

# Oak Brook Park District

## Tennis Center Boiler and Water Heater Replacement Project

### Bid Packet



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(Note: The Technical Specifications bound into this packet contain the Project Manual, which is paginated separately from the bid packet document. Also included with the Technical Specifications, but under separate cover, is a set of Drawings prepared by Kluber, Inc.)	
<b>APPENDIX</b>	
<ul style="list-style-type: none"><li>• Oak Brook Park District Prevailing Wage Resolution and current pay rates from the Illinois Department of Labor.</li><li>• Park District Risk Management Association (PDRMA) Fact Sheet: “Cutting Welding Procedures.” Contractor shall implement the safety measures as stated in this Fact Sheet when conducting “Hot Work.”</li></ul>	

**INVITATION TO BID**  
**OAK BROOK PARK DISTRICT**  
**Tennis Center Boiler and Water Heater Replacement Project**

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The Oak Brook Park District (the “District”) is accepting bids for the Tennis Center Boiler and Water Heater Project.

Specifications and Contract Documents may be obtained beginning June 20, 2018, at the Administrative Office at the District’s Family Recreation Center, 1450 Forest Gate Road, Oak Brook, IL 60523, Monday - Friday, 9:00 a.m. – 5:00 p.m., or in PDF format at the District’s website: <https://www.obparks.org/bids-rfps>.

Each bid must be placed in a sealed opaque envelope with the Bidder’s name, the date and time of the bid deadline and marked "**Sealed Bid**: – Oak Brook Park District Tennis Center Boiler and Water Heater Replacement Project,” and addressed to the Oak Brook Park District, 1450 Forest Gate Road, Oak Brook, IL 60523, **Attention: Executive Director**. Bids will be received until 11:00 a.m. on July 9, 2018, at which time the bid proposals will be publicly opened and read aloud at the District’s Administrative Office, located at the District’s Family Recreation Center, 1450 Forest Gate Road, Oak Brook, IL 60523.

**A mandatory pre-bid meeting will be held for this Project at the Tennis Center, 1300 Forest Gate Road, Oak Brook, IL 60523, on Thursday, June 28, 2018 at 11:00 a.m.** All potential Bidders for this Project must attend the pre-bid meeting. Any bid received by the Oak Brook Park District from a Bidder not in attendance at the pre-bid meeting will be considered non-responsive and returned unopened to the Bidder.

The Oak Brook Park District Board of Park Commissioners reserves the right to waive all technicalities, to accept or reject any or all bids, to accept only portions of a proposal and reject the remainder without disclosure for any reason. Failure to make such a disclosure will not result in accrual of any right, claim or cause of action by any Bidder against the Oak Brook Park District.

Bids shall not include federal excise tax or state sales tax for materials and equipment to be incorporated in, or fully consumed in the performance of, the work. An Exemption Certificate will be furnished by the Oak Brook Park District on request of the Bidder, for use in connection with this project only.

The Work of this Project is subject to the Illinois *Prevailing Wage Act*, 820 ILCS 130/0.01 *et seq.* A prevailing wage determination has been made by the District, which is the same as that determined by the Illinois Department of Labor for public works projects in DuPage County. The Contract entered into for the Work will be drawn in compliance with said law and proposals should be prepared accordingly and provide for payment of all laborers, workmen, and mechanics needed to perform the Work at no less than the prevailing rate of wages (or the prevailing rate for legal holiday and overtime work) for each craft, type of worker, or mechanic.

All bid proposals must be accompanied by a bid bond or bank cashier’s check payable to the Oak Brook Park District for ten percent (10%) of the amount of the bid as provided in the Instructions to Bidders. No proposals or bids will be considered unless accompanied by such bond or check.

The Contractor selected will also be required to comply with all applicable federal, state and local laws, rules, regulations and executive orders including but not limited to those pertaining to equal employment opportunity.

The District encourages women and minority business firms to submit bids and encourages bidders to utilize minority businesses for supplies, equipment and services.

Laure Kosey, Executive Director  
Oak Brook Park District

**INSTRUCTIONS TO BIDDERS  
OAK BROOK PARK DISTRICT  
TENNIS CENTER BOILER AND WATER HEATER REPLACEMENT PROJECT**

**INSTRUCTIONS TO BIDDERS**

The Oak Brook Park District and Owner are one and the same. "Architect" or "Engineer" shall mean Kluber, Inc. which shall, through its designated representative, Don Ware, [dware@kluberinc.com](mailto:dware@kluberinc.com), respond to questions and provide interpretations of the Specifications for this Project.

The words "Contractor" and "Bidder" shall mean the party bidding for or entering the Contract for the performance of the Work covered by the written Specifications and Drawings, and his/her legal representatives or authorized agents.

**A. BID DOCUMENTS**

1. Bid Documents for this Project will be available for examination and can be obtained from the Oak Brook Park District, 1450 Forest Gate Road, Oak Brook, IL 60523 (the "District"), Monday - Friday, 9:00 a.m. – 5:00 p.m., or in PDF format at the District's website: <https://www.obparks.org/bids-rfps>.
2. **A mandatory pre-bid meeting will be held for this Project at the Tennis Center, 1300 Forest Gate Road, Oak Brook, IL 60523, on June 28, 2018 at 11:00 a.m.**

**B. BID FORM**

1. Each bid shall be made on the "Bid Form" furnished by the District. The Bid Form shall be executed properly and all writing, including all signatures, shall be with black ink. Failure to use the Bid Form provided could result in rejection of the bid.
2. All applicable blank spaces on the "Bid Form" shall be fully completed, including the List of Subcontractors and the Bidder's Reference List, and all amounts shall be in words as well as in figures where applicable.
3. The bid shall bear the legal name of the business organization. The signatures shall be in longhand and executed by a duly authorized official of the Bidder's organization and the name of the official and title shall be typed below the signature.
4. Erasures, interlineations, corrections, or other changes on the "Bid Form" shall be explained or noted over the signature of the Bidder. No bid submitted with deviations or reservations from the full contract called for will be considered.
5. Bidders' prices are to include the delivery of all materials; including plant, equipment, supplies, tools, scaffolding, transportation, insurances, bonds, warranties, and all other items and facilities, and the performance of all labor and services, necessary for the

proper completion of the Work except as may be otherwise expressly provided in the Contract Documents. Bids shall not include federal excise tax or state sales tax for materials to be incorporated in, or totally consumed in the prosecution of, the Work. An exemption certificate will be furnished by the Park District upon request of the Bidder.

6. Bidder must acknowledge all Addenda received in the spaces provided on the Contractor Bid Form. By submitting a bid, Bidder indicates that all considerations issued by Addendum are incorporated in the bid.
7. Attached to the Bid Form will be the Contractor's Compliance and Certification Attachment/ Substance Abuse Prevention Program Certification regarding the Bidder's compliance with applicable laws. **Failure of a Bidder to complete/submit a required certification shall be the basis for immediate rejection of that Bidder's bid.** The certification of the successful Bidder shall become a part of the Contract with the Park District.
8. The bids shall be sealed in an opaque envelope, marked with the name of the Bidder, the date and time of the bid, and addressed as follows:

Sealed Bid: Tennis Center Boiler and Water Heater Replacement Project  
Oak Brook Park District  
1450 Forest Gate Road  
Oak Brook, IL 60523

9. Bid documents shall be delivered or mailed in time for delivery to the foregoing address no later than July 9, 2018 at 11:00 a.m. Oral bids or oral modifications to bids will not be considered. It is the sole responsibility of the Bidder to see that his bid is received in proper time. **No faxed or e-mail bid or modification of a bid will be considered.** The Park District is not responsible for the premature opening of bids not marked as required. Any bid opened prematurely due to the failure of the Bidder to mark the envelope in accordance with these Bid Documents will be considered non-responsive.
10. No bid can be withdrawn prior to the opening of the bids unless a written request for any such withdrawal, showing good cause for said withdrawal, is first delivered to the District at the foregoing address prior to commencement of the opening of bids. No Bidder may withdraw a bid after opening of the bids.
11. Bids will be publicly opened on the due date.

### **C. REQUIREMENTS OF BIDDERS**

Bidders must be able to demonstrate that they: 1) have experience in performing and have successfully performed and are still actively engaged in performing work similar in kind and scope to the Work of the Project; and 2) are able to show that they have adequate laborers and materials to successfully complete the Work as indicated in the Bid Documents and within

the time required by the Bid Documents. The Contractor shall not have been debarred or determined ineligible for public contracts by any governmental agency.

The following information must be attached to the bid proposal. Failure to do so may result in disqualification of the Bidder.

1. On a separate sheet, list all construction projects your organization has in progress, giving the name of the project, project description, project address, owner and telephone number, architect and telephone number, contract amount, percent complete, and scheduled completion date.

2. On the Bidder's Reference List form provided herein, list at least three (3) construction projects your organization has completed in the past five (5) years, which are comparable in scope, giving the name of the project, project description, project address, owner and telephone number.

3. On the List of Subcontractors form provided herein, provide a list of anticipated subcontractors, if any, including their firm names, addresses and telephone numbers. All subcontractors to be used shall be approved by the Owner. If the Contractor subcontracts any part of the Work for this project, the Contractor shall not under any circumstances be relieved of his liabilities and obligations; any subcontractor for this project will be recognized only in the capacity of an employee of the Contractor.

4. On a separate sheet, list all administrative proceedings and litigation filed by or against Bidder in the past five (5) years, including the name and case number, name/jurisdiction of the court or administrative agency, and a summary of each claim/case, including current status and if no longer pending, the disposition. The foregoing includes but is not limited to information regarding any proceedings and actions taken by any governmental agency to debar or disqualify the Bidder from bidding on public contracts, including the name of the agency initiating the proceeding/action, the nature of the proceeding/action, the claimed basis for the proceeding/action and the current status or disposition of the proceeding/action.

5. On a separate sheet, indicate all instances in which Bidder has been rejected for not being a responsible bidder, giving the name of the project, project description, project address, owner and telephone number, architect and telephone number, contract amount, and an explanation of the circumstances surrounding the rejection.

6. On a separate sheet, provide a list of all contracts to which you were a party and with respect to which you were declared to be in breach of one or more provisions, giving a the type of contract, the project location where applicable, the names and addresses of the parties to the contract, the name of the party declaring the breach, the nature of the claimed breach and current status or resolution of the claim. If a construction contract, also provide the name, address and telephone number of the architect and, if applicable also the construction manager or Owner's representative.

Other required submittals include: Bid Form; Contractor's Compliance and Certification Attachment/ Substance Abuse Prevention Program Certification. **Failure of a Bidder to complete/submit these documents shall be the basis for immediate rejection of that Bidder's bid.**

The Park District reserves the right to require of any Bidder such information to verify the Bidder's qualifications and financial status and to withhold formal signing of the contract until such information is received.

**D. MODIFICATION OF BIDS**

Any Bidder may modify his bid by written notice (signed by the Bidder) at any time prior to the scheduled closing time for receipt of bids, provided that such written notice is received by the District prior to the closing time. Modifications of bid submittals sent by facsimile will not be permitted.

**E. EXAMINATION OF CONTRACT DOCUMENTS AND SITE**

Each Bidder shall visit the site(s) of the proposed Work and fully acquaint himself with conditions, as they exist, and shall undertake such additional inquiry and investigation as he shall deem necessary so that he may fully understand the requirements, facilities, possible difficulties and restrictions attending the execution of the Work under the Contract. Bidder shall thoroughly examine and be familiar with all of the Bid Documents including, but not limited to, the Drawings and the written Specifications. Any conflicts or discrepancies found between or among Bid Documents including, but not limited to, the Drawings and written Specifications and the site conditions, or any errors, omissions or ambiguities in the Drawings or written Specifications shall be immediately reported to the Architect and written clarification requested prior to submission of a bid.

The failure or omission of any Bidder to obtain, receive or examine any form, instrument, or information or to visit the Project site(s), and become knowledgeable with respect to conditions there existing, or to seek needed clarification shall in no way relieve any Bidder from any obligations with respect to his bid. By submitting a bid, the Bidder agrees, represents and warrants that he has undertaken such investigation as he deemed necessary, has examined the site(s) and the Bid Documents, has obtained all needed clarifications and where the Bid Documents indicate in any part of the Work, that a given result be produced, that the Bid Documents are adequate and the required result can be produced as indicated in the Specifications and Drawing(s). Once the award has been made, failure to have undertaken and completed the foregoing tasks shall not be cause to alter the original Contract or to request additional compensation.

**F. ACCEPTANCE OR REJECTION OF BIDS**

The Park District may accept the bid of, and award the contract for the Work to, the lowest responsive and responsible Bidder as determined by and in the sole discretion of the Park District.

The Owner reserves the right to (1) reject all bids; (2) reject only certain bids which are non-conforming or non-responsive to the bid requirements; (3) accept only a portion, part or specific items of Work of all and reject others, as the Owner shall in its sole discretion determine to be in its best interest; and/or (4) award the Contract to the responsible Bidder submitting the lowest bid responsive to the bidding requirements. No bid will be accepted from or Contract awarded to any person, firm or corporation that is in arrears or is in default to the Park District upon any debt or contract, or that is a defaulter, as surety or otherwise, upon any obligation to said Park District or that has failed to perform faithfully any previous contract with the Park District.

In the event of a rejection of a portion, part, or certain items of Work of all bids, the bid of each Bidder shall automatically be deemed reduced by the amount of such rejected part or item at the unit price or other cost designated therefore by that Bidder on its submitted Contractor Bid Form. The successful Bidder so selected may not refuse to enter into a Contract with the Owner on the basis that the Owner awarded a Contract for less than all portions or items of the Work specified in the Bid Documents. The Oak Brook Park District Board of Park Commissioners reserves the right to waive any technicalities or irregularities, and to disregard any informality on the bids and bidding, when in its opinion the best interest of the Park District will be served by such actions and in accordance with applicable law.

**G. SURETY**

All bids must be accompanied by a bid bond or bank cashier's check payable to the Oak Brook Park District for ten percent (10%) of the amount of the bid and drawn on a responsive and responsible bank doing business in the United States. All bids not accompanied by a bid security, when required, will be rejected.

The bid security of all except the three (3) lowest responsive and responsible Bidders will be returned after the decision to accept or reject bids by the Oak Brook Park District Board of Park Commissioners. The bid security of the successful Bidder will be returned after acceptance by the Park District of an acceptable Performance Bond, Labor and Materials/Payment Bond and a certificate of insurance naming the Oak Brook Park District as the certificate holder and as additional insured, and the successful Bidder has executed and returned to the Park District the Contract for the Work presented by the Park District.

Prior to beginning Work, the successful Bidder shall furnish a Performance Bond, and Labor and Materials/Payment Bond in the amount of 110% of the Contract Sum, using a form similar to the AIA-A312-2010 form, or its current equivalent, or one acceptable to Owner, cosigned by a surety company licensed to conduct business in the State of Illinois and with at least an "A" rating and a financial rating of at least "X" in the latest edition of the Best Insurance Guide. Said bond shall guarantee the faithful performance of the Work in accordance with the Contract, the payment of all indebtedness incurred for labor and materials, and guarantee correction of Work. The cost of each bond shall be included in the Contract Sum. The Bidder and all Subcontractors shall name the Park District as an obligee on all bonds. Said bonds shall meet the requirements of the Illinois Public Construction Bond



Act, 30 ILCS 550/0.01 *et seq.* and any further amendments thereto. Bidder shall include in its Performance Bond and Labor and Material Payment Bond such language as shall guarantee the faithful performance of the Prevailing Wage Act as required in these Bid Documents.

The Performance Bond and Labor and Material Payment Bond will become a part of the Contract. The failure of the successful Bidder to enter into the Contract and supply the required bonds and evidence of insurance within ten (10) days after the Contract is presented for signature, or within such extended period as the Park District may grant, shall constitute a default, and the Park District may either award the Contract to the next responsible Bidder, or re-advertise for bids. In the event of a default, the Owner need not return the defaulting Bidder's bid surety and may charge against the defaulting Bidder for the full difference between the amount for the bid and the amount for which a Contract for the Work is subsequently executed, irrespective of whether the amount thus due exceeds the amount of the defaulting Bidder's bid surety, provided that the District's retention of the bid guarantee shall not preclude the District from holding the Bidder fully liable for any and all damages which are in excess of said partial liquidated damages, and which shall otherwise be incurred by the District, including reasonable attorneys' fees, arising from the Bidder's failure to enter into said Contract and to deliver the same back to the District within said ten (10) day period.

In addition to the required performance and labor and material payment bonds, the successful Bidder shall furnish a maintenance bond and/or irrevocable letter of credit in the amount of the Contract to guarantee the Work performed under the Contract against defective workmanship and/or defective materials of any nature for a period of not less than twenty-four (24) months from the date of acceptance of the Work, materials or equipment provided. The maintenance bond shall be in a form acceptable to District. A letter of credit furnished in lieu of maintenance bond shall be in a form designated by the District's attorneys. The District reserves the right to waive the maintenance bond in its own interests.

#### **H. WITHDRAWAL OF BID**

Bidders may withdraw or cancel their bids at any time prior to the advertised bid opening time by signing and submitting a request for said withdrawal. After the bid opening time, no bid shall be withdrawn or canceled for a period of sixty (60) calendar days.

#### **I. ACCEPTANCE AND CONTRACT**

Owner will award the Contract to the lowest most responsible and responsive Bidder, as determined by Owner. In considering the Bidder's responsibility, the Owner may evaluate, among other factors, the ability of the Bidder to provide experienced labor sufficient in numbers to timely and properly complete the services, conformity with the Specifications, serviceability, quality, and the financial capability of the Bidder, and the performance of the Bidder on other projects.

The Owner shall have the right to accept Alternates in any order or combination, and to determine the low Bidder on the basis of the sum of the Base Bid and Alternates accepted.

Bids will be awarded to one Bidder for the entire Project or to any series of Bidders for an appropriate proportion of the Project. If specified in the Bid Form, awards will be based upon the submitted unit prices.

The acceptance of a bid will be by a Notice of Award, signed by a duly authorized representative of the Park District; no other act by the Park District shall constitute the acceptance of a bid. The acceptance of a bid by the Park District shall bind the successful Bidder to execute and perform the Work of the Contract. The successful Bidder to whom the Contract is awarded by the Park District shall sign and deliver to the Park District for execution by the Park District all required copies of the Contract, along with all required insurance and surety documents within ten (10) days after presentation to him of the Contract for signature. In case the Bidder shall fail or neglect to do so, he will be considered as having abandoned the Contract, and as being in default to the Owner. The Owner may thereupon re-advertise or otherwise award said Contract and forfeit the Bid Security.

The Invitation to Bid, Instructions to Bidders, General Conditions, Supplementary and/or Special Conditions, if any, Drawings, Specifications, Contractor Bid Form, Addenda, if any, Contractors Compliance and Certifications Attachment, and Substance Abuse Certification and the Prevailing Wage Determination and Supersedes Notice comprise the Bid Documents. The Bid Documents, together with the Standard Abbreviated Form of Agreement Between Owner and Contractor, AIA Document A104-2017, as modified by the Park District and included in these Bid Documents, and the Performance Bond and Labor Material Payment Bond and proof of insurance comprise the Contract Documents.

## **J. INTERPRETATION OF THE CONTRACT DOCUMENTS**

The Park District shall in all cases determine the amount or quantity of the several kinds of Work which are to be paid for under this Contract, and shall decide all questions which may arise relative to the execution of the Contract on the part of the Contractor, and all estimates and decisions shall be final and conclusive. The Park District shall have the right to make alterations in the lines, grades, plans, forms, or dimensions of the Work herein contemplated either before or after the commencement of the Work. If such alterations diminish the quantity of the Work to be done, they shall not constitute a claim for damage or for anticipated profits on the work dispensed with, or if they increase the amount of Work, such increase shall be paid according to the quantity actually done and at the price or prices stipulated for such Work in the Contract. The Park District reserves the right to approve, an equal to or superior to product or equipment required under the Specifications, or to reject as not being and equal to or superior to the product or equipment required under the Specifications. If the Bidder is in doubt as to the interpretation of any part of the Bid Documents, or finds errors, discrepancies or omissions from any part of the Contract Documents, he must submit a written request for interpretation thereof not later than five (5) days prior to opening of bids to the Park District. Address all communications to the

Architect. If an error or omission is discovered in the Bid Documents after the bid opening, the Park District reserves the right: i) to determine whether to require the submission of new bids; or ii) if the error or omission is of such a nature that it was reasonably discoverable upon a careful review of the Bid Documents, to award the Contract to the lowest responsive and responsible Bidder as determined by the Park District and to require that Contractor to perform the Work in accordance with an issued correction by the Park District and for the amount bid by the Contractor. Such decisions are final and not subject to recourse. Errors and omissions made by the Bidder cannot be corrected after the bid opening.

**K. ADDENDA**

Any interpretation, correction to, or addition to the Bid Documents will be made by written Addendum and will be delivered by mail or fax to each prime Bidder of record. The written Addenda constitute the only interpretations of the Bid Documents; the Park District accepts no responsibility for any other claimed interpretations or communications.

It is the responsibility of each Bidder to verify that he has received all Addenda prior to submitting a bid. It is also the responsibility of each Bidder to verify that all subcontractors and material suppliers whose prices are incorporated in the Bidder's bid are familiar with the Bid Documents in their entirety, including all Addenda issued up to the time of bid opening.

In the event a conflict or omission is discovered in the Bid Documents after the issuing of the last Addendum such that an interpretation cannot be issued by the Architect or Park District prior to bidding, the Bidder is directed to estimate on and provide the quantity and quality of material and labor consistent with the overall represented and indicated Work so as to provide all materials, equipment, labor, and services necessary for the completion of the Work in accordance with the Bid Documents.

**L. SUBSTITUTIONS DURING BIDDING**

Unless otherwise indicated, the use of brand names in the Specifications is used for the purpose of establishing a grade or quality. Bidders proposing to use an alternate that is equal to or superior to in every respect to that required by the Specifications must request approval in writing to the Architect at least seven (7) business days prior to the bid opening and mark the item as 'or approved equal'.

Additionally, Bidders requesting approval for use of an alternate must provide certification by the manufacturer that the substitute proposed is equal to or superior in every respect to that required by the Contract Documents, and that its in-place performance will be equal to or superior to the product or equipment specified in the application indicated. The Bidder, in submitting the request for substitution, waives the right to additional payment or an extension of Contract Time because of the failure of the substitute to perform as represented in the request for substitution.

The Architect may request additional information or documentation necessary for evaluation of the request for substitution. The Architect will notify all Bidders of acceptance of the proposed substitute by means of an Addendum to the Bid Documents. The Architect's approval of a substitute during bidding does not relieve the Contractor of the responsibility to submit required shop drawings and to comply with all other requirements of the Contract Documents, including but not limited to proper performance of all components of the Work and suitability for the uses specified.

Bids proposing alternates not previously approved by the Architect will be considered non-responsive and rejected. The Architect and Park District reserve the right to determine whether a substituted selection, in their judgment, is equal to or better quality and therefore an acceptable alternate. Such decisions are final and not subject to recourse.

**CONDITIONS OF THE CONTRACT  
OAK BROOK PARK DISTRICT  
TENNIS CENTER BOILER AND WATER HEATER REPLACEMENT PROJECT**

**GENERAL CONDITIONS**

The General Conditions are the General Provisions of the Standard Abbreviated Form of Agreement Between Owner and Contractor, AIA Document A104-2017, as modified by the Park District and included in these Bid Documents (the “General Conditions”).

**SUPPLEMENTARY CONDITIONS**

The General Conditions are hereby amended to include the following:

**1. COMMENCEMENT AND COMPLETION DATE**

The Work for the Contract shall commence on August 27, 2018, or on such earlier date as may be agreed upon by the parties. Contractor shall achieve Substantial Completion on or before October 1, 2018 and shall achieve Final Completion on or before October 15, 2018, unless otherwise extended by agreement of the parties pursuant to the General Conditions.

**2. USE OF THE SITE**

The Contractor shall confine all equipment, the storage of materials and the operations of its workers, to limits indicated by law, ordinances, permits, or directions of the Owner and shall not unreasonably encumber the site with such materials. The site shall not be utilized for the storage of vehicles, materials, equipment, or fixtures not intended for the Work to be performed.

**3. COOPERATION WITH UTILITIES**

The Contractor shall notify all utility companies, public and private, as necessary in advance of commencing performance of the Work. The responsibility for moving water lines, gas lines, wire lines, service connections, water and gas meter boxes, water and gas valve boxes, light standards, cable ways, signals and all other utility appurtenances which are within the limits of the proposed construction will be assumed by the Contractor, at no additional compensation.

The Contractor shall verify the location of all utilities prior to the start of construction and shall be responsible for the preservation of existing utility installation and the cost of providing precautionary supports, braces, etc. to insure against damage to said utility installation.

The cost to repair and replace any new or existing utilities damaged will be paid for by the Contractor.

It is understood and agreed that the Contractor has considered in its bid all of the permanent and temporary utility appurtenances in their present or relocated positions and that no additional compensation will be allowed for delays, inconvenience, or damage sustained by the Contractor, due to any interference from the said utility appurtenances or the operation of moving them either by the utility company or by the Contractor, or on account of any special construction methods required in performing the Work due to the existence of said appurtenances whether in their present or relocated positions.

**4. PROTECTION OF PROPERTY -SAFETY RESPONSIBILITY**

In accordance with the Specifications, the Contractor shall protect all existing property and improvements within the Project site and those adjacent to the Owner's property in a manner agreed upon between the Owner and Contractor. The Contractor shall be responsible for the repair cost of any damage created by its operations or the operations of any subcontractors.

Contractor shall comply with State and Federal regulations as outlined in the latest revision of the Federal Construction Safety Standards and with applicable provisions and regulations of Occupation Safety and Health Administration (OSHA), Standards of the William-Steiger Occupational Health and Safety Act of 1970 (revised). The Contractor and Owner shall each be responsible for their respective agents and employees.

The Contractor shall be obligated to indemnify, hold harmless and protect the Owner, its officers, employees and agents, from any actions or suits instituted as a direct or indirect result of any injury or damage consequent upon any failure to use or misuse by the Contractor, its agents and employees and any subcontractor, its agents and employees, of any ladder, support or other mechanical contrivance erected or constructed by any person or any or all kinds of equipment whether or not Owner or furnished by the Owner.

**5. INSURANCE**

**BIDDER'S ATTENTION IS DIRECTED TO THE INSURANCE REQUIREMENTS BELOW. IT IS HIGHLY RECOMMENDED THAT THE BIDDER CONFER WITH ITS INSURANCE CARRIER REGARDING THESE REQUIREMENTS. FAILURE TO MEET THESE REQUIREMENTS IS CAUSE FOR CANCELLATION OF THE CONTRACT.**

The successful Bidder shall obtain insurance of the types and in the amounts listed below.

**a. Commercial General and Umbrella Liability Insurance**

The successful Bidder shall maintain commercial general liability (CGL) and, if necessary, commercial umbrella insurance with a limit of not less than \$2,000,000 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 04 13, 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).

The District, its elected and appointed officials, employees, agents and volunteers shall be included as an additional named insured under the CGL, using ISO additional insured endorsement CG 20 26 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 District. Any insurance or self-insurance maintained by the District shall be deemed excess of such bidder's insurance and shall not contribute with it.

**b. Business Auto and Umbrella Liability Insurance**

The successful Bidder 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.

**c. Workers Compensation Insurance**

The successful Bidder shall maintain workers compensation 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.

Such Bidder waives all rights against District and its officers, officials, employees, volunteers and agents for recovery of damages arising out of or incident to such Bidder's activities.

**d. General Insurance Provisions**

i. Evidence of Insurance: The successful Bidder shall furnish the District 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 the District prior to the cancellation or material change of any insurance referred to therein. Written notice to the District shall be by certified mail, return receipt requested.

Failure of the District to demand such certificate, endorsement or other evidence of full compliance with these insurance requirements, or failure of the District to identify a coverage deficiency from evidence that is provided, shall not be construed as a waiver of such Bidder's obligation to maintain such insurance.

The District shall have the right, but not the obligation, of prohibiting such Bidder from entering the premises until such certificates or other evidence that insurance has been placed in complete compliance with these requirements is received and approved by District.

Failure to maintain the required insurance may result in termination of the Contract entered by the parties at the District's option.

Such Bidder shall provide certified copies of all insurance policies required above within 10 days of the District's written request for said copies.

ii. Acceptability of Insurers: All insurance companies shall maintain a rating no less than A-VII from A.M. Best, based on 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 District has the right to reject insurance written by an insurer it deems unacceptable.

iii. Deductibles and Self-Insured Retentions: Any deductibles or self-insured retentions must be declared to the District. At the option of the District, the successful Bidder may be asked to eliminate such deductibles or self-insured retentions as respects the District, its officers, officials, employees, volunteers and agents, or such Bidder may be required to procure a bond guaranteeing payment of losses and other related costs, including, but not limited to, investigations, claims administration and defense expenses.

**e. 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.



**6. INDEMNIFICATION**

To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner and its officers, officials, employees, volunteers and agents from and against all claims, damages, losses and expenses including but not limited to legal fees (attorney's and paralegals' 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 (i) 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 there from and (ii) 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, regardless of whether or not 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.

Nothing contained herein shall be construed as prohibiting the District, its officers, employees or agents from defending, through the selection and use of their own agents, attorneys and experts, any claims, suits, demands, proceedings or actions brought against them. The District's participation in its defense shall not remove the successful Bidder's duty to indemnify, defend and hold the District harmless as set forth herein.

The indemnification required hereunder shall not be limited by reason of the enumeration of insurance coverage herein provided.

The successful Bidder's indemnification of the District shall survive the termination or expiration of the Contract.

**7. WARRANTY**

- A. The Work performed and the materials and equipment installed under this Contract shall be in compliance with the Contract Documents and must be guaranteed by the Contractor and the Surety for a period of twenty four (24) months from Final Completion against defective workmanship and material of any nature. On all material or equipment incorporated, the Contractor and its Surety must guarantee that the type, quality, design and performance will fully meet the requirements of the Specifications and Drawings.
- B. The Contractor shall provide the Owner with manufacturer's warranties for all materials and equipment installed under the Contract.

- C. A Maintenance Bond or Irrevocable Letter of Credit meeting the requirements set forth in the Instructions to Bidders shall be furnished by the Contractor to guarantee the Work performed, and the materials and equipment provided under the Contract.

## **SPECIAL CONDITIONS**

1. The Tennis Center shall remain open to the public for the duration of the Project. As such, Contractor shall maintain the Project site in a manner that ensures safe access Tennis Center amenities by the public, Park District staff and others requiring access to the Tennis Center. Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.
2. Time is of the essence to the Contract. Should the Contractor fail to complete the Work on or before the Final Completion date as stipulated in the Contract or within such extended time as may be have been allowed, the Contractor shall be liable and shall pay to the Owner the sum of \$150.00 per calendar day, not as a penalty but as a liquidated damages for each day of overrun in the Contract Time or such extended time as may have been allowed. The liquidated damages for failure to complete the Contract on time are approximate, due to the impracticality of calculating and proving actual delay costs. The costs of delay represented by the liquidated damage amount are understood to be a fair and reasonable estimate of the costs that will be borne by the Owner during extended and delayed performance by the Contractor for the Work. The liquidated damage amount specified will accrue and be assessed until Final Completion of the total physical Work of the Contract even though the Work may be substantially complete. The Owner will deduct these liquidated damages from any monies due or to become due to the Contractor from the Owner.

**BID FORM  
OAK BROOK PARK DISTRICT  
TENNIS CENTER BOILER AND WATER HEATER REPLACEMENT PROJECT**

(Please complete in ink, and print or type)

TO: Oak Brook Park District  
1450 Forest Gate Road  
Oak Brook, IL 60523

FROM: \_\_\_\_\_  
NAME OF BIDDER

\_\_\_\_\_  
STREET ADDRESS

\_\_\_\_\_  
CITY STATE ZIP

\_\_\_\_\_  
PHONE

\_\_\_\_\_  
EMAIL ADDRESS

**FOR:** Tennis Center Boiler and Water Heater Replacement Project

By submission of its bid, the Bidder acknowledges, agrees, represents, declares and warrants:

- A. That he has carefully examined the written Specifications and Drawings and is thoroughly familiar therewith, and that he has visited the site of the proposed Work to arrive at a clear understanding of the conditions under which the Work is to be done, and that he has compared the site with the Drawings and Specifications and has satisfied himself as to all conditions affecting the execution of the Work;
- B. That all modifications have been submitted with this bid;
- C. That he has checked carefully the bid figures and understands that he shall be responsible for any errors or omissions based on these Specifications and alternates as submitted on the Bid Proposal Form;
- D. That it is understood and agreed that the Oak Brook Park District reserves the right to accept or reject any or all bids, or to combine or separate any section or work, and to waive any technicalities;
- E. To hold the bid open for sixty (60) days subsequent to the date of the bid opening;
- F. To enter into and execute a Contract with the Owner within ten (10) days after the date of the Notice of Award, if awarded on the basis of this bid, and in connection therewith to:
  - (a) Furnish all bonds and insurance required by the Contract Documents;
  - (b) Accomplish the Work in accordance with the Contract Documents; and
  - (c) Complete the Work within the time requirements as set forth in the Bid Documents.
- G. That if this bid is accepted, the Bidder is to provide all of the necessary equipment, tools, apparatus, labor, and other means of construction, and to do all of the Work and to furnish all of the materials specified in

the Bid Documents in the manner and at the time therein prescribed, and in accordance with the requirements set forth;

- H. To commence Work as specified in the Instructions to Bidders, and to prosecute the Work in such a manner, and with sufficient materials, equipment and labor as will ensure its completion within reasonable time, it being understood and agreed that the completion within such reasonable time is an essential part of this Contract;
- I. That any and all prices stated in the proposal include all costs of labor, materials, equipment, insurance, bonds, overhead and profit, and any and all other costs normal to doing business.

**The undersigned Bidder agrees to perform the Work for the following lump sum price:**

<b>Base Bid</b>	<b>Amount</b>
Water Heater Replacement	\$
Boiler Replacement	\$
<b>Total Lump Sum</b>	\$

The undersigned Bidder hereby acknowledges the receipt of the following addenda (if any) distributed by the Park District.

Addendum No. \_\_\_\_\_ Date: \_\_\_\_\_  
Addendum No. \_\_\_\_\_ Date: \_\_\_\_\_

The Work for the Contract shall commence on August 27, 2018, or on such earlier date as may be agreed upon by the parties. Substantial Completion of the Project shall be on or before October 1, 2018 and Final Completion of the Project shall be on or before October 15, 2018, unless otherwise extended by agreement of the parties pursuant to the General Conditions.

The undersigned Bidder agrees that if this bid is accepted by the Park District, it will perform all Work in accordance with the requirements of the Contract.

DATED THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 2018.

\_\_\_\_\_  
Full Name of Bidder (Print) (a) Individual ( )  
(b) Partnership ( )  
(c) Corporation ( )

Name and Title of Authorized Agent  
if Corporation or Partnership (Print): \_\_\_\_\_

\_\_\_\_\_  
Full Name and Title of Bidder (Signature)

\_\_\_\_\_  
Street Address

\_\_\_\_\_  
City/State/Zip

\_\_\_\_\_  
Email

Phone \_\_\_\_\_

**LIST OF SUBCONTRACTORS**

Bidder submits a list of subcontractors for each trade relative to the Work to be performed under the Contract with the District, and agrees that if selected the successful Contractor, the Bidder will promptly confer with the District's agents on the question of which subcontractors the Bidder proposes to use, including submission of their qualifications. It is agreed that the District may substitute for any proposed subcontractor, another subcontractor for the trade against whose standing and ability the Bidder makes no objection in writing, and the Bidder will use all such finally selected subcontractors at the amount named in their respective subcontracts, and be in every way responsible for them and their work as if they had been originally named in the Bidder's bid, the unit, total and alternate Contract prices being adjusted to confirm thereto.

Subcontractor Name & Address                      Classification of Work                      Amount of Subcontract

1.		
2.		
3.		
4.		



## CONTRACTOR COMPLIANCE AND CERTIFICATIONS ATTACHMENT

**Note: The following certifications form an integral part of the Agreement between the Owner and Contractor. Breach by Contractor of any of the certifications may result in immediate termination of the Contractor's services by Owner.**

THE UNDERSIGNED CONTRACTOR HEREBY ACKNOWLEDGES, CERTIFIES, AFFIRMS AND AGREES AS FOLLOWS:

- A. Contractor has carefully read and understands the contents, purpose and legal effect of this document as stated above and hereafter in this document. The certifications contained herein are true, complete and correct in all respects.
- B. Contractor shall abide by and comply with, and in contracts which it has with all persons providing any of the services or Work on this Project on its behalf shall require compliance with, all applicable Federal, State and local laws and rules and regulations including without limitation those relating to 1) fair employment practices, affirmative action and prohibiting discrimination in employment; 2) workers' compensation; 3) workplace safety; 4) wages and claims of laborers, mechanics and other workers, agents, or servants in any manner employed in connection with contracts involving public funds or the development or construction of public works, buildings or facilities; and 5) steel products procurement.
- C. All contracts for this Project are subject to the provisions of the Illinois Prevailing Wage Act (820 ILCS 130/0.01 *et seq.*), providing for the payment of the prevailing rate of wage to all laborers, workmen and mechanics engaged in the Work. Contractor shall pay prevailing rates of wages in accordance with the wage determination included with the Contract Documents and any subsequent determinations issued by the Illinois Department of Labor which shall supersede the determination included in the Contract Documents, all in accordance with applicable law. Contractor is responsible for determining the applicable prevailing wage rates at the time of bid submission and at the time of performance of the Work. Failure of Contractor to make such determination shall not relieve it of its obligations in accordance with the Contract Documents. Contractor shall also comply with all other requirements of the Act including without limitation those pertaining to inclusion of required language in subcontracts, job site posting, maintenance and submission of certified payroll records and inspection of records. Contractor is not barred from entering into public contracts under Section 11a of the Illinois Prevailing Wage Act due to its having been found to have disregarded its obligations under the Act.
- D. To the best of Contractor's knowledge, no officer or employee of Contractor has been convicted of bribery or attempting to bribe an officer or employee of the State of Illinois, or any unit of local government, nor has any officer or employee made an admission of guilt of such conduct which is a matter of record.
- E. Contractor is not barred from bidding on or entering into public contracts due to having been convicted of bid-rigging or bid rotating under paragraphs 33E-3 or 33E-4 of the Illinois Criminal Code. Contractor also certifies that no officers or employees of the Contractor have been so convicted and that Contractor is not the successor company or a new company created by the officers or owners of one so convicted. Contractor further certifies that any such conviction occurring after the date of this certification will be reported to the Owner, immediately in writing, if it occurs during the bidding process, or otherwise prior to entering into the Contract therewith.

- F. Pursuant to the Illinois Human Rights Act (775 ILCS 5/2-105), Contractor has a written sexual harassment policy that includes, at a minimum, the following information: (i) a statement on the illegality of sexual harassment; (ii) the definition of sexual harassment under State law; (iii) a description of sexual harassment utilizing examples; (iv) the Contractor's internal complaint process including penalties; (v) the legal recourse, investigative and complaint process available through the Illinois Department of Human Rights and the Human Rights Commission and directions on how to contact both; and (vi) protection against retaliation as provided by Section 6-101 of the Illinois Human Rights Act. Contractor further certifies that such policy shall remain in full force and effect. A copy of the policy shall be provided to the Illinois Department of Human Rights upon request.
- G. (i) Contractor's bid proposal was made without any connection or common interest in the profits anticipated to be derived from the Contract by Contractor with any other persons submitting any bid or proposal for the Contract; (ii) the Contract terms are in all respects fair and the Contract will be entered into by Contractor without collusion or fraud; (iii) no official, officer or employee of the Owner has any direct or indirect financial interest in Contractor's bid proposal or in Contractor, (iv) the Contractor has not directly or indirectly provided, and shall not directly or indirectly provide, funds or other consideration to any person or entity (including, but not limited to, the Owner and the Owner's employees and agents), to procure improperly special or unusual treatment with respect to this Agreement or for the purpose of otherwise improperly influencing the relationship between the Owner and the Contractor. Additionally, the Contractor shall cause all of its officers, directors, employees, (as the case may be) to comply with the restrictions contained in the preceding sentence.
- H. Contractor knows and understands the Equal Employment Opportunity Clause administered by the Illinois Department of Human Rights, which is incorporated herein by this reference, and agrees to comply with the provisions thereof. Contractor further certifies that Contractor is an "equal opportunity employer" as defined by Section 2000 (e) of Chapter 21, Title 42 of the United States Code Annotated and Executive Orders #11246 and #11375 as amended, which are incorporated herein by this reference.
- I. Neither Contractor nor any substantially owned affiliated company is participating or shall participate in an international boycott in violation of the provisions of the U.S. Export Administration Act of 1979 or the regulations of the U.S. Department of Commerce promulgated under that Act.
- J. Contractor is not barred from contracting with the Owner because of any delinquency in the payment of any tax administered by the Illinois Department of Revenue, unless it is being contested. Contractor further certifies that it understands that making a false statement regarding delinquency in taxes is a Class A misdemeanor and, in addition, voids the Contract and allows the Owner, a municipal entity, to recover in a civil action all amounts paid to the Contractor.
- K. If Contractor has 25 or more employees at the time of letting of the Contract, Contractor knows, understands and acknowledges its obligations under the Illinois Drug Free Workplace Act (30 ILCS 580/1 *et seq.*) and certifies that it will provide a drug-free workplace by taking the actions required under, and otherwise implementing on a continuing basis, Section 3 of the Drug Free Workplace Act. Contractor further certifies that it has not been debarred and is not ineligible for award of this Contract as the result of a violation of the Illinois Drug Free Workplace Act.
- L. Contractor knows, understands and acknowledges its obligations under the Substance Abuse Prevention on Public Works Act, 820 ILCS 265/1 *et seq.* A true and complete copy of Contractor's





**SUBSTANCE ABUSE PREVENTION PROGRAM CERTIFICATION**

The Substance Abuse Prevention on Public Works Projects Act, 820 ILCS 265/1 et seq., (“Act”) prohibits any employee of the Contractor or any Subcontractor on a public works project to use, possess or be under the influence of a drug or alcohol, as those terms are defined in the Act, while performing work on the project. The Contractor/Subcontractor [**circle one**], by its undersigned representative, hereby certifies and represents to the Oak Brook Park District that [**Contractor/Subcontractor must complete either Part A or Part B below**]:

A. The Contractor/Subcontractor [**circle one**] has in place for all of its employees not covered by a collective bargaining agreement that deals with the subject of the Act a written substance abuse prevention program, a true and correct copy of which is attached to this certification, which meets or exceeds the requirements of the Substance Abuse Prevention on Public Works Act, 820 ILCS 265/1 et seq. [**Contractor/Subcontractor must attach a copy of its substance abuse prevention program to this Certification.**]

\_\_\_\_\_  
Name of Contractor/Subcontractor (print or type)

\_\_\_\_\_  
Name and Title of Authorized Representative (print or type)

\_\_\_\_\_  
Signature of Authorized Representative

\_\_\_\_\_ Dated: \_\_\_\_\_

B. The Contractor/Subcontractor [**circle one**] has one or more collective bargaining agreements in effect for all of its employees that deal with the subject matter of the Substance Abuse Prevention on Public Works Projects Act, 820 ILCS 265/1 et seq.

\_\_\_\_\_  
Name of Contractor/Subcontractor (print or type)

\_\_\_\_\_  
Name and Title of Authorized Representative (print or type)

\_\_\_\_\_  
Signature of Authorized Representative

\_\_\_\_\_ Dated: \_\_\_\_\_

**IMPORTANT NOTICE OF RESPONSIBILITY FOR PERIODIC REVISIONS TO PREVAILING WAGE RATES**

Revisions of the following Prevailing Wage Rates are made periodically by the Illinois Department of Labor. These may be accessed by computer at <https://www.illinois.gov/idol/Laws-Rules/CONMED/Pages/2017-Rates.aspx>. As required by the Prevailing Wage Act, any and all such revisions supersede the Park District's June determination. Bidders and contractors performing work on this Project are responsible for determining the applicable prevailing wage rates at the time of bid submission and performance of the Work. Failure of a bidder/contractor to make such determination shall not relieve it of its obligations in accordance with the Contract Documents. In consideration for the award to it of the contract for this Project, the contractor agrees that the foregoing notice satisfies any obligation of the public body in charge of this Project to notify the contractor of periodic changes in the prevailing wage rates and the contractor agrees to assume and be solely responsible for, as a material obligation of the contractor under the contract, the obligation to determine periodic revisions of the prevailing wage rates, to notify its subcontractors of such revisions, to post such revisions as required for the posting of wage rates under the Act, and to pay and require its subcontractors to pay wages in accordance with such revised rates.

# Owner/Contractor Agreement

 **AIA**® Document A104™ – 2017

**Standard Abbreviated Form of Agreement Between Owner and Contractor**

**AGREEMENT** made as of the    day of    in the year Two Thousand Eighteen  
*(In words, indicate day, month and year.)*

**BETWEEN** the Owner:  
*(Name, legal status, address and other information)*

Oak Brook Park District  
1450 Forest Gate Road  
Oak Brook, IL 60523

and the Contractor:  
*(Name, legal status, address and other information)*

for the following Project:  
*(Name, location and detailed description)*

Tennis Center Boiler and Water Heater Replacement Project  
1300 Forest Gate Road  
Oak Brook, IL 60523

This Project includes the replacement of the heating hot water boiler and water heater and all other incidental and collateral work necessary to complete the Project in accordance with the Contract Documents.

The Architect:  
*(Name, legal status, address and other information)*

Kluber, Inc.  
10 South Shumway Avenue  
Batavia, IL 60510

The Owner and Contractor agree as follows.

**ADDITIONS AND DELETIONS:**  
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

**TABLE OF ARTICLES**

- 1 THE WORK OF THIS CONTRACT
- 2 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION
- 3 CONTRACT SUM
- 4 PAYMENT
- 5 DISPUTE RESOLUTION
- 6 ENUMERATION OF CONTRACT DOCUMENTS
- 7 GENERAL PROVISIONS
- 8 OWNER
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**EXHIBIT A DETERMINATION OF THE COST OF THE WORK**

**ARTICLE 1 THE WORK OF THIS CONTRACT**

The Contractor shall execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

**ARTICLE 2 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION**

§ 2.1 The date of commencement of the Work shall be:

Inlt.

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User Notes:

(1396143990)

(Check one of the following boxes.)

- The date of this Agreement.
- A date set forth in a notice to proceed issued by the Owner.
- Established as follows:  
(Insert a date or a means to determine the date of commencement of the Work.)  
August 27, 2018

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

**§ 2.2** The Contract Time shall be measured from the date of commencement.

**§ 2.3 Substantial Completion**

**§ 2.3.1** Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:  
(Check the appropriate box and complete the necessary information.)

- Not later than ( ) calendar days from the date of commencement of the Work.
- By the following date: October 1, 2018

**§ 2.3.2** Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

Portion of Work	Substantial Completion Date
NA	

**§ 2.3.3** If the Contractor fails to achieve Substantial Completion as provided in this Section 2.3, liquidated damages, if any, shall be assessed as set forth in Section 3.5.

**§ 2.4 Final Completion**

**§ 2.4.1** Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Final Completion of the entire Work:  
(Check the appropriate box and complete the necessary information.)

- Not later than ( ) calendar days from the date of commencement of the Work.
- By the following date: October 15, 2018

**§ 2.4.2** If the Contractor fails to achieve Final Completion as provided in this Section 2.4, liquidated damages, if any, shall be assessed as set forth in Section 3.5.

**ARTICLE 3 CONTRACT SUM**

**§ 3.1** The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be one of the following:  
(Check the appropriate box.)

- Stipulated Sum, in accordance with Section 3.2 below

Init.

- [ ] Cost of the Work plus the Contractor's Fee, in accordance with Section 3.3 below
- [ ] Cost of the Work plus the Contractor's Fee with a Guaranteed Maximum Price, in accordance with Section 3.4 below

*(Based on the selection above, complete Section 3.2, 3.3 or 3.4 below.)*

**§ 3.2** The Stipulated Sum shall be (\$ ), subject to additions and deductions as provided in the Contract Documents.

**§ 3.2.1** The Stipulated Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:

*(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)*

**§ 3.2.2** Unit prices, if any:

*(Identify the item and state the unit price and the quantity limitations, if any, to which the unit price will be applicable.)*

Item	Units and Limitations	Price per Unit (\$0.00)
------	-----------------------	-------------------------

**§ 3.2.3** Allowances, if any, included in the stipulated sum:

*(Identify each allowance.)*

Item	Price
NA	

*(Paragraphs deleted)*

**§ 3.2.4** Adjustments to the Contract Sum: Adjustments to the Contract Sum for changes in the Work other than changes in the Work involving items for which unit prices were requested by Owner and provided in Contractor's Submitted Bid Proposal, shall be made as follows:

1. In the manner agreed to by the Parties, or in the absence of agreement then the combined allowance for overhead and profit in connection with changes to the Work shall be the lesser of the amount, if any, included in the Contractor's bid proposal, or the following:
  - a. Five percent (5%) of the cost of the change in the Work involved if performed by the Contractor not involving Subcontractors, or
  - b. Five percent (5%) of the cost of the change in the Work involved performed by Subcontractors, plus two percent (2%) of the cost of the change in the Work for the Contractor's supervision of the work performed by the Subcontractors.

When both additions and credits covering related Work are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

**§ 3.2.5** Overtime, if and when specifically authorized in advance in writing by the Owner shall be paid by the Owner on the basis of premium payment if any, plus the cost of insurance and taxes based on the premium payment period. No overhead or profit may be charged for overtime. The Contractor shall not be entitled to any payment for overtime necessitated by the failure of the Contractor to perform the Work in accordance with the Contract Documents including without limitation to the Contractor's failure to prosecute the Work diligently and on an uninterrupted basis and with a sufficient work force so as to achieve completion of the Work within the time and in the manner contemplated by the Contract Documents or otherwise due to the fault of the Contractor. In such instances if the

Init.



Owner requires the Contractor to perform Work on an overtime basis, all costs for and associates with such overtime shall be borne by the Contractor.

*(Paragraphs deleted)*

*(Table deleted)*

*(Paragraphs deleted)*

*(Table deleted)*

**§ 3.5 Liquidated damages, if any:**

*(Insert terms and conditions for liquidated damages, if any.)*

Time is of the essence to the Contract. Should the Contractor fail to complete the Work on or before the Final Completion date as stipulated in the Contract or within such extended time as may have been allowed, the Contractor shall be liable and shall pay to the Owner the sum of \$150.00 per calendar day, not as a penalty but as a liquidated damages for each day of overrun in the Contract Time or such extended time as may have been allowed. The liquidated damages for failure to complete the Contract on time are approximate, due to the impracticality of calculating and proving actual delay costs. The costs of delay represented by the liquidated damage amount are understood to be a fair and reasonable estimate of the costs that will be borne by the Owner during extended and delayed performance by the Contractor for the Work. The liquidated damage amount specified will accrue and be assessed until Final Completion of the total physical Work of the Contract even though the Work may be substantially complete. The Owner will deduct these liquidated damages from any monies due or to become due to the Contractor from the Owner.

**ARTICLE 4 PAYMENT**

**§ 4.1 Progress Payments**

**§ 4.1.1** Based upon Applications for Payment properly completed and accompanied by all supporting documentation and other submittals required by the Contract Documents, submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, and agreed to by the Owner and not subsequently nullified by the Architect in accordance with the Contract Documents, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

**§ 4.1.2** The period covered by each Application for Payment shall be one calendar month ending on the last day of the month.

**§ 4.1.3** Provided that an Application for Payment, which is in proper form and accompanied by the required supporting documents and submittals, in form and substance required by the Contract Documents, is received by the Architect not later than the 10th day of a month, certified by Architect and not subsequently nullified by Architect, the Owner shall make payment of the certified amount to the Contractor not later than the fifteenth day of the following month. If an Application for Payment is received by the Architect after the date fixed above, payment shall be made by the Owner not later than forty-five ( 45 ) days after the Architect receives the Application for Payment.

*(Federal, state or local laws may require payment within a certain period of time.)*

**§ 4.1.4** For each progress payment made prior to Final Completion of the Work, the Owner may withhold retainage from the payment otherwise due as follows:

*(Insert a percentage or amount to be withheld as retainage from each Application for Payment and any terms for reduction of retainage during the course of the Work. The amount of retainage may be limited by governing law.)*

10% of the Contract Sum

**§ 4.1.5** Payments due and unpaid under the Contract, and any penalties associated with the same, shall be paid in accordance with the provisions of, the Illinois Local Government Prompt Payment Act, 50 ILCS 505/1 *et seq.*

*(Paragraph deleted)*

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**§ 4.2 Final Payment**

**§ 4.2.1** Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has achieved Final Completion of the Work, including Final Completion for Contractor’s responsibility to correct Work as provided in Sections 9.4 and 18.2, and to satisfy other requirements, if any, which extend beyond final payment;
- .2 the Contractor has submitted a final accounting for the Cost of the Work, where payment is on the basis of the Cost of the Work with or without a Guaranteed Maximum Price; and
- .3 a final Certificate for Payment has been issued by the Architect in accordance with Section 15.7.1.

**§ 4.2.2** Subject to § 4.2.1, the Owner’s final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect’s final Certificate for Payment and approval by Owner.

**ARTICLE 5 DISPUTE RESOLUTION**

**§ 5.1 Binding Dispute Resolution**

The method of binding dispute resolution shall be as follows:

*(Check the appropriate box.)*

- Arbitration pursuant to Section 21.6 of this Agreement
- Litigation in a court of competent jurisdiction
- Other *(Specify)*

**ARTICLE 6 ENUMERATION OF CONTRACT DOCUMENTS**

**§ 6.1** The Contract Documents are defined in Article 7 and, except for Modifications issued after execution of this Agreement, are enumerated in the sections below.

**§ 6.1.1** The Agreement is this executed AIA Document A104™–2017, Standard Abbreviated Form of Agreement Between Owner and Contractor.

**§ 6.1.2**

*(Paragraphs deleted)*

Intentionally Omitted.

**§ 6.1.3** The Supplementary and other Conditions of the Contract are those included in the Project Manual dated June 20, 2018.

*(Table deleted)*

**§ 6.1.4** The

*(Paragraphs deleted)*

Specifications are those included in the Project Manual dated June 20, 2018.

*(Table deleted)*

**§ 6.1.5** The Drawings are those included in the Project Manual dated June 20, 2018.

*(Either list the Drawings here or refer to an exhibit attached to this Agreement.)*

*(Table deleted)*

**§ 6.1.6** The Addenda, if any:

Number	Date	Pages
--------	------	-------

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are enumerated in this Article 6.

**§ 6.1.7** Additional documents, if any, forming part of the Contract Documents:

- .1 Other Exhibits:

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(Check all boxes that apply.)

- Exhibit A, Determination of the Cost of the Work.
- AIA Document E204™-2017, Sustainable Projects Exhibit, dated as indicated below:  
(Insert the date of the E204-2017 incorporated into this Agreement.)

- The Sustainability Plan:

Title	Date	Pages
-------	------	-------

- Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
----------	-------	------	-------

- .2 Other documents, if any, listed below:  
(List here any additional documents that are intended to form part of the Contract Documents.)

- a. Project Manual for Tennis Center Boiler and Water Heater Replacement Project, dated June 20, 2018, incorporated herein by reference.
- b. Contractor's Proposal, dated \_\_\_\_\_, attached to and incorporated in this Agreement as **Exhibit A**.
- c. Contractor's Compliance and Certification, a copy of which is attached to and incorporated in this Agreement as **Exhibit B**.
- d. Performance Bond, Labor Material Payment Bond and Maintenance Bond, copies of which are attached to and incorporated as part of this Agreement by reference.

**ARTICLE 7 GENERAL PROVISIONS**

**§ 7.1 The Contract Documents**

The Contract Documents are enumerated in Article 6 and consist of this Agreement (including, if applicable, Supplementary and other Conditions of the Contract), Drawings, Specifications, Addenda issued prior to the execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

**§ 7.2 The Contract**

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind between any persons or entities other than the Owner and the Contractor.

**§ 7.3 The Work**

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

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#### § 7.4 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

#### § 7.5 Ownership and use of Drawings, Specifications and Other Instruments of Service

§ 7.5.1 The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 7.5.2 The Contractor, Subcontractors, Sub-subcontractors and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to the protocols established pursuant to Sections 7.6 and 7.7, if applicable, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect's consultants.

7.5.3 The Owner is the owner of the Contract Documents. The Contractor may retain one record set for use with this Project only. All copies of the Contract Documents except the Contractor's record set, shall be returned or suitably accounted for to the Owner on request upon completion of the Work.

#### § 7.6 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. If applicable, the parties may use AIA Document E203™-2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

#### § 7.7 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™-2013, Building Information Modeling and Digital Data Exhibit, if completed, and the requisite AIA Document G202™-2013, Project Building Information Modeling Protocol Form, if completed, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

#### § 7.8 Severability

The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

#### § 7.9 Notice

§ 7.9.1 Except as otherwise provided in Section 7.9.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission in accordance with AIA Document E203™-2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:

*(If other than in accordance with AIA Document E203-2013, insert requirements for delivering Notice in electronic format such as name, title and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)*

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§ 7.9.2 Notice of Claims shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

*(Paragraphs deleted)*

## **ARTICLE 8 OWNER**

### **§ 8.1 Information and Services Required of the Owner**

§ 8.1.1 Intentionally omitted.

§ 8.1.2 The Owner shall furnish all necessary surveys and a legal description of the site.

§ 8.1.3 Subject to the Contractor's duties and obligations under the Contract Document and § 9.1.1 of this Agreement, the Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 8.1.4 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 9.6.1, the Owner shall secure and pay for other necessary approvals, easements, assessments, and charges required for the construction, use, or occupancy of permanent structures or for permanent changes in existing facilities.

### **§ 8.2 Owner's Right to Stop the Work**

If the Contractor fails to correct Work which is not in accordance with the requirements of the Contract Documents, or fails or refuses to provide a sufficient amount of properly supervised and coordinated labor, material or equipment so as to be able to complete the Work within the Contract Time, or fails to pay subcontractors or material suppliers timely or to remove and discharge within ten days any lien filed upon the Owner's property or funds by anyone claiming by, through or under the Contractor, or disregards the instructions of the Architect or Owner when based on the requirements of the Contract Documents, or otherwise fails to carry out the Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order is eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity.

### **§ 8.3 Owner's Right to Carry Out the Work**

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents, or fails to perform a duty under or comply with a provision of the Contract Documents and fails within a seven-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, or fails within such seven-day period to eliminate (or diligently commence to eliminate) the cause of any stop work order issued under Section 8.2 thereof, the Owner may, without prejudice to any other remedies the Owner may have, correct such deficiencies, default or neglect and may deduct the actual cost thereof, including Owner's expenses and compensation for the Architect's services made necessary thereby, from the payment then or thereafter due the Contractor. Architect may, pursuant to Section 15.4.3, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including the Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 21.

## **ARTICLE 9 CONTRACTOR**

### **§ 9.1 Review of Contract Documents and Field Conditions by Contractor**

§ 9.1.1 By its execution of the Contract, the Contractor acknowledges, agrees, represents, and warrants that: (a) the Contractor has carefully and thoroughly examined the Contract Documents, and the Contract Documents are full and complete, include all items necessary for the proper execution and completion of the Work, are sufficient to have enabled the Contractor to determine the cost of the Work and the time required for performance of the Work and to enable Contractor to construct the Work indicated therein in accordance with laws, ordinances, codes, regulations and rules applicable to the Work, and otherwise to fulfill all its obligations thereunder, including, but not limited to, Contractor's obligation to construct the Work for an amount not in excess of the Contract Sum on or before the date(s) of Substantial and Final Completion established in the Contract; (b) the omission from the Contract Documents of minor details which ordinarily form a part of first class work and are necessary to the completion of the Work as indicated, shall not be cause for any extra cost but shall be included as if specifically mentioned or detailed; (c) the Contractor has visited and examined the Project site and surrounding areas, examined all physical, legal and other

conditions affecting the Work and correlated its personal observations with the requirements of the Contract Documents, and understands, is familiar with, and satisfied itself as to the same, including, without limitation: (i) the nature, location, and character of the Project and the site, including, without limitation surface conditions of the site and subsurface conditions observable or ascertainable upon the exercise of reasonable diligence including all structures and obstructions thereon and thereunder, both natural and manmade and all surface and subsurface water conditions of the site and the surrounding area; (ii) the nature, location, and character of the general area in which the Project is located, including without limitation, its generally prevailing climatic conditions, available labor supply and labor costs, and available equipment supply and equipment costs; (iii) the availability, quality, quantity and cost of all labor, materials, supplies, tools, equipment and professional services necessary to complete the Work in the manner and within the cost and time frame indicated by the Contract Documents.

By its execution of the Contract, the Contractor acknowledges, agrees, represents and warrants that it has carefully examined the Drawings, Specifications and other Contract Documents and having visited the Project site it has no actual knowledge of any discrepancies, omissions, ambiguities, or conflicts in or between the Contract Documents except those, if any, which have been clarified by Architect by Addenda to the Contractor's satisfaction, and that if it becomes aware of any such discrepancies, omissions, ambiguities, or conflicts, it has an obligation to and will immediately notify Owner and Architect of such fact, and will not proceed until it shall have received the written interpretation of Owner or Architect. If any such differences or conflicts which were ascertainable by careful review of the documents were not called to the Owner's and Architect's attention prior to submission by the Contractor of its bid proposal, the Architect shall decide which of the conflicting requirements will govern based upon the most stringent or highest quality of the requirements and, subject to the approval of the Owner, the Contractor shall perform the Work at no additional cost and/or time to the Owner in accordance with the Architect's decision.

**§ 9.1.2** Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 8.1.2, shall take field measurements of any existing conditions related to that portion of the Work and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies, or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional unless otherwise specifically provided in the Contract Documents.

**§ 9.1.3** Except as otherwise required by the Contract Documents, the Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

## **§ 9.2 Supervision and Construction Procedures**

**§ 9.2.1** The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention under the full-time supervision of an approved site superintendent or foreman capable of communicating clearly with the Architect and the Owner in English. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters.

**§ 9.2.2** The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for or on behalf of the Contractor or any of its Subcontractors.

**§ 9.2.3** The Contractor has the responsibility to ensure that all material suppliers and Subcontractors, their agents, and employees adhere to the Contract Documents, and that they order materials on time, taking into account the current market and delivery conditions and that they provide materials on time. The Contractor shall coordinate its Work with that of all others on the Project including deliveries, storage, installations, and construction utilities. The Contractor shall be responsible for the space requirements, locations, and routing of its equipment. In areas and locations where the proper and most effective space requirements, locations, and routing cannot be made as indicated, the Contractor

shall meet with all others involved, before installation, to plan the most effective and efficient method of overall installation.

### **§ 9.3 Labor and Materials**

**§ 9.3.1** Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

**§ 9.3.2** The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

**§ 9.3.3** The Contractor may make a substitution equivalent to or superior to the specified materials only with the consent of the Owner, after evaluation by the Architect and approval by the Owner and in accordance with a Modification.

**§ 9.3.4** The Contractor shall only employ labor on the Project or in connection with the Work capable of working harmoniously with all trades, crafts and any other individuals associated with the Project. The Contractor shall also use its reasonable best efforts to minimize the likelihood of any strike, work stoppage or other labor disturbance. The Contractor shall comply with all requirements of OSHA and shall indemnify and hold harmless the Owner against and from any claims, losses, damages or expenses it may incur as a result of the failure of the Contractor or any of its Subcontractors to comply with OSHA requirements.

**§ 9.3.5** If the Work is to be performed by trade unions, the Contractor shall make all necessary arrangements to reconcile, without delay, damage, or cost to the Owner and without recourse to the Architect, Owner's representative or the Owner, any conflict between the Contract Documents and any agreements or regulations of any kind at any time in force among members of councils which regulate or distinguish what activities shall not be included in the Work of any particular trade. In case the progress of the Work is affected by any undue delay in furnishing or installing any items or materials or equipment required under the Contract Documents because of the conflict involving any such agreement or regulations, the Architect or Owner's representative with the Owner's approval may require that other materials or equipment of equal kind and quality be provided at no additional cost to the Owner.

**§ 9.3.6** The Contractor shall carefully inspect all materials delivered on and to the Project site and reject defective materials without waiting for the Architect or Owner to observe the materials.

**§ 9.3.7** The Contractor shall deliver, handle, store and install materials in accordance with manufacturers' or suppliers' instructions.

**§ 9.3.8** Before ordering any material or doing any Work, the Contractor shall verify all measurements at the Project Site and Contractor 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 by the Project Drawings.

**§ 9.3.9** If any person employed by the Contractor on the Work shall appear to the Owner to be incompetent or conduct himself in a disorderly or improper manner, such person or persons shall be removed from the Work immediately on the request of the Owner. Said removal shall not create any additional cost to Owner and shall not extend the time for completion of the Work.

### **§ 9.4 Warranty**

The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from faults and defects. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work of persons other than Contractor or subcontractor, improper or insufficient maintenance, improper operation or normal wear and tear under normal usage. All other warranties required by the Contract Documents shall be issued in the name of the Owner, or

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shall be transferable to the Owner. Inability, failure or refusal of the Subcontractor or supplier responsible for the defective materials, equipment or Work to correct the same shall not excuse the Contractor from performing under the warranty. If required by the Architect or the Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials being furnished.

All warranties shall include labor and materials and shall be signed by the manufacturer or subcontractor as the case may be and countersigned by the Contractor. All warranties shall be addressed to the Owner and delivered to the Owner upon completion of the Work and before or with the submission of request for final payment. Except as otherwise provided in this Agreement or elsewhere in the Contract Documents, or in any Certificate of Substantial or Partial Completion approved by the Owner and Contractor and/or subcontractor, as applicable, all warranties shall become effective on the date of Final Completion of the entire Work unless otherwise provided in any Certificate of Partial or Substantial Completion approved by the Owner and the Contractor or Subcontractor, as applicable, but only with respect to warranties for that specific portion of the Work, and shall run for a twenty-four (24) month period, unless a longer period is provided for in the Contract Documents or by law. Where warranties overlap, the more stringent requirement shall govern. The Contractor shall consult with the Owner prior to the submission of any application to the appropriate permitting agency or authority in order to afford Owner the opportunity to obtain a waiver or reduction of any fees or costs associated therewith.

Defective materials, equipment or workmanship occurring within the Warranty period may be repaired where such produces results conforming to the Contract Documents relating to appearance, performance and reliability. Where the nature of the defective materials, equipment or workmanship is such that acceptable results cannot be obtained by repair, such defective items shall be removed and replaced with new materials, equipment or workmanship complying with the Contract Documents.

#### **§ 9.5 Taxes**

The Contractor shall pay sales, consumer, use, and other similar taxes that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect. Because the Owner is an Illinois unit of local government, the Illinois sales tax is not applicable to materials, equipment and supplies incorporated in the Work or wholly consumed in the performance of the Work. The Owner will provide its sales tax exemption number for use by Contractor in purchasing such materials, equipment and supplies for this Project.

#### **§ 9.6 Permits, Fees, Notices, and Compliance with Laws**

**§ 9.6.1** Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

**§ 9.6.2** The Contractor shall comply with and give notices and permit inspections required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work or having jurisdiction over the Work. The Contractor shall promptly notify the Architect and Owner if any of the Contract Documents appear to be a variance therewith. If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, or had it carried out its obligations under the Contract Documents generally, and Section 9.1.1 of this Agreement in particular, should reasonably have known it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

#### **§ 9.7 Allowances**

The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. The Owner shall select materials and equipment under allowances with reasonable promptness. Allowance amounts shall include the costs to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts. Contractor's costs for unloading and handling at the site, labor, installation, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowance.

#### **§ 9.8 Contractor's Construction Schedules**

**§ 9.8.1** The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current

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under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

**§ 9.8.2** The Contractor shall perform the Work in general accordance with the most recent schedule submitted to the Owner and Architect.

### **§ 9.9 Submittals**

**§ 9.9.1** The Contractor shall review for compliance with the Contract Documents and submit to the Architect Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents in coordination with the Contractor's construction schedule and in such sequence as to allow the Architect reasonable time for review. By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them; (2) determined and verified materials, field measurements, and field construction criteria related thereto, or will do so; and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents. The Work shall be in accordance with approved submittals.

**§ 9.9.2** Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents.

**§ 9.9.3** The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents or unless the Contractor needs to provide such services in order to carry out the Contractor's own responsibilities. If professional design services or certifications by a design professional are specifically required, the Owner and the Architect will specify the performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional. If no criteria are specified, the design shall comply with applicable codes and ordinances. Each Party shall be entitled to rely upon the information provided by the other Party. The Architect will review and approve or take other appropriate action on submittals for the limited purpose of checking for conformance with information provided and the design concept expressed in the Contract Documents. The Architect's review of Shop Drawings, Product Data, Samples, and similar submittals shall be for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. In performing such review, the Architect will approve, or take other appropriate action upon, the Contractor's Shop Drawings, Product Data, Samples, and similar submittals.

### **§ 9.10 Use of Site**

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, the Contract Documents and as otherwise directed by Owner and shall not unreasonably encumber the site with materials or equipment.

#### **§ 9.10.1 Parking & Traffic.**

.1 Parking of construction vehicles on the site by the Contractor shall not inhibit construction nor prevent access for emergency or other official vehicles. Parking of private vehicles on the site by the Contractor is prohibited unless said vehicle is necessary in the execution of the Contract. No construction vehicles shall be parked near or under any existing vegetation on the site.

.2 Construction traffic and staging shall be permitted only within construction limits as indicated on plan. Contractor is responsible for repair of any areas disturbed outside of this area, including grading and sodding. No staging will be permitted on existing asphalt without Owner's prior written consent. The cost to repair any damage to existing asphalt will be back-charged to the Contractor.

**§ 9.10.2 Fencing.** Contractor will be responsible for erecting and maintaining construction fencing around the limits of the Project site at all times of construction in accordance with applicable law and the Contract Documents. Failure to erect or maintain this fencing will result in the correction of the problem by the Owner at the expense of the Contractor, and may include, but are not limited to, the cost of any materials and staff time. This fence must be installed and fully erected before construction operations beginning and tied-up at the end of each working day.

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**§ 9.10.3 Water Removal.** If, during construction, standing water caused by heavy rains or poor drainage becomes a hazard in the proper execution of the Contract, it shall be the responsibility of the Contractor to provide and make payment for removal of said water to existing drainage swales, storm sewers or other natural or man-made drainage ways.

**§ 9.11 Cutting and Patching**

The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly.

**§ 9.12 Cleaning Up**

The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove, and properly and lawfully dispose of as applicable, waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus material from and about the Project. The Contractor shall clean up and keep all streets, sidewalks and other public ways used for access to the Project site free from accumulation of spillage of fill or soils or other materials caused by operations under the Contract. The Contractor shall strictly comply with all laws and regulations pertaining to same be solely responsible for, and shall pay any fines or penalties assessed as the result of, any violation.

**§ 9.13 Access to Work**

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

**§ 9.14 Royalties, Patents and Copyrights**

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

**§ 9.15 Indemnification**

**§ 9.15.1** To the fullest extent permitted by law, the Contractor waives any rights of contribution against, and shall indemnify and hold harmless the Owner and its officers, officials, employees, volunteers and agents from and against all claims, damages, losses and expenses including but not limited to legal fees (attorney's and paralegals' 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 (i) 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 there from and (ii) 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, regardless of whether or not 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.

"Claims," "damages," "losses" and "expenses" as these words are used in this Agreement shall be construed to include, but not limited to (1) injury or damage consequent upon the failure of or use or misuse by Contractor, its subcontractors, agents, servants or employees, of any hoist, rigging, blocking, scaffolding, or any and all other kinds of items of equipment or other mechanical or structural contrivance erected or constructed by any person, or any or all other kinds of equipment whether or not the same be owned, furnished or loaned by Owner; (2) all attorneys' fees and costs incurred in bringing an action to enforce the provisions of this indemnity or any other indemnity contained herein; (3) all costs and expenses incurred by the indemnified party; and (4) error or omission or defect in any submission made to Architect / Architect for its approval or review.

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**§ 9.15.2** In claims against any person or entity indemnified under this Section 9.15 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 9.15.1 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

## **ARTICLE 10 ARCHITECT**

**§ 10.1** The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction, until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents, unless otherwise modified in writing in accordance with other provisions of the Contract.

**§ 10.2** Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner and Architect. Consent shall not be unreasonably withheld.

**§ 10.3** The Architect will visit the site at intervals appropriate to the stage of the construction to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general, if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

**§ 10.4** On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

**§ 10.5** Based on the Architect's evaluations of the quality and progress of the Work and of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

**§ 10.6** The Architect has authority to reject Work that does not conform to the Contract Documents and to require inspection or testing of the Work.

**§ 10.7** The Architect will review and approve or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

**§ 10.8** The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect will make initial decisions on all claims, disputes, and other matters in question between the Owner and Contractor but will not be liable for results of any interpretations or decisions rendered in good faith.

**§ 10.9** The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

## **ARTICLE 11 SUBCONTRACTORS**

**§ 11.1** A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site.

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§ 11.2 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect in writing of the name, trade and subcontract amount of each Subcontractor and supplier proposed for each of the principal portions of the Work. The Contractor shall not contract with any Subcontractor or supplier to whom the Owner or Architect has made reasonable written objection within ten days after receipt of the Contractor's written list of Subcontractors and suppliers. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 11.3 Contracts between the Contractor and Subcontractors shall (1) require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by the terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, which the Contractor, by the Contract Documents, assumes toward the Owner and Architect, and (2) allow the Subcontractor the benefit of all rights, remedies and redress against the Contractor that the Contractor, by these Contract Documents, has against the Owner.

§ 11.4 All subcontracts shall be in writing and shall specifically provide that the Owner is an intended third-party beneficiary of such subcontract and that the Owner shall have the right to enforce the Subcontractor's obligations thereunder after the occurrence of a default under the Contract by the contractor. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by these Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar written agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement which may be at variance with the Contract Documents. Subcontractors shall similarly make copies of applicable portions of such documents available to their representatives proposed Sub-subcontractors.

§ 11.5 All subcontract agreements shall conform to the requirements of the Contract Documents and the Contractor hereby irrevocably assigns to the Owner and Owner's permitted assigns all its interest in any subcontract agreements and purchase orders now existing or hereinafter entered into the contractor for performance of any part of the Work, which assignment will be effective in the event of the Contractor's failure to perform the Work in accordance with the Contract Documents and upon acceptance by the Owner in writing and only as to those subcontract agreements and purchase orders that Owner designates in said writing. It is agreed and understood that the Owner may accept said assignment at any time during the course of construction prior to Final Completion. The Contractor shall promptly submit to the Owner a true and complete copy of each subcontract upon execution of same. Each subcontract shall contain a contingent assignment of the subcontract to the Owner, consistent with this Subparagraph. Upon acceptance by the Owner of a subcontract; (1) the Contractor shall promptly furnish to the Owner true and complete copies of the designated subcontract agreements and purchase orders, both as may have been amended by approved change order together with copies of any and all such amendments, and (2) the Owner shall only be required to compensate the designated Subcontractor(s) or supplier(s) for compensation accruing to such party(ies) for Work done or materials delivered from and after the date on which the Owner accepts the subcontract agreement(s) or purchase order(s). All sums due and owing by the Contractor to the designated Subcontractor(s) or supplier(s) for work performed or material supplied prior to the Owner's acceptance of the subcontract agreement(s) or purchase order(s) shall constitute a debt between such parties and the Contractor. It is further agreed that no subcontract agreement or purchase order shall contain any restriction that would prohibit assignment under the terms and conditions stated hereinabove. It is further agreed and understood that such assignment is part of the consideration to Owner for entering into the Contract with the Contractor and may not be withdrawn prior to Final Completion.

## ARTICLE 12 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 12.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to

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those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

**§ 12.2** The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's activities with theirs as required by the Contract Documents.

**§ 12.3** The Owner shall be reimbursed by the Contractor for costs incurred by the Owner which are payable to a Separate Contractor because of delays, improperly timed activities, or defective construction of the Contractor. The Owner shall be responsible to the Contractor for costs incurred by the Contractor because of delays, improperly timed activities, damage to the Work, or defective construction of a Separate Contractor.

#### **ARTICLE 13 CHANGES IN THE WORK**

**§ 13.1** By appropriate Modification, changes in the Work may be accomplished after execution of the Contract. The Owner, without invalidating the Contract, may order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, with the Contract Sum and Contract Time being adjusted accordingly. Such changes in the Work shall be authorized by written Change Order signed by the Owner, Contractor, and Architect, or by written Construction Change Directive signed by the Owner and Architect. Upon issuance of the Change Order or Construction Change Directive, the Contractor shall proceed promptly with such changes in the Work, unless otherwise provided in the Change Order or Construction Change Directive.

**§ 13.2** Adjustments in the Contract Sum and Contract Time resulting from a change in the Work shall be determined by mutual agreement of the parties or, in the case of a Construction Change Directive signed only by the Owner and Architect, by the Contractor's cost of labor, material, equipment, and reasonable overhead and profit, unless the parties agree on another method for determining the cost or credit. Pending final determination of the total cost of a Construction Change Directive, the Contractor may request payment for Work completed pursuant to the Construction Change Directive. The Architect will make an interim determination of the amount of payment due for purposes of certifying the Contractor's monthly Application for Payment. When the Owner and Contractor agree on adjustments to the Contract Sum and Contract Time arising from a Construction Change Directive, the Architect will prepare a Change Order.

**§ 13.3** The Architect will have authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be effected by written order and shall be binding on the Owner and Contractor. The Contractor shall carry out such written orders promptly. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work.

**§ 13.4** If concealed or unknown physical conditions are encountered at the site that differ materially from those indicated in the Contract Documents or from those conditions ordinarily found to exist, and the Contractor could not have discovered same in the exercise of reasonable diligence as required under Subsection 9.1.1 of this Agreement, the Contract Sum and Contract Time shall be equitably adjusted as mutually agreed between the Owner and Contractor; provided that the Contractor provides notice to the Owner and Architect promptly and before conditions are disturbed.

**§ 13.5** Agreement on any Change Order shall constitute a final settlement, and accord and satisfaction between the Owner and Contractor, of all matters relating to the change in the Work which is the subject of the Change Order, including, but not limited to, all direct and indirect costs associated with such change and any and all adjustments to the Contract Sum, Contract Time and Construction Schedule. In the event a Change Order increases the Contract Sum, the Contractor shall include the Work covered by such Change Order in Applications for Payment as if such Work were originally part of the Contract Documents.

**§ 13.6** No change in the Work, whether by way of alteration or addition to the Work, shall be the bases of an addition to the Contract Sum or change in the Contract Time unless and until such alteration or addition has been authorized by a Change Order executed and issued in accordance with and in strict compliance with the requirements of the Contract Documents and applicable law. Accordingly, no course of conduct or dealing between the parties, nor any express or implied acceptance of alterations or additions to the Work and no claim that the Owner has been unjustly enriched shall be the basis of any claim to an increase in the Contract Sum or change in the Contract Time.

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## ARTICLE 14 TIME

§ 14.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing this Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 14.2 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion and for Final Completion of the Work.

§ 14.3 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 14.4 The date of Substantial Completion and Final Completion are the dates certified by the Architect in accordance with Section 15.6.3.

§ 14.5 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) changes ordered in the Work; (2) by labor disputes, fire, unusual delay in deliveries, abnormal adverse weather conditions not reasonably anticipatable, unavoidable casualties, or any causes beyond the Contractor's control; or (3) by other causes that the Contractor asserts, and the Architect determines and Owner agrees, justify delay, then, as the Contractor's sole remedy, the Contract Time shall be extended for such reasonable time as the Architect may determine. Notwithstanding the foregoing, delays of the Contractor to carry out its obligations under or in accordance with the provisions of the Contract, shall not extend the Contract Time.

§ 14.6 The Contractor shall carry the Work forward regularly, diligently, uninterruptedly and expeditiously and in a good workmanlike and professional manner at such a rate of progress and with an adequate work force as will insure the completion of the Work in accordance with the Contract Documents by the date established in the Contract. It is expressly understood and agreed by and between Contractor and Owner that the time for completion of the Work is a reasonable time, taking into consideration the average climatic range, usual industrial conditions, and all other conditions and actors prevailing in this locality.

## ARTICLE 15 PAYMENTS AND COMPLETION

### § 15.1 Schedule of Values

§ 15.1.1 Where the Contract is based on a Stipulated Sum or the Cost of the Work with a Guaranteed Maximum Price pursuant to Section 3.2 or 3.4, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Stipulated Sum or Guaranteed Maximum Price to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy required by the Architect. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 15.1.2 The allocation of the Stipulated Sum or Guaranteed Maximum Price under this Section 15.1 shall not constitute a separate stipulated sum or guaranteed maximum price for each individual line item in the schedule of values.

### § 15.2 Control Estimate

§ 15.2.1 Where the Contract Sum is the Cost of the Work, plus the Contractor's Fee without a Guaranteed Maximum Price pursuant to Section 3.3, the Contractor shall prepare and submit to the Owner a Control Estimate within 14 days of executing this Agreement. The Control Estimate shall include the estimated Cost of the Work plus the Contractor's Fee.

§ 15.2.2 The Control Estimate shall include:

- .1 the documents enumerated in Article 6, including all Modifications thereto;
- .2 a list of the assumptions made by the Contractor in the preparation of the Control Estimate to supplement the information provided by the Owner and contained in the Contract Documents;
- .3 a statement of the estimated Cost of the Work organized by trade categories or systems and the Contractor's Fee;
- .4 a project schedule upon which the Control Estimate is based, indicating proposed Subcontractors, activity sequences and durations, milestone dates for receipt and approval of pertinent information,



- schedule of shop drawings and samples, procurement and delivery of materials or equipment the Owner's occupancy requirements, and the date of Substantial Completion; and
- .5 a list of any contingency amounts included in the Control Estimate for further development of design and construction.

**§ 15.2.3** When the Control Estimate is acceptable to the Owner and Architect, the Owner shall acknowledge it in writing. The Owner's acceptance of the Control Estimate does not imply that the Control Estimate constitutes a Guaranteed Maximum Price.

**§ 15.2.4** The Contractor shall develop and implement a detailed system of cost control that will provide the Owner and Architect with timely information as to the anticipated total Cost of the Work. The cost control system shall compare the Control Estimate with the actual cost for activities in progress and estimates for uncompleted tasks and proposed changes. This information shall be reported to the Owner, in writing, no later than the Contractor's first Application for Payment and shall be revised and submitted with each Application for Payment.

**§ 15.2.5** The Owner shall authorize preparation of revisions to the Contract Documents that incorporate the agreed-upon assumptions contained in the Control Estimate. The Owner shall promptly furnish such revised Contract Documents to the Contractor. The Contractor shall notify the Owner and Architect of any inconsistencies between the Control Estimate and the revised Contract Documents.

### **§ 15.3 Applications for Payment**

**§ 15.3.1** At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 15.1, for completed portions of the Work. The application shall be notarized, if required; be supported by all data substantiating the Contractor's right to payment that the Owner or Architect require; shall reflect retainage if provided for in the Contract Documents; and include any revised cost control information required by Section 15.2.4. Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

**§ 15.3.2** With each Application for Payment where the Contract Sum is based upon the Cost of the Work, or the Cost of the Work with a Guaranteed Maximum Price, the Contractor shall submit payrolls, petty cash accounts, receipted invoices or invoices with check vouchers attached, and any other evidence required by the Owner to demonstrate that cash disbursements already made by the Contractor on account of the Cost of the Work equal or exceed progress payments already received by the Contractor plus payrolls for the period covered by the present Application for Payment, less that portion of the progress payments attributable to the Contractor's Fee.

**§ 15.3.3** Unless approved in advance by the Owner in writing, payments shall be made on account of materials and equipment incorporated in the Work. If approved in advance by the Owner payment shall be made on account of materials and equipment delivered and suitably stored and protected from damage and loss at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment delivered and suitably stored, and protected from damage and loss, off the site at a location agreed upon in writing. The Owner may condition such approvals on such terms as the Owner in its discretion deems necessary for its protection.

**§ 15.3.4** The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or other encumbrances adverse to the Owner's interests.

**§ 15.3.5** Failure to supply waivers of lien or acceptable evidence of payment of all current accounts incurred by this Contract work will be considered grounds for withholding final payment.

**§ 15.3.6** The first payment application shall be accompanied by the Contractor's Partial Waiver of Lien only, for the full amount of the payment. Each subsequent monthly payment application shall be accompanied by the Contractor Partial Waiver, and by the Partial lien Waivers of Subcontractor and Suppliers who were included in the immediately

preceding payment application to the extent of that payment. Application for Final Payment shall be accompanied by Final Waivers of Lien from the Contractor, Subcontractors and Suppliers who have not previously furnished such Final Waivers. Final Waivers shall be for the full amount of the Contract. All applications for payment shall be accompanied by affidavits, in triplicate, from the Contractor and Subcontractors containing such information and in such form as to comply with the Illinois Mechanics Lien Act (770 ILCS 60/0.01 *et seq.*) and showing in detail the sources of all labor and materials used and contracted to be used on the Project, including names and addresses of subcontractors and material suppliers; amounts paid and remaining to be paid to each; together with all documents as shall be necessary, in the sole judgment of the Architect and Owner, to waive all claims of liens to date and comply with all applicable state and local laws.

- (i) All waivers (partial and final) shall include language as applicable indicating either that:
  - a. all material were taken from fully paid stock and delivered to job site in our own vehicles and all labor has been fully paid in accordance with prevailing wage laws; or
  - b. materials were provided by the following suppliers for whom waivers of lien are attached and all labor has been fully paid in accordance with prevailing wage laws.

#### **§ 15.4 Certificates for Payment**

**§ 15.4.1** The Architect will, within seven days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner of the Architect's reasons for withholding certification in whole or in part as provided in Section 15.4.3.

**§ 15.4.2** The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, but not to Contractor, based on the Architect's evaluations of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Architect. The issuance of a Certificate for Payment will further constitute a representation to the Owner but not to the Contractor that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

**§ 15.4.3** The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 15.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 15.4.1. If the Contractor and the Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 9.2.2, because of

- .1 defective Work not remedied;
- .2 third-party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a Separate Contractor;

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- .6 reasonable evidence that the Work will not be completed within the Contract Time and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 failure to carry out the Work in accordance with the Contract Documents.

**§ 15.4.4** When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld. No interest will be paid on amounts withheld.

#### **§ 15.5 Progress Payments**

**§ 15.5.1** The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to sub-subcontractors in a similar manner. This provision is not to be construed as a "conditional payment" or "pay when paid" clause. In the event that payment to the Contractor is delayed without fault of the Subcontractor, payment to the Subcontractor shall be made within a reasonable time after work is properly performed by a Subcontractor irrespective of any delay in payment to the Contractor.

**§ 15.5.2** Neither the Owner nor Architect shall have an obligation to pay or see to the payment of money to a Subcontractor or supplier except as may otherwise be required by law.

**§ 15.5.3** A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

**§ 15.5.4** Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

**§ 15.5.5** Anything to the contrary contained or implied herein notwithstanding, no progress payment need be made by Owner until such time as Contractor, Subcontractors or any other persons performing the Work or furnishing materials or equipment for the Project furnishes such documents as Owner may reasonably require (including without limitation sworn notarized contractor's statement, affidavits and waivers of lien).

#### **§ 15.6 Substantial Completion**

**§ 15.6.1** Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is completed in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use and has been accepted by Owner to receive all required occupancy permits.

"Punch List" mean and shall be limited to uncompleted items of Work (a) that do not interfere with the use and occupancy of any area of the Site for its intended purpose and (b) that, as a group, are capable of being completed by the Contractor within thirty (30) days of issuance of any Punch List. The "Punch List" is the list containing the Punch List Items.

**§ 15.6.2** When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

**§ 15.6.3** Upon receipt of the Contractor's list, the Architect and Owner will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's or Owner's inspection discloses an item, whether or not included in the Contractor's list, which is not in accordance with the Contract Documents and is necessary for Owner's occupancy or utilization of the Work, the Contractor shall before issuance of a Certificate of Substantial Completion, complete such items upon notification from the Architect and Owner. The cost of this and any additional inspections required to establish Substantial Completion due to the failure of the Contractor to properly complete all items of the Work necessary for the Owner's use or occupancy of the Work shall be charged to the Contractor. When the Architect determines that the Work or designated portion thereof is substantially complete, the

Architect will issue a Certificate of Substantial Completion to the Owner for review and concurrence by the Owner which shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the Punch List accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Final Completion of the Work or designated portion thereof with the exception of the items of Work contained in the Punch List accompanying the Certificate of Substantial Completion. With respect to Work enumerated on the Punch List, the guarantee or warranty period shall commence upon Contractor's completion and Owner's approval of the Punch List items.

**§ 15.6.4** The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate.

#### **§ 15.7 Final Completion and Final Payment**

**§ 15.7.1** Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, and the Architect has advised Owner of that finding and Owner has not advised Architect of any objection to such finding, the Architect will promptly issue a final Certificate for Payment to the Owner but not the Contractor stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions stated in Section 15.7.2 as precedent to the Contractor's being entitled to final payment have been fulfilled. The Owner's failure to object to, and the Owner's acceptance of, the Architect's findings and/or certifications hereunder shall not constitute Owner's acceptance of Work not complying with the Contract Documents, or Owner's waiver of any claims or remedies it may have with respect to any such defective or delayed Work.

**§ 15.7.2** Final payment shall not become due until the Contractor has fully performed the contract, including but not limited to, delivery of all manufacturer's and supplier's warranties, operating manuals, as-built drawings, and consent of the surety to final payment, pursuant to the Contract Documents, and has delivered to the Owner a complete release of all liens arising out of this Contract or receipts in full covering all labor, materials and equipment for which a lien could be filed, or a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including costs and reasonable attorneys' fees.

**§ 15.7.3** The making of final payment shall constitute a waiver of claims by the Owner except those arising from

- .1 liens, claims, security interests or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents;
- .3 terms of special warranties required by the Contract Documents; or
- .4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

The final payment by Owner shall not relieve the Contractor of the responsibility for the correction of any and all defects in the work performed. Contractor shall correct all defects as notified for the applicable warranty period after final payment.

**§ 15.7.4** Acceptance of final payment by the Contractor, a Subcontractor or supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of the final Application for Payment.

### **ARTICLE 16 PROTECTION OF PERSONS AND PROPERTY**

#### **§ 16.1 Safety Precautions and Programs**

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and

- 3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation, or replacement in the course of construction.

The Contractor shall comply with, and give notices required by, applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities bearing on safety of persons and property and their protection from damage, injury, or loss. The Contractor shall promptly remedy damage and loss to property caused in whole or in part by the Contractor, a Subcontractor, a sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 16.1.2 and 16.1.3. The Contractor may make a claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 9.15.

#### **§ 16.2 Hazardous Materials and Substances**

**§ 16.2.1** The Contractor is responsible for compliance with the requirements of the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents, and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

**§ 16.2.2** To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area, if in fact, the material or substance presents the risk of bodily injury or death as described in Section 16.2.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

**§ 16.2.3** If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall indemnify the Contractor for all cost and expense thereby incurred.

### **ARTICLE 17 INSURANCE AND BONDS**

#### **§ 17.1 Contractor's Insurance**

**§ 17.1.1** The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in this Section 17.1 and in the Contract Documents. The Contractor shall purchase and maintain the insurance required by this Agreement from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. Contractor shall procure insurance from insurance companies that have obtained A.M. Best ratings 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. Failure to maintain the required insurance may result in termination of the Contract at Owner's option. 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.

The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 18.4, unless a different duration is stated below:

Contractor shall maintain commercial general liability (CGL) and, if necessary, commercial umbrella liability insurance with a limit of not less than \$2,000,000 each occurrence for at least three years following Substantial

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## Completion of the Work.

**§ 17.1.2** Commercial General Liability insurance for the Project written on an occurrence form with policy limits of not less than Two Million Dollars ( \$ 2,000,000 ) each occurrence, Two Million Dollars ( \$ 2,000,000 ) general aggregate, providing coverage for claims including

- .1 damages because of bodily injury, sickness or disease, including occupational sickness or disease, and death of any person;
- .2 personal and advertising injury;
- .3 damages because of physical damage to or destruction of tangible property, including the loss of use of such property;
- .4 bodily injury or property damage arising out of completed operations; and
- .5 the Contractor's indemnity obligations under Section 9.15.

CGL insurance shall be written on Insurance Services Office (ISO) occurrence form CG 00 01 04 93, or a substitute form providing equivalent coverage, and shall also cover liability arising from premises, operations, independent contractors, and liability assumed under an insured contract (including the tort liability of another assumed in a business contract)

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.

### **For Contractor's Continuing Completed Operations Liability Insurance:**

Continuing CGL insurance shall be written on ISO occurrence form CG 00 01 4 13, 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.

**§ 17.1.3** Automobile Liability covering vehicles owned by the Contractor, hired, and non-owned vehicles used by the Contractor, with policy limits of not less than One Million Dollars ( \$ 1,000,000 ) per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance, and use of those motor vehicles along with any other statutorily required automobile coverage. Business auto insurance shall be written 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.

**§ 17.1.4** The Contractor may achieve the required limits and coverage for Commercial General Liability and Automobile Liability through a combination of primary and excess or umbrella liability insurance, provided such primary and excess or umbrella insurance policies result in the same or greater coverage as those required under Section 17.1.2 and 17.1.3, and in no event shall any excess or umbrella liability insurance provide narrower coverage than the primary policy. The excess policy shall not require the exhaustion of the underlying limits only through the actual payment by the underlying insurers.

### **§ 17.1.5 Workers' Compensation**

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 of \$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

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Owner and its officers, officials, employees, volunteers and agents for recovery of damages arising out of or incident to the Contractor's Work.

§ 17.1.6 Employers' Liability with policy limits not less than One Million Dollars (\$ 1,000,000 ) each accident, One Million Dollars (\$ 1,000,000 ) each employee, and One Million Dollars (\$ 1,000,000 ) policy limit.

§ 17.1.7 Intentionally deleted.

§ 17.1.8 Intentionally deleted.

§ 17.1.9 Intentionally deleted.

§ 17.1.10 The Contractor shall provide certificates of insurance acceptable to the Owner evidencing compliance with the requirements in this Section 17.1 at the following times: (1) prior to commencement of the Work; (2) upon renewal or replacement of each required policy of insurance; and (3) within 10 days' upon the Owner's written request. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment and thereafter upon renewal or replacement of such coverage until the expiration of the period required by Section 17.1.1 or upon Owner's written request for the same. The certificates will show the Owner, its elected and appointed officials, employees, volunteers and agents as an additional insured on the Contractor's Commercial General Liability and excess or umbrella liability policy. 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.

§ 17.1.11 The Contractor shall disclose to the Owner any deductible or self-insured retentions applicable to any insurance required to be provided by the Contractor. 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.

§ 17.1.12 To the fullest extent permitted by law, the Contractor shall cause the commercial liability coverage required by this Section 17.1 to include (1) the Owner, its elected and appointed officials, employees, volunteers and agents for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions for which loss occurs during completed operations. The additional insured coverage shall be primary and non-contributory to any of the Owner's general liability insurance policies and shall apply to both ongoing and completed operations. The additional insured coverage shall be no less than that provided by Insurance Services Office, Inc. (ISO) forms CG 20 10 07 04, CG 20 37 07 04, or a substitute providing equivalent coverage, and under the commercial umbrella, if any. ..

If Contractor's liability policies do not contain the standard ISO separation of insured's' provision, or a substantially similar clause, they shall be endorsed to provide cross-liability coverage.

§ 17.1.13 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. Upon receipt of notice from the Contractor, the Owner shall have the right to either stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor or terminate the contract, at Owner's option. In the event Owner does not terminate, the furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

**§ 17.1.14 Other Insurance Provided by the Contractor**

*(List below any other insurance coverage to be provided by the Contractor and any applicable limits.)*

**Coverage**

**Limits**

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.

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## § 17.2 Owner's Insurance

### § 17.2.1

*(Paragraphs deleted)*

Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance in the amount of the initial Contract Sum as well as subsequent modifications thereto for the entire Work at the site on a replacement cost basis without voluntary deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Article 15.7 or until no person or entity other than the Owner has an insurable interest in the property required by this Paragraph 17.2.1 to be covered, whichever is earlier. This insurance shall include the respective interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Work.

§ 17.2.2 Property insurance shall be on a course of construction policy form and shall insure against the perils of fire and extended coverage and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, false work, windstorm, testing and start-up, temporary buildings and debris removal, including demolition, and shall cover reasonable compensation for the Architect's, any of the Owner's Consultant's services and expenses required as a result of such insured loss. Coverage for other perils shall not be required unless otherwise provided in the Contract Documents. Property insurance provided by the Owner shall not cover Contractor's, Subcontractor's or Sub-subcontractor's liability or any tools, apparatus, machinery, scaffolding, hoists, forms, staging, shoring or other similar items commonly referred to as construction equipment, which may be on the site and the capital value of which is not included in the Work. The Contractor shall make his own arrangements for any insurance he may require on such construction equipment.

*(Paragraphs deleted)*

§ 17.2.3 The Contractor shall effect insurance which will protect the interests of the Contractor, Subcontractors and Sub-subcontractors in the Work.

§ 17.2.4 If the property insurance requires minimum deductibles and such deductibles are identified in the Contract Documents, the Contractor shall pay costs not covered because of deductibles. If the Owner or insurer increases the required minimum deductibles above the amounts so identified or if the Owner elects to purchase this insurance with voluntary deductible amounts, the Owner shall be responsible for payment of the additional costs not covered because of such increased or voluntary deductibles. If deductibles are not identified in the Contract Documents, the Owner shall pay costs not covered because of deductibles.

§ 17.2.5 Unless otherwise provided in the Contract Documents, this property insurance shall cover portions of the Work stored off the site and paid for by Owner after written approval of the Owner at the value established in the approval, and also portions of the Work in transit and paid for by Owner.

§ 17.2.6 Partial occupancy or use shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

§ 17.2.7 The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Contractor Subcontractors and Sub-subcontractors in the Work, and the Owner and the Contractor shall be named insureds.

§ 17.2.8 If the Contractor requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.

§ 17.2.9 Notwithstanding any provision contained in Article 17, the Owner's obligation to purchase insurance shall herein be deemed satisfied by the Owner's membership in a self-insured risk management agency or pool. The

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Contractor agrees that any obligation the Owner has to purchase property insurance shall be satisfied by the Owner's membership in a self-insured risk management agency or pool. The Contractor further agrees that it will only have rights allowable to it under any coverage provided through the Owner's membership in a self-insured risk management agency or pool.

**Omitted.**

*(Table deleted)*

### **§ 17.3 Performance Bond and Payment Bond**

**§ 17.3.1** The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in the Contract Documents on the date of execution of the Contract.

**§ 17.3.2** Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

**§ 17.3.3** If required by the Owner the Contractor, before commencing the Work, shall furnish a Performance Bond and a Labor and Material Payment Bond. The Performance Bond shall be in an amount equal to 110% of the full amount of the Contract Sum as security for the faithful performance of the obligations of the Contract Documents, including the payment of prevailing wages in accordance with Article 23 of this Agreement, and the Labor and Material Payment Bond shall be in an amount equal to 110% of the full amount of the Contract Sum as security for required payments to all persons performing labor and furnishing materials in connection with the Work. Such bonds shall be on AIA Document A-312, or the most current edition, issued by the American Institute of Architects, shall be issued by a surety satisfactory to the Owner, and shall name the Owner as primary co-obligee. Such bonds shall be from an Illinois Admitted Bonding Company acceptable to the Owner and having a minimum policy holder rating of "B+" in the latest edition of Best's Insurance Guide in effect as of the date of the Contract. Bonds shall remain in full force and effect for at least one year following the date of Final Completion of the Work or for the entire duration of the longest warranty period provided for the Work, whichever is longer. The cost of the bonds is to be included in the Contract Sum stated by the Contractor in its Bid Proposal.

**§17.3.4** The Contractor shall (i) furnish with all bonds a certified copy of the power of attorney from the Surety Company stating that the person executing said bond is duly authorized by the Surety Company to execute said bond; (ii) furnish a certified copy of the certificate from said Surety Company's state showing said Surety Company licensed and authorized to transact business and execute said bond in Illinois; and (iii) if requested by Owner, furnish a copy of current financial statements of said Surety Company.

**§17.3.5** In addition to the required performance and labor and material payment bonds, Contractor shall furnish a maintenance bond and/or irrevocable letter of credit in the amount of the Contract to guarantee the Work performed under the Contract against defective workmanship and/or defective materials of any nature for a period of not less than twenty-four (24) months from the date of acceptance of the Work, materials or equipment provided. The maintenance bond shall be in a form acceptable to District.

## **ARTICLE 18 CORRECTION OF WORK**

**§ 18.1** The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed, or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense If prior to the date of Final Completion the Contractor, a Subcontractor, or anyone for who either of them is responsible, uses or damages any portion of the Work, including but not limited to mechanical, electrical, plumbing or other building system, machinery, equipment or other mechanical device, the Contractor shall cause such item to be replaced or if permitted by the Owner restored to "like new" condition, at no expense to the Owner.

**§ 18.2** In addition to the Contractor's obligations under Section 9.4, if, within one year after the date of Final Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 15.6.3, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition.

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The obligation under this Section 18.2 shall survive acceptance of the Work under the Contract and termination of the Contract. Corrective Work shall be warranted to be free from defects for a period equal to the longer of twelve (12) months after the completion of the corrective Work or one (1) year from the date of Final Completion of the Work, or such longer period of time as may be prescribed by law or in equity or by the terms of any applicable special warranty. Notwithstanding the foregoing, Contractor shall correct Work deficiently or defectively performed and replace defective or non-conforming materials and equipment, even though such deficiency, defect or non-conformity may be discovered more than one (1) year after Final Completion, if the correction is of a latent defect and arises from poor workmanship or improper materials or equipment, or is required to be made to Work, materials or equipment covered by the Contractor or a Subcontractor contrary to the Architect's or Owner's request or to the request of a governmental officer, or to the requirements of the Contract Documents or Governmental Requirements, and was therefore not visible for inspection by the Architect, Owner or governmental officer, as applicable, at the time of inspection. Contractor shall, within a reasonable time under the circumstances, after receipt of written notice thereof, correct, repair, replace and otherwise make good any defects or non-conformity in the Work.

**§ 18.3** If the Contractor fails to correct nonconforming Work within a reasonable time, the Owner may correct it in accordance with Section 8.3.

**§ 18.4** The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

**§ 18.5** The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

**§ 18.6** The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors caused by the Contractor's correction or removal of the Work that is not in accordance with the requirements of the Contract Documents

## **ARTICLE 19 MISCELLANEOUS PROVISIONS**

### **§ 19.1 Assignment of Contract**

Neither party to the Contract shall assign the Contract without written consent of the other, except that the Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate such assignment.

### **§ 19.2 Governing Law**

The Contract shall be governed by the law of the place where the Project is located.

### **§ 19.3 Tests and Inspections**

Tests, inspections, and approvals of portions of the Work required by the Contract Documents or by applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities shall be made at an appropriate time. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of (1) tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating the costs to the Contractor, unless such tests, inspection or approvals were necessitated by the Contractor's failure to perform the Work in accordance with the Contract Documents in which event the Contractor shall bear the costs. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

The Owner shall bear costs of (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating the costs to the Contractor, unless such tests, inspection or approvals were necessitated by the Contractor's failure to perform the Work in accordance with the Contract Documents in which event the Contractor shall bear the costs.

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**§ 19.4** The Owner's representative:  
(Name, address, email address and other information)

Alin Pop  
Oak Brook Park District  
1450 Forest Gate Road  
Oak Brook, IL 60523 T: 630-  
Email: apop@obparks.org

**§ 19.5** The Contractor's representative:  
(Name, address, email address and other information)

**§ 19.6** Neither the Owner's nor the Contractor's representative shall be changed without ten days' prior notice to the other party.

## **ARTICLE 20 TERMINATION OF THE CONTRACT**

### **§ 20.1 Termination by the Contractor**

If the Architect fails to certify payment as provided in Section 15.4.1 for a period of 30 days through no fault of the Contractor or for any undisputed payment and has not notified Contractor for the reason for withholding payment, or if the Owner fails to make payment as provided in Section 4.1.3 for a period of 30 days through no fault of the Contractor or for any undisputed payment and has not notified Contractor for the reason for withholding payment, and such failure continues for a period of 90 days after notice from the Contractor, the Contractor may, as its sole remedy, upon seven additional days' notice to the Owner and the Architect, unless this reason is cured prior to the expiration of the notice period, and recover from Owner payment of Work properly executed in accordance with the Contract Documents (the basis for such payment shall be as provided in the Contract) provided said Work was authorized in advance by Owner. The Owner shall have the right to cure any defect or default prior to the date of termination stated in any written notice from Contractor as provided herein, in which event Contractor shall continue with the Work. If the Contractor terminates the Work and receives payment in connection with his equipment, tools or materials such items shall be left and remain on the Site if the Owner so elects. Owner shall not be responsible for damages for loss of anticipated profits on Work not performed.

### **§ 20.2 Termination by the Owner for Cause**

**§ 20.2.1** The Owner may terminate the Contract if the Contractor  
(Paragraph deleted)

If the Contractor shall institute proceedings or consent to proceeding requesting relief or arrangement under the Federal Bankruptcy Act or any applicable Federal or State Law, or if a petition under any federal or state insolvency law is filed against the Contractor and such petition is not dismissed within sixty (60) days from the date of the filing, or if the Contractor admits in writing his inability to pay his debts generally as they become due, or if he makes a general assignment for the benefit of his creditors, or if a receiver, liquidator, trustee, or assignee is appointed on account of his bankruptcy or insolvency; or if a receiver of all or any substantial portion of the Contractor's properties is appointed; or if the Contractor abandons the Work; or if he fails, except in cases for which extension of time is provided, to prosecute promptly and diligently the Work or to supply enough properly skilled workmen or proper materials for the Work; or if the Contractor submits an application for payment, sworn statement, waiver of lien, affidavit or document of any nature whatsoever which is intentionally falsified; or if the Contractor fails to make prompt payment to Subcontractors for materials or labor

(Paragraphs deleted)

or otherwise breaches obligations under any subcontract with a Subcontractor; or if a lien or a notices of lien is filed against any part of the Project or Project funds or if the Contractor disregards any laws, statues, ordinances, rules, regulations or orders of any governmental body or public or quasi-public authority having jurisdiction of the Work or the Project premises; or if the Contractor otherwise violates any material provision of the Contract Documents, then, without prejudice to any right or remedy available Owner may, after giving the Contractor seven (7) days' written notice, terminate the Contractor, and take possession of the Project and all materials, equipment, tools, construction

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equipment and machinery thereon owned by the Contractor and accept assignment of Subcontracts and may complete the Work by whatever reasonable method the Owner may deem expedient. If requested by the Owner, the Contractor shall remove any part or all of this equipment, machinery and supplies from the Project within seven (7) days from the date of such request, and in such event at the Contractor's expense. Upon request of the Contractor, the Owner shall furnish to the Contractor a reasonably detailed accounting of the costs incurred by the Owner in completing the Work.

§ 20.2.2 Intentionally omitted.

§ 20.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 20.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 20.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Architect, upon application, and this obligation for payment shall survive termination of the Contract.

§ 20.2.5 The Owner's right to terminate the contract pursuant to Section 20.2 shall be in addition to and not in limitation of its right to stop the Work without terminating the Contract as provided elsewhere in this Agreement.

### § 20.3 Termination by the Owner for Convenience

The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

*(Paragraphs deleted)*

Termination by the Owner under this Section 20.3 shall be by a written notice of termination specifying the extent of termination and the effective date.

§ 20.3.1 Upon receipt of a notice of termination for convenience, the Contractor shall immediately, in accordance with instructions from the Owner, proceed with performance of the following duties:

1. cease operation as specified in the notice;
2. place no further orders and enter into no further Subcontracts for materials, labor, services, equipment, or facilities except as necessary to complete continued portions of the Contract;
3. terminate all subcontracts and orders to the extent they relate to the Work terminated;
4. proceed to complete the performance of Work not terminated; and
5. take actions that may be necessary, or that the Owner may direct, for the protection and preservation of the terminated work.

§ 20.3.2 In the event of termination by Owner for convenience, the sum payable to the Contractor for the Work shall be prorated based upon the amount of properly performed Work completed. Owner shall receive proper credit for sums already paid. Upon any such termination, all obligations of Owner (other than payment of sums due Contractor for services properly performed but not previously paid prior to the date of termination) shall cease as of the effective date of termination.

§20.3.4 The Owner shall be credited for (1) payments previously made to the Contractor for the terminated portion of the Work, and (2) claims which the Owner has against the Contractor under the Contract.

### §20.4 SUSPENSION BY THE OWNER FOR CONVENIENCE

§20.4.1 The Owner may without cause order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

§20.4.2 If suspension, delay or interruption ordered by the Owner constitutes in the aggregate more than twenty percent (20%) of the total number of days scheduled for completion, an adjustment shall be made for increases in the cost of the performance of this Contract, excluding profit caused by such suspension, delay or interruption. No adjustment shall be made to the extent:

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- .1 That the performance is, was, or would have been so suspended, delayed or interrupted by another cause, including without limitation the fault or negligence of the Contractor or any Subcontractor; or
- .2 That an equitable adjustment is made or denied under another provision of this Contract.

§20.4.3 Adjustments made in the cost of performance may have a mutually agreed fixed or percentage fee.

## ARTICLE 21 CLAIMS AND DISPUTES

§ 21.1 Intentionally omitted.

### § 21.2 Notice of Claims

§ 21.2.1 Intentionally omitted.

§ 21.2.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 18.2, shall be initiated by notice to the other party.

### § 21.3 Time Limits on Claims

The Owner and Contractor shall commence all claims and causes of action against the other and arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in this Agreement whether in contract, tort, breach of warranty, or otherwise, within the period specified by applicable law.

§ 21.4 If a claim, dispute or other matter in question relates to or is the subject of a mechanic's lien, the party asserting such matter may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 21.5 Intentionally omitted.

§ 21.6 Intentionally omitted.

*(Paragraphs deleted)*

§ 21.7- § 21.9 Intentionally omitted.

### § 21.10 Continuing Contract Performance

Pending final resolution of a Claim, except as otherwise agreed in writing, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

### § 21.11 Waiver of Claims for Consequential Damages

The Contractor waives Claims against the Owner for consequential damages arising out of or relating to this Contract. This

*(Paragraphs deleted)*

waiver includes, but is not limited to damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit arising from the Work.

This waiver is applicable, without limitation, to all consequential damages due to Owner's termination in accordance with Article 20.

In any suit or action arising under this Contract the Owner shall be entitled to an award of reasonable attorney's fees and costs of litigation.

## ARTICLE 22 OTHER CONDITIONS OR PROVISIONS

§ 22.1 The Contractor shall be responsible for the supply and maintenance of any and all temporary equipment, utilities, and facilities necessary to properly and safely complete and protect the Work, including without limitation those required by winter conditions. Contractor shall provide and erect barricades and other safeguards adequate to warn of danger at the site and to protect persons and property from injury resulting from the Work.

§ 22.2 The Contractor shall limit material and equipment storage to the immediate area of Work and such other areas as Owner may designate. The Contractor shall promptly remove and properly dispose off-site all construction material, trash, garbage and other debris.

**§ 22.3** The Contractor shall notify Architect and Owner in advance (to the extent practicable, notice shall be made at least 48 hours in advance) of any and all deliveries of major materials to the Project Site and shall give notice of receipt of materials and equipment that Architect or Owner has indicated or customarily would want to inspect prior to commencement of the Work. Prior to resumption of the Work in the event of a temporary suspension lasting longer than 72 hours, and at such other time intervals during the process of the Work as requested by Owner, in order to permit Owner to properly coordinate its normal operations and facilities requirements with the Work.

**§22.4** The following definitions are added to the Contract:

"**Final completion**" means the date the Contract has been fully performed, all the Work has been completed in accordance with the Contract Documents and the Owner has approved Final Payment to the Contractor.

"**Indicated**" and "**shown**" mean as described, detailed, discussed, scheduled, referenced, or called for in. or reasonably inferable from the Contract Documents in order to produce a first class Work product.

"**Provide**" or derivatives thereof means the Contractor shall properly fabricate, supply, furnish or procure all labor, materials, equipment, apparatus, and accessory appurtenances necessary to transport, deliver, install, erect and construct the specified item, complete, in place and ready for operation and use, including any final connections, in strict accordance with the Drawings, Specifications and other Contract Documents. The words "Contractor shall" are implied and shall be so understood whenever the direction or term "provide" is used.

"**Unit Price**" is an amount stated in the Contractor's bid proposal or in the Contract Documents as a price per unit of measurement for materials, equipment or services for a portion of the Work as described in the Bidding Documents or the Contract Documents. A Unit Price includes all costs associated with the performance of the portion of the Work for which the Unit Price is provided, including but not limited to labor, materials, equipment, loading, transportation, handling, unloading, overhead and profit.

**§22.5** Except as otherwise specifically provided in the Contract Documents, if and to the extent of any inconsistency, ambiguity, conflict, discrepancy or error in the Contract Document, and otherwise in interpreting the Contract Documents, the Parties shall give precedence to the Contract Documents in the following order of priority:

- (i) Modifications.
- (ii) This Agreement except that the Supplementary Conditions shall take precedence over the General Conditions of the Contract.
- (iii) Specifications.

#### **ARTICLE 23 - COMPLIANCE WITH LAWS**

**§ 23.1** The Contractor shall comply with all federal, state, county and local laws, codes, rules and regulations applicable to the Work including without limitation all building codes, permit conditions, the American with Disabilities Act and the equal employment opportunity clause of the Illinois Human Rights Act and the rules and regulations of the Illinois Department of Human Rights, the Illinois Prevailing Wage Act, and all laws and regulations pertaining to occupational and work safety, hours of operation and disposal of construction debris. A copy of the Contractor's certification of compliance with applicable laws is attached to and made a part of this Agreement.

**§23.2** The Contractor shall maintain and shall require its Subcontractors to maintain policies of employment as follows:

**§23.3.1** In the event of the Contractor's non-compliance with the provisions of this equal opportunity clause, the Illinois Human Rights Act or the Rules and Regulations of the Illinois Department of Human Rights ("Department"). Contractor may be declared ineligible for future contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations, 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 regulation. During the performance of this Contract, Contractor agrees as follows:

- 1) That it will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation or preference, marital status, national origin or ancestry,

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citizenship status, age, physical or mental disability unrelated to a person's ability to perform the essential functions of the job, association with a person with a disability, military status or an unfavorable discharge from military service, or record of arrest; and further that it will examine all job classifications to determine if minority persons or women are underutilized and will take appropriate affirmative action to rectify any such underutilization.

- 2) That, if it hires additional employees in order to perform this Contract or any portions thereof, it will determine the availability (in accordance with the Department's Rules and Regulations) 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 underutilized.
- 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, sexual orientation, marital status, national origin or ancestry, citizenship status, age, physical or mental handicap or disability unrelated to a person's ability to perform the essential function of the job, or association with a person with a disability, military status or an unfavorable discharge from military service, or record of arrest.
- 4) 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 notify the Department and the Owner and will recruit employees from other sources when necessary to fulfill its obligations thereunder.
- 5) 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 Owner, and in all respects comply with the Illinois Human Rights Act and the Department's rules and regulations.
- 6) That it will permit access to all relevant books, records, accounts and work sites by personnel of the Owner and the Department for purposes of investigation to ascertain Department's rules and regulations.
- 7) 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 Owner 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 (or contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations.

**§23.4** The Contractor is encouraged to utilize qualified minority businesses as subcontractors for supplies, services and construction.

**§23.5** The Contractor shall comply with the requirements of the Illinois Prevailing Wage Act (820 ILCS 130/0.01 *et seq.*) and the Park District's Ordinances requiring payment of prevailing wages. The Contractor shall pay or cause to be paid not less than the prevailing rate of hourly wage in the county the work is performed as determined by the Illinois Department of Labor for the month in which the work is performed including but not limited to all laborers, workers and mechanics. All contractors and subcontractors rendering services under this contract must comply with all requirements under the Act, including but not limited to, all wage, notice and record keeping duties.

The Contractor is required to verify current prevailing wage prior to the first day of each month and to pay the then-current prevailing wage rate as determined by the Illinois Department of Labor, regardless of the rates contained

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in the Contract Documents. Any increases in costs to the Contractor due to the changes in the prevailing wage during the term of this Contract shall be at the expense of Contractor and not at the expense of Owner. Current prevailing wage rates are published at the following:

<https://www.illinois.gov/idol/Laws-Rules/CONMED/Pages/2017-Rates.aspx>. The Contractor agrees to indemnify and hold harmless the Park District for any violations of the Prevailing Wage Act.

The Contractor shall also: (1) insert into each subcontract and the project specifications for each subcontract, a written stipulation that the subcontractor shall not pay less than the prevailing rate of hourly wage to all laborers, workers, and mechanics performing work under the contract; and (2) require each subcontractor to insert into each lower-tiered contract and the project specifications for each lower-tiered subcontract, a stipulation that the subcontractor shall not pay less than prevailing rate of hourly wage to all laborers, workers, and mechanics performing work under the contract.

The Contractor shall include on all bonds and shall cause all subcontractors' bonds required under the Contract Documents to guarantee compliance with the Prevailing Wage Act.

Additionally, the Contractor and each subcontractor shall make and keep, for a period of not less than 5 years from the date of the last payment on a contract or subcontract, records of all laborers, mechanics, and other workers employed by them on the Project; the records shall include each worker's name, address, telephone number when available, social security number, classification or classifications, the hourly wages paid in each pay period, the number of hours worked each day, and the starting and ending times of work each day. The Contractor shall submit monthly, no later than the 10<sup>th</sup> day of each calendar month, in person, by mail, or electronically a certified payroll to the Park District with each monthly pay request in the form required by the Illinois Prevailing Wage Act. The certified payroll shall be accompanied by a statement signed by the Contractor or subcontractor which states that: (i) he or she has examined the certified payroll and such records are true and accurate; (ii) the hourly rate paid to each worker is not less than the general prevailing rate of hourly wages required by this Act; and (iii) the Contractor or subcontractor is aware that filing a certified payroll that he or she knows to be false is a Class A misdemeanor. The Contractor may rely on the certification of a lower tier subcontractor, provided the Contractor does not knowingly rely upon a subcontractor's false certification. The records submitted in accordance with this payroll submittal provision shall be considered public records pursuant to Section 5 of the Prevailing Wage Act, 820 ILCS 130/5 (2004, as amended by P.A. 94-515). The Park District may, at its option, immediately terminate the Contract in the event that Contractor violates any provision of this paragraph or the Prevailing Wage Act.

Contractor shall also post the prevailing wage rates for each craft or type of worker or mechanic needed to complete the project at either: (1) a location on the project site easily accessible to the workers engaged on the project; or (2) in lieu of posting on the project site, if the Contractor has a business location where laborers, workers, and mechanics may regularly visit, the Contractor may either post the prevailing rate of wages in each county the Contractor works in a conspicuous location or provide the laborers, workers or mechanics engaged on the project a written notice indicating the prevailing rate of wages for the project.

Upon seven business days' notice, the Contractor and each subcontractor shall make available for inspection and copying at a location within this State during reasonable hours, the records identified in 820 ILCS 130/5(a)(1) to the Owner, and its officers and agents.

This Agreement entered into as of the day and year first written above.

OAK BROOK PARK DISTRICT

\_\_\_\_\_  
OWNER (Signature)

\_\_\_\_\_  
CONTRACTOR (Signature)

\_\_\_\_\_  
(Printed name and title)

\_\_\_\_\_  
(Printed name and title)

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# Additions and Deletions Report for AIA® Document A104™ – 2017

This Additions and Deletions Report, as defined on page 1 of the associated document, reproduces below all text the author has added to the standard form AIA document in order to complete it, as well as any text the author may have added to or deleted from the original AIA text. Added text is shown underlined. Deleted text is indicated with a horizontal line through the original AIA text.

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## PAGE 1

**AGREEMENT** made as of the day of in the year Two Thousand Eighteen

...

*(Name, legal status, address and other information)*

Oak Brook Park District  
1450 Forest Gate Road  
Oak Brook, IL 60523

...

Tennis Center Boiler and Water Heater Replacement Project  
1300 Forest Gate Road  
Oak Brook, IL 60523

This Project includes the replacement of the heating hot water boiler and water heater and all other incidental and collateral work necessary to complete the Project in accordance with the Contract Documents.

...

Kluber, Inc.  
10 South Shumway Avenue  
Batavia, IL 60510

**PAGE 2**

**21 CLAIMS AND DISPUTES**

**22 OTHER CONDITIONS OR PROVISIONS**

**23 COMPLIANCE WITH LAWS**

**PAGE 3**

Established as follows:

...

August 27, 2018

...

By the following date: October 1, 2018

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...

NA

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**§ 2.4 Final Completion**

**§ 2.4.1** Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Final Completion of the entire Work:

*(Check the appropriate box and complete the necessary information.)*

Not later than ( ) calendar days from the date of commencement of the Work.

By the following date: October 15, 2018

**§ 2.4.2** If the Contractor fails to achieve Final Completion as provided in this Section 2.4, liquidated damages, if any, shall be assessed as set forth in Section 3.5.

...

Stipulated Sum, in accordance with Section 3.2 below  
PAGE 4

NA

**§ 3.3 Cost of the Work Plus Contractor's Fee**

**§ 3.3.1** The Cost of the Work is as defined in Exhibit A, Determination of the Cost of the Work.

**§ 3.3.2** The Contractor's Fee:

*(State a lump sum, percentage of Cost of the Work or other provision for determining the Contractor's Fee and the method of adjustment to the Fee for changes in the Work.)*

**§ 3.4 Cost of the Work Plus Contractor's Fee With a Guaranteed Maximum Price**

**§ 3.4.1** The Cost of the Work is as defined in Exhibit A, Determination of the Cost of the Work.

**§ 3.4.2** The Contractor's Fee:

*(State a lump sum, percentage of Cost of the Work or other provision for determining the Contractor's Fee and the method of adjustment to the Fee for changes in the Work.)*

**§ 3.4.3 Guaranteed Maximum Price**

**§ 3.4.3.1** The sum of the Cost of the Work and the Contractor's Fee is guaranteed by the Contractor not to exceed (\$ ), subject to additions and deductions by changes in the Work as provided in the Contract Documents. This maximum sum is referred to in the Contract Documents as the Guaranteed Maximum Price. Costs which would cause the Guaranteed Maximum Price to be exceeded shall be paid by the Contractor without reimbursement by the Owner. *(Insert specific provisions if the Contractor is to participate in any savings.)*



**§ 3.4.3.2** The Guaranteed Maximum Price is based on the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:  
*(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)*

**§ 3.4.3.3** Unit Prices, if any:  
*(Identify the item and state the unit price and the quantity limitations, if any, to which the unit price will be applicable.)*

**§ 3.2.4** Adjustments to the Contract Sum: Adjustments to the Contract Sum for changes in the Work other than changes in the Work involving items for which unit prices were requested by Owner and provided in Contractor's Submitted Bid Proposal, shall be made as follows:

1. In the manner agreed to by the Parties, or in the absence of agreement then the combined allowance for overhead and profit in connection with changes to the Work shall be the lesser of the amount, if any, included in the Contractor's bid proposal, or the following:
  - a. Five percent (5%) of the cost of the change in the Work involved if performed by the Contractor not involving Subcontractors, or
  - b. Five percent (5%) of the cost of the change in the Work involved performed by Subcontractors, plus two percent (2%) of the cost of the change in the Work for the Contractor's supervision of the work performed by the Subcontractors.

When both additions and credits covering related Work are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

**§ 3.2.5** Overtime, if and when specifically authorized in advance in writing by the Owner shall be paid by the Owner on the basis of premium payment if any, plus the cost of insurance and taxes based on the premium payment period. No overhead or profit may be charged for overtime. The Contractor shall not be entitled to any payment for overtime necessitated by the failure of the Contractor to perform the Work in accordance with the Contract Documents including without limitation to the Contractor's failure to prosecute the Work diligently and on an uninterrupted basis and with a sufficient work force so as to achieve completion of the Work within the time and in the manner contemplated by the Contract Documents or otherwise due to the fault of the Contractor. In such instances if the Owner requires the Contractor to perform Work on an overtime basis, all costs for and associates with such overtime shall be borne by the Contractor.

Item	Units and Limitations	Price per Unit (\$0.00)
------	-----------------------	-------------------------

**§ 3.4.3.4** Allowances, if any, included in the Guaranteed Maximum Price:  
*(Identify each allowance.)*

Item	Price
------	-------

**§ 3.4.3.5** Assumptions, if any, on which the Guaranteed Maximum Price is based:

**§ 3.4.3.6** To the extent that the Contract Documents are anticipated to require further development, the Guaranteed Maximum Price includes the costs attributable to such further development consistent with the Contract Documents and reasonably inferable therefrom. Such further development does not include changes in scope, systems, kinds and quality of materials, finishes or equipment, all of which, if required, shall be incorporated by Change Order.

~~§ 3.4.3.7 The Owner shall authorize preparation of revisions to the Contract Documents that incorporate the agreed-upon assumptions contained in Section 3.4.3.5. The Owner shall promptly furnish such revised Contract Documents to the Contractor. The Contractor shall notify the Owner and Architect of any inconsistencies between the agreed-upon assumptions contained in Section 3.4.3.5 and the revised Contract Documents.~~

PAGE 5

Time is of the essence to the Contract. Should the Contractor fail to complete the Work on or before the Final Completion date as stipulated in the Contract or within such extended time as may have been allowed, the Contractor shall be liable and shall pay to the Owner the sum of \$150.00 per calendar day, not as a penalty but as a liquidated damages for each day of overrun in the Contract Time or such extended time as may have been allowed. The liquidated damages for failure to complete the Contract on time are approximate, due to the impracticality of calculating and proving actual delay costs. The costs of delay represented by the liquidated damage amount are understood to be a fair and reasonable estimate of the costs that will be borne by the Owner during extended and delayed performance by the Contractor for the Work. The liquidated damage amount specified will accrue and be assessed until Final Completion of the total physical Work of the Contract even though the Work may be substantially complete. The Owner will deduct these liquidated damages from any monies due or to become due to the Contractor from the Owner.

...

§ 4.1.1 Based upon Applications for Payment properly completed and accompanied by all supporting documentation and other submittals required by the Contract Documents, submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, and agreed to by the Owner and not subsequently nullified by the Architect in accordance with the Contract Documents, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 4.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows: month.

...

§ 4.1.3 Provided that an Application for Payment, which is in proper form and accompanied by the required supporting documents and submittals, in form and substance required by the Contract Documents, is received by the Architect not later than the 10th day of a month, certified by Architect and not subsequently nullified by Architect, the Owner shall make payment of the certified amount to the Contractor not later than the fifteenth day of the following month. If an Application for Payment is received by the Architect after the date fixed above, payment shall be made by the Owner not later than forty-five ( 45 ) days after the Architect receives the Application for Payment.

...

§ 4.1.4 For each progress payment made prior to Substantial Final Completion of the Work, the Owner may withhold retainage from the payment otherwise due as follows:

...

10% of the Contract Sum

§ 4.1.5 Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located. Contract, and any penalties associated with the same, shall be paid in accordance with the provisions of, the Illinois Local Government Prompt Payment Act, 50 ILCS 505/1 et seq. (Insert rate of interest agreed upon, if any.)

—%

.1 the Contractor has ~~fully performed the Contract except for the~~ achieved Final Completion of the Work, including Final Completion for Contractor's responsibility to correct Work as provided in Section Sections 9.4 and 18.2, and to satisfy other requirements, if any, which extend beyond final payment;

...

~~§ 4.2.2 The Subject to § 4.2.1, the Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:~~  
Payment and approval by Owner.

...

~~For any claim subject to, but not resolved by, mediation pursuant to Section 21.5, the~~ The method of binding dispute resolution shall be as follows:

...

[  ] Litigation in a court of competent jurisdiction

...

~~If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, claims will be resolved in a court of competent jurisdiction.~~

...

~~§ 6.1.2 AIA Document E203™ – 2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:~~  
~~(Insert the date of the E203 – 2013 incorporated into this Agreement.)~~

Intentionally Omitted.

~~§ 6.1.3 The Supplementary and other Conditions of the Contract:~~  
~~Contract are those included in the Project Manual dated June 20, 2018.~~

Document	Title	Date	Pages
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~~§ 6.1.4 The Specifications:~~  
~~(Either list the Specifications here or refer to an exhibit attached to this Agreement.)~~

Specifications are those included in the Project Manual dated June 20, 2018.

Section	Title	Date	Pages
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~~§ 6.1.5 The Drawings:~~Drawings are those included in the Project Manual dated June 20, 2018.

...

Number	Title	Date
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- a. Project Manual for Tennis Center Boiler and Water Heater Replacement Project, dated June 20, 2018, incorporated herein by reference.
- b. Contractor's Proposal, dated \_\_\_\_\_, attached to and incorporated in this Agreement as Exhibit A.
- c. Contractor's Compliance and Certification, a copy of which is attached to and incorporated in this Agreement as Exhibit B.
- d. Performance Bond, Labor Material Payment Bond and Maintenance Bond, copies of which are attached to and incorporated as part of this Agreement by reference.

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~~§ 7.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and will retain all common law, statutory and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.~~

§ 7.5.2 The Contractor, Subcontractors, Sub-subcontractors and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to the protocols established pursuant to Sections 7.6 and 7.7, if applicable, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect's consultants.

7.5.3 The Owner is the owner of the Contract Documents. The Contractor may retain one record set for use with this Project only. All copies of the Contract Documents except the Contractor's record set, shall be returned or suitably accounted for to the Owner on request upon completion of the Work.

...

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. ~~The parties will~~ if applicable, the parties may use AIA Document E203™-2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

...

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™-2013, Building Information Modeling and Digital Data Exhibit, if completed, and the requisite AIA Document G202™-2013, Project Building Information Modeling Protocol Form, if completed, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

PAGE 9

**§ 7.10 Relationship of the Parties**

~~Where the Contract is based on the Cost of the Work plus the Contractor's Fee, with or without a Guaranteed Maximum Price, the Contractor accepts the relationship of trust and confidence established by this Agreement and covenants with the Owner to cooperate with the Architect and exercise the Contractor's skill and judgment in furthering the interests of the Owner; to furnish efficient business administration and supervision; to furnish at all times an adequate supply of workers and materials; and to perform the Work in an expeditious and economical manner consistent with the Owner's interests. The Owner agrees to furnish and approve, in a timely manner, information required by the Contractor and to make payments to the Contractor in accordance with the requirements of the Contract Documents.~~



...

~~§ 8.1.1 Prior to commencement of the Work, at the written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 8.1.1, the Contract Time shall be extended appropriately.~~

Intentionally omitted.

...

~~§ 8.1.3 The Subject to the Contractor's duties and obligations under the Contract Document and § 9.1.1 of this Agreement, the Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.~~

...

~~If the Contractor fails to correct Work which is not in accordance with the requirements of the Contract Documents, or repeatedly fails or refuses to provide a sufficient amount of properly supervised and coordinated labor, material or equipment so as to be able to complete the Work within the Contract Time, or fails to pay subcontractors or material suppliers timely or to remove and discharge within ten days any lien filed upon the Owner's property or funds by anyone claiming by, through or under the Contractor, or disregards the instructions of the Architect or Owner when based on the requirements of the Contract Documents, or otherwise fails to carry out the Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order is eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity.~~

...

~~If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents, and fails within a ten-day period after receipt of or fails to perform a duty under or comply with a provision of the Contract Documents and fails within a seven-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, or fails within such seven-day period to eliminate (or diligently commence to eliminate) the cause of any stop work order issued under Section 8.2 thereof, the Owner may, without prejudice to any other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the deficiencies, default or neglect and may deduct the actual cost thereof, including Owner's expenses and compensation for the Architect's services made necessary thereby, from the payment then or thereafter due the Contractor. Architect may, pursuant to Section 15.4.3, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including the Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 21.~~

...

~~§ 9.1.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents. By its execution of the Contract, the Contractor acknowledges, agrees, represents, and warrants that: (a) the Contractor has carefully and thoroughly examined the Contract Documents, and the Contract Documents are full and complete, include all items necessary for the proper execution and completion of the Work, are sufficient to have enabled the Contractor to determine the cost of the Work and the time required for performance of the Work and to enable Contractor to construct the Work indicated therein in accordance with laws, ordinances, codes, regulations and rules applicable to the Work, and otherwise to fulfill all its obligations thereunder, including, but not limited to, Contractor's obligation to construct the Work for an amount not in excess of the Contract~~

Sum on or before the date(s) of Substantial and Final Completion established in the Contract; (b) the omission from the Contract Documents of minor details which ordinarily form a part of first class work and are necessary to the completion of the Work as indicated, shall not be cause for any extra cost but shall be included as if specifically mentioned or detailed; (c) the Contractor has visited and examined the Project site and surrounding areas, examined all physical, legal and other conditions affecting the Work and correlated its personal observations with the requirements of the Contract Documents, and understands, is familiar with, and satisfied itself as to the same, including, without limitation: (i) the nature, location, and character of the Project and the site, including, without limitation surface conditions of the site and subsurface conditions observable or ascertainable upon the exercise of reasonable diligence including all structures and obstructions thereon and thereunder, both natural and manmade and all surface and subsurface water conditions of the site and the surrounding area; (ii) the nature, location, and character of the general area in which the Project is located, including without limitation, its generally prevailing climatic conditions, available labor supply and labor costs, and available equipment supply and equipment costs; (iii) the availability, quality, quantity and cost of all labor, materials, supplies, tools, equipment and professional services necessary to complete the Work in the manner and within the cost and time frame indicated by the Contract Documents.

By its execution of the Contract, the Contractor acknowledges, agrees, represents and warrants that it has carefully examined the Drawings, Specifications and other Contract Documents and having visited the Project site it has no actual knowledge of any discrepancies, omissions, ambiguities, or conflicts in or between the Contract Documents except those, if any, which have been clarified by Architect by Addenda to the Contractor's satisfaction, and that if it becomes aware of any such discrepancies, omissions, ambiguities, or conflicts, it has an obligation to and will immediately notify Owner and Architect of such fact, and will not proceed until it shall have received the written interpretation of Owner or Architect. If any such differences or conflicts which were ascertainable by careful review of the documents were not called to the Owner's and Architect's attention prior to submission by the Contractor of its bid proposal, the Architect shall decide which of the conflicting requirements will govern based upon the most stringent or highest quality of the requirements and, subject to the approval of the Owner, the Contractor shall perform the Work at no additional cost and/or time to the Owner in accordance with the Architect's decision.

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§ 9.1.3 The-Except as otherwise required by the Contract Documents, the Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

...

§ 9.2.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and ~~attention~~-attention under the full-time supervision of an approved site superintendent or foreman capable of communicating clearly with the Architect and the Owner in English. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters.

...

§9.2.3 The Contractor has the responsibility to ensure that all material suppliers and Subcontractors, their agents, and employees adhere to the Contract Documents, and that they order materials on time, taking into account the current market and delivery conditions and that they provide materials on time. The Contractor shall coordinate its Work with that of all others on the Project including deliveries, storage, installations, and construction utilities. The Contractor shall be responsible for the space requirements, locations, and routing of its equipment. In areas and locations where the proper and most effective space requirements, locations, and routing cannot be made as indicated, the Contractor shall meet with all others involved, before installation, to plan the most effective and efficient method of overall installation.

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§ 9.3.3 The Contractor may make a substitution equivalent to or superior to the specified materials only with the consent of the Owner, after evaluation by the Architect and approval by the Owner and in accordance with a Modification.

§9.3.4 The Contractor shall only employ labor on the Project or in connection with the Work capable of working harmoniously with all trades, crafts and any other individuals associated with the Project. The Contractor shall also use its reasonable best efforts to minimize the likelihood of any strike, work stoppage or other labor disturbance. The Contractor shall comply with all requirements of OSHA and shall indemnify and hold harmless the Owner against and from any claims, losses, damages or expenses it may incur as a result of the failure of the Contractor or any of its Subcontractors to comply with OSHA requirements.

§9.3.5 If the Work is to be performed by trade unions, the Contractor shall make all necessary arrangements to reconcile, without delay, damage, or cost to the Owner and without recourse to the Architect, Owner's representative or the Owner, any conflict between the Contract Documents and any agreements or regulations of any kind at any time in force among members of councils which regulate or distinguish what activities shall not be included in the Work of any particular trade. In case the progress of the Work is affected by any undue delay in furnishing or installing any items or materials or equipment required under the Contract Documents because of the conflict involving any such agreement or regulations, the Architect or Owner's representative with the Owner's approval may require that other materials or equipment of equal kind and quality be provided at no additional cost to the Owner.

§9.3.6 The Contractor shall carefully inspect all materials delivered on and to the Project site and reject defective materials without waiting for the Architect or Owner to observe the materials.

§9.3.7 The Contractor shall deliver, handle, store and install materials in accordance with manufacturers' or suppliers' instructions.

§9.3.8 Before ordering any material or doing any Work, the Contractor shall verify all measurements at the Project Site and Contractor 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 by the Project Drawings.

§9.3.9 If any person employed by the Contractor on the Work shall appear to the Owner to be incompetent or conduct himself in a disorderly or improper manner, such person or persons shall be removed from the Work immediately on the request of the Owner. Said removal shall not create any additional cost to Owner and shall not extend the time for completion of the Work.

...

The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, ~~except for those inherent in the quality of the Work the Contract Documents require or permit.~~ faults and defects. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work ~~not executed by the Contractor, or persons other than Contractor or subcontractor,~~ improper or insufficient maintenance, improper operation or normal wear and tear under normal usage. All other warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable ~~to the Owner, and shall commence in accordance with Section 15.6.3 to the Owner.~~ Inability, failure or refusal of the Subcontractor or supplier responsible for the defective materials, equipment or Work to correct the same shall not excuse the Contractor from performing under the warranty. If required by the Architect or the Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials being furnished.

All warranties shall include labor and materials and shall be signed by the manufacturer or subcontractor as the case may be and countersigned by the Contractor. All warranties shall be addressed to the Owner and delivered to the Owner upon completion of the Work and before or with the submission of request for final payment. Except as otherwise provided in this Agreement or elsewhere in the Contract Documents, or in any Certificate of Substantial or Partial Completion approved by the Owner and Contractor and/or subcontractor, as applicable, all warranties shall become effective on the date of Final Completion of the entire Work unless otherwise provided in any Certificate of Partial or Substantial Completion approved by the Owner and the Contractor or Subcontractor, as applicable, but only with respect to warranties for that specific portion of the Work, and shall run for a twenty-four (24) month period.



unless a longer period is provided for in the Contract Documents or by law. Where warranties overlap, the more stringent requirement shall govern. The Contractor shall consult with the Owner prior to the submission of any application to the appropriate permitting agency or authority in order to afford Owner the opportunity to obtain a waiver or reduction of any fees or costs associated therewith.

Defective materials, equipment or workmanship occurring within the Warranty period may be repaired where such produces results conforming to the Contract Documents relating to appearance, performance and reliability. Where the nature of the defective materials, equipment or workmanship is such that acceptable results cannot be obtained by repair, such defective items shall be removed and replaced with new materials, equipment or workmanship complying with the Contract Documents.

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The Contractor shall pay sales, consumer, use, and other similar taxes that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect. Because the Owner is an Illinois unit of local government, the Illinois sales tax is not applicable to materials, equipment and supplies incorporated in the Work or wholly consumed in the performance of the Work. The Owner will provide its sales tax exemption number for use by Contractor in purchasing such materials, equipment and supplies for this Project.

...

**§ 9.6.2** The Contractor shall comply with and give notices and permit inspections required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work or having jurisdiction over the Work. The Contractor shall promptly notify the Architect and Owner if any of the Contract Documents appear to be a variance therewith. If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, or had it carried out its obligations under the Contract Documents generally, and Section 9.1.1 of this Agreement in particular, should reasonably have known it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

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The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, ~~and~~ the Contract Documents and as otherwise directed by Owner and shall not unreasonably encumber the site with materials or equipment.

#### **§ 9.10.1 Parking & Traffic.**

.1 Parking of construction vehicles on the site by the Contractor shall not inhibit construction nor prevent access for emergency or other official vehicles. Parking of private vehicles on the site by the Contractor is prohibited unless said vehicle is necessary in the execution of the Contract. No construction vehicles shall be parked near or under any existing vegetation on the site.

.2 Construction traffic and staging shall be permitted only within construction limits as indicated on plan. Contractor is responsible for repair of any areas disturbed outside of this area, including grading and sodding. No staging will be permitted on existing asphalt without Owner's prior written consent. The cost to repair any damage to existing asphalt will be back-charged to the Contractor.

**§ 9.10.2 Fencing.** Contractor will be responsible for erecting and maintaining construction fencing around the limits of the Project site at all times of construction in accordance with applicable law and the Contract Documents. Failure to erect or maintain this fencing will result in the correction of the problem by the Owner at the expense of the Contractor, and may include, but are not limited to, the cost of any materials and staff time. This fence must be installed and fully erected before construction operations beginning and tied-up at the end of each working day.

**§ 9.10.3 Water Removal.** If, during construction, standing water caused by heavy rains or poor drainage becomes a hazard in the proper execution of the Contract, it shall be the responsibility of the Contractor to provide and make payment for removal of said water to existing drainage swales, storm sewers or other natural or man-made drainage ways.



The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall ~~remove~~remove, and properly and lawfully dispose of as applicable, waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus material from and about the Project. The Contractor shall clean up and keep all streets, sidewalks and other public ways used for access to the Project site free from accumulation of spillage of fill or soils or other materials caused by operations under the Contract. The Contractor shall strictly comply with all laws and regulations pertaining to same be solely responsible for, and shall pay any fines or penalties assessed as the result of, any violation.

...

**§ 9.15.1** To the fullest extent permitted by law, the Contractor waives any rights of contribution against, and shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, Owner and its officers, officials, employees, volunteers and agents from and against all claims, damages, losses and expenses including but not limited to legal fees (attorney's and paralegals' fees and court costs), arising out of or resulting from the performance of the Work, Contractor's work, provided that any such claim, damage, loss, loss or expense (i) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a property, other than the work itself, including the loss of use resulting there from and (ii) 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 them, any of them or anyone for whose acts they any of them may be liable, regardless of whether or not such claim, damage, loss, or expense it is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations otherwise reduce any other right or obligation of indemnity which would otherwise exist as to a party or person described in this Section 9.15.1 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.

"Claims," "damages," "losses" and "expenses" as these words are used in this Agreement shall be construed to include, but not limited to (1) injury or damage consequent upon the failure of or use or misuse by Contractor, its subcontractors, agents, servants or employees, of any hoist, rigging, blocking, scaffolding, or any and all other kinds of items of equipment or other mechanical or structural contrivance erected or constructed by any person, or any or all other kinds of equipment whether or not the same be owned, furnished or loaned by Owner; (2) all attorneys' fees and costs incurred in bringing an action to enforce the provisions of this indemnity or any other indemnity contained herein; (3) all costs and expenses incurred by the indemnified party; and (4) error or omission or defect in any submission made to Architect / Architect for its approval or review.

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**§ 10.2** Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the ~~Owner, Contractor,~~ Owner and Architect. Consent shall not be unreasonably withheld.

...

**§ 10.5** Based on the Architect's evaluations of the quality and progress of the Work and of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

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**§ 11.2** Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect ~~of the Subcontractors or suppliers in writing of the name, trade and subcontract amount of each Subcontractor and supplier~~ proposed for each of the principal portions of the Work. The Contractor shall not contract with any Subcontractor or supplier to whom the Owner or Architect has made reasonable written objection within ten days after receipt of the Contractor's written list of Subcontractors and suppliers. If the

proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

...

§ 11.4 All subcontract agreements shall be in writing and shall specifically provide that the Owner is an intended third-party beneficiary of such subcontract and that the Owner shall have the right to enforce the Subcontractor's obligations thereunder after the occurrence of a default under the Contract by the contractor. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by these Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar written agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement which may be at variance with the Contract Documents. Subcontractors shall similarly make copies of applicable portions of such documents available to their representatives proposed Sub-subcontractors.

§ 11.5 All subcontract agreements shall conform to the requirements of the Contract Documents and the Contractor hereby irrevocably assigns to the Owner and Owner's permitted assigns all its interest in any subcontract agreements and purchase orders now existing or hereinafter entered into the contractor for performance of any part of the Work, which assignment will be effective in the event of the Contractor's failure to perform the Work in accordance with the Contract Documents and upon acceptance by the Owner in writing and only as to those subcontract agreements and purchase orders that Owner designates in said writing. It is agreed and understood that the Owner may accept said assignment at any time during the course of construction prior to Final Completion. The Contractor shall promptly submit to the Owner a true and complete copy of each subcontract upon execution of same. Each subcontract shall contain a contingent assignment of the subcontract to the Owner, consistent with this Subparagraph. Upon acceptance by the Owner of a subcontract: (1) the Contractor shall promptly furnish to the Owner true and complete copies of the designated subcontract agreements and purchase orders, both as may have been amended by approved change order together with copies of any and all such amendments, and (2) the Owner shall only be required to compensate the designated Subcontractor(s) or supplier(s) for compensation accruing to such party(ies) for Work done or materials delivered from and after the date on which the Owner accepts the subcontract agreement(s) or purchase order(s). All sums due and owing by the Contractor to the designated Subcontractor(s) or supplier(s) for work performed or material supplied prior to the Owner's acceptance of the subcontract agreement(s) or purchase order(s) shall constitute a debt between such parties and the Contractor. It is further agreed that no subcontract agreement or purchase order shall contain any restriction that would prohibit assignment under the terms and conditions stated hereinabove. It is further agreed and understood that such assignment is part of the consideration to Owner for entering into the Contract with the Contractor and may not be withdrawn prior to Final Completion.

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§ 13.4 If concealed or unknown physical conditions are encountered at the site that differ materially from those indicated in the Contract Documents or from those conditions ordinarily found to exist, and the Contractor could not have discovered same in the exercise of reasonable diligence as required under Subsection 9.1.1 of this Agreement, the Contract Sum and Contract Time shall be equitably adjusted as mutually agreed between the Owner and Contractor; provided that the Contractor provides notice to the Owner and Architect promptly and before conditions are disturbed.

§ 13.5 Agreement on any Change Order shall constitute a final settlement, and accord and satisfaction between the Owner and Contractor, of all matters relating to the change in the Work which is the subject of the Change Order, including, but not limited to, all direct and indirect costs associated with such change and any and all adjustments to the Contract Sum, Contract Time and Construction Schedule. In the event a Change Order increases the Contract Sum, the Contractor shall include the Work covered by such Change Order in Applications for Payment as if such Work were originally part of the Contract Documents.

§ 13.6 No change in the Work, whether by way of alteration or addition to the Work, shall be the bases of an addition to the Contract Sum or change in the Contract Time unless and until such alteration or addition has been authorized by a Change Order executed and issued in accordance with and in strict compliance with the requirements of the Contract Documents and applicable law. Accordingly, no course of conduct or dealing between the parties, nor any express or implied acceptance of alterations or additions to the Work and no claim that the Owner has been unjustly enriched shall be the basis of any claim to an increase in the Contract Sum or change in the Contract Time.

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§ 14.2 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion and for Final Completion of the Work.

§ 14.4 The date of Substantial Completion is the date and Final Completion are the dates certified by the Architect in accordance with Section 15.6.3.

§ 14.5 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) changes ordered in the Work; (2) by labor disputes, fire, unusual delay in deliveries, abnormal adverse weather conditions not reasonably anticipatable, unavoidable casualties, or any causes beyond the Contractor's control; or (3) by other causes that the Contractor asserts, and the Architect determines, justify delay, then determines and Owner agrees, justify delay, then, as the Contractor's sole remedy, the Contract Time shall be extended for such reasonable time as the Architect may determine, subject to the provisions of Article 21, determine. Notwithstanding the foregoing, delays of the Contractor to carry out its obligations under or in accordance with the provisions of the Contract, shall not extend the Contract Time.

§ 14.6 The Contractor shall carry the Work forward regularly, diligently, uninterruptedly and expeditiously and in a good workmanlike and professional manner at such a rate of progress and with an adequate work force as will insure the completion of the Work in accordance with the Contract Documents by the date established in the Contract. It is expressly understood and agreed by and between Contractor and Owner that the time for completion of the Work is a reasonable time, taking into consideration the average climatic range, usual industrial conditions, and all other conditions and actors prevailing in this locality.

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§ 15.3.3 ~~Payments~~ Unless approved in advance by the Owner in writing, payments shall be made on account of materials and equipment incorporated in the Work. If approved in advance by the Owner payment shall be made on account of materials and equipment delivered and suitably stored and protected from damage and loss at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment delivered and suitably stored, and protected from damage, damage and loss, off the site at a location agreed upon in writing. The Owner may condition such approvals on such terms as the Owner in its discretion deems necessary for its protection.

§ 15.3.5 Failure to supply waivers of lien or acceptable evidence of payment of all current accounts incurred by this Contract work will be considered grounds for withholding final payment.

§ 15.3.6 The first payment application shall be accompanied by the Contractor's Partial Waiver of Lien only, for the full amount of the payment. Each subsequent monthly payment application shall be accompanied by the Contractor Partial Waiver, and by the Partial lien Waivers of Subcontractor and Suppliers who were included in the immediately preceding payment application to the extent of that payment. Application for Final Payment shall be accompanied by Final Waivers of Lien from the Contractor, Subcontractors and Suppliers who have not previously furnished such Final Waivers. Final Waivers shall be for the full amount of the Contract. All applications for payment shall be accompanied by affidavits, in triplicate, from the Contractor and Subcontractors containing such information and in such form as to comply with the Illinois Mechanics Lien Act (770 ILCS 60/0.01 et seq.) and showing in detail the sources of all labor and materials used and contracted to be used on the Project, including names and addresses of subcontractors and material suppliers; amounts paid and remaining to be paid to each; together with all documents as



shall be necessary, in the sole judgment of the Architect and Owner, to waive all claims of liens to date and comply with all applicable state and local laws.

(i) All waivers (partial and final) shall include language as applicable indicating either that:

- a. all material were taken from fully paid stock and delivered to job site in our own vehicles and all labor has been fully paid in accordance with prevailing wage laws; or
- b. materials were provided by the following suppliers for whom waivers of lien are attached and all labor has been fully paid in accordance with prevailing wage laws.

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§ 15.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, but not to Contractor, based on the Architect's evaluations of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Architect. The issuance of a Certificate for Payment will further constitute a representation to the Owner but not to the Contractor that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

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.7 ~~repeated~~ failure to carry out the Work in accordance with the Contract Documents.

§ 15.4.4 ~~When either party disputes the Architect's decision regarding a Certificate for Payment under Section 15.4.3, in whole or in part, that party may submit a Claim in accordance with Article 21.~~ the above reasons for withholding certification are removed, certification will be made for amounts previously withheld. No interest will be paid on amounts withheld.

...

§ 15.5.1 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to sub-subcontractors in a similar manner. This provision is not to be construed as a "conditional payment" or "pay when paid" clause. In the event that payment to the Contractor is delayed without fault of the Subcontractor, payment to the Subcontractor shall be made within a reasonable time after work is properly performed by a Subcontractor irrespective of any delay in payment to the Contractor.

...

§ 15.5.4 ~~Provided the Owner has fulfilled its payment obligations under the Contract Documents,~~ the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 15.5.5 Anything to the contrary contained or implied herein notwithstanding, no progress payment need be made by Owner until such time as Contractor, Subcontractors or any other persons performing the Work or furnishing materials or equipment for the Project furnishes such documents as Owner may reasonably require (including without limitation sworn notarized contractor's statement, affidavits and waivers of lien).

...

§ 15.6.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete completed in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use. for its intended use and has been accepted by Owner to receive all required occupancy permits.

"Punch List" mean and shall be limited to uncompleted items of Work (a) that do not interfere with the use and occupancy of any area of the Site for its intended purpose and (b) that, as a group, are capable of being completed by the Contractor within thirty (30) days of issuance of any Punch List. The "Punch List" is the list containing the Punch List Items.

...

§ 15.6.3 Upon receipt of the Contractor's list, the Architect and Owner will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's or Owner's inspection discloses an item, whether or not included in the Contractor's list, which is not in accordance with the Contract Documents and is necessary for Owner's occupancy or utilization of the Work, the Contractor shall before issuance of a Certificate of Substantial Completion, complete such items upon notification from the Architect and Owner. The cost of this and any additional inspections required to establish Substantial Completion due to the failure of the Contractor to properly complete all items of the Work necessary for the Owner's use or occupancy of the Work shall be charged to the Contractor. When the Architect determines that the Work or designated portion thereof is substantially complete, the Architect will issue a Certificate of Substantial Completion to the Owner for review and concurrence by the Owner which shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list Punch List accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Final Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion, with the exception of the items of Work contained in the Punch List accompanying the Certificate of Substantial Completion. With respect to Work enumerated on the Punch List, the guarantee or warranty period shall commence upon Contractor's completion and Owner's approval of the Punch List items.

§ 15.6.4 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.  
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§ 15.7.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, and the Architect has advised Owner of that finding and Owner has not advised Architect of any objection to such finding, the Architect will promptly issue a final Certificate for Payment to the Owner but not the Contractor stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions stated in Section 15.7.2 as precedent to the Contractor's being entitled to final payment have been fulfilled. The Owner's failure to object to, and the Owner's acceptance of, the Architect's findings and/or certifications hereunder shall not constitute Owner's acceptance of Work not complying with the Contract Documents, or Owner's waiver of any claims or remedies it may have with respect to any such defective or delayed Work.

§ 15.7.2 Final payment shall not become due until the Contractor has fully performed the contract, including but not limited to, delivery of all manufacturer's and supplier's warranties, operating manuals, as-build drawings, and consent of the surety to final payment, pursuant to the Contract Documents, and has delivered to the Owner a complete release of all liens arising out of this Contract or receipts in full covering all labor, materials and equipment for which a lien could be filed, or a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including costs and reasonable attorneys' fees.

...

The final payment by Owner shall not relieve the Contractor of the responsibility for the correction of any and all defects in the work performed. Contractor shall correct all defects as notified for the applicable warranty period after final payment.

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§ 17.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in this Section 17.1 ~~or elsewhere~~ and in the Contract Documents. The Contractor shall purchase and maintain the insurance required by this Agreement from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. Contractor shall procure insurance from insurance companies that have obtained A.M. Best ratings 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. Failure to maintain the required insurance may result in termination of the Contract at Owner's option. 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.

...

Contractor shall maintain commercial general liability (CGL) and, if necessary, commercial umbrella liability insurance with a limit of not less than \$2,000,000 each occurrence for at least three years following Substantial Completion of the Work.

§ 17.1.2 Commercial General Liability insurance for the Project written on an occurrence form with policy limits of not less than ~~(\$ ) each occurrence, (\$ ) general aggregate, and (\$ ) aggregate for products completed operations hazard,~~ Two Million Dollars (\$ 2,000,000 ) each occurrence, Two Million Dollars (\$ 2,000,000 ) general aggregate, providing coverage for claims including

#### PAGE 24

.5 the Contractor's indemnity obligations under Section 9.15.

CGL insurance shall be written on Insurance Services Office (ISO) occurrence form CG 00 01 04 93, or a substitute form providing equivalent coverage, and shall also cover liability arising from premises, operations, independent contractors, and liability assumed under an insured contract (including the tort liability of another assumed in a business contract)

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.

#### For Contractor's Continuing Completed Operations Liability Insurance:

Continuing CGL insurance shall be written on ISO occurrence form CG 00 01 4 13, 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.

§ 17.1.3 Automobile Liability covering vehicles owned by the ~~Contractor~~ Contractor, hired, and non-owned vehicles used by the Contractor, with policy limits of not less than One Million Dollars (\$ 1,000,000 ) per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance, and use of those motor vehicles along with any other statutorily required automobile coverage. Business auto insurance shall be written 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.

...

§ 17.1.5 Workers' Compensation ~~at statutory limits.~~

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 of \$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.

§ 17.1.6 Employers' Liability with policy limits not less than One Million Dollars (\$ 1,000,000 ) each accident, One Million Dollars (\$ 1,000,000 ) each employee, and One Million Dollars (\$ 1,000,000 ) policy limit.

§ 17.1.7 ~~If the Contractor is required to furnish professional services as part of the Work, the Contractor shall procure Professional Liability insurance covering performance of the professional services, with policy limits of not less than (\$ ) per claim and (\$ ) in the aggregate.~~  
Intentionally deleted.

§ 17.1.8 ~~If the Work involves the transport, dissemination, use, or release of pollutants, the Contractor shall procure Pollution Liability insurance, with policy limits of not less than (\$ ) per claim and (\$ ) in the aggregate.~~  
Intentionally deleted.

§ 17.1.9 ~~Coverage under Sections 17.1.7 and 17.1.8 may be procured through a Combined Professional Liability and Pollution Liability insurance policy, with combined policy limits of not less than (\$ ) per claim and (\$ ) in the aggregate.~~

Intentionally deleted.

§ 17.1.10 The Contractor shall provide certificates of insurance acceptable to the Owner evidencing compliance with the requirements in this Section 17.1 at the following times: (1) prior to commencement of the Work; (2) upon renewal or replacement of each required policy of insurance; and ~~(3) upon~~ (3) within 10 days' upon the Owner's written request. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment and thereafter upon renewal or replacement of such coverage until the expiration of the period required by ~~Section 17.1.1. The certificates will show the Owner~~ Section 17.1.1 or upon Owner's written request for the same. The certificates will show the Owner, its elected and appointed officials, employees, volunteers and agents as an additional insured on the Contractor's Commercial General Liability and excess or umbrella liability policy. 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.

§ 17.1.11 The Contractor shall disclose to the Owner any deductible or self-insured retentions applicable to any insurance required to be provided by the Contractor. 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.

**§ 17.1.12** To the fullest extent permitted by law, the Contractor shall cause the commercial liability coverage required by this Section 17.1 to include (1) the Owner, the Architect, and the Architect's Consultants as additional insureds Owner, its elected and appointed officials, employees, volunteers and agents for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions for which loss occurs during completed operations. The additional insured coverage shall be primary and non-contributory to any of the Owner's general liability insurance policies and shall apply to both ongoing and completed operations. To the extent commercially available, the The additional insured coverage shall be no less than that provided by Insurance Services Office, Inc. (ISO) forms CG 20 10 07 04, CG 20 37 07 04, and, with respect to the Architect and the Architect's Consultants, CG 20 32 07 04, or a substitute providing equivalent coverage, and under the commercial umbrella, if any. ..

If Contractor's liability policies do not contain the standard ISO separation of insured's' provision, or a substantially similar clause, they shall be endorsed to provide cross-liability coverage.

**§ 17.1.13** Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by this Section 17.1, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. 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. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to either stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The Contractor or terminate the contract, at Owner's option. In the event Owner does not terminate, the furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

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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.

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### **§ 17.2.1 Owner's Liability Insurance**

The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance in the amount of the initial Contract Sum as well as subsequent modifications thereto for the entire Work at the site on a replacement cost basis without voluntary deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Article 15.7 or until no person or entity other than the Owner has an insurable interest in the property required by this Paragraph 17.2.1 to be covered, whichever is earlier. This insurance shall include the respective interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Work.

**§ 17.2.2 Property Insurance**Property insurance shall be on a course of construction policy form and shall insure against the perils of fire and extended coverage and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, false work, windstorm, testing and start-up, temporary buildings and debris removal, including demolition, and shall cover reasonable compensation for the Architect's, any of the Owner's Consultant's services and expenses required as a result of such insured loss. Coverage for other perils shall not be required unless otherwise provided in the Contract Documents. Property insurance provided by the Owner shall not cover Contractor's, Subcontractor's or Sub-subcontractor's liability or any tools, apparatus, machinery, scaffolding, hoists, forms, staging, shoring or other similar items commonly referred to as construction equipment, which may be on the site and the capital value of which is not included in the Work. The Contractor shall make his own arrangements for any insurance he may require on such construction equipment.

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**§ 17.2.2.1** The Owner shall purchase and maintain, from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located, property insurance written on a builder's risk "all-risks" completed value or equivalent policy form and sufficient to cover the total value of the entire Project on a replacement cost basis. The Owner's property insurance coverage shall be no less than the amount of the initial Contract Sum, plus the value of subsequent Modifications and labor performed or materials or equipment supplied by others. The property insurance shall be maintained until Substantial Completion and thereafter as provided in Section 17.2.2.2, unless otherwise provided in the Contract Documents or otherwise agreed in writing by the parties to this Agreement. This insurance shall include the interests of the Owner, Contractor, Subcontractors, and Sub-subcontractors in the Project as insureds. This insurance shall include the interests of mortgagees as loss payees.

**§ 17.2.2.2** Unless the parties agree otherwise, upon Substantial Completion, the Owner shall continue the insurance required by Section 17.2.2.1 or, if necessary, replace the insurance policy required under Section 17.2.2.1 with property insurance written for the total value of the Project that shall remain in effect until expiration of the period for correction of the Work set forth in Section 18.4.

**§ 17.2.2.3** If the insurance required by this Section 17.2.2 is subject to deductibles or self-insured retentions, the Owner shall be responsible for all loss not covered because of such deductibles or retentions.

**§ 17.2.2.4** If the Work involves remodeling an existing structure or constructing an addition to an existing structure, the Owner shall purchase and maintain, until the expiration of the period for correction of Work as set forth in Section 18.4, "all-risks" property insurance, on a replacement cost basis, protecting the existing structure against direct physical loss or damage, notwithstanding the undertaking of the Work. The Owner shall be responsible for all co-insurance penalties.

**§ 17.2.2.5** Prior to commencement of the Work, the Owner shall secure the insurance, and provide evidence of the coverage, required under this Section 17.2.2 and, upon the Contractor's request, provide a copy of the property insurance policy or policies required by this Section 17.2.2. The copy of the policy or policies provided shall contain all applicable conditions, definitions, exclusions, and endorsements.

**§ 17.2.2.6** Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any insurance required by this Section 17.2.2, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

#### **§ 17.2.2.7 Waiver of Subrogation**

**§ 17.2.2.7.1** The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by this Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this Section 17.2.2.7 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

**§ 17.2.2.7.2** If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those



insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 17.2.2.7.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 17.2.2.8 A loss insured under the Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements, written where legally required for validity, the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

**§ 17.2.3 Other Insurance Provided by the Owner**

(List below any other insurance coverage to be provided by the Owner and any applicable limits.) The Contractor shall effect insurance which will protect the interests of the Contractor, Subcontractors and Sub-subcontractors in the Work.

§ 17.2.4 If the property insurance requires minimum deductibles and such deductibles are identified in the Contract Documents, the Contractor shall pay costs not covered because of deductibles. If the Owner or insurer increases the required minimum deductibles above the amounts so identified or if the Owner elects to purchase this insurance with voluntary deductible amounts, the Owner shall be responsible for payment of the additional costs not covered because of such increased or voluntary deductibles. If deductibles are not identified in the Contract Documents, the Owner shall pay costs not covered because of deductibles.

§ 17.2.5 Unless otherwise provided in the Contract Documents, this property insurance shall cover portions of the Work stored off the site and paid for by Owner after written approval of the Owner at the value established in the approval, and also portions of the Work in transit and paid for by Owner.

§ 17.2.6 Partial occupancy or use shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

§ 17.2.7 The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Contractor Subcontractors and Sub-subcontractors in the Work, and the Owner and the Contractor shall be named insureds.

§ 17.2.8 If the Contractor requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.

§ 17.2.9 Notwithstanding any provision contained in Article 17, the Owner's obligation to purchase insurance shall herein be deemed satisfied by the Owner's membership in a self-insured risk management agency or pool. The Contractor agrees that any obligation the Owner has to purchase property insurance shall be satisfied by the Owner's membership in a self-insured risk management agency or pool. The Contractor further agrees that it will only have rights allowable to it under any coverage provided through the Owner's membership in a self-insured risk management agency or pool.

Omitted.

Coverage

Limits

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§ 17.3.3 If required by the Owner the Contractor, before commencing the Work, shall furnish a Performance Bond and a Labor and Material Payment Bond. The Performance Bond shall be in an amount equal to 110% of the full amount of the Contract Sum as security for the faithful performance of the obligations of the Contract Documents, including the payment of prevailing wages in accordance with Article 23 of this Agreement, and the Labor and Material Payment Bond shall be in an amount equal to 110% of the full amount of the Contract Sum as security for required

payments to all persons performing labor and furnishing materials in connection with the Work. Such bonds shall be on AIA Document A-312, or the most current edition, issued by the American Institute of Architects, shall be issued by a surety satisfactory to the Owner, and shall name the Owner as primary co-obligee. Such bonds shall be from an Illinois Admitted Bonding Company acceptable to the Owner and having a minimum policy holder rating of "B+" in the latest edition of Best's Insurance Guide in effect as of the date of the Contract. Bonds shall remain in full force and effect for at least one year following the date of Final Completion of the Work or for the entire duration of the longest warranty period provided for the Work, whichever is longer. The cost of the bonds is to be included in the Contract Sum stated by the Contractor in its Bid Proposal.

§17.3.4 The Contractor shall (i) furnish with all bonds a certified copy of the power of attorney from the Surety Company stating that the person executing said bond is duly authorized by the Surety Company to execute said bond; (ii) furnish a certified copy of the certificate from said Surety Company's state showing said Surety Company licensed and authorized to transact business and execute said bond in Illinois; and (iii) if requested by Owner, furnish a copy of current financial statements of said Surety Company.

§17.3.5 In addition to the required performance and labor and material payment bonds, Contractor shall furnish a maintenance bond and/or irrevocable letter of credit in the amount of the Contract to guarantee the Work performed under the Contract against defective workmanship and/or defective materials of any nature for a period of not less than twenty-four (24) months from the date of acceptance of the Work, materials or equipment provided. The maintenance bond shall be in a form acceptable to District.

§ 18.1 The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed, or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense, unless compensable under Section A.1.7.3 in Exhibit A, Determination of the Cost of the Work expense. If prior to the date of Final Completion the Contractor, a Subcontractor, or anyone for who either of them is responsible, uses or damages any portion of the Work, including but not limited to mechanical, electrical, plumbing or other building system, machinery, equipment or other mechanical device, the Contractor shall cause such item to be replaced or if permitted by the Owner restored to "like new" condition, at no expense to the Owner.

§ 18.2 In addition to the Contractor's obligations under Section 9.4, if, within one year after the date of Substantial Final Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 15.6.3, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. ~~During the one year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty.~~ The obligation under this Section 18.2 shall survive acceptance of the Work under the Contract and termination of the Contract. Corrective Work shall be warranted to be free from defects for a period equal to the longer of twelve (12) months after the completion of the corrective Work or one (1) year from the date of Final Completion of the Work, or such longer period of time as may be prescribed by law or in equity or by the terms of any applicable special warranty. Notwithstanding the foregoing, Contractor shall correct Work deficiently or defectively performed and replace defective or non-conforming materials and equipment, even though such deficiency, defect or non-conformity may be discovered more than one (1) year after Final Completion, if the correction is of a latent defect and arises from poor workmanship or improper materials or equipment, or is required to be made to Work, materials or equipment covered by the Contractor or a Subcontractor contrary to the Architect's or Owner's request or to the request of a governmental officer, or to the requirements of the Contract Documents or Governmental Requirements, and was therefore not visible for inspection by the Architect, Owner or governmental officer, as applicable, at the time of inspection. Contractor shall, within a reasonable time under the circumstances, after receipt of written notice thereof, correct, repair, replace and otherwise make good any defects or non-conformity in the Work.

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§ 18.5 The one year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Article 18. Contractor shall remove from the site portions of the Work that are not in

accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 18.6 The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors caused by the Contractor's correction or removal of the Work that is not in accordance with the requirements of the Contract Documents

...

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 21.6 located.

...

Tests, inspections, and approvals of portions of the Work required by the Contract Documents or by applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities shall be made at an appropriate time. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of (1) tests, inspections, or approvals that do not become requirements until after bids are received or negotiations ~~concluded~~ concluded and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating the costs to the Contractor, unless such tests, inspection or approvals were necessitated by the Contractor's failure to perform the Work in accordance with the Contract Documents in which event the Contractor shall bear the costs. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

The Owner shall bear costs of (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating the costs to the Contractor, unless such tests, inspection or approvals were necessitated by the Contractor's failure to perform the Work in accordance with the Contract Documents in which event the Contractor shall bear the costs.

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Email: apop@obparks.org

...

If the Architect fails to certify payment as provided in Section 15.4.1 for a period of 30 days through no fault of the Contractor, Contractor or for any undisputed payment and has not notified Contractor for the reason for withholding payment, or if the Owner fails to make payment as provided in Section 4.1.3 for a period of 30 days, the Contractor may, days through no fault of the Contractor or for any undisputed payment and has not notified Contractor for the reason for withholding payment, and such failure continues for a period of 90 days after notice from the Contractor, the Contractor may, as its sole remedy, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner payment for Work executed, including reasonable overhead and profit, costs incurred by reason of such termination, and damages unless this reason is cured prior to the expiration of the notice period, and recover from Owner payment of Work properly executed in accordance with the Contract Documents (the basis for such payment shall be as provided in the Contract) provided said Work was authorized in advance by Owner. The Owner shall have the right to cure any defect or default prior to the date of termination stated in any written notice from Contractor as provided herein, in which event Contractor shall continue with the Work. If the Contractor terminates the Work and receives payment in connection with his equipment, tools or materials such items shall be left



and remain on the Site if the Owner so elects. Owner shall not be responsible for damages for loss of anticipated profits on Work not performed.

...

- ~~1 — repeatedly refuses or fails to supply enough properly skilled workers or proper materials;~~  
~~2 — fails to make~~

If the Contractor shall institute proceedings or consent to proceeding requesting relief or arrangement under the Federal Bankruptcy Act or any applicable Federal or State Law, or if a petition under any federal or state insolvency law is filed against the Contractor and such petition is not dismissed within sixty (60) days from the date of the filing, or if the Contractor admits in writing his inability to pay his debts generally as they become due, or if he makes a general assignment for the benefit of his creditors, or if a receiver, liquidator, trustee, or assignee is appointed on account of his bankruptcy or insolvency; or if a receiver of all or any substantial portion of the Contractor's properties is appointed; or if the Contractor abandons the Work; or if he fails, except in cases for which extension of time is provided, to prosecute promptly and diligently the Work or to supply enough properly skilled workmen or proper materials for the Work; or if the Contractor submits an application for payment, sworn statement, waiver of lien, affidavit or document of any nature whatsoever which is intentionally falsified; or if the Contractor fails to make prompt payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;

- ~~3 — repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or~~  
~~4 — otherwise is guilty of substantial breach of a provision of the Contract Documents or otherwise breaches obligations under any subcontract with a Subcontractor; or if a lien or a notices of lien is filed against any part of the Project or Project funds or if the Contractor disregards any laws, statutes, ordinances, rules, regulations or orders of any governmental body or public or quasi-public authority having jurisdiction of the Work or the Project premises; or if the Contractor otherwise violates any material provision of the Contract Documents, then, without prejudice to any right or remedy available Owner may, after giving the Contractor seven (7) days' written notice, terminate the Contractor, and take possession of the Project and all materials, equipment, tools, construction equipment and machinery thereon owned by the Contractor and accept assignment of Subcontracts and may complete the Work by whatever reasonable method the Owner may deem expedient. If requested by the Owner, the Contractor shall remove any part or all of this equipment, machinery and supplies from the Project within seven (7) days from the date of such request, and in such event at the Contractor's expense. Upon request of the Contractor, the Owner shall furnish to the Contractor a reasonably detailed accounting of the costs incurred by the Owner in completing the Work.~~

~~§ 20.2.2 When any of the reasons described in Section 20.2.1 exists, the Owner, upon certification by the Architect that sufficient cause exists to justify such action, may, without prejudice to any other remedy the Owner may have and after giving the Contractor seven days' notice, terminate the Contract and take possession of the site and of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor and may finish the Work by whatever reasonable method the Owner may deem expedient. Upon request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.~~  
Intentionally omitted.

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§ 20.2.5 The Owner's right to terminate the contract pursuant to Section 20.2 shall be in addition to and not in limitation of its right to stop the Work without terminating the Contract as provided elsewhere in this Agreement.

The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause. ~~The Owner shall pay the Contractor for Work executed; and costs incurred by reason of such termination, including costs attributable to termination of Subcontracts; and a termination fee, if any, as follows:~~

~~(Insert the amount of or method for determining the fee payable to the Contractor by the Owner following a termination for the Owner's convenience, if any.)~~

Termination by the Owner under this Section 20.3 shall be by a written notice of termination specifying the extent of termination and the effective date.

§ 20.3.1 Upon receipt of a notice of termination for convenience, the Contractor shall immediately, in accordance with instructions from the Owner, proceed with performance of the following duties:

1. cease operation as specified in the notice;
2. place no further orders and enter into no further Subcontracts for materials, labor, services, equipment, or facilities except as necessary to complete continued portions of the Contract;
3. terminate all subcontracts and orders to the extent they relate to the Work terminated;
4. proceed to complete the performance of Work not terminated; and
5. take actions that may be necessary, or that the Owner may direct, for the protection and preservation of the terminated work.

§ 20.3.2 In the event of termination by Owner for convenience, the sum payable to the Contractor for the Work shall be prorated based upon the amount of properly performed Work completed. Owner shall receive proper credit for sums already paid. Upon any such termination, all obligations of Owner (other than payment of sums due Contractor for services properly performed but not previously paid prior to the date of termination) shall cease as of the effective date of termination.

§20.3.4 The Owner shall be credited for (1) payments previously made to the Contractor for the terminated portion of the Work, and (2) claims which the Owner has against the Contractor under the Contract.

#### §20.4 SUSPENSION BY THE OWNER FOR CONVENIENCE

§20.4.1 The Owner may without cause order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

§20.4.2 If suspension, delay or interruption ordered by the Owner constitutes in the aggregate more than twenty percent (20%) of the total number of days scheduled for completion, an adjustment shall be made for increases in the cost of the performance of this Contract, excluding profit caused by such suspension, delay or interruption. No adjustment shall be made to the extent:

- .1 That the performance is, was, or would have been so suspended, delayed or interrupted by another cause, including without limitation the fault or negligence of the Contractor or any Subcontractor; or
- .2 That an equitable adjustment is made or denied under another provision of this Contract.

§20.4.3 Adjustments made in the cost of performance may have a mutually agreed fixed or percentage fee.

~~§ 21.1 Claims, disputes, and other matters in question arising out of or relating to this Contract, including those alleging an error or omission by the Architect but excluding those arising under Section 16.2, shall be referred initially to the Architect for decision. Such matters, except those waived as provided for in Section 21.11 and Sections 15.7.3 and 15.7.4, shall, after initial decision by the Architect or 30 days after submission of the matter to the Architect, be subject to mediation as a condition precedent to binding dispute resolution.~~

~~Intentionally omitted.~~

~~PAGE 31~~

~~§ 21.2.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 18.2, shall be initiated by notice to the Architect within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.~~Intentionally omitted.

...

The Owner and Contractor shall commence all claims and causes of action against the other and arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in this Agreement whether in contract, tort, breach of warranty, or otherwise, within the period specified by applicable law;

~~but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all claims and causes of action not commenced in accordance with this Section 21.3.~~law.

...

~~§ 21.5 The parties shall endeavor to resolve their disputes by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with their Construction Industry Mediation Procedures in effect on the date of this Agreement. A request for mediation shall be made in writing, delivered to the other party to this Agreement, and filed with the person or entity administering the mediation. The request may be made concurrently with the binding dispute resolution but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.~~

Intentionally omitted.

~~§ 21.6 If the parties have selected arbitration as the method for binding dispute resolution in this Agreement, any claim, subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association, in accordance with the Construction Industry Arbitration Rules in effect on the date of this Agreement. Demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.~~

Intentionally omitted.

~~§ 21.7 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party, at its sole discretion, may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation; (2) the arbitrations to be consolidated substantially involve common questions of law or fact; and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).~~

~~§ 21.8 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, any party to an arbitration may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of a Claim not described in the written Consent.~~

~~§ 21.7- § 21.8~~ The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to this Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.§ 21.9 Intentionally omitted.

...

~~The Contractor and Owner waive claims against each other~~waives Claims against the Owner for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- ~~1~~ 1 — damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- ~~2~~ 2 — ~~damages incurred by the waiver includes, but is not limited to damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.~~

This ~~mutual~~ waiver is applicable, without limitation, to all consequential damages due to ~~either party's~~ Owner's termination in accordance with Article 20. ~~Nothing contained in this Section 21.11 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.~~

In any suit or action arising under this Contract the Owner shall be entitled to an award of reasonable attorney's fees and costs of litigation.



## **ARTICLE 22 OTHER CONDITIONS OR PROVISIONS**

**§ 22.1** The Contractor shall be responsible for the supply and maintenance of any and all temporary equipment, utilities, and facilities necessary to properly and safely complete and protect the Work, including without limitation those required by winter conditions. Contractor shall provide and erect barricades and other safeguards adequate to warn of danger at the site and to protect persons and property from injury resulting from the Work.

**§ 22.2** The Contractor shall limit material and equipment storage to the immediate area of Work and such other areas as Owner may designate. The Contractor shall promptly remove and properly dispose off-site all construction material, trash, garbage and other debris.

**§ 22.3** The Contractor shall notify Architect and Owner in advance (to the extent practicable, notice shall be made at least 48 hours in advance) of any and all deliveries of major materials to the Project Site and shall give notice of receipt of materials and equipment that Architect or Owner has indicated or customarily would want to inspect prior to commencement of the Work. Prior to resumption of the Work in the event of a temporary suspension lasting longer than 72 hours, and at such other time intervals during the process of the Work as requested by Owner, in order to permit Owner to properly coordinate its normal operations and facilities requirements with the Work.

**§22.4** The following definitions are added to the Contract:

**"Final completion"** means the date the Contract has been fully performed, all the Work has been completed in accordance with the Contract Documents and the Owner has approved Final Payment to the Contractor.

**"Indicated" and "shown"** mean as described, detailed, discussed, scheduled, referenced, or called for in, or reasonably inferable from the Contract Documents in order to produce a first class Work product.

**"Provide" or derivatives thereof** means the Contractor shall properly fabricate, supply, furnish or procure all labor, materials, equipment, apparatus, and accessory appurtenances necessary to transport, deliver, install, erect and construct the specified item, complete, in place and ready for operation and use, including any final connections, in strict accordance with the Drawings, Specifications and other Contract Documents. The words "Contractor shall" are implied and shall be so understood whenever the direction or term "provide" is used.

**"Unit Price"** is an amount stated in the Contractor's bid proposal or in the Contract Documents as a price per unit of measurement for materials, equipment or services for a portion of the Work as described in the Bidding Documents or the Contract Documents. A Unit Price includes all costs associated with the performance of the portion of the Work for which the Unit Price is provided, including but not limited to labor, materials, equipment, loading, transportation, handling, unloading, overhead and profit.

**§22.5** Except as otherwise specifically provided in the Contract Documents, if and to the extent of any inconsistency, ambiguity, conflict, discrepancy or error in the Contract Document, and otherwise in interpreting the Contract Documents, the Parties shall give precedence to the Contract Documents in the following order of priority:

- (i) Modifications.
- (ii) This Agreement except that the Supplementary Conditions shall take precedence over the General Conditions of the Contract.
- (iii) Specifications.

## **ARTICLE 23 - COMPLIANCE WITH LAWS**

**§ 23.1** The Contractor shall comply with all federal, state, county and local laws, codes, rules and regulations applicable to the Work including without limitation all building codes, permit conditions, the American with Disabilities Act and the equal employment opportunity clause of the Illinois Human Rights Act and the rules and regulations of the Illinois Department of Human Rights, the Illinois Prevailing Wage Act, and all laws and regulations pertaining to occupational and work safety, hours of operation and disposal of construction debris. A copy of the Contractor's certification of compliance with applicable laws is attached to and made a part of this Agreement.

**§23.2** The Contractor shall maintain and shall require its Subcontractors to maintain policies of employment as follows:

§23.3.1 In the event of the Contractor's non-compliance with the provisions of this equal opportunity clause, the Illinois Human Rights Act or the Rules and Regulations of the Illinois Department of Human Rights ("Department"), Contractor may be declared ineligible for future contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations, 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 regulation. During the performance of this Contract, Contractor agrees as follows:

- 1) That it will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation or preference, marital status, national origin or ancestry, citizenship status, age, physical or mental disability unrelated to a person's ability to perform the essential functions of the job, association with a person with a disability, military status or an unfavorable discharge from military service, or record of arrest; and further that it will examine all job classifications to determine if minority persons or women are underutilized and will take appropriate affirmative action to rectify any such underutilization.
- 2) That, if it hires additional employees in order to perform this Contract or any portions thereof, it will determine the availability (in accordance with the Department's Rules and Regulations) 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 underutilized.
- 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, sexual orientation, marital status, national origin or ancestry, citizenship status, age, physical or mental handicap or disability unrelated to a person's ability to perform the essential function of the job, or association with a person with a disability, military status or an unfavorable discharge from military service, or record of arrest.
- 4) 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 notify the Department and the Owner and will recruit employees from other sources when necessary to fulfill its obligations thereunder.
- 5) 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 Owner, and in all respects comply with the Illinois Human Rights Act and the Department's rules and regulations.
- 6) That it will permit access to all relevant books, records, accounts and work sites by personnel of the Owner and the Department for purposes of investigation to ascertain Department's rules and regulations.
- 7) 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 Owner 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 (or contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations.

§23.4 The Contractor is encouraged to utilize qualified minority businesses as subcontractors for supplies, services and construction.

§23.5 The Contractor shall comply with the requirements of the Illinois Prevailing Wage Act (820 ILCS 130/0.01 et seq.) and the Park District's Ordinances requiring payment of prevailing wages. The Contractor shall pay or cause to be paid not less than the prevailing rate of hourly wage in the county the work is performed as determined by the Illinois Department of Labor for the month in which the work is performed including but not limited to all laborers, workers and mechanics. All contractors and subcontractors rendering services under this contract must comply with all requirements under the Act, including but not limited to, all wage, notice and record keeping duties.

The Contractor is required to verify current prevailing wage prior to the first day of each month and to pay the then-current prevailing wage rate as determined by the Illinois Department of Labor, regardless of the rates contained in the Contract Documents. Any increases in costs to the Contractor due to the changes in the prevailing wage during the term of this Contract shall be at the expense of Contractor and not at the expense of Owner. Current prevailing wage rates are published at the following:

<https://www.illinois.gov/idol/Laws-Rules/CONMED/Pages/2017-Rates.aspx>. The Contractor agrees to indemnify and hold harmless the Park District for any violations of the Prevailing Wage Act.

The Contractor shall also: (1) insert into each subcontract and the project specifications for each subcontract, a written stipulation that the subcontractor shall not pay less than the prevailing rate of hourly wage to all laborers, workers, and mechanics performing work under the contract; and (2) require each subcontractor to insert into each lower-tiered contract and the project specifications for each lower-tiered subcontract, a stipulation that the subcontractor shall not pay less than prevailing rate of hourly wage to all laborers, workers, and mechanics performing work under the contract.

The Contractor shall include on all bonds and shall cause all subcontractors' bonds required under the Contract Documents to guarantee compliance with the Prevailing Wage Act.

Additionally, the Contractor and each subcontractor shall make and keep, for a period of not less than 5 years from the date of the last payment on a contract or subcontract, records of all laborers, mechanics, and other workers employed by them on the Project; the records shall include each worker's name, address, telephone number when available, social security number, classification or classifications, the hourly wages paid in each pay period, the number of hours worked each day, and the starting and ending times of work each day. The Contractor shall submit monthly, no later than the 10<sup>th</sup> day of each calendar month, in person, by mail, or electronically a certified payroll to the Park District with each monthly pay request in the form required by the Illinois Prevailing Wage Act. The certified payroll shall be accompanied by a statement signed by the Contractor or subcontractor which states that: (i) he or she has examined the certified payroll and such records are true and accurate; (ii) the hourly rate paid to each worker is not less than the general prevailing rate of hourly wages required by this Act; and (iii) the Contractor or subcontractor is aware that filing a certified payroll that he or she knows to be false is a Class A misdemeanor. The Contractor may rely on the certification of a lower tier subcontractor, provided the Contractor does not knowingly rely upon a subcontractor's false certification. The records submitted in accordance with this payroll submittal provision shall be considered public records pursuant to Section 5 of the Prevailing Wage Act, 820 ILCS 130/5 (2004, as amended by P.A. 94-515). The Park District may, at its option, immediately terminate the Contract in the event that Contractor violates any provision of this paragraph or the Prevailing Wage Act.

Contractor shall also post the prevailing wage rates for each craft or type of worker or mechanic needed to complete the project at either: (1) a location on the project site easily accessible to the workers engaged on the project; or (2) in lieu of posting on the project site, if the Contractor has a business location where laborers, workers, and mechanics may regularly visit, the Contractor may either post the prevailing rate of wages in each county the Contractor works in a conspicuous location or provide the laborers, workers or mechanics engaged on the project a written notice indicating the prevailing rate of wages for the project.

Upon seven business days' notice, the Contractor and each subcontractor shall make available for inspection and copying at a location within this State during reasonable hours, the records identified in 820 ILCS 130/5(a)(1) to the Owner, and its officers and agents.

**OAK BROOK PARK DISTRICT**  
**PAGE 34**



768005

**Certification of Document's Authenticity**  
**AIA® Document D401™ – 2003**

I, Nicole L. Karas, hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 15:53:53 on 06/18/2018 under Order No. 2136325583 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A104™ – 2017, Standard Abbreviated Form of Agreement Between Owner and Contractor, as published by the AIA in its software, other than those additions and deletions shown in the associated Additions and Deletions Report.

*Nicole Karas*

\_\_\_\_\_  
*(Signed)*

\_\_\_\_\_  
*Attorney*

*(Title)*

\_\_\_\_\_  
**6/18/18**

*(Dated)*

# Technical Specifications

**PROJECT MANUAL  
FOR**

TENNIS CENTER BOILER AND WATER HEATER REPLACEMENT  
1300 FOREST GATE ROAD  
OAK BROOK, IL 60523

**OWNER**

OAK BROOK PARK DISTRICT  
1450 FOREST GATE ROAD  
OAK BROOK, IL 60523

**ARCHITECT / ENGINEER**

KLUBER, INC.  
10 S. SHUMWAY AVENUE  
BATAVIA, ILLINOIS 60510



**SECTION 00 01 01  
PROJECT TITLE PAGE**

**PROJECT MANUAL**

**FOR**

**TENNIS CENTER BOILER AND WATER HEATER REPLACEMENT  
1300 FOREST GATE ROAD  
OAK BROOK, IL 60523**

**OWNER**

**OAK BROOK PARK DISTRICT  
1450 FOREST GATE ROAD  
OAK BROOK, IL 60523**

**ARCHITECT/ENGINEER**

**KLUBER ARCHITECTS + ENGINEERS  
10 S. SHUMWAY AVE.  
BATAVIA, ILLINOIS 60510**

**END OF DOCUMENT**

**SECTION 00 01 07  
SEALS PAGE**

**1.01 DESIGN PROFESSIONALS' SEALS**

A. MECHANICAL ENGINEER    B. ELECTRICAL ENGINEER

**END OF DOCUMENT**



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M300 MECHANICAL FLOOR PLANS

M400 MECHANICAL SCHEDULES, DETAILS & TEMPERATURE CONTROLS

**PLUMBING**

P300 PLUMBING FLOOR PLANS

P400 PLUMBING SCHEDULES & DETAILS

**ELECTRICAL**

E300 ELECTRICAL FLOOR PLANS

**END OF DOCUMENT**

**SECTION 00 31 13  
PRELIMINARY SCHEDULE**

**1.01 GENERAL**

- A. The following represents the preliminary construction schedule for the Work. This schedule is the current estimate of the Owner to be used for purposes of bidding. All Bidders shall include the costs of all overtime, double-shift, or so-called "premium" time that may be necessary to meet this milestone.

**1.02 PRELIMINARY SCHEDULE**

- A. Award of Contract: July 16, 2018
- B. Commencement of Construction: July 17, 2018
- C. Water heater replacement: August 27 through August 31
- D. Substantial Completion: October 1, 2018

**END OF DOCUMENT**

**SECTION 01 10 00  
SUMMARY**

**PART 1 GENERAL**

**1.01 PROJECT**

- A. Project Name: TENNIS CENTER BOILER AND WATER HEATER REPLACEMENT.
- B. Owner's Name: Oak Brook Park District.
- C. Architect/Engineer's Name: Kluber Architects + Engineers.
- D. The Project consists of the replacement of heating hot water boiler and domestic water heater.

**1.02 DESCRIPTION OF ALTERATIONS WORK**

- A. Scope of demolition and removal work is indicated on drawings.
- B. Scope of alterations work is indicated on drawings.
- C. Plumbing: Replace existing system with new construction, keeping existing in operation until ready for changeover.
- D. HVAC: Replace existing system with new construction.
- E. Electrical Power and Lighting: Alter existing system and add new construction, keeping existing in operation.

**1.03 OWNER OCCUPANCY**

- A. Oak Brook Park District intends to continue to occupy adjacent portions of the existing building during the entire construction period.
- B. Cooperate with Oak Brook Park District to minimize conflict and to facilitate Oak Brook Park District's operations.
- C. Schedule the Work to accommodate Oak Brook Park District occupancy.

**1.04 CONTRACTOR USE OF SITE AND PREMISES**

- A. Construction Operations: Limited to areas noted on Drawings.
- B. Provide access to and from site as required by law and by Oak Brook Park District:
  - 1. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.
  - 2. Do not obstruct roadways, sidewalks, or other public ways without permit.
- C. Existing building spaces may not be used for storage.
- D. Utility Outages and Shutdown:
  - 1. Limit disruption of utility services to hours the building is unoccupied.
  - 2. Do not disrupt or shut down life safety systems, including but not limited to fire sprinklers and fire alarm system, without 7 days notice to Oak Brook Park District and authorities having jurisdiction.
  - 3. Prevent accidental disruption of utility services to other facilities.



**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**

**SECTION 01 30 00  
ADMINISTRATIVE REQUIREMENTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Preconstruction meeting.
- B. Progress meetings.
- C. Construction progress schedule.
- D. Submittals for review, information, and project closeout.
- E. Architect/Engineer-provided CAD files.
- F. Number of copies of Submittals.
- G. Requests for Interpretation (RFI) procedures.
- H. Submittal procedures.

**1.02 RELATED REQUIREMENTS**

- A. Section 01 60 00 - Product Requirements: General product requirements.
- B. Section 01 70 00 - Execution and Closeout Requirements: Additional coordination requirements.
- C. Section 01 78 00 - Closeout Submittals: Project record documents; operation and maintenance data; warranties and bonds.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION**

**3.01 PRECONSTRUCTION MEETING**

- A. Architect/Engineer will schedule a meeting after Notice of Award.
- B. Attendance required:
  - 1. Oak Brook Park District.
  - 2. Architect/Engineer.
  - 3. Contractor.
- C. Agenda:
  - 1. Execution of Oak Brook Park District-Contractor Agreement.
  - 2. Submission of executed bonds and insurance certificates.
  - 3. Distribution of Contract Documents.
  - 4. Submission of list of subcontractors, list of products, schedule of values, and progress schedule.
  - 5. Designation of personnel representing the parties to Contract and Architect/Engineer.
  - 6. Procedures and processing of field decisions, Submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
  - 7. Scheduling.

- D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect/Engineer, Oak Brook Park District, participants, and those affected by decisions made.

### **3.02 PROGRESS MEETINGS**

- A. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.
- B. Attendance Required:
  - 1. Contractor.
  - 2. Oak Brook Park District.
  - 3. Architect/Engineer.
  - 4. Contractor's superintendent.
  - 5. Major subcontractors.
- C. Agenda:
  - 1. Review minutes of previous meetings.
  - 2. Review of work progress.
  - 3. Field observations, problems, and decisions.
  - 4. Identification of problems that impede, or will impede, planned progress.
  - 5. Review of Submittals schedule and status of Submittals.
  - 6. Review of RFIs log and status of responses.
  - 7. Maintenance of progress schedule.
  - 8. Corrective measures to regain projected schedules.
  - 9. Planned progress during succeeding work period.
  - 10. Maintenance of quality and work standards.
  - 11. Effect of proposed changes on progress schedule and coordination.
  - 12. Other business relating to work.
- D. Record minutes and distribute copies within 2 days after meeting to participants, with copies to Architect/Engineer, Oak Brook Park District, participants, and those affected by decisions made.

### **3.03 CONSTRUCTION PROGRESS SCHEDULE**

- A. Within 7 days after date of the Agreement, submit preliminary schedule.
- B. If preliminary schedule requires revision after review, submit revised schedule within 7 days.
- C. Submit updated schedule with each Application for Payment.

### **3.04 REQUESTS FOR INTERPRETATION (RFI)**

- A. Definition: A request seeking one of the following:
  - 1. An interpretation, amplification, or clarification of some requirement of Contract Documents arising from inability to determine from them the exact material, process, or system to be installed; or when the elements of construction are required to occupy the same space (interference); or when an item of work is described differently at more than one place in the Contract Documents.
  - 2. A resolution to an issue which has arisen due to field conditions and affects design intent.

- B. Whenever possible, request clarifications at the next appropriate project progress meeting, with response entered into meeting minutes, rendering unnecessary the issuance of a formal RFI.
- C. Preparation: Prepare an RFI immediately upon discovery of a need for interpretation of the Contract Documents. Failure to submit a RFI in a timely manner is not a legitimate cause for claiming additional costs or delays in execution of the work.
  - 1. Prepare a separate RFI for each specific item.
    - a. Review, coordinate, and comment on requests originating with subcontractors and/or materials suppliers.
    - b. Do not forward requests which solely require internal coordination between subcontractors.
  - 2. Prepare in a format and with content acceptable to Oak Brook Park District.
    - a. Use AIA G716 - Request for Information .
  - 3. Combine RFI and its attachments into a single electronic file. PDF format is preferred.
- D. Reason for the RFI: Prior to initiation of an RFI, carefully study all Contract Documents to confirm that information sufficient for their interpretation is definitely not included.
  - 1. Include in each request Contractor's signature attesting to good faith effort to determine from the Contract Documents information requiring interpretation.
  - 2. Unacceptable Uses for RFIs: Do not use RFIs to request the following:
    - a. Approval of submittals (use procedures specified elsewhere in this section).
    - b. Approval of substitutions (see Section - 01 60 00 - Product Requirements)
    - c. Changes that entail change in Contract Time and Contract Sum (comply with provisions of the Conditions of the Contract).
    - d. Different methods of performing work than those indicated in the Contract Drawings and Specifications (comply with provisions of the Conditions of the Contract).
  - 3. Improper RFIs: Requests not prepared in conformance to requirements of this section, and/or missing key information required to render an actionable response. They will be returned without a response, with an explanatory notation.
  - 4. Frivolous RFIs: Requests regarding information that is clearly indicated on, or reasonably inferable from, the Contract Documents, with no additional input required to clarify the question. They will be returned without a response, with an explanatory notation.
    - a. The Oak Brook Park District reserves the right to assess the Contractor for the costs (on time-and-materials basis) incurred by the Architect/Engineer, and any of its consultants, due to processing of such RFIs.
- E. Content: Include identifiers necessary for tracking the status of each RFI, and information necessary to provide an actionable response.
  - 1. Official Project name and number, and any additional required identifiers established in Contract Documents.
  - 2. Oak Brook Park District's, Architect/Engineer's, and Contractor's names.
  - 3. Discrete and consecutive RFI number, and descriptive subject/title.
  - 4. Issue date, and requested reply date.
  - 5. Reference to particular Contract Document(s) requiring additional information/interpretation. Identify pertinent drawing and detail number and/or specification section number, title, and paragraph(s).

6. Annotations: Field dimensions and/or description of conditions which have engendered the request.
  7. Contractor's suggested resolution: A written and/or a graphic solution, to scale, is required in cases where clarification of coordination issues is involved, for example; routing, clearances, and/or specific locations of work shown diagrammatically in Contract Documents. If applicable, state the likely impact of the suggested resolution on Contract Time or the Contract Sum.
- F. Attachments: Include sketches, coordination drawings, descriptions, photos, submittals, and other information necessary to substantiate the reason for the request.
- G. RFI Log: Prepare and maintain a tabular log of RFIs for the duration of the project.
1. Indicate current status of every RFI. Update log promptly and on a regular basis.
  2. Note dates of when each request is made, and when a response is received.
  3. Highlight items requiring priority or expedited response.
  4. Highlight items for which a timely response has not been received to date.
  5. Identify and include improper or frivolous RFIs.
- H. Review Time: Architect/Engineer will respond and return RFIs to Contractor within seven calendar days of receipt. For the purpose of establishing the start of the mandated response period, RFIs received after 3:00 PM will be considered as having been received on the following regular working day.
1. Response period may be shortened or lengthened for specific items, subject to mutual agreement, and recorded in a timely manner in progress meeting minutes.
- I. Responses: Content of answered RFIs will not constitute in any manner a directive or authorization to perform extra work or delay the project. If in Contractor's belief it is likely to lead to a change to Contract Sum or Contract Time, promptly issue a notice to this effect, and follow up with an appropriate Change Order request to Oak Brook Park District.
1. Response may include a request for additional information, in which case the original RFI will be deemed as having been answered, and an amended one is to be issued forthwith. Identify the amended RFI with an R suffix to the original number.
  2. Do not extend applicability of a response to specific item to encompass other similar conditions, unless specifically so noted in the response.
  3. Upon receipt of a response, promptly review and distribute it to all affected parties, and update the RFI Log.
  4. Notify Architect/Engineer within seven calendar days if an additional or corrected response is required by submitting an amended version of the original RFI, identified as specified above.

### **3.05 Submittals FOR REVIEW**

- A. When the following are specified in individual sections, submit them for review:
1. Product data.
  2. Shop drawings.
- B. Submit to Architect/Engineer for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
- C. After review, provide copies and distribute in accordance with Submittal PROCEDURES article below and for record documents purposes described in Section 01 78 00 - Closeout Submittals.

### **3.06 Submittals FOR INFORMATION**

- A. When the following are specified in individual sections, submit them for information:
  - 1. Design data.
  - 2. Certificates.
  - 3. Test reports.
  - 4. Inspection reports.
  - 5. Manufacturer's instructions.
  - 6. Manufacturer's field reports.
  - 7. Other types indicated.
- B. Submit for Architect/Engineer's knowledge as contract administrator or for Oak Brook Park District.

### **3.07 Submittals FOR PROJECT CLOSEOUT**

- A. Submit Correction Punch List for Substantial Completion.
- B. Submit Final Correction Punch List for Substantial Completion.
- C. When the following are specified in individual sections, submit them at Project Closeout:
  - 1. Project record documents.
  - 2. Operation and maintenance data.
  - 3. Warranties.
  - 4. Bonds.
  - 5. Other types as indicated.
- D. Submit for Oak Brook Park District's benefit during and after Project completion.

### **3.08 ARCHITECT/ENGINEER-PROVIDED CAD FILES**

- A. After the execution of the Contract, Architect/Engineer will provide, free of charge, upon receipt of a properly completed and signed request utilizing "Electronic Data Transfer Consent Form" at the end of this Specification Section, CAD files depicting graphic information for the project as follows:
  - 1. Architectural Floor Plans: Column grid, walls, floors, stairs, doors, windows, room numbers, ceiling grid, mechanical diffusers, plumbing fixtures, sprinkler heads (if depicted in Bid Documents) and lights.
- B. Contractor acknowledges and accepts that the Architectural Floor Plans do not contain structural, mechanical, electrical, plumbing, fire protection and other building systems information depicted in the Bidding Documents. Examples of information not contained in these files include, but are not limited to, title blocks, keynotes, schedules, mechanical ductwork and equipment, electrical device symbols, circuit numbers and home runs, plumbing equipment, piping runs and riser diagrams, and architectural/engineering text or details. No other CAD files, data or information will be provided.
- C. Only requests from Prime Contractors will be honored. Subcontractors must obtain the files from their respective Prime Contractors.
- D. In submitting a request, Contractor acknowledges that:
  - 1. Architect/Engineer bears no responsibility for the data or its transmission,



2. Use of the data by the Contractor or his Subcontractors in no way relieves the Contractor of his obligations under the Contract,
3. Contractor is solely liable for any and all claims arising from any and all products generated by the Contractor or its Subcontractors employing the data,
4. Contractor and its Subcontractors have a limited, non-exclusive license to use the data solely in connection with the Work of the Project, and that
5. Architect/Engineer retains all rights, including copyright, to the data.

### **3.09 NUMBER OF COPIES OF Submittals**

#### **A. Documents for Review:**

1. Small Size Sheets: Not Larger Than 11 x 17 inches. Submit 2 paper copies, one of which will be retained by Architect/Engineer. Contractor shall make his own copies from the original returned by the Architect.
  - a. Contractor's Option: In lieu of paper copies indicated above, submit in Adobe PDF electronic file format via email. Architect will return a reviewed copy in Adobe PDF electronic file format via email. Create PDFs at native size and right-side up; illegible files will be rejected.
2. Large Size Sheets: Larger Than 11 x17 inches; 36 x 48 inches maximum. Submit 2 paper copies, one of which will be retained by Architect/Engineer. Electronic file format (PDF or other) is NOT acceptable. Contractor shall make his own copies from the original returned by the Architect.

#### **B. Documents for Information: Submit one copy.**

### **3.10 Submittal PROCEDURES**

#### **A. General Requirements:**

1. Use a separate transmittal for each item.
2. Sequentially identify each item. For revised submittals use original number and a sequential numerical suffix.
3. Identify: Project; Contractor; subcontractor or supplier; pertinent drawing and detail number; and specification section number and article/paragraph, as appropriate on each copy.
4. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction work, and coordination of information is in accordance with the requirements of the work and Contract Documents.
5. Identify variations from Contract Documents and product or system limitations that may be detrimental to successful performance of the completed work.
6. Provide space for Contractor and Architect/Engineer review stamps.
7. When revised for resubmission, identify all changes made since previous submission.
8. Distribute reviewed submittals. Instruct parties to promptly report inability to comply with requirements.
9. Incomplete submittals will not be reviewed, unless they are partial submittals for distinct portion(s) of the work, and have received prior approval for their use.
10. Submittals not requested will be recognized, and will be returned "Not Reviewed",

#### **B. Product Data Procedures:**

1. Submit only information required by individual specification sections.

2. Collect required information into a single submittal.
  3. Do not submit (Material) Safety Data Sheets for materials or products.
- C. Shop Drawing Procedures:
1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting the Contract Documents and coordinating related work.
  2. Do not reproduce the Contract Documents to create shop drawings.
  3. Generic, non-project-specific information submitted as shop drawings do not meet the requirements for shop drawings.
- D. Correlate submitted items with specified products; clearly indicate the specified product that corresponds to each submitted item.
- E. When options or optional features available for a Product are indicated in a Submittal, and selections for those options/features are indicated in the Contract Documents, identify on the Submittal the selection indicated in the Contract Documents.
- F. The Contractor is entitled to 1 Resubmittals of any Shop Drawing, Product Data, or Closeout Submittal item rejected by the Architect or returned by the Architect for further action. Thereafter, the Contractor shall pay the cost of all further Architect's reviews of Shop Drawing, Product Data or Closeout Submittal, at a rate of \$200.00/hour. Cost of such further reviews will be deducted from the Contract Sum by Change Order.
- G. Submittal reviews may be delayed and/or Submittals may be returned unreviewed for any of the following reasons:
1. Submittals are incomplete or are missing information.
  2. Submittals are not submitted in accordance with procedures outlined in this Section (i.e. spec Section number not indicated, missing Contractor's review stamp, submitted items not correlated with specified products).

### **3.11 SUBMITTAL REVIEW**

- A. Submittals for Review: Architect/Engineer will review each submittal, and approve, or take other appropriate action.
- B. Architect/Engineer's actions will be reflected by marking each returned submittal using actual stamp on hard copies of submittals.

**END OF SECTION**

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## ELECTRONIC DATA TRANSFER CONSENT FORM

Project Name: TENNIS CENTER BOILER AND WATER HEATER REPLACEMENT  
1300 FOREST GATE ROAD  
OAK BROOK, IL 60523

Project No.: 18-310-1186

Owner: OAK BROOK PARK DISTRICT

Your Work: \_\_\_\_\_

**KLUBER, INC. (hereinafter referred to as "Kluber") an Illinois corporation, is providing electronic data to you solely at your request and for your convenience. By accepting and opening any of the electronic data files, you agree that Kluber bears no liability for the data or its transmission to you and that you are solely liable for any and all claims referring or relating to any and all products you, or your Subcontractors, may generate with the data.**

You acknowledge that you have a limited non-exclusive license to use the information solely in connection with your work on the project captioned above, and that Kluber retains all rights, including copyright, to the data.

Acknowledged by: \_\_\_\_\_  
(Printed Name) (Signature)

Company: \_\_\_\_\_

Date: \_\_\_\_\_ Email: \_\_\_\_\_

**Architectural Floor Plans are transmitted for the contractors' use as backgrounds for shop drawings and as-built drawings, and, as such, contain graphic information for column grid, walls, floors, stairs, doors, windows, room numbers, ceiling grid, lights, diffusers and sprinkler heads where indicated on Bid Documents. Plans do not contain title blocks, keynotes, schedules, mechanical ductwork and equipment, electrical device symbols, circuit numbers and home runs, plumbing equipment, piping runs and riser diagrams, and architectural/engineering text and details. Plans depict entire floors and are not formatted, partial plans as depicted in the Bidding Documents. Files are provided in R2013 .DWG format.)**

**SECTION 01 41 00  
REGULATORY REQUIREMENTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. General.
- B. Definitions.
- C. Quality Assurance.
- D. Regulatory Requirements.

**1.02 RELATED SECTIONS**

- A. Section 01 10 00 - Summary.
- B. Section 01 42 00 - References.

**1.03 GENERAL**

- A. Comply with all applicable laws, rules, regulations, codes and ordinances.
- B. If the Contractor observes that the Contract Documents may be at variance with specified codes, notify the Architect/Engineer immediately. Architect/Engineer shall issue all changes in accordance with the General Conditions.
- C. It shall not be the Contractor's primary responsibility to make certain that the Contract Documents are in accordance with all applicable laws, rules and regulations, however, when the Contractor performs work knowing or having reason to know that the work in question is contrary to applicable laws, rules, and regulations, and fails to notify the Architect/Engineer, the Contractor shall pay all costs arising therefrom.

**1.04 DEFINITIONS**

- A. Definitions:
  - 1. Codes: Codes are statutory requirements, rules or regulations of governmental entities.
  - 2. Standards: Standards are requirements that have been established as accepted criteria, set general consent.

**1.05 QUALITY ASSURANCE**

- A. The Architect/Engineer has designed the project to applicable code requirements and has copies of said codes available for the Contractor's inspection.
- B. The Contractor shall:
  - 1. Ensure that copies of codes and standards referenced herein or specified in individual specifications sections are available to Contractor's personnel, agents, and Sub-Contractors.
  - 2. Ensure that Contractor's personnel, agents, and Sub-Contractors are familiar with the workmanship and requirements of applicable codes and standards.

## 1.06 REGULATORY REQUIREMENTS

- A. Source and Requirements: Verify amendments with local code officials.
1. Local code requirements:
    - a. ICC International Building Code, 2009 Edition.
    - b. ICC International Mechanical Code, 2009 Edition.
    - c. ICC International Fire Code, 2009 Edition.
    - d. ICC International Property Maintenance Code, 2009 Edition.
    - e. National Electrical Code, 2008 Edition.
  2. State code requirements:
    - a. Capital Development Board (CDB):
      - 1) Illinois Accessibility Code, 1997 Edition.
      - 2) Illinois Energy Conservation Code (ICC International Energy Conservation Code, 2012 Edition, with State of Illinois modifications.
    - b. Illinois Department of Labor (IDOL): Safety Glazing Materials Act - Illinois Revised Statutes, chap. 111 1/2, paragraph 3101, et seq.
    - c. Illinois Department of Public Health (IDPH):
      - 1) Illinois Plumbing Code (Illinois Administrative Code, Title 77, Chapter I, Subchapter r, Part 890).
    - d. Illinois Environmental Protection Agency (IEPA):
      - 1) Air-Pollution Standards.
      - 2) Noise Pollution Standards.
      - 3) Water Pollution Standards.
      - 4) Public Water Supplies
      - 5) Solid Waste Standards.
      - 6) Illinois Recommended Standards for Sewage Works (Illinois Administrative Code, Title 35, Subtitle C, Chapter II, Part 370).
    - e. Illinois State Fire Marshal (OSFM):
      - 1) Boiler & Pressure Vessel Safety Code (Illinois Administrative Code, Title 44, Chapter I, Part 120).
      - 2) Illinois Rules & Regulations for Fire Prevention & Safety (as amended).
      - 3) Gasoline and Volatile Oils (Illinois Revised Statutes, chap. 17 1/2, paragraph 31, et seq.).
  3. Information and Requirements for Utility Services: Local utility companies.

### PART 2 PRODUCTS - NOT USED

### PART 3 EXECUTION - NOT USED

**END OF SECTION**

**SECTION 01 42 00  
REFERENCES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Drawing symbols, abbreviations and acronyms.
- B. Definitions of terms used throughout the Contract Documents.
- C. Explanation of specification format and content.
- D. Requirements relating to referenced standards.
- E. Applicability of referenced standards.
- F. List of industry organizations and certain of their respective documents.

**1.02 DRAWING SYMBOLS AND CONVENTIONS**

- A. Abbreviations and graphic symbols are defined on the General Notes, Symbols & Abbreviations sheet of the drawings.
- B. Generally, symbols used on the mechanical and electrical drawings conform to those recommended by ASHRAE, though, where appropriate, these symbols are supplemented by more specific symbols as recommended by ASME, ASPE, or the IEEE.

**1.03 DEFINITIONS**

- A. Where the terms "indicated", "noted", "scheduled", "shown", or "specified" are used it is to help locate the reference; no limitation on location is intended except as specifically noted.
- B. Where the terms "directed", "requested", "authorized", "approved", are used as in "directed by the Architect/Engineer", no implied meaning shall be construed to extend the Architect/Engineer's responsibilities into the Contractor's purview of construction supervision.
- C. Where the term "approved" is used in conjunction with the Architect/Engineer's action on submittals, requests or applications it is limited to the duties of the Architect/Engineer as described in the Agreement, and the General and Supplemental Conditions of the Contract. Such use of the term "approval" shall not limit or release the Contractor from his responsibility to fulfill Contract requirements.
- D. Where the term "regulations" is used it means all applicable statutes, laws, ordinances, and orders issued by authorities having jurisdiction, as well as construction industry standards, rules, or conventions that address performance of the Work.
- E. Where the term "furnish" is used it means supply, deliver, and unload to the construction site ready for assembly and incorporation into the Work.
- F. Where the term "install" is used it is meant to describe operations at the job site to include unloading, assembling, placing, anchoring, finishing, protecting, cleaning and all other similar operations required to fully incorporate an item into the Work.
- G. Where the term "provide" is used it means "furnish and install" as defined above.



H. The "Project Site" is the space available to the Contractor for performance of construction activities. The Project Site may be for the exclusive use of the Contractor and his activities or may be used in conjunction with others with others performing other construction or related activities on the Project. The Extent of the Project Site is indicated on the Drawings.

#### **1.04 SPECIFICATION FORMAT AND CONTENT**

- A. These Specifications are based on the Construction Specification Institute's 49 Division format and numbering system.
- B. Language used in the Specifications and other Contract Documents is an abbreviated type. Implied words and meanings will appropriately interpreted.
- C. Requirements expressed in imperative and streamlined language are to be performed by the Contractor. At certain locations in the text, subjective language may be used to describe responsibilities that must be fulfilled indirectly by the Contractor or others.
  - 1. Whenever a colon (:) is used within a sentence or phrase, it shall be construed to mean the words "shall be".
- D. Use of certain terms such as "carpentry" is not intended to imply that certain activities must be performed by accredited or unionized individuals of a corresponding generic name. The Specifications do, however, require that certain construction activities shall be performed by specialists who are recognized experts in the operations to be performed. Specialists shall be used for said activities, however the final responsibility for fulfilling the requirements of the Contract remains the Contractor's.

#### **1.05 QUALITY ASSURANCE**

- A. For products or workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard of date of issue specified in this section, except where a specific date is established by applicable code.
- C. Obtain copies of standards when required by the Contract Documents.
- D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.
- E. Should specified reference standards conflict with Contract Documents, request clarification from the Architect/Engineer before proceeding.
- F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of the Architect/Engineer shall be altered by the Contract Documents by mention or inference otherwise in any reference document.

#### **1.06 APPLICABILITY OF INDUSTRY STANDARDS**

- A. Construction industry standards shall have the same force and effect as if bound or copied directly in the Contract Documents, except where more stringent requirements are specified. All such applicable standards are made a part of the Contract Documents by reference.

1. Where compliance with two or more standards are referenced and conflicting requirements for quality or quantities occur, comply with the more stringent requirements. Refer questions regarding apparently conflicting standards to the Architect for a decision before proceeding.
2. The standard of quality or quantity levels specified, shown, or referenced shall be the minimum to be provided or performed. Refer questions regarding standards of minimum quality or quantity to the Architect before proceeding.

#### **1.07 CONSTRUCTION INDUSTRY ORGANIZATIONS AND DOCUMENTS**

- A. AABC -- ASSOCIATED AIR BALANCE COUNCIL
- B. ACI -- AMERICAN CONCRETE INSTITUTE INTERNATIONAL
- C. ANSI -- AMERICAN NATIONAL STANDARDS INSTITUTE
- D. ASHRAE -- AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS, INC.
- E. ASME -- THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS
  1. ASME A17.1 - Safety Code for Elevators and Escalators; 2004.
- F. ASTM -- AMERICAN SOCIETY FOR TESTING AND MATERIALS
- G. AWS -- AMERICAN WELDING SOCIETY
- H. BIA -- BRICK INDUSTRY ASSOCIATION
- I. CPSC -- CONSUMER PRODUCTS SAFETY COMMISSION
- J. FM -- FACTORY MUTUAL RESEARCH CORPORATION
- K. ICC -- INTERNATIONAL CODE COUNCIL, INC.
- L. IEEE -- INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS
- M. ISO -- INTERNATIONAL STANDARDS ORGANIZATION
- N. NEBB -- NATIONAL ENVIRONMENTAL BALANCING BUREAU
- O. NEMA -- NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
- P. NFPA -- NATIONAL FIRE PROTECTION ASSOCIATION
- Q. SMACNA -- SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION, INC.
- R. SSPC -- THE SOCIETY FOR PROTECTIVE COATINGS
- S. UL -- UNDERWRITERS LABORATORIES INC.

#### **1.08 UNITED STATES GOVERNMENT AND RELATED AGENCIES/DOCUMENTS**

- A. CFR -- CODE OF FEDERAL REGULATIONS
- B. CPSC -- CONSUMER PRODUCTS SAFETY COMMISSION
- C. EPA -- ENVIRONMENTAL PROTECTION AGENCY

- D. FS -- FEDERAL SPECIFICATIONS AND STANDARDS (General Services Administration)
- E. GSA -- U.S. GENERAL SERVICES ADMINISTRATION
- F. USGS -- UNITED STATES GEOLOGICAL SURVEY

**1.09 STATE GOVERNMENT AND RELATED AGENCIES/DOCUMENTS**

- A. CDB -- ILLINOIS CAPITAL DEVELOPMENT BOARD
- B. IDOL -- ILLINOIS DEPARTMENT OF LABOR
- C. IDPH -- ILLINOIS DEPARTMENT OF PUBLIC HEALTH
- D. IEPA -- ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
- E. OSFM -- OFFICE OF THE ILLINOIS STATE FIRE MARSHAL.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**

**SECTION 01 50 00  
TEMPORARY FACILITIES AND CONTROLS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Temporary telecommunications services.
- B. Temporary sanitary facilities.
- C. Temporary controls: Barriers, enclosures, and fencing.
- D. Security requirements.
- E. Vehicular access and parking.
- F. Waste removal facilities and services.

**1.02 TELECOMMUNICATIONS SERVICES**

- A. Provide, maintain, and pay for telecommunications services to field office at time of project mobilization.
- B. Telecommunications services shall include:
  - 1. One (1) mobile cellular telephone for each of Contractor's and any Subcontractor's field personnel.

**1.03 TEMPORARY SANITARY FACILITIES**

- A. Use of existing facilities located at lower level is permitted.
- B. Maintain daily in clean and sanitary condition.
- C. At end of construction, return facilities to same or better condition as originally found.

**1.04 BARRIERS**

- A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.
- B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.
- C. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

**1.05 EXTERIOR ENCLOSURES**

- A. Provide temporary weather tight closure of exterior openings to accommodate acceptable working conditions and protection for Products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

## **1.06 SECURITY**

- A. Provide security and facilities to protect Work, existing facilities, and Oak Brook Park District's operations from unauthorized entry, vandalism, or theft.

## **1.07 VEHICULAR ACCESS AND PARKING**

- A. Comply with regulations relating to use of streets and sidewalks, access to emergency facilities, and access for emergency vehicles.
- B. Coordinate access and haul routes with governing authorities and Oak Brook Park District.
- C. Provide and maintain access to fire hydrants, free of obstructions.

## **1.08 WASTE REMOVAL**

- A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.
- B. Provide containers with lids. Remove trash from site periodically.
- C. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.

## **PART 2 PRODUCTS - NOT USED**

## **PART 3 EXECUTION - NOT USED**

**END OF SECTION**

**SECTION 01 60 00  
PRODUCT REQUIREMENTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. General product requirements.
- B. Transportation, handling, storage and protection.
- C. Product option requirements.
- D. Substitution limitations.
- E. Maintenance materials, including extra materials, spare parts, tools, and software.

**1.02 SUBMITTALS**

- A. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- B. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

**PART 2 PRODUCTS**

**2.01 NEW PRODUCTS**

- A. Provide new products unless specifically required or permitted by the Contract Documents.
- B. Designed, manufactured, and tested in accordance with industry standards.

**2.02 PRODUCT OPTIONS**

- A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, or equal to or superior to product approved by Architect in accordance with the substitution process set forth in these Specifications and the Instruction to Bidders.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for equal to or superior to substitution for any manufacturer not named.

**2.03 MAINTENANCE MATERIALS**

- A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.
- B. Deliver to Project site and place in location directed by Owner's representative; obtain Owner's signature on receipt for delivery prior to final payment. Submit signed receipts with Closeout Submittals.



## **PART 3 EXECUTION**

### **3.01 SUBSTITUTION LIMITATIONS**

- A. Substitutions Prior To Bid Opening: Architect/Engineer will consider a written request for substitution provided that such request is received at least seven (7) days prior to the Bid opening date. Requests received after that time will not be considered.
1. If a request is approved, the Architect/Engineer will issue an appropriate addendum not less than three (3) days prior to the Bid opening date.
- B. Substitutions After Notice of Award: Architect/Engineer will consider a request for substitution only under one or more of the following conditions:
1. Substitution is required for compliance with final interpretation of code requirements or insurance regulations.
  2. Specified product is not available through no fault of the Contractor.
  3. Specified product is not compatible with other specified materials/equipment.
  4. Manufacturer will not certify or warranty specified product as required.
- C. Document each request utilizing Substitution Request Form following this section with complete data substantiating compliance of proposed substitution with Contract Documents. Incomplete requests will not be considered. Submit a separate Substitution Request Form and accompanying documentation for each proposed substitution.
- D. Provide the following minimum documentation with each Substitution Request Form:
1. Product identification, manufacturer, product data including dimensions and weight, performance and installation instructions.
  2. Side-by-side itemized comparison of proposed substitution with specified product.
  3. Coordination information including other modifications required as a result of proposed substitution.
  4. Cost information including the effect of the proposed substitution on the Contract Sum.
- E. Sign and date the Substitution Request Form.
- F. A request for substitution constitutes a representation that the submitter:
1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
  2. Agrees to provide the same warranty for the substitution as for the specified product.
  3. Agrees to coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Oak Brook Park District.
  4. Waives claims for additional costs or time extension that may subsequently become apparent.
  5. Agrees to reimburse Oak Brook Park District and Architect/Engineer for review or redesign services associated with re-approval by authorities having jurisdiction over the Project.
- G. Architect/Engineer will notify submitter in writing of decision to accept or reject request.
- H. Substitutions of products or product characteristics/components/options/accessories will not be considered when they are indicated or implied on Contractor's submittals, without separate written request, or when acceptance will require revision to the Contract Documents, whether rejection of said substitutions is expressly identified by Architect/Engineer on Contractor's submittals or not.

### **3.02 TRANSPORTATION AND HANDLING**

- A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.
- B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.
- C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
- D. Transport and handle products in accordance with manufacturer's instructions.
- E. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.
- F. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- G. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.
- H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

### **3.03 STORAGE AND PROTECTION**

- A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.
- B. Store and protect products in accordance with manufacturers' instructions.
- C. Store with seals and labels intact and legible.
- D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.
- E. For exterior storage of fabricated products, place on sloped supports above ground.
- F. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.
- G. Comply with manufacturer's warranty conditions, if any.
- H. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- I. Prevent contact with material that may cause corrosion, discoloration, or staining.
- J. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

K. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

**END OF SECTION**

## SUBSTITUTION REQUEST FORM

PROJECT: OAK BROOK PARK DISTRICT - TENNIS CENTER BOILER AND WATER HEATER REPLACEMENT

SPECIFIED ITEM: \_\_\_\_\_

Specification Section	Page	Paragraph	Description
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The undersigned requests consideration of the following:

PROPOSED SUBSTITUTION: \_\_\_\_\_

Attached data includes project description, specifications, drawings, photographs, performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents which the proposed substitution will require for its proper installation.

The undersigned certifies that the following paragraphs, unless modified by attachments, are correct:

1. The proposed substitution does not affect dimensions shown on drawings.
2. The undersigned will pay for changes to the building design, including engineering design, detailing, and construction costs caused by the requested substitution.
3. The proposed substitution will have no adverse effect on other trades, the construction schedule, or specified warranty requirements.
4. Maintenance and service parts will be locally available for the proposed substitution.

The undersigned further states that the function, appearance, and quality of the proposed substitution are equivalent or superior to the specified item.

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Firm

\_\_\_\_\_  
Telephone

\_\_\_\_\_  
Email

\_\_\_\_\_  
Attachments (list):

For Use By The Architect/Engineer:

Accepted       Accepted As Noted

Not Accepted       Received Too Late

By: \_\_\_\_\_

Date: \_\_\_\_\_

Remarks:

**SECTION 01 70 00  
EXECUTION AND CLOSEOUT REQUIREMENTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Examination, preparation, and general installation procedures.
- B. Requirements for alterations work, including selective demolition, and renovations.
- C. Cutting and patching.
- D. Cleaning and protection.
- E. Starting of systems and equipment.
- F. Demonstration and instruction of Oak Brook Park District personnel.
- G. Closeout procedures, including Contractor's Correction Punch List, except payment procedures.

**1.02 RELATED REQUIREMENTS**

- A. Section 01 30 00 - Administrative Requirements: Submittals procedures.
- B. Section 01 50 00 - Temporary Facilities and Controls: Temporary exterior enclosures.
- C. Section 01 78 00 - Closeout Submittals: Project record documents, operation and maintenance data, warranties and bonds.
- D. Section 01 79 00 - Demonstration and Training: Demonstration of products and systems to be commissioned and where indicated in specific specification sections

**1.03 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
  - 1. Structural integrity of any element of Project.
  - 2. Integrity of weather exposed or moisture resistant element.
  - 3. Efficiency, maintenance, or safety of any operational element.
  - 4. Visual qualities of sight exposed elements.
  - 5. Work of Oak Brook Park District or separate Contractor.

**1.04 PROJECT CONDITIONS**

- A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- B. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.
  - 1. Provide dust-proof barriers between construction areas and areas continuing to be occupied by Oak Brook Park District.

- C. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.
- D. Pest and Rodent Control: Provide methods, means, and facilities to prevent pests and insects from damaging the work.
- E. Rodent Control: Provide methods, means, and facilities to prevent rodents from accessing or invading premises.
- F. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

## **1.05 COORDINATION**

- A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. Notify affected utility companies and comply with their requirements.
- C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- F. Coordinate completion and clean-up of work of separate sections.
- G. After Oak Brook Park District occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Oak Brook Park District's activities.

## **PART 2 PRODUCTS**

### **2.01 PATCHING MATERIALS**

- A. New Materials: As specified in product sections; match existing products and work for patching and extending work.
- B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.
- C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 60 00 - Product Requirements.



## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.
- E. Verify that utility services are available, of the correct characteristics, and in the correct locations.
- F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

### **3.02 PREPARATION**

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

### **3.03 GENERAL INSTALLATION REQUIREMENTS**

- A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
- B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
- C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
- D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
- E. Make neat transitions between different surfaces, maintaining texture and appearance.

### **3.04 ALTERATIONS**

- A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
  - 1. Verify that construction and utility arrangements are as indicated.
  - 2. Report discrepancies to Architect/Engineer before disturbing existing installation.
  - 3. Beginning of alterations work constitutes acceptance of existing conditions.
- B. Remove existing work as indicated and as required to accomplish new work.
  - 1. Remove items indicated on Drawings.

2. Relocate items indicated on Drawings.
  3. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.
  4. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.
- C. Services (Including but not limited to HVAC, Plumbing, and Electrical): Remove, relocate, and extend existing systems to accommodate new construction.
1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.
  2. Where existing systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment as required.
  3. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
    - a. Disable existing systems only to make switchovers and connections; minimize duration of outages.
    - b. Provide temporary connections as required to maintain existing systems in service.
  4. Verify that abandoned services serve only abandoned facilities.
  5. Remove abandoned pipe, ducts, conduits, and equipment; remove back to source of supply where possible, otherwise cap stub and tag with identification; patch holes left by removal using materials specified for new construction.
- D. Protect existing work to remain.
1. Prevent movement of structure; provide shoring and bracing if necessary.
  2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
  3. Repair adjacent construction and finishes damaged during removal work.
- E. Adapt existing work to fit new work: Make as neat and smooth transition as possible.
- F. Patching: Where the existing surface is not indicated to be refinished, patch to match the surface finish that existed prior to cutting. Where the surface is indicated to be refinished, patch so that the substrate is ready for the new finish.
- G. Refinish existing surfaces as indicated:
1. Where rooms or spaces are indicated to be refinished, refinish all visible existing surfaces to remain to the specified condition for each material, with a neat transition to adjacent finishes.
  2. If mechanical or electrical work is exposed accidentally during the work, re-cover and refinish to match.
- H. Clean existing systems and equipment.
- I. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.
- J. Do not begin new construction in alterations areas before demolition is complete.

K. Comply with all other applicable requirements of this section.

### **3.05 CUTTING AND PATCHING**

- A. Whenever possible, execute the work by methods that avoid cutting or patching.
- B. See Alterations article above for additional requirements.
- C. Perform whatever cutting and patching is necessary to:
  - 1. Complete the work.
  - 2. Fit products together to integrate with other work.
  - 3. Provide openings for penetration of mechanical, electrical, and other services.
  - 4. Match work that has been cut to adjacent work.
  - 5. Repair areas adjacent to cuts to required condition.
  - 6. Repair new work damaged by subsequent work.
  - 7. Remove samples of installed work for testing when requested.
  - 8. Remove and replace defective and non-conforming work.
- D. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.
- E. Employ skilled and experienced installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
- F. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.
- G. Restore work with new products in accordance with requirements of Contract Documents.
- H. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- I. Patching:
  - 1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
  - 2. Match color, texture, and appearance.
  - 3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

### **3.06 PROGRESS CLEANING**

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

- D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

### **3.07 PROTECTION OF INSTALLED WORK**

- A. Protect installed work from damage by construction operations.
- B. Provide special protection where specified in individual specification sections.
- C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- G. Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

### **3.08 SYSTEM STARTUP**

- A. Coordinate schedule for start-up of various equipment and systems.
- B. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.
- C. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- D. Verify that wiring and support components for equipment are complete and tested.
- E. Execute start-up under supervision of applicable Contractor personnel and manufacturer's representative in accordance with manufacturers' instructions.
- F. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.
- G. Submit a written report that equipment or system has been properly installed and is functioning correctly.

### **3.09 DEMONSTRATION AND INSTRUCTION**

- A. See Section 01 79 00 - Demonstration and Training.

### **3.10 ADJUSTING**

- A. Adjust operating products and equipment to ensure smooth and unhindered operation.

### **3.11 FINAL CLEANING**

- A. Execute final cleaning prior to final project assessment.

- B. Use cleaning materials that are nonhazardous.
- C. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.
- D. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- E. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

### **3.12 CLOSEOUT PROCEDURES**

- A. See Section 01 77 00 for additional requirements.
- B. Make submittals that are required by governing or other authorities.
- C. Notify Architect/Engineer when work is considered ready for Architect/Engineer's Substantial Completion inspection.
- D. Submit written certification containing Contractor's Correction Punch List, that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect/Engineer's Substantial Completion inspection.
- E. Conduct Substantial Completion inspection and create Final Correction Punch List containing Architect/Engineer's and Contractor's comprehensive list of items identified to be completed or corrected and submit to Architect/Engineer.
- F. Correct items of work listed in Final Correction Punch List and comply with requirements for access to Oak Brook Park District-occupied areas.
- G. Notify Architect/Engineer when work is considered finally complete and ready for Architect/Engineer's Substantial Completion final inspection.
- H. Complete items of work determined by Architect/Engineer listed in executed Certificate of Substantial Completion.

**END OF SECTION**

**SECTION 01 77 00  
CLOSEOUT PROCEDURES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES:**

- A. Substantial Completion Procedures.
- B. Final Completion Procedures.

**1.02 RELATED REQUIREMENTS:**

- A. Section 01 10 00 - Summary.
- B. Section 01 78 00 - Closeout Submittals.

**1.03 SUBSTANTIAL COMPLETION PROCEDURES**

- A. Substantial Completion Procedures will be in accordance with the General Conditions of the Contract for Construction, Article 9.8 and include the following:
  - 1. When the Work or a portion of the Work is considered to be substantially complete, the Contractor inspects the project and prepares a comprehensive list of outstanding items to be completed or corrected, Initial Punch List.
  - 2. Contractor submits notice of Substantial Completion.
  - 3. Contractor completes items on the Initial Punch List.
  - 4. Architect/Engineer inspects the project to verify substantial completion and prepares a Final Punch List.
  - 5. Architect/Engineer prepares Certificate of Substantial Completion, acceptance is required by Owner and Contractor.

**1.04 FINAL COMPLETION PROCEDURES**

- A. Final Completion Procedures will be in accordance with the General Conditions of the Contract for Construction, Article 9.10, and include the following:
  - 1. When items on Initial and Final Punch Lists are complete, the Contractor submits notice of final completion and final application for payment.
  - 2. Contractor submits Final Closeout Submittals as specified in Section 01 78 00.
  - 3. Architect inspects project and verifies the Work is acceptable and conforms with the Contract Documents.
  - 4. Architect processes final application for payment and closeout submittals.

**1.05 CORRECTION PERIOD**

- A. Correction Period commences on the date of Substantial Completion and expires one year from that date.
- B. Owner: document non-conforming or defective work over course of Correction Period. Notify Contractor in writing of nonconforming or defective work. Copy Architect/Engineer.
  - 1. Life safety issues requiring immediate corrective work: Contact Contractor for action.



**PART 2 PRODUCTS - NOT USED.**

**PART 3 EXECUTION - NOT USED.**

**END OF SECTION**

**SECTION 01 78 00  
CLOSEOUT SUBMITTALS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Project Record Documents.
- B. Operation and Maintenance Data.
- C. Warranties and bonds.

**1.02 RELATED REQUIREMENTS**

- A. Section 01 30 00 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.
- B. Section 01 70 00 - Execution and Closeout Requirements: Contract closeout procedures.
- C. Individual Product Sections: Specific requirements for operation and maintenance data.
- D. Individual Product Sections: Warranties required for specific products or Work.

**1.03 SUBMITTALS**

- A. Project Record Documents: Submit documents to Architect/Engineer with claim for final Application for Payment.
- B. Operation and Maintenance Data:
  - 1. Submit preliminary draft or proposed formats and outlines of contents before start of Work. Architect/Engineer will review draft and return with comments.
  - 2. For equipment, or component parts of equipment put into service during construction and operated by Oak Brook Park District, submit completed documents within ten days after acceptance.
  - 3. Submit completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Architect/Engineer comments. Revise content as required prior to final submission.
  - 4. Submit revised final documents in final in PDF file format on USB flash drive form within 10 days after final inspection.
- C. Warranties and Bonds:
  - 1. For equipment or component parts of equipment put into service during construction with Oak Brook Park District's permission, submit documents within 10 days after acceptance.
  - 2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
  - 3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.
- D.

## **PART 2 PRODUCTS - NOT USED**

## **PART 3 EXECUTION**

### **3.01 PROJECT RECORD DOCUMENTS**

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
  - 1. Drawings.
  - 2. Specifications.
  - 3. Addenda.
  - 4. Change Orders and other modifications to the Contract.
  - 5. Reviewed shop drawings, product data, and samples.
  - 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Oak Brook Park District.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress.
- E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
  - 1. Manufacturer's name and product model and number.
  - 2. Product substitutions or alternates utilized.
  - 3. Changes made by Addenda and modifications.
- F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
  - 1. Measured depths of foundations in relation to finish first floor datum.
  - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
  - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
  - 4. Field changes of dimension and detail.
  - 5. Details not on original Contract drawings.

### **3.02 OPERATION AND MAINTENANCE DATA**

- A. Source Data: For each product or system, list names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.
- B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
- C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.
- D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

### **3.03 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS**

- A. For Each Item of Equipment and Each System:
  - 1. Description of unit or system, and component parts.
  - 2. Identify function, normal operating characteristics, and limiting conditions.
  - 3. Include performance curves, with engineering data and tests.
  - 4. Complete nomenclature and model number of replaceable parts.
- B. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.
- C. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.
- D. Include color coded wiring diagrams as installed.
- E. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- F. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- G. Provide servicing and lubrication schedule, and list of lubricants required.
- H. Include manufacturer's printed operation and maintenance instructions.
- I. Include sequence of operation by controls manufacturer.
- J. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- K. Provide control diagrams by controls manufacturer as installed.
- L. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- M. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- N. Include test and balancing reports.
- O. Additional Requirements: As specified in individual product specification sections.

### **3.04 ASSEMBLY OF OPERATION AND MAINTENANCE MANUALS**

- A. Assemble operation and maintenance data into PDF file "manual" for Oak Brook Park District's personnel use, with data arranged in the same sequence as, and bookmarked by, the specification sections.
  - 1. Media: USB flash drive of capacity sufficient to store entire PDF file, fragmented.
  - 2. Attach a tag or label flash drive with Project name, date, and the title "O&M Manual".

- B. Where systems involve more than one specification section, provide separate bookmark for each system.
- C. Prepare instructions and data by personnel experienced in maintenance and operation of described products.
- D. Prepare data in the form of an instructional manual.
- E. Cover Page: Populate the first page of the PDF file with: printed title "OPERATION AND MAINTENANCE MANUAL"; identify title of Project; identify subject matter of contents.
- F. Project Directory: Beginning on the second page of the PDF file; provide Title and address of Project; names, addresses, and telephone numbers of Architect/Engineer, Consultants, Contractor and subcontractors, with names of responsible parties.
- G. Table of Contents: List every item identified by a bookmark, using the same identification as in the title of the bookmark.
- H. Bookmarks: Bookmark each separate product and system; identify the contents in the title of the bookmark; on the bookmarked page provide a description of product and major component parts of equipment.
- I. Content: Manufacturer's printed data, legibly scanned, in color where applicable, at 300 dpi resolution.
- J. Drawings: Legibly scanned, in color where applicable, at 300 dpi resolution; PDF file page size to match native sheet size of original drawing.
- K. Arrangement of Contents: Organize each volume in parts as follows:
  - 1. Project Directory.
  - 2. Table of Contents, of all volumes, and of this volume.
  - 3. Operation and Maintenance Data: Arranged by system, then by product category.
    - a. Source data.
    - b. Product data, shop drawings, and other submittals.
    - c. Operation and maintenance data.
    - d. Field quality control data.
    - e. Warranties and bonds.

### **3.05 WARRANTIES AND BONDS**

- A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Oak Brook Park District's permission, leave date of beginning of time of warranty until Date of Substantial completion is determined.
- B. Verify that documents are in proper form, contain full information, and are notarized.
- C. Co-execute submittals when required.
- D. Retain warranties and bonds until time specified for submittal.

- E. Include color, 300 dpi resolution scans of each in Operation and Maintenance Manual PDF file, bookmarked indexed separately in Table of Contents.
- F. Cover: Identify each binder with typed or printed title WARRANTIES AND BONDS, with title of Project; name, address and telephone number of Contractor and equipment supplier; and name of responsible company principal.
- G. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified, and the name of product or work item.
- H. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

**END OF SECTION**

**SECTION 01 79 00  
DEMONSTRATION AND TRAINING**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. Demonstration of products and systems where indicated in specific specification sections.
- B. Training of Oak Brook Park District personnel in operation and maintenance is required for:
  - 1. All software-operated systems.
  - 2. HVAC systems and equipment.
  - 3. Electrical systems and equipment.
  - 4. Items specified in individual product Sections.

**1.02 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Training Plan: Oak Brook Park District will designate personnel to be trained; tailor training to needs and skill-level of attendees.
  - 1. Submit to Architect/Engineer for transmittal to Oak Brook Park District.
  - 2. Submit not less than four weeks prior to start of training.
  - 3. Revise and resubmit until acceptable.
  - 4. Provide an overall schedule showing all training sessions.
  - 5. Include at least the following for each training session:
    - a. Identification, date, time, and duration.
    - b. Description of products and/or systems to be covered.
    - c. Name of firm and person conducting training; include qualifications.
    - d. Intended audience, such as job description.
    - e. Objectives of training and suggested methods of ensuring adequate training.
    - f. Methods to be used, such as classroom lecture, live demonstrations, hands-on, etc.
    - g. Media to be used, such as slides, hand-outs, etc.
    - h. Training equipment required, such as projector, projection screen, etc., to be provided by Contractor.
- C. Training Reports:
  - 1. Identification of each training session, date, time, and duration.
  - 2. Sign-in sheet showing names and job titles of attendees.
  - 3. List of attendee questions and written answers given, including copies of and references to supporting documentation required for clarification; include answers to questions that could not be answered in original training session.
- D. Video Recordings: Submit digital video recording of each demonstration and training session for Oak Brook Park District's subsequent use.
  - 1. Format: DVD Disc.
  - 2. Label each disc and container with session identification and date.



### **1.03 QUALITY ASSURANCE**

- A. Instructor Qualifications: Familiar with design, operation, maintenance and troubleshooting of the relevant products and systems.
  - 1. Provide as instructors the most qualified trainer of those contractors and/or installers who actually supplied and installed the systems and equipment.
  - 2. Where a single person is not familiar with all aspects, provide specialists with necessary qualifications.

### **PART 2 PRODUCTS - NOT USED**

### **PART 3 EXECUTION**

#### **3.01 DEMONSTRATION - GENERAL**

- A. Demonstrations conducted during system start-up do not qualify as demonstrations for the purposes of this section, unless approved in advance by Oak Brook Park District.
- B. Demonstration may be combined with Oak Brook Park District personnel training if applicable.
- C. Operating Equipment and Systems: Demonstrate operation in all modes, including start-up, shut-down, seasonal changeover, emergency conditions, and troubleshooting, and maintenance procedures, including scheduled and preventive maintenance.
  - 1. Perform demonstrations not less than two weeks prior to Substantial Completion.
  - 2. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

#### **3.02 TRAINING - GENERAL**

- A. Conduct training on-site unless otherwise indicated.
- B. Oak Brook Park District will provide classroom and seating at no cost to Contractor.
- C. Provide training in minimum two hour segments.
- D. Training schedule will be subject to availability of Oak Brook Park District's personnel to be trained; re-schedule training sessions as required by Oak Brook Park District; once schedule has been approved by Oak Brook Park District failure to conduct sessions according to schedule will be cause for Oak Brook Park District to charge Contractor for personnel "show-up" time.
- E. Review of Facility Policy on Operation and Maintenance Data: During training discuss:
  - 1. The location of the O&M manuals and procedures for use and preservation; backup copies.
  - 2. Typical contents and organization of all manuals, including explanatory information, system narratives, and product specific information.
  - 3. Typical uses of the O&M manuals.
- F. Product- and System-Specific Training:
  - 1. Review the applicable O&M manuals.
  - 2. For systems, provide an overview of system operation, design parameters and constraints, and operational strategies.

3. Review instructions for proper operation in all modes, including start-up, shut-down, seasonal changeover and emergency procedures, and for maintenance, including preventative maintenance.
  4. Provide hands-on training on all operational modes possible and preventive maintenance.
  5. Emphasize safe and proper operating requirements; discuss relevant health and safety issues and emergency procedures.
  6. Discuss common troubleshooting problems and solutions.
  7. Discuss any peculiarities of equipment installation or operation.
  8. Discuss warranties and guarantees, including procedures necessary to avoid voiding coverage.
  9. Review recommended tools and spare parts inventory suggestions of manufacturers.
  10. Review spare parts and tools required to be furnished by Contractor.
  11. Review spare parts suppliers and sources and procurement procedures.
- G. Be prepared to answer questions raised by training attendees; if unable to answer during training session, provide written response within three days.

**END OF SECTION**

**SECTION 03 10 00  
CONCRETE FORMING AND ACCESSORIES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Formwork for cast-in place concrete, with shoring, bracing and anchorage.
- B. Openings for other work.
- C. Form accessories.
- D. Form stripping.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 20 00 - Concrete Reinforcing.
- B. Section 03 30 00 - Cast-in-Place Concrete.

**1.03 REFERENCE STANDARDS**

- A. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials; 2010.
- B. ACI 301 - Specifications for Structural Concrete; 2010 (Errata 2012).
- C. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; 2011.
- D. ACI 347R - Guide to Formwork for Concrete; 2014.
- E. PS 1 - Structural Plywood; 2009.

**1.04 QUALITY ASSURANCE**

- A. Perform work of this section in accordance with ACI 347, ACI 301, and ACI 318.

**PART 2 PRODUCTS**

**2.01 FORMWORK - GENERAL**

- A. Provide concrete forms, accessories, shoring, and bracing as required to accomplish cast-in-place concrete work.
- B. Design and construct to provide resultant concrete that conforms to design with respect to shape, lines, and dimensions.
- C. Chamfer outside corners of beams, joists, columns, and walls.
- D. Comply with applicable State and local codes with respect to design, fabrication, erection, and removal of formwork.
- E. Comply with relevant portions of ACI 347R, ACI 301, and ACI 318.

**2.02 WOOD FORM MATERIALS**

- A. Form Materials: At the discretion of the Contractor.

## **2.03 FORMWORK ACCESSORIES**

- A. Form Release Agent: Capable of releasing forms from hardened concrete without staining or discoloring concrete or forming bugholes and other surface defects, compatible with concrete and form materials, and not requiring removal for satisfactory bonding of coatings to be applied.
  - 1. Composition: Colorless mineral oil-based compound.
  - 2. Do not use materials containing diesel oil or petroleum-based compounds.
- B. Filler Strips for Chamfered Corners: Rigid plastic type; 3/4 x 3/4 inch size; maximum possible lengths.
- C. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Sized as required, of sufficient strength and character to maintain formwork in place while placing concrete.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify lines, levels and centers before proceeding with formwork. Ensure that dimensions agree with drawings.

### **3.02 ERECTION - FORMWORK**

- A. Erect formwork, shoring and bracing to achieve design requirements, in accordance with requirements of ACI 301.
- B. Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to overstressing by construction loads.
- C. Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Permit removal of remaining principal shores.
- D. Align joints and make watertight. Keep form joints to a minimum.
- E. Obtain approval before framing openings in structural members that are not indicated on drawings.
- F. Provide fillet and chamfer strips on external corners of exposed corners.
- G. Coordinate this section with other sections of work that require attachment of components to formwork.
- H. If formwork is placed after reinforcement, resulting in insufficient concrete cover over reinforcement, request instructions from Architect/Engineer before proceeding.

### **3.03 APPLICATION - FORM RELEASE AGENT**

- A. Apply form release agent on formwork in accordance with manufacturer's recommendations.
- B. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.
- C. Do not apply form release agent where concrete surfaces will receive special finishes or applied coverings that are affected by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.

### **3.04 INSERTS, EMBEDDED PARTS, AND OPENINGS**

- A. Provide formed openings where required for items to be embedded in passing through concrete work.
- B. Locate and set in place items that will be cast directly into concrete.
- C. Coordinate with work of other sections in forming and placing openings, slots, reglets, recesses, sleeves, bolts, anchors, other inserts, and components of other work.
- D. Install accessories in accordance with manufacturer's instructions, so they are straight, level, and plumb. Ensure items are not disturbed during concrete placement.
- E. Close temporary openings with tight fitting panels, flush with inside face of forms, and neatly fitted so joints will not be apparent in exposed concrete surfaces.

### **3.05 FORM CLEANING**

- A. Clean forms as erection proceeds, to remove foreign matter within forms.
- B. Clean formed cavities of debris prior to placing concrete.
  - 1. Flush with water or use compressed air to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.
  - 2. During cold weather, remove ice and snow from within forms. Do not use de-icing salts. Do not use water to clean out forms, unless formwork and concrete construction proceed within heated enclosure. Use compressed air or other means to remove foreign matter.

### **3.06 FORMWORK TOLERANCES**

- A. Construct formwork to maintain tolerances required by ACI 117, unless otherwise indicated.

### **3.07 FIELD QUALITY CONTROL**

- A. Inspect erected formwork, shoring, and bracing to ensure that work is in accordance with formwork design, and to verify that supports, fastenings, wedges, ties, and items are secure.
- B. Do not reuse wood formwork more than 2 times for concrete surfaces to be exposed to view. Do not patch formwork.

### **3.08 FORM REMOVAL**

- A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.
- B. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.
- C. Store removed forms to prevent damage to form materials or to fresh concrete. Discard damaged forms.

**END OF SECTION**

**SECTION 03 20 00  
CONCRETE REINFORCING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Reinforcing steel for cast-in-place concrete.
- B. Supports and accessories for steel reinforcement.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 10 00 - Concrete Forming and Accessories.
- B. Section 03 30 00 - Cast-in-Place Concrete.

**1.03 REFERENCE STANDARDS**

- A. ACI 301 - Specifications for Structural Concrete; 2010 (Errata 2012).
- B. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; 2011.
- C. ACI SP-66 - ACI Detailing Manual; 2004.
- D. ASTM A82/A82M - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement; 2007.
- E. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon Steel Bars for Concrete Reinforcement; 2015.
- F. WWR-500- Manual of Standard Practice; Structural Welded Wire Reinforcement; Wire Reinforcement Institute; latest edition.
- G. CRSI (DA4) - Manual of Standard Practice; 2009.
- H. CRSI (P1) - Placing Reinforcing Bars; 2011.

**1.04 SUBMITTALS**

- A. Shop Drawings: Comply with requirements of ACI SP-66. Include bar schedules, shapes of bent bars, spacing of bars, and location of splices.

**1.05 QUALITY ASSURANCE**

- A. Perform work of this section in accordance with ACI 301 and ACI 318.

**PART 2 PRODUCTS**

**2.01 REINFORCEMENT**

- A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi).
  - 1. Deformed billet-steel bars.
  - 2. Unfinished.
- B. Steel Welded Wire Reinforcement (WWR): Plain type; ASTM A1064/A1064M.
  - 1. Form: Flat Sheets.
  - 2. Mesh Size and Wire Gage: As indicated on drawings.

C. Reinforcement Accessories:

1. Tie Wire: Annealed, minimum 16 gage, 0.0508 inch.
2. Chairs, Bolsters, Bar Supports, Spacers: Factory made wire bar supports sized and shaped for adequate support of reinforcement during concrete placement.
3. Provide stainless steel components for placement within 1-1/2 inches of weathering surfaces.

**2.02 FABRICATION**

- A. Fabricate concrete reinforcing in accordance with CRSI (DA4) - Manual of Standard Practice.
- B. Welding of reinforcement is not permitted.

**PART 3 EXECUTION**

**3.01 PLACEMENT**

- A. Place, support and secure reinforcement against displacement. Do not deviate from required position. Reinforcing "pull-up" during placement of concrete not acceptable.
- B. Accommodate placement of formed openings.
- C. Conform to applicable code for concrete cover over reinforcement.

**END OF SECTION**



**SECTION 03 30 00  
CAST-IN-PLACE CONCRETE**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Joint devices and accessories associated with concrete work.
- B. Miscellaneous concrete elements, including equipment pads.
- C. Concrete curing.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 10 00 - Concrete Forming and Accessories.
- B. Section 03 20 00 - Concrete Reinforcing.

**1.03 REFERENCE STANDARDS**

- A. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials; 2010.
- B. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; 1991 (Reapproved 2009).
- C. ACI 301 - Specifications for Structural Concrete; 2010 (Errata 2012).
- D. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000.
- E. ACI 305R - Hot Weather Concreting; 2010.
- F. ACI 306R - Cold Weather Concreting; 2010.
- G. ACI 308R - Guide to Curing Concrete; 2001 (Reapproved 2008).
- H. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; 2011.
- I. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2013.
- J. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2015.
- K. ASTM C150/C150M - Standard Specification for Portland Cement; 2015.
- L. ASTM C171 - Standard Specification for Sheet Materials for Curing Concrete; 2007.
- M. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 2011.
- N. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2013.
- O. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2015.
- P. ASTM E154/E154M - Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover; 2008a (Reapproved 2013).
- Q. NSF 61 - Drinking Water System Components - Health Effects; 2014 (Errata 2015).

R. NSF 372 - Drinking Water System Components - Lead Content; 2011.

#### **1.04 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.
  - 1. For curing compounds, provide data on method of removal in the event of incompatibility with floor covering adhesives.
  - 2. Anchoring epoxy and expansion anchors.
- C. Mix Designs: Submit 15 days prior to start of work.
  - 1. Submit for each type of concrete specified.
  - 2. Include back-up test data.
  - 3. Indicate proposed mix design complies with requirements of ACI 301, Section 4 - Concrete Mixtures.
  - 4. Indicate proposed mix design complies with requirements of ACI 318, Chapter 5 - Concrete Quality, Mixing and Placing.

#### **1.05 QUALITY ASSURANCE**

- A. Perform work of this section in accordance with ACI 301 and ACI 318.
- B. Follow recommendations of ACI 305R when concreting during hot weather.
- C. Follow recommendations of ACI 306R when concreting during cold weather.

### **PART 2 PRODUCTS**

#### **2.01 FORMWORK**

- A. Comply with requirements of Section 03 10 00.

#### **2.02 REINFORCEMENT**

- A. Comply with requirements of Section 03 20 00.

#### **2.03 CONCRETE MATERIALS**

- A. Cement: ASTM C150/C150M, Type I - Normal Portland type.
  - 1. Acquire cement for entire project from same source.
- B. Fine and Coarse Aggregates: ASTM C 33.
  - 1. Acquire aggregates for entire project from same source.
- C. Fly Ash: ASTM C618, Class C.
- D. Water: Clean and not detrimental to concrete.

#### **2.04 ADMIXTURES**

- A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.

- B. High Range Water Reducing and Retarding Admixture: ASTM C494/C494M Type G.
- C. High Range Water Reducing Admixture: ASTM C494/C494M Type F.
- D. Water Reducing and Accelerating Admixture: ASTM C494/C494M Type E.
- E. Water Reducing and Retarding Admixture: ASTM C494/C494M Type D.
- F. Accelerating Admixture: ASTM C494/C494M Type C.
- G. Retarding Admixture: ASTM C494/C494M Type B.
- H. Water Reducing Admixture: ASTM C494/C494M Type A.

## **2.05 ACCESSORY MATERIALS**

- A. Anchoring Epoxy: Refer to drawings. Acceptable manufacturer's include...
  1. Hilti: HIT-RE500-SD injection anchoring system.
  2. Simpson Strong-Tie: SET-XP injection anchoring adhesive system.
  3. Powers Fasteners: PE 1000+ injection adhesive anchoring system.

## **2.06 BONDING AND JOINTING PRODUCTS**

- A. Latex Bonding Agent: Non-redispersable acrylic latex, complying with ASTM C1059/C1059M, Type II.

## **2.07 CURING MATERIALS**

- A. Curing Compound, Naturally Dissipating: Clear, water-based, liquid membrane-forming compound; complying with ASTM C309.
- B. Water: Potable, not detrimental to concrete.

## **2.08 CONCRETE MIX DESIGN**

- A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.
- B. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.
  1. For trial mixtures method, employ independent testing agency acceptable to Architect/Engineer for preparing and reporting proposed mix designs.
- C. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended by manufacturer. Submit to Architect for review and approval.
- D. Normal Weight Concrete: Type "A".
  1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 3,000 pounds per square inch.
  2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight.
  3. Water-Cement Ratio: Maximum 48 percent by weight.
  4. Total Air Content: 2 percent, determined in accordance with ASTM C 173/C 173M.
  5. Maximum Slump: 4 inches.
  6. Maximum Aggregate Size: 3/4 inch.

## **2.09 MIXING**

- A. Transit Mixers: Comply with ASTM C94/C94M.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify lines, levels, and dimensions before proceeding with work of this section.

### **3.02 PREPARATION**

- A. Verify that forms are clean and free of rust before applying release agent.
- B. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.
- C. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning and applying bonding agent in according to bonding agent manufacturer's instructions.
  - 1. Use latex bonding agent only for non-load-bearing applications.
- D. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and secure in place using approved epoxy.

### **3.03 PLACING CONCRETE**

- A. Place concrete in accordance with ACI 304R.
- B. Notify Architect/Engineer not less than 24 hours prior to commencement of placement operations.
- C. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.
- D. Ensure reinforcement, inserts, and embedded parts will not be disturbed during concrete placement.
- E. Place concrete continuously without construction (cold) joints wherever possible; where construction joints are necessary, before next placement prepare joint surface by removing laitance and exposing the sand and sound surface mortar, by sandblasting or high-pressure water jetting.

### **3.04 CONCRETE FINISHING**

- A. Repair surface defects, including tie holes, immediately after removing formwork.
- B. Exposed Form Finish: Rub down or chip off and smooth fins or other raised areas 1/4 inch or more in height. Provide finish as follows:
  - 1. Smooth Rubbed Finish: Wet concrete and rub with carborundum brick or other abrasive, not more than 24 hours after form removal.
- C. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:
  - 1. Provide light broom finish on exterior flat work.
  - 2. Provide 3/4" radiused edge on exposed slab edges, unless otherwise noted.

### 3.05 CURING AND PROTECTION

- A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

### 3.06 DEFECTIVE CONCRETE

- A. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.
- B. Repair or replacement of defective concrete will be determined by the Architect/Engineer. The cost of additional testing shall be borne by Contractor when defective concrete is identified.
- C. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect/Engineer for each individual area.

### 3.07 PROTECTION

- A. Do not permit traffic over unprotected concrete floor surface until fully cured.

### 3.08 SCHEDULE - CONCRETE TYPES AND FINISHES

Location	Mix Type	Concrete Finish
A. Equipment pads: Interior top: non-slip	A	sides: smooth form

**END OF SECTION**

**SECTION 22 05 53**  
**IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Nameplates.
- B. Tags.
- C. Pipe markers.

**1.02 REFERENCE STANDARDS**

- A. ASME A13.1 - Scheme for the Identification of Piping Systems; 2007.
- B. ASTM D709 - Standard Specification for Laminated Thermosetting Materials; 2013.

**1.03 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Chart and Schedule: Submit valve chart and schedule, including valve tag number, location, function, and valve manufacturer's name and model number.
- C. Project Record Documents: Record actual locations of tagged valves.

**PART 2 PRODUCTS**

**2.01 IDENTIFICATION APPLICATIONS**

- A. Piping: Pipe markers.
- B. Pumps: Nameplates.
- C. Valves: Tags.

**2.02 NAMEPLATES**

- A. Manufacturers:
  - 1. Brimar Industries, Inc..
  - 2. Kolbi Pipe Marker Co..
  - 3. Seton Identification Products.
  - 4. Craftmark Identification Systems.
- B. Description: Laminated three-layer plastic with engraved letters.
  - 1. Letter Color: Black.
  - 2. Letter Height: 1/2 inch.
  - 3. Background Color: White.
  - 4. Plastic: Conform to ASTM D709.

**2.03 TAGS**

- A. Manufacturers:
  - 1. Brimar Industries, Inc..

2. Kolbi Pipe Marker Co..
  3. Seton Identification Products.
  4. Craftmark Identification Systems.
- B. Plastic Tags: Laminated three-layer plastic with engraved black letters on light contrasting background color. Tag size minimum 1-1/2 inch diameter.
- C. Valve Tag Chart: Typewritten letter size list in anodized aluminum frame.

## **2.04 PIPE MARKERS**

- A. Manufacturers:
1. Brimar Industries, Inc.
  2. Kolbi Pipe Marker Co..
  3. Seton Identification Products.
  4. Craftmark Identification Systems.
- B. Comply with ASME A13.1.
- C. Plastic Pipe Markers: Factory fabricated, flexible, semi- rigid plastic, preformed to fit around pipe or pipe covering; minimum information indicating flow direction arrow and identification of fluid being conveyed.
- D. Plastic Tape Pipe Markers: Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings.
- E. Color code as follows:
1. Potable, Cooling, Boiler, Feed, Other Water: Green with white letters.
  2. Flammable Fluids: Yellow with black letters.

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Degrease and clean surfaces to receive adhesive for identification materials.

### **3.02 INSTALLATION**

- A. Install plastic nameplates with corrosive-resistant mechanical fasteners, or adhesive. Apply with sufficient adhesive to ensure permanent adhesion and seal with clear lacquer.
- B. Install tags with corrosion resistant chain.
- C. Install plastic pipe markers in accordance with manufacturer's instructions.
- D. Install plastic tape pipe markers complete around pipe in accordance with manufacturer's instructions.
- E. Use tags on piping 3/4 inch diameter and smaller.
- F. Identify pipe markers indicating service, flow direction, and pressure.
- G. Install pipe markers in clear view and align with axis of piping.



H. Location of pipe identification not to exceed 20 feet on straight runs including risers and drops, adjacent to each valve and Tee, at each side of penetration of structure or enclosure, and at each obstruction.

**END OF SECTION**

**SECTION 22 07 19  
PLUMBING PIPING INSULATION**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Piping insulation.
- B. Jackets and accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 22 10 05 - Plumbing Piping: Placement of hangers and hanger inserts.

**1.03 REFERENCE STANDARDS**

- A. ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus; 2013.
- B. ASTM C547 - Standard Specification for Mineral Fiber Pipe Insulation; 2015.
- C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.
- D. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; 2014.
- E. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Current Edition, Including All Revisions.

**1.04 QUALITY ASSURANCE**

- A. Applicator Qualifications: Company specializing in performing the type of work specified in this section with minimum three years of experience.
- B. Comply with the Midwest Insulation Contractors Association "National Commercial and Industrial Insulation Standards".

**1.05 DELIVERY, STORAGE, AND HANDLING**

- A. Accept materials on site, labeled with manufacturer's identification, product density, and thickness.

**1.06 FIELD CONDITIONS**

- A. Maintain ambient conditions required by manufacturers of each product.
- B. Maintain temperature before, during, and after installation for minimum of 24 hours.

**PART 2 PRODUCTS**

**2.01 REGULATORY REQUIREMENTS**

- A. Surface Burning Characteristics: Flame spread index/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84 or UL 723.

**2.02 GLASS FIBER**

- A. Manufacturers:

1. CertainTeed Corporation.
  2. Johns Manville Corporation.
  3. Knauf Insulation.
  4. Owens Corning Corporation.
- B. Insulation: ASTM C547 and ASTM C795; semi-rigid, noncombustible, end grain adhered to jacket.
1. 'K' Value: ASTM C177, 0.24 at 75 degrees F.
  2. Maximum Service Temperature: 650 degrees F.
  3. Maximum Moisture Absorption: 0.2 percent by volume.
- C. Vapor Barrier Jacket: White Kraft paper with glass fiber yarn, bonded to aluminized film; moisture vapor transmission when tested in accordance with ASTM E96/E96M of 0.02 perm-inches.
- D. Vapor Barrier Lap Adhesive: Compatible with insulation.

### **2.03 JACKETS**

- A. PVC Plastic.
1. Jacket: One piece molded type fitting covers and sheet material, off-white color.
    - a. Minimum Service Temperature: 0 degrees F.
    - b. Maximum Service Temperature: 150 degrees F.
    - c. Moisture Vapor Permeability: 0.002 perm inch, maximum, when tested in accordance with ASTM E96/E96M.
    - d. Thickness: 10 mil.
    - e. Connections: Brush on welding adhesive.
  2. Covering Adhesive Mastic: Compatible with insulation.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that piping has been tested before applying insulation materials.
- B. Verify that surfaces are clean and dry, with foreign material removed.

### **3.02 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Install in accordance with North American Insulation Manufacturers Association (NAIMA) National Insulation Standards.
- C. Exposed Piping: Locate insulation and cover seams in least visible locations.
- D. Insulated pipes conveying fluids below ambient temperature: Insulate entire system including fittings, valves, unions, flanges, strainers, flexible connections, pump bodies, and expansion joints. All hangers, supports, anchors and other projections that are in contact to cold surfaces shall be insulated and vapor sealed to prevent condensation.
- E. Glass fiber insulated pipes conveying fluids below ambient temperature:
  1. Provide vapor barrier jackets, factory-applied or field-applied. Secure with self-sealing longitudinal laps and butt strips with pressure sensitive adhesive. Secure with outward clinch expanding staples and vapor barrier mastic.

2. Insulate fittings, joints, and valves with molded insulation of like material and thickness as adjacent pipe. Finish with glass cloth and vapor barrier adhesive or PVC fitting covers.
- F. For hot piping conveying fluids 140 degrees F or less, do not insulate flanges and unions at equipment, but bevel and seal ends of insulation.
- G. For hot piping conveying fluids over 140 degrees F, insulate flanges and unions at equipment.
- H. Glass fiber insulated pipes conveying fluids above ambient temperature:
1. Provide standard jackets, with or without vapor barrier, factory-applied or field-applied. Secure with self-sealing longitudinal laps and butt strips with pressure sensitive adhesive. Secure with outward clinch expanding staples.
  2. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe. Finish with glass cloth and adhesive or PVC fitting covers.
- I. Inserts and Shields:
1. Shields: Galvanized steel between pipe hangers or pipe hanger rolls and inserts.
  2. Insert Location: Between support shield and piping and under the finish jacket.
  3. Insert Configuration: Minimum 6 inches long, of same thickness and contour as adjoining insulation; may be factory fabricated.
  4. Insert Material: Hydrous calcium silicate insulation or other heavy density insulating material suitable for the planned temperature range.
- J. Continue insulation through walls, sleeves, pipe hangers, and other pipe penetrations. Finish at supports, protrusions, and interruptions.
- K. Pipe Exposed in Mechanical Equipment Rooms or Finished Spaces: Finish with PVC jacket and fitting covers.
- L. Apply insulation at pipe hangers and supports according to National Commercial and Industrial Standards Plate Numbers 5, 6 and 7.

### **3.03 SCHEDULES**

- A. Plumbing Systems:
1. Domestic Hot Water Supply:
    - a. Glass Fiber Insulation:
      - 1) Pipe Size Range: Up to and including 2 inch.
        - a) Thickness: 1 inch.
  2. Domestic Hot Water Recirculation:
    - a. Glass Fiber Insulation:
      - 1) Pipe Size Range: All sizes.
        - a) Thickness: 1 inch.
  3. Domestic Cold Water:
    - a. Glass Fiber Insulation:
      - 1) Pipe Size Range: All sizes.
        - a) Thickness: 1 inch.

**END OF SECTION**

**SECTION 22 10 05  
PLUMBING PIPING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Pipe, pipe fittings, specialties, and connections for piping systems.
  - 1. Domestic water.
  - 2. Gas.
  - 3. Flanges, unions, and couplings.
  - 4. Pipe hangers and supports.
  - 5. Valves.
  - 6. Check.

**1.02 RELATED REQUIREMENTS**

- A. Section 22 05 53 - Identification for Plumbing Piping and Equipment.
- B. Section 22 07 19 - Plumbing Piping Insulation.

**1.03 REFERENCE STANDARDS**

- A. ANSI Z223.1 - National Fuel Gas Code; 2015.
- B. ASME B16.3 - Malleable Iron Threaded Fittings: Classes 150 and 300; 2011.
- C. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; 2012.
- D. ASME B16.22 - Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings; 2013.
- E. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2012.
- F. ASTM B32 - Standard Specification for Solder Metal; 2008 (Reapproved 2014).
- G. ASTM B88 - Standard Specification for Seamless Copper Water Tube; 2014.
- H. ASTM B813 - Standard Specification for Liquid and Paste Fluxes for Soldering of Copper and Copper Alloy Tube; 2010.
- I. ASTM B828 - Standard Practice for Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings; 2002 (Reapproved 2010).
- J. AWWA C651 - Disinfecting Water Mains; 2005.
- K. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation; 2009.
- L. MSS SP-78 - Cast Iron Plug Valves, Flanged and Threaded Ends; 2011.
- M. MSS SP-80 - Bronze Gate, Globe, Angle and Check Valves; 2013.
- N. MSS SP-110 - Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends; 2010.

- O. NSF 61 - Drinking Water System Components - Health Effects; 2014 (Errata 2015).
- P. NSF 372 - Drinking Water System Components - Lead Content; 2011.
- Q. Safe Drinking Water Act, Section 1417 - Lead Free: Refers to the wetted surface of pipe, fittings and fixtures in potable water systems that have a weighted average lead content  $\leq 0.25\%$ , Amended January 4, 2011.

#### **1.04 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on pipe materials, pipe fittings, valves, and accessories. Provide manufacturers catalog information. Indicate valve data and ratings.
- C. Project Record Documents: Record actual locations of valves.

#### **1.05 QUALITY ASSURANCE**

- A. Perform work in accordance with applicable codes.
- B. Valves: Manufacturer's name and pressure rating marked on valve body. Manufacturers lead free marking on valve body.
- C. Perform Work in accordance with Village plumbing ordinances.

#### **1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Accept valves on site in shipping containers with labeling in place. Inspect for damage.
- B. Provide temporary protective coating on cast iron and steel valves.
- 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.

### **PART 2 PRODUCTS**

#### **2.01 GENERAL REQUIREMENTS**

- A. Potable Water Supply Systems: Provide piping, pipe fittings, and solder and flux (if used), that comply with NSF 61 and NSF 372 for maximum lead content; label pipe and fittings.

#### **2.02 DOMESTIC WATER PIPING, ABOVE GRADE**

- A. Copper Tube: ASTM B88 (ASTM B88M), Type L (B), Drawn (H).
  - 1. Fittings: ASME B16.18, cast copper alloy or ASME B16.22, wrought copper and bronze.
  - 2. Joints: ASTM B32, alloy Sn95 solder.
  - 3. Mechanical Press Sealed Fittings: Double pressed type, NSF 61 approved or certified, utilizing EPDM, non toxic synthetic rubber sealing elements. Sealing elements shall be factory installed by fitting manufacturer. Press ends shall have means to indicate non-pressed fitting during pressure testing.
    - a. Manufacturers:
      - 1) Viega LLC.

2) Nibco.

### **2.03 NATURAL GAS PIPING, ABOVE GRADE**

- A. Steel Pipe: ASTM A53/A53M Schedule 40 black.
  - 1. Fittings: ASME B16.3, malleable iron, or ASTM A234/A234M, wrought steel welding type.
  - 2. Joints: Threaded or welded to ASME B31.1.

### **2.04 FLANGES, UNIONS, AND COUPLINGS**

- A. Unions for Pipe Sizes 3 Inches and Under:
  - 1. Ferrous pipe: Class 150 malleable iron threaded unions.
  - 2. Copper tube and pipe: Class 150 bronze unions with soldered joints.
- B. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.

### **2.05 PIPE HANGERS AND SUPPORTS**

- A. Provide hangers and supports that comply with MSS SP-58.
  - 1. If type of hanger or support for a particular situation is not indicated, select appropriate type using MSS SP-58 recommendations.
  - 2. Overhead Supports: Individual steel rod hangers attached to structure or to trapeze hangers.
  - 3. Trapeze Hangers: Welded steel channel frames attached to structure.
  - 4. Vertical Pipe Support: Steel riser clamp.
- B. Plumbing Piping - Water:
  - 1. Hangers for Pipe Sizes 1/2 Inch to 1-1/2 Inches: Malleable iron, adjustable swivel, split ring.
  - 2. Hangers for Cold Pipe Sizes 2 Inches and Over: Carbon steel, adjustable, clevis.
  - 3. Hangers for Hot Pipe Sizes 2 Inches to 4 Inches: Carbon steel, adjustable, clevis.
  - 4. Wall Support for Pipe Sizes to 3 Inches: Cast iron hook.
  - 5. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.
- C. Plumbing Piping - Gas:
  - 1. Hangers for Pipe Sizes 1/2 Inch to 1-1/2 Inches: Malleable iron, adjustable swivel, split ring.
  - 2. Hangers for Pipe Sizes 2 Inches and Over: Carbon steel, adjustable, clevis.

### **2.06 BALL VALVES**

- A. Manufacturers:
  - 1. Nibco, Inc; T/S-585-66-LF.
  - 2. Watts.
  - 3. Apollo.
  - 4. Milwaukee Valve Company.
- B. Construction, 4 Inches and Smaller: MSS SP-110, Class 150, 400 psi CWP, bronze body, 304 stainless steel ball, regular port, teflon seats and stuffing box ring, blow-out proof stem, lever handle with balancing stops, solder, threaded, or grooved ends.

### **2.07 PLUG VALVES**

- A. Manufacturers:



- B. Up to and including 2 Inches (50 mm): bronze body, bronze tapered plug, non-lubricated, teflon packing, screwed ends.
- C. Construction 2-1/2 Inches and Larger: 1, 175 psi CWP, cast iron body and plug, pressure lubricated, teflon or Buna N packing, flanged or grooved ends. Provide lever operator with set screw.

## **2.08 PIPING SPECIALTIES**

- A. Flow Controls:
  - 1. Manufacturers:
    - a. ITT Bell & Gossett.
    - b. Griswold Controls.
    - c. Taco, Inc.
  - 2. Construction: Class 125, Brass or bronze body with union on inlet, temperature and pressure test plug on inlet and outlet.
  - 3. Calibration: Control flow within 5 percent of selected rating, over operating pressure range of 10 times minimum pressure required for control, maximum minimum pressure 3.5 psi.

## **2.09 SWING CHECK VALVES**

- A. Manufacturers:
  - 1. Milwaukee Valve Company.
  - 2. Nibco, Inc; S-413-Y-LF.
  - 3. Watts.
- B. Up to 2 Inches:
  - 1. MSS SP-139, 300 CWP, silicon bronze (ASTM Listed and corrosion resistant) body and cap designed for horizontal or vertical (flow in upward direction) flow, PFTE or TFE swing disc with rubber seat, solder ends.

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
- B. Remove scale and dirt, on inside and outside, before assembly.
- C. Prepare piping connections to equipment with flanges or unions.

### **3.02 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. Route parallel and perpendicular to walls.
- D. Install piping to maintain headroom, conserve space, and not interfere with use of space.
- E. Group piping whenever practical at common elevations.

- F. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.
- G. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.
- H. Provide access where valves and fittings are not exposed.
- I. Install valves with stems upright or horizontal, not inverted.
- J. Pipe vents from gas pressure reducing valves to outdoors and terminate in weather proof hood.
- K. Copper Pipe and Tube: Make soldered joints in accordance with ASTM B828, using specified solder, and flux meeting ASTM B813; in potable water systems use flux also complying with NSF 61 and NSF 372.
- L. Sleeve pipes passing through partitions, walls and floors.
- M. Pipe Hangers and Supports:
  1. Support horizontal piping as indicated.
  2. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.
  3. Place hangers within 12 inches of each horizontal elbow.
  4. Use hangers with 1-1/2 inch minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
  5. Support vertical piping at every floor. Support riser piping independently of connected horizontal piping.
  6. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.
  7. Provide copper plated hangers and supports for copper piping.
  8. Prime coat exposed steel hangers and supports. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.

### **3.03 APPLICATION**

- A. Install unions downstream of valves and at equipment or apparatus connections.
- B. Install brass male adapters each side of valves in copper piped system. Solder adapters to pipe.
- C. Install ball or butterfly valves for shut-off and to isolate equipment, part of systems, or vertical risers.
- D. Provide plug valves in natural gas systems for shut-off service.

### **3.04 TOLERANCES**

- A. Water Piping: Slope at minimum of 1/32 inch per foot and arrange to drain at low points.

### **3.05 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM**

- A. Prior to starting work, verify system is complete, flushed and clean.

- B. Ensure acidity (pH) of water to be treated is between 7.4 and 7.6 by adding alkali (caustic soda or soda ash) or acid (hydrochloric).
- C. Inject disinfectant, free chlorine in liquid, powder, tablet or gas form, throughout system to obtain 50 to 80 mg/L residual.
- D. Bleed water from outlets to ensure distribution and test for disinfectant residual at minimum 15 percent of outlets.
- E. Maintain disinfectant in system for 24 hours.
- F. If final disinfectant residual tests less than 25 mg/L, repeat treatment.
- G. Flush disinfectant from system until residual equal to that of incoming water or 1.0 mg/L.
- H. Take samples no sooner than 24 hours after flushing, from 10 percent of outlets and from water entry, and analyze in accordance with AWWA C651.

### **3.06 SCHEDULES**

- A. Pipe Hanger Spacing:
  - 1. Metal Piping:
    - a. Pipe Size: 1/2 inches to 1-1/4 inches:
      - 1) Maximum Hanger Spacing: 6.5 ft.
      - 2) Hanger Rod Diameter: 3/8 inches.
    - b. Pipe Size: 1-1/2 inches to 2 inches:
      - 1) Maximum Hanger Spacing: 10 ft.
      - 2) Hanger Rod Diameter: 3/8 inch.
    - c. Pipe Size: 2-1/2 inches to 3 inches:
      - 1) Maximum Hanger Spacing: 10 ft.
      - 2) Hanger Rod Diameter: 1/2 inch.

**END OF SECTION**

**SECTION 22 10 06  
PLUMBING PIPING SPECIALTIES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Mixing valves.
- B. Air vents.

**1.02 RELATED REQUIREMENTS**

- A. Section 22 10 05 - Plumbing Piping.

**1.03 REFERENCE STANDARDS**

- A. NSF 61 - Drinking Water System Components - Health Effects; 2014 (Errata 2015).
- B. NSF 372 - Drinking Water System Components - Lead Content; 2011.

**1.04 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide component sizes, rough-in requirements, service sizes, and finishes.
- C. Project Record Documents: Record actual locations of equipment, cleanouts, backflow preventers, water hammer arrestors, mixing valves..

**1.05 DELIVERY, STORAGE, AND HANDLING**

- A. Accept specialties on site in original factory packaging. Inspect for damage.

**PART 2 PRODUCTS**

**2.01 GENERAL REQUIREMENTS**

- A. Specialties in Potable Water Supply Systems: Provide products that comply with NSF 61 and NSF 372 for maximum lead content.

**2.02 AIR VENTS**

- A. Manufacturers:
  - 1. Armstrong International, Inc.
  - 2. ITT Bell & Gossett.
  - 3. Taco, Inc.
- B. Manual Type: Short vertical sections of 2 inch diameter pipe to form air chamber, with 1/8 inch brass needle valve at top of chamber.
- C. Float Type:
  - 1. Brass or semi-steel body, copper, polypropylene, or solid non-metallic float, stainless steel valve and valve seat; suitable for system operating temperature and pressure; with isolating valve.

2. Cast iron body and cover, float, bronze pilot valve mechanism suitable for system operating temperature and pressure; with isolating valve.

### **2.03 MIXING VALVES**

#### **A. Thermostatic Mixing Valve (TMV-1):**

1. Manufacturers:
  - a. Powers; Model 431.
  - b. Leonard Valve Company.
  - c. Lawler.
  - d. Holby.
2. Valve: ASSE 1017; Cast brass body, thermal actuator, integral temperature adjustment.
3. Capacity: 16 gpm at 20 psi differential.
4. Accessories:
  - a. Check valve on inlets.
  - b. Volume control shut-off valve on outlet.
  - c. Stem thermometer on outlet.
  - d. Strainer stop checks on inlets.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.

**END OF SECTION**

**SECTION 22 30 00  
PLUMBING EQUIPMENT**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Packaged water heating systems.
- B. Diaphragm-type compression tanks.
- C. In-line circulator pumps.

**1.02 RELATED REQUIREMENTS**

- A. Section 26 05 83 - Wiring Connections: Electrical characteristics and wiring connections.

**1.03 REFERENCE STANDARDS**

- A. ASME BPVC-VIII-1 - Boiler and Pressure Vessel Code, Section VIII, Division 1 - Rules for Construction of Pressure Vessels; 2015.

**1.04 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittals procedures.
- B. Product Data:
  - 1. Provide dimension drawings of water heaters indicating components and connections to other equipment and piping.
  - 2. Indicate pump type, capacity, power requirements.
  - 3. Provide certified pump curves showing pump performance characteristics with pump and system operating point plotted. Include NPSH curve when applicable.
  - 4. Provide electrical characteristics and connection requirements.
- C. Operation and Maintenance Data: Include operation, maintenance, and inspection data, replacement part numbers and availability, and service depot location and telephone number.
- D. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Oak Brook Park District's name and registered with manufacturer.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.
- B. Performance: Ensure pumps operate at specified system fluid temperatures without vapor binding and cavitation, are non-overloading in parallel or individual operation, operate within 25 percent of midpoint of published maximum efficiency curve.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Provide temporary inlet and outlet caps. Maintain caps in place until installation.

**1.07 WARRANTY**

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

## **PART 2 PRODUCTS**

### **2.01 PACKAGED WATER HEATING SYSTEMS (WH-1)**

#### **A. Manufacturers:**

1. Lochinvar LLC; Model SNA501-125.
2. Raypak.
3. Laars.
4. Acceptable Alternate Condensing Water Heater: PVI Conquest Model 50 L 130.

#### **B. System: Gas-fired direct heating boiler, circulating pump, controls, piping and valving as indicated, storage tank.**

#### **C. Boiler:**

1. The water heater shall bear the ASME "HLW" stamp and shall be National Board listed for inputs in excess of 200,000 Btu/Hr. There shall be no banding material, bolts, gaskets or "O" rings in the header configuration. The water heater shall have direct spark ignition with electronic supervision. The stainless steel combustion chamber shall be designed to drain condensation to the bottom of the heat exchanger assembly. A built-in trap shall allow condensation to drain from the heat exchanger assembly.
2. The water heater shall be certified and listed by C.S.A. International under the latest edition of the harmonized ANSI Z21.10.3 test standard for the US and Canada. The water heater shall comply with the energy efficiency requirements of the latest edition of the ASHRAE 90.1 Standard. The water heater shall be AHRI certified to 96% thermal efficiency. The water heater shall be certified for indoor installation.
3. The water heater shall be constructed with a heavy gauge steel jacket assembly, primed and pre-painted on both sides. The combustion chamber shall be sealed and completely enclosed, independent of the outer jacket assembly, so that integrity of the outer jacket does not affect a proper seal. A burner/flame observation port shall be provided. The burner shall be a premix design and constructed of high temperature stainless steel with a woven metal fiber outer covering to provide modulating firing rates. The water heater shall be supplied with a gas valve designed with negative pressure regulation and be equipped with a variable speed blower system, to precisely control the fuel/air mixture to provide modulating water heater firing rates for maximum efficiency. The water heater shall operate in a safe condition at a derated output with gas supply pressures as low as 4 inches of water column.
4. The water heater shall utilize a 24 VAC control circuit and components. The control system shall have an electronic display for water heater set-up, water heater status, and water heater diagnostics. All components shall be easily accessed and serviceable from the front and top of the jacket. The water heater shall be equipped with; a high limit temperature control certified to UL353, ASME certified pressure relief valve, outlet water temperature sensor, inlet water temperature sensor, a UL 353 certified flue temperature sensor, low water flow protection and built-in freeze protection. The manufacturer shall verify proper operation of the burner, all controls and the heat exchanger by connection to water and venting for a factory fire test prior to shipping.
5. The water heater shall feature the "Smart System" control with a Multi-Colored Graphic LCD display with Navigation Dial and Soft Keys, password security, pump delay with freeze protection, pump exercise, and USB PC port connection. The water heater shall feature night

setback for the domestic hot water tank and shall be capable of controlling a building recirculation pump while utilizing the night setback schedule for the building recirculation pump. The water heater shall have the capability to accept a 0-10 VDC input connection for BMS control of modulation or setpoint and enable/disable of the water heater, and a 0-10VDC output of water heater modulation rate. The water heater shall have a built-in cascading sequencer with modulation logic options of "lead lag" or "efficiency optimized". Both modulation logic options should be capable of rotation while maintaining modulation of up to eight water heaters without utilization of an external controller. Supply voltage shall be 120 volt / 60 hertz / single phase.

6. Con-X-U's capable: Water heater shall have the ability to communicate remotely using the optional Con-X-U's software via a wireless or Ethernet connection.
7. The water heater shall be equipped with two terminal strips for electrical connection. A low voltage connection board with data points for safety and operating controls, i.e., Auxiliary Relay, Auxiliary Proving Switch, Alarm Contacts, Runtime Contacts, Manual Reset Low Water Cutoff, Flow Switch, High and Low Gas Pressure Switches, Tank Thermostat, Tank Sensor, Building Management System Signal, Modbus Control Contacts and Cascade Control Circuit. A high voltage terminal strip shall be provided for supply voltage. The high voltage terminal strip plus integral relays are provided for independent control of the domestic hot water pump and building re-circulation pump.
8. Venting;
  - a. Direct Vent Sidewall system. The flue shall be PVC, CPVC or Stainless Steel sealed vent material terminating with the manufacturers specified vent termination. A separate pipe shall supply combustion air directly to the WATER HEATER from the outside. The air inlet pipe may be PVC, CPVC, ABS, Galvanized, or Stainless Steel sealed pipe. The water heater's total combined air intake length shall not exceed 100 equivalent feet. The water heater's total combined exhaust venting length shall not exceed 100 equivalent feet.
9. Performance: As scheduled on Drawings.

D. Vertical storage tank:

1. Overall Length: 62 inches.
2. Diameter: 28 inches.
3. Nominal Capacity: 119 gal.
4. Lochinvar; Model RJA120A.
5. The storage shall be constructed in accordance with ASME requirements, stamped and registered with the National Board of Boiler and Pressure Vessel Inspectors. The storage tank shall have a working pressure of 150 psi. The storage tank shall be glass lined and fired to 1600°F to ensure a molecular fusing of glass and steel. The Lock-Temp Tank shall be constructed with a heavy gauge galvanized steel jacket assembly, primed and pre-painted on both sides. The jacket and tank base shall be a water tight construction with a built-in drain pan, complete with a 3/4" drain connection to assist in protecting against damage in the event of a tank or component leakage. The storage tank shall be completely encased in high density insulation of sufficient thickness to meet the energy efficiency requirements of the latest edition of the ASHRAE 90.1 Standard.

E. Pump:



1. The circulating shall be all bronze and operate on a 120 volt, 60 cycle, 1 phase power supply. The pump shall be wired to run with intermittent pump operation.
- F. Condensate Neutralization Kit: Factory supplied condensate trap with condensate trip sensor, high capacity condensate receiver prefilled with appropriate medium.

## **2.02 DIAPHRAGM-TYPE COMPRESSION TANKS**

- A. Manufacturers:
1. Amtrol Inc; Model ST-20V-C.
  2. ITT Bell & Gossett.
  3. Watts.
- B. Construction: Welded steel, tested and stamped in accordance with ASME BPVC-VIII-1; supplied with National Board Form U-1, rated for working pressure of 125 psig, with flexible EPDM diaphragm sealed into tank, and steel legs or saddles.
- C. Accessories: Pressure gage and air-charging fitting, tank drain; precharge to 55 psig.
- D. Size: 12 inches diameter, 19 inches overall length, 4.0 gal acceptance capacity.

## **2.03 IN-LINE CIRCULATOR PUMPS (HWRP-1)**

- A. Manufacturers:
1. Armstrong Pumps Inc.
  2. ITT Bell & Gossett; Model e3.
  3. Taco, Inc.
- B. Casing: Bronze, rated for 125 psig working pressure.
- C. Impeller: Non-metallic.
- D. Shaft: Ceramic.
- E. Drive: Close coupled.
- F. Shaftless spherical motor with permanent magnet technology ECM motor.
- G. Performance:
1. As scheduled on the Drawings.
- H. Accessories: UL approved automatic timer kit to provide automatic ON-OFF control at minimum 15 minute intervals.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Install plumbing equipment in accordance with manufacturer's instructions, as required by code, and complying with conditions of certification, if any.
- B. Coordinate with plumbing piping and related fuel piping, gas venting, and electrical work to achieve operating system.
- C. Domestic Water Heat Exchangers:

1. Install domestic water heat exchangers with clearance for tube bundle removal without disturbing other installed equipment or piping.
2. Pipe relief valves and drains to nearest floor drain.

D. Pumps:

1. Ensure pumps operate at specified system fluid temperatures without vapor binding and cavitation, are non-overloading in parallel or individual operation, and operate within 25 percent of midpoint of published maximum efficiency curve.

**END OF SECTION**

**SECTION 23 05 19  
METERS AND GAGES FOR HVAC PIPING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Pressure gages and pressure gage taps.
- B. Thermometers and thermometer wells.

**1.02 RELATED REQUIREMENTS**

- A. Section 23 09 23 - Direct-Digital Control System for HVAC.
- B. Section 23 21 13 - Hydronic Piping.

**1.03 REFERENCE STANDARDS**

- A. ASME B40.100 - Pressure Gauges and Gauge Attachments; 2013.
- B. ASTM E1 - Standard Specification for ASTM Liquid-in-Glass Thermometers; 2014.
- C. ASTM E77 - Standard Test Method for Inspection and Verification of Thermometers; 2014.
- D. UL 393 - Indicating Pressure Gauges for Fire-Protection Service; Current Edition, Including All Revisions.

**1.04 FIELD CONDITIONS**

- A. Do not install instrumentation when areas are under construction, except for required rough-in, taps, supports and test plugs.

**PART 2 PRODUCTS**

**2.01 PRESSURE GAGES**

- A. Pressure Gages: ASME B40.100, UL 393 drawn steel case, phosphor bronze bourdon tube, rotary brass movement, brass socket, with front recalibration adjustment, black scale on white background.
  - 1. Case: Steel with brass bourdon tube.
  - 2. Size: 4-1/2 inch diameter.
  - 3. Mid-Scale Accuracy: One percent.
  - 4. Scale: Psi.

**2.02 PRESSURE GAGE TAPPINGS**

- A. Gage Cock: Tee or lever handle, brass for maximum 150 psi.

**2.03 STEM TYPE THERMOMETERS**

- A. Thermometers - Adjustable Angle: Red- or blue-appearing non-toxic liquid in glass; ASTM E1; lens front tube, cast aluminum case with enamel finish, cast aluminum adjustable joint with positive locking device; adjustable 360 degrees in horizontal plane, 180 degrees in vertical plane.
  - 1. Size: 9 inch scale.
  - 2. Window: Clear shatter proof polycarbonate.

3. Stem: 2.5 inches NPT brass
4. Accuracy: 2 percent, per ASTM E77.
5. Calibration: Degrees F.

## **2.04 THERMOMETER SUPPORTS**

- A. Socket: Brass separable sockets for thermometer stems with or without extensions as required, and with cap and chain.

## **2.05 TEST PLUGS**

- A. Test Plug: 1/4 inch or 1/2 inch brass fitting and cap for receiving 1/8 inch outside diameter pressure or temperature probe with neoprene core for temperatures up to 200 degrees F.
- B. Test Kit: Carrying case, internally padded and fitted containing one 2-1/2 inch diameter pressure gages, one gage adapters with 1/8 inch probes, two 1 inch dial thermometers.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Provide one pressure gage per pump, installing taps before strainers and on suction and discharge of pump. Pipe to gage.
- C. Install pressure gages with pulsation dampers. Provide gage cock to isolate each gauge. Provide siphon on gages in steam systems. Extend nipples and siphons to allow clearance from insulation.
- D. Install thermometers in piping systems in sockets in short couplings. Enlarge pipes smaller than 2-1/2 inch for installation of thermometer sockets. Ensure sockets allow clearance from insulation.
- E. Install thermometer sockets adjacent to controls system thermostat, transmitter, or sensor sockets.
- F. Provide instruments with scale ranges selected according to service with largest appropriate scale.
- G. Install gages and thermometers in locations where they are easily read from normal operating level. Install vertical to 45 degrees off vertical.
- H. Adjust gages and thermometers to final angle, clean windows and lenses, and calibrate to zero.
- I. Locate test plugs adjacent thermometers and thermometer sockets.

### **3.02 SCHEDULE**

- A. Pressure Gages, Location and Scale Range:
  1. Pumps, 0 to 100 psi.
- B. Pressure Gage Tappings, Location:
  1. Boiler - inlets and outlets.
- C. Stem Type Thermometers, Location and Scale Range:
  1. Boilers - inlets and outlets, 0 to 200 degrees F.

**END OF SECTION**

**SECTION 23 05 53**  
**IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Nameplates.
- B. Tags.
- C. Pipe markers.

**1.02 REFERENCE STANDARDS**

- A. ASME A13.1 - Scheme for the Identification of Piping Systems; 2007.
- B. ASTM D709 - Standard Specification for Laminated Thermosetting Materials; 2013.

**1.03 SUBMITTALS**

- A. Chart and Schedule: Submit valve chart and schedule, including valve tag number, location, function, and valve manufacturer's name and model number.
- B. Project Record Documents: Record actual locations of tagged valves.

**PART 2 PRODUCTS**

**2.01 IDENTIFICATION APPLICATIONS**

- A. Heat Transfer Equipment: Nameplates.
- B. Piping: Pipe markers.
- C. Pumps: Nameplates.
- D. Valves: Tags.

**2.02 NAMEPLATES**

- A. Manufacturers:
  - 1. Brimar Industries, Inc.
  - 2. Kolbi Pipe Marker Co..
  - 3. Seton Identification Products.
  - 4. Substitutions: See Section 01 60 00 - Product Requirements.
  - 5. Letter Color: Black.
  - 6. Letter Height: 1/2 inch.
  - 7. Background Color: White.
  - 8. Plastic: Conform to ASTM D709.

**2.03 TAGS**

- A. Manufacturers:
  - 1. Brady Corporation.
  - 2. Brimar Industries, Inc.
  - 3. Kolbi Pipe Marker Co..

- 4. Seton Identification Products.
- B. Plastic Tags: Laminated three-layer plastic with engraved black letters on light contrasting background color. Tag size minimum 1-1/2 inch diameter.
- C. Metal Tags: Brass with stamped letters; tag size minimum 1-1/2 inch diameter with smooth edges.
- D. Valve Tag Chart: Typewritten letter size list in anodized aluminum frame.

## **2.04 PIPE MARKERS**

- A. Manufacturers:
  - 1. Brady Corporation.
  - 2. Brimar Industries, Inc.
  - 3. Kolbi Pipe Marker Co..
  - 4. Seton Identification Products.
- B. Color: Conform to ASME A13.1.
- C. Plastic Pipe Markers: Factory fabricated, flexible, semi- rigid plastic, preformed to fit around pipe or pipe covering; minimum information indicating flow direction arrow and identification of fluid being conveyed.
- D. Plastic Tape Pipe Markers: Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings.

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Degrease and clean surfaces to receive adhesive for identification materials.

### **3.02 INSTALLATION**

- A. Install nameplates with corrosive-resistant mechanical fasteners, or adhesive. Apply with sufficient adhesive to ensure permanent adhesion and seal with clear lacquer.
- B. Install tags with corrosion resistant chain.
- C. Install plastic pipe markers in accordance with manufacturer's instructions.
- D. Install plastic tape pipe markers complete around pipe in accordance with manufacturer's instructions.
- E. Identify pipe service, flow direction, and pressure.
- F. Install pipe markers in clear view and align with axis of piping.
- G. Location of pipe identification not to exceed 20 feet on straight runs including risers and drops, adjacent to each valve and Tee, at each side of penetration of structure or enclosure, and at each obstruction.

**END OF SECTION**

**SECTION 23 05 93**  
**TESTING, ADJUSTING, AND BALANCING FOR HVAC**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Testing, adjustment, and balancing of hydronic systems.
- B. Measurement of final operating condition of HVAC systems.

**1.02 REFERENCE STANDARDS**

- A. AABC (NSTSB) - AABC National Standards for Total System Balance, 7th Edition; 2016.
- B. ASHRAE Std 111 - Measurement, Testing, Adjusting, and Balancing of Building HVAC Systems; 2008.
- C. NEBB (TAB) - Procedural Standards for Testing Adjusting Balancing of Environmental Systems; 2005, Seventh Edition.
- D. SMACNA (TAB) - HVAC Systems Testing, Adjusting and Balancing; 2002.

**1.03 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. TAB Plan: Submit a written plan indicating the testing, adjusting, and balancing standard to be followed and the specific approach for each system and component.
  - 1. Submit to Architect/Engineer.
  - 2. Submit to the HVAC controls contractor.
  - 3. Include at least the following in the plan:
    - a. List of all air flow, water flow, sound level, system capacity and efficiency measurements to be performed and a description of specific test procedures, parameters, formulas to be used.
    - b. Copy of field checkout sheets and logs to be used, listing each piece of equipment to be tested, adjusted and balanced with the data cells to be gathered for each.
    - c. Discussion of what notations and markings will be made on the duct and piping drawings during the process.
    - d. Final test report forms to be used.
    - e. Procedures for formal deficiency reports, including scope, frequency and distribution.
- C. Final Report: Indicate deficiencies in systems that would prevent proper testing, adjusting, and balancing of systems and equipment to achieve specified performance.
  - 1. Revise TAB plan to reflect actual procedures and submit as part of final report.
  - 2. Submit draft copies of report for review prior to final acceptance of Project. Provide final copies for Architect/Engineer and for inclusion in operating and maintenance manuals.
  - 3. Include actual instrument list, with manufacturer name, serial number, and date of calibration.
  - 4. Form of Test Reports: Where the TAB standard being followed recommends a report format use that; otherwise, follow ASHRAE Std 111.
  - 5. Units of Measure: Report data in both I-P (inch-pound) and SI (metric) units.
  - 6. Include the following on the title page of each report:

- a. Name of Testing, Adjusting, and Balancing Agency.
- b. Address of Testing, Adjusting, and Balancing Agency.
- c. Telephone number of Testing, Adjusting, and Balancing Agency.
- d. Project name.
- e. Project location.
- f. Project Architect/Engineer.
- g. Project Contractor.
- h. Report date.

## **PART 2 PRODUCTS - NOT USED**

## **PART 3 EXECUTION**

### **3.01 GENERAL REQUIREMENTS**

- A. Perform total system balance in accordance with one of the following:
  1. AABC (NSTSB), AABC National Standards for Total System Balance.
  2. ASHRAE Std 111, Practices for Measurement, Testing, Adjusting and Balancing of Building Heating, Ventilation, Air-Conditioning, and Refrigeration Systems.
  3. NEBB Procedural Standards for Testing Adjusting Balancing of Environmental Systems.
  4. SMACNA (TAB).
- B. Begin work after completion of systems to be tested, adjusted, or balanced and complete work prior to Substantial Completion of the project.
- C. Where HVAC systems and/or components interface with life safety systems, including fire and smoke detection, alarm, and control, coordinate scheduling and testing and inspection procedures with the authorities having jurisdiction.
- D. TAB Agency Qualifications:
  1. Company specializing in the testing, adjusting, and balancing of systems specified in this section.
  2. Having minimum of three years documented experience.
  3. Certified by one of the following:
    - a. AABC, Associated Air Balance Council: [www.aabc.com](http://www.aabc.com); upon completion submit AABC National Performance Guaranty.
    - b. NEBB, National Environmental Balancing Bureau: [www.nebb.org](http://www.nebb.org).
    - c. TABB, The Testing, Adjusting, and Balancing Bureau of National Energy Management Institute: [www.tabbcertified.org](http://www.tabbcertified.org).
- E. TAB Supervisor Qualifications: Certified by same organization as TAB agency.

### **3.02 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. Hydronic systems are flushed, filled, and vented.



5. Pumps are rotating correctly.
  6. Proper strainer baskets are clean and in place.
  7. Service and balance valves are open.
- B. Submit field reports. Report defects and deficiencies that will or could prevent proper system balance.
- C. Beginning of work means acceptance of existing conditions.

### **3.03 ADJUSTMENT TOLERANCES**

- A. Hydronic Systems: Adjust to within plus or minus 10 percent of design.

### **3.04 RECORDING AND ADJUSTING**

- A. Ensure recorded data represents actual measured or observed conditions.
- B. Permanently mark settings of valves, dampers, and other adjustment devices allowing settings to be restored. Set and lock memory stops.

### **3.05 WATER SYSTEM PROCEDURE**

- A. Adjust water systems to provide required or design quantities.
- B. Use calibrated Venturi tubes, orifices, or other metered fittings and pressure gages to determine flow rates for system balance. Where flow metering devices are not installed, base flow balance on temperature difference across various heat transfer elements in the system.
- C. Adjust systems to provide specified pressure drops and flows through heat transfer elements prior to thermal testing. Perform balancing by measurement of temperature differential in conjunction with air balancing.
- D. Effect system balance with automatic control valves fully open to heat transfer elements.
- E. Effect adjustment of water distribution systems by means of balancing cocks, valves, and fittings. Do not use service or shut-off valves for balancing unless indexed for balance point.

### **3.06 SCOPE**

- A. Test, adjust, and balance the following:
1. Plumbing Pumps.
  2. HVAC Pumps.
  3. Condensing Boilers.
  4. Water Heaters

**END OF SECTION**

**SECTION 23 07 19  
HVAC PIPING INSULATION**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Piping insulation.
- B. Jackets and accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 23 21 13 - Hydronic Piping: Placement of hangers and hanger inserts.

**1.03 REFERENCE STANDARDS**

- A. ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus; 2013.
- B. ASTM C547 - Standard Specification for Mineral Fiber Pipe Insulation; 2015.
- C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.
- D. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; 2014.
- E. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Current Edition, Including All Revisions.

**1.04 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide product description, thermal characteristics, list of materials and thickness for each service, and locations.
- C. Manufacturer's Instructions: Indicate installation procedures that ensure acceptable workmanship and installation standards will be achieved.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with not less than three years of documented experience.
- B. Applicator Qualifications: Company specializing in performing the type of work specified in this section with minimum three years of experience.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Accept materials on site, labeled with manufacturer's identification, product density, and thickness.

**1.07 FIELD CONDITIONS**

- A. Maintain ambient conditions required by manufacturers of each product.
- B. Maintain temperature before, during, and after installation for minimum of 24 hours.

## **PART 2 PRODUCTS**

### **2.01 REGULATORY REQUIREMENTS**

- A. Surface Burning Characteristics: Flame spread index/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84 or UL 723.

### **2.02 GLASS FIBER**

- A. Manufacturers:
  - 1. CertainTeed Corporation.
  - 2. Johns Manville Corporation.
  - 3. Knauf Insulation.
  - 4. Owens Corning Corporation.
- B. Insulation: ASTM C547; rigid molded, noncombustible.
  - 1. 'K' Value: ASTM C177, 0.23 at 75 degrees F.
  - 2. Maximum Service Temperature: 850 degrees F.
  - 3. Maximum Moisture Absorption: 0.2 percent by volume.
- C. Vapor Barrier Jacket: White kraft paper with glass fiber yarn, bonded to aluminized film; moisture vapor transmission when tested in accordance with ASTM E96/E96M of 0.02 perm-inches.
- D. Vapor Barrier Lap Adhesive: Compatible with insulation.

### **2.03 JACKETS**

- A. PVC Plastic.
  - 1. Jacket: One piece molded type fitting covers and sheet material, color as scheduled.
    - a. Minimum Service Temperature: 0 degrees F.
    - b. Maximum Service Temperature: 150 degrees F.
    - c. Moisture Vapor Permeability: 0.002 perm inch, maximum, when tested in accordance with ASTM E96/E96M.
    - d. Thickness: 10 mil.
    - e. Connections: Brush on welding adhesive.
  - 2. Covering Adhesive Mastic: Compatible with insulation.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that piping has been tested before applying insulation materials.
- B. Verify that surfaces are clean and dry, with foreign material removed.

### **3.02 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Install in accordance with NAIMA National Insulation Standards.
- C. Exposed Piping: Locate insulation and cover seams in least visible locations.
- D. For hot piping conveying fluids over 140 degrees F, insulate flanges and unions at equipment.

- E. Glass fiber insulated pipes conveying fluids above ambient temperature.
  - 1. Provide standard jackets, with or without vapor barrier, factory-applied or field-applied. Secure with self-sealing longitudinal laps and butt strips with pressure sensitive adhesive. Secure with outward clinch expanding staples.
  - 2. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe. Finish with glass cloth and adhesive or PVC fitting covers.
- F. Inserts and Shields:
  - 1. Application: Piping 1-1/2 inches diameter or larger.
  - 2. Shields: Galvanized steel between pipe hangers or pipe hanger rolls and inserts.
  - 3. Insert location: Between support shield and piping and under the finish jacket.
  - 4. Insert Configuration: Minimum 6 inches long, of same thickness and contour as adjoining insulation; may be factory fabricated.
  - 5. Insert Material: Hydrous calcium silicate insulation or other heavy density insulating material suitable for the planned temperature range.
- G. Continue insulation through walls, sleeves, pipe hangers, and other pipe penetrations. Finish at supports, protrusions, and interruptions. At fire separations, refer to Section 07 84 00.

### **3.03 SCHEDULE**

- A. Heating Systems:
  - 1. Heating Water Supply and Return:
    - a. Glass Fiber Insulation:
      - 1) Pipe Size Range: All sizes.
      - a) Thickness: 1-1/2 inch.

**END OF SECTION**

**SECTION 23 09 13**  
**INSTRUMENTATION AND CONTROL DEVICES FOR HVAC**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Thermostats.
  - 1. Electric room thermostats.
  - 2. Outdoor reset thermostats.
- B. Control Panels.
- C. Control valves.
  - 1. Globe pattern.
  - 2. Electronic operators.
- D. Input/Output Sensors:
  - 1. Temperature sensors.
  - 2. Equipment operation (current) sensors
- E. Transmitters:
  - 1. Temperature transmitters.
- F. Control panels.

**1.02 RELATED REQUIREMENTS**

- A. Section 23 05 19 - Meters and Gages for HVAC Piping: Thermometer sockets, gage taps.
- B. Section 23 09 23 - Direct-Digital Control System for HVAC.
- C. Section 23 21 13 - Hydronic Piping: Installation of control valves, flow switches, temperature sensor sockets, gauge taps.
- D. Section 23 21 14 - Hydronic Specialties.
- E. Section 26 05 83 - Wiring Connections: Electrical characteristics and wiring connections.

**1.03 REFERENCE STANDARDS**

- A. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2014.
- B. NEMA DC 3 - Residential Controls - Electrical Wall-Mounted Room Thermostats; 2013.

**1.04 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide description and engineering data for each control system component. Include sizing as requested. Provide data for each system component and software module.
- C. Shop Drawings: Indicate complete operating data, system drawings, wiring diagrams, and written detailed operational description of sequences. Submit schedule of valves indicating size, flow, and pressure drop for each valve. For automatic dampers indicate arrangement, velocities, and static pressure drops for each system.

- D. Project Record Documents: Record actual locations of control components, including panels, thermostats, and sensors. Accurately record actual location of control components, including panels, thermostats, and sensors.
  - 1. Revise shop drawings to reflect actual installation and operating sequences.
- E. Operation and Maintenance Data: Include inspection period, cleaning methods, recommended cleaning materials, and calibration tolerances.
- F. Project Record Documents: Record actual locations of control components, including panels, thermostats, and sensors. Accurately record actual location of control components, including panels, thermostats, and sensors.
- G. Warranty: Submit manufacturers warranty and ensure forms have been filled out in Oak Brook Park District s name and registered with manufacturer.

## **1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
- B. Installer Qualifications: Company specializing in performing the work of this section with minimum three years experience.

## **PART 2 PRODUCTS**

### **2.01 EQUIPMENT - GENERAL**

- A. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc., as suitable for the purpose specified and indicated.

### **2.02 CONTROL PANELS**

- A. Unitized cabinet type for each system under automatic control with relays and controls mounted in cabinet and temperature indicators, pressure gauges, pilot lights, push buttons and switches flush on cabinet panel face.
- B. NEMA 250, general purpose utility enclosures with enamelled finished face panel.
- C. Provide common keying for all panels.

### **2.03 CONTROL VALVES**

- A. Globe Pattern:
  - 1. Up to 2 inches: Bronze body, bronze trim, rising stem, renewable composition disc, screwed ends with backseating capacity repackable under pressure.
  - 2. Over 2 inches: Iron body, bronze trim, rising stem, plug-type disc, flanged ends, renewable seat and disc.
  - 3. Hydronic Systems:
    - a. Rate for service pressure of 125 psig at 250 degrees F.
    - b. Replaceable plugs and seats of stainless steel.
    - c. Size for 3 psig maximum pressure drop at design flow rate.

- d. Two way valves shall have equal percentage characteristics, three way valves linear characteristics. Size two way valve operators to close valves against pump shut off head.

B. Butterfly Pattern:

1. Iron body, bronze disc, resilient replaceable seat for service to 180 degrees F wafer or lug ends, extended neck.
2. Hydronic Systems:
  - a. Rate for service pressure of 125 psig at 250 degrees F.
  - b. Size for 1 psig maximum pressure drop at design flow rate.

C. Electronic Operators:

1. Manufacturers:
  - a. Belimo.
  - b. Substitutions: See Section 01 60 00 - Product Requirements.

## 2.04 INPUT/OUTPUT SENSORS

A. Temperature Sensors:

1. Use thermistor or RTD type temperature sensing elements with characteristics resistant to moisture, vibration, and other conditions consistent with the application without affecting accuracy and life expectancy.
2. Construct RTD of nickel or platinum with base resistance of 1000 ohms at 70 degrees F.
3. 100 ohm platinum RTD is acceptable if used with project DDC controllers.
4. Temperature sensing device must be compatible with project DDC controllers.
5. Performance Characteristics:
  - a. RTD:
    - 1) All Other Accuracy: Plus/minus 0.75 degrees F minimum.
    - 2) Range: Minus 40 degrees F through 220 degrees F minimum.
  - b. Thermistor:
    - 1) Accuracy (All): Plus/minus 0.36 degrees F minimum.
    - 2) Range: Minus 25 degrees F through 122 degrees F minimum.
    - 3) Heat Dissipation Constant: 2.7 mW per degree C.
  - c. Temperature Transmitter:
    - 1) Accuracy: 0.10 degree F minimum or plus/minus 0.20 percent of span.
    - 2) Output: 4 - 20 mA.
  - d. Sensing Range:
    - 1) Provide limited range sensors if required to sense the range expected for a respective point.
    - 2) Use RTD type sensors for extended ranges beyond minus 30 degrees F to 230 degrees F.
    - 3) Use temperature transmitters in conjunction with RTD's when RTD's are incompatible with DDC controller direct temperature input.
  - e. Wire Resistance:
    - 1) Use appropriate wire size to limit temperature offset due to wire resistance to 1.0 degree F or use temperature transmitter when offset is greater than 1.0 degree F due to wire resistance.

- 2) Compensate for wire resistance in software input definition when feature is available in the DDC controller.
  - f. Outside Air Sensors: Watertight inlet fitting shielded from direct rays of the sun.
  - g. Immersion Temperature Sensors: A sensor encased in a corrosion-resistant probe with an indoor junction box service entry body.
  - h. Insertion Elements:
    - 1) Provide dry type, insertion elements for liquids, installed in immersion wells, with minimum insertion length of 2.5 inches.
- B. Equipment Operation (Current) Sensors:
- 1. Status Inputs for Pumps: Differential pressure switch piped across pump with adjustable pressure differential range of 8 to 60 psi.
  - 2. Status Inputs for Electric Motors: Current sensing relay with current transformers, adjustable and set to 175 percent of rated motor current.

## 2.05 THERMOSTATS

- A. Electric Room Thermostats:
- 1. Type: NEMA DC 3, 24 volts, with setback/setup temperature control.
  - 2. Service: Heating only.
  - 3. Room thermostats shall be equipped with setpoint adjustment and override switch.
  - 4. Covers: Locking with set point adjustment, with thermometer.
- B. Outdoor Reset Thermostat:
- 1. Remote bulb or bimetal rod and tube type, proportioning action with adjustable throttling range, adjustable setpoint.
- C. Immersion Thermostat:
- 1. Remote bulb or bimetallic rod and tube type, proportional action with adjustable setpoint and adjustable throttling range.

## 2.06 TRANSMITTERS

- A. Water Pressure Transmitters (Liquid Differential Pressure Transmitters):
- 1. General: Provide wet media differential pressure transducers with 6 ft (1.83 m) armored cable, to allow remote pressure sensing capability using existing plumbing runs.
    - a. Input Power: Class 2; 15 to 30 VDC, 24VAC nominal, 50/60 Hz.
    - b. Maximum Current Draw:
      - 1) DC: 125 mA.
    - c. Output: 3-wire transmitter; user-selectable 4-20 mA/0-5V/0-10V.
    - d. Sensor:
      - 1) Media Compatibility: 17 - 4 PH stainless steel.
      - 2) Proof Pressure: 2x max. F.S. range.
      - 3) Burst Pressure: 5x max. F.S. range.
      - 4) Surge Damping: Electronic; 1 second averaging.
      - 5) Long Term Stability: Plus/minus 0.25 percent.
      - 6) Zero Offset (Bidirectional and Port Swap Modes Only): 0.5 percent.
    - e. Reverser:
      - 1) Zero Adjust: Push button auto-zero and digital input (2-position terminal block).



B. Temperature Transmitters:

1. One pipe, directly proportional output signal to measured variable, linearity within plus or minus 1/2 percent of range for 200 degree F span and plus or minus 1 percent for 50 degree F span, with 50 degrees F. temperature range, compensated bulb, averaging capillary, or rod and tube operation on 20 psig input pressure and 3 to 15 psig output.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify that systems are ready to receive work.
- C. Beginning of installation means installer accepts existing conditions.
- D. Coordinate installation of system components with installation of mechanical systems equipment such as air handling units and air terminal units.

### **3.02 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Check and verify location of thermostats with plans and room details before installation. Locate 60 inches above floor. Align with lighting switches and humidistats.
- C. Mount outdoor reset thermostats and outdoor sensors indoors, with sensing elements outdoors with sun shield.
- D. Provide separable sockets for liquids and flanges for air bulb elements.
- E. Provide valves with position indicators and with pilot positioners where sequenced with other controls.
- F. Mount control panels adjacent to associated equipment on vibration free walls or free standing angle iron supports. One cabinet may accommodate more than one system in same equipment room. Provide engraved plastic nameplates for instruments and controls inside cabinet and engraved plastic nameplates on cabinet face.
- G. Install "hand/off/auto" selector switches to override automatic interlock controls when switch is in "hand" position.
- H. Provide conduit and electrical wiring in accordance with Division 26. Electrical material and installation shall be in accordance with appropriate requirements of Division 26.

**END OF SECTION**

**SECTION 23 09 23**  
**DIRECT-DIGITAL CONTROL SYSTEM FOR HVAC**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. System description.
- B. Controllers.
- C. Power supplies and line filtering.
- D. System software.
- E. Controller software.
- F. HVAC control programs.
- G. Rough-in, wiring to, and final connections to products specified in this Section.

**1.02 RELATED REQUIREMENTS**

- A. Section 23 09 13 - Instrumentation and Control Devices for HVAC.

**1.03 REFERENCE STANDARDS**

- A. MIL-STD-810 - Environmental Engineering Considerations and Laboratory Tests; Revision G, 2014.
- B. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Expand building control system to interface with new equipment and perform the sequence of operation specified. Modify automation system graphics to delete removed equipment and add new equipment.

**1.05 OPEN, INTEROPERABLE, INTEGRATED ARCHITECTURES**

- A. The intent of this specification is to provide a peer-to-peer networked, stand-alone, distributed control system with the capability to integrate both the ANSI/ASHRAE Standard 135-1995 BACnet and LonWorks technology communication protocols in one open, interoperable system.
- B. The supplied computer software shall employ object-oriented technology (OOT) for representation of all data and control devices within the system. In addition, adherence to industry standards including ANSI/ASHRAE Standard 135-1995, BACnet and LonMark to assure interoperability between all system components is required. For each LonWorks device that does not have LonMark certification, the device supplier must provide a XIF file for the device. For each BACnet device, the device supplier must provide a PICS document showing the installed device = s-compliance level. Minimum compliance is Level 3; with the ability to support data read and write functionality. Physical connection of BACnet devices shall be via Ethernet.

- C. All components and controllers supplied under this contract shall be true peer-to-peer communicating devices. Components or controllers requiring polling by a host to pass data shall not be acceptable.
- D. The supplied system must incorporate the ability to access all data using Java enabled browsers without requiring proprietary operator interface and configuration programs. An Open Database Connectivity (ODBC) or Structured Query Language (SQL) compliant server database is required for all system database parameter storage. This data shall reside on a supplier-installed server for all database access. Systems requiring proprietary database and user interface programs shall not be acceptable.
- E. The installed system shall provide secure password access to all features, functions and data contained in the overall Building Management Control System (BMCS). Secure Socket Layer (SSL) encryption shall be an available option for remote access.
- F. The installed system must be totally scalable to allow for future expansion with the addition of controllers and/or input/output devices. It shall not be necessary to remove equipment supplied under this contract to expand the system.
- G. The failure of any single component or network shall not interrupt the control functions of non-affected devices. A single network failure shall only affect shared communications or shared data; individual application controllers and network controllers shall continue normal operation minus only the data from a remote device from the affected network. Automatic default values for all network transported data shall be provide to allow continued operation until the network is restored.
- H. The BMCS shall provide support for ODBC or SQL. An embedded database must be an ODBC-compliant database or must provide an ODBC data access mechanism to read and write dated stored within it. A minimum offering would be the documentation of database schemes to allow users to read/write data into other applications using appropriate ODBS syntax.
- I. A hierarchical topology is required to assure reasonable system response times and to manage the flow and sharing of data.
  - 1. Maximum acceptable response time from any alarm occurrence (at the point of origin) to the point of annunciation shall not exceed 5 seconds for network connected user interfaces.
  - 2. Maximum acceptable response time from any alarm occurrence (at the point of origin) to the point of annunciation shall not exceed 60 seconds for remote or dial-up connected user interfaces.

## **1.06 WEB BROWSER CLIENTS**

- A. The system shall be capable of supporting an unlimited number of clients using a standard Web browser such as Internet Explorer. Systems requiring additional software (to enable a standard Web browser) to be resident on the client machine, or manufacturer-specific browsers shall not be acceptable.
- B. The Web browser software shall run on any operating system and system configuration that is supported by the Web browser. Systems that require specific machine requirements in terms of

processor speed, memory, etc., in order to allow the Web browser to function with the BMCS shall not be acceptable.

- C. The Web browser shall provide the same view of the system, in terms of graphics, schedules, calendars, logs, etc., and provide the same interface methodology as is provided by the Graphical User Interface (GUI). Systems that require different views or that require different means of interacting with objects such as schedules, or logs, shall not be permitted.
- D. The Web browser client shall support at a minimum, the following functions;
  - 1. User log-in identification and password shall be required. If an unauthorized user attempts access, a blank web page shall be displayed. Security using Java authentication and encryption techniques to prevent unauthorized access shall be implemented.
  - 2. Graphical screens developed for the GUI shall be the same screens used for the Web browser client. Any animated graphical objects supported by the GUI shall be supported by the Web browser interface.
  - 3. HTML programming shall not be required to display system graphics or data on a Web page. HTML editing of the Web page shall be allowed if the user desires a specific look or format.
  - 4. Storage of the graphical screens shall be in the Network Area Controller (NAC) without requiring any graphics to be stored on the client machine. Systems that require graphics storage on each client are not acceptable.

## **1.07 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements for submittal procedures.
- B. Product Data: Provide data for each system component and software module.
- C. Shop Drawings:
  - 1. Indicate trunk cable schematic showing programmable control unit locations, and trunk data conductors.
  - 2. Indicate system graphics indicating monitored systems, data (connected and calculated) point addresses, and operator notations. Provide demonstration diskette containing graphics.
  - 3. Show system configuration with peripheral devices, batteries, power supplies, diagrams, modems, and interconnections.
  - 4. Indicate description and sequence of operation of operating, user, and application software.
- D. Project Record Documents: Record actual locations of control components, including control units, thermostats, and sensors.
  - 1. Revise shop drawings to reflect actual installation and operating sequences.
- E. Operation and Maintenance Data:
  - 1. Include interconnection wiring diagrams complete field installed systems with identified and numbered, system components and devices.
  - 2. Include keyboard illustrations and step-by-step procedures indexed for each operator function.
  - 3. Include inspection period, cleaning methods, cleaning materials recommended, and calibration tolerances.
- F. Warranty: Submit manufacturer's warranty and ensure forms have been filled out in Oak Brook Park District's name and registered with manufacturer.

## **1.08 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of the type specified and with minimum three years of documented experience.

## **1.09 WARRANTY**

- A. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.
- B. Provide two year manufacturer's warranty for field programmable micro-processor based units.

## **1.10 PROTECTION OF SOFTWARE RIGHTS**

- A. Prior to delivery of software, the Oak Brook Park District and the party providing the software will enter into a software license agreement with provisions for the following:
  - 1. Limiting use of software to equipment provided under these specifications.
  - 2. Limiting copying.
  - 3. Preserving confidentiality.
  - 4. Prohibiting transfer to a third party.
- B. Provide Owner administrative rights after warranty period expires.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Johnso Controls, Inc.; Existing Facility Explorer.
  - 1. Approved Installing Contractor;
    - a. Applied Controls, Inc., Warrenville, IL.

### **2.02 SYSTEM DESCRIPTION**

- A. Automatic temperature control field monitoring and control system using field programmable micro-processor based units.
- B. Base system on distributed system of fully intelligent, stand-alone controllers, operating in a multi-tasking, multi-user environment on token passing network, with central and remote hardware, software, and interconnecting wire and conduit.
- C. Include computer software and hardware, operator input/output devices, control units, local area networks (LAN), sensors, control devices, actuators.
- D. Provide control systems consisting of thermostats, control valves, dampers and operators, indicating devices, interface equipment and other apparatus and accessories required to operate mechanical systems, and to perform functions specified.
- E. Include installation and calibration, supervision, adjustments, and fine tuning necessary for complete and fully operational system.

## 2.03 CONTROLLERS

### A. BUILDING CONTROLLERS

1. General:
  - a. Manage global strategies by one or more, independent, standalone, microprocessor based controllers.
  - b. Provide sufficient memory to support controller's operating system, database, and programming requirements.
  - c. Share data between networked controllers.
  - d. Controller operating system manages input and output communication signals allowing distributed controllers to share real and virtual object information and allowing for central monitoring and alarms.
  - e. Utilize real-time clock for scheduling.
  - f. Continuously check processor status and memory circuits for abnormal operation.
  - g. Controller to assume predetermined failure mode and generate alarm notification upon detection of abnormal operation.
  - h. Communication with other network devices to be based on assigned protocol.
2. Communication:
  - a. Controller to reside on a BACnet network using ISO 8802-3 (ETHERNET) Data Link/Physical layer protocol.
  - b. Perform routing when connected to a network of custom application and application specific controllers.
  - c. Provide service communication port for connection to a portable operator's terminal or hand held device with compatible protocol.
3. Anticipated Environmental Ambient Conditions:
  - a. Conditioned Space:
    - 1) Mount within dustproof enclosures.
    - 2) Rated for operation at 32 to 120 degrees F.
4. Provisions for Serviceability:
  - a. Diagnostic LEDs for power, communication, and processor.
  - b. Make all wiring connections to field removable, modular terminal strips, or to a termination card connected by a ribbon cable.
5. Memory: In the event of a power loss, maintain all BIOS and programming information for a minimum of 72 hours.
6. Power and Noise Immunity:
  - a. Maintain operation at 90 to 110 percent of nominal voltage rating.
  - b. Perform orderly shutdown below 80 percent of nominal voltage.
  - c. Operation protected against electrical noise of 5 to 120 Hz and from keyed radios up to 5 W. at 3 feet.

### B. INPUT/OUTPUT INTERFACE

1. Hardwired inputs and outputs tie into the DDC system through building, custom application, or application specific controllers.
2. All Input/Output Points:
  - a. Protect controller from damage resulting from any point short-circuiting or grounding and from voltage up to 24 volts of any duration.

- b. Provide universal type for building and custom application controllers where input or output is software designated as either binary or analog type with appropriate properties.
- 3. Binary Inputs:
  - a. Allow monitoring of On/Off signals from remote devices.
  - b. Provide wetting current of 12 mA minimum, compatible with commonly available control devices and protected against the effects of contact bounce and noise.
  - c. Sense dry contact closure with power provided only by the controller.
- 4. Pulse Accumulation Input Objects: Conform to all requirements of binary input objects and accept up to 10 pulses per second.
- 5. Analog Inputs:
  - a. Allow for monitoring of low voltage 0 to 10 VDC, 4 to 20 mA current, or resistance signals (thermistor, RTD).
  - b. Compatible with and field configurable to commonly available sensing devices.
- 6. Binary Outputs:
  - a. Used for On/Off operation or a pulsed low-voltage signal for pulse width modulation control.
  - b. Outputs provided with three position (On/Off/Auto) override switches.
  - c. Status lights for building and custom application controllers to be selectable for normally open or normally closed operation.
- 7. Analog Outputs:
  - a. Monitoring signal provides a 0 to 10 VDC or a 4 to 20 mA output signal for end device control.
  - b. Provide status lights and two position (AUTO/MANUAL) switch for building and custom application controllers with manually adjustable potentiometer for manual override on building and custom application controllers.
  - c. Drift to not exceed 0.4 percent of range per year.
- 8. Tri State Outputs:
  - a. Coordinate two binary outputs to control three point, floating type, electronic actuators without feedback.
  - b. Limit the use of three point, floating devices to the following zone and terminal unit control applications:
  - c. Control algorithms run the zone actuator to one end of its stroke once every 24 hours for verification of operator tracking.
- 9. System Object Capacity:
  - a. System size to be expandable to twice the number of input output objects required by providing additional controllers, including associated devices and wiring.
  - b. Hardware additions or software revisions for the installed operator interfaces are not to be required for future, system expansions.

## **2.04 POWER SUPPLIES AND LINE FILTERING**

- A. Power Supplies:
  - 1. Provide UL listed control transformers with Class 2 current limiting type or over-current protection in both primary and secondary circuits for Class 2 service as required by the NEC.
  - 2. Limit connected loads to 80 percent of rated capacity.
  - 3. Match DC power supply to current output and voltage requirements.
  - 4. Unit to be full wave rectifier type with output ripple of 5.0 mV maximum peak to peak.

5. Regulation to be 1 percent combined line and load with 100 microsecond response time for 50 percent load changes.
  6. Provide over-voltage and over-current protection to withstand a 150 percent current overload for 3 seconds minimum without trip-out or failure.
  7. Operational Ambient Conditions: 32 to 120 degrees F.
  8. EM/RF meets FCC Class B and VDE 0871 for Class B and MIL-STD 810 for shock and vibration.
  9. Line voltage units UL recognized and CSA approved.
- B. Power Line Filtering:
1. Provide external or internal transient voltage and surge suppression component for all workstations and controllers.
  2. Minimum surge protection attributes:
    - a. Dielectric strength of 1000 volts minimum.
    - b. Response time of 10 nanoseconds or less.
    - c. Transverse mode noise attenuation of 65 dB or greater.
    - d. Common mode noise attenuation of 150 dB or greater at 40 to 100 Hz.

## **2.05 FIELD DEVICES**

### **2.06 LOCAL AREA NETWORK (LAN)**

- A. Provide communication between control units over local area network (LAN).
- B. Break in Communication Path: Alarm and automatically initiate LAN reconfiguration.
- C. LAN Data Speed: Minimum 19.2 Kb.
- D. Communication Techniques: Allow interface into network by multiple operation stations and by auto-answer/auto-dial modems. Support communication over telephone lines utilizing modems.
- E. Transmission Median: Fiber optic or single pair of solid 24 gage twisted, shielded copper cable.
- F. Network Support: Time for global point to be received by any station, shall be less than 3 seconds. Provide automatic reconfiguration if any station is added or lost. If transmission cable is cut, reconfigure two sections with no disruption to system's operation, without operator intervention.

### **2.07 SYSTEM SOFTWARE**

- A. Operating System:
  1. Concurrent, multi-tasking capability.
    - a. Common Software Applications Supported: Microsoft Excel.
  2. System Graphics:
    - a. Allow up to 10 graphic screens, simultaneously displayed for comparison and monitoring of system status.
    - b. Animation displayed by shifting image files based on object status.
    - c. Provide method for operator with password to perform the following:
      - 1) Move between, change size, and change location of graphic displays.
      - 2) Modify on-line.
      - 3) Add, delete, or change dynamic objects consisting of:



- a) Analog and binary values.
  - b) Dynamic text.
  - c) Static text.
  - d) Animation files.
3. Custom Graphics Generation Package:
    - a. Create, modify, and save graphic files and visio format graphics in PCX formats.
    - b. HTML graphics to support web browser compatible formats.
    - c. Capture or convert graphics from AutoCAD.
  4. Standard HVAC Graphics Library:
    - a. HVAC Equipment:
      - 1) Boilers.
      - 2) Air Handlers.
      - 3) Terminal HVAC Units.
    - b. Ancillary Equipment:
      - 1) Fans.
      - 2) Pumps.
      - 3) Coils.
      - 4) Valves.
      - 5) Dampers.
- B. Workstation System Applications:
1. Automatic System Database Save and Restore Functions:
    - a. Current database copy of each Building Controller is automatically stored on hard disk.
    - b. Automatic update occurs upon change in any system panel.
    - c. In the event of database loss in any system panel, the first workstation to detect the loss automatically restores the database for that panel unless disabled by the operator.
  2. Manual System Database Save and Restore Functions by Operator with Password Clearance:
    - a. Save database from any system panel.
    - b. Clear a panel database.
    - c. Initiate a download of a specified database to any system panel.
  3. Software provided allows system configuration and future changes or additions by operators under proper password protection.
  4. On-line Help:
    - a. Context-sensitive system assists operator in operation and editing.
    - b. Available for all applications.
    - c. Relevant screen data provided for particular screen display.
    - d. Additional help available via hypertext.
  5. Security:
    - a. Operator log-on requires user name and password to view, edit, add, or delete data.
    - b. System security selectable for each operator.
    - c. System supervisor sets passwords and security levels for all other operators.
    - d. Operator passwords to restrict functions accessible to viewing and/or changing system applications, editor, and object.
    - e. Automatic, operator log-off results from keyboard or mouse inactivity during user-adjustable, time period.
    - f. All system security data stored in encrypted format.

6. System Diagnostics:
  - a. Operations Automatically Monitored:
    - 1) Workstations.
    - 2) Printers.
    - 3) Modems.
    - 4) Network connections.
    - 5) Building management panels.
    - 6) Controllers.
  - b. Device failure is annunciated to the operator.
7. Alarm Processing:
  - a. All system objects are configurable to "alarm in" and "alarm out" of normal state.
  - b. Configurable Objects:
    - 1) Alarm limits.
    - 2) Alarm limit differentials.
    - 3) States.
    - 4) Reactions for each object.
8. Alarm Messages:
  - a. Descriptor: English language.
  - b. Recognizable Features:
    - 1) Source.
    - 2) Location.
    - 3) Nature.
9. Configurable Alarm Reactions by Workstation and Time of Day:
  - a. Logging.
  - b. Printing.
  - c. Starting programs.
  - d. Displaying messages.
  - e. Dialing out to remote locations.
  - f. Paging.
  - g. Providing audible annunciation.
  - h. Displaying specific system graphics.
10. Custom Trend Logs:
  - a. Definable for any data object in the system including interval, start time, and stop time.
  - b. Trend Data:
    - 1) Sampled and stored on the building controller panel.
    - 2) Archivable on hard disk.
    - 3) Retrievable for use in reports, spreadsheets and standard database programs.
    - 4) Archival on LAN accessible storage media including hard disk, tape, Raid array drive, and virtual cloud environment.
    - 5) Protected and encrypted format to prevent manipulation, or editing of historical data and event logs.
11. Alarm and Event Log:
  - a. View all system alarms and change of states from any system location.
  - b. Events listed chronologically.
  - c. Operator with proper security acknowledges and clears alarms.

- d. Alarms not cleared by operator are archived to the workstation hard disk.
- 12.Object, Property Status and Control:
- a. Provide a method to view, edit if applicable, the status of any object and property in the system.
  - b. Status Available by the Following Methods:
    - 1) Menu.
    - 2) Graphics.
    - 3) Custom Programs.
- 13.Reports and Logs:
- a. Reporting Package:
    - 1) Allows operator to select, modify, or create reports.
    - 2) Definable as to data content, format, interval, and date.
    - 3) Archivable to hard disk.
  - b. Real-time logs available by type or status such as alarm, lockout, normal, etc.
  - c. Stored on hard disk and readily accessible by standard software applications, including spreadsheets and word processing.
  - d. Set to be printed on operator command or specific time(s).
- 14.Reports:
- a. Standard:
    - 1) Objects with current values.
    - 2) Current alarms not locked out.
    - 3) Disabled and overridden objects, points and SNVTs.
    - 4) Objects in manual or automatic alarm lockout.
    - 5) Objects in alarm lockout currently in alarm.
    - 6) Logs:
      - a) Alarm History.
      - b) System messages.
      - c) System events.
      - d) Trends.
  - b. Custom:
    - 1) Daily.
    - 2) Weekly.
    - 3) Monthly.
    - 4) Annual.
    - 5) Time and date stamped.
    - 6) Title.
    - 7) Facility name.
  - c. Tenant Override:
    - 1) Monthly report showing total, requested, after-hours HVAC and lighting services on a daily basis for each tenant.
    - 2) Annual report showing override usage on a monthly basis.
  - d. Electrical, Fuel, and Weather:
    - 1) Electrical Meter(s):
      - a) Monthly showing daily electrical consumption and peak electrical demand with time and date stamp for each meter.

- b) Annual summary showing monthly electrical consumption and peak demand with time and date stamp for each meter.
  - 2) Fuel Meter(s):
    - a) Monthly showing daily natural gas consumption for each meter.
    - b) Annual summary showing monthly consumption for each meter.
  - 3) Weather:
    - a) Monthly showing minimum, maximum, average outdoor air temperature and heating/cooling degree-days for the month.
- C. Workstation Applications Editors:
  1. Provide editing software for each system application at PC workstation.
  2. Downloaded application is executed at controller panel.
  3. Full screen editor for each application allows operator to view and change:
    - a. Configuration.
    - b. Name.
    - c. Control parameters.
    - d. Set-points.
  4. Scheduling:
    - a. Monthly calendar indicates schedules, holidays, and exceptions.
    - b. Allows several related objects to be scheduled and copied to other objects or dates.
    - c. Start and stop times adjustable from master schedule.
  5. Custom Application Programming:
    - a. Create, modify, debug, edit, compile, and download custom application programming during operation and without disruption of all other system applications.
    - b. Programming Features:
      - 1) English oriented language, based on BASIC, FORTRAN, C, or PASCAL syntax allowing for free form programming.
      - 2) Alternative language graphically based using appropriate function blocks suitable for all required functions and amenable to customizing or compounding.
      - 3) Insert, add, modify, and delete custom programming code that incorporates word processing features such as cut/paste and find/replace.
      - 4) Allows the development of independently, executing, program modules designed to enable and disable other modules.
      - 5) Debugging/simulation capability that displays intermediate values and/or results including syntax/execution error messages.
      - 6) Support for conditional statements (IF/THEN/ELSE/ELSE-F) using compound Boolean (AND, OR, and NOT) and/or relations (EQUAL, LESS THAN, GREATER THAN, NOT EQUAL) comparisons.
      - 7) Support for floating-point arithmetic utilizing plus, minus, divide, times, square root operators; including absolute value; minimum/maximum value from a list of values for mathematical functions.
      - 8) Language consisting of resettable, predefined, variables representing time of day, day of the week, month of the year, date; and elapsed time in seconds, minutes, hours, and days where the variable values can be used in IF/THEN comparisons, calculations, programming statement logic, etc.

- 9) Language having predefined variables representing status and results of the system software enables, disables, and changes the set points of the controller software.

## 2.08 CONTROLLER SOFTWARE

- A. All applications reside and operate in the system controllers and editing of all applications occurs at the operator workstation.
- B. System Security:
  1. User access secured via user passwords and user names.
  2. Passwords restrict user to the objects, applications, and system functions as assigned by the system manager.
  3. User Log On/Log Off attempts are recorded.
  4. Automatic Log Off occurs following the last keystroke after a user defined delay time.
- C. Object or Object Group Scheduling:
  1. Weekly Schedules Based on Separate, Daily Schedules:
    - a. Include start, stop, optimal stop, and night economizer.
    - b. 10 events maximum per schedule.
    - c. Start/stop times adjustable for each group object.
- D. Provide standard application for equipment coordination and grouping based on function and location to be used for scheduling and other applications.
- E. Alarms:
  1. Binary object is set to alarm based on the operator specified state.
  2. Analog object to have high/low alarm limits.
  3. All alarming is capable of being automatically and manually disabled.
  4. Alarm Reporting:
    - a. Operator determines action to be taken for alarm event.
    - b. Alarms to be routed to appropriate workstation.
    - c. Reporting Options:
- F. Maintenance Management: System monitors equipment status and generates maintenance messages based upon user-designated run-time limits.
- G. Sequencing: Application software based upon specified sequences of operation shown on the Drawings.
- H. PID Control Characteristics:
  1. Direct or reverse action.
  2. Anti-windup.
  3. Calculated, time-varying, analog value, positions an output or stages a series of outputs.
  4. User selectable controlled variable, set-point, and PED gains.
- I. Staggered Start Application:
  1. Prevents all controlled equipment from simultaneously restarting after power outage.
  2. Order of equipment startup is user selectable.
- J. Anti-Short Cycling:
  1. All binary output objects protected from short-cycling.

2. Allows minimum on-time and off-time to be selected.
- K. On-Off Control with Differential:
1. Algorithm allows binary output to be cycled based on a controlled variable and set-point.
  2. Algorithm to be direct-acting or reverse-acting incorporating an adjustable differential.
- L. Run-Time Totalization:
1. Totalize run-times for all binary input objects.
  2. Provides operator with capability to assign high run-time alarm.

## **2.09 HVAC CONTROL PROGRAMS**

- A. General:
1. Support Inch-pounds and SI (metric) units of measurement.
  2. Identify each HVAC Control system.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify that conditioned power supply is available to the control units and to the operator work station. Verify that field end devices, wiring, and pneumatic tubing is installed prior to installation proceeding.

### **3.02 INSTALLATION**

- A. Install control units and other hardware in position on permanent walls where not subject to excessive vibration.
- B. Install software in control units and in operator work station. Implement all features of programs to specified requirements and appropriate to sequence of operation.
- C. Provide conduit and electrical wiring in accordance with Division 26. Electrical material and installation shall be in accordance with appropriate requirements of Division 26.
1. Provide conduit for all control wiring exposed to view. This includes but is not limited to all storage rooms, mechanical rooms, and similar spaces.
  2. Provide conduit for all control wiring concealed in inaccessible spaces. This includes but is not limited to wiring above/behind drywall and plaster ("hard") ceilings or soffits, and wiring within vertical chase spaces, regardless of whether access doors are provided or not.
  3. Control wiring that is concealed above readily accessible ceilings such as acoustical lay-in ceilings, need not be run in conduit.

### **3.03 MANUFACTURER'S FIELD SERVICES**

- A. Start and commission systems. Allow sufficient time for start-up and commissioning prior to placing control systems in permanent operation.
- B. Provide basic operator training for 2 persons on data display, alarm and status descriptors, requesting data, execution of commands and request of logs. Include a minimum of 40 hours dedicated instructor time. Provide training on site.

### **3.04 DEMONSTRATION AND INSTRUCTIONS**

A. Demonstrate complete and operating system to Oak Brook Park District.

**END OF SECTION**

## **SECTION 23 21 13 HYDRONIC PIPING**

### **PART 1 GENERAL**

#### **1.01 SECTION INCLUDES**

- A. Hydronic system requirements.
- B. Heating water piping, above grade.
- C. Pipe hangers and supports.
- D. Unions, flanges, mechanical couplings, and dielectric connections.
- E. Flow controls.

#### **1.02 RELATED REQUIREMENTS**

- A. Section 23 05 23 - General-Duty Valves for HVAC Piping.
- B. Section 23 05 53 - IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT.
- C. Section 23 07 19 - HVAC Piping Insulation.
- D. Section 23 21 14 - Hydronic Specialties.
- E. Section 23 25 00 - HVAC Water Treatment: Pipe cleaning.

#### **1.03 REFERENCE STANDARDS**

- A. ASME BPVC-IX - Boiler and Pressure Vessel Code, Section IX - Welding, Brazing, and Fusing Qualifications; 2015.
- B. ASME B16.3 - Malleable Iron Threaded Fittings: Classes 150 and 300; 2011.
- C. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; 2012.
- D. ASME B16.22 - Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings; 2013.
- E. ASME B31.9 - Building Services Piping; 2014.
- F. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2012.
- G. ASTM A106/A106M - Standard Specification for Seamless Carbon Steel Pipe for High-Temperature Service; 2014.
- H. ASTM A183 - Standard Specification for Carbon Steel Track Bolts and Nuts; 2003 (Reapproved 2009).
- I. ASTM A234/A234M - Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service; 2015.
- J. ASTM A536 - Standard Specification for Ductile Iron Castings; 1984 (Reapproved 2014).
- K. ASTM B32 - Standard Specification for Solder Metal; 2008 (Reapproved 2014).



- L. ASTM B88 - Standard Specification for Seamless Copper Water Tube; 2014.
- M. ASTM B88M - Standard Specification for Seamless Copper Water Tube (Metric); 2013.
- N. ASTM D2000 - Standard Classification System for Rubber Products in Automotive Applications; 2012.
- O. ASTM F708 - Standard Practice for Design and Installation of Rigid Pipe Hangers; 1992 (Reapproved 2008).
- P. ASTM F1476 - Standard Specification for Performance of Gasketed Mechanical Couplings for Use in Piping Applications; 2007 (Reapproved 2013).
- Q. AWS A5.8M/A5.8 - Specification for Filler Metals for Brazing and Braze Welding; 2011-AMD 1.
- R. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2015.
- S. AWWA C606 - Grooved and Shouldered Joints; 2011.
- T. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation; 2009.

#### **1.04 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing products of the type specified in this section, with minimum three years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of the type specified in this section, with minimum three years of experience.
- C. Provide all grooved joint couplings, fittings, valves, specialties, and grooving tools from a single manufacturer.

#### **1.05 DELIVERY, STORAGE, AND HANDLING**

- A. Accept valves on site in shipping containers with labeling in place. Inspect for damage.
- B. Provide temporary protective coating on cast iron and steel valves.
- 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.

### **PART 2 PRODUCTS**

#### **2.01 HYDRONIC SYSTEM REQUIREMENTS**

- A. Comply with ASME B31.9 and applicable federal, state, and local regulations.
- B. Piping: Provide piping, fittings, hangers and supports as required, as indicated, and as follows:
  - 1. Where more than one piping system material is specified, provide joining fittings that are compatible with piping materials and ensure that the integrity of the system is not jeopardized.
  - 2. Use non-conducting dielectric connections whenever jointing dissimilar metals.
  - 3. Grooved mechanical joints may be used in accessible locations only.

- a. Accessible locations include those exposed on interior of building, in pipe chases, and in mechanical rooms, aboveground outdoors, and as approved by Architect/Engineer.
  - b. Grooved mechanical connections and joints comply with AWWA C606.
    - 1) Ductile Iron: Comply with ASTM A536, Grade 65-45-12.
    - 2) Steel: Comply with ASTM A106/A106M, Grade B or ASTM A53/A53M.
  - c. Use rigid joints unless otherwise indicated.
  - d. Use gaskets of molded synthetic rubber with central cavity, pressure responsive configuration and complying with ASTM D2000, Grade 2CA615A15B44F17Z for circulating medium up to maximum 230 degrees F or Grade M3BA610A15B44Z for circulating medium up to maximum 200 degrees F.
  - e. Provide steel coupling nuts and bolts complying with ASTM A183.
4. Provide pipe hangers and supports in accordance with ASME B31.9 or MSS SP-58 unless indicated otherwise.
- C. Pipe-to-Valve and Pipe-to-Equipment Connections: Use flanges, unions, or grooved couplings to allow disconnection of components for servicing; do not use direct welded, soldered, or threaded connections.
- D. Valves: Provide valves where indicated:
- 1. Provide drain valves where indicated, and if not indicated provide at least at main shut-off, low points of piping, bases of vertical risers, and at equipment. Use 3/4 inch gate valves with cap; pipe to nearest floor drain.
  - 2. Isolate equipment using butterfly valves with lug end flanges or grooved mechanical couplings.
  - 3. In heating water systems, butterfly valves may be used interchangeably with gate and globe valves.
  - 4. For shut-off and to isolate parts of systems or vertical risers, use ball or butterfly valves.
- E. Welding Materials and Procedures: Conform to ASME BPVC-IX.

## **2.02 HEATING WATER PIPING, ABOVE GRADE**

- A. Steel Pipe: ASTM A53/A53M, Schedule 40, black, using one of the following joint types:
- 1. Welded Joints: ASTM A234/A234M, wrought steel welding type fittings; AWS D1.1/D1.1M welded.
  - 2. Grooved Joints: AWWA C606 grooved pipe, fittings of same material, and mechanical couplings.
- B. Steel Pipe; ASTM A-53, roll or cut grooved-ends as appropriate to material, wall thickness, pressures, size and joining method. Pipe ends to be grooved in accordance with current listed standards conforming to ANSI/AWWA C-606.
- 1. Fittings: Cast ductile iron conforming to ASTM A-536, Grade 65-45-12, forged steel conforming to ASTM A-234, Grade WPB 0.375" wall or fabricated from Std. Wt. carbon steel pipe conforming to ASTM A-53, Type F, E or S, Grade B. Provide fittings with an alkyd enamel finish or hot dip galvanized to ASTM A-153. Zinc electroplated fittings and couplings conform to ASTM B633.
  - 2. Couplings: Rigid type - coupling housings with offsetting, angle-pattern bolt pads shall be used to provide system rigidity and support and hanging in accordance with ANSI B31.1 and B31.9.

2" through 6", Victaulic Style 107, installation ready rigid coupling for direct stab installation without field disassembly. Steel bolts, nuts and washers.

3. Gasket: Grade "EHP" EPDM compound with red color code designed for operating temperatures from -30 deg F to +250 deg F. Gasket shall conform to steel pipe outside diameter and coupling housing.

C. Copper Tube: ASTM B88 (ASTM B88M), Type L (B), drawn, using one of the following joint types:

1. Fittings: ASME B16.18, cast brass/bronze or ASME B16.22, wrought copper and bronze.
2. Solder Joints:
  - a. Solder: ASTM B32 lead-free solder, HB alloy (95-5 tin-antimony) or tin and silver.
  - b. Braze: AWS A5.8M/A5.8 BCuP copper/silver alloy.
3. Tee Connections: Mechanically extracted collars with notched and dimpled branch tube.

### **2.03 EQUIPMENT DRAINS AND OVERFLOWS**

A. Steel Pipe: ASTM A53/A53M, Schedule 40 galvanized; using one of the following joint types:

1. Threaded Joints: Galvanized cast iron, or ASME B16.3 malleable iron fittings.
2. Grooved Joints: AWWA C606 grooved pipe, fittings of same material, and mechanical couplings.

B. Copper Tube: ASTM B88 (ASTM B88M), Type L (B), drawn; using one of the following joint types:

1. Solder Joints: ASME B16.18 cast brass/bronze or ASME B16.22 solder wrought copper fittings; ASTM B32 lead-free solder, HB alloy (95-5 tin-antimony) or tin and silver.
2. Grooved Joints: AWWA C606 grooved pipe, fittings of same material, and mechanical couplings.

### **2.04 PIPE HANGERS AND SUPPORTS**

A. Provide hangers and supports that comply with MSS SP-58.

1. If type of hanger or support for a particular situation is not indicated, select appropriate type using MSS SP-58 recommendations.

B. Hangers for Pipe Sizes 1/2 to 1-1/2 Inch: Carbon steel, adjustable swivel, split ring.

C. Hangers for Cold Pipe Sizes 2 Inches and Greater: Carbon steel, adjustable, clevis.

D. Hangers for Hot Pipe Sizes 2 to 4 Inches: Carbon steel, adjustable, clevis.

E. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.

F. Wall Support for Pipe Sizes to 3 Inches: Cast iron hook.

G. Vertical Support: Steel riser clamp.

H. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.

I. Hanger Rods: Mild steel threaded both ends, threaded one end, or continuous threaded.

J. Inserts: Malleable iron case of galvanized steel shell and expander plug for threaded connection with lateral adjustment, top slot for reinforcing rods, lugs for attaching to forms; size inserts to suit threaded hanger rods.

- K. In grooved installations, use rigid couplings with offsetting angle-pattern bolt pads or with wedge shaped grooves in header piping to permit support and hanging in accordance with ASME B31.9.

## **2.05 UNIONS, FLANGES, MECHANICAL COUPLINGS, AND DIELECTRIC CONNECTIONS**

- A. Unions for Pipe 2 Inches and Less:
  - 1. Ferrous Piping: 150 psig malleable iron, threaded.
  - 2. Copper Pipe: Bronze, soldered joints.
- B. Flanges for Pipe 2 Inches and Greater:
  - 1. Ferrous Piping: 150 psig forged steel, slip-on.
  - 2. Copper Piping: Bronze.
  - 3. Gaskets: 1/16 inch thick preformed neoprene.
- C. Mechanical Couplings for Grooved and Shouldered Joints: Two or more curved housing segments with continuous key to engage pipe groove, circular C-profile gasket, and bolts to secure and compress gasket.
  - 1. Dimensions and Testing: In accordance with AWWA C606.
  - 2. Mechanical Couplings: Comply with ASTM F1476.
  - 3. Housing Material: Ductile iron, galvanized complying with ASTM A536.
  - 4. Gasket Material: EPDM suitable for operating temperature range from minus 30 degrees F to 230 degrees F.
  - 5. Bolts and Nuts: Hot dipped galvanized or zinc-electroplated steel.
  - 6. When pipe is field grooved, provide coupling manufacturer's grooving tools.
- D. Dielectric Connections:
  - 1. Waterways:
    - a. Water impervious insulation barrier capable of limiting galvanic current to 1 percent of short circuit current in a corresponding bimetallic joint.
    - b. Dry insulation barrier able to withstand 600 volt breakdown test.
    - c. Construct of galvanized steel with threaded end connections to match connecting piping.
    - d. Suitable for the required operating pressures and temperatures.
  - 2. Flanges:
    - a. Dielectric flanges with same pressure ratings as standard flanges.
    - b. Water impervious insulation barrier capable of limiting galvanic current to 1 percent of short circuit current in a corresponding bimetallic joint.
    - c. Dry insulation barrier able to withstand 600 volt breakdown test.
    - d. Construct of galvanized steel with threaded end connections to match connecting piping.
    - e. Suitable for the required operating pressures and temperatures.

## **2.06 BALL VALVES**

- A. Manufacturers:
  - 1. Nibco, Inc; Model S-585-70-66.
  - 2. Watts.
  - 3. Apollo.
- B. Up To and Including 2 Inches:

1. Bronze one piece body, chrome plated brass ball, teflon seats and stuffing box ring, lever handle with balancing stops, solder ends with union.

## **2.07 BUTTERFLY VALVES**

- A. Manufacturers:
  1. Nibco; Model LD 2000.
  2. Crane Valve.
  3. Milwaukee Valve Company.
- B. Body: Ductile iron with resilient molded-in EPDM seat, lug ends, extended neck.
- C. Disc: Construct of aluminum bronze, geometric drive (one piece stem, no pin through disc).
- D. Stem: Stainless steel with stem offset from the centerline to provide full 360 degree circumferential setting.
- E. Operator: 10 position lever handle.

## **2.08 SPRING LOADED CHECK VALVES**

- A. Manufacturers:
  1. Nibco, Inc.
  2. Hammond Valve.
  3. Milwaukee Valve Company.
- B. Iron body, bronze trim, split plate, hinged with stainless steel spring, resilient seal bonded to body, wafer or threaded lug ends.

## **2.09 FLOW CONTROLS**

- A. Construction: Class 125, Brass or bronze body with union on inlet, temperature and pressure test plug on inlet and outlet, blowdown/backflush drain.
- B. Calibration: Control flow within 5 percent of selected rating, over operating pressure range of 10 times minimum pressure required for control, maximum minimum pressure 3.5 psi.

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
- B. Prepare pipe for grooved mechanical joints as required by coupling manufacturer.
- C. Remove scale and dirt on inside and outside before assembly.
- D. Prepare piping connections to equipment using jointing system specified.
- E. Keep open ends of pipe free from scale and dirt. Protect open ends with temporary plugs or caps.
- F. After completion, fill, clean, and treat systems. Refer to Section 23 25 00 for additional requirements.

### 3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Press connections: Copper and copper alloy press connections shall be made in accordance with the manufacturer's installation instructions. The tubing shall be fully inserted into the fitting and the tubing marked at the shoulder of the fitting. The fitting alignment shall be checked against the mark on the tubing to assure the tubing is fully inserted in the fitting. The joints shall be pressed using the tool(s) approved by the manufacturer.
- C. Route piping in orderly manner, parallel to building structure, and maintain gradient.
- D. Install piping to conserve building space and to avoid interfere with use of space.
- E. Group piping whenever practical at common elevations.
- F. Sleeve pipe passing through partitions, walls and floors.
- G. Slope piping and arrange to drain at low points.
- H. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.
- I. Grooved Joints:
  - 1. Install in accordance with the manufacturer's latest published installation instructions.
  - 2. Gaskets to be suitable for the intended service, molded, and produced by the coupling manufacturer.
- J. Pipe Hangers and Supports:
  - 1. Install in accordance with ASME B31.9, ASTM F708, or MSS SP-58.
  - 2. Support horizontal piping as scheduled.
  - 3. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.
  - 4. Place hangers within 12 inches of each horizontal elbow.
  - 5. Use hangers with 1-1/2 inch minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
  - 6. Support vertical piping at every other floor. Support riser piping independently of connected horizontal piping.
  - 7. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.
- K. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings. Refer to Section 22 07 19.
- L. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings. Refer to Section 23 07 19.
- M. Use eccentric reducers to maintain top of pipe level.
- N. Install valves with stems upright or horizontal, not inverted.

### **3.03 SCHEDULES**

#### **A. Hanger Spacing for Copper Tubing.**

1. 1/2 inch and 3/4 inch: Maximum span, 5 feet; minimum rod size, 1/4 inch.
2. 1 inch: Maximum span, 6 feet; minimum rod size, 1/4 inch.
3. 1-1/2 inch and 2 inch: Maximum span, 8 feet; minimum rod size, 3/8 inch.
4. 2-1/2 inch: Maximum span, 9 feet; minimum rod size, 3/8 inch.

#### **B. Hanger Spacing for Steel Piping.**

1. 1/2 inch, 3/4 inch, and 1 inch: Maximum span, 7 feet; minimum rod size, 1/4 inch.
2. 1-1/4 inches: Maximum span, 8 feet; minimum rod size, 3/8 inch.
3. 1-1/2 inches: Maximum span, 9 feet; minimum rod size, 3/8 inch.
4. 2 inches: Maximum span, 10 feet; minimum rod size, 3/8 inch.
5. 2-1/2 inches: Maximum span, 11 feet; minimum rod size, 3/8 inch.

**END OF SECTION**

**SECTION 23 21 14  
HYDRONIC SPECIALTIES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Air vents.
- B. Air separators.
- C. Strainers.
- D. Combination pump discharge valves.
- E. Pressure-temperature test plugs.
- F. Combination flow controls.

**1.02 RELATED REQUIREMENTS**

- A. Section 23 21 13 - Hydronic Piping.
- B. Section 23 25 00 - HVAC Water Treatment: Pipe cleaning.

**1.03 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide product data for manufactured products and assemblies required for this project. Include component sizes, rough-in requirements, service sizes, and finishes. Include product description, model, and dimensions.
- C. Maintenance Data: Include installation instructions, assembly views, lubrication instructions, and replacement parts list.

**1.04 DELIVERY, STORAGE, AND HANDLING**

- A. Accept valves on site in shipping containers with labeling in place. Inspect for damage.
- 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.

**PART 2 PRODUCTS**

**2.01 AIR VENTS**

- A. Manufacturers:
  - 1. ITT Bell & Gossett.
  - 2. Taco, Inc.
  - 3. Armstrong Fluid Technology.
- B. Manual Type: Short vertical sections of 2 inch diameter pipe to form air chamber, with 1/8 inch brass needle valve at top of chamber.



C. Float Type:

1. Brass or semi-steel body, copper, polypropylene, or solid non-metallic float, stainless steel valve and valve seat; suitable for system operating temperature and pressure; with isolating valve.
2. Cast iron body and cover, float, bronze pilot valve mechanism suitable for system operating temperature and pressure; with isolating valve.

## 2.02 AIR SEPARATORS

A. Centrifugal Air Separators/Strainers:

1. Manufacturers:
  - a. ITT Bell & Gossett: .
  - b. Taco, Inc.
  - c. Armstrong Fluid Technology.
2. Steel, tested and stamped in accordance with ASME BPVC-VIII-1; for 125 psi operating pressure, with integral bronze strainer, tangential inlet and outlet connections, and internal stainless steel air collector tube.

## 2.03 STRAINERS

A. Manufacturers:

1. ITT Bell & Gossett.
2. Armstrong Fluid Technology.
3. Taco, Inc.

B. Size 2 inch and Under:

1. Screwed brass or iron body for 175 psi working pressure, Y pattern with 1/32 inch stainless steel perforated screen.

C. Size 2-1/2 inch to 4 inch:

1. Provide flanged or grooved iron body for 175 psi working pressure, Y pattern with 3/64 inch stainless steel perforated screen.

## 2.04 COMBINATION PUMP DISCHARGE VALVES

A. Manufacturers:

1. ITT Bell & Gossett.
2. Armstrong Fluid Technology.
3. Taco, Inc.

- B. Valves: Straight or angle pattern, flanged cast-iron valve body with bolt-on bonnet for 175 psi operating pressure, non-slam check valve with spring-loaded bronze disc and seat, stainless steel stem, and calibrated adjustment permitting flow regulation.

## 2.05 PRESSURE-TEMPERATURE TEST PLUGS

A. Manufacturers:

1. Ferguson Enterprises Inc.
2. Peterson Equipment Company Inc.
3. Sisco Manufacturing Company Inc.

- B. Construction: Brass body designed to receive temperature or pressure probe with removable protective cap, and Neoprene rated for minimum 200 degrees F.
- C. Application: Use extended length plugs to clear insulated piping.

## **2.06 COMBINATION FLOW CONTROLS**

- A. Manufacturers:
  - 1. ITT Bell & Gossett.
  - 2. Armstrong Fluid Technology.
  - 3. Taco, Inc.
- B. Construction:
  - 1. Up to 2 inches; Bronze body, bronze trim.
  - 2. Over 2 inches; Ductile iron body, bronze trim.
- C. Control Mechanism: Y-pattern globe valve and digital handwheel with memory stop, inside screw, rubber O-ring disc, solder or screwed ends. Valve shall provide precise flow measurement, precision flow balancing, positive shut-off with no drip seat and drain port for hose bib fitting.

## **2.07 MULTI-PORT PRESSURE MANIFOLD**

- A. Manufacturers:
  - 1. Flow Conditioning Corp: Trumpet Valve.
  - 2. Hydronic Monitor Co., Inc.
  - 3. Substitutions: See Section 01 60 00 - Product Requirements.
- B. One piece manifold of brass construction with ports for connection to hydronic system. Spring return pushbuttons, gauge connection port and test port connection for gauge calibration.

# **PART 3 EXECUTION**

## **3.01 INSTALLATION**

- A. Install specialties in accordance with manufacturer's instructions.
- B. Provide manual air vents at system high points and as indicated.
- C. For automatic air vents in ceiling spaces or other concealed locations, provide vent tubing to nearest drain.
- D. Provide air separator on suction side of system circulation pump and connect to expansion tank.
- E. Provide valved drain and hose connection on strainer blow down connection.
- F. Provide relief valves on pressure tanks, low pressure side of reducing valves, heat exchangers, and expansion tanks.
- G. Multi-port pressure manifold shall be attached to system piping with heavy bracket at height to permit easy pushbutton operation and gauge observation.

**END OF SECTION**

**SECTION 23 21 23  
HYDRONIC PUMPS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Close-coupled pumps.

**1.02 RELATED REQUIREMENTS**

- A. Section 23 21 13 - Hydronic Piping.

**1.03 REFERENCE STANDARDS**

- A. UL 778 - Standard for Motor-Operated Water Pumps; Current Edition, Including All Revisions.

**1.04 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide certified pump curves showing performance characteristics with pump and system operating point plotted. Include NPSH curve when applicable. Include electrical characteristics and connection requirements.
- C. Operation and Maintenance Data: Include installation instructions, assembly views, lubrication instructions, and replacement parts list.
- D. Maintenance Materials: Furnish the following for Oak Brook Park District's use in maintenance of project.
  - 1. See Section 01 60 00 - Product Requirements, for additional provisions.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacture, assembly, and field performance of pumps, with minimum three years of documented experience.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Armstrong Fluid Technologies.
- B. ITT Bell & Gossett.
- C. Taco, Inc..

**2.02 HVAC PUMPS - GENERAL**

- A. Provide pumps that operate at specified system fluid temperatures without vapor binding and cavitation, are non-overloading in parallel or individual operation, and operate within 25 percent of midpoint of published maximum efficiency curve.
- B. Products Requiring Electrical Connection: Listed and classified by UL or testing agency acceptable to Authority Having Jurisdiction as suitable for the purpose specified and indicated.

## **2.03 CLOSE COUPLED PUMPS**

- A. Type: Horizontal shaft, single stage, close coupled, radially split casing, for 125 psi maximum working pressure.
- B. Casing: Cast iron, with suction and discharge gage ports, renewable bronze casing wearing rings, seal flush connection, drain plug, flanged suction and discharge.
- C. Impeller: Bronze, fully enclosed, keyed to motor shaft extension.
- D. Shaft: Stainless steel.
- E. Seal: Mechanical seal, 225 degrees F maximum continuous operating temperature.
- F. Seal: Packing gland with minimum four rings graphite impregnated packing and bronze lantern rings, 230 degrees F maximum continuous operating temperature.

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Verify that electric power is available and of the correct characteristics.

### **3.02 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Provide access space around pumps for service. Provide no less than minimum space recommended by manufacturer.
- C. Provide line sized shut-off valve and strainer on pump suction, and line sized soft seat check valve and balancing valve on pump discharge.
- D. Lubricate pumps before start-up.

**END OF SECTION**

**SECTION 23 25 00  
HVAC WATER TREATMENT**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Materials.
  - 1. System cleaner.
  - 2. Closed system treatment (water).
- B. Filter Feeder.

**1.02 RELATED REQUIREMENTS**

- A. Section 23 21 13 - Hydronic Piping.
- B. Section 23 21 14 - Hydronic Specialties.

**1.03 SUBMITTALS**

- A. Product Data: Provide chemical treatment materials, chemicals, and equipment including electrical characteristics and connection requirements.
- B. Manufacturer's Installation Instructions: Indicate placement of equipment in systems, piping configuration, and connection requirements.
- C. Manufacturer's Field Reports: Indicate start-up of treatment systems when completed and operating properly. Indicate analysis of system water after cleaning and after treatment.
- D. Project Record Documents: Record actual locations of equipment and piping, including sampling points and location of chemical injectors.

**1.04 REGULATORY REQUIREMENTS**

- A. Conform to applicable code for addition of non-potable chemicals to building mechanical systems and to public sewage systems.
- B. Products Requiring Electrical Connection: Listed and classified by UL as suitable for the purpose specified and indicated.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. System Cleaner:
  - 1. Manufacturers:
    - a. AmSolv-Amrep, Inc.
    - b. GE Water & ProcessTechnologies.
    - c. Nalco, an Ecolab Company.
  - 2. Liquid alkaline compound with emulsifying agents and detergents to remove grease and petroleum products; sodiumtripoly phosphate and sodium molybdate.

3. Biocide chlorine release agents such as sodium hypochlorite or calcium hypochlorite or microbiocides such as quarternary ammonia compounds, tributyltin oxide, methylene bis (thiocyanate).

B. Closed System Treatment (Water):

1. Sequestering agent to reduce deposits and adjust pH; polyphosphate.
2. Corrosion inhibitors; boron-nitrite, sodium nitrite and borax, sodium totyltriazole, low molecular weight polymers, phosphonates, sodium molybdate, or sulphites.
3. Conductivity enhancers; phosphates or phosphonates.

## 2.02 FILTER FEEDER

A. Manufacturers:

1. Neptune; Model FTF-2
2. J. L. Wingert Company

B. Allow chemical addition and high capacity filtering in a single piece of equipment.

1. Filtration can be achieved at the same time as chemical addition.

C. 2-1/2 gal. capacity, 300 psi maximum pressure.

D. System: Flow indicator, filter housing with cartridge filter, shut-off valves, and flow control valve.

E. Hot Water Filter Housing: Stainless steel dissolving basket fully supporting filter bag inside.

F. Cartridges: 30 micron for start-up and 10 micron for system operation.

## PART 3 EXECUTION

### 3.01 PREPARATION

A. Systems shall be operational, filled, started, and vented prior to cleaning. Use water meter to record capacity in each system.

B. Place terminal control valves in open position during cleaning.

C. Verify that electric power is available and of the correct characteristics.

### 3.02 CLEANING SEQUENCE

A. Concentration:

1. As recommended by manufacturer.

B. Hot Water Heating Systems:

1. Apply heat while circulating, slowly raising temperature to 160 degrees F and maintain for 12 hours minimum.
2. Remove heat and circulate to 100 degrees F or less; drain systems as quickly as possible and refill with clean water.
3. Circulate for 6 hours at design temperatures, then drain.
4. Refill with clean water and repeat until system cleaner is removed.

C. Use neutralizer agents on recommendation of system cleaner supplier and approval of Architect/Engineer.

- D. Remove, clean, and replace strainer screens.
- E. Inspect, remove sludge, and flush low points with clean water after cleaning process is completed. Include disassembly of components as required.

### **3.03 CLOSED SYSTEM TREATMENT**

- A. Provide one bypass feeder on each system. Install isolating and drain valves and necessary piping. Install around balancing valve downstream of circulating pumps unless indicated otherwise.
- B. Introduce closed system treatment through bypass feeder when required or indicated by test.
- C. Provide 3/4 inch water coupon rack around circulating pumps with space for 4 test specimens.

**END OF SECTION**

**SECTION 23 52 16  
CONDENSING BOILERS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Boiler construction.
- B. Boiler trim.
- C. Fuel burning system.
- D. Factory installed controls.

**1.02 RELATED REQUIREMENTS**

- A. Section 23 09 13 - Instrumentation and Control Devices for HVAC.
- B. Section 23 21 14 - Hydronic Specialties.
- C. Section 23 21 23 - Hydronic Pumps.
- D. Section 23 25 00 - HVAC Water Treatment.
- E. Section 26 05 83 - Wiring Connections: Electrical characteristics and wiring connections.

**1.03 REFERENCE STANDARDS**

- A. AHRI Directory of Certified Product Performance - Air-Conditioning, Heating, and Refrigeration Institute (AHRI); current edition at [www.ahrinet.org](http://www.ahrinet.org).
- B. ASHRAE Std 90.1 - Energy Standard for Buildings Except Low-Rise Residential Buildings; 2013, Including All Addenda.
- C. ASME BPVC-IV - Boiler and Pressure Vessel Code, Section IV - Rules for Construction of Heating Boilers; 2015.
- D. HI BTS-2000 - Testing Standard, Method to Determine Heating Efficiency of Commercial Space Heating Boilers; 2007.
- E. NFPA 54 - National Fuel Gas Code; 2015.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Sequencing: Ensure that utility connections are achieved in an orderly and expeditious manner.

**1.05 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittals procedures.
- B. Product Data: Provide data indicating general assembly, components, controls, safety controls, and wiring diagrams with electrical characteristics and connection requirements, and service connections.
- C. Manufacturer's Installation Instructions: Indicate assembly, support details, connection requirements, and include start up instructions.



- D. Manufacturer's Field Reports: Burner manifold gas pressure, percent carbon monoxide (CO), percent oxygen (O), percent excess air, flue gas temperature at outlet, ambient temperature, net stack temperature, percent stack loss, percent combustion efficiency, and heat output.
- E. Operation and Maintenance Data: Include manufacturer's descriptive literature, operating instructions, cleaning procedures, replacement parts list, and maintenance and repair data.
- F. Warranty: Submit manufacturer warranty and ensure forms have been completed in Oak Brook Park District's name and registered with manufacturer.

## **1.06 QUALITY ASSURANCE**

- A. Manufacturer's Qualifications: Firms regularly engaged in the manufacture of condensing hydronic boilers with welded steel pressure vessels.
- B. The boiler shall have an ASME Section IV pressure vessel rated for a maximum allowable working pressure of 160 PSIG and a maximum allowable working temperature of 210°F.
- C. The entire boiler system and its installation shall conform to the manufacturer's instructions, applicable codes and associated National Board requirements.
- D. The equipment shall be in strict compliance with the requirements of this specification and shall be the manufacturer's standard commercial product unless specified otherwise. Additional equipment features, details, accessories, etc. which are not specifically identified but which are a part of the manufacturer's standard commercial product, shall be included in the equipment being furnished.

## **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Protect boilers from damage by leaving factory inspection openings and shipping packaging in place until final installation.

## **1.08 WARRANTY**

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
- B. Provide a ten (10) year limited warranty to include coverage for heat exchanger, pressure vessel and condensation collection basin against defects in materials or workmanship and failure due to thermal shock.

## **PART 2 PRODUCTS**

### **2.01 CONDENSING BOILERS**

- A. Manufacturers
  - 1. Lochinvar; Model FTXL.
  - 2. Aerco; Model BMK.
  - 3. Fulton; Model EDR.
- B. Construction
  - 1. Description: Boiler shall be natural gas fired, fully condensing, and fire tube design. The boiler shall be factory-fabricated, factory-assembled, and factory-tested, fire-tube condensing boiler with heat exchanger sealed pressure tight, built on a steel base; including insulated jacket;

flue-gas vent; combustion-air intake connections; water supply, return, and condensate drain connections; and controls.

2. Heat Exchanger: The heater exchanger shall bear the ASME "H" stamp for 160 psi working pressure and shall be National Board listed. The heat exchanger shall be constructed of a fully welded 316L stainless steel and of fire tube design. The heat exchanger shall be designed for a single-pass water flow to limit the water side pressure drop. Cast iron, aluminum, or condensing copper tube boilers will not be accepted.
3. Efficiency: Boilers shall have an AHRI certified minimum thermal efficiency of 97 percent.
4. Condensate Collection Basin: Fully welded 316L stainless steel and shall include a stainless steel combustion analyzer test port.
5. Pressure Vessel: The pressure vessel shall be in accordance with ASME Section IV pressure vessel code. The pressure vessel shall be designed for a single-pass water flow to limit the water side pressure drop.
6. Burner: Natural gas, forced draft single burner premix design. The burner shall be high temperature stainless steel with a woven Fecralloy outer covering to provide modulating firing rates. The burner shall be capable of the stated gas train turndown without loss of combustion efficiency.
7. Blower: Boiler shall be equipped with a pulse width modulating blower system to precisely control the fuel/air mixture to provide modulating boiler firing rates for maximum efficiency. The burner firing sequence of operation shall include pre-purge, firing, modulation, and post-purge operation.
8. Gas Train: The boiler shall be supplied with a negative pressure regulation gas train and shall be capable of a minimum turndown of 7:1.  
Model FTX600 with turndown of 7:1, minimum input 85,700, maximum input 600,000.
9. Ignition: Spark ignition with 100 percent main-valve shutoff with electronic flame supervision.
10. Casing:
  - a. Jacket: Heavy gauge primed and painted steel jacket with snap-in closures.
  - b. Control Compartment Enclosures: NEMA 250, Type 1A.
  - c. Insulation: Minimum ½ inch thick, mineral fiber insulation surrounding the heat exchanger.
  - d. Combustion-Air Connections: Inlet and vent duct collars.
11. Characteristics and Capacities:
  - a. Heating Medium: Hot water.
  - b. Design Water Pressure Rating: 160 psi working pressure.
  - c. Safety Relief Valve Setting: 50 psig
  - d. Minimum Water Flow Rate: 15 gpm.

#### C. Trim

1. Safety Relief Valve:
  - a. Size and Capacity: 50 lb.
  - b. Description: Fully enclosed steel spring with adjustable pressure range and positive shutoff; factory set and sealed.
2. Pressure Gage: Minimum 3-1/2 inch diameter. Gage shall have normal operating pressure about 50 percent of full range.
3. Drain Valves: Minimum NPS 3/4 or nozzle size with hose-end connection.

D. Condensate Neutralization Kit: Factory supplied condensate trap with condensate trip sensor, high capacity condensate receiver prefilled with appropriate medium.

E. Controls

1. Boiler controls shall feature a standard, factory installed multi-color graphic LCD screen display with navigation dial and includes the following standard features:
  - a. Con-X-U's capable: Boiler shall have the ability to communicate remotely using the optional Con-X-U's software via a wireless or Ethernet connection.
  - b. Password Security: Boiler shall have a different password security code for the User and the Installer to access adjustable parameters.
  - c. Outdoor air reset: Boiler shall calculate the set point using a field installed, factory supplied outdoor sensor and an adjustable reset curve.
  - d. Pump exercise: Boiler shall energize any pump it controls for an adjustable time if the associated pump has been off for a time period of 24 hours.
  - e. Ramp delay: Boiler may be programmed to limit the firing rate based on six limits steps and six time intervals.
  - f. Boost function: Boiler may be programmed to automatically increase the set point a fixed number of degrees (adjustable by installer) if the setpoint has been continuously active for a set period of time (time adjustable by installer). This process will continue until the space heating demand ends.
  - g. PC port connection: Boiler shall have a PC port allowing the connection of PC boiler software.
  - h. Time clock: Boiler shall have an internal time clock with the ability to time and date stamp lock-out codes and maintain records of runtime.
  - i. Maintenance reminder: Boiler shall have the ability to display a yellow colored, customizable maintenance notification screen. All notifications are adjustable by the installer based upon months of installation, hours of operation, and number of boiler cycles.
  - j. English Error codes: Boiler shall have a user interface that displays a red error screen with fault codes that are displayed in English and include a date and time stamp for ease of servicing.
  - k. Anti-cycling control: Boiler shall have the ability to set a time delay after a heating demand is satisfied allowing the boiler to block a new call for heat. The boiler will display an anti-cycling blocking on the screen until the time has elapsed or the water temperature drops below the anti-cycling differential parameter. The anti-cycling control parameter is adjustable by the installer.
  - l. Space Heating Night setback: Boiler may be programmed to reduce the space heating temperature set point during a certain time of the day.
  - m. Freeze protection: Boiler shall turn on the boiler and system pumps when the boiler water temperature falls below 45 degrees. When the boiler water temperature falls below 37 degrees the boiler will automatically turn on. Boiler and pumps will turn off when the boiler water temperature rises above 43 degrees.
  - n. BMS integration with 0-10V DC input: The Control shall allow an option to Enable and control set point temperature or control firing rate by sending the boiler a 0-10V input signal.

- o. Data logging: Boiler shall have non-volatile data logging memory including last 10 lockouts, space heat run hours, domestic hot water run hours and ignition attempts. All data should be visible on the boiler screen.
- 2. Boiler operating controls shall include the following devices and features:
  - a. Set-Point Adjust: Set points shall be fully adjustable by the installer.
  - b. Sequence of Operation: Factory installed controller to modulate burner firing rate to maintain system water temperature in response to call for heat.
  - c. Sequence of Operation: Boiler shall come standard with outdoor reset control which will control burner firing rate to reset supply-water temperature inversely with outside-air temperature. At 10 deg F outside-air temperature, set supply-water temperature at 180 deg F; at 60 deg F outside-air temperature, set supply-water temperature at 120 deg F.
- 3. Burner Operating Controls: To maintain safe operating conditions, burner safety controls limit burner operation and include:
  - a. High Temperature Limit: Automatic and manual reset stops burner if operating conditions rise above maximum boiler design temperature. Limit switch to be manually reset on the control interface.
  - b. Low-Water Cutoff Switch: Electronic probe shall prevent burner operation on low water. Cutoff switch shall be manually reset on the control interface.
  - c. Blocked Inlet Safety Switch: Manual-reset pressure switch field mounted on boiler combustion-air inlet.
  - d. High and Low Gas Pressure Switches: Pressure switches shall prevent burner operation on low or high gas pressure. Pressure switches to be manually reset on the control interface.
  - e. Blocked Drain Switch: Blocked drain switch shall prevent burner operation when tripped. Switch to be manually reset on the control interface.
  - f. Low air pressure switch: Pressure switches shall prevent burner operation on low air pressure. Switch to be manually reset on the control interface.
  - g. Optional Audible Alarm: Factory mounted on control panel with silence switch; shall sound alarm for any lockout conditions.
  - h. Flow switch: Flow switch shall be used to guarantee flow through boiler before allowing it to fire.
- 4. Building Automation System Interface:
  - a. Boiler shall have the ability to receive a 0-10V system from a building management system and control by the following:
    - 1) 0-10V DC input to control Modulation or Setpoint
    - 2) 0-10V DC input Enable/Disable signal
  - b. Factory installed Modbus gateway interface to enable building automation system to monitor, control, and display boiler status and alarms.

#### F. Electrical Power

- 1. Controllers, Electrical Devices, and Wiring: Electrical devices and connections are specified in Division 26 Sections.
- 2. Single-Point Field Power Connection: Factory-installed and factory-wired switches, motor controllers, transformers, and other electrical devices necessary shall provide a single-point field power connection to boiler.

#### G. Venting

1. Exhaust flue must be Category IV approved PVC, CPVC or stainless steel sealed vent material from one of the approved manufacturers listed in the Installation and Operation manual. Boilers exhaust vent length must be able to extend to 100 equivalent feet.
2. Intake piping must be of approved material as listed in the Installation and Operations manual. Boilers intake pipe length must be able to extend to 100 equivalent feet.
3. Boiler venting and intake piping configuration shall be installed per one of the approved venting methods shown in the Installation and Operation manual.
4. Boiler shall come standard with a flue sensor to monitor and display flue gas temperature on factory provided LCD display.
5. Refer to manufacturer's Installation and Operations manual for detailed venting instructions and approved manufacturers.

#### H. Source Quality Control

1. Burner and Hydrostatic Test: Factory adjust burner to eliminate excess oxygen, carbon dioxide, oxides of nitrogen emissions, and carbon monoxide in flue gas and to achieve combustion efficiency; perform hydrostatic test.
2. Test and inspect factory-assembled boilers, before shipping, according to ASME Boiler and Pressure Vessel Code.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Before boiler installation, examine roughing-in for concrete equipment bases, anchor-bolt sizes and locations, and piping and electrical connections to verify actual locations, sizes, and other conditions affecting boiler performance, maintenance, and operations.
  1. Final boiler locations indicated on Drawings are approximate. Determine exact locations before roughing-in of piping and electrical connections.
- B. Examine mechanical spaces for suitable conditions where boilers will be installed.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

#### **3.02 BOILER INSTALLATION**

- A. Install equipment on 4" concrete housekeeping pad.
- B. Install gas-fired boilers according to NFPA 54.
- C. Assemble and install boiler trim.
- D. Install electrical devices furnished with boiler but not specified to be factory mounted.
- E. Install control wiring to field-mounted electrical devices.

#### **3.03 CONNECTIONS**

- A. Install boilers level on concrete bases. Concrete base is specified in Division 23 Section "Common Work Results for HVAC," and concrete materials and installation requirements are specified in Division 03.
- B. Install piping adjacent to boiler to allow service and maintenance.

- C. Install piping from equipment drain connection to nearest floor drain. Piping shall be at least full size of connection. Provide an isolation valve if required.
- D. Connect gas piping to boiler gas-train inlet with union. Piping shall be at least full size of equipment connection. Provide a reducer if required.
- E. Connect hot-water piping to supply and return boiler tapplings with shutoff valve and union or flange at each connection.
- F. Install piping from safety relief valves to nearest floor drain.
- G. Boiler Venting:
  - 1. Install flue venting kit and combustion-air intake.
  - 2. Connect full size to boiler connections.
- H. Ground equipment according to Division 26.
- I. Connect wiring according to Division 26.

### **3.04 FIELD QUALITY CONTROL**

- A. Perform tests and inspections and prepare test reports.
  - 1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.
- B. Tests and Inspections:
  - 1. Perform installation and startup checks according to manufacturer's written instructions. Complete startup form included with Boiler and return to Manufacturer as described in the instructions.
  - 2. Leak Test: Hydrostatic test. Repair leaks and retest until no leaks exist.
  - 3. Operational Test: Start units to confirm proper motor rotation and unit operation. Adjust air-fuel ratio and combustion.
  - 4. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
    - a. Check and adjust initial operating set points and high- and low-limit safety set points of fuel supply, water level and water temperature.
    - b. Set field-adjustable switches and circuit-breaker trip ranges as indicated.
- C. Occupancy Adjustments: When requested within 12 months of date of Substantial Completion, provide on-site assistance in adjusting system to suit actual occupied conditions. Provide up to two visits to Project during other than normal occupancy hours for this purpose.

### **3.05 DEMONSTRATION**

- A. Engage a factory representative or a factory-authorized service representative for boiler startup. Start-up sheet shall be completed and a copy shall be sent to the Engineer and the Manufacturer. A combustion analysis shall be completed and the gas valve adjusted per the Installation and Operations manual and note in start-up report.

B. Factory representative or a factory-authorized representative shall provide Owners training to instruct maintenance personnel to adjust, operate, and maintain boilers.

**END OF SECTION**

**SECTION 23 82 00  
CONVECTION HEATING AND COOLING UNITS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Unit heaters.

**1.02 RELATED REQUIREMENTS**

- A. Section 23 21 13 - Hydronic Piping.
- B. Section 26 05 83 - Wiring Connections: Electrical characteristics and wiring connections. Installation of room thermostats. Electrical supply to units.

**1.03 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide typical catalog of information including arrangements.
- C. Manufacturer's Instructions: Indicate installation instructions and recommendations.
- D. Project Record Documents: Record actual locations of components and locations of access doors in radiation cabinets required for access or valving.
- E. Operation and Maintenance Data: Include manufacturer's descriptive literature, operating instructions, installation instructions, maintenance and repair data, and parts listings.
- F. Warranty: Submit manufacturer's warranty and ensure forms have been completed in Oak Brook Park District's name and registered with manufacturer.

**1.04 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
- B. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

**PART 2 PRODUCTS**

**2.01 HYDRONIC UNIT HEATERS**

- A. Manufacturers:
  - 1. Modine Manufacturing Company.
  - 2. Sterling Hydronics, a Mestek Company.
  - 3. Daikin.
- B. Coils: Seamless copper tubing, silver brazed to steel headers, and with evenly spaced aluminum fins mechanically bonded to tubing.
- C. Perform factory run test under normal operating conditions, water, and steam flow rates.



- D. Casing: Minimum 18 gage, 0.0478 inch thick sheet steel casing with threaded pipe connections for hanger rods for horizontal models and minimum 18 gage, 0.0478 inch thick sheet steel top and bottom plates for vertical projection models.
- E. Finish: Factory applied baked enamel of color.
- F. Fan: Direct drive propeller type, statically and dynamically balanced, with fan guard; horizontal models with permanently lubricated sleeve bearings; vertical models with grease lubricated ball bearings.
- G. Air Outlet: Adjustable pattern diffuser on vertical projection models and two way louvers on horizontal projection models.
- H. Totally Enclosed Motors: Permanently lubricated sleeve bearings on horizontal models, grease lubricated ball bearings on vertical models.
- I. Control: Local solid state disconnect switch.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that surfaces are suitable for installation.
- B. Verify that field measurements are as indicated on the drawings.

### **3.02 INSTALLATION**

- A. Install in accordance with manufacturer's recommendations.
- B. Do not damage equipment or finishes.
- C. Unit Heaters:
  - 1. Hang from building structure, with pipe hangers anchored to building, not from piping or electrical conduit.
  - 2. Mount as high as possible to maintain greatest headroom unless otherwise indicated.
- D. Units with Hydronic Coils:
  - 1. Provide with shut-off valve on supply piping and tamper-proof, balancing valve with memory stop on return piping.
  - 2. If not easily accessible, extend air vent to exterior surface of cabinet for ease of servicing.
  - 3. Provide float operated automatic air vents with stop valve for unit heaters.

### **3.03 CLEANING**

- A. After construction and painting is completed, clean exposed surfaces of units.
- B. Vacuum clean coils and inside of units.
- C. Touch-up marred or scratched surfaces of factory-finished cabinets using finish materials furnished by the manufacturer.

**END OF SECTION**

**SECTION 26 05 00**  
**BASIC ELECTRICAL REQUIREMENTS**

**PART 1 GENERAL**

**1.01 RELATED DOCUMENTS**

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

**1.02 SECTION INCLUDES**

- A. Basic Electrical Requirements and materials specifically applicable to Division 26 Sections, in addition to Division 1 - General Requirements. Section includes:
  1. Electrical Identification.
  2. Minor Demolition.
  3. Conductors and Devices.
  4. Raceways and Boxes.
  5. Supporting Devices.

**1.03 REGULATORY REQUIREMENTS**

- A. Conform to NFPA 70 - National Electrical Code, latest edition with amendments as adopted by the Village of Oak Brook, IL.
- B. Conform to building codes as adopted by the Village of Oak Brook, IL.
- C. Install electrical Work in accordance with the NECA Standard of Installation.

**1.04 PROJECT/SITE CONDITIONS**

- A. Install work in locations shown on Drawings, unless prevented by Project conditions. Drawings have omitted certain branch circuitry in areas for ease of reading. All branch circuitry is to be provided by Contractor.

**1.05 QUALITY ASSURANCE**

- A. Provide Work as required for a complete and operational electrical installation.
- B. All products shall be designed, manufactured, and tested in accordance with industry standards. Standards, organizations, and their abbreviations as used hereafter, include the following:
  1. American National Standards Institute, Inc (ANSI).
  2. American Society for Testing and Materials (ASTM).
  3. National Electrical Manufacturers Association (NEMA).
  4. Underwriters Laboratories, Inc. (UL).
- C. Install all Work in accordance with the NECA Standard of Installation.

**1.06 PROJECT RECORD DOCUMENTS**

- A. Cooperate and assist in the preparation of project record documents under the provisions of Section 01 78 00.

## **1.07 PROJECT MANAGEMENT AND COORDINATION**

- A. Proper project management and coordination is critical for a successful project. Manage and coordinate the Work with all other trades in accordance with Section 01 30 00 requirements. Reliance on the Drawings and Specifications only for exact project requirements is insufficient for proper coordination.

## **PART 2 PRODUCTS**

### **2.01 WIRING METHODS**

- A. All locations: Building wire in raceway.
- B. Use no wire smaller than 12 AWG for power and lighting circuits, and no smaller than 14 AWG for control wiring.
  - 1. Use 10 AWG conductor for 20 ampere, 120 volt branch circuit home runs longer than 100 feet.

### **2.02 WIRE AND CABLE**

- A. Manufacturers:
  - 1. Okonite.
  - 2. Southwire.
  - 3. Collyer.
- B. Building Wire:
  - 1. Feeders and Branch Circuits Larger Than 6 AWG: Copper, stranded conductor, 600 volt insulation.
  - 2. Feeders and Branch Circuits 6 AWG and Smaller: Copper conductor, 600 volt insulation. 6 and 8 AWG, stranded conductor; smaller than 8 AWG, stranded conductor (solid for device terminations).
  - 3. Control Circuits: Copper, stranded conductor, 600 volt insulation.
  - 4. Use 10 AWG conductors for 20 ampere, 120 volt branch circuits longer than 75 feet.
  - 5. Use 10 AWG conductors for 20 ampere, 277 volt branch circuits longer than 200 feet.
  - 6. Use conductor not smaller than 12 AWG for power and lighting circuits.
  - 7. Use conductor not smaller than 16 AWG for control circuits.
- C. Locations:
  - 1. Concealed Dry Interior Locations: Use only building wire with Type THHN insulation in raceway.
  - 2. Exposed Dry Interior Locations: Use only building wire with Type THHN insulation in raceway.
  - 3. Above Accessible Ceilings: Use only building wire with Type THHN insulation in raceway.
  - 4. Wet or Damp Interior Locations: Use only building wire with Type THWN insulation in raceway.
  - 5. Exterior Locations: Use only building wire with Type XHHW insulation in raceway.
  - 6. Underground Installations: Use only building wire with Type XHHW insulation in raceway.

### **2.03 RACEWAY REQUIREMENTS**

- A. Use only specified raceway in the following locations:
  - 1. Branch Circuits and Feeders:
    - a. Concealed Dry Interior Locations: Electrical metallic tubing.

- b. Exposed Dry Interior Finished Locations: Electrical metallic tubing.
- c. Exposed Dry Interior Unfinished Locations: Electrical metallic tubing.
- d. All other locations: Galvanized Rigid Metallic Conduit.

B. Size raceways for conductor type installed.

- 1. Minimum Size Conduit Homerun to Panelboard: 3/4-inch.

## **2.04 METALLIC CONDUIT AND FITTINGS**

A. Conduit:

- 1. Rigid Steel Conduit: ANSI C80.1.
- 2. Electrical metallic tubing: ANSI C80.3.
- 3. Flexible Conduit: UL 1, zinc-coated steel.
  - a. Liquidtight Flexible Conduit: UL360. Fittings shall be specifically approved for use with this raceway.

B. Conduit Fittings:

- 1. Metal Fittings and Conduit Bodies: NEMA FB 1.
  - a. EMT fittings: Use set-screw indentor-type fittings.

## **2.05 NONMETALLIC TUBING**

A. Manufacturers:

- 1. Carlon Co.
- 2. LCP National Plastics, Inc.
- 3. Pacific Western Extruded Plastics Co.

B. Description: UL651A "Type EB and A PVC Conduit and HDPE Conduit."

- 1. Conduit: Schedule 40. Suitable for exposure to sunlight and direct burial.

## **2.06 CONDUIT HANGERS**

A. Manufacturers:

- 1. Minerrallac Electric Company.
- 2. Substitutions: Or Approved Equal.

B. Description:

- 1. Standard conduit hanger, zinc-plated steel with bolts.
- 2. Threaded rod and hardware: Plated finish, size and length as required for loading and conditions.

## **2.07 BEAM CLAMPS**

A. Manufacturers:

- 1. Appleton.
- 2. Midwest.
- 3. Raco.

B. Description: Malleable beam clamp, zinc plated steel.

## **2.08 ELECTRICAL BOXES**

A. Manufacturers:

1. Raco.
  2. Steel City.
  3. Appleton.
  4. Substitutions: Or Approved Equal.
- B. Sheet Metal Outlet Boxes: ANSI/NEMA OS 1, galvanized steel, suitable for installation in masonry:
- C. Equipment Support Boxes: Rated for weight of equipment supported; include 2 inch male fixture studs where required.
- D. Wet Location Outlet Boxes: Cast aluminum: Cast alloy, deep type, gasket cover, threaded hubs.

## **2.09 SINGLE-POLE MOTOR RATED SWITCHES**

- A. Manufacturers:
1. Square D.
  2. General Electric.
  3. Siemens.
  4. Substitutions: Or Approved Equal.
- B. NEMA ICS 2; AC general purpose Class A manually operated, full-voltage controller for fractional horsepower induction motors, with thermal overload unit, toggle operator.
- C. Enclosure: NEMA 1.

## **2.10 PENETRATION SEALANTS**

- A. Fire-rated assemblies: Provide firestopping of all penetrations made by Work under this Contract.
- B. Thermal and Moisture Protection: Provide thermal and moisture protection made by Work under this Contract of all exterior wall, floor and roof penetrations in accordance with Division 7 requirements.

## **2.11 NAMEPLATES AND LABELS**

- A. Nameplates: Engraved three-layer laminated plastic, black letters on white background.
- B. Locations:
1. Each electrical distribution and control equipment enclosure.
- C. Letter Size:
1. Use 1/8 inch letters for identifying individual equipment and loads.
  2. Use 1/4 inch letters for identifying grouped equipment and loads.
- D. Labels: Embossed adhesive tape, with 3/16 inch white letters on a black background. Use only for identification of individual wall switches and receptacles and control device stations.

## **2.12 WIRE AND CABLE MARKERS**

- A. Manufacturers:
1. Brady Model PCPS.
  2. Panduit Model PCM.
  3. T & B Model WM.

- B. Description: Cloth type wire markers.
- C. Locations: Each conductor at panelboard gutters, pull boxes, and each load connection.
- D. Legend:
  - 1. Power and Lighting Circuits: Branch circuit or feeder number indicated on drawings.

## **2.13 CONDUIT MARKERS**

- A. Location: Furnish markers for each conduit longer than 6 feet.
- B. Spacing: 20 feet on center.
- C. Color:
  - 1. 208 Volt System: Black
  - 2. Fire Alarm System: Red.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION AND PREPARATION**

- A. Demolition Drawings are based on casual field observation and are intended to identify the limits of the construction site. Remove all electrical systems in their entirety in proper sequence with the Work.
- B. Disconnect electrical systems in walls, floors, and ceilings for removal.
- C. Provide temporary wiring and connections to maintain existing systems in service during construction. When work must be performed on energized equipment or circuits, use personnel experienced in such operations.
- D. Existing Electrical Service and Emergency Electrical Service: Maintain existing system in service. Disable system only to make switchovers and connections. Obtain permission from Owner and Architect at least 24 hours before partially or completely disabling system. Minimize outage duration. Make temporary connections to maintain service in areas adjacent to work area.
- E. Beginning of demolition means installer accepts existing conditions.
- F. Verify that supporting surfaces are ready to receive work.
- G. Electrical boxes are shown on Drawings, in approximate locations, unless dimensioned.
  - 1. Obtain verification from Architect/Engineer for locations of outlets throughout prior to rough-in.
- H. Degrease and clean surfaces to receive wire markers.
- I. Verify that interior of building is physically protected from weather.
- J. Verify that mechanical work which is likely to injure conductors has been completed.
- K. Completely and thoroughly swab raceway system before installing conductors.

### **3.02 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK**

- A. Remove all existing electrical installations to accommodate new construction.
- B. Remove abandoned wiring to source of supply.

- C. Remove exposed abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces.
- D. Relocate existing fire alarm devices affected by wall, ceiling and floor demolition.
- E. Repair adjacent construction and finishes damaged during demolition and extension work.

### 3.03 APPLICATION

- A. Install nameplate and label parallel to equipment lines.
- B. Secure nameplate to equipment front using screws.
- C. Secure nameplates to inside surface of door on panelboard that is recessed in finished locations.
- D. Identify underground conduits using underground warning tape. Install one tape per trench at 3 inches below finished grade.
- E. Neatly train and secure wiring inside boxes, equipment, and panelboards.
- F. Use wire pulling lubricant for pulling 4 AWG and larger wires.
- G. Route wire and cable as required to meet project conditions.
  - 1. Wire and cable routing indicated is approximate unless dimensioned.
  - 2. Where wire and cable destination is indicated and routing is not shown, determine exact routing and lengths required.
- H. Pull all conductors into raceway at same time.
- I. Protect exposed cable from damage.
- J. Neatly train and lace wiring inside boxes, equipment and panelboards.
- K. Support cables above accessible ceilings to keep them from resting on ceiling tiles.
- L. Make splices, taps, and terminations to carry full ampacity of conductors without perceptible temperature rise.
- M. Use split bolt connectors for copper conductor splices and taps, 6 AWG and larger. Tape uninsulated conductors and connector with electrical tape to 150 percent of insulation rating of conductor.
- N. Provide anchors, fasteners, and supports in accordance with NECA "Standard of Installation".
- O. Do not fasten supports to pipes, ducts, mechanical equipment, and conduit.
- P. Do not use powder-actuated anchors.
- Q. Do not drill or cut structural members.
- R. Fabricate supports from structural steel or steel channel. Rigidly weld members or use hexagon head bolts to present neat appearance with adequate strength and rigidity. Use spring lock washers under all nuts.
- S. Install surface-mounted cabinets and panelboards with minimum of four anchors.

- T. In wet and damp locations use steel channel supports to stand cabinets and panelboards one inch off wall.
- U. Use sheet metal channel to bridge studs above and below cabinets and panelboards recessed in hollow partitions.
- V. Terminate spare conductors with electrical tape.

**END OF SECTION**



**SECTION 26 05 83  
WIRING CONNECTIONS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Electrical connections to equipment and devices not and integral part of the electrical distribution system.

**1.02 RELATED REQUIREMENTS**

- A. Section 26 05 00 - Basic Electrical Requirements.

**1.03 REFERENCE STANDARDS**

- A. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Provide conduit rough-in and electrical connection to powered equipment and devices identified in the Project Manual and on the Drawings. Refer specially, but not limited to, these Specification Sections for further information:
  - 1. Section 23 09 23 - Direct-Digital Control System for HVAC.
  - 2. Section 23 21 23 - Hydronic Pumps.
  - 3. Section 23 52 16 - Condensing Boilers.
  - 4. Section 23 82 00 - Convection Heating and Cooling Units.
- B. Coordination: Determine connection locations and requirements for furniture, equipment and devices furnished or provided under other sections.
  - 1. Do not rely solely on the Drawings and Project Manual for execution of the Work of this Section.
  - 2. Obtain and review shop drawings, product data, manufacturer's wiring diagrams, and manufacturer's instructions.
  - 3. Include necessary field evaluation time to inspect connection requirements.
  - 4. Coordinate with other trades to determine exact rough-in requirements.
- C. Sequencing:
  - 1. Install rough-in of electrical connections before installation of furniture and equipment is required.
  - 2. Make electrical connections before required start-up of equipment.

**1.05 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide wiring device manufacturer's catalog information showing dimensions, configurations, and construction.
- C. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, and installation of product.

## **1.06 QUALITY ASSURANCE**

- A. Conform to requirements of NFPA 70.
- B. Products: Listed, classified, and labeled as suitable for the purpose intended.

## **PART 2 PRODUCTS**

### **2.01 MATERIALS**

- A. Wiring Devices: As specified in Section 26 05 00.
- B. Flexible Conduit: As specified in Section 26 05 00.
- C. Wire and Cable: As specified in Section 26 05 00.
- D. Boxes: As specified in Section 26 05 00.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that equipment is ready for electrical connection, wiring, and energization.

### **3.02 ELECTRICAL CONNECTIONS**

- A. Make electrical connections in accordance with equipment manufacturer's instructions.
- B. Make conduit connections to equipment using flexible conduit. Use liquidtight flexible conduit with watertight connectors in damp or wet locations.
- C. Connect heat producing equipment using wire and cable with insulation suitable for temperatures encountered.
- D. Provide receptacle outlet to accommodate connection with attachment plug.
- E. Provide cord and cap where field-supplied attachment plug is required.
- F. Install suitable strain-relief clamps and fittings for cord connections at outlet boxes and equipment connection boxes.
- G. Install disconnect switches, controllers, control stations, and control devices to complete equipment wiring requirements.
- H. Install terminal block jumpers to complete equipment wiring requirements.
- I. Install interconnecting conduit and wiring between devices and equipment to complete equipment wiring requirements.

**END OF SECTION**

# Appendix

- Oak Brook Park District Prevailing Wage Resolution and current Prevailing Wage Rates from the Illinois Department of Labor:

**“On August 31, 2017, IDOL published technical corrections to the rates originally posted on August 15, 2017. Revised rates are highlighted in yellow in the county rate schedules in which they appear. Additionally, rates for certain Electricians, Plumbers, and Pipefitters classifications that were mistakenly included in the rate schedules originally published for some counties were eliminated, and in Henry County, certain rates that had been erroneously included for the classification of Operating Engineers were eliminated. Revised rates published on August 31, 2017 are effective as of September 1, 2017.**

**On September 25, 2017, April 11, 2018, and May 24, 2018, IDOL published subsequent rounds of technical corrections to the Prevailing Wage schedules that were originally published on August 15, 2017. Rates revised on September 25, 2017 are highlighted in green in the county rate schedules in which they appear. Rates revised on April 11, 2018 are highlighted in blue in the county rate schedules in which they appear. Rates revised on May 24, 2018 are highlighted in gray in the county rate schedules in which they appear. The corrected rates published on September 25, 2017, April 11, 2018, and May 24, 2018 are effective as of the date of their publication.**

**Changes highlighted in pink are changes made pursuant to Section 9 challenges. These rates are effective as of the dates of their publication, which are catalogued below the county listing on this page.”** Illinois Department of Labor which can be reached at the following website:

<https://www2.illinois.gov/idol/Laws-Rules/CONMED/Pages/2017-Rates.aspx>

As the project occurs in DuPage County, the current rates at the time of the release of this bid packet are included for DuPage County in the following pages.

**RESOLUTION NO. 18-0618**

**A RESOLUTION OF THE OAK BROOK PARK DISTRICT  
REGARDING THE ILLINOIS PREVAILING WAGE ACT**

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WHEREAS, the State of Illinois has enacted “the Prevailing Wage Act,” as amended, being Chapter 820, Section 130/0.01 et seq. Of the Illinois Compiled Statutes: and

WHEREAS, the aforesaid Act requires that the Board of Park Commissioners of the Oak Brook Park District (the “District”) investigate and ascertain for the District the prevailing rate of wages as defined in said Act, for laborers, mechanics, and other workers in the locality of the District employed in performing construction or demolition of public works,

NOW, THEREFORE, BE IT RESOLVED BY THE PRESIDENT AND BOARD OF PARK COMMISSIONERS OF THE OAK BROOK PARK DISTRICT, AS FOLLOWS:

Section 1. To the extent and as required by “An Act regulating wages of laborers, mechanics and other workers employed in any public works by the State, County, City or any public body or any political subdivision or by anyone under contract for public works,” approved June 26, 1941, as amended, the general prevailing rate of wages in this locality for laborers, mechanics and other workers engaged in the construction or demolition of public works coming under the jurisdiction of the District is hereby ascertained to be the same as the prevailing rate of wages for construction work in the DuPage County area as determined by the Department of Labor of the State of Illinois as of June 2018, a copy of that determination being attached hereto and incorporated herein by reference. The definition of any terms appearing in this Resolution, which are also used in aforesaid Act, shall be the same as in the said Act.

Section 2. Nothing herein contained shall be construed to apply said general prevailing rate of wages, as herein ascertained, to any work or employment except public works construction or demolition of the District to the extent required by the aforesaid Act.

Section 3. The Secretary of the District’s Board of Park Commissioners shall publicly post or keep available for inspection by any interested party in the main office of the District this determination of such prevailing rate of wage.

Section 4. The Secretary of the District’s Board of Park Commissioners shall mail a copy of this determination to any employer, and to any association of employers and to any person or association of employees who have filed or file their names and addresses, requesting copies of any determination stating the particular rates and the particular class of workers whose wages will be affected by such rates.

Section 5. The Secretary of the District's Board of Park Commissioners shall promptly file a certified copy of the Resolution with the Department of Labor of the State of Illinois.

Section 6. The Secretary of the District's Board of Park Commissioners shall cause to be published on the District's website a copy of this Resolution, as well as a hyperlink to the website of the Department of Labor of the State of Illinois, and such publication shall constitute notice that this determination is effective and that this is the determination of this public body.

**PASSED THIS 18<sup>th</sup> day of June, 2018**

**AYES:** Truedson, Carson, Knitter

**NAYS:** Trombetta

**ABSENT:** Tan

**APPROVED:**

  
\_\_\_\_\_  
**President**

**ATTEST:**

  
\_\_\_\_\_  
**Secretary**

<b>Prevailing Wage rates for DuPage County effective Sept. 1, 2017</b>												
<b>Trade Title</b>	<b>Region</b>	<b>Type</b>	<b>Class</b>	<b>Base Wage</b>	<b>Fore-man Wage</b>	<b>M-F OT</b>	<b>OSA</b>	<b>OSH</b>	<b>H/W</b>	<b>Pension</b>	<b>Vacation</b>	<b>Training</b>
ASBESTOS ABT-GEN	ALL	ALL		41.20	42.20	1.5	1.5	2	14.65	12.32	0.00	0.50
ASBESTOS ABT-MEC	ALL	BLD		37.46	39.96	1.5	1.5	2	11.62	11.06	0.00	0.72
BOILERMAKER	ALL	BLD		48.49	52.86	2	2	2	6.97	19.61	0.00	0.90
BRICK MASON	ALL	BLD		45.38	49.92	1.5	1.5	2	10.45	16.68	0.00	0.90
CARPENTER	ALL	ALL		46.35	48.35	1.5	1.5	2	11.79	18.87	0.00	0.63
CEMENT MASON	ALL	ALL		44.25	46.25	2	1.5	2	14.00	17.16	0.00	0.92
CERAMIC TILE FNSHER	ALL	BLD		38.56	38.56	1.5	1.5	2	10.65	11.18	0.00	0.68
COMMUNICATION TECH	ALL	BLD		33.38	36.18	1.5	1.5	2	12.35	19.21	1.45	0.61
ELECTRIC PWR EQMT OP	ALL	ALL		37.89	51.48	1.5	1.5	2	5.00	11.75	0.00	0.38
ELECTRIC PWR EQMT OP	ALL	HWY		41.45	56.38	1.5	1.5	2	5.50	12.87	0.00	0.73
ELECTRIC PWR GRNDMAN	ALL	ALL		29.30	51.48	1.5	1.5	2	5.00	9.09	0.00	0.29
ELECTRIC PWR GRNDMAN	ALL	HWY		32.00	56.38	1.5	1.5	2	5.50	9.92	0.00	0.66
ELECTRIC PWR LINEMAN	ALL	ALL		45.36	51.48	1.5	1.5	2	5.00	14.06	0.00	0.45
ELECTRIC PWR LINEMAN	ALL	HWY		49.67	56.38	1.5	1.5	2	5.50	15.40	0.00	0.88
ELECTRIC PWR TRK DRV	ALL	ALL		30.34	51.48	1.5	1.5	2	5.00	9.40	0.00	0.30
ELECTRIC PWR TRK DRV	ALL	HWY		33.14	56.38	1.5	1.5	2	5.50	10.29	0.00	0.59
ELECTRICIAN	ALL	BLD		39.26	43.26	1.5	1.5	2	12.35	22.08	4.93	0.68
ELEVATOR CONSTRUCTOR	ALL	BLD		51.94	58.43	2	2	2	14.43	14.96	4.16	0.90
FENCE ERECTOR	NE	ALL		39.58	41.58	1.5	1.5	2	13.40	13.90	0.00	0.40
FENCE ERECTOR	W	ALL		45.06	48.66	2	2	2	10.52	20.76	0.00	0.70
GLAZIER	ALL	BLD		42.45	43.95	1.5	1.5	2	14.04	20.14	0.00	0.94
HT/FROST INSULATOR	ALL	BLD		50.50	53.00	1.5	1.5	2	12.12	12.96	0.00	0.72
IRON WORKER	E	ALL		47.33	49.33	2	2	2	14.15	22.39	0.00	0.35
IRON WORKER	W	ALL		45.61	49.25	2	2	2	11.52	22.65	0.00	0.81
LABORER	ALL	ALL		41.20	41.95	1.5	1.5	2	14.65	12.32	0.00	0.50

LATHER	ALL	ALL		46.35	48.35	1.5	1.5	2	11.79	18.87	0.00	0.63
MACHINIST	ALL	BLD		47.56	50.06	1.5	1.5	2	7.05	8.95	1.85	1.47
MARBLE FINISHERS	ALL	ALL		33.95	33.95	1.5	1.5	2	10.45	15.52	0.00	0.47
MARBLE MASON	ALL	BLD		44.63	49.09	1.5	1.5	2	10.45	16.28	0.00	0.59
MATERIAL TESTER I	ALL	ALL		31.20	31.20	1.5	1.5	2	14.65	12.32	0.00	0.50
MATERIALS TESTER II	ALL	ALL		36.20	36.20	1.5	1.5	2	14.65	12.32	0.00	0.50
MILLWRIGHT	ALL	ALL		46.35	48.35	1.5	1.5	2	11.79	18.87	0.00	0.63
OPERATING ENGINEER	ALL	BLD	1	50.10	54.10	2	2	2	18.80	14.35	2.00	1.30
OPERATING ENGINEER	ALL	BLD	2	48.80	54.10	2	2	2	18.80	14.35	2.00	1.30
OPERATING ENGINEER	ALL	BLD	3	46.25	54.10	2	2	2	18.80	14.35	2.00	1.30
OPERATING ENGINEER	ALL	BLD	4	44.50	54.10	2	2	2	18.80	14.35	2.00	1.30
OPERATING ENGINEER	ALL	BLD	5	53.85	54.10	2	2	2	18.80	14.35	2.00	1.30
OPERATING ENGINEER	ALL	BLD	6	51.10	54.10	2	2	2	18.80	14.35	2.00	1.30
OPERATING ENGINEER	ALL	BLD	7	53.10	54.10	2	2	2	18.80	14.35	2.00	1.30
OPERATING ENGINEER	ALL	FLT		38.00	38.00	1.5	1.5	2	18.05	13.60	1.90	1.30
OPERATING ENGINEER	ALL	HWY	1	48.30	52.30	1.5	1.5	2	18.80	14.35	2.00	1.30
OPERATING ENGINEER	ALL	HWY	2	47.75	52.30	1.5	1.5	2	18.80	14.35	2.00	1.30
OPERATING ENGINEER	ALL	HWY	3	45.70	52.30	1.5	1.5	2	18.80	14.35	2.00	1.30
OPERATING ENGINEER	ALL	HWY	4	44.30	52.30	1.5	1.5	2	18.80	14.35	2.00	1.30
OPERATING ENGINEER	ALL	HWY	5	43.10	52.30	1.5	1.5	2	18.80	14.35	2.00	1.30
OPERATING ENGINEER	ALL	HWY	6	51.30	52.30	1.5	1.5	2	18.80	14.35	2.00	1.30
OPERATING ENGINEER	ALL	HWY	7	49.30	52.30	1.5	1.5	2	18.80	14.35	2.00	1.30
ORNAMNTL IRON WORKER	E	ALL		46.75	49.25	2	2	2	13.90	19.79	0.00	0.75
ORNAMNTL IRON WORKER	W	ALL		45.06	48.66	2	2	2	10.52	20.76	0.00	0.70
PAINTER	ALL	ALL		44.18	46.18	1.5	1.5	1.5	10.30	8.20	0.00	1.35
PAINTER SIGNS	ALL	BLD		37.45	42.05	1.5	1.5	2	2.60	3.18	0.00	0.00
PILEDRIVER	ALL	ALL		46.35	48.35	1.5	1.5	2	11.79	18.87	0.00	0.63
PIPEFITTER	ALL	BLD		47.50	50.50	1.5	1.5	2	10.05	17.85	0.00	2.12
PLASTERER	ALL	BLD		42.75	45.31	1.5	1.5	2	14.00	15.71	0.00	0.89
PLUMBER	ALL	BLD		49.25	52.20	1.5	1.5	2	14.34	13.35	0.00	1.28

ROOFER	ALL	BLD		42.30	45.30	1.5	1.5	2	9.08	12.14	0.00	0.58
SHEETMETAL WORKER	ALL	BLD		45.77	47.77	1.5	1.5	2	10.65	14.10	0.00	0.82
SPRINKLER FITTER	ALL	BLD		47.20	49.20	1.5	1.5	2	12.25	11.55	0.00	0.55
STEEL ERECTOR	E	ALL		42.07	44.07	2	2	2	13.45	19.59	0.00	0.35
STEEL ERECTOR	W	ALL		45.06	48.66	2	2	2	10.52	20.76	0.00	0.70
STONE MASON	ALL	BLD		45.38	49.92	1.5	1.5	2	10.45	16.68	0.00	0.90
TERRAZZO FINISHER	ALL	BLD		40.54	40.54	1.5	1.5	2	10.65	12.76	0.00	0.73
TERRAZZO MASON	ALL	BLD		44.38	47.88	1.5	1.5	2	10.65	14.15	0.00	0.82
TILE MASON	ALL	BLD		45.49	49.49	1.5	1.5	2	10.65	13.88	0.00	0.86
TRAFFIC SAFETY WRKR	ALL	HWY		33.50	35.10	1.5	1.5	2	8.10	7.62	0.00	0.25
TRUCK DRIVER	ALL	ALL	1	36.30	36.85	1.5	1.5	2	8.10	9.76	0.00	0.15
TRUCK DRIVER	ALL	ALL	2	36.45	36.85	1.5	1.5	2	8.10	9.76	0.00	0.15
TRUCK DRIVER	ALL	ALL	3	36.65	36.85	1.5	1.5	2	8.10	9.76	0.00	0.15
TRUCK DRIVER	ALL	ALL	4	36.85	36.85	1.5	1.5	2	8.10	9.76	0.00	0.15
TUCK POINTER	ALL	BLD		44.17	45.17	1.5	1.5	2	10.45	15.04	0.00	0.88

**Legend**

**M-F OT** 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.

**OSA** Overtime pay required for every hour worked on Saturdays

**OSH** Overtime pay required for every hour worked on Sundays and Holidays

**H/W** Health/Welfare benefit

Explanations DUPAGE COUNTY

IRON WORKERS AND FENCE ERECTOR (WEST) - West of Route 53.

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.



## 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.

TRAFFIC SAFETY - work associated with barricades, horses and drums used to reduce lane usage on highway work, the installation and removal of temporary lane markings, and the installation and removal of temporary road signs.

## CERAMIC TILE FINISHER

The grouting, cleaning, and polishing of all classes of tile, whether for interior or exterior purposes, all burned, glazed or unglazed products; all composition materials, granite tiles, warning detectable tiles, cement tiles, epoxy composite materials, pavers, glass, mosaics, fiberglass, and all substitute materials, for tile made in tile-like units; all mixtures in tile like form of cement, metals, and other materials that are for and intended for use as a finished floor surface, stair treads, promenade roofs, walks, walls, ceilings, swimming pools, and all other places where tile is to form a finished interior or exterior. The mixing of all setting mortars including but not limited to thin-set mortars, epoxies, wall mud, and any other sand and cement mixtures or adhesives when used in the preparation, installation, repair, or maintenance of tile and/or similar materials. The handling and unloading of all sand, cement, lime, tile, fixtures, equipment, adhesives, or any other materials to be used in the preparation, installation, repair, or maintenance of tile and/or similar materials. Ceramic Tile Finishers shall fill all joints and voids regardless of method on all tile work, particularly and especially after installation of said tile work. Application of any and all protective coverings to all types of tile installations including, but not be limited to, all soap compounds, paper products, tapes, and all polyethylene coverings, plywood, masonite, cardboard, and any new type of products that may be used to protect tile installations, Blastrac equipment, and all floor scarifying equipment used in preparing floors to receive tile. The clean up and removal of all waste and materials. All demolition of existing tile floors and walls to be re-tiled.

## COMMUNICATIONS TECHNICIAN

Low voltage installation, maintenance and removal of telecommunication facilities (voice, sound, data and video) including telephone and data inside wire, interconnect, terminal equipment, central offices, PABX, fiber optic cable and equipment, micro waves, V-SAT, bypass, CATV, WAN (wide area networks), LAN (local area networks), and ISDN (integrated system digital network), pulling of wire in raceways, but not the installation of raceways.

## MARBLE FINISHER

Loading and unloading trucks, distribution of all materials (all stone, sand, etc.), stocking of floors with material, performing all rigging for heavy work, the handling of all material that may be needed for the installation of such materials, building of scaffolding, polishing if needed, patching, waxing of material if damaged, pointing up, caulking, grouting and cleaning of marble, holding water on diamond or Carborundum blade or saw for setters cutting, use of tub saw or any other saw needed for preparation of material, drilling of holes for wires that anchor material set by setters, mixing up of molding plaster for installation of material, mixing up thin set for the installation of material, mixing up of sand to cement for the installation of material and such other work as may be required in helping a Marble Setter in the handling of all material in the erection or installation of interior marble, slate, travertine, art marble, serpentine, alberene stone, blue stone, granite and other stones (meaning as to stone any foreign or domestic materials as are specified and used in building interiors and exteriors and customarily known as stone in the trade), carrara, sanionyx, vitrolite and similar opaque glass and the laying of all marble tile, terrazzo tile, slate tile and precast tile, steps, risers treads, base, or any other materials that may be used as substitutes for any of the aforementioned materials and which are used on interior and exterior which are installed in a similar manner.

MATERIAL TESTER I: Hand coring and drilling for testing of materials; field inspection of uncured concrete and asphalt.

MATERIAL TESTER II: Field inspection of welds, structural steel, fireproofing, masonry, soil, facade, reinforcing steel, formwork, cured concrete, and concrete and asphalt batch plants; adjusting proportions of bituminous mixtures.

## OPERATING ENGINEER - BUILDING

Class 1. Asphalt Plant; Asphalt Spreader; Autograde; Backhoes with Caisson Attachment; Batch Plant; Benoto (requires Two Engineers); Boiler and Throttle Valve; Caisson Rigs; Central Redi-Mix Plant; Combination Back Hoe Front End-loader Machine; Compressor and Throttle Valve; Concrete Breaker (Truck Mounted); Concrete Conveyor; Concrete Conveyor (Truck Mounted); Concrete Paver Over 27E cu. ft; Concrete Paver 27E cu. ft. and Under; Concrete Placer; Concrete Placing Boom; Concrete Pump (Truck Mounted); Concrete Tower; Cranes, All; Cranes, Hammerhead; Cranes, (GCI and similar Type); Creter Crane; Spider Crane; Crusher, Stone, etc.; Derricks, All; Derricks, Traveling; Formless Curb and Gutter Machine; Grader, Elevating; Grouting Machines; Heavy Duty Self-Propelled Transporter or Prime Mover; Highlift Shovels or Front Endloader 2-1/4 yd. and over; Hoists, Elevators, outside type rack and pinion and similar machines; Hoists, One, Two and Three Drum; Hoists, Two Tugger One Floor; Hydraulic Backhoes; Hydraulic Boom Trucks; Hydro Vac (and similar equipment); Locomotives, All; Motor Patrol; Lubrication Technician; Manipulators; Pile Drivers and Skid Rig; Post Hole Digger; Pre-Stress Machine; Pump Cretes Dual Ram; Pump Cretes: Squeeze Cretes-Screw Type Pumps; Gypsum Bulker and Pump; Raised and Blind Hole Drill; Roto Mill Grinder; Scoops - Tractor Drawn; Slip-Form Paver; Straddle Buggies; Operation of Tie Back Machine; Tournapull; Tractor with Boom and Side Boom; Trenching Machines.

Class 2. Boilers; Broom, All Power Propelled; Bulldozers; Concrete Mixer (Two Bag and Over); Conveyor, Portable; Forklift Trucks; Highlift Shovels or Front Endloaders under 2-1/4 yd.; Hoists, Automatic; Hoists, Inside Elevators; Hoists, Sewer Dragging Machine; Hoists, Tugger Single Drum;

Laser Screed; Rock Drill (Self-Propelled); Rock Drill (Truck Mounted); Rollers, All; Steam Generators; Tractors, All; Tractor Drawn Vibratory Roller; Winch Trucks with "A" Frame.

Class 3. Air Compressor; Combination Small Equipment Operator; Generators; Heaters, Mechanical; Hoists, Inside Elevators (remodeling or renovation work); Hydraulic Power Units (Pile Driving, Extracting, and Drilling); Pumps, over 3" (1 to 3 not to exceed a total of 300 ft.); Low Boys; Pumps, Well Points; Welding Machines (2 through 5); Winches, 4 Small Electric Drill Winches.

Class 4. Bobcats and/or other Skid Steer Loaders; Oilers; and Brick Forklift.

Class 5. Assistant Craft Foreman.

Class 6. Gradall.

Class 7. Mechanics; Welders.

#### OPERATING ENGINEERS - HIGHWAY CONSTRUCTION

Class 1. Asphalt Plant; Asphalt Heater and Planer Combination; Asphalt Heater Scarfire; Asphalt Spreader; Autograder/GOMACO or other similar type machines: ABG Paver; Backhoes with Caisson Attachment; Ballast Regulator; Belt Loader; Caisson Rigs; Car Dumper; Central Redi-Mix Plant; Combination Backhoe Front Endloader Machine, (1 cu. yd. Backhoe Bucket or over or with attachments); Concrete Breaker (Truck Mounted); Concrete Conveyor; Concrete Paver over 27E cu. ft.; Concrete Placer; Concrete Tube Float; Cranes, all attachments; Cranes, Tower Cranes of all types: Creter Crane; Spider Crane; Crusher, Stone, etc.; Derricks, All; Derrick Boats; Derricks, Traveling; Dredges; Elevators, Outside type Rack & Pinion and Similar Machines; Formless Curb and Gutter Machine; Grader, Elevating; Grader, Motor Grader, Motor Patrol, Auto Patrol, Form Grader, Pull Grader, Subgrader; Guard Rail Post Driver Truck Mounted; Hoists, One, Two and Three Drum; Heavy Duty Self-Propelled Transporter or Prime Mover; Hydraulic Backhoes; Backhoes with shear attachments up to 40' of boom reach; Lubrication Technician; Manipulators; Mucking Machine; Pile Drivers and Skid Rig; Pre-Stress Machine; Pump Cretes Dual Ram; Rock Drill - Crawler or Skid Rig; Rock Drill - Truck Mounted; Rock/Track Tamper; Roto Mill Grinder; Slip-Form Paver; Snow Melters; Soil Test Drill Rig (Truck Mounted); Straddle Buggies; Hydraulic Telescoping Form (Tunnel); Operation of Tieback Machine; Tractor Drawn Belt Loader; Tractor Drawn Belt Loader (with attached pusher - two engineers); Tractor with Boom; Tractaire with Attachments; Traffic Barrier Transfer Machine; Trenching; Truck Mounted Concrete Pump with Boom; Raised or Blind Hole Drills (Tunnel Shaft); Underground Boring and/or Mining Machines 5 ft. in diameter and over tunnel, etc; Underground Boring and/or Mining Machines under 5 ft. in diameter; Wheel Excavator; Widener (APSCO).

Class 2. Batch Plant; Bituminous Mixer; Boiler and Throttle Valve; Bulldozers; Car Loader Trailing Conveyors; Combination Backhoe Front Endloader Machine (Less than 1 cu. yd. Backhoe Bucket or over or with attachments); Compressor and Throttle Valve; Compressor, Common Receiver (3); Concrete Breaker or Hydro Hammer; Concrete Grinding Machine; Concrete Mixer or Paver 7S Series to and including 27 cu. ft.;

Concrete Spreader; Concrete Curing Machine, Burlap Machine, Belting Machine and Sealing Machine; Concrete Wheel Saw; Conveyor Muck Cars (Haglund or Similar Type); Drills, All; Finishing Machine - Concrete; Highlift Shovels or Front Endloader; Hoist - Sewer Dragging Machine; Hydraulic Boom Trucks (All Attachments); Hydro-Blaster; Hydro Excavating (excluding hose work); Laser Screed; All Locomotives, Dinky; Off-Road Hauling Units (including articulating) Non Self-Loading Ejection Dump; Pump Cretes: Squeeze Cretes - Screw Type Pumps, Gypsum Bulker and Pump; Roller, Asphalt; Rotary Snow Plows; Rototiller, Seaman, etc., self-propelled; Self-Propelled Compactor; Spreader - Chip - Stone, etc.; Scraper - Single/Twin Engine/Push and Pull; Scraper - Prime Mover in Tandem (Regardless of Size); Tractors pulling attachments, Sheeps Foot, Disc, Compactor, etc.; Tug Boats.

Class 3. Boilers; Brooms, All Power Propelled; Cement Supply Tender; Compressor, Common Receiver (2); Concrete Mixer (Two Bag and Over); Conveyor, Portable; Farm-Type Tractors Used for Mowing, Seeding, etc.; Forklift Trucks; Grouting Machine; Hoists, Automatic; Hoists, All Elevators; Hoists, Tugger Single Drum; Jeep Diggers; Low Boys; Pipe Jacking Machines; Post-Hole Digger; Power Saw, Concrete Power Driven; Pug Mills; Rollers, other than Asphalt; Seed and Straw Blower; Steam Generators; Stump Machine; Winch Trucks with "A" Frame; Work Boats; Tamper-Form-Motor Driven.

Class 4. Air Compressor; Combination - Small Equipment Operator; Directional Boring Machine; Generators; Heaters, Mechanical; Hydraulic Power Unit (Pile Driving, Extracting, or Drilling); Light Plants, All (1 through 5); Pumps, over 3" (1 to 3 not to exceed a total of 300 ft.); Pumps, Well Points; Vacuum Trucks (excluding hose work); Welding Machines (2 through 5); Winches, 4 Small Electric Drill Winches.

Class 5. SkidSteer Loader (all); Brick Forklifts; Oilers.

Class 6. Field Mechanics and Field Welders

Class 7. Dowell Machine with Air Compressor; Gradall and machines of like nature.

#### OPERATING ENGINEER - FLOATING

Diver. Diver Wet Tender, Diver Tender, ROV Pilot, ROV Tender

#### TRUCK DRIVER - BUILDING, HEAVY AND HIGHWAY CONSTRUCTION

Class 1. Two or three Axle Trucks. A-frame Truck when used for transportation purposes; Air Compressors and Welding Machines, including those pulled by cars, pick-up trucks and tractors; Ambulances; Batch Gate Lockers; Batch Hopperman; Car and Truck Washers; Carry-alls; Fork Lifts and Hoisters; Helpers; Mechanics Helpers and Greasers; Oil Distributors 2-man operation; Pavement Breakers; Pole Trailer, up to 40 feet; Power Mower Tractors; Self-propelled Chip Spreader; Skipman; Slurry Trucks, 2-man operation; Slurry Truck Conveyor Operation, 2 or 3 man; Teamsters; Unskilled Dumpman; and Truck Drivers hauling warning lights, barricades, and portable toilets on the job site.

Class 2. Four axle trucks; Dump Crets and Adgetors under 7 yards; Dumpsters, Track Trucks, Euclids, Hug Bottom Dump Turnapulls or Turnatrailers when pulling other than self-loading equipment or similar equipment under 16 cubic yards; Mixer Trucks under 7 yards; Ready-mix Plant Hopper Operator, and Winch Trucks, 2 Axles.

Class 3. Five axle trucks; Dump Crets and Adgetors 7 yards and over; Dumpsters, Track Trucks, Euclids, Hug Bottom Dump Turnatrailers or turnapulls when pulling other than self-loading equipment or similar equipment over 16 cubic yards; Explosives and/or Fission Material Trucks; Mixer Trucks 7 yards or over; Mobile Cranes while in transit; Oil Distributors, 1-man operation; Pole Trailer, over 40 feet; Pole and Expandable Trailers hauling material over 50 feet long; Slurry trucks, 1-man operation; Winch trucks, 3 axles or more; Mechanic--Truck Welder and Truck Painter.

Class 4. Six axle trucks; Dual-purpose vehicles, such as mounted crane trucks with hoist and accessories; Foreman; Master Mechanic; Self-loading equipment like P.B. and trucks with scoops on the front.

#### TERRAZZO FINISHER

The handling of sand, cement, marble chips, and all other materials that may be used by the Mosaic Terrazzo Mechanic, and the mixing, grinding, grouting, cleaning and sealing of all Marble, Mosaic, and Terrazzo work, floors, base, stairs, and wainscoting by hand or machine, and in addition, assisting and aiding Marble, Masonic, and Terrazzo Mechanics.

#### 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.

## MATERIAL TESTER & MATERIAL TESTER/INSPECTOR I AND II

Notwithstanding the difference in the classification title, the classification entitled "Material Tester I" involves the same job duties as the classification entitled "Material Tester/Inspector I". Likewise, the classification entitled "Material Tester II" involves the same job duties as the classification entitled "Material Tester/Inspector II".

**TOPIC:           Cutting/Welding Procedure Tips**

Cutting/welding projects can be extremely dangerous activities if the proper precautions are not taken. Agencies should ensure that staff is properly trained, the proper personal protective equipment is used and the work area is properly inspected prior to performing any cutting or welding projects. Attached is a pre-work checklist and procedures for fire watch/work area monitoring that should be considered prior to starting any project.

**Pre Work Checklist**

- Supervisor completes a hot work permit and a copy is retained.
- Any compressed gas cylinders to be moved in a vehicle must be firmly secured in an upright position, strapped or chained in place, and all safety caps securely screwed in place.
- Verify that sprinkler systems, fire extinguishers, or water hoses are in good working condition.
- Inspect all hot work equipment to make sure that it is in good working condition.
- The following personal protective equipment is made available and is used:
  - Face shield/proper eye lenses
  - Leather gloves
  - Leather gauntlets, long sleeve shirt, pants, etc.
- Evaluate these fire safety precautions within 35 feet of the work area:
  - Ensure the atmosphere does not contain explosive chemicals.
  - Remove any flammable liquids, paper or related items from the work area.
  - Use fire resistant tarps or metal shields over floors, walls, or other openings.
  - Sweep the floor of any debris.
  - Wet down combustible floors, walls and related areas when possible.

**Fire Watch/Work Area Monitoring**

- There should be at least one employee provided for an onsite fire watch for at least 60 minutes following the completion of the hot work.
- The fire watch should be provided with an appropriate fire extinguisher or water hose and communication device.
- The fire watch should look for signs of heat, smoke, etc. which may occur in the hot work area. Also, look for signs of fire above or below ceilings and on both sides of walls and floors.
- In the event a fire is noted, the employee should immediately sound the fire alarm and call the fire department. The fire watch can then attempt to extinguish the fire. Fires that occur in walls or between floors may be difficult to extinguish after they have been smoldering. For this reason, it is very important that the fire department be contacted so that they can conduct a professional assessment to determine if the fire is fully extinguished.
- The hot work area should be inspected approximately 4 hours after the job is completed to again ensure that no fire is present.