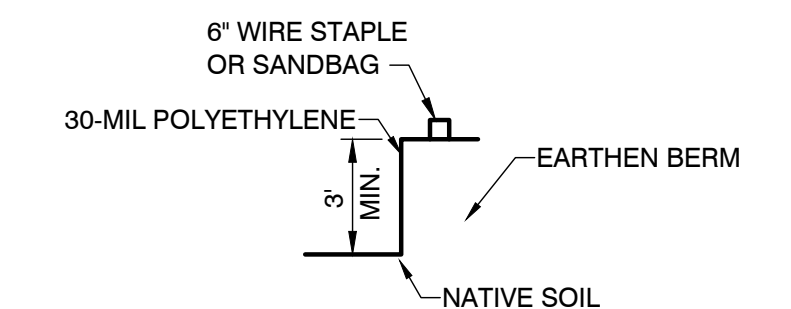


SIGN DETAIL

SCALE: 1:2

SECTION A-A - EARTHEN BERM

SCALE: 1:2



SECTION A-A - SUBGRADE

SCALE: 1:2

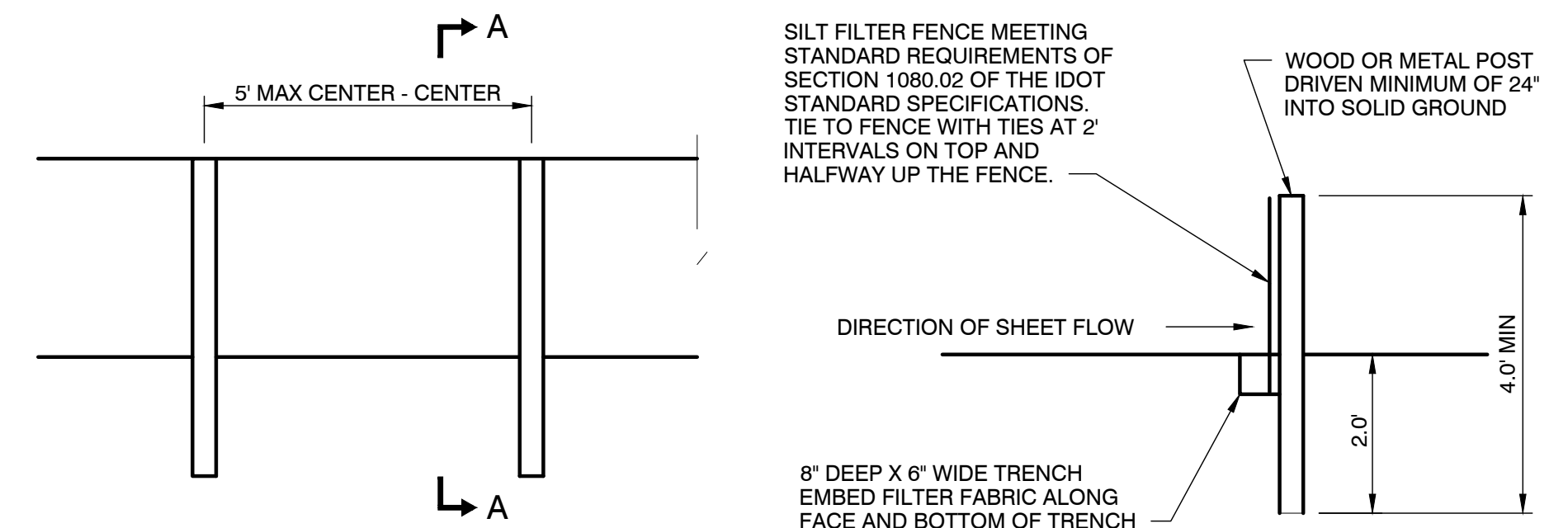
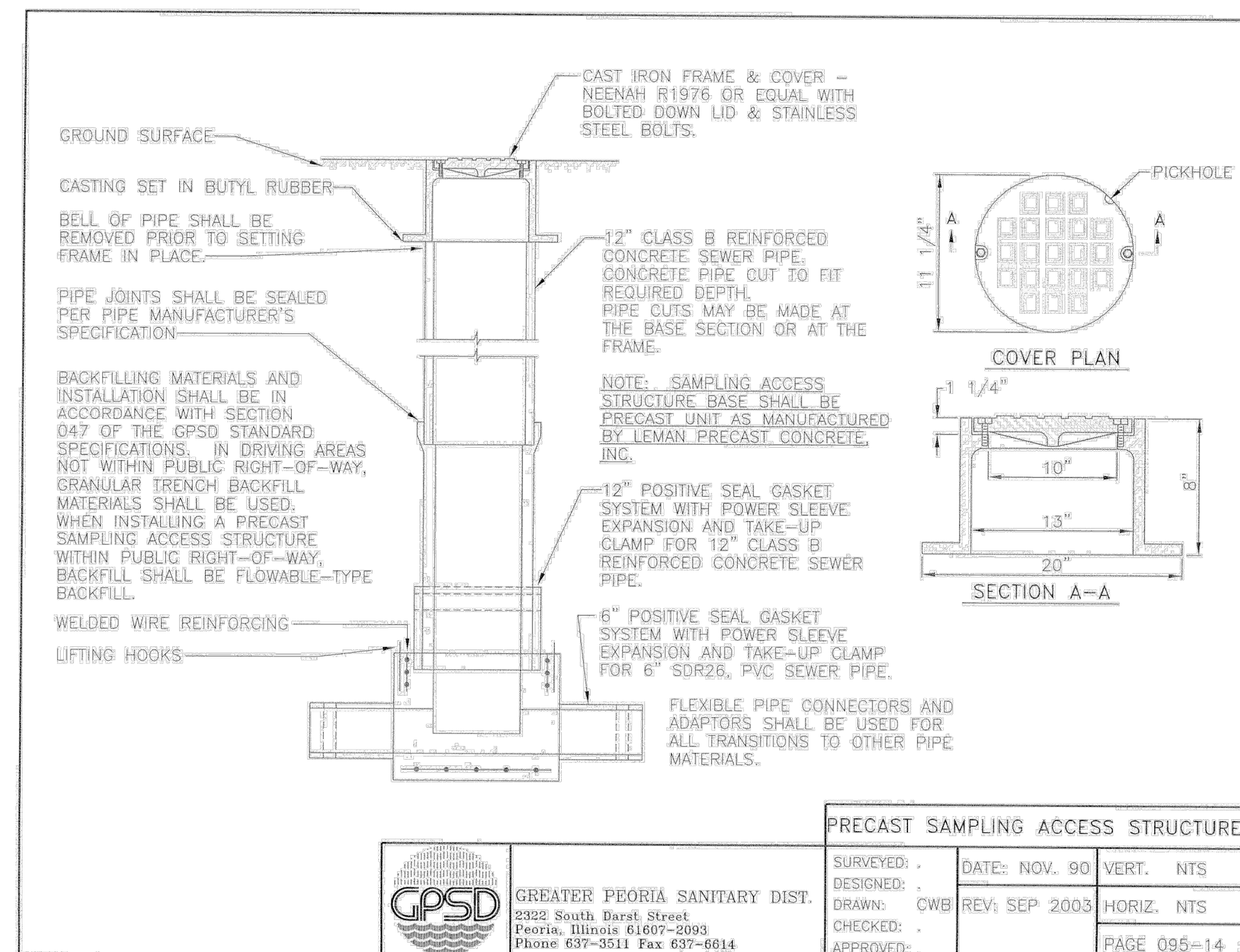
NOTES:

MAINTAINING TEMPORARY CONCRETE WASHOUT FACILITIES SHALL INCLUDE REMOVING AND DISPOSING OF HARDENED CONCRETE AND/OR SLURRY AND RETURNING THE FACILITIES TO FUNCTIONAL CONDITION.

FACILITY SHALL BE CLEANED OR RECONSTRUCTED IN A NEW AREA ONCE WASHOUT BECOMES TWO-THIRDS FULL.

TEMPORARY CONCRETE WASHOUT FACILITY - EARTHEN TYPE

SCALE: 1" = 5'



ELEVATION

SILT FENCE DETAIL

NOT TO SCALE

SECTION A-A

REV	DATE	NATURE OF REVISION	CHECKED BY
FILE NAME: N:\20-119 APACE Donovan\Civil\3d\DESIGN APACE DONOVAN 20-119.dwg Jul 07, 2020			

SURVEYED	MKELS
DRAWN	JRV
CHECKED	SDK
SCALE	N/A
DATE	7/14/2020

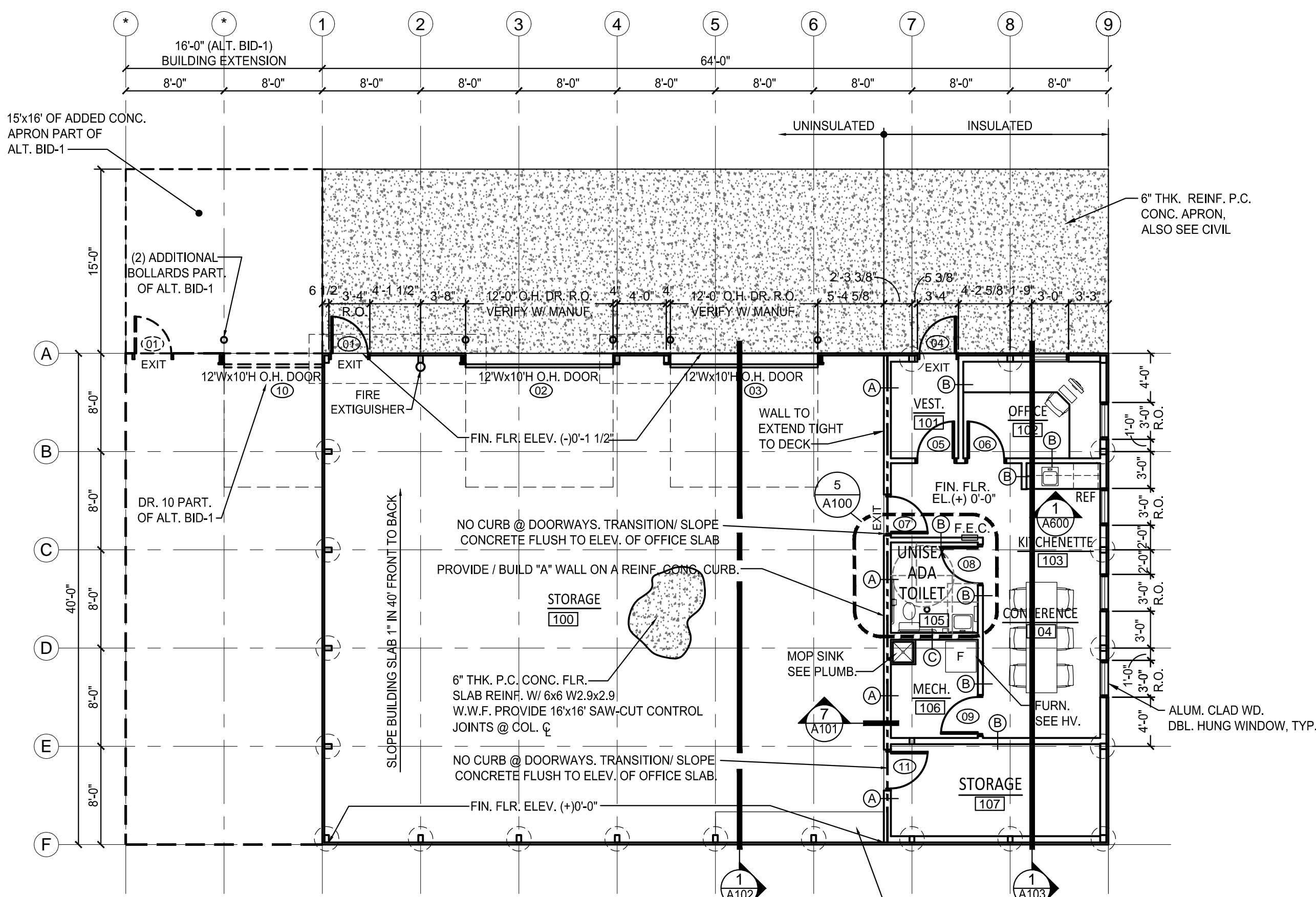
CLIENT:

APACE DONAVAN PARK
PEORIA PARK DISTRICT

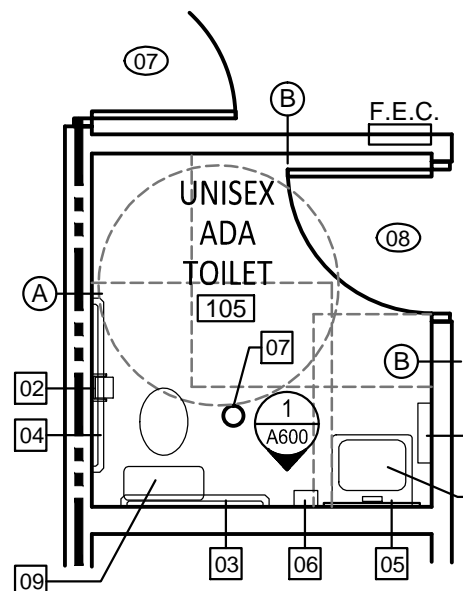
TITLE:

DETAILS

PROJECT NO. 20-119
SHEET 3 OF 3
DRAWING NO. C3



LEGEND KEY:
F.E. = FIRE EXTINGUISHER ON BRACKET BY OWNER.
F.E.C. = CONTRACTOR PROVIDED FIRE EXTINGUISHER CABINET / OWNER PROVIDED EXTINGUISHER.
○ = WALL TYPE, SEE THIS SHT.

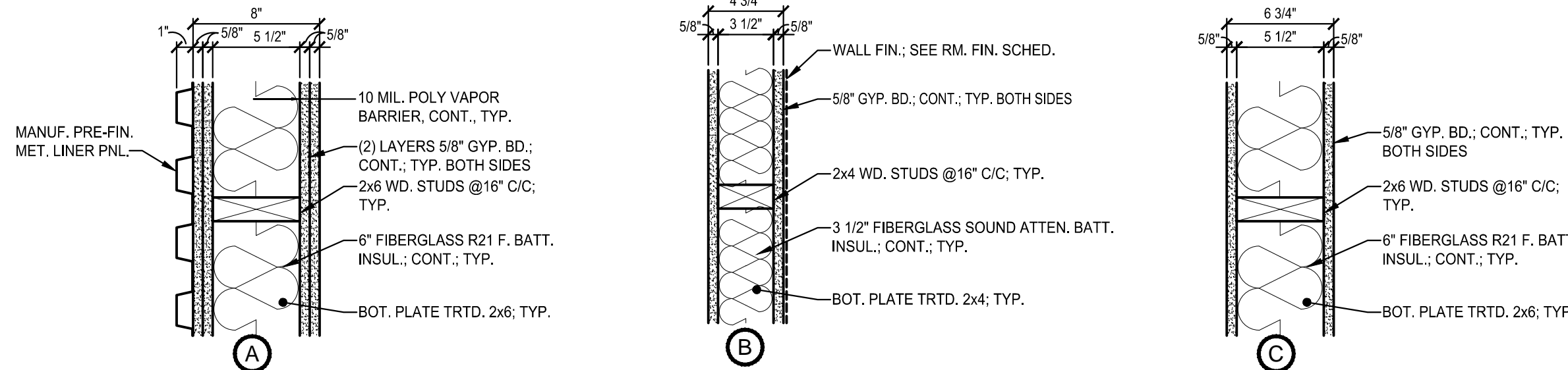


5 Partial Plan
A100 scale: 1/4" = 1'-0"

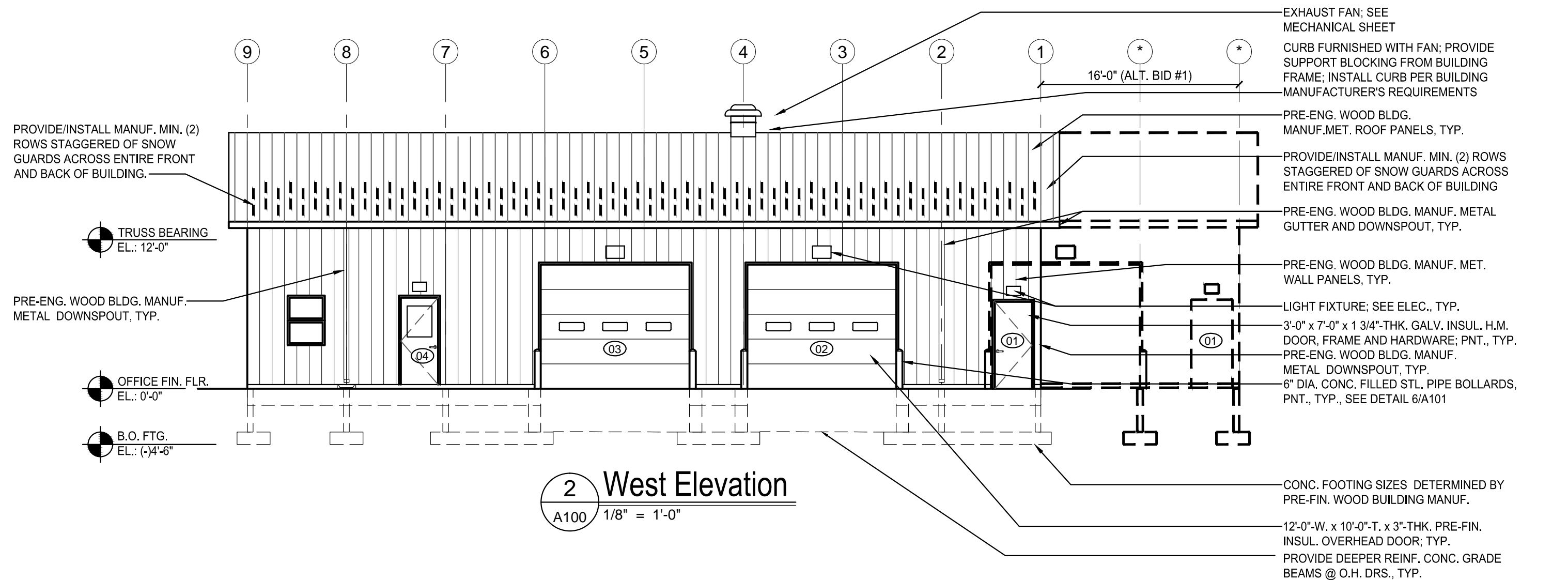
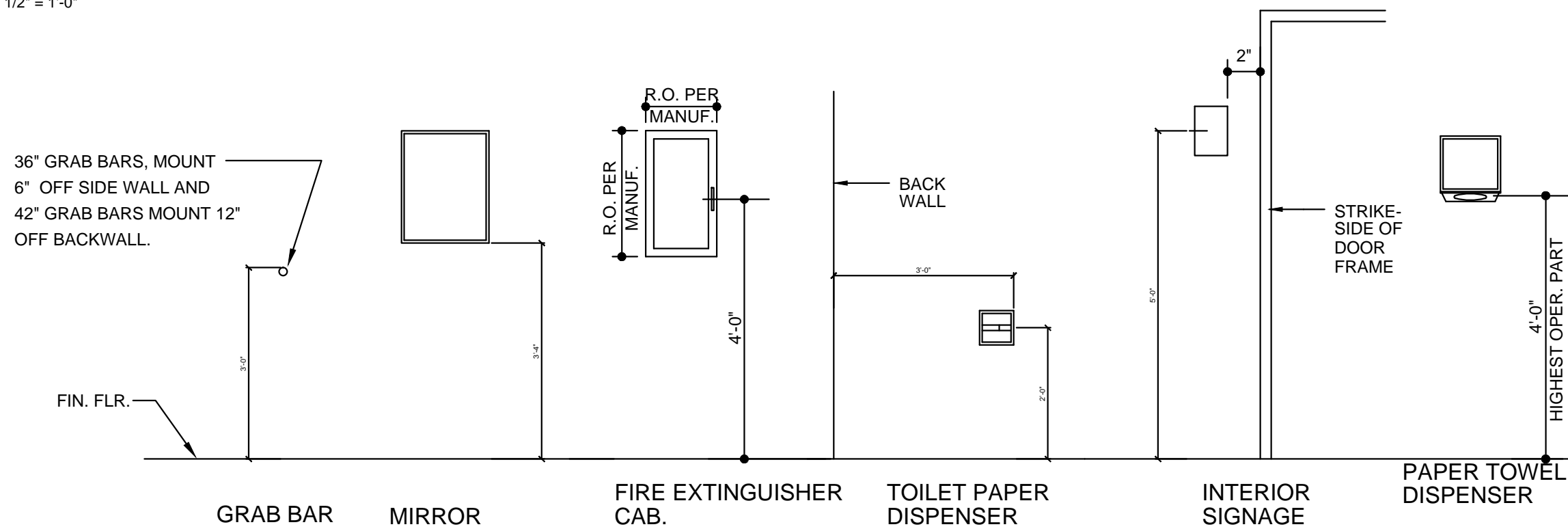
KEYED NOTES FOR 5/A100:

- 01 OWNER PROVIDED / CONTRACTOR INSTALLED PAPER TOWEL DISPENSER
- 02 OWNER PROVIDED / CONTRACTOR INSTALLED TOILET PAPER DISPENSER
- 03 CONTRACTOR PROVIDED / CONTRACTOR INSTALLED 36" GRAB BAR
- 04 CONTRACTOR PROVIDED / CONTRACTOR INSTALLED 42" GRAB BAR
- 05 CONTRACTOR PROVIDED / CONTRACTOR INSTALLED MIRROR
- 06 OWNER PROVIDED / CONTRACTOR INSTALLED SOAP DISPENSER
- 07 FLOOR DRAIN, SEE PLUMBING
- 08 LAVATORY, SEE PLUMBING
- 09 WATER CLOSET, SEE PLUMBING

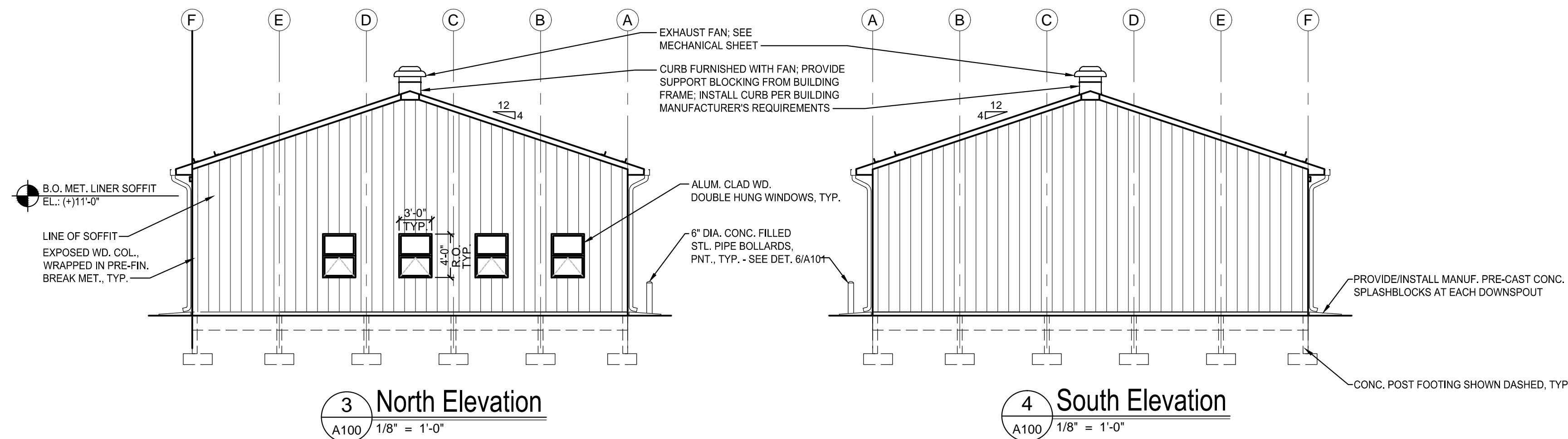
WALL TYPES:
1 1/2" = 1'-0"



TOILET ACCESSORY, SIGNAGE AND FIRE EXTINGUISHER CABINET MOUNTING SCHEDULE:
1/2" = 1'-0"

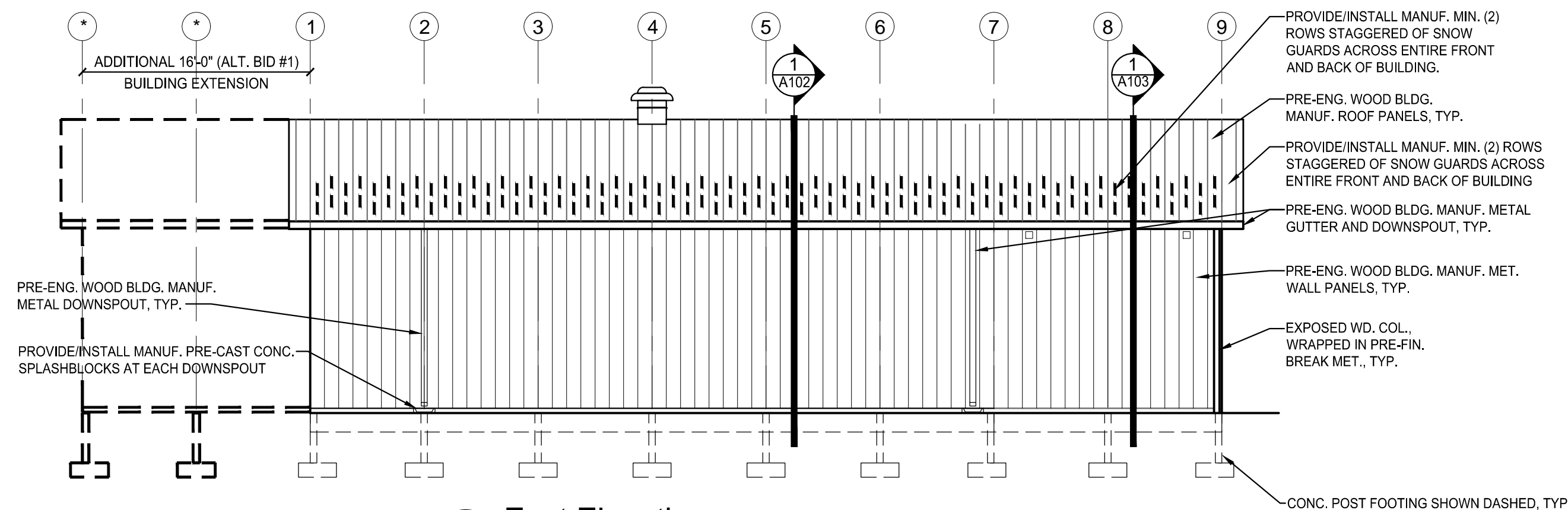


2 West Elevation
A100 1/8" = 1'-0"



3 North Elevation
A100 1/8" = 1'-0"

4 South Elevation
A100 1/8" = 1'-0"



5 East Elevation
A100 1/8" = 1'-0"

architects
engineers
designers

2012 East New Maryland Drive
Peoria, IL 61614
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FLOOR PLANS, ELEVATIONS

Donovan Utility Storage Building

Peoria Park District

Peoria, IL 61614

NO.	ISSUE	DATE
1	BID DOCUMENTS	07.14.20
2		
3		
4		
5		
6		
7		
8		
9		

DATE: 07.14.2020

PROJECT NO: 2015904.22

DRAWN BY: DAC

CHECKED: DBV

APPROVED: SJM

SHEET

A100

1 OF 6



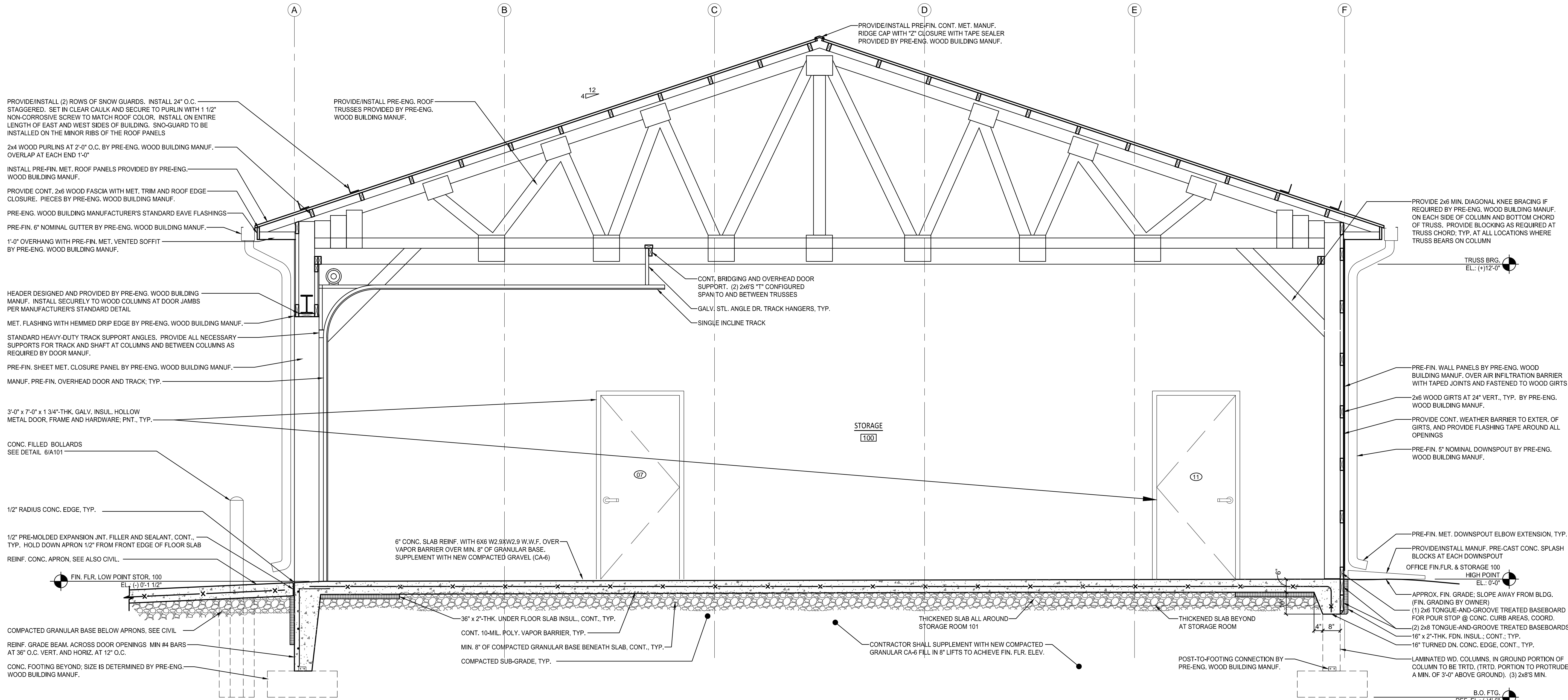
SECTION

Donovan Utility Storage Building
Peoria Park District
Peoria, IL 61614

NO.	ISSUE	DATE
1	BID DOCUMENTS	07.14.20
2		

DATE	07.14.2020	PROJECT NO.	2015904.22
DRAWN BY	DAC	SHEET	A102
CHECKED	DBV		
APPROVED	SJM		

1/2" = 1'-0"



1 Storage Section - Looking North
A102 1/2" = 1'-0"



Donovan Utility Storage Building
Peoria Park District
Peoria, IL 61614

DATE	PROJECT NO.
07.14.2020	2015904.22
DRAWN BY	SHEET A103 4 OF 6
DAC	
CHECKED	
DBV	
APPROVED	
SJM	





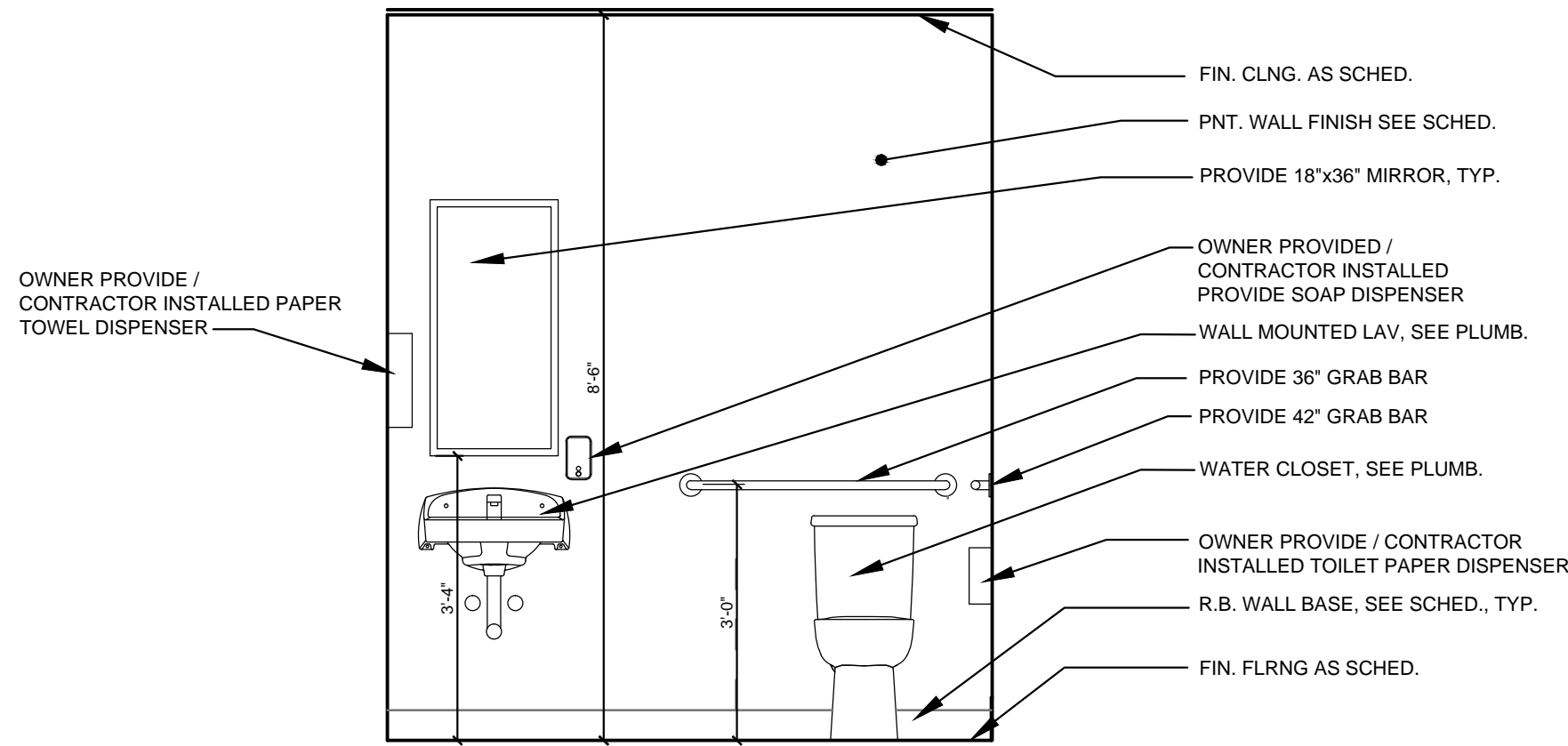
☐ **Yes**

Donovan Utility Storage Building
Peoria Park District
Peoria, IL 61614

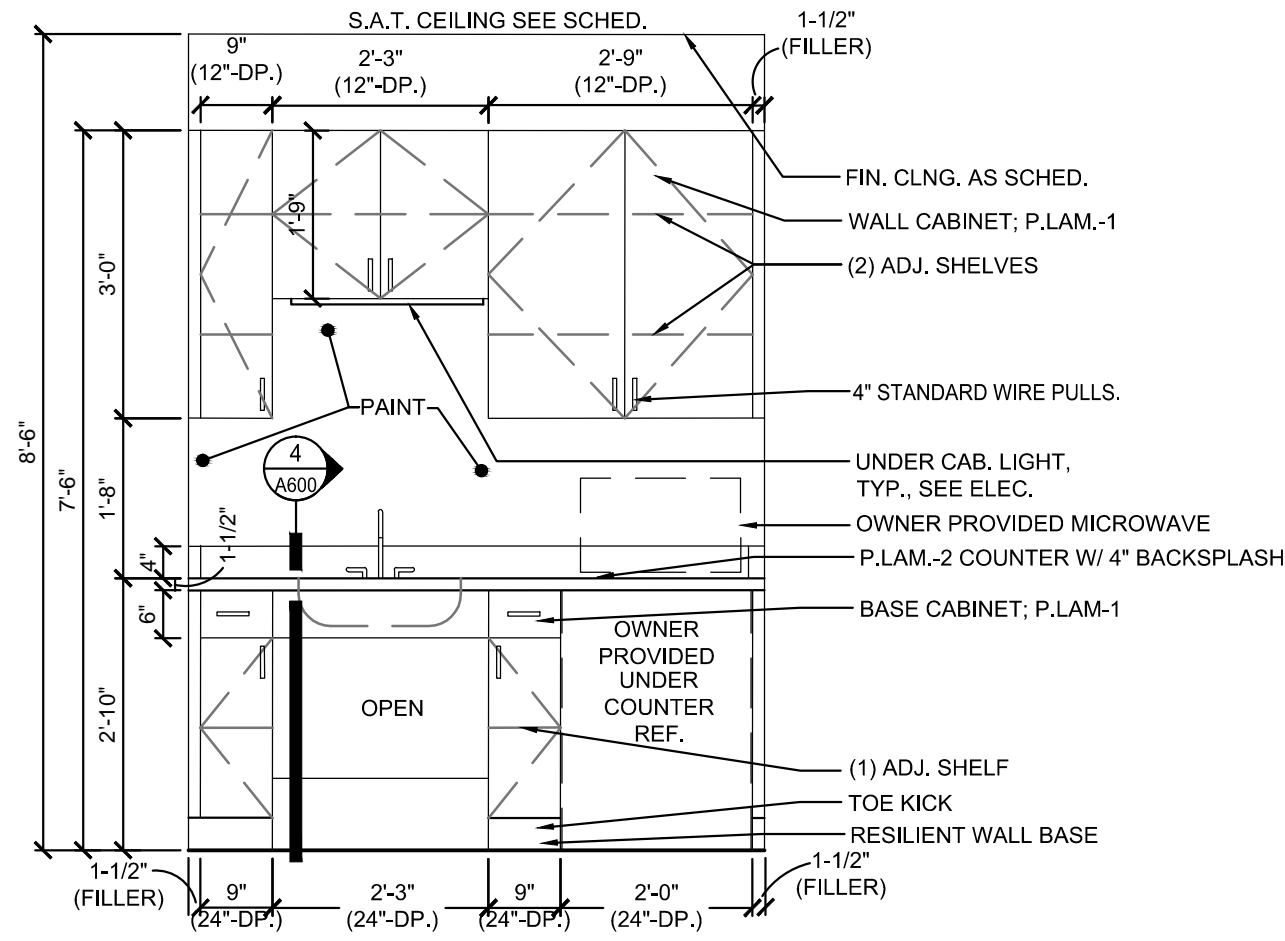
DATE	PROJECT NO.
07.14.2020	2015904.22
DRAWN BY	SHEET
DAC	
CHECKED	
DBV	A400
APPROVED	5 OF 6
SJM	

A400

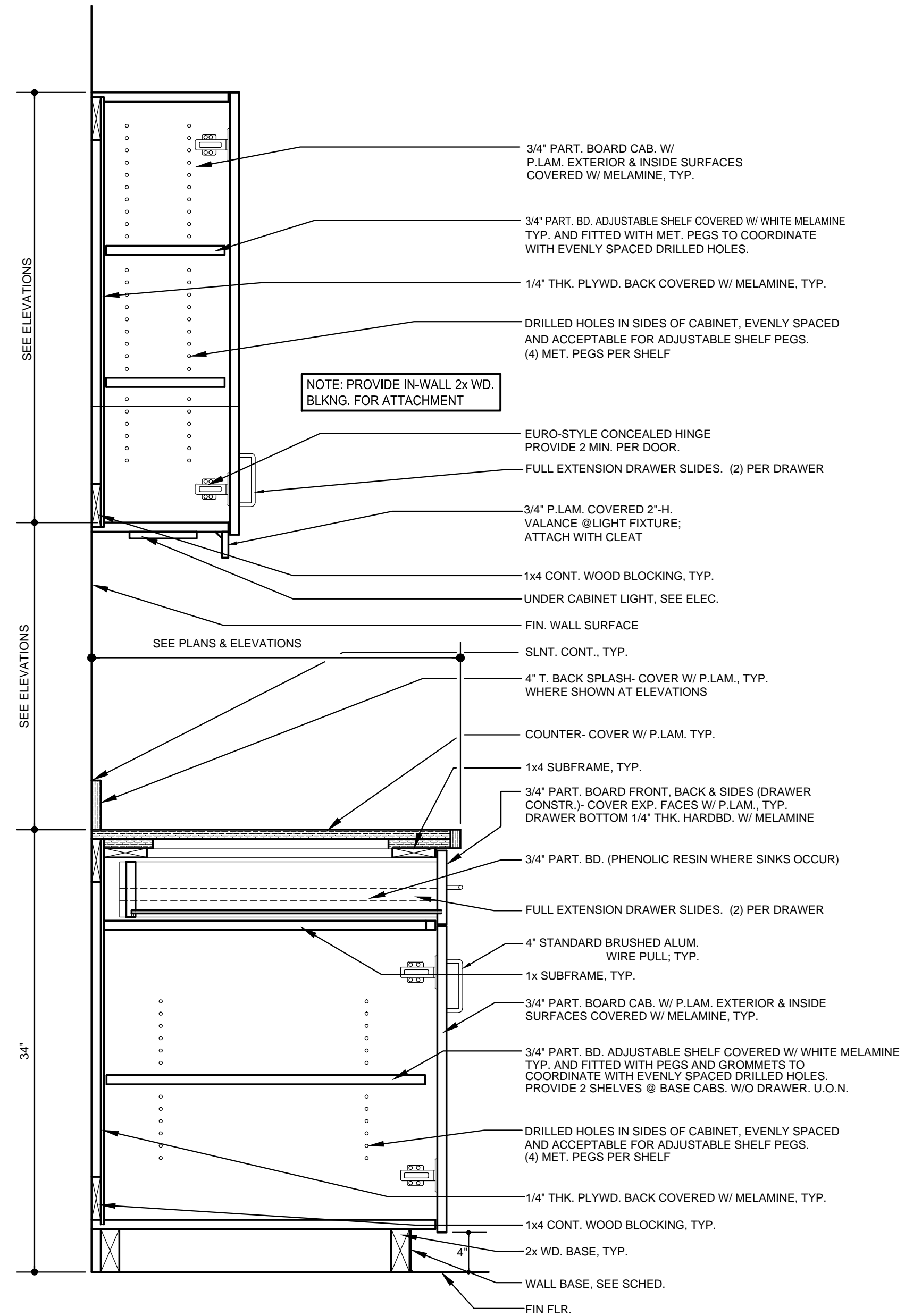
5 OF 6



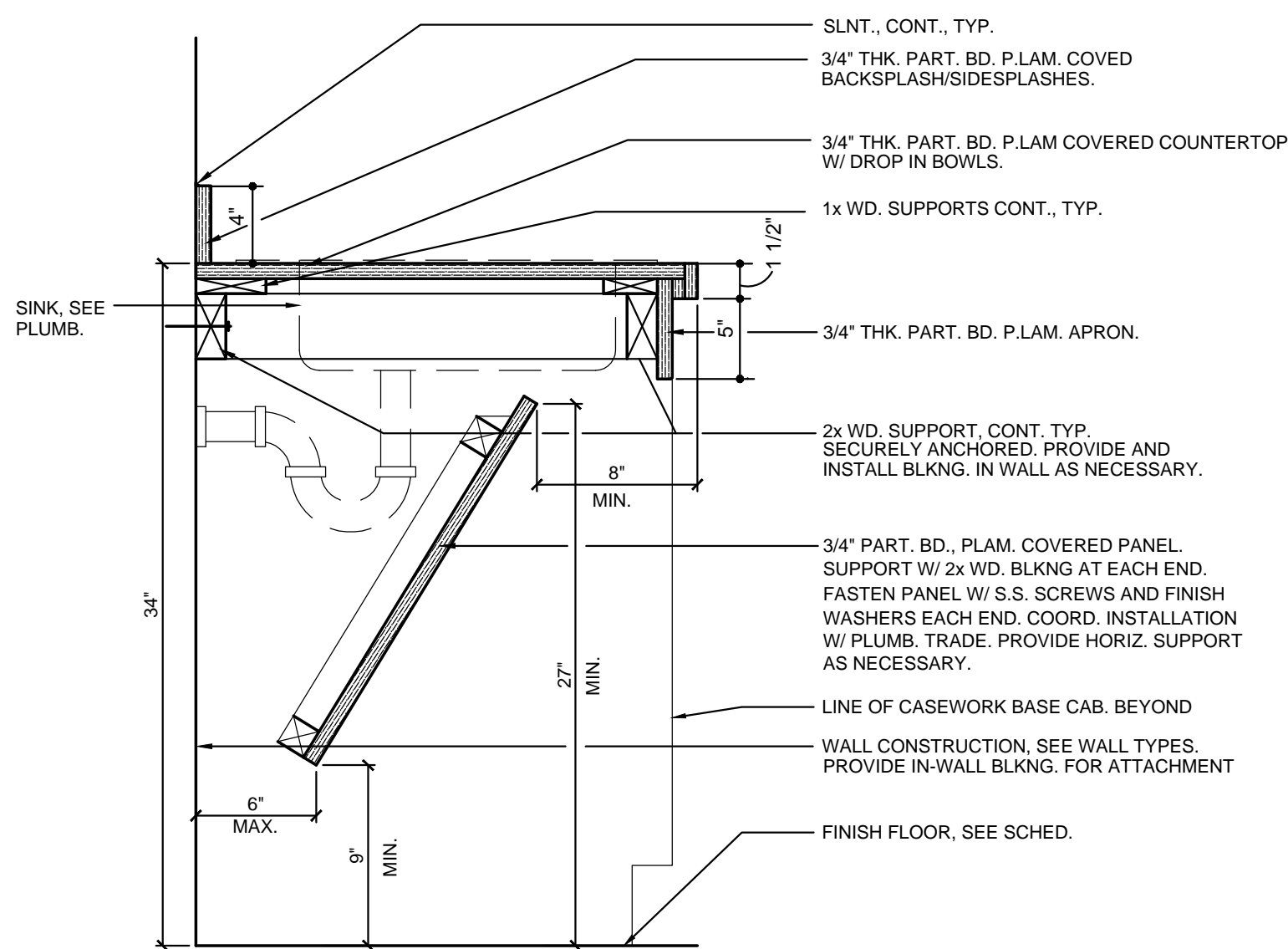
1 Typical Toilet Room Wall Elevation
A600 scale: 1/2" = 1'-0"



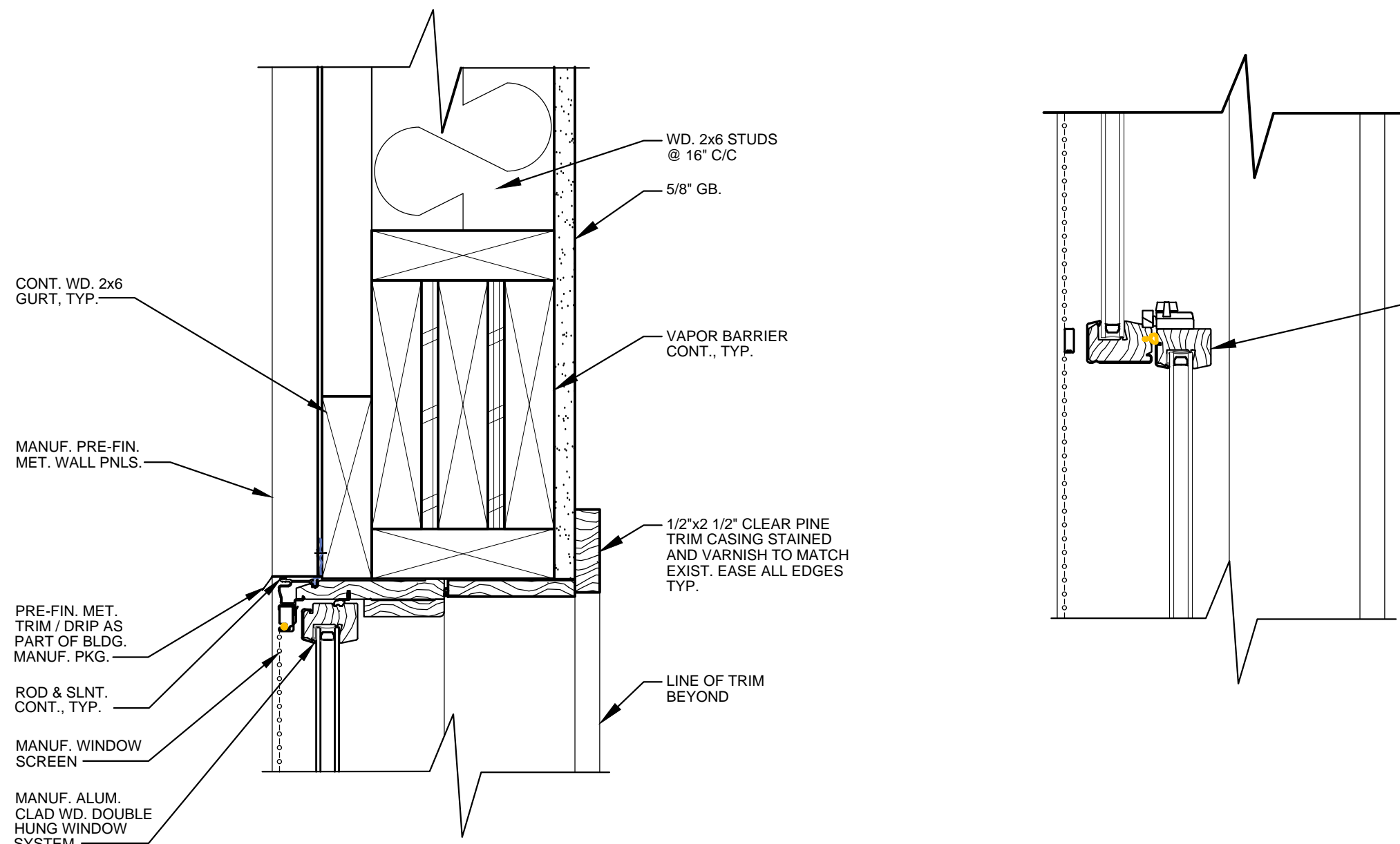
2 Kitchenette Wall Elevation
A600 scale: 1/2" = 1'-0"



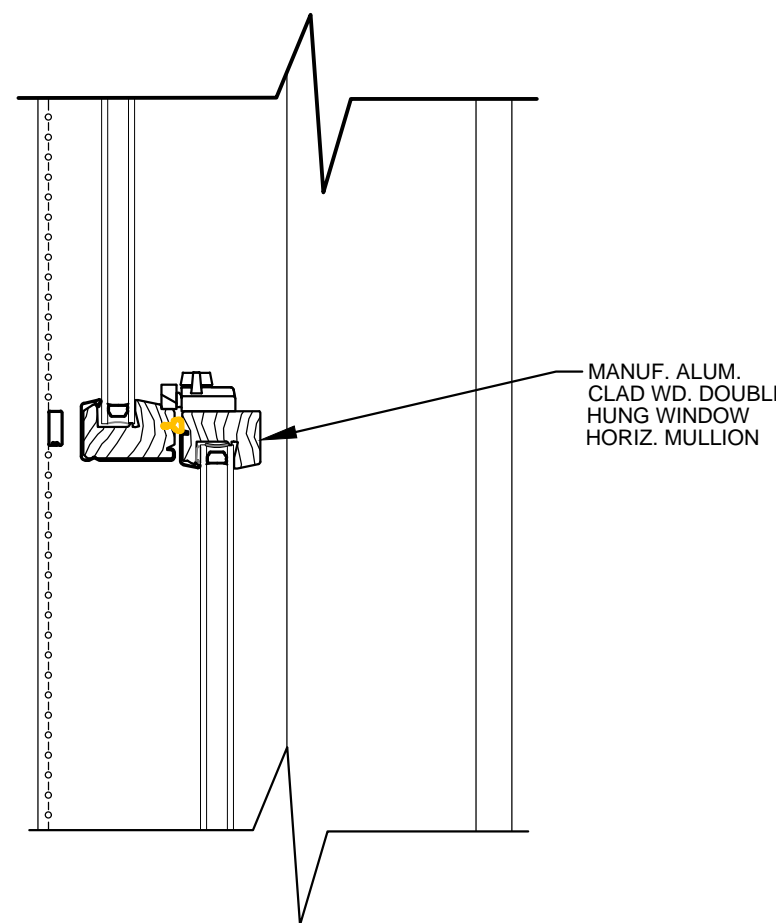
3 Typical Casework Section
A600 scale: 1 1/2" = 1'-0"



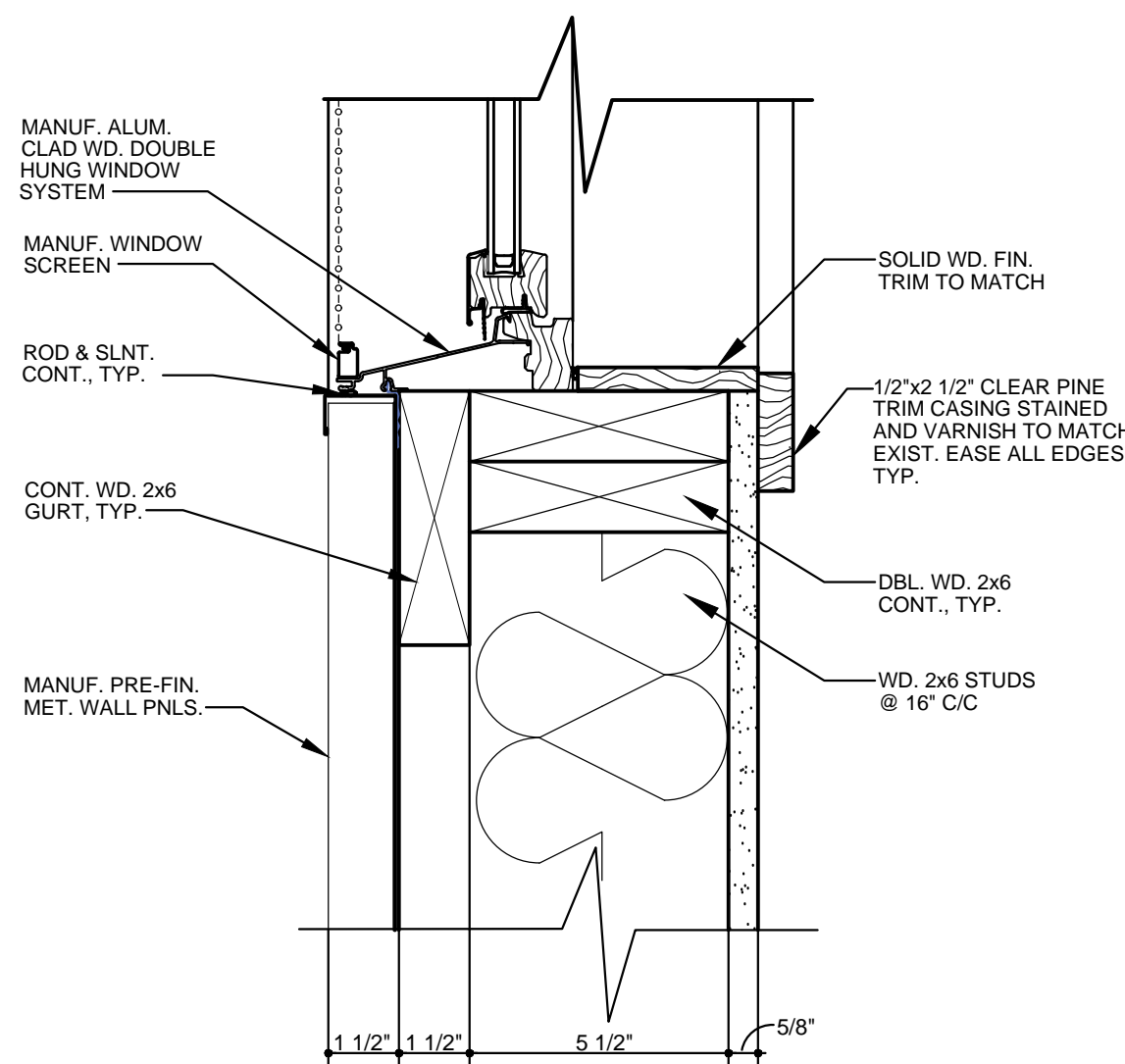
4 Casework Accessible Sink Detail
A600 scale: 1 1/2" = 1'-0"



5 Window Head Detail (Jamb Sim.)
A600 scale: 3" = 1'-0"



6 Window Mullion Detail
A600 scale: 3" = 1'-0"



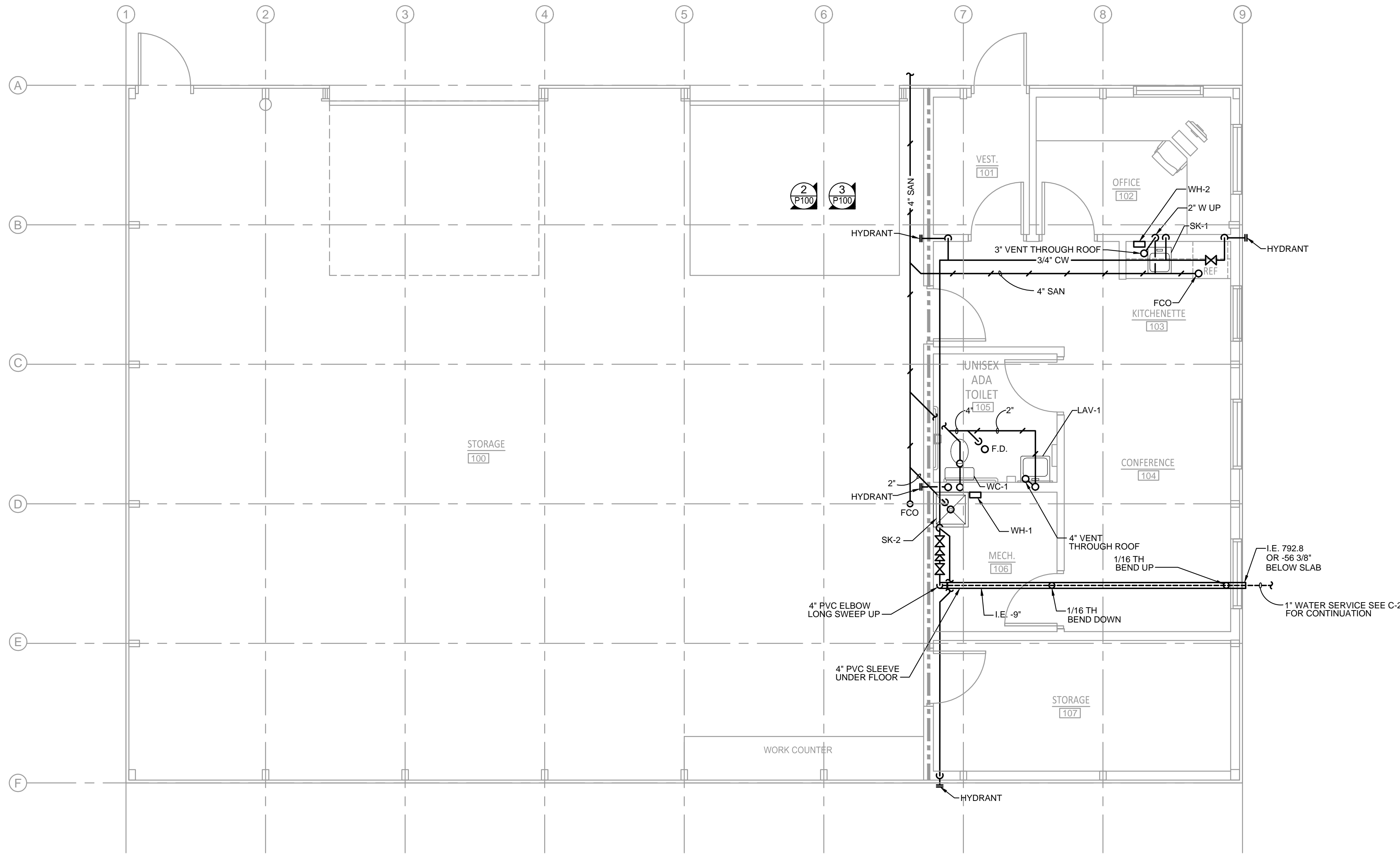
7 Window Sill Detail
A600 scale: 3" = 1'-0"



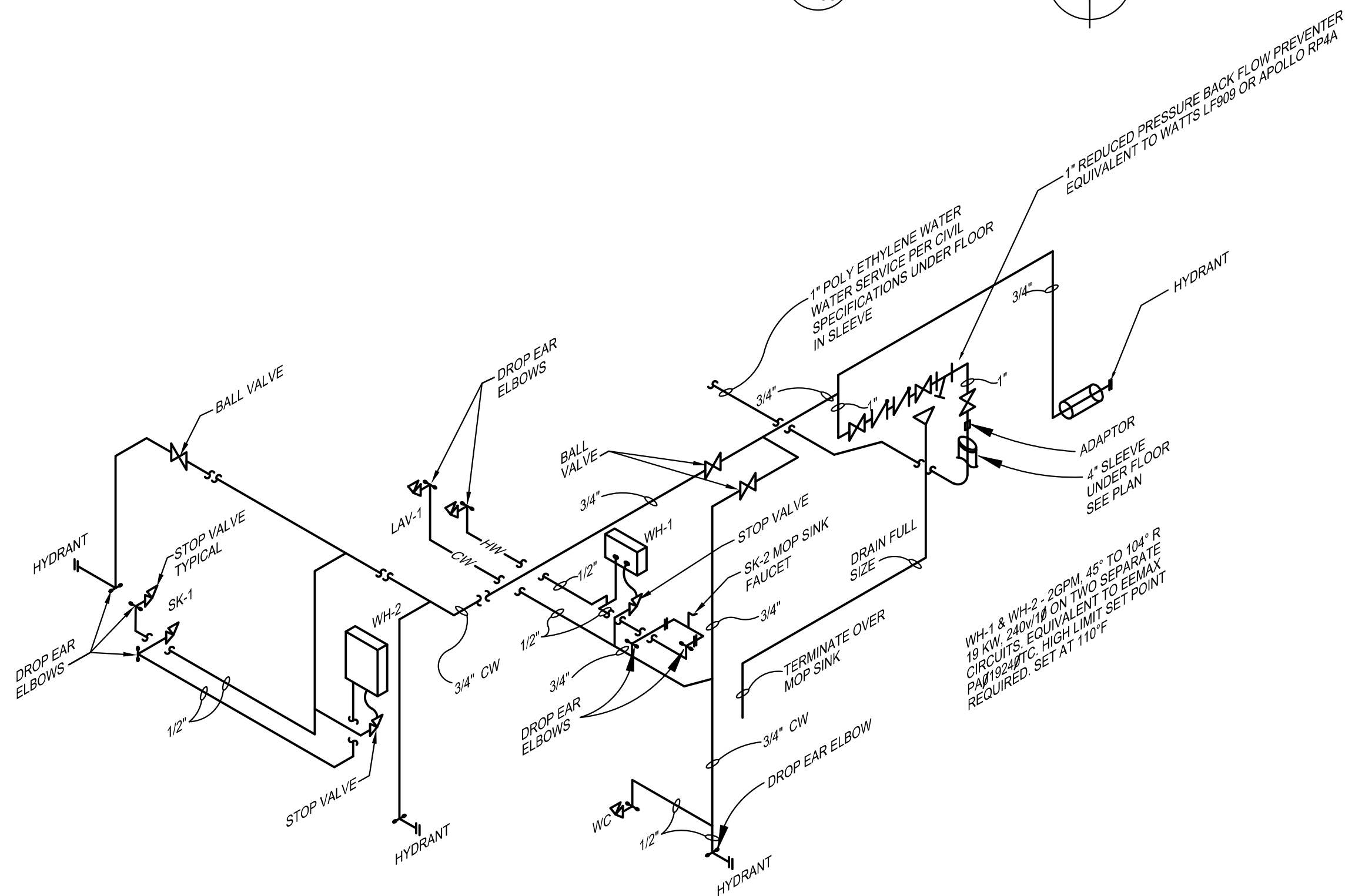
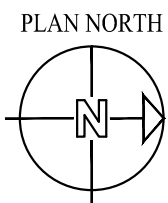
INTERIOR ELEVATIONS AND DETAILS
Donovan Utility Storage Building
Peoria Park District
Peoria, IL 61614

NO.	ISSUE	DATE
1	BID DOCUMENTS	07.14.20
2		

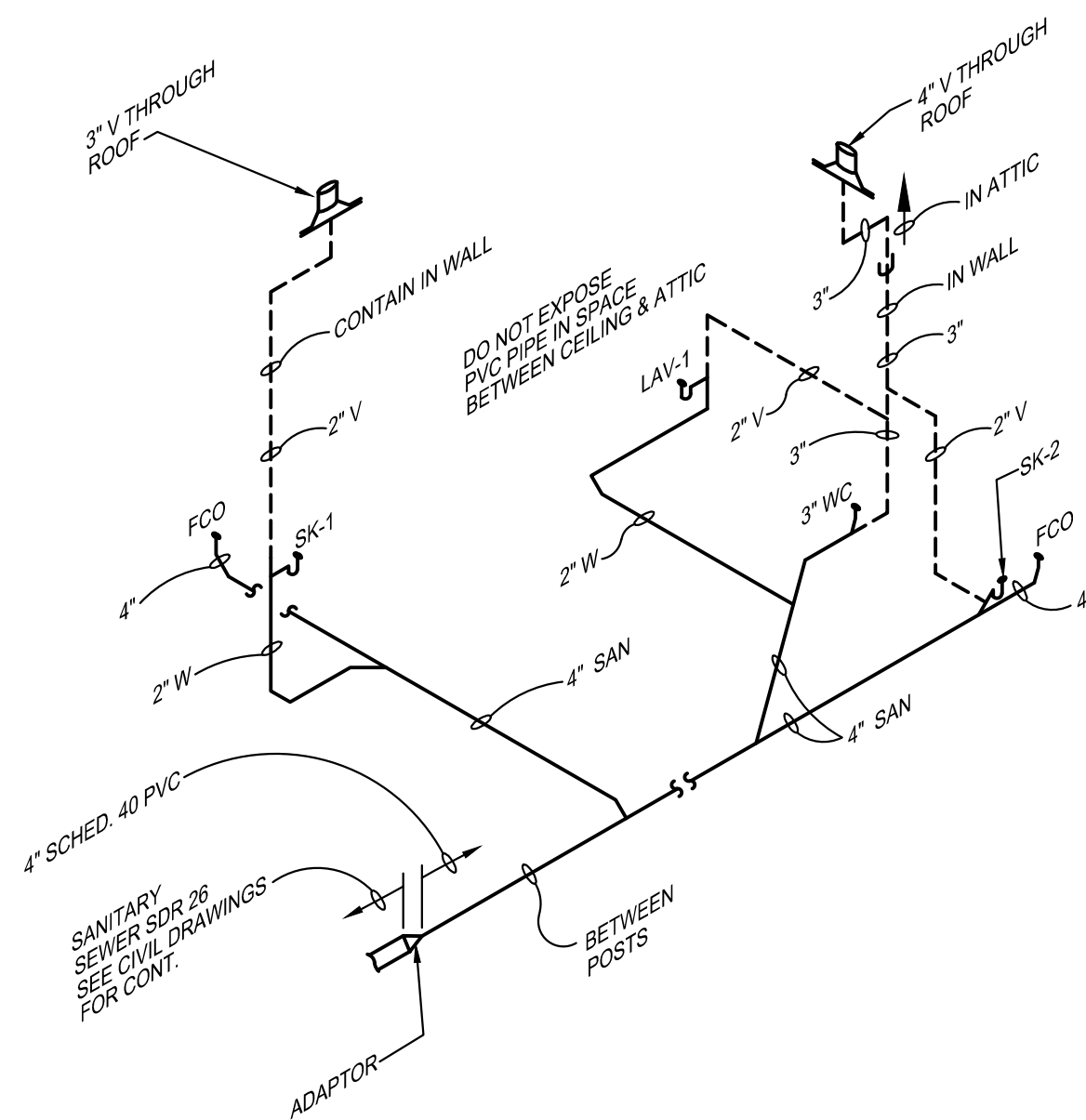
DATE	07.14.2020	PROJECT NO.	2015904.22
DRAWN BY	DAC	SHEET	A600
CHECKED	DBV		
APPROVED	SJM		6 OF 6



1 Floor Plan
P100 1/4" = 1'-0"



2 Water Diagram
P100 NOT TO SCALE



3 Waste Pipe Schematic
P100 NOT TO SCALE

SYMBOL / ABBREVIATION LIST SEE SCHEDULES	
FD	FLOOR DRAIN
WCO	WALL OR EXPOSED CLEAN OUT
FCO	FLOOR CLEAN OUT.
I.E.	INVERT ELEVATION
— CW —	DOMESTIC COLD WATER
— HW —	DOMESTIC HOT WATER
— SAN —	SANITARY PIPE UNDERGROUND
— V —	SANITARY VENT
— — —	INDICATES UNDERGROUND
— X —	STOP VALVE, SEE SPEC.
— T —	TEE
— EL —	EL TURNED DOWN
— EL —	EL TURNED UP
— DROP —	DROP FROM BOTTOM
— RISE —	RISE FROM TOP
— UNION —	UNION
— CHECK —	CHECK VALVE IN PLAN
— REDUCER —	REDUCER / INCREASER



PLAN & SCHEMATICS

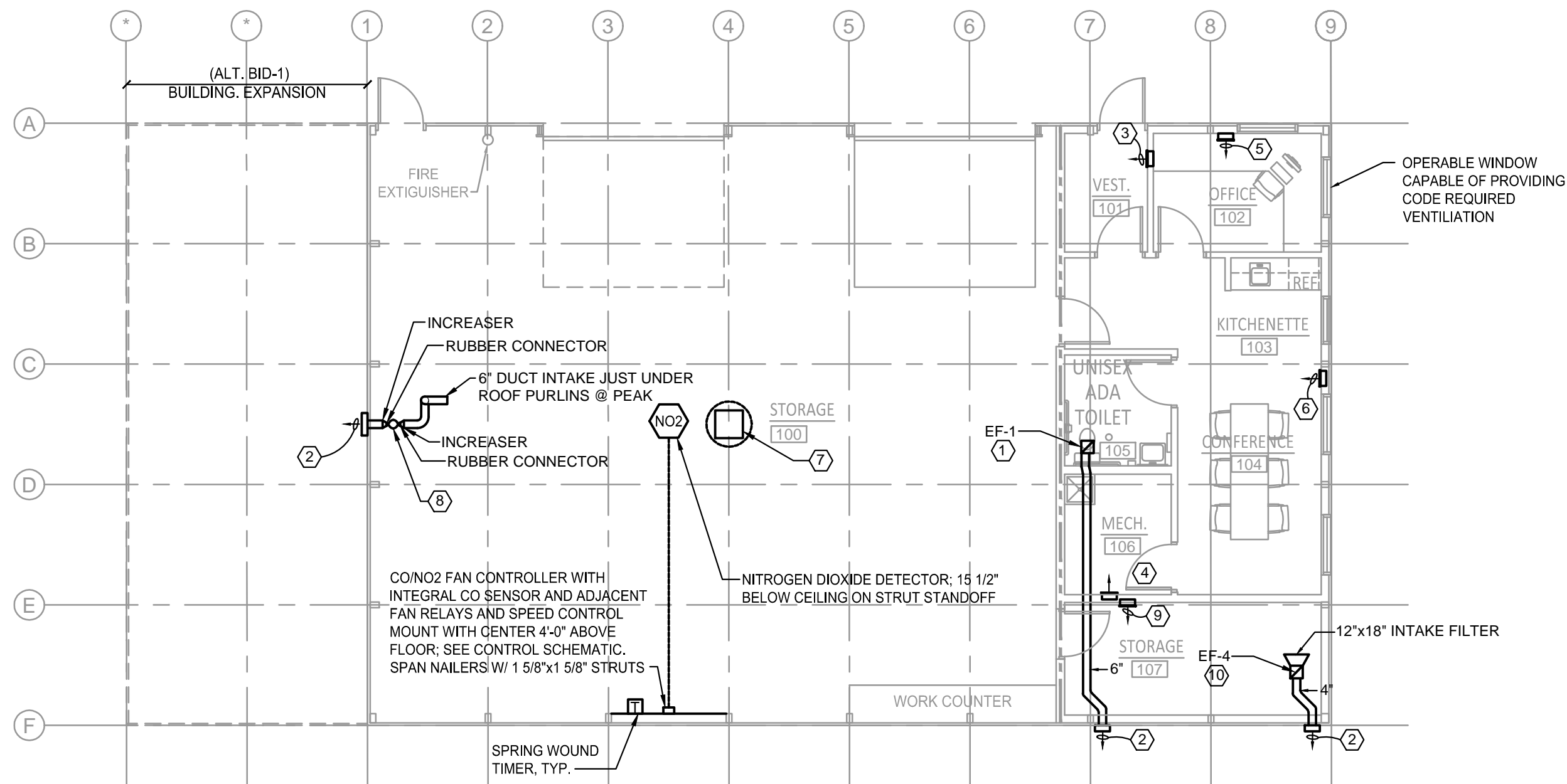
Donovan Utility Storage Building
Peoria Park District
Peoria, IL 61614

NO.	ISSUE	DATE
1	BID DOCUMENTS	07.14.20
2	100% REVIEW	06.29.20



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DATE	07.14.2020	PROJECT NO.	2015904.22
DRAWN BY	DAC	SHEET	P100
CHECKED	MAC		
APPROVED	MAC		
1 OF 1			



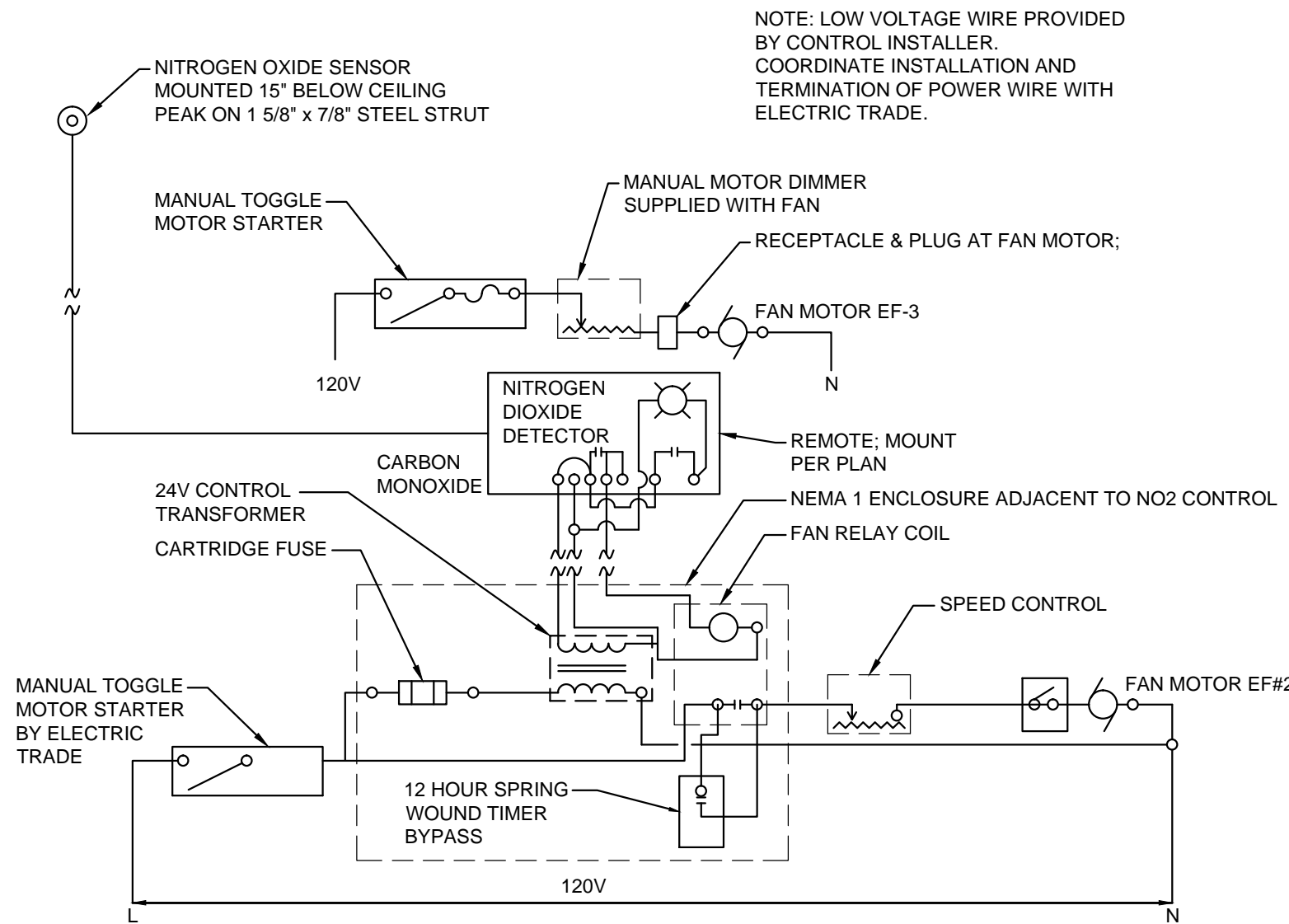
1 Floor Plan
V100 1/8" = 1'-0"

PLAN NORTH

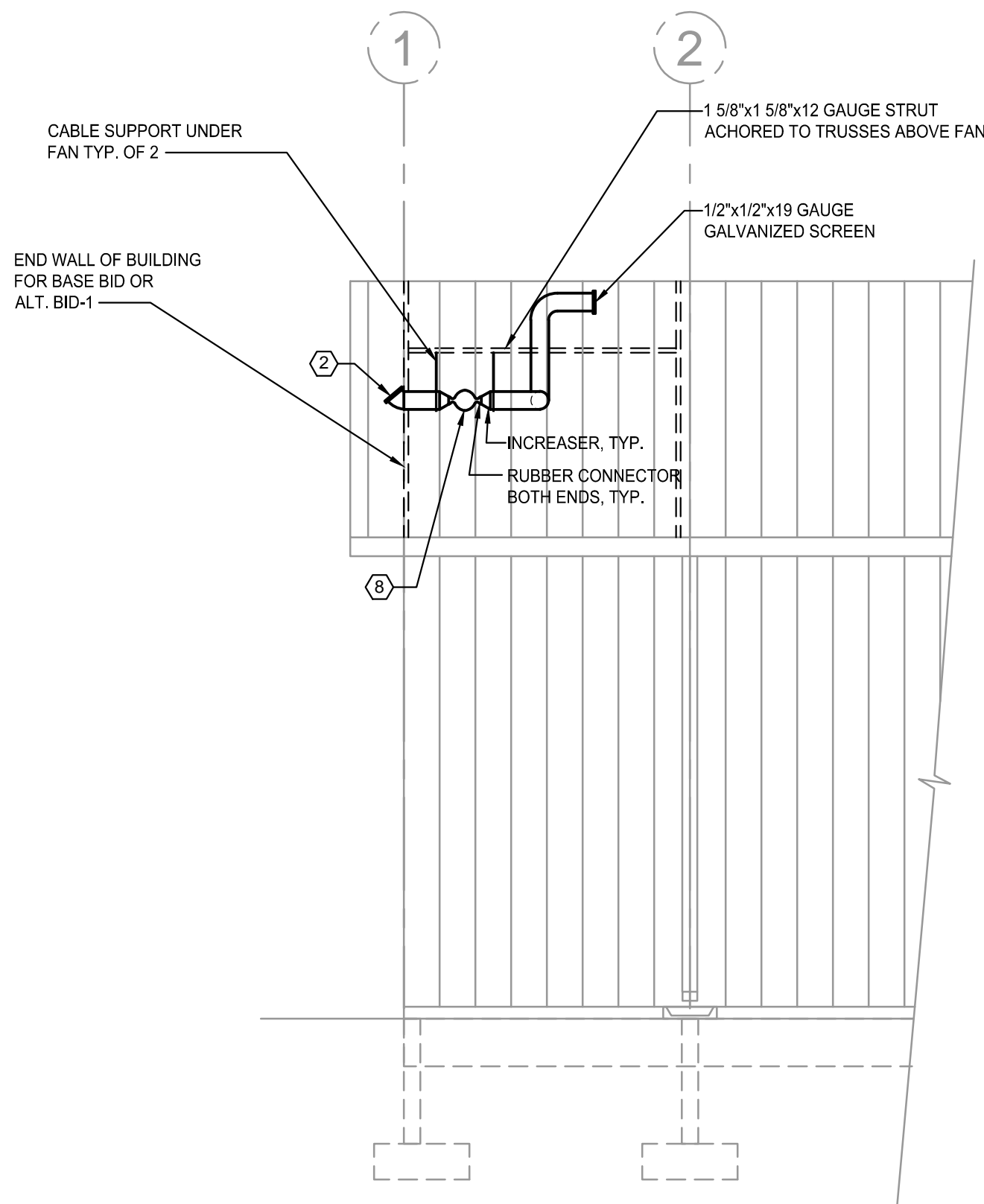
KEY NOTES:

APPLY TO ALL DRAWINGS THIS SHEET

- EXHAUST FAN 70CFM AT 3/8" STATIC; 120v, 34 WATTS; 900RPM; COOK GC-146 OR GREENHECK EQUIVALENT.
- BROAN MODEL 641/642 EXHAUST HOOD WITH BIRD SCREEN. MOUNT AS HIGH AS POSSIBLE AS FRAMING ALLOWS.
- WALL HEATER EQUIVALENT TO QMARK CWH1151DSF, 120v, 1500/700 WATTS W/ THERMOSTAT. RECESSED INTO WALL BOTTOM 6" ABOVE FINISHED FLOOR, WHITE COLOR.
- WALL HEATER SAME SIZE AND TYPE AS NOTED IN KEYNOTE 9 BELOW. SEMI RECESS; MOUNT TO WALL 6" ABOVE FINISHED FLOOR.
- WALL HEATER: EQUIVALENT TO QMARK HT1502SS, 120v, 2001/500 WATTS. SEMI RECESS INTO WALL W/ BOTTOM 6" ABOVE FINISHED FLOOR. PROGRAM THERMOSTAT PER OWNER'S SCHEDULE.
- WALL HEATER: EQUIVALENT TO QMARK SSHO4008, 208v, 1600/4000 WATTS W/ PROGRAMMABLE THERMOSTAT. SEMI RECESS MOUNT INTO WALL W/ BOTTOM 6" ABOVE FLOOR PROGRAM THERMOSTAT TO OWNER'S SCHEDULE.
- GREENHECK AE-14-438-45 OR LOREN COOK EQUIVALENT W/ SPEED CONTROL OPERATE AT APPROX. 1170 RPM FOR BASE BID AND 1530 RPM FOR ALT. BID-1 (SPEEDS BASED ON GREENHECK FAN) COORDINATE CURB SIZE W/ GENERAL TRADE.
- EF-3 INLINE FAN 100 CFM @ 1/4" STATIC 125 CFM @ 3/8" STATIC, FANTECH FR110 W/ SPEED CONTROL.
- WALL HEATER: EQUIVALENT TO QMARK CWH1101 DSF, 120 VOLT, 1000/500 WATTS. SEMI-RECESS MOUNT 6" ABOVE FINISH FLOOR.
- EF-4 EXHAUST FAN 17CFM @ .8" STATIC, 120 VOLT; .2 AMPS; EQUIVALENT TO FANTECH FR100.



3 Exhaust Fan Control Diagram
V100 not to scale

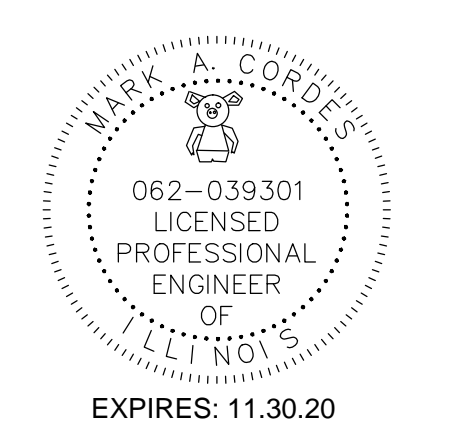


2 CONTINUOUS FAN MOUNT DETAIL
V100 1/4" = 1'-0"



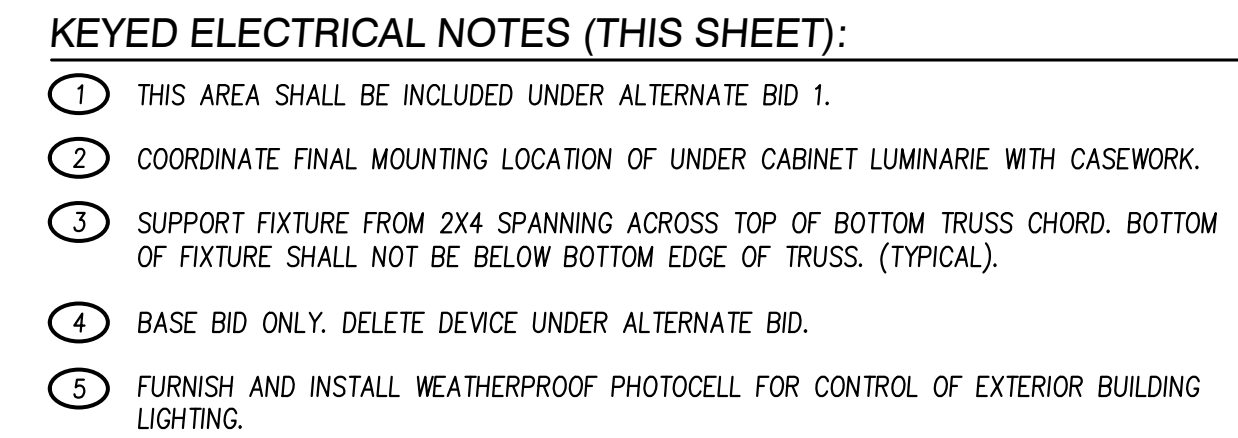
PLAN & DETAIL
Donovan Utility Storage Building
Peoria Park District
Peoria, IL 61614

NO.	ISSUE	DATE
1	BID DOCUMENTS	07.14.20
2		



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DATE	07.14.2020	PROJECT NO.	2015904.22
DRAWN BY	DAC	SHEET	V100
CHECKED	MAC		
APPROVED	MAC		1 OF 1



IN ALL CASES, UNLESS NOTED OTHERWISE,
THE TERM "PROVIDE" SHALL MEAN
"FURNISH AND INSTALL".

NOTE:
WHERE DEVICES ARE NOT LOCATED AT COLUMNS OR
OTHER FRAMING, PROVIDE 2x4 WOOD BLOCKING AS
REQUIRED FOR SECURE MOUNTING.

NOTE:
ALL LUMINAIRES CONTROLLED THROUGH A 0-10 VDC DIMMER SHALL INCLUDE TWO ADDITIONAL SHIELDED CONDUCTORS TO EACH DRIVER FOR DIMMING CONTROL.

NOTE:

1. HANDWRITTEN BRANCH CIRCUIT PANELBOARD SCHEDULES ARE NOT ACCEPTABLE.
2. ALL CIRCUITS IN EXISTING PANELS MODIFIED WITH THE SCOPE OF WORK AND NEW PANELS SHALL HAVE TYPEWRITTEN CIRCUIT DIRECTORIES WITH SPECIFIC INFORMATION ON DEVICE AND ROOM(S) SERVED BY THE CORRESPONDING BREAKER.
3. INCLUDE A PRINTED THERMOGRAPHIC LABEL AT EACH BREAKER SPACE CORRESPONDING TO THE TYPEWRITTEN PANEL SCHEDULE.
4. ALL WIRING DEVICES SHALL HAVE A THERMOGRAPHIC LABEL ON EACH FACE PLATE INDICATING THE PANEL AND CIRCUIT NUMBER THE DEVICE IS SERVED BY.

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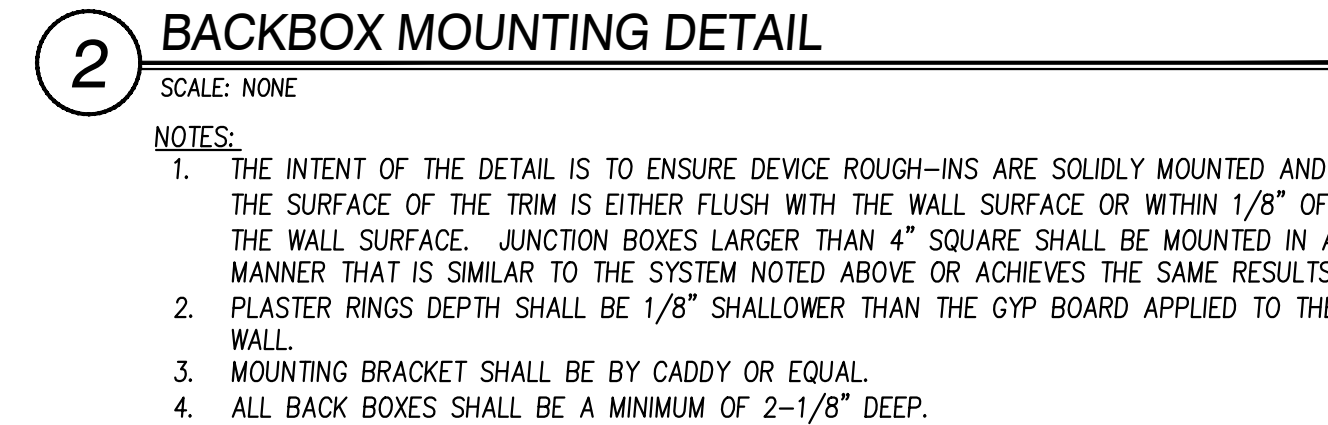
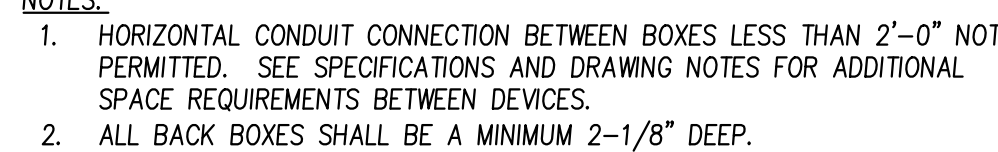
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



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DATE 7.14.2020	PROJECT NO. 2015904.22
DRAWN BY JJM	SHEET E101 1 OF 5
CHECKED TDC	
APPROVED BRK	



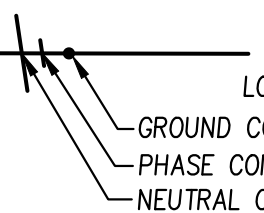
LUMINAIRE SCHEDULE							
CALLOUT	SYMBOL	DESCRIPTION	MODEL	MAX WATTS	COLOR TEMP (K)/CRI	MIN. LUMENS/WATT	NOM. INITIAL LUMENS
A		<p>RECESSED 2' X 2' FLAT EDGE-LIT PANEL LED FIXTURE WITH WHITE ALUMINUM HOUSING, ACRYLIC DIFFUSER AND WHITE OPAL LENS, MAXIMUM PANEL DEPTH OF 1" AND MAXIMUM FIXTURE DEPTH OF 2.5" AT DRIVER, 0-10V, 10% DIMMING, UNIVERSAL VOLTAGE INPUT ELECTRONIC DRIVER.</p> <p>FIXTURE SHALL HAVE A 5 YEAR WARRANTY AND SHALL BE DLC LISTED</p>	<p>LITHONIA #CPANL 2X2 24/33/44LM 40K M4</p> <p>COLUMBIA #CFP22-40/33/2840</p> <p>HE WILLIAMS #LP 22 L40 8 40 DIM UNV</p> <p>APPROVED EQUIVALENT</p>	64	4000/80	125	4000
B		<p>SURFACE/SUSPENDED MOUNT, LINEAR, 4', LENSED LED STRIP LIGHT WITH WHITE STEEL HOUSING, UNIVERSAL VOLTAGE ELECTRONIC DRIVER, MINIMUM 50,000 HR LIFE AT 70% LIGHT OUTPUT, FROSTED LENS, AND 5-YEAR WARRANTY.</p> <p>MOUNT WITH FIXTURE NO LOWER THAN THE BOTTOM EDGE OF ROOF TRUSS OR JOIST.</p>	<p>LITHONIA #CDS L48 MVOLT 40K 80CRI WH</p> <p>HE WILLIAMS #75R4 L50 840 DRV UNV</p> <p>METALUX #4ST2L4040R</p> <p>APPROVED EQUIVALENT</p>	35	4000/80	110	4679
C		<p>EXTERIOR WALL MOUNTED LED WALL PACK WITH DARK BRONZE CAST ALUMINUM HOUSING, GASKETED BOROSILICATE GLASS LENS, UNIVERSAL VOLTAGE ELECTRONIC DRIVER.</p> <p>5-YEAR WARRANTY</p>	<p>LITHONIA #TWR1 LED P2 50K MVOLT DOBTDX</p> <p>HE WILLIAMS #WP1 L44/850 DIM UNV</p> <p>LUMARK #WKP4BLEDEDGL</p> <p>APPROVED EQUIVALENT</p>	50	5000/70	85	4000
D		<p>24 INCH LED UNDERCABINET LUMINAIRE, SWITCHABLE WHITE COLOR TEMPERATURE (3000K/3500K/4000K), LOW PROFILE STEEL HOUSING WITH WHITE FINISH, 120V INPUT, DIRECT WIRE.</p>	<p>JUNO #JUCS 24IN SWW4 90CRI WH M6</p> <p>HE WILLIAMS #ISF 2' L12 8 40 AF12125 DRV 120</p> <p>FAIL-SAFE #UCL 2 LD4 40 A12125 EDC1 UNV</p> <p>APPROVED EQUIVALENT</p>	10.6	4000/90	70	737
E1		<p>COMBINATION LED EMERGENCY/EXIT FIXTURE WITH TOP, BACK, OR END MOUNTING, STENCIL FACE, WHITE THERMOPLASTIC HOUSING, TWO ADJUSTABLE LED LAMP HEADS, SINGLE FACE WITH EXTRA FACE PLATE AND COLOR PANEL FOR FIELD CONVERSION TO DOUBLE FACE, RED PANEL, 120/277 DUAL VOLTAGE, WITH LEAD CADMIUM OR NICKEL CADMIUM BACK-UP BATTERY.</p> <p>FIXTURE SHALL BE CONNECTED TO AN UNSWITCHED PORTION OF THE LOCAL LIGHTING CIRCUIT.</p>	<p>LITHONIA #LHOM LED R</p> <p>SURE-LITES #LPXC 25</p> <p>DUAL-LITE #EVC U R W</p> <p>APPROVED EQUIVALENT</p>	4.3			
E2		<p>EMERGENCY LED LIGHTING UNIT, MINIMUM 90-MINUTES ILLUMINATION UPON LOSS OF POWER, COMPACT LOW-PROFILE THERMOPLASTIC, HOUSING, 120/277-VOLT INPUT, TWO-1.5-WATT WHITE LEDS, MAINTENANCE-FREE NICKEL-CADMIUM BATTERY. FIXTURE CAN BE MOUNTED ON WALL OR FROM BUILDING STRUCTURE.</p> <p>CONNECT LUMINAIRE AND BATTERY PACK TO AN UNSWITCHED PORTION OF THE LOCAL LIGHTING CIRCUIT.</p>	<p>LITHONIA #ELM2L</p> <p>DUAL-LITE #EV2</p> <p>SURE-LITES #SEL25</p> <p>APPROVED EQUIVALENT</p>	2.4			
F		<p>RECESSED 6" LED DOWN LIGHT, CLEAR REFLECTOR AND FLANGE, MEDIUM DISTRIBUTION, SEMI-SPECULAR FINISH, UNIVERSAL 120-277-VOLT INPUT.</p>	<p>LITHONIA #LDN6 40/40 L06 AR LSS MVOLT GZ10</p> <p>HE WILLIAMS #6DR-TL L40 8 40 DIM UNV L M OF CS N F1</p> <p>INDY #L6 40LM 40K MVOLT G4 80CRI ZT HM CSS</p> <p>APPROVED EQUIVALENT</p>	44	4000/80	90.6	4000

LUMINAIRE SCHEDULE NOTES

1. CONTRACTOR SHALL REFER TO ARCHITECTURAL REFLECTED CEILING PLANS, MECHANICAL SYSTEM PLANS, DETAILS, SECTIONS, AND ELEVATIONS FOR AID IN COORDINATION OF FIXTURE LOCATIONS AND ANY INTERFERENCES.
2. CONTRACTOR SHALL PROVIDE COPIES OF COMPLETE FIXTURE SCHEDULES, LIGHTING PLANS, AND LIGHTING SPECIFICATIONS TO ALL SUPPLIERS OR MANUFACTURERS' REPRESENTATIVES INVOLVED IN FIXTURE PRICING OR ORDERING, PRIOR TO BID.
3. FIXTURES SHALL BE PROVIDED WITH FEATURES, OPTIONS, AND ACCESSORIES REQUIRED FOR COMPLETE INSTALLATION AND THOSE LISTED IN FIXTURE MODEL NUMBERS PROVIDED, SPECS, AND WRITTEN DESCRIPTION. IF CONFLICTS EXIST BETWEEN THESE, NOTIFY A/E FOR CLARIFICATION PRIOR TO BIDDING OR ORDERING.
4. CONTRACTOR SHALL VERIFY LUMINAIRE TYPES INDICATED ARE COMPATIBLE WITH MANUFACTURERS' CURRENT MODEL FIXTURES SUBMITTED. NOTIFY A/E IMMEDIATELY OF DISCREPANCIES AND MAKE NECESSARY CORRECTIONS PRIOR TO BIDDING.
5. PROVIDE #10 AWG CONDUCTORS FOR ALL EXTERIOR BUILDING LIGHTING CIRCUITS.
6. PROVIDE #8 AWG CONDUCTORS FOR ALL EXTERIOR SITE LIGHTING CIRCUITS.
7. ALL LUMINAIRE COMBINATIONS SHALL BE CEE CERTIFIED.
8. ALL INTERIOR LED FIXTURES TEMPERATURE COLOR SHALL BE 4000K UNLESS SPECIFICALLY NOTED OTHERWISE.
9. ALL EXTERIOR LED FIXTURES TEMPERATURE COLOR SHALL BE 5000K UNLESS SPECIFICALLY NOTED OTHERWISE.

MATERIAL SCHEDULE			
ITEM:	SYMBOL:	DESCRIPTION:	MANUFACTURER:
1	COVER PLATES	ALL COVER PLATES FOR DEVICES SHALL BE THERMOPLASTIC CONSTRUCTION AND OF A COLOR SELECTED BY THE ARCHITECT IN FINISHED SPACES. COVER PLATES IN UNFINISHED SPACES SHALL BE GALVANIZED STEEL CONSTRUCTION. ALL DEVICE PLATES SHALL INCLUDE A PRE-PRINTED LABEL INDICATING THE PANEL AND CIRCUIT NUMBER SERVING THE DEVICE. THE LABEL SHALL HAVE A CLEAR BACK GROUND WITH BLACK LETTERING.	HUBBELL LEVITON LEGRAND EATON
2	\$	SINGLE POLE SWITCH, TOGGLE HANDLE, MAINTAINED CONTACT, 20 AMP, 120/277 VOLT. SIDE AND BACK WIRED.	HUBBELL 1221 LEVITON LEGRAND-P&S EATON-COOPER
3	\$ ₃	THREE-WAY SWITCH, TOGGLE HANDLE, MAINTAINED CONTACT, 20 AMP, 120/277 VOLT. SIDE AND BACK WIRED.	HUBBELL 1223 LEVITON LEGRAND-P&S EATON-COOPER
4	\$ _M	FRACTIONAL HORSEPOWER MANUAL MOTOR SWITCH, 120-VOLT, LOCKABLE IN THE "OFF" POSITION, NEMA 1 ENCLOSURE. SIZE AND QUANTITY OF POLES SHALL MATCH EQUIPMENT DEVICE IS SERVING.	SQUARE "D" CLASS 2150 TYPE K EATON-CUTLER HAMMER G.E. INDUSTRIAL SIEMENS
5	\$ _{MS}	STAND-ALONE AUTOMATIC WALL SWITCH/OCCUPANCY SENSOR, 180 DEGREE COVERAGE OF 900 SF, INFRARED TECHNOLOGY, 120/277 VOLT, DIGITAL TIME DELAY ADJUSTMENT FROM 30 SECONDS TO 30 MINUTES, ADJUSTABLE SENSITIVITY FROM 20% TO 100%, ADJUSTABLE LIGHT LEVEL SETTING OF 2 TO 200 FOOT-CANDLES, COMPATIBLE WITH ALL ELECTRONIC BALLASTS, WITH LED INDICATOR TO INDICATE OCCUPANCY. FIVE YEAR WARRANTY. ADJUST FOR VACANCY OPERATION WHERE REQUIRED BY CODE.	SENSOR SWITCH WSX WATTSTOPPER LEVITON HUBBELL
6	\$ _{D1}	STAND-ALONE ARCHITECTURAL WALL BOX DIMMER, FOR 0-10V DIMMING CONTROL, SUITABLE FOR USE WITH LED LIGHTING CONTROL. DIMMER SHALL BE COMPATIBLE FOR USE WITH LED LIGHTING AS INDICATED ON THE DRAWINGS.	SENSOR SWITCH SPDQM SERIES WATTSTOPPER LEVITON HUBBELL
7	⊕	ELECTRICAL EQUIPMENT CONNECTION; SIZE CONNECTION PER THE NATIONAL ELECTRICAL CODE, UNLESS LARGER CAPACITY IS NOTED OTHERWISE. COORDINATE EXACT REQUIREMENTS WITH EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN.	
8	\$ _D	FAN SPEED CONTROL (DIMMER) SWITCH, FURNISHED WITH FAN BY MECHANICAL TRADE, INSTALLED BY EC.	FURNISHED BY HVAC TRADE
9	\$ _T	FAN TIME CONTROL SWITCH, FURNISHED WITH FAN BY MECHANICAL TRADE, INSTALLED BY EC.	FURNISHED BY HVAC TRADE
10	Ⓢ ₁	DUAL TECHNOLOGY (PASSIVE INFRARED (PIR) AND MICROPHONIC OR ULTRASONIC), EXTENDED RANGE CEILING SENSOR, 360 DEGREE COVERAGE OF 28 FEET RADIUS, LOW- VOLTAGE, TIME DELAY ADJUSTMENT FROM 30-SECONDS TO 30-MINUTES, COMPATIBLE WITH ALL ELECTRONIC DRIVERS. MOUNT AT BOTTOM OF TRUSS	SENSORSWITCH CM-PDT-10 WATTSTOPPER LUTRON HUBBELL
11	Ⓟ	LIGHTING SWITCH POWER PACK, 120-VOLT INPUT, 24-VDC OUTPUT, SUITABLE FOR MOUNTING TO A STANDARD JUNCTION BOX.	SENSORSWITCH PP-20 WATTSTOPPER LUTRON HUBBELL
12	Ⓢ	DUPLEX RECEPTACLE, SPECIFICATION GRADE, 125 VOLT, 20 AMP, 3 WIRE GROUNDING, NEMA 5-20R, WITH TEST AND RESET BUTTONS. SIDE AND BACK WIRED.	HUBBELL #5300 SERIES LEVITON LEGRAND-P&S EATON-COOPER
13	Ⓢ _{G/W}	WEATHER RESISTANT, GROUND FAULT DUPLEX RECEPTACLE, STRAIGHT BLADE, 20 AMPERE, SPECIFICATION GRADE, 3 WIRE GROUNDING TYPE, IMPACT RESISTANT THERMOPLASTIC FACE, TEST AND RESET BUTTONS IN FACE, IN A CAST ALUMINUM, WEATHERPROOF OUTLET BOX, WITH A WHILE-IN-USE HINGED COVER. FEDERAL SPECIFICATION AND U.L. LISTED, 2003 U.L. 943 COMPLIANT.	HUBBELL #6FR 5352ST/ WP626MP LEVITON LEGRAND-PASS & SEYMOUR EATON - COOPER
14	Ⓢ _G	GROUND FAULT DUPLEX RECEPTACLE, STRAIGHT BLADE, 20 AMPERE, SPECIFICATION GRADE, 3 WIRE GROUNDING TYPE, IMPACT RESISTANT THERMOPLASTIC FACE, TEST AND RESET BUTTONS IN FACE. FEDERAL SPECIFICATION AND U.L. LISTED, 2003 U.L. 943 COMPLIANT. ("A" WOULD INDICATE ABOVE COUNTER INSTALLATION.)	HUBBELL #6FR 5352ST LEVITON LEGRAND-PASS & SEYMOUR EATON - COOPER
15	PANEL A	NEW PANEL BOARD, 120/240 VOLT, SINGLE PHASE, 3 WIRE, SURFACE MOUNT NEMA 1 ENCLOSURE, HINGED COVER, COPPER BUS, COPPER GROUND AND NEUTRAL BUS, SEE PLANS FOR ADDITIONAL INFORMATION.	SQUARE D NQ SERIES SIEMENS EATON - CUTLER HAMMER GE
16	METER Ⓢ	SLF-CONTAINED UTILITY METER CABINET - SIZED AND OF MANUFACTURER APPROVED BY POWER UTILITY COMPANY (AMEREN)	APPROVED BY UTILITY
17	Ⓢ	PHOTOCELL, 120/277-VOLT, 1800 VA RATING, SINGLE-POLE, SINGLE-THROW CONTACT, WEATHERPROOF, MOUNT TO ROOF SOFFIT AND ADJUST FOR PROPER OPERATION, BASED ON OWNER INPUT. SEE DRAWINGS FOR LOCATION AND ADDITIONAL WORK REQUIRED.	PARAGON #CW-201-70 TORK INTERMATIC
18	TGB-1	MAIN TELECOMMUNICATIONS UNIVERSAL GROUND BAR. HIGH CONDUCTIVITY COPPER AND TIN-PLATED TO INHIBIT CORROSION. INCLUDE ALL REQUIRED ACCESSORIES FOR MOUNTING TO LOCATION SHOWN ON DRAWINGS. SEE DRAWINGS FOR LOCATION AND ADDITIONAL WORK REQUIRED.	PANDUIT UGB2/0-414-6 HARGER OR EQUAL

GENERAL ELECTRICAL NOTES:

1. ALL INSTALLATIONS SHALL BE IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL CODES INCLUDING BUT NOT LIMITED TO THE NATIONAL ELECTRICAL CODE, THE INTERNATIONAL BUILDING CODE, AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES AND ASHORE 90.1. THE AUTHORITY HAVING JURISDICTION SHALL HAVE THE FINAL DECISION ON ALL INSTALLATIONS AND PRACTICES.
2. REFER TO THE MATERIAL SCHEDULE, LUMINAIRE SCHEDULE, AND OTHER ASSOCIATED SCHEDULES FOR MANUFACTURERS AND COMPLETE DESCRIPTIONS OF ALL EQUIPMENT.
3. ALL ELECTRICAL CONDUCTORS SHALL BE STRANDED COPPER WITH TYPE THHN INSULATION UNLESS SPECIFICALLY NOTED OTHERWISE. THE MINIMUM WIRE SIZE SHALL BE #12 AWG.
4. CIRCUIT IDENTIFICATION NUMBERS ARE TO COORDINATE CIRCUITING WITH THE ASSOCIATED PANEL. THE CIRCUIT NUMBERS SHALL BE FIELD MODIFIED TO BALANCE THE ELECTRICAL LOAD ON ALL THREE PHASES AS EVENLY AS POSSIBLE.
5. ALL CIRCUITS SHALL HAVE DEDICATED NEUTRALS.
6. A GREEN GROUNDING CONDUCTOR SHALL BE CONNECTED TO ALL LOADS SERVED. THE CONDUCTOR SHALL BE SIZED PER THE NATIONAL ELECTRICAL CODE TO ACCOMMODATE THE LOAD SERVED. ALL GROUNDING CONDUCTORS SHALL BE INSTALLED IN CONDUIT.
7. ALL BUILDING WIRING SHALL BE INSTALLED IN CONDUIT. MINIMUM SIZE SHALL BE 3/4".
8. MC CABLING IS NOT PERMITTED.
9. ALL CONDUITS SHALL BE CONCEALED IN WALLS, ABOVE CEILINGS, ETC. WHERE POSSIBLE. ALL CONDUIT ROUTED EXPOSED SHALL BE A PRE-MANUFACTURED SURFACE RACEWAY (IE. WIREMOLD OR EQUAL) WITH THE EQUIVALENT USABLE AREA OF THE CONDUIT IT IS USED IN THE PLACE OF. ALL EXPOSED SURFACE RACEWAY SHALL BE ROUTED PARALLEL AND PERPENDICULAR TO WALLS AND CEILINGS.
10. COORDINATE THE EXACT LOCATION OF ALL DEVICES LOCATED ABOVE OR BELOW COUNTERS, ETC. WITH OTHER TRADES, ARCHITECTURAL ELEVATIONS, AND REVIEWED SUBMITTALS PRIOR TO ROUGH-IN.
11. ALL CUTTING AND PATCHING REQUIRED FOR CONDUITS, DEVICES OR OTHER ELECTRICAL EQUIPMENT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
12. ALL PENETRATIONS THROUGH FIRE-RATED WALLS, FLOORS, AND CEILINGS SHALL BE SEALED WITH AN APPROVED FIRE-RATED SYSTEM EQUAL TO OR EXCEEDING THE RATING OF THE MATERIAL PENETRATED.
13. COORDINATE LOCATIONS OF ALL ELECTRICAL ITEMS INCLUDING LIGHTING FIXTURES, CEILING MOUNTED DEVICES (OCCUPANCY SENSORS, FIRE ALARM DETECTORS, SPEAKERS, ETC.) WITH ALL SPRINKLER HEADS, AIR SUPPLY AND AIR RETURN DIFFUSERS.
14. COORDINATE ALL MOUNTING OF ELECTRICAL EQUIPMENT REQUIRED FOR EQUIPMENT SUPPLIED BY OTHERS. EQUIPMENT SHALL BE MOUNTED TO AVOID ANY INTERFERENCE WITH OTHER EQUIPMENT OPERATION OR ACCESS. ALL INSTALLATIONS OF ELECTRICAL EQUIPMENT TO EQUIPMENT SUPPLIED BY OTHERS SHALL BE COORDINATED AND APPROVED BY SUPPLYING CONTRACTOR PRIOR TO ROUGH-IN.
15. BOXES LOCATED ON OPPOSITE SIDES OF FIRE RATED WALLS SHALL BE OFFSET A MINIMUM OF 24" OR A FIRE RATED MATERIAL EQUAL TO OR GREATER THAN THE FIRE WALL MATERIAL RATING SHALL BE INSTALLED AROUND THE BOX. BOXES LOCATED ON OPPOSITE SIDES OF NON-FIRE RATED WALLS SHALL BE OFFSET A MINIMUM 6".
16. REMOVE AND REINSTALL ALL CEILING TILES AS REQUIRED TO PERFORM ALL ELECTRICAL WORK REQUIRED. ALL CEILING TILES WHICH ARE DAMAGED SHALL BE REPLACED WITH NEW TILE OF THE SAME MANUFACTURER AND MODEL AS EXISTING TILE.
17. FLUSH MOUNT ALL TOGGLE SWITCHES AND FIRE ALARM MANUAL PULL STATIONS 42" ABOVE THE FINISHED FLOOR TO THE CENTER OF THE DEVICE UNLESS OTHERWISE NOTED. MOUNT FIRE ALARM VISUAL AND AUDIBLE/VISUAL UNITS +80" ABOVE FINISHED FLOOR OR 6" BELOW CEILING, WHICHEVER IS LOWER.
18. FLUSH MOUNT ALL RECEPTACLES AND TELECOMMUNICATIONS OUTLETS 18" ABOVE THE FINISHED FLOOR TO THE CENTER OF THE DEVICE UNLESS OTHERWISE NOTED.
19. 'A' SUBSCRIPT NEXT TO A DEVICE INDICATES INSTALLATION ABOVE COUNTER.
'B' SUBSCRIPT NEXT TO A DEVICE INDICATES INSTALLATION BELOW COUNTER. COORDINATE ALL LOCATIONS WITH ARCHITECTURAL DRAWINGS AND SUBMITTALS. FIELD VERIFY ALL LOCATIONS PRIOR TO ROUGH-IN.
20. LINE TYPE KEY:
 - a. _____ NEW WORK BY THE ELECTRICAL CONTRACTOR
 - b. _____ NEW WORK BY OTHERS OR EXISTING WORK TO REMAIN
21. 

_____ INDICATES THE TYPE OF CONDUCTORS IN THE CONDUIT. VERIFY QUANTITY FOR EACH SPECIFIC LOAD SERVED.

_____ GROUND CONDUCTOR

_____ PHASE CONDUCTOR

_____ NEUTRAL CONDUCTOR
22. CONDUCTOR TICK MARKS INDICATED ON CONDUITS DO NOT REPRESENT THE QUANTITY OF CONDUCTORS IN THE CONDUIT, BUT THE TYPE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE REQUIRED QUANTITY OF GROUND, NEUTRAL, PHASE, AND SWITCH LEGS IN EACH CONDUIT.
23. ALL REQUEST FOR CHANGES ON THIS PROJECT SHALL INCLUDE A DETAILED BREAKDOWN OF MATERIALS, LABOR AND SUBCONTRACTORS. SUPPLIER BACK-UP PRICING SHALL BE INCLUDED ON THE SUPPLIER'S LETTERHEAD. ALL LABOR UNITS ASSOCIATED WITH THE NEW MATERIALS SHALL NOT EXCEED 75% OF THE NECA 1 LABOR RATES.