

**CITY OF BERWYN
COOK COUNTY, ILLINOIS**

CONTRACT

FOR

BERWYN POLICE DEPARTMENT

**FIRE PUMP CONTROLLER
REPLACEMENT PROJECT**

Prepared By:

**CITY OF BERWYN
6700 WEST 26TH STREET
BERWYN, ILLINOIS 60402
708/788-2660**

**And
PATRICK ENGINEERING INC.
www.patrickco.com**

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NOTICE TO CONTRACTORS

I. TIME AND PLACE OF FURNISHING OF PROPOSALS:

Proposals for the project described herein will be received at the City Clerk's Office, the **CITY OF BERWYN 6700 WEST 26TH STREET BERWYN, ILLINOIS 60402 (the City)**, until **10:00 am. On September 9, 2020**, and will be publicly opened and read at that time.

II. DESCRIPTION OF WORK:

The proposed work is officially known as ***Berwyn Police Department; Fire Pump Controller Replacement Project***.

Work includes removal and replacement of the existing fire pump controller as indicated on the Project Plans January 29th 2020 to [be added for bid issuance](#) (Sheets E0, E1, E2 and FP1) and attached specification as well as all supporting operations required to accomplish this Work.

Supporting operations include: Demolition, removal and disposal of existing fire pump controller, conduit and conductors as needed to complete the Work; Installation of new fire pump controller, conduit and conductors; disconnection and reconnection of pressure sensing and drain lines; and repair, and restoration of all architectural finishes, mechanical, electrical, communication utilities damaged or removed, including finish painting.

III. INSTRUCTIONS TO BIDDERS:

A. All work will be in conformance with: the "International Building Code", dated 2012, NFPA 70- National Electrical Code, and NFPA 72 – National Fire Alarm and Signaling Code.

B. RFP packets are available at the City Clerk's Office, City Hall, 6700 W. 26th Street, Berwyn, IL 60402, or at: https://www.berwyn-il.gov/bids_rfp.

C. A mandatory pre-bid site walk will be held on August 28th 2020 starting at 10:00am at the Berwyn Police Department to allow for observation of field conditions.

D. **Proposal forms are non-transferable.** Only those Proposals that have been obtained from, and with the approval of, the City of Berwyn will be accepted at the bid opening.

E. The Contractor will be required to pay Prevailing Wages in accordance with all applicable laws.

IV. AWARD CRITERIA AND REJECTION OF BIDS:

This Contract will be awarded to the lowest responsive and responsible bidder considering conformity with the terms and conditions established by the City in the Proposal and Contract documents. The issuance of Plans and Proposal forms for bidding based upon a pre-qualification rating shall not be the sole determinant of responsibility.

Be Advised: The City reserves the right to determine responsivity and responsibility at the time of award, to reject any and all Proposals, to re-advertise the proposed improvements, and to waive technicalities.

V. COMPETENCY OF PROPOSER:

No proposal may be accepted from or contract awarded to any person, firm or corporation who is in arrears or in default to the City of Berwyn upon any debt or contract. Prior failure of a proposer to perform faithfully on any previous contract or work for the City of Berwyn may be grounds for rejection. The Proposer must have not been suspended or debarred from doing business with the state and/or federal government. The Proposer, if requested, shall present evidence of performance ability and possession of necessary facilities, pecuniary resources and adequate insurance to comply with the terms of these proposal documents. Such evidence shall be presented within a specified time and to the satisfaction of the City of Berwyn.

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INSURANCE PROVISIONS:

Description: This item shall consist of the Contractor's efforts to protect the City (the "Owner"), Patrick Engineering Inc. (the "Engineer"), and any other parties listed herein, from any adverse actions that may result because of the construction activities by the Contractor or any of his Subcontractors. This shall include the Hold Harmless Provisions, as outlined below, and the necessary Insurance Provisions complete as described herein. All the following provisions are included:

Hold Harmless Provisions

To the fullest extent permitted by law, the Contractor hereby agrees to defend, indemnify, and hold the City and its agents and employees, Patrick Engineering Inc., and its agents and employees, and the Engineer's Consultants and their respective agents and employees, herein referred to as Indemnitees, from and against any and all claims for injuries, deaths, damages, losses, patent claims, suits, liabilities, judgments, economic losses and expenses, including but not limited to, attorney's fees arising out of or resulting from the performance of the Work under this Contract, provided that such claim, 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) including loss of use resulting therefrom, but only to the extent caused in whole or in part by negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, excluding any apportionate amount of any claim, damage, loss, or expense which is caused by a party indemnified hereunder. Such obligations shall not be construed as to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or persons described in this paragraph. The Contractor shall, at his own expense, appear, defend and pay all charges of attorneys and all costs and other expenses arising therefrom, or in connection therewith, and if any judgment shall be rendered against the Owner, its officials, agents, employees, or its Engineer, Patrick Engineering Inc., and its agents and employees, or their subcontractors in any action, the Contractor shall at his own expense satisfy and discharge the same.

In any claims against any person or entity indemnified under this paragraph 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 this paragraph shall not be limited by a limitation on the amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under worker's or workmen's compensation acts, disability benefits acts, or other employee benefit acts. Patrick Engineering Inc. and its subcontractors are intended to be a third-party beneficiary under this Contract.

The Contractor expressly understands and agrees that any performance bond or insurance policies required by this Contract, or otherwise provided by the Contractor, shall in no way limit the responsibility to indemnify, keep and save harmless and defend the Owner, its officials, agents, employees and its engineers, Patrick Engineering Inc., and its agents and employees, and Engineer's Consultants, its agents and employees as herein provided.

The Contractor further agrees, that to the extent that money is due the Contractor by virtue of this Contract, and as shall be considered necessary in the judgment of the Owner, funds may be retained by the Owner to protect itself and/or the Engineer against said loss until such claims, suits, or judgments shall have been settled or discharged and/or evidence to that effect shall have been furnished to the satisfaction of the Owner and the Engineer.

The Contractor and any Subcontractor engaged in the performance of any work on this project agree to assume the entire liability for all personal injury claims suffered by its own employees, including without limitation, claims asserted by persons allegedly injured on the Project, waives any limitation of liability defense based upon the Worker's Compensation Act, court interpretations of said Act or otherwise; and agree to indemnify and defend the Owner and the Engineer and their agents, employees, and consultants (the "Indemnitees") from and against all such loss, expense, damage or injury, including reasonable attorneys' fees, that the Indemnitees may sustain as a result of such claims, except to the extent that Illinois law prohibits indemnity for the Indemnitee's own negligence.

Insurance

Pursuant to the Hold Harmless Provisions as outlined above, the Contractor shall secure and maintain in effect at all times, at his expense, insurance of the following kinds and limits to cover all locations of the Contractor's operations, including all his Subcontractors, in connection with work on this Project. The Contractor shall furnish Certificates of Insurance to the Owner and to the Engineer **before starting construction**, or within ten (10) days after the execution of the Contract by the Owner, whichever date is reached first. **If the Contractor fails to meet this time requirement for submitting the insurance to the Owner and the Engineer, working days shall be assessed in accordance with Article 108.04 of the Illinois Department of Transportation Standard Specifications for Road and Bridge Construction, regardless of the fact that the Contractor may not commence with work due to his failure or inability to provide the necessary insurance as noted herein.** All insurance shall include a non-cancellation clause provision preventing cancellation without thirty (30) days written prior notice to the Owner and to the Engineer and shall remain in effect throughout the life of the project.

Please take note that all the insurance noted below is required. For example, the OWNER and Patrick Engineering Inc., must be named as additional insureds on a "primary, noncontributory basis" for Part 1 noted below, and all insurance noted under Parts 2, 3 and 4 below must be provided, unless specifically deleted for this Project.

A. Minimum Limits of Insurance

Contractor and his Subcontractors shall maintain limits no less than:

1. Contractors-
Commercial General Liability: \$1,000,000 combined single limit per occurrence for bodily injury, personal injury and property damage. The general aggregate shall be twice the required occurrence limit. Minimum General Aggregate shall be no less than \$2,000,000. The General Liability Policy shall include coverage for Contractual Liability and Broad Form Property Damage Coverage. OWNER and Patrick Engineering Inc. shall be named as Additional Insureds on a Primary Non-Contributory basis. All coverage afforded the "Additional Insureds" shall be for all ongoing and completed operations performed by the Contractor, their Subcontractor(s) and/or Supplier(s), and anyone directly or indirectly employed by them for all work associated with this project. The Policy will include a Per Project Aggregate Endorsement. Also, any "XCU Exclusions" shall be deleted.

The coverage to be afforded under this section is applicable to the work associated with the Project, as outlined in this document, for claims arising from the negligent

acts and/or omissions of the Contractor, their subcontractor(s) and/or supplier(s), and anyone directly or indirectly employed by them.

2. Automobile Liability: \$1,000,000 combined single limit per accident for bodily injury and property damage for any vehicle owned, leased, hired, or non-owned, used by the Contractor.
3. Workers' Compensation and Employer's Liability: Workers' Compensation limits and coverage for the specific type of work being performed as required by the Labor Code of the State of Illinois and Employers' Liability limits of \$1,000,000 per accident. The Policy will also include a Waiver of Subrogation in favor of the OWNER and Patrick Engineering Inc.

The coverage to be afforded under this section is applicable to the work associated with the project, as outlined in this document, for claims arising from the negligent acts and/or omissions of the Contractor, their subcontractor(s) and/or supplier(s), and anyone directly or indirectly employed by them.

4. Umbrella Liability: Umbrella Liability Policy for not less than \$5,000,000.

Insurance under Parts 5, 6 and 7 below will be required if indicated by an "X".

- _____ 5. Installation Floater: Contractor shall maintain "All Risk" coverage for construction materials going to the job site, at temporary storage locations, and at the job site.
- _____ 6. Builder's Risk: Shall insure against "All Risk" of physical damage for losses including but not limited to: fire, explosion, hail, lightning, vandalism, malicious mischief, wind, collapse, riot, aircraft, theft, smoke and water damage (flood and hydrostatic pressure not excluded), during the Contract time, on a completed value basis and in an amount not less than the Contract price totaled in the bid. The Policy will include "Theft of Building Materials" and "Soft Costs" coverages.
- _____ 7. Supplemental Insurance Coverage: Should the project require "supplemental" insurance coverage as deemed necessary by the Owner and/or Engineer, it shall be provided as outlined below:

<u>Type of Insurance</u>	<u>Limit Required</u>
a. _____	\$ _____
b. _____	\$ _____
c. _____	\$ _____

Note: If "Contractor's Pollution Liability Insurance" is required as indicated above, by the OWNER / the CITY OF BERWYN, shall be named as "Additional Insureds" on a Primary Non-Contributory basis on that policy.

B. Contractor's Deductibles and Self-Insured Retentions

Any deductibles or self-insured retentions shall be the sole responsibility of the Contractor.

C. **Other Insurance Provisions**

The policies are to contain, or be endorsed to contain, the following provisions:

All Coverages: Each insurance policy is required by this clause shall be endorsed to state that coverage shall not be suspended, voided, canceled, reduced in coverage or in limits except after thirty (30) days prior written notice has been given to the Owner and the Engineer. It shall be the Contractor's responsibility to insure said Notice is delivered to both the Owner and the Engineer by Certified Mail, "Return Receipt Requested".

D. **Acceptability of Insurers**

Insurance is to be placed with insurers with an A.M. Best's rating of A-, VIII, or higher.

E. **Verification of Coverage**

1. **Contractor's Insurance:**

Contractor shall furnish the Owner and the Engineer with "**Certificates of Insurance**" evidencing coverage required by this Section. The **Certificates** for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The **Certificates** shall be on standard forms provided by the insurance company or agent and to be received and approved by the Owner and Engineer **before any work commences**. The Owner reserves the right to request full certified copies of the insurance policies. No manuscript policies will be allowed. (SEE SAMPLE "CERTIFICATE OF INSURANCE" ENCLOSED HEREIN)

2. It should also be noted that the Contractor is required to provide all the coverages specified herein, as well as assume the obligations of the conditions and requirements as stated herein. **The mere acceptance of the Insurance Certificates/Binders by the Owner or the Engineer shall not relieve the Contractor from any obligation for providing the protection required in these Specifications.**

F. **Subcontractors**

Contractor shall include all Subcontractors as insureds under its policies or shall furnish separate **Certificates** for each Subcontractor. All coverages for Subcontractors shall be subject to all of the requirements stated herein.

Basis of Payment: This Work will not be paid for separately, but shall be considered incidental to the Contract. All insurance shall remain in full force and effect until the Project has been accepted by the Owner, acceptance being defined elsewhere in these Specifications. Failure to procure and maintain the required insurance coverage shall be considered a breach of contract.

ACORD	“SAMPLE” CERTIFICATE OF LIABILITY INSURANCE	Date (MM/DD/YY)
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PRODUCER <p style="text-align: center;">FULLY COMPLETED</p>	THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. <p style="text-align: center;">INSURERS AFFORDING COVERAGE</p> Insurer A: Name of Insurance Company Insurer B: Name of Insurance Company Insurer C: Name of Insurance Company Insurer D: Name of Insurance Company Insurer E: Name of Insurance Company
INSURED <p style="text-align: center;">FULLY COMPLETED</p>	

COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAME ABOVE FOR THE POLICY PERIOD INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN. THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INS LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE Date (MM/DD/YY)	POLICY EXPIRATION Date (MM/DD/YY)													
	GENERAL LIABILITY CG0001 <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> GEN. AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PROJECT <input type="checkbox"/> LOC	POLICY NUMBER	POLICY START DATE	POLICY END DATE	<table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>EACH OCCURRENCE</td><td style="text-align: right;">\$ 1,000</td></tr> <tr><td>FIRE DAMAGE (Any one fire)</td><td style="text-align: right;">\$ 100</td></tr> <tr><td>MED EXP (Any one person)</td><td style="text-align: right;">\$ 10</td></tr> <tr><td>PERSONAL & ADV INJURY</td><td style="text-align: right;">\$ 1,000</td></tr> <tr><td>GENERAL AGGREGATE</td><td style="text-align: right;">\$ 2,000</td></tr> <tr><td>PRODUCT-COMP/OP AGG</td><td style="text-align: right;">\$ 2,000</td></tr> </table>	EACH OCCURRENCE	\$ 1,000	FIRE DAMAGE (Any one fire)	\$ 100	MED EXP (Any one person)	\$ 10	PERSONAL & ADV INJURY	\$ 1,000	GENERAL AGGREGATE	\$ 2,000	PRODUCT-COMP/OP AGG	\$ 2,000
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	AUTOMOBILE LIABILITY CA0001 <input checked="" type="checkbox"/> ANY AUTO <input checked="" type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS <input type="checkbox"/> _____ <input type="checkbox"/> _____	POLICY NUMBER	POLICY START DATE	POLICY END DATE	<table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>COMBINED SINGLE LIMIT (Ea accident)</td><td style="text-align: right;">\$ 1,000</td></tr> <tr><td>BODILY INJURY (Per person)</td><td style="text-align: right;">\$</td></tr> <tr><td>BODILY INJURY (Per accident)</td><td style="text-align: right;">\$</td></tr> <tr><td>PROPERTY DAMAGE (Per accident)</td><td style="text-align: right;">\$</td></tr> </table>	COMBINED SINGLE LIMIT (Ea accident)	\$ 1,000	BODILY INJURY (Per person)	\$	BODILY INJURY (Per accident)	\$	PROPERTY DAMAGE (Per accident)	\$				
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	GARAGE LIABILITY <input type="checkbox"/> ANY AUTO <input type="checkbox"/> _____	POLICY NUMBER	POLICY START DATE	POLICY END DATE	<table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>AUTO ONLY-EA ACCIDENT</td><td style="text-align: right;">\$</td></tr> <tr><td>OTHER THAN AUTO ONLY:</td><td style="text-align: right;">EA ACC \$</td></tr> <tr><td></td><td style="text-align: right;">AGG \$</td></tr> </table>	AUTO ONLY-EA ACCIDENT	\$	OTHER THAN AUTO ONLY:	EA ACC \$		AGG \$						
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	EXCESS LIABILITY <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS MADE <input type="checkbox"/> DEDUCTIBLE <input type="checkbox"/> RETENTION \$	POLICY NUMBER	POLICY START DATE	POLICY END DATE	<table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>EACH OCCURRENCE</td><td style="text-align: right;">\$ 2,000</td></tr> <tr><td>AGGREGATE</td><td style="text-align: right;">\$ 2,000</td></tr> <tr><td></td><td style="text-align: right;">\$</td></tr> </table>	EACH OCCURRENCE	\$ 2,000	AGGREGATE	\$ 2,000		\$						
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	WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY	POLICY NUMBER	POLICY START DATE	POLICY END DATE	<table border="1" style="width:100%; border-collapse: collapse;"> <tr><td><input checked="" type="checkbox"/> WC STATUTORY LIMITS</td><td>OTHER</td><td></td></tr> <tr><td>EACH ACCIDENT</td><td></td><td style="text-align: right;">\$ 1,000</td></tr> <tr><td>DISEASE-POLICY LIMIT</td><td></td><td style="text-align: right;">\$ 1,000</td></tr> <tr><td>DISEASE-EA EMPLOYEE</td><td></td><td style="text-align: right;">\$ 1,000</td></tr> </table>	<input checked="" type="checkbox"/> WC STATUTORY LIMITS	OTHER		EACH ACCIDENT		\$ 1,000	DISEASE-POLICY LIMIT		\$ 1,000	DISEASE-EA EMPLOYEE		\$ 1,000
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DISEASE-EA EMPLOYEE		\$ 1,000															
	OTHER																

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/EXCLUSIONS ADDED BY ENDORSEMENT/SPECIAL PROVISIONS

OWNER: CITY OF BERWYN PROJECT DESCRIPTION: CITY HALL ALLEY REPLACEMENT, BERWYN, IL
 "Certificate Holders" are "Additional Insureds" on a Primary Non-Contributory Basis with respect to the General Liability only.
 "Waiver of Subrogation" is provided on the Workers' Compensation coverage in favor of the CERTIFICATE HOLDER(S). No endorsements or additional forms shall modify or limit the coverage provided to the "ADDITIONAL" INSURED(S).

CERTIFICATE HOLDER <input checked="" type="checkbox"/> Additional Insured, Insurer Letter: OWNER (Including its officials, employees and volunteers)	CANCELLATION SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES. AUTHORIZED REPRESENTATIVE <div style="text-align: right;">Authorized Signature</div>
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GENERAL PROVISIONS

ADDITIONS TO AND/OR DELETIONS FROM THE CONTRACT

These Plans and Specifications have been prepared and approved by the Owner for a project that may exceed the amount budgeted. However, the Owner has decided to solicit Bids in an effort to better determine the expected cost. After Bids are received, the Owner will make a determination as to whether the amount of the successful Bid is within, or in excess of, the budget.

Additions/Deductions:

If Bids are opened and found to be within the amount budgeted for the Project, a Contract will be awarded in the full amount of the Bid. The Owner retains the right to select or deduct any bid options requested to meet budgetary constraints.

CONTRACTOR QUALIFICATIONS

The Contractor must be qualified and demonstrate the capability to perform the Work required in accordance with the Project drawings and specifications. The Contractor should be able to demonstrate prior experience with a minimum of two projects of similar scope and scale within the last five years.

In addition, the Contractor must be able to meet the requirements of *Berwyn City Ordinance 17-22, An Ordinance Establishing Responsible Bidder Requirements on Public Works Construction Projects*.

(Ordinance Link:

[http://library.amlegal.com/nxt/gateway.dll?f=id\\$id=0-0-0-27393\\$t=document-frame.htm\\$3.0\\$p=\)](http://library.amlegal.com/nxt/gateway.dll?f=id$id=0-0-0-27393$t=document-frame.htm3.0p=))

Documentation required by Berwyn Code of Ordinances, Part Two, Title Two, Chapter 208 will be requested of the selected bidder prior to award and need not be included in the bid submission.

PAYMENT OF EMPLOYEES; PREVAILING WAGE RATES

The Contractor, and its Subcontractors, shall comply with the Prevailing Wage Act (820 ILCS 130/1 et seq.), as amended. The Contractor, and each Subcontractor, shall keep, or cause to be kept, an accurate record showing the names and occupation of all laborers, workers and mechanics employed by the Contractor or its Subcontractors, in connection with the Work and showing the actual hourly wages paid to each such person. The submittal of an invoice or payment request to the City shall constitute the Contractor's certification to the City that all the wages paid for the Work covered by the invoice or payment request have been paid in compliance with the Prevailing Wage Act. Upon the written request of the City, the Contractor, and its Subcontractors, shall provide a complete and accurate copy of the records establishing compliance with the Prevailing Wage Act and this paragraph.

This contract calls for the construction of a "public work," within the meaning of the Illinois Prevailing Wage Act, 820 ILCS 130/01 *et. seq.* ("the Act"). The Act requires contractors and subcontractors to pay laborers, workers and mechanics performing services on public works projects no less than the "prevailing rate of wages" (hourly cash wages plus fringe benefits) in the county where the work is performed. For information regarding current prevailing wage rates, please refer to the Illinois Department of Labor's website at:

<https://www2.illinois.gov/idol/Laws-Rules/CONMED/Pages/2018-Rates.aspx>.

All contractors and subcontractors rendering services under this contract must comply with all requirements of the Act, including but not limited to, all wage, notice and record keeping duties.

It is the responsibility of the Contractor to check the above-mentioned website for the most up to date wages for that month in which the work has taken place and to pay accordingly. Further, it is the responsibility of the Contractor to supply the City of Berwyn with certified payrolls for all work related to this contract. If you are unsure as to what a certified payroll sheet is that must be supplied, you may find one at the above-mentioned website

COOK COUNTY PREVAILING WAGE For December 2018

Trade Title	Type	Class	Base Wage	Foreman Wage	OT M-F	OT Sa	OT Su	OT Hol	H/W	Pension	Vacation	Training	Other Benefits
ASBESTOS ABT-GEN	ALL		42.72	43.72	1.5	1.5	2	2	14.90	12.57	0.00	0.72	0.00
ASBESTOS ABT-MEC	BLD		37.88	40.38	1.5	1.5	2	2	12.92	11.82	0.00	0.72	0.00
BOILERMAKER	BLD		49.46	53.91	1.5	1.5	2	2	6.97	20.40	0.00	1.60	0.00
BRICK MASON	BLD		46.19	50.81	1.5	1.5	2	2	10.65	17.92	0.00	0.92	0.00
CARPENTER	ALL		47.35	49.35	1.5	1.5	2	2	11.79	20.41	0.00	0.63	0.00
CEMENT MASON	ALL		45.25	47.25	2	1.5	2	2	14.25	17.03	0.00	1.10	1.36
CERAMIC TILE FNHSR	BLD		39.56	39.56	1.5	1.5	2	2	10.75	12.02	0.00	0.77	0.00
COMM. ELECT.	BLD		43.96	46.76	1.5	1.5	2	2	9.85	13.26	1.25	0.85	0.00
ELECTRIC PWR EQMT OP	ALL		51.90	56.90	1.5	1.5	2	2	12.04	17.18	0.00	3.23	0.00
ELECTRIC PWR GRNDMAN	ALL		40.48	56.90	1.5	1.5	2	2	9.39	13.40	0.00	2.51	0.00
ELECTRIC PWR LINEMAN	ALL		51.90	56.90	1.5	1.5	2	2	12.04	17.18	0.00	3.23	0.12
ELECTRICIAN	ALL		48.35	51.35	1.5	1.5	2	2	15.13	16.52	1.25	1.28	0.00
ELEVATOR CONSTRUCTOR	BLD		54.85		2	2	2	2	15.43	16.61	4.39	0.61	0.00
FENCE ERECTOR	ALL		40.88	42.88	1.5	1.5	2	1.5	13.59	14.76	0.00	0.65	0.00
GLAZIER	BLD		43.85	45.35	1.5	2	2	2	14.37	21.11	0.00	0.94	0.00
HT/FROST INSULATOR	BLD		50.50	53.00	1.5	1.5	2	2	12.92	13.16	0.00	0.87	0.00
IRON WORKER	ALL		48.33	51.83	2	2	2	2	14.15	23.28	0.00	0.35	0.00
LABORER	ALL		42.72	43.47	1.5	1.5	2	2	14.90	12.57	0.00	0.72	0.00
LATHER	ALL		47.35	49.35	1.5	1.5	2	2	11.79	20.41	0.00	0.63	0.00
MACHINIST	BLD		48.38	50.88	1.5	1.5	2	2	7.23	8.95	1.85	1.32	0.00
MARBLE FINISHERS	ALL		34.65	47.70	1.5	1.5	2	2	10.65	16.46	0.00	0.49	0.00
MARBLE MASON	BLD		45.43	49.97	1.5	1.5	2	2	10.65	17.39	0.00	0.61	0.00
MATERIAL TESTER I	ALL		32.72	32.72	1.5	1.5	2	2	14.90	12.57	0.00	0.72	0.00
MATERIALS TESTER II	ALL		40.37		1.5	1.5	2	2	18.55	8.85	0.00	1.10	1.50
MILLWRIGHT	ALL		46.35	48.35	1.5	1.5	2	2	13.05	18.87	0.00	0.00	0.00
OPERATING ENGINEER	BLD	1	51.10	55.10	2	2	2	2	19.65	15.10	2.00	1.40	0.00
OPERATING ENGINEER	BLD	2	49.80	55.10	2	2	2	2	19.65	15.10	2.00	1.40	0.00
OPERATING ENGINEER	BLD	3	47.25	55.10	2	2	2	2	19.65	15.10	2.00	1.40	0.00
OPERATING ENGINEER	BLD	4	45.50	55.10	2	2	2	2	19.65	15.10	2.00	1.40	0.00
OPERATING ENGINEER	BLD	5	54.85	55.10	2	2	2	2	19.65	15.10	2.00	1.40	0.00
OPERATING ENGINEER	BLD	6	53.10		2	2	2	2	0.00	0.00	0.00	0.00	36.45
OPERATING ENGINEER	BLD	7	54.10	55.10	2	2	2	2	19.65	15.10	2.00	1.40	0.00
OPERATING ENGINEER	FLT	1	57.05	57.05	1.5	1.5	2	2	18.80	14.35	2.00	1.30	0.00
OPERATING ENGINEER	FLT	2	55.55	57.05	1.5	1.5	2	2	18.80	14.35	2.00	1.30	0.00
OPERATING ENGINEER	FLT	3	49.45	57.05	1.5	1.5	2	2	18.80	14.35	2.00	1.30	0.00
OPERATING ENGINEER	FLT	4	41.10	57.05	1.5	1.5	2	2	18.80	14.35	2.00	1.30	0.00
OPERATING ENGINEER	FLT	5	58.55	57.05	1.5	1.5	2	2	18.80	14.35	2.00	1.30	0.00
OPERATING ENGINEER	FLT	6	38.00	57.05	1.5	1.5	2	2	18.80	14.35	2.00	1.30	0.00
OPERATING ENGINEER	HWY	1	49.30	53.30	1.5	1.5	2	2	19.65	15.10	2.00	1.40	1.13
OPERATING ENGINEER	HWY	2	48.75	53.30	1.5	1.5	2	2	19.65	15.10	2.00	1.40	0.00
OPERATING ENGINEER	HWY	3	46.70	53.30	1.5	1.5	2	2	19.65	15.10	2.00	1.40	0.00
OPERATING ENGINEER	HWY	4	51.20		1.5	1.5	2	2	18.00	21.28	1.50	0.15	0.00
OPERATING ENGINEER	HWY	5	44.10	53.30	1.5	1.5	2	2	19.65	15.10	2.00	1.40	0.00
OPERATING ENGINEER	HWY	6	52.30	53.30	1.5	1.5	2	2	19.65	15.10	2.00	1.40	0.00
OPERATING ENGINEER	HWY	7	50.30	53.30	1.5	1.5	2	2	19.65	15.10	2.00	1.40	0.00
ORNAMNTL IRON WORKER	ALL		48.05	50.55	2	2	2	2	14.09	20.59	0.00	1.25	0.38
PAINTER	ALL		46.55	52.36	1.5	1.5	1.5	2	11.81	11.94	0.00	1.87	0.00
PAINTER SIGNS	BLD		39.24	0.00	1.5	1.5	1.5	2	2.60	3.18	0.00	0.00	0.00
PILEDRIIVER	ALL		47.35	49.35	1.5	1.5	2	2	11.79	20.41	0.00	0.63	0.00
PIPEFITTER	BLD		48.50	51.50	1.5	1.5	2	2	10.05	18.85	0.00	2.54	0.00
PLASTERER	BLD		43.25	45.85	1.5	1.5	2	2	14.25	16.69	0.00	1.35	0.00
PLUMBER	BLD		50.25	53.25	1.5	1.5	2	2	14.34	14.42	0.00	1.31	0.00
ROOFER	BLD		43.65	47.65	1.5	1.5	2	2	9.73	12.44	0.00	0.53	0.00
SHEETMETAL WORKER	BLD		44.25	47.79	1.5	1.5	2	2	11.35	24.68	0.00	1.68	0.00
SIGN HANGER	BLD		31.31		1.5	1.5	2	2	4.85	3.28	0.00	0.00	0.00
SPRINKLER FITTER	BLD		48.10	50.60	1.5	1.5	2	2	13.25	15.90	0.00	0.68	0.00
STEEL ERECTOR	ALL		42.07	44.07	2	2	2	2	13.45	19.59	0.00	0.35	
STONE MASON	BLD		46.19	50.81	1.5	1.5	2	2	10.65	17.92	0.00	0.92	0.00
TERRAZZO FINISHER	BLD		41.54	44.54	1.5	1.5	2	2	10.75	13.71	0.00	0.86	0.00
TERRAZZO MASON	BLD		45.38	48.88	1.5	1.5	2	2	10.75	15.17	0.00	0.89	0.00
TILE MASON	BLD		46.49	50.49	1.5	1.5	2	2	10.75	14.99	0.00	0.90	0.00
TRAFFIC SAFETY WRKR	HWY		37.00	38.60	1.5	1.5	2	2	8.90	9.27	0.00	0.50	0.00
TRUCK DRIVER	ALL	1	37.69		1.5	1.5	2	2	10.50	8.50	0.00	0.15	0.00
TRUCK DRIVER	ALL	2	36.13		1.5	1.5	2	2	18.85	8.85	0.00	2.60	0.00
TRUCK DRIVER	ALL	3	40.34		1.5	1.5	2	2	10.47	12.50	0.00	0.50	2.81
TRUCK DRIVER	ALL	4	38.16		1.5	1.5	2	2	8.90	11.16	0.00	0.50	0.00
TRUCK DRIVER	ALL	1	35.60		1.5	1.5	2	2	8.60	10.61	1.00	0.15	1.00
TRUCK DRIVER	ALL	2	36.70	37.10	1.5	1.5	2	2	9.68	13.25	0.00	0.15	0.00
TRUCK DRIVER	ALL	3	36.90		1.5	1.5	2	2	9.68	13.25	0.00	0.15	0.00
TRUCK DRIVER	ALL	4	37.10		1.5	1.5	2	2	9.68	13.25	0.00	0.15	0.00
TUCKPOINTER	BLD		46.00	48.00	1.5	1.5	2	2	8.34	16.81	0.00	0.93	0.00

Explanations

COOK COUNTY

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

TRUCK DRIVERS (WEST) - That part of the county West of Barrington Road.

EXPLANATION OF CLASSES

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

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

CERAMIC TILE FINISHER

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 ELECTRICIAN

Installation, operation, inspection, maintenance, repair and service of radio, television, recording, voice sound vision production and reproduction, telephone and telephone interconnect, facsimile, data apparatus, coaxial, fibre optic and wireless equipment, appliances and systems used for the transmission and reception of signals of any nature, business, domestic, commercial, education, entertainment, and residential purposes, including but not limited to, communication and telephone, electronic and sound equipment, fibre optic and data communication systems, and the performance of any task directly related to such installation or service whether at new or existing sites, such tasks to include the placing of wire and cable and electrical power conduit or other raceway work within the equipment room and pulling wire and/or cable through conduit and the installation of any incidental conduit, such that the employees covered hereby can complete any job in full.

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 75 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 Flows; 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

Class 1. Craft Foreman; Master Mechanic; Diver/Wet Tender; Engineer; Engineer (Hydraulic Dredge).

Class 2. Crane/Backhoe Operator; Boat Operator with towing endorsement; Mechanic/Welder; Assistant Engineer (Hydraulic Dredge); Leverman (Hydraulic Dredge); Diver Tender.

Class 3. Deck Equipment Operator, Machineryman, Maintenance of Crane (over 50 ton capacity) or Backhoe (115,000 lbs. or more); Tug/Launch Operator; Loader/Dozer and like equipment on Barge, Breakwater Wall, Slip/Dock, or Scow, Deck Machinery, etc.

Class 4. Deck Equipment Operator, Machineryman/Fireman (4 Equipment Units or More); Off Road Trucks; Deck Hand, Tug Engineer, Crane Maintenance (50 Ton Capacity and Under) or Backhoe Weighing (115,000 pounds or less); Assistant Tug Operator.

Class 5. Friction or Lattice Boom Cranes.

Class 6. ROV Pilot, ROV Tender

SURVEY WORKER - Operated survey equipment including data collectors, G.P.S. and robotic instruments, as well as conventional levels and transits.

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.

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.

TRUCK DRIVER - BUILDING, HEAVY AND HIGHWAY CONSTRUCTION - EAST & WEST

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.

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".

Partial Payments by The City:

No later than forty-five (45) days following the submission of the application for payment, the City shall pay to the Contractor for the amount of the work contained in the application which has been found by the City to have been actually performed less ten percent (10%) of such amount which shall be retained until final payment less other deductions authorized to be retained by other sections of these General Provisions. The Contractor is responsible to submit all appropriate partial waivers of lien with each pay request.

Final Payment:

After final inspection by the City, the Contractor shall prepare his application for Final Payment and submit it to the City for approval. The application for Final Payment shall contain the total cost of the Work as set forth in the proposal less all previous payments to the Contractor and be adjusted by the cost of all authorized Change Orders. Such application shall have attached thereto all persons having supplied labor and materials under this contract. The City shall pay to the Contractor, not later than forty-five (45) days after such application is made, the amount, which the City finds to be due, and owing less deductions authorized by these General Provisions.

No Waivers:

Neither by partial or final payment will the City be deemed to have waived any remedy for defective work or negligence on the part of the Contractor or any other portion of the Contract, which by its nature survives the time of Final Payment.

Familiarity with Site, Plans, Specifications and Drawings:

The Contractor represents that he has thoroughly acquainted himself as to the conditions of the site, and with the meaning and accuracy of the plans, specifications and drawings. The Owner shall not be responsible for any claims made by the Contractor due to claimed unfamiliarity or inaccuracies.

Errors and Omissions:

If the Contractor discovers any error of the omission in the plans, drawing or specifications or in the Work undertaken and performed by him, he shall immediately notify the City and the City shall promptly verify or correct the plans, drawings and specifications. The Contractor's notifications shall be in writing and copy of his transmittal shall be forwarded to the Owner.

Actual Performance:

- **Superintendence:**
The Contractor shall give his personal superintendence to the Work and have at the site of the Work at all times a competent foreman, superintendent or other representative having authority to act for the Contractor.
- **Employees:**
The Contractor shall not hire or keep in employment any incompetent employees.
- **Working Hours and Public Police Department Hours of Operation:**
The Berwyn Police Department is open seven days a week.

The bidders are required to submit prices based on the following:

1. Assume that the Selected Contractor is required to perform work on Monday through Friday. 7:00 am to 5:00 pm.

- **Materials And Workmanship – Quality:**
 - (a) **Materials:** Unless otherwise specifically called for in the specifications, all equipment, materials and articles incorporated in the Work covered by this Contract shall be new and of the best grade, When called for by the City, the Contractor shall at no cost furnish to the City for approval full information concerning the materials, equipment or articles to be incorporated in the Work, including reasonable samples or test results when customary.
 - (b) **Workmanship:** All work performed shall be performed and accomplished in a first class and workmanlike manner to the satisfaction of the City and in accordance with the best practice and standards recognized in the field.
- **Materials And Workmanship – Guarantee:**
The Contractor guarantees the equipment, materials, articles and workmanship used in the Work or performed to be free from defects, suitable for the purpose intended and merchantable. He shall correct defective works and replace defective materials at his own cost, which becomes apparent within one (1) year from the date such defective work or materials should have been reasonably discovered.
- **Compliance With Law, Notices, Permits:**
The Contractor shall give all notices required by, and comply with, all applicable laws and ordinances of the City and the State of Illinois. Should the Contractor fail to observe the aforementioned laws or ordinances and do work at variance with any applicable law or ordinances, the Contractor shall correct the methods of doing such work without the cost to the City, even if such deficiency is discovered after the date of final inspection or payment. Upon execution of the contract with the City, the City shall simultaneously issue permits under the jurisdiction of the City necessary for the Work to be performed.
- **Sanitary Facilities:**
The Contractor shall NOT BE REQUIRED TO furnish, install and maintain sanitary facilities for the workers. The workers will be allowed to utilize the proper Berwyn Police

Department's locker room bathrooms. The workers are advised to treat the bathroom like it is their own.

- **Use of the Site:**

- (1) The Contractor shall confine his equipment, storage materials, and operations to the limits prescribed by ordinances or permits, or as may be directed by the City, and shall not unreasonably encumber the site.
- (2) The Contractor shall comply with all reasonable instructions of the City, and the ordinances and codes of the City regarding signs, advertising, traffic, fires, explosives, danger, signals, barricades, and fire prevention.
- (3) Additional construction work may be in progress by others. The Contractor must coordinate tasks with the City, other contractors and vendors to minimize conflict and facilitate work being completed in the allocated area.

- **Cutting and Patching:**

- (a) The Contractor shall do all cutting, fitting, or patching of his work that may be required to complete the scope of work required or reasonably implied by, the Plans and Specifications for the completed Project and he shall make good after them as may be directed by the City.
- (b) Any cost caused by defective or ill-timed work shall be borne by the party responsible therefore.
- (c) The Contractor shall not cut, dig, burn, weld, otherwise alter, or modify the work of any other contractor without the consent of the City.
- (d) All cutting, fitting or patching shall be accomplished by only skilled tradesmen in their respective craft area.

- **Existing Materials:**

All existing materials and equipment removed under this Contract shall become the property of the Contractor.

- **Construction Phase Services:**

After the design has been approved for permit, the Contractor shall construct the improvements in accordance with the design drawings. Contractor shall provide an updated project schedule, written narrative of sequence of construction activities, Site safety plan, and Site security plan prior to the start of Construction. Contractor shall coordinate closely with the City and provide daily progress reports throughout the job. Contractor shall protect all existing equipment, MEP, and communication elements from damage. Contractor is responsible for the replacement/repair of all damaged elements including but not limited to drywall finishes. All repaired finishes shall match existing finishes.

- **Cleaning Up:**

Daily and Continuous cleaning up on this project is a HIGH PRIORITY. The Contractor shall at all times keep the Site free from accumulations of waste materials or rubbish caused by his employees or the work; and at the completion of the work he shall remove all his rubbish from the Site and all his tools, equipment ladders or scaffolding and surplus materials, and shall leave his work clean and ready for use to the satisfaction of the City. In case of dispute, the City may remove the rubbish and surplus materials and charge the cost to the Contractor.

Safety and Protection:

- **Protection of Work**

The Contractor shall continuously maintain adequate protection of all the Work from damage and shall protect the Berwyn Police Department and its Patrons and its Employees and adjacent property from injury and/or damage arising in connection with this Contract.

- **Care of Existing Property**

All pipes, wires, conduits, structures and other property shall be supported and protected from injury by the Contractor during the work performed under this contract. The Contractor shall be liable for all damages to such facilities, structures, and property and shall save and keep the said Owner harmless from any liability, expense, damages, or repairs to same.

- **Accident Prevention:**

The Contractor shall exercise all reasonable precaution at all times for the protection of all Berwyn Police Department Patrons, City Employees, and Workers and shall be responsible for all damages to persons or property, either on or off the Site, which occur as a result of his fault or negligence in connection with the prosecution of the Work. Final payment or inspection shall not be deemed a waiver of contractor's responsibility. The safety provisions of applicable law and building and construction codes shall be observed and the Contractor shall take or cause to be taken such additional safety and health measure as the City may determine to be reasonably necessary. Machinery, equipment and all hazards shall be guarded in accordance with the safety provisions of the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of America, Inc., to the extent that such provisions are not in conflict with applicable local laws or such other generally recognized accident prevention manual as is applicable in the trade.

- **OSHA:**

The Contractor shall observe and enforce upon subcontractors all applicable sections of the Occupational Safety and Health Act of 1970 as amended and shall be subject to inspection by authorized officials for compliance.

- **Contractor Parking:**
The Contractor will coordinate with and obtain approval from the City of Berwyn Chief of Police to determine where the Contractor's Workers shall park their vehicles during their work hours.
- **Special Requirements:**
 - (a) **Fire Protection:** If any temporary heating devices are required which are of the open flame type, with the exposed fuel below the flames and using such fuels as coke, oil or wood, are strictly forbidden. These temporary heating devices shall not be left unattended while being operated at night or non-work days or shifts. All tarpaulins used for enclosures around structures or work areas shall be flame proofed.
 - (b) **Grounding of Electrical Equipment:** All electrical construction equipment, including portable hand tools and all other apparatus, shall be grounded by a separate ground conductor (other than the service cords) or by multiple cord containing separate grounding conductor, all in accordance with requirements of the latest edition of the National Electrical Code.

Subcontractors:

- **No Contractual Relationship:**
Nothing contained in the Contract Documents shall create any contractual relationship between any Subcontractor and the City.
- **Applicability of Contract Documents:**
The Contractor agrees to bind every Subcontractor (and every subcontractor of a Subcontractor) and every Subcontractor agrees to be bound by the terms of these Contract Documents as far as applicable to his work, unless specifically noted to the contrary in a sub-contract approved in writing as adequate by the City.
- **Responsibility of Contractor:**
The Contractor agrees to be fully responsible to the City for the acts or omissions of his Subcontractors and of anyone employed directly or indirectly by him or them and this contract obligation shall be in addition to the liability imposed by law upon the Contractor.

Questions regarding Project and Contract Document:

If questions arise regarding this Project or this Contract Document, please contact:

Jeffery Pleiter
Patrick Engineering Inc.
4970 Varsity Drive
Lisle, IL 60532
jpleiter@patrickco.com
630-795-7200

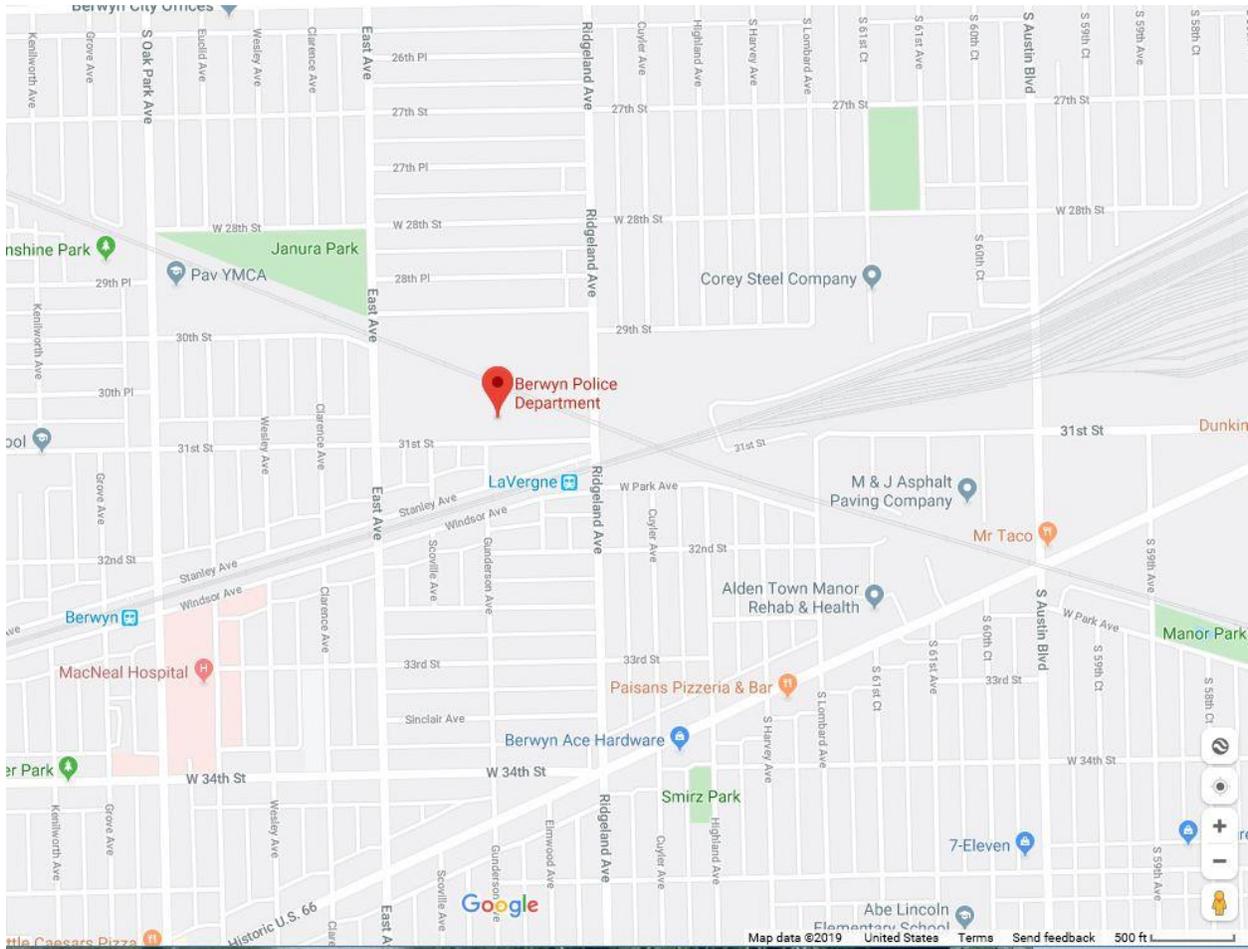
Brief Statement of Scope and City's Intent:

The City of Berwyn is seeking to retain the services of a qualified General Contractor. This assignment is to remove and replace the fire pump controller in the Berwyn Police Department. The brief of scope includes but is not limited to the following:

- ✚ Disconnect existing power and controls from the fire pump controller
- ✚ Remove existing feeders back to the source
- ✚ Disconnect fire alarm connection to fire pump controller
- ✚ Remove conduit and conductors from existing controller to fire pump
- ✚ Disconnect fire pump controller system pressure sensing line and drain line from fire pump controller
- ✚ Provide and install new fire pump controller
- ✚ Reconnect fire alarm system to new fire pump controller
- ✚ Provide new conduit and conductors to fire pump
- ✚ Modify as necessary and reconnect pressure sensing line and drain line

Project Location:

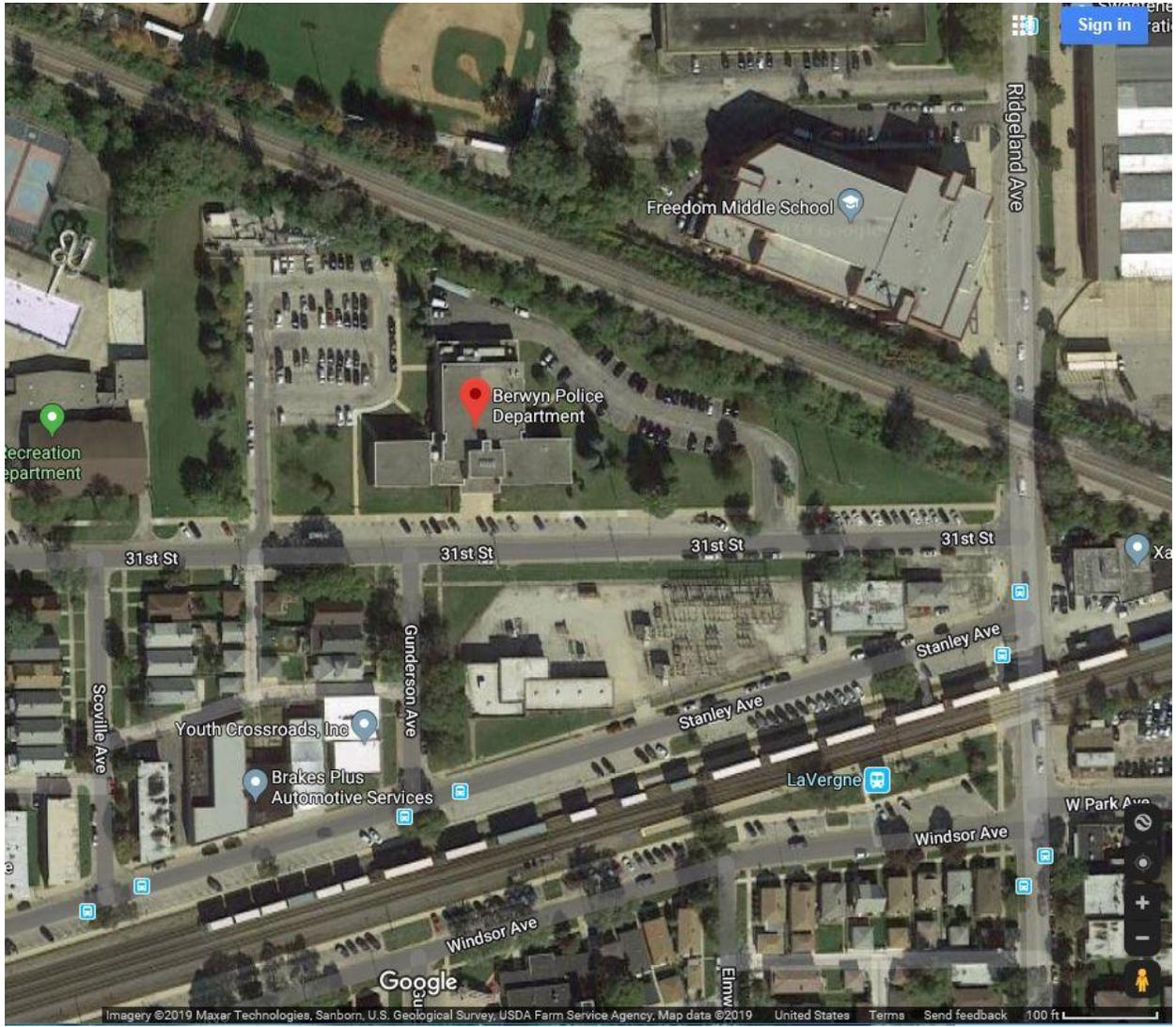
The Berwyn Police Department is located at 6401 W. 31st Street, Berwyn, IL 60402.



Location Map

Site Map:

The Berwyn Police Department



Site Map

Project Schedule:

It is anticipated that the **BERWYN POLICE DEPARTMENT: FIRE PUMP CONTROLLER REPLACEMENT PROJECT** will be procured and installed in accordance with the following schedule:

- ❖ Advertise the Project on August 18th , 2020
- ❖ Mandatory Pre-Bid Site Walk at 10:00a.m. On August 28th, 2020 at the Berwyn Police Department, 6401 W. 31st Street, Berwyn, Illinois.
- ❖ Proposals are Due no later than 10:00 am on September 9th, 2020
- ❖ Notice to Proceed on September 25th, 2020
- ❖ Complete Construction within 60 days of award.

Within two (2) days after the notice to proceed has been issued, the Contractor shall supply to the City a written progress schedule specifying when the various phases of the work are to be completed. Such schedule shall be posted at all times at the Site of the Work and strictly adhered to.

Beginning Work:

The Contractor shall begin the work within five (5) calendar days after the Contract has been executed by the City and notice has been given to them.

Completion of Work:

The Contractor shall fully complete the Work to the satisfaction of the City within the time period specified in the proposal. Time is of the essence of this Contract. All work shall be prosecuted in an orderly and diligent manner. The Contractor shall cooperate with and conform to the requests of the City to expedite particular portions of the Work where such alteration of the Contractor's operation is deemed advisable by the City.

In the event no notice has been given but the work has nevertheless commenced, then such time shall begin to run from the actual commencement of work.

Delays:

If the Contractor is delayed in the completion of the Work by any act of neglect of the City or by any other contractor employed by the City, or by strikes, fire, lockouts, unavoidable casualties or any cause beyond the Contractor's control, then the time of completion will be extended for a reasonable time, such reasonable time the City shall decide. The Contractor shall, within five (5) days from the beginning of any such delay notify the City in writing of the cause of delay and therein specify the number of days of extension requested. If such request is not made as herein provided, it shall be deemed waived. Weather conditions shall not be justifiable cause for delay.

Progress Reports:

At the end of each day, the Contractor shall meet with the City's representative on the City's premises to detail performance on the Work and to report on compliance or noncompliance with the progress schedule. If the opinion of the City, the Contractor has fallen behind the progress schedule, the Contractor shall take such steps as may be necessary to improve the progress. The City may require the Contractor to increase the number of shifts or overtime operations without addition to the Contract price.

Existing Conditions:

Proposed construction is to occur in an active police station. The Contractor shall adhere to all access and security requirements as required by the City. Refer to the Drawings for existing Site conditions.

CITY OF BERWYN, IL

POLICE STATION FIRE PUMP CONTROLLER REPLACEMENT

INDEX OF DRAWINGS

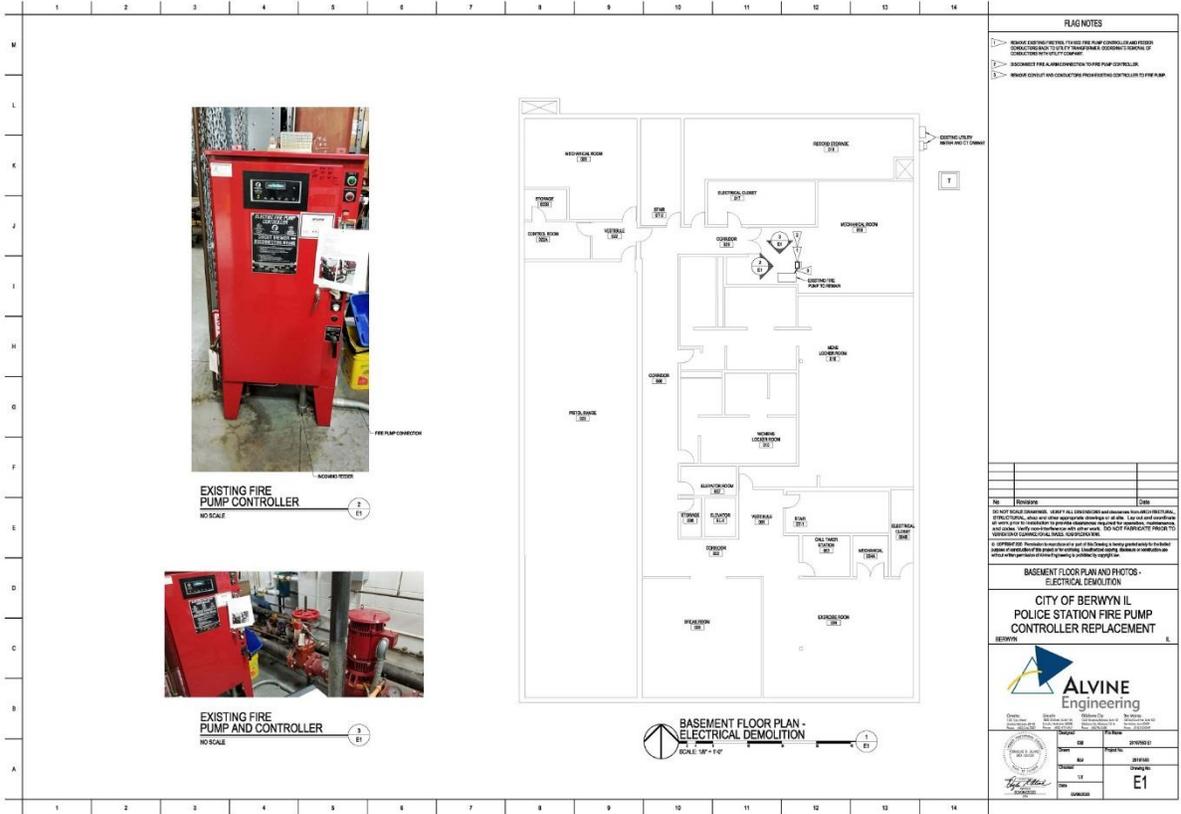
ELECTRICAL		FIRE PROTECTION	
SHEET NUMBER	DESCRIPTION	SHEET NUMBER	DESCRIPTION
E0	ELECTRICAL SYMBOLS AND ABBREVIATIONS	FP1	PARTIAL BASEMENT FLOOR PLANS AND PHOTOS - FIRE PROTECTION
E1	BASEMENT FLOOR PLAN AND PHOTOS		
E2	BASEMENT FLOOR PLAN, DETAILS, AND SCHEDULES		



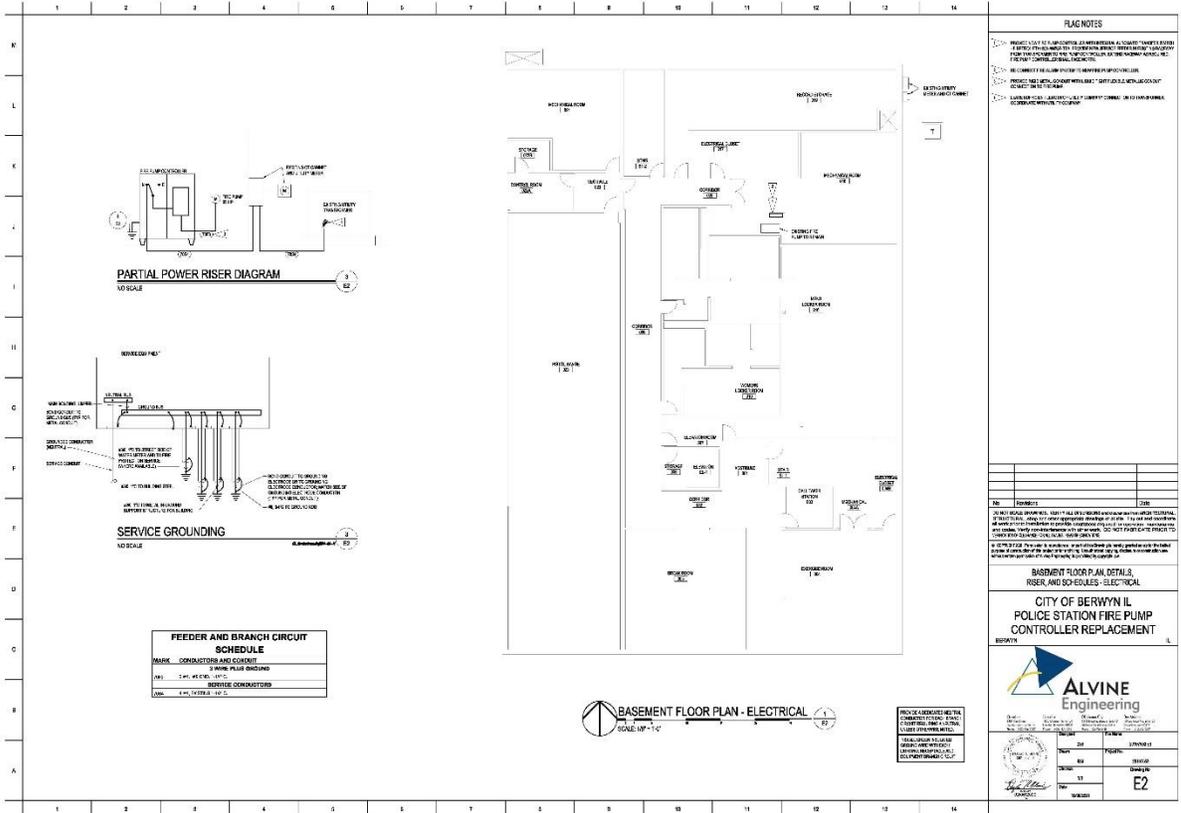
RELEASED FOR BID
FEBRUARY 6, 2020
20187593



Sheet E1



Sheet E2



Specifications

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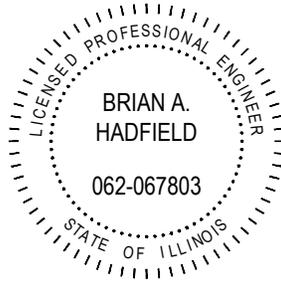
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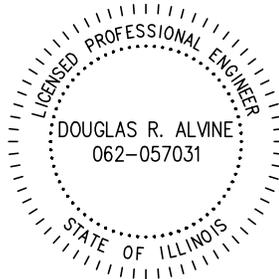
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SEALS AND SIGNATURES



expires 11-30-2021

signature
02/06/2020
date



expires 11/30/2021

signature
02/06/2020
date

SECTION 21 05 00

COMMON WORK RESULTS FOR FIRE SUPPRESSION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Pipe, Fittings, Hangers, and connections for sprinkler systems.

1.2 REFERENCE STANDARDS

- A. NFPA 20 - Standard for the Installation of Stationary Pumps for Fire Protection; 2019
- B. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings.
- C. ASTM B43 - Standard Specification for Seamless Red Brass Pipe, Standard Sizes.
- D. ASTM B75/B75M - Standard Specification for Seamless Copper Tube.
- E. ASTM B88 - Standard Specification for Seamless Copper Water Tube.
- F. ASTM B88M - Standard Specification for Seamless Copper Water Tube (Metric).
- G. AWS A5.8M/A5.8 - Specification for Filler Metals for Brazing and Braze Welding.
- H. UL (DIR) - Online Certifications Directory.

1.3 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 work of the type specified in this section.
 - 1. Minimum three years experience.
- C. Conform to UL (DIR) requirements.
- D. Valves: Bear UL (DIR) product listing label or marking. Provide manufacturer's name and pressure rating marked on valve body.
- E. Products Requiring Electrical Connection: Listed and classified as suitable for the purpose specified and indicated.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store valves in shipping containers, with labeling in place.
- 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.

PART 2 PRODUCTS

2.1 FIRE PROTECTION SYSTEMS

2.2 ABOVE GROUND PIPING

- A. Copper Tube: ASTM B75/B75M or ASTM B88 (ASTM B88M), H58 drawn temper.

1. Type: Type M (C).
 2. Fittings: ASME B16.18, cast copper alloy solder joint, pressure type.
 3. Joints: AWS A5.8M/A5.8 Classification BCuP-3 or BCuP-4 copper/silver braze.
- B. Copper Tube: ASTM B88 (ASTM B88M), Type K (A), H58 drawn.
1. Fittings: ASME B16.18, cast copper alloy, grooved.
 2. Mechanical Grooved Couplings: Ductile iron housing with alkyd enamel paint coating clamps to engage and lock, "C" shaped elastomeric sealing gasket, steel bolts, nuts, and washers.
- C. Copper Tube: ASTM B75/B75M or ASTM B88 (ASTM B88M), H58 drawn temper.
1. Type: Type L (B).
 2. Fittings: ASME B16.18, cast copper alloy solder joint, pressure type.
 3. Joints: AWS A5.8M/A5.8 Classification BCuP-3 or BCuP-4 copper/silver braze.
- D. Stainless-Steel Pipe and Fittings: Schedule 10, ASTM A 312/A 312M, Grade TP304L or TP316L, unless otherwise indicated; seamless pipe and ASTM A 403/A 403M, Class S, seamless fittings matching pipe thickness and grade, for welded joints.
- E. Brass Pipe: ASTM B43
1. Fittings: ASME B16.23, cast bronze.
 2. Joints: Mechanical compression.

2.3 PIPE HANGERS AND SUPPORTS

- A. Hangers for Pipe Sizes 1/2 to 1-1/2 inch (15 to 40 mm): Malleable iron, adjustable swivel, split ring or Carbon steel, adjustable steel band hanger.
- B. Wall Support for Pipe Sizes to 3 inches (80 mm): Cast iron hook.
- C. Floor Support: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
- D. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.
- E. Hanger rods installed in conditioned spaces shall be black.
- F. Hanger rods and fasteners shall be sized, spaced, and installed as recommended by the manufacturer for the service intended and per NFPA 13 and 14 requirements.

PART 3 EXECUTION

3.1 PREPARATION

- A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
- B. Remove scale and foreign material, from inside and outside, before assembly.
- C. Prepare piping connections to equipment with flanges or unions.

3.2 INSTALLATION

- A. Install or reconnect pressure sensing line in accordance with NFPA 20.
- B. Exposed piping shall be installed as nearly as possible parallel to or at right angles to the column lines of the building. Run all pipe straight and true. Springing or forcing piping into place will not be permitted. Install piping in such a manner as to prevent strain on the equipment.

- C. Install piping to conserve building space, to not interfere with use of space and other work.
- D. Group piping whenever practical at common elevations.
- E. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.
- F. Pipe Hangers and Supports:
 - 1. Install hangers to provide minimum 1/2 inch (15 mm) space between finished covering and adjacent work.
 - 2. Place hangers within 12 inches (300 mm) of each horizontal elbow.
 - 3. Use hangers with 1-1/2 inch (40 mm) minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
 - 4. Prime coat exposed steel hangers and supports. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.
- G. Prepare exposed pipe, fittings, supports, and accessories for finish painting. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding.
- H. Do not penetrate building structural members unless indicated.
- I. Die cut threaded joints with full cut standard taper pipe threads with red lead and linseed oil or other non-toxic joint compound applied to male threads only.

3.3 CLEANING

- A. Upon completion of work, clean all parts of the installation.
- B. Clean equipment, pipes, valves, and fittings of grease, metal cuttings, and sludge that may have accumulated from the installation and testing of the system.

END OF SECTION 21 05 00

SECTION 21 30 00
FIRE PUMP CONTROLLER

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Fire pump, electric motor drive, controller, and accessories.
- B. Electric motor drive, controller, and accessories.

1.2 REFERENCE STANDARDS

- A. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
- B. NFPA 13 - Standard for the Installation of Sprinkler Systems.
- C. NFPA 20 - Standard for the Installation of Stationary Pumps for Fire Protection.
- D. UL (DIR) - Online Certifications Directory.

1.3 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate layout, general assembly, components, dimensions, weights, clearances, and methods of assembly.
- C. Operation Data: Include manufacturers instructions, start-up data, trouble-shooting check lists, for pumps, drivers, and controllers.
- D. Maintenance Data: Include manufacturers literature, cleaning procedures, replacement parts lists, and repair data for pumps, drivers and controllers.

1.4 QUALITY ASSURANCE

- A. Comply with NFPA 13 and NFPA 20; where requirements differ comply with the most stringent.
- B. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

PART 2 PRODUCTS

2.1 ELECTRIC MOTOR DRIVE:

- A. Controller: Limited service type with across-the-line starter, in NEMA 250 enclosure, including the following:
 - 1. Disconnect Switch: Externally operable, quick break type.
 - 2. Circuit Breaker: Comply with NFPA 20; minimum 65,000 amperes interrupting capacity.
 - 3. Motor Starter: Energized automatically through pressure switch or manually by externally operable handle.
 - 4. Pilot Lamp: Indicates circuit breaker closed and power available.
 - 5. Test Accessories: Ammeter test link and voltmeter test studs.
 - 6. Automatic Transfer Switch: For the automatic transfer to emergency power in the event of power failure.
- B. Electrical Characteristics:

1. 25 hp.
2. 480 volts, three phase, 60 Hz.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install in accordance with NFPA 20.
- B. Provide access space around pumps for service; no less than minimum as recommended by manufacturer.
- C. Provide for connection to electrical service. Refer to Section 26 05 83.

3.2 FIELD QUALITY CONTROL

- A. Perform field inspection and testing in accordance with Section 01 40 00 - Quality Requirements.

3.3 CLOSEOUT ACTIVITIES

- A. Demonstration:
- B. Demonstrate automatic operation of system including verification of pressure switch set points to Owner.
- C. Use operation and maintenance data as reference during demonstration.
- D. Briefly describe function, operation, and maintenance of each component.
- E. Training: Train Owner's personnel on operation and maintenance of system.
 1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.

END OF SECTION 21 30 00

SECTION 26 04 00

COMMON REQUIREMENTS FOR ELECTRICAL

PART 1 GENERAL

1.1 SUMMARY

- A. This section describes the general requirements of these specifications and shall apply to all phases of the work specified, shown on the drawings, or required to provide for complete installation of all systems for this project.
- B. This Section includes basic materials and methods to complement other Division 26 Sections.
- C. This Section includes basic materials and methods to complement Section 28 3100 Fire Detection and Alarm.

1.2 WARRANTIES

- A. Warrant materials, workmanship and equipment against defects for a period of one year after the date of substantial completion.
- B. Certain equipment shall be warranted beginning at the time of final acceptance or for longer periods of time as specified in those divisions of the Project Manual.
- C. Repair or replace, at no additional cost to the Owner, any item which may become defective within the warrant period.
- D. Any manufacturers' warranties concerning any item installed will run to the benefit of the Owner.
- E. The Contractor agrees not to void or impair, or to allow Sub-Contractors to void or impair, any warranties regarding products or items installed as part of this project.
- F. The repair of faulty workmanship shall be considered to be included in the contract.

1.3 ALTERNATES

- A. Alternates, if required, shall be as described in the "Alternates" section of this Project Manual, as described on the proposal form, or as indicated on the drawings.

1.4 QUESTIONS OF INTERPRETATION DURING BIDDING PHASE

- A. If questions arise during the bidding process regarding the meaning of any portion of the contract documents, the prospective bidder shall submit the questions to the Engineer for clarification.
- B. Any definitive interpretation or clarification of the contract documents will be published by addenda, properly issued to each person holding documents, prior to the bid date.
- C. Verbal interpretation or explanation not issued in the form of an addendum shall not be considered part of the bidding documents.
- D. When submitting questions for clarification, adequate time for issuance and delivery of addenda must be allowed.
- E. The Engineer shall be the sole judge regarding interpretations of conflicts within contract documents.

1.5 CONTRACT DOCUMENT DISCREPANCIES

- A. If any ambiguities should appear in the contract documents, request clarification from the Engineer before proceeding with the work.
- B. If the Contractor fails to make such request, no excuse will thereafter be entertained for failure to carry out the work in a manner satisfactory to the Engineer.
- C. Should a conflict occur within the contract documents, the Contractor is deemed to have estimated the more expensive way of doing the work unless a written clarification from the Engineer was requested and obtained before submission of proposed methods or materials.
- D. The Engineer shall be the sole judge regarding interpretations of conflicts within contract documents.

1.6 DEFINITIONS

- A. The following definitions shall apply throughout the contract documents:
 - 1. Engineer: Engineer
 - 2. Code: Applicable national, state and local codes
 - 3. Mechanical: Plumbing, HVAC, & fire protection work required by the Contract Documents
 - 4. Electrical: Electrical and fire alarm work required by the Contract Documents
 - 5. Contractor: Any Contractor performing work required by the Contract Documents
 - 6. Indicated: Noted, scheduled or specified
 - 7. Selected: Selected by the Engineer.
 - 8. Provide: Furnish, install, connect and tested complete and ready for use
 - 9. Furnish: Supply and deliver to the site ready for installation
 - 10. Install: Install complete, per Contract Documents and manufacturer's requirements.
 - 11. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct shafts, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawl spaces, and tunnels.
 - 12. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.
 - 13. Exposed, Exterior Installations: Exposed to view outdoors, or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.
 - 14. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in duct shafts.
 - 15. Concealed, Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants, but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.
 - 16. Dry Locations: A location not normally subject to dampness or wetness. A location classified as dry may be temporarily subject to dampness or wetness, as in the case of a building under construction.
 - 17. Damp Locations: Locations protected from weather and not subject to saturation with water or other liquids but subject to moderate degrees of moisture.
 - 18. Wet Locations: Installations underground or in concrete slabs or masonry in direct contact with the earth; in locations subject to saturation with water or other liquids, such as vehicle washing areas; and in unprotected locations exposed to weather.

1.7 SYMBOLS

- A. Items of equipment and materials are indicated on the drawings in accordance with the symbols on the plans.

1.8 ABBREVIATIONS

- A. Refer to abbreviations list on the Drawings.
- B. The following abbreviations apply throughout the Contract Documents:
 - 1. ADA: Americans with Disabilities Act
 - 2. ANSI: American National Standards Institute
 - 3. ASHRAE: American Society of Heating, Refrigerating and Air Conditioning Engineers
 - 4. ASME: American Society of Mechanical Engineers
 - 5. ASTM Specification: Standard specifications of the American Society for Testing Materials
 - 6. FM: Factory Mutual Engineering Corporation
 - 7. IRI: Industrial Risk Insurers
 - 8. NEC: National Electrical Code, latest edition
 - 9. NEMA: National Electrical Manufacturers Association
 - 10. NFPA: National Fire Protection Association
 - 11. UL or Underwriters: Underwriters Laboratories, Inc.

1.9 CODES

- A. The work shall be performed by persons skilled in the trade involved and shall be done in a manner consistent with normal industry standards.
- B. The work shall conform to all applicable sections of currently adopted editions of the following codes, standards, and specifications:
 - 1. International Building Code (IBC)
 - 2. International Fire Code (IFC)
 - 3. International Energy Conservation Code (IECC)
 - 4. Safety and Health Regulations for Construction
 - 5. Occupational Safety and Health Standards (OSHA), National Consensus Standards and Established Federal Standards
 - 6. National Electrical Code (NEC)
 - 7. National Electrical Safety Code (NESC)
 - 8. National Fire Protection Association (NFPA)
 - 9. Life Safety Code (NFPA 101)
 - 10. Factory Mutual Global Engineering (FMG)
 - 11. Underwriters' Laboratories, Inc. (UL)
 - 12. National Electrical Safety Code (NESC)
 - 13. National Electrical Manufacturers Association (NEMA)
 - 14. Institute of Electrical and Electronics Engineers (IEEE)
 - 15. Insulated Power Cable Engineers Association (IPCEA)
 - 16. Electronic Industries Association (EIA)
 - 17. Telecommunications Industry Association (TIA)
 - 18. Building Industry Consulting Service International (BICSI)
 - 19. Applicable national, state and local codes
- C. Where there is a conflict between the code and the Contract Documents, the code shall have precedence only when it is more stringent than the Contract Documents.
 - 1. Items that are allowed by the code but are less stringent than those specified shall not be substituted.

1.10 PERMITS

- A. The Contractors shall familiarize themselves with requirements regarding permits, fees, etc., and shall comply with them.
- B. Permits, licenses, inspections and arrangements required for the work shall be obtained by the Contractor at his expense.
- C. Utilities shall be installed in accordance with the local rules and regulations. Charges shall be paid by the Contractor.

1.11 MATERIALS AND EQUIPMENT MANUFACTURERS

- A. Options in selecting materials and equipment are limited by requirements of the contract documents and governing regulations. They are not controlled by industry traditions or procedures experienced on previous construction projects.
- B. Materials and equipment shall be provided in accordance with the following:
 - 1. Primary Design Products: Primary design products are those products around which the project was designed in terms of capacity, performance, physical size and quality.
 - 2. Primary design products are indicated by use of a single manufacturer's name, model number or similar data on drawings or schedules or within the specifications.
 - 3. Provide primary design products unless substitutions are made in accordance with the following paragraphs.
 - 4. Acceptable Equivalent Substitutions: Acceptable equivalent substitutions are products of manufacturers other than those listed for the primary design products. Equivalent acceptable substitutions shall meet each of the following requirements:
 - a. The product shall be manufactured by one of the acceptable manufacturers listed in the Project Manual, drawings, or addenda.
 - b. The product shall meet or exceed the requirements of the contract documents in terms of quality, performance, suitability, appearance, and physical characteristics.
 - c. The Contractor providing the substitution shall bear the total cost of changes due to substitutions. These costs may include additional compensation to the Engineer for redesign and evaluation services, increased cost of work by the Owner or other Contractors, and similar considerations.
 - 5. Performance Requirements: Where the contract documents list performance requirements or describe a product or assembly generically, provide products that comply with the specific requirements indicated and that are recommended by the manufacturer for the respective application.
 - 6. Compliance with Standards, Codes and Regulations: Where the specifications require only compliance with an imposed standard, code or regulation, the Contractor has the option of selecting a product that complies with specification requirements, including the standards, codes and regulations.
- C. Proposed substitutions will be judged on the basis of quality, performance, appearance and on the governing space limitations. The reputation of the manufacturer, delivery time requirements, and the availability of repair or replacement parts may also be considered.
- D. The Engineer shall be the sole and final judge as to the suitability of substitution items.

1.12 SUBMITTALS

- A. Shop Drawings, Product Data and Samples:
1. Other sections in the Project Manual shall be adhered to if more stringent than the following paragraphs.
 2. When required by other sections of this Project Manual, submit shop drawings, product data or samples to the Engineer for review.
 3. Submittals deemed unnecessary by the Engineer shall be returned indicating "No Action Taken".
 4. A completed copy of the transmittal form included with the Project Manual shall accompany each submittal.
 5. Submittals shall be numbered consecutively.
 6. Unless otherwise noted, submit one copy electronically of shop drawings and product data for review. Review comments will be returned electronically. A hard copy of the electronic submittal will be returned if requested.
 7. Where samples are required, submit one (1) sample of each required item.
 8. Shop drawings are drawings, diagrams, schedules and other data specifically prepared for this project by the Contractor, Manufacturer, Supplier, or Distributor to illustrate some portion of the work. Shop Drawings shall also detail fabrication and installation for metal and wood supports and anchorage for mechanical materials and equipment.
 - a. Shop drawings shall be drawn to accurate scale and of adequate size to illustrate required details.
 - b. Maximum sheet size shall be 30 inches by 42 inches. For each hard copy shop drawing sheet larger than 11 inches by 17 inches, submit one drawing on reproducible media.
 - c. The Engineer's action shall be indicated on the reproducible drawing and the drawing shall be returned to the Contractor.
 9. Product data are illustrations, standard schedules, performance charts, instruction brochures, diagrams and other information furnished by the Contractor, Manufacturer, Supplier, or Distributor to illustrate a material, product or system for some portion of the work.
 10. Samples are physical examples furnished by the Contractor, Manufacturer, Supplier, or Distributor to illustrate materials, equipment or workmanship and to establish the standards by which the work will be performed.
 11. Each submittal shall clearly indicate proposed items, capacities, characteristics and details in conformance with contract documents. Equipment items shall be marked with the same item number as used on drawings or schedules. Capacities, dimensions and special features required shall be certified by the manufacturer.
 12. Submittals shall indicate manufacturer's delivery time for the item after review by the Engineer.
 13. When required by other sections of this Project Manual, the Contractor shall submit a Specification Compliance Review consisting of a paragraph-by-paragraph review of the specifications and addenda with the following marked for each paragraph. Markings may be made in the margins of the original specification or addenda. Unless a deviation or exception is specifically noted in the Specification Compliance Review, it is assumed that the equipment, product, or material is in complete compliance with the contract documents. Submit Specification Compliance Review with shop drawings and product data.
 - a. "C": Comply with no exceptions.
 - b. "D": Comply with minor deviations. For each deviation, provide the reasons for the deviation and how the intent of the specification can be satisfied.

- c. "E": Exception. Equipment, product, or material does not comply. For each exception, provide reasons for the exception, and suggest possible alternatives for the Owner's consideration.
 - d. "N/A": The paragraph does not apply to the proposed equipment, product, or material.
14. The Engineer shall review or take other appropriate action upon the Contractor's submittals such as shop drawings, product data and samples, but only to determine conformance with the design concept of the work and the information given in the contract documents.
 15. Contractor shall not be relieved of responsibility for any deviation from the requirements of the contract documents by the Engineer's review of shop drawings, product data or samples.
 16. Contractor shall not be relieved from responsibility for errors or omissions in the shop drawings, product data or samples by the Engineer's review of those drawings.
 17. No portion of the work requiring submission of a shop drawing, product data or sample shall be commenced until the submittal has been reviewed by the Engineer. Such portions of the work shall be in accordance with reviewed submittals.
 18. The successful Contractor/Supplier may, at their option, obtain DXF or AutoCad DWG electronic drawing files on CD-ROM for use in preparation of shop drawings.
 - a. This information is available from Alvine Engineering upon written request.
 - b. The use of these drawing files is intended solely for the preparation of drawings as required by these contract documents.
 - c. Any other use is strictly prohibited by copyright laws.
 - d. The user of these electronic drawing files assumes full responsibility for their accuracy and scale.
 19. If a shop drawing is marked as rejected, and/or resubmit, only one (1) additional submittal will be permitted without cost to the Contractor. The time required for the Engineer to review any additional submittals for the corresponding item(s) will be invoiced at the standard hourly rate of the Engineer, and will be required to be paid by the Contractor.

B. Operation and Maintenance Manuals:

1. Prepare three (3) operation and maintenance manuals for the equipment furnished. Manuals shall be submitted to the Engineer for review and distribution to the Owner not less than 30 days prior to substantial completion of the project. Manuals not meeting the following requirements may be rejected by the Engineer.
2. Each manual shall be assembled in a three-ring binder with hard cover and plastic finish. Binders shall not exceed a 3-inch thickness. Where more than one binder is required, the manuals shall be separated into a logical grouping, i.e., "Mechanical", "Electrical", "Maintenance", "Operation", "Parts", "Shop Drawings", etc. Each binder shall have the following information clearly printed on its front cover:
 - a. Project name and address.
 - b. Portion of the work covered by each volume (if more than one volume in the set). Where more than one volume is required, label each volume as "Volume _____ of _____".
 - c. Name, address and telephone number of Contractor and Sub-Contractors including night or emergency number.
3. Manual shall include, but shall not be limited to, the following:
 - a. A Complete Index. Contractor may submit the index to the Engineer for review prior to submittal of complete manuals if desired.

- b. Names, Addresses and Telephone Numbers. This list shall include the manufacturer and local representative who stocks or furnishes repair parts for all items of equipment and shall be typed on a single page in front of the binder.
 - c. Startup, Operation and Shutdown Procedures. Provide a written description of procedures for startup, operation and shutdown of each electrical item or system. This description shall include switches to operate, buttons to push, etc., in proper sequence, and the location of switches, starters, and pushbuttons. Description shall include item references or labels used in the contract documents unless otherwise instructed in advance by the Owner.
 - d. Equipment Accessory Schedule. Upon completion of the work, furnish the Owner with a complete equipment accessory schedule listing each piece of equipment and the related size, type, number required and the manufacturer of renewable items.
 - e. Manufacturer's Operation and Maintenance Manuals and Parts Lists.
 - f. Emergency Procedures. Provide a written description of emergency operating procedures or a list of service organizations (including addresses and telephone numbers) capable of rendering emergency services to the various parts of the system.
 - g. One copy of shop drawings and product data, clearly marked for each item furnished using the designation label specified or indicated on Drawings.
 - h. Manufacturers' warranty information.
 - i. Normal Maintenance Schedule. Include a listing of work to be performed at various time intervals; i.e., 30, 90, 180 days and yearly.
4. If an Operation and Maintenance Manual is marked as rejected, and/or resubmit, only one (1) additional submittal will be permitted without cost to the Contractor. The time required for the Engineer to review any additional submittals for the corresponding item(s) will be invoiced at the standard hourly rate of the Engineer, and will be required to be paid by the Contractor.

1.13 OPERATING TRAINING

- A. Complete operating instructions for each system and item of equipment shall be provided to the Owner's designated personnel.
- B. Operation and Maintenance Manuals must be reviewed and accepted by the Engineer and provided to the Owner prior to operating training.
- C. Training shall be scheduled at the convenience of the Owner. A minimum of 4 hours of training shall be provided.
- D. Training shall include instructions on the following:
 - 1. Startup and shutdown procedures
 - 2. Periodic maintenance
 - 3. Emergency operation
 - 4. Safety
- E. In addition to the instructions required above, wherever possible perform the operations being described in order to fully illustrate system operation.
- F. At the completion of training, turn over to the Owner required keys and special tools for installed equipment. Each key or tool shall be labeled with its use.

1.14 QUALITY ASSURANCE

- A. Conform to the requirements of NFPA 70.

- B. Products: Listed and classified by Underwriters Laboratories Inc. or testing firm acceptable to the authority having jurisdiction as suitable for the purpose specified and indicated.

1.15 COORDINATION

- A. Coordinate arrangement, mounting, and support of electrical equipment.
 - 1. To allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.
 - 2. To provide for ease of disconnecting the equipment with minimum interference to other installations.
 - 3. To allow right of way for piping and conduit installed at required slope.
 - 4. So connecting raceways, cables, wireways, cable trays, and busways will be clear of obstructions and of the working and access space of other equipment.
- B. Coordinate chases, slots, inserts, sleeves, and openings with general construction work and arrange in building structure during progress of construction to facilitate the electrical installations that follow.
 - 1. Set inserts and sleeves in poured-in-place concrete, masonry work, and other structural components as they are constructed.
- C. Sequence, coordinate, and integrate installing electrical materials and equipment for efficient flow of the Work. Coordinate installing large equipment requiring positioning before closing in the building.
- D. Coordinate electrical service connections to components furnished by utility companies.
 - 1. Coordinate installation and connection of exterior underground and overhead utilities and services, including provision for electricity-metering components.
 - 2. Comply with requirements of authorities having jurisdiction and of utility company providing electrical power and other services.
- E. Coordinate location of access panels and doors for electrical items that are concealed by finished surfaces.
- F. Coordinate electrical testing of electrical, mechanical, and architectural items, so equipment and systems that are functionally interdependent are tested to demonstrate successful interoperability.
- G. Provide offsets and elevation changes in conduit and cable tray as required to complete the Layout and Coordination Process.

1.16 STRUCTURAL COORDINATION

- A. In cases where the Contractor determines that superimposed loads such as suspended or floor mounted mechanical, electrical, plumbing system or equipment exist which exceed design loads indicated on structural contract documents, Contractor shall submit load data to Engineer for review prior to proceeding with work.
- B. Distribute the maximum load hung from any structural member for mechanical, electrical, plumbing, ductwork, piping, etc. over the member's tributary area in a way that the design superimposed dead loads listed in structural contract documents are not exceeded. The Contractor shall coordinate the loads and provide additional support or distribution framing as required achieving the allowable load distribution.
- C. Connections of systems designed by Contractor's engineer such as, but not limited to mechanical, electrical, plumbing loads are assumed to impose vertical and/or horizontal loads on the base building structural members without generating torsion in the supporting structural members. Contractor is responsible for furnishing and installing all

supplementary bracing members as required to prevent torsion on the base building structure.

PART 2 PRODUCTS

2.1 PERFORMANCE, CAPACITIES AND CHARACTERISTICS

- A. See Drawings for Equipment Schedules for Equipment Performance Requirements when capacities and characteristics are not indicated in the specifications.

2.2 MATERIALS

- A. Unless otherwise specified, all materials and equipment shall be new, unused and undamaged. Materials and equipment shall be the current and standard designs of manufacturers regularly engaged in their production.

2.3 MATERIALS AND EQUIPMENT FURNISHED BY OTHERS

- A. Where materials and equipment are indicated as furnished by others and installed or connected under this contract, it shall be the Contractor's responsibility to verify installation details and requirements.

2.4 QUANTITY OF SPECIFIED ITEMS REQUIRED

- A. Wherever in these specifications an article, device or piece of equipment is referred to in the singular number; such reference shall apply to as many such articles as are shown on the drawings or required to complete the installation.

2.5 SLEEVES

- A. Steel Pipe: ASTM A53, Type E, Grade B, Schedule 40, galvanized, plain ends.

PART 3 EXECUTION

3.1 GENERAL

- A. Fabrication, erection, and installation of the complete electrical system shall be done by qualified personnel experienced in such work and shall proceed in an orderly manner so as not to hold up the progress of the project.
- B. Check areas and surfaces where electrical equipment or materials are to be installed and report any unsatisfactory conditions before starting work.
- C. Commencement of work signifies the Contractor's acceptance of the conditions as fit and proper for the execution of the electrical work.
- D. Install equipment and systems in accordance with manufacturer's instructions, requirements, or recommendations.
- E. Comply with NECA 1.
- F. Unless otherwise noted, measure indicated mounting heights to bottom of unit for suspended items and to center of unit for wall-mounting items.
- G. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide maximum possible headroom consistent with these requirements.
- H. Equipment: Install to facilitate service, maintenance, and repair or replacement of components of both electrical equipment and other nearby installations. Connect in such

a way as to facilitate future disconnecting with minimum interference with other items in the vicinity.

- I. Right of Way: Give to raceways and piping systems installed at a required slope.
- J. Materials and Components: Install level, plumb, and parallel and perpendicular to other building systems and components, unless otherwise indicated.

3.2 DELIVERY AND STORAGE OF MATERIALS

- A. Make provisions for the delivery and safe storage of materials. Make the required arrangements with other contractors for the introduction into the building of equipment too large to pass through finished openings.
- B. Materials shall be delivered at such stages of the work as will expedite the work as a whole and shall be marked and stored in such a way as to be easily checked and inspected.
- C. Adequately protect supplies and equipment during cold weather.
- D. Protect items subject to cold weather damage by covering, insulating, or storing in a heated space.

3.3 COOPERATION WITH OTHER CONTRACTORS

- A. Perform the electrical work in conformance with the construction called for by other trades and afford other contractors reasonable opportunity for the execution of their work.
- B. Properly connect and coordinate the electrical work with the work of other contractors at such time and in such a manner as not to delay or interfere with their work.
- C. Examine the contract documents for the General, Mechanical, and Electrical work and the work of other trades. Coordinate work accordingly.
- D. Promptly report to the Engineer any delay or difficulties encountered in the installation of the electrical work which might prevent prompt and proper installation of work required from other trades.

3.4 COORDINATION OF WORK

- A. Plan work so it proceeds with a minimum of interference with other trades.
- B. Inform the General Contractor of all openings required in the building construction for the installation of the electrical work.
- C. Cooperate with other contractors in furnishing material and information, in proper sequence, for the correct location of sleeves, inserts, foundations, wiring, etc.
- D. Make provisions for special frames, openings, and sleeves as required.
- E. The Electrical Contractor shall pay for extra cutting and patching made necessary by his failure to properly direct such work at the correct time.

3.5 LAYING OUT WORK

- A. Carefully lay out work in advance of installation using data and measurements from the site, the appropriate architectural and structural drawings, and shop drawings.
- B. Confirm code required clearances.
- C. Do not infringe upon space required for operation, maintenance, or clearance for items installed by other contractors.

- D. Prior to installation of any work, make certain the location does not conflict with other items in or near the same location.
- E. If the layouts so prepared indicate that the required conditions cannot be met in the space provided, inform the Engineer prior to installation and request clarification.
- F. Failure to properly coordinate and lay out work will require correction by the Contractor at the Contractor's expense

3.6 DATA AND MEASUREMENTS

- A. Mechanical and electrical drawings are diagrammatic or schematic. Do not scale drawings.
- B. The data given herein and on the drawings is as accurate as could be secured; absolute accuracy is not guaranteed.
- C. Obtain exact locations, measurements, levels, etc., at the site and adapt their work to actual conditions.
- D. Examine the general construction, mechanical, electrical, and other applicable drawings and the Specifications.
- E. Utilize only architectural drawings, structural drawings, and site measurements in calculations.
- F. Layout and coordinate work prior to installation to provide clearances for operation, maintenance and codes. Verify non-interference with other work.
- G. Locate outlets and devices mounted on finished surfaces with regard to paneling, furring, trim, etc.
- H. Install outlets and devices with vertical edges of plates plumb.
- I. Install boxes or plaster rings such that the front edge extends to the finished surface of the wall, ceiling or floor without projecting beyond the surface.
- J. Install receptacles, switches, etc., on wood trim, cases, or other fixtures symmetrically and, where necessary, install with the long dimension of the plate horizontal.
- K. Coordinate locations of outlets and devices with other contractors so as not to destroy the aesthetic effect of the surface in which the outlets and devices are mounted. Coordinate the locations of electrical items with work furnished by other trades to avoid interference.
- L. Heights of outlets are measured from finished floor to centerline of device.
- M. Adjust heights as necessary to clear wall-mounted cabinets, fin tube convectors, unit heaters, etc.
- N. Mounting heights shall be in compliance with ADA requirements.
- O. Install outlets at the heights indicated below unless otherwise noted.
 - 1. Wall switches: 46 inches.
 - 2. Receptacle outlets (general): 18 inches.
 - 3. Receptacle outlets (kitchen, utility room, workbenches, etc.): 46 inches.
 - 4. Communications outlets: 18 inches.
 - 5. TV outlets: 18 inches.
 - 6. Pushbuttons: 46 inches.

7. Bells, buzzers, chimes: 8 inches below ceiling (field verify with Engineer unless noted otherwise).
 8. Fire alarm station: 46 inches.
 9. Fire alarm visual signals and audible/visual signals, wall-mounted: 80 inches to the bottom of the lens unless local code or ADA requirement mandates a lower mounting height.
 10. Fire alarm audible signals, wall-mounted: Match height of audible/visual signals.
 11. Exit lights: 4 inches between top of door frame and bottom of exit sign where possible.
- P. The mounting heights of disconnect switches, circuit breakers, motor controllers, pushbutton stations and other similar devices and equipment may vary depending upon location and whether individually or group mounted.
- Q. For convenience and safety, mount equipment with the center of operating levers, handles or buttons no more than 72 inches above the finished floor.
- R. Locate individual devices or pieces of equipment, unless otherwise specified, so the operating handle, lever or button is located approximately 5 feet above finished floor. Coordinate heights of electrical items with work furnished by other trades to avoid interferences.
- S. Improperly located devices or outlets shall be relocated by the Contractor at the Contractor's expense including necessary patching.

3.7 PROTECTION OF APPARATUS

- A. Take necessary precautions to properly protect apparatus, fixtures, appliances, material, equipment, and installations from damage.
- B. Failure to provide such protection to the satisfaction of the Engineer shall be sufficient cause for the rejection of any particular piece(s) of material, apparatus, equipment, etc., concerned.

3.8 SLEEVE INSTALLATION

- A. Coordinate sleeve selection and application with selection and application of firestopping.
- B. Concrete Slabs and Walls: Install sleeves during erection of slabs and walls. Space sleeves a minimum of three sleeve diameters on center, unless otherwise noted. Sleeves are not required for core-drilled penetrations.
- C. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.
- D. Sleeves through walls: Install flush with both surfaces of wall.
- E. Sleeves through floors: Extend 2 inches above finished floor.
- F. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceways or cable unless sleeve seal is to be installed.
- G. Seal space outside of sleeves with grout for penetrations of concrete and masonry.
- H. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint.

3.9 SLEEVE-SEAL INSTALLATION

- A. Install to seal underground exterior wall penetrations.

- B. Use type and number of sealing elements recommended by manufacturer for raceway material and size.
- C. Position raceway in center of sleeve.
- D. Assemble mechanical sleeve seals and install in annular space between raceway and sleeve.

3.10 FIRESTOPPING

- A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to maintain fire-resistance rating of assembly.

3.11 WORK IN EXISTING BUILDINGS

- A. Execute work in the existing building, indicated on the drawings or specified herein, with a minimum amount of interference with the normal activities of the occupants of the building.
- B. Schedule work in advance with the Owner and proceed only with the Owner's written approval.
- C. Utilities:
 - 1. Do not interrupt utilities without the Owner's prior written approval regarding the time and duration of such interruptions.
 - 2. Do not disconnect utilities to existing facilities until new or temporary facilities are installed except for short periods of interruption which are necessary for the performance of the new work and which are approved by the Owner.
- D. Fire Alarm System:
 - 1. As a minimum, maintain the existing degree of protection for all areas throughout construction.
 - 2. Coordinate required outages with the Owner and the Fire Marshal.
 - 3. After any additions or modifications to the fire alarm system, a re-acceptance test shall be performed by a licensed party in accordance with NFPA 72.
- E. Welding:
 - 1. Notify the Owner before starting welding or cutting.
 - 2. Fire extinguishers shall be immediately accessible when welding or cutting with an open flame or arc.
 - 3. Stop operations involving welding or cutting with an open flame or arc not less than one hour before leaving the premises.
- F. Noisy Operations:
 - 1. Schedule noisy operations, such as those involving use of air hammers, etc., in demolition or cutting of openings, with the Owner.
- G. Occupancy:
 - 1. The Owner will continue to occupy the building and carry on normal activity.
 - 2. Protect the occupied areas from dust, smoke, etc., by a method reviewed by the Engineer.
- H. Owner's Right to Direct Work: The Owner shall have the right to direct the places of beginning work, its prosecution, and the manner in which all work under this contract is to be conducted, insofar as may be necessary to secure the safe and proper progress and quality of the work.
- I. Existing Conduits or Electrical Equipment:

1. Remove or relocate, as required, or as directed by the Engineer, existing conduit or electrical equipment which would interfere with the proper installation of new work.
2. Modify existing work in conformance with these specifications.
3. Use the same materials as for new work unless otherwise specified.

3.12 DEMOLITION AND REMODEL

- A. Protect existing electrical equipment and installations indicated to remain.
- B. If damaged or disturbed in the course of the Work, remove damaged portions and install new products of equal capacity, quality, and functionality.
- C. Accessible Work: Remove exposed electrical equipment and installations, indicated to be demolished, in their entirety.
- D. Abandoned Work: Cut and remove buried raceway and wiring, indicated to be abandoned in place, 2 inches below the surface of adjacent construction. Cap raceways and patch surface to match existing finish.
- E. Remove demolished material from Project site.
- F. Remove, store, clean, reinstall, reconnect, and make operational components indicated for relocation.
- G. Remove existing lights, receptacles, switches, etc., indicated on plans or which are not indicated but must be removed to accommodate demolition or new remodeling.
- H. Where existing walls are indicated to be removed, disconnect power to electrical devices and associated appurtenances relating to the walls.
- I. Maintain circuit continuity up and down stream from removed outlets.
- J. Extend circuiting to up and downstream devices and reconnect as required.
- K. Where existing site lighting fixtures are removed, verify the routing of existing circuits. Maintain circuit continuity between existing fixtures which remain.
- L. In areas which are remodeled, replace existing wire with new wire. No existing wire is permitted to remain unless noted.
- M. Existing concealed conduit and boxes may be reused.
- N. Verify existing conditions in field prior to bid date.

3.13 CUTTING AND PATCHING

- A. Cut, channel, chase, and drill floors, walls, partitions, ceilings, and other surfaces required to permit electrical installations.
- B. Perform cutting by skilled mechanics of trades involved.
- C. Repair and refinish disturbed finish materials and other surfaces to match adjacent undisturbed surfaces.
- D. Install new fireproofing where existing firestopping has been disturbed.
- E. Repair and refinish materials and other surfaces by skilled mechanics of trades involved.

3.14 FIELD QUALITY CONTROL

- A. Inspect installed components for damage and faulty work. Repair as necessary.

3.15 CLEANING AND PROTECTION

- A. Remove burrs, dirt, paint spots, and construction debris from electrical items.
- B. Protect electrical items so that finishes are without damage or deterioration at time of Substantial Completion.

3.16 TEMPORARY POWER AND LIGHTING

- A. Provide temporary power and lighting throughout the construction period for the use by all trades, Contractors and Sub-Contractors.
- B. Temporary facilities shall be installed in compliance with applicable codes and in compliance with OSHA requirements.
- C. Cost of temporary power used during construction, including the cost of setting and removing temporary service, shall be paid by the Contractor.

END OF SECTION 26 04 00

SECTION 26 05 19

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Single conductor building wire.
- B. Underground feeder and branch-circuit cable.
- C. Wiring connectors.
- D. Electrical tape.
- E. Heat shrink tubing.
- F. Oxide inhibiting compound.
- G. Wire pulling lubricant.

1.2 REFERENCE STANDARDS

- A. ASTM B3 - Standard Specification for Soft or Annealed Copper Wire.
- B. ASTM B8 - Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft.
- C. ASTM B33 - Standard Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes.
- D. ASTM B787/B787M - Standard Specification for 19 Wire Combination Unilay-Stranded Copper Conductors for Subsequent Insulation.
- E. ASTM D3005 - Standard Specification for Low-Temperature Resistant Vinyl Chloride Plastic Pressure-Sensitive Electrical Insulating Tape.
- F. NECA 1 - Standard for Good Workmanship in Electrical Construction.
- G. NECA 121 - Standard for Installing Nonmetallic-Sheathed Cable (Type NM-B) and Underground Feeder and Branch-Circuit Cable (Type UF).
- H. NEMA WC 70 - Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy.
- I. NFPA 70 - National Electrical Code.
- J. UL 44 - Thermoset-Insulated Wires and Cables.
- K. UL 83 - Thermoplastic-Insulated Wires and Cables.
- L. UL 486A-486B - Wire Connectors.
- M. UL 486C - Splicing Wire Connectors.
- N. UL 486D - Sealed Wire Connector Systems.
- O. UL 493 - Thermoplastic-Insulated Underground Feeder and Branch-Circuit Cables.
- P. UL 510 - Polyvinyl Chloride, Polyethylene, and Rubber Insulating Tape.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate sizes of raceways, boxes, and equipment enclosures installed under other sections with the actual conductors to be installed, including adjustments for conductor sizes increased for voltage drop.
 - 2. Coordinate with electrical equipment installed under other sections to provide terminations suitable for use with the conductors to be installed.
 - 3. Notify Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.4 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store conductors and cables in accordance with manufacturer's instructions.

1.6 FIELD CONDITIONS

- A. Do not install or otherwise handle thermoplastic-insulated conductors at temperatures lower than 14 degrees F (-10 degrees C), unless otherwise permitted by manufacturer's instructions. When installation below this temperature is unavoidable, notify Engineer and obtain direction before proceeding with work.

PART 2 PRODUCTS

2.1 CONDUCTOR AND CABLE GENERAL REQUIREMENTS

- A. Provide products that comply with requirements of NFPA 70.
- B. Provide products listed, classified, and labeled as suitable for the purpose intended.
- C. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, etc. as required for a complete operating system.
- D. Comply with NEMA WC 70.
- E. Thermoplastic-Insulated Conductors and Cables: Listed and labeled as complying with UL 83.
- F. Thermoset-Insulated Conductors and Cables: Listed and labeled as complying with UL 44.
- G. Conductors for Grounding and Bonding: Also comply with Section 26 05 26.
- H. Conductor Material:
 - 1. Provide copper conductors only. Aluminum conductors are not acceptable for this project. Conductor sizes indicated are based on copper.
 - 2. Copper Conductors: Soft drawn annealed, 98 percent conductivity, uncoated copper conductors complying with ASTM B3, ASTM B8, or ASTM B787/B787M unless otherwise indicated.
 - 3. Tinned Copper Conductors: Comply with ASTM B33.
- I. Minimum Conductor Size:
 - 1. Branch Circuits: 12 AWG.
 - 2. Control Circuits: 14 AWG.

- J. Conductor Color Coding:
 - 1. Color code conductors as indicated unless otherwise required by the authority having jurisdiction. Maintain consistent color coding throughout project.
 - 2. Color Coding Method: Integrally colored insulation.
 - a. Conductors size 4 AWG and larger may have black insulation color coded using vinyl color coding electrical tape.
 - 3. Color Code:
 - a. 480Y/277 V, 3 Phase, 4 Wire System:
 - 1) Phase A: Brown.
 - 2) Phase B: Orange.
 - 3) Phase C: Yellow.
 - 4) Neutral/Grounded: Gray.
 - b. 208Y/120 V, 3 Phase, 4 Wire System:
 - 1) Phase A: Black.
 - 2) Phase B: Red.
 - 3) Phase C: Blue.
 - 4) Neutral/Grounded: White.
 - c. Equipment Ground, All Systems: Green.
 - d. For control circuits, comply with manufacturer's recommended color code.

2.2 SINGLE CONDUCTOR BUILDING WIRE

- A. Description: Single conductor insulated wire.
- B. Conductor Stranding:
 - 1. Feeders and Branch Circuits:
 - a. Size 10 AWG and Smaller: Solid or Stranded.
 - b. Size 8 AWG and Larger: Stranded.
- C. Insulation Voltage Rating: 600 V.
- D. Insulation:
 - 1. Copper Building Wire: Type THHN/THWN, THHN/THWN-2, or XHHW-2, except as indicated below.
 - a. Installed Underground: Type XHHW-2 or THHN/THWN-2.

2.3 UNDERGROUND FEEDER AND BRANCH-CIRCUIT CABLE

- A. Description: NFPA 70, Type UF multiple-conductor cable listed and labeled as complying with UL 493, Type UF-B.
- B. Provide equipment grounding conductor unless otherwise indicated.
- C. Conductor Stranding:
 - 1. Size 10 AWG and Smaller: Solid or Stranded.
 - 2. Size 8 AWG and Larger: Stranded.
- D. Insulation Voltage Rating: 600 V.

2.4 WIRING CONNECTORS

- A. Description: Wiring connectors appropriate for the application, suitable for use with the conductors to be connected, and listed as complying with UL 486A-486B or UL 486C as applicable.
- B. Wiring Connectors for Splices and Taps:

1. Copper Conductors Size 8 AWG and Smaller: Use twist-on insulated spring connectors.
 2. Copper Conductors Size 6 AWG and Larger: Use mechanical connectors or compression connectors.
- C. Wiring Connectors for Terminations:
1. Provide terminal lugs for connecting conductors to equipment furnished with terminations designed for terminal lugs.
 2. Where over-sized conductors are larger than the equipment terminations can accommodate, provide connectors suitable for reducing to appropriate size, but not less than required for the rating of the overcurrent protective device.
- D. Do not use insulation-piercing or insulation-displacement connectors designed for use with conductors without stripping insulation.
- E. Do not use push-in wire connectors as a substitute for twist-on insulated spring connectors.
- F. Twist-on Insulated Spring Connectors: Rated 600 V, 221 degrees F (105 degrees C) for standard applications and 302 degrees F (150 degrees C) for high temperature applications; pre-filled with sealant and listed as complying with UL 486D for damp and wet locations.
- G. Mechanical Connectors: Provide bolted type or set-screw type.
- H. Compression Connectors: Provide circumferential type or hex type crimp configuration.

2.5 ACCESSORIES

- A. Electrical Tape:
1. Vinyl Color Coding Electrical Tape: Integrally colored to match color code indicated; listed as complying with UL 510; minimum thickness of 7 mil (0.18 mm); resistant to abrasion, corrosion, and sunlight; suitable for continuous temperature environment up to 221 degrees F (105 degrees C).
 2. Vinyl Insulating Electrical Tape: Complying with ASTM D3005 and listed as complying with UL 510; minimum thickness of 7 mil (0.18 mm); resistant to abrasion, corrosion, and sunlight; conformable for application down to 0 degrees F (-18 degrees C) and suitable for continuous temperature environment up to 221 degrees F (105 degrees C).
- B. Heat Shrink Tubing: Heavy-wall, split-resistant, with factory-applied adhesive; rated 600 V; suitable for direct burial applications; listed as complying with UL 486D.
- C. Wire Pulling Lubricant: Listed; suitable for use with the conductors or cables to be installed and suitable for use at the installation temperature.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that interior of building has been protected from weather.
- B. Verify that work likely to damage wire and cable has been completed.
- C. Verify that raceways, boxes, and equipment enclosures are installed and are properly sized to accommodate conductors and cables in accordance with NFPA 70.
- D. Verify that field measurements are as indicated.

E. Verify that conditions are satisfactory for installation prior to starting work.

3.2 PREPARATION

A. Clean raceways thoroughly to remove foreign materials before installing conductors and cables.

3.3 INSTALLATION

A. Circuiting Requirements:

1. When circuit destination is indicated without specific routing, determine exact routing required.
2. Install service and feeder conductors unspliced unless otherwise indicated.
3. Arrange branch circuiting to minimize splices.
4. Maintain separation of Class 1, Class 2, and Class 3 remote-control, signaling, and power-limited circuits in accordance with NFPA 70.
5. Maintain separation of wiring for emergency systems in accordance with NFPA 70.
6. Circuiting Adjustments: Unless otherwise indicated, when branch circuits are indicated as separate, combining them together in a single raceway is permitted, under the following conditions:
 - a. Provide no more than 6 #12 AWG current-carrying conductors in 1/2 inch conduit; 9 #12 AWG current-carrying conductors in 3/4 inch conduit.
 - b. Provide no more than 6 #10 AWG current-carrying conductors in 3/4 inch conduit; 9 #10 AWG current-carrying conductors in 1 inch conduit.
 - c. Provide no more than 4 #8 AWG current-carrying conductors in 3/4 inch conduit; 6 #8 AWG current-carrying conductors in 1 inch conduit; 9 #8 AWG current-carrying conductors in 1-1/4 inch conduit.
 - d. Increase size of conductors as required to account for ampacity derating.
7. Common Neutrals: Unless otherwise indicated, sharing of neutral/grounded conductors among single phase branch circuits of different phases installed in the same raceway is not permitted. Provide dedicated neutral/grounded conductor for each individual branch circuit.

B. Install products in accordance with manufacturer's instructions.

C. Perform work in accordance with NECA 1 (general workmanship).

D. Install underground feeder and branch-circuit cable (Type UF-B) in accordance with NECA 121.

E. Installation in Raceway:

1. Pull all conductors and cables together into raceway at same time.
2. Do not damage conductors and cables or exceed manufacturer's recommended maximum pulling tension and sidewall pressure.
3. Use suitable wire pulling lubricant where necessary, except when lubricant is not recommended by the manufacturer.
4. Remove existing conductors from raceways before installing new conductors.

F. Paralleled Conductors: Install conductors of the same length and terminate in the same manner.

G. Installation in Vertical Raceways: Provide supports where vertical rise exceeds permissible limits.

H. Terminate cables using suitable fittings.

I. Install conductors with a minimum of 6 inches (____ mm) of slack at each outlet.

- J. Neatly train and bundle conductors inside boxes, wireways, panelboards and other equipment enclosures.
- K. Group or otherwise identify neutral/grounded conductors with associated ungrounded conductors inside enclosures in accordance with NFPA 70.
- L. Make wiring connections using specified wiring connectors.
 - 1. Make splices and taps only in accessible boxes. Do not pull splices into raceways or make splices in conduit bodies.
 - 2. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors.
 - 3. Do not remove conductor strands to facilitate insertion into connector.
 - 4. Clean contact surfaces on conductors and connectors to suitable remove corrosion, oxides, and other contaminates. Do not use wire brush on plated connector surfaces.
 - 5. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.
 - 6. Compression Connectors: Secure connections using manufacturer's recommended tools and dies.
- M. Insulate splices and taps that are made with uninsulated connectors using methods suitable for the application, with insulation and mechanical strength at least equivalent to unspliced conductors.
 - 1. Dry Locations: Use insulating covers specifically designed for the connectors or heat shrink tubing.
 - 2. Damp Locations: Use insulating covers specifically designed for the connectors or heat shrink tubing.
 - a. For connections with insulating covers, apply outer covering of moisture sealing electrical tape.
 - 3. Wet Locations: Use heat shrink tubing.
- N. Insulate ends of spare conductors using vinyl insulating electrical tape.
- O. Field-Applied Color Coding: Where vinyl color coding electrical tape is used in lieu of integrally colored insulation as permitted in Part 2 under "Color Coding", apply half overlapping turns of tape at each termination and at each location conductors are accessible.
- P. Identify conductors and cables in accordance with Section 26 05 53.
- Q. Install firestopping to preserve fire resistance rating of partitions and other elements.
- R. Unless specifically indicated to be excluded, provide final connections to all equipment and devices, including those furnished by others, as required for a complete operating system.

END OF SECTION 26 05 19

SECTION 26 05 26

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Grounding and bonding requirements.
- B. Conductors for grounding and bonding.
- C. Connectors for grounding and bonding.
- D. Ground rod electrodes.

1.2 REFERENCE STANDARDS

- A. NECA 1 - Standard for Good Workmanship in Electrical Construction.
- B. NEMA GR 1 - Grounding Rod Electrodes and Grounding Rod Electrode Couplings.
- C. NFPA 70 - National Electrical Code.
- D. UL 467 - Grounding and Bonding Equipment.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Verify exact locations of underground metal water service pipe entrances to building.
 - 2. Notify Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.
- B. Sequencing:
 - 1. Do not install ground rod electrodes until final backfill and compaction is complete.

PART 2 PRODUCTS

2.1 GROUNDING AND BONDING REQUIREMENTS

- A. Do not use products for applications other than as permitted by NFPA 70 and product listing.
- B. Unless specifically indicated to be excluded, provide all required components, conductors, connectors, conduit, boxes, fittings, supports, accessories, etc. as necessary for a complete grounding and bonding system.
- C. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
- D. Grounding Electrode System:
 - 1. Provide connection to required and supplemental grounding electrodes indicated to form grounding electrode system.
 - a. Provide continuous grounding electrode conductors without splice or joint.
 - b. Install grounding electrode conductors in raceway where exposed to physical damage. Bond grounding electrode conductor to metallic raceways at each end with bonding jumper.

2. Metal Underground Water Pipe(s):
 - a. Provide connection to underground metal domestic and fire protection (where present) water service pipe(s) that are in direct contact with earth for at least 10 feet (3.0 m) at an accessible location not more than 5 feet (1.5 m) from the point of entrance to the building.
 - b. Provide bonding jumper(s) around insulating joints/pipes as required to make pipe electrically continuous.
 - c. Provide bonding jumper around water meter of sufficient length to permit removal of meter without disconnecting jumper.
 3. Ground Rod Electrode(s):
 - a. Provide three electrodes in an equilateral triangle configuration unless otherwise indicated or required.
 - b. Space electrodes not less than 10 feet (3.0 m) from each other and any other ground electrode.
 - c. Where location is not indicated, locate electrode(s) at least 5 feet (1.5 m) outside building perimeter foundation as near as possible to electrical service entrance; where possible, locate in softscape (uncovered) area.
- E. Service-Supplied System Grounding:
1. For each service disconnect, provide grounding electrode conductor to connect neutral (grounded) service conductor to grounding electrode system. Unless otherwise indicated, make connection at neutral (grounded) bus in service disconnect enclosure.
 2. For each service disconnect, provide main bonding jumper to connect neutral (grounded) bus to equipment ground bus where not factory-installed. Do not make any other connections between neutral (grounded) conductors and ground on load side of service disconnect.

2.2 GROUNDING AND BONDING COMPONENTS

- A. General Requirements:
1. Provide products listed, classified, and labeled as suitable for the purpose intended.
 2. Provide products listed and labeled as complying with UL 467 where applicable.
- B. Conductors for Grounding and Bonding, in Addition to Requirements of Section 26 05 26:
1. Use insulated copper conductors unless otherwise indicated.
 - a. Exceptions:
 - 1) Use bare copper conductors where installed underground in direct contact with earth.
 - 2) Use bare copper conductors where directly encased in concrete (not in raceway).
- C. Connectors for Grounding and Bonding:
1. Description: Connectors appropriate for the application and suitable for the conductors and items to be connected; listed and labeled as complying with UL 467.
 2. Unless otherwise indicated, use exothermic welded connections for underground, concealed and other inaccessible connections.
 3. Unless otherwise indicated, use compression connectors or exothermic welded connections for accessible connections.
 - a. Exceptions:
 - 1) Use exothermic welded connections for connections to metal building frame.
- D. Ground Rod Electrodes:
1. Comply with NEMA GR 1.

2. Material: Copper-bonded (copper-clad) steel.
3. Size: 3/4 inch (19 mm) diameter by 10 feet (3.0 m) length, unless otherwise indicated.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that work likely to damage grounding and bonding system components has been completed.
- B. Verify that field measurements are as indicated.
- C. Verify that conditions are satisfactory for installation prior to starting work.

3.2 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Perform work in accordance with NECA 1 (general workmanship).
- C. Ground Rod Electrodes: Unless otherwise indicated, install ground rod electrodes vertically. Where encountered rock prohibits vertical installation, install at 45 degree angle or bury horizontally in trench at least 30 inches (750 mm) deep in accordance with NFPA 70 or provide ground plates.
- D. Make grounding and bonding connections using specified connectors.
 1. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors. Do not remove conductor strands to facilitate insertion into connector.
 2. Remove nonconductive paint, enamel, or similar coating at threads, contact points, and contact surfaces.
 3. Exothermic Welds: Make connections using molds and weld material suitable for the items to be connected in accordance with manufacturer's recommendations.
 4. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.
 5. Compression Connectors: Secure connections using manufacturer's recommended tools and dies.
- E. Identify grounding and bonding system components in accordance with Section 26 05 53.

END OF SECTION 26 05 26

SECTION 26 05 29

HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Support and attachment requirements and components for equipment, conduit, cable, boxes, and other electrical work.

1.2 REFERENCE STANDARDS

- A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- C. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel.
- D. MFMA-4 - Metal Framing Standards Publication.
- E. NECA 1 - Standard for Good Workmanship in Electrical Construction.
- F. NFPA 70 - National Electrical Code.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate sizes and arrangement of supports and bases with the actual equipment and components to be installed.
 - 2. Coordinate the work with other trades to provide additional framing and materials required for installation.
 - 3. Coordinate compatibility of support and attachment components with mounting surfaces at the installed locations.
 - 4. Coordinate the arrangement of supports with ductwork, piping, equipment and other potential conflicts installed under other sections or by others.
 - 5. Notify Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.
- B. Sequencing:
 - 1. Do not install products on or provide attachment to concrete surfaces until concrete has fully cured in accordance with Section 03 30 00.

1.4 QUALITY ASSURANCE

- A. Comply with NFPA 70.
- B. Comply with applicable building code.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.1 SUPPORT AND ATTACHMENT COMPONENTS

- A. General Requirements:
 - 1. Provide all required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for the complete installation of electrical work.
 - 2. Provide products listed, classified, and labeled as suitable for the purpose intended, where applicable.
 - 3. Where support and attachment component types and sizes are not indicated, select in accordance with manufacturer's application criteria as required for the load to be supported with a minimum safety factor of _____. Include consideration for vibration, equipment operation, and shock loads where applicable.
 - 4. Do not use products for applications other than as permitted by NFPA 70 and product listing.
 - 5. Steel Components: Use corrosion resistant materials suitable for the environment where installed.
 - a. Zinc-Plated Steel: Electroplated in accordance with ASTM B633.
 - b. Galvanized Steel: Hot-dip galvanized after fabrication in accordance with ASTM A123/A123M or ASTM A153/A153M.
- B. Conduit and Cable Supports: Straps, clamps, etc. suitable for the conduit or cable to be supported.
 - 1. Conduit Straps: One-hole or two-hole type; steel.
 - 2. Conduit Clamps: Bolted type unless otherwise indicated.
- C. Metal Channel (Strut) Framing Systems: Factory-fabricated continuous-slot metal channel (strut) and associated fittings, accessories, and hardware required for field-assembly of supports.
 - 1. Comply with MFMA-4.
- D. Hanger Rods: Threaded zinc-plated steel unless otherwise indicated.
- E. Anchors and Fasteners:
 - 1. Unless otherwise indicated and where not otherwise restricted, use the anchor and fastener types indicated for the specified applications.
 - 2. Concrete: Use preset concrete inserts, expansion anchors, or screw anchors.
 - 3. Solid or Grout-Filled Masonry: Use expansion anchors or screw anchors.
 - 4. Hollow Masonry: Use toggle bolts.
 - 5. Hollow Stud Walls: Use toggle bolts.
 - 6. Steel: Use beam clamps, machine bolts, or welded threaded studs.
 - 7. Sheet Metal: Use sheet metal screws.
 - 8. Plastic and lead anchors are not permitted.
 - 9. Powder-actuated fasteners are not permitted.
 - 10. Hammer-driven anchors and fasteners are not permitted.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that mounting surfaces are ready to receive support and attachment components.
- C. Verify that conditions are satisfactory for installation prior to starting work.

3.2 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Perform work in accordance with NECA 1 (general workmanship).
- C. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
- D. Unless specifically indicated or approved by Engineer, do not provide support from suspended ceiling support system or ceiling grid.
- E. Unless specifically indicated or approved by Engineer, do not provide support from roof deck.
- F. Do not penetrate or otherwise notch or cut structural members without approval of Structural Engineer.
- G. Equipment Support and Attachment:
 - 1. Use metal fabricated supports or supports assembled from metal channel (strut) to support equipment as required.
 - 2. Use metal channel (strut) secured to studs to support equipment surface-mounted on hollow stud walls when wall strength is not sufficient to resist pull-out.
 - 3. Use metal channel (strut) to support surface-mounted equipment in wet or damp locations to provide space between equipment and mounting surface.
 - 4. Securely fasten floor-mounted equipment. Do not install equipment such that it relies on its own weight for support.
- H. Conduit Support and Attachment: Also comply with Section 26 05 33.13.
- I. Box Support and Attachment: Also comply with Section 26 05 33.16.
- J. Secure fasteners according to manufacturer's recommended torque settings.
- K. Remove temporary supports.

3.3 FIELD QUALITY CONTROL

- A. See Section 01 40 00 - Quality Requirements, for additional requirements.
- B. Inspect support and attachment components for damage and defects.
- C. Repair cuts and abrasions in galvanized finishes using zinc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.
- D. Correct deficiencies and replace damaged or defective support and attachment components.

END OF SECTION 26 05 29

SECTION 26 05 33.13

CONDUIT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Galvanized steel rigid metal conduit (RMC).
- B. Intermediate metal conduit (IMC).
- C. Flexible metal conduit (FMC).
- D. Liquidtight flexible metal conduit (LFMC).
- E. Electrical metallic tubing (EMT).
- F. Rigid polyvinyl chloride (PVC) conduit.
- G. Conduit fittings.
- H. Accessories.

1.2 REFERENCE STANDARDS

- A. ANSI C80.1 - American National Standard for Electrical Rigid Steel Conduit (ERSC).
- B. ANSI C80.3 - American National Standard for Electrical Metallic Tubing -- Steel (EMT-S).
- C. NECA 1 - Standard for Good Workmanship in Electrical Construction.
- D. NECA 101 - Standard for Installing Steel Conduits (Rigid, IMC, EMT).
- E. NECA 111 - Standard for Installing Nonmetallic Raceways (RNC, ENT, LFNC).
- F. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable.
- G. NEMA TC 2 - Electrical Polyvinyl Chloride (PVC) Conduit.
- H. NEMA TC 3 - Polyvinyl Chloride (PVC) Fittings for Use with Rigid PVC Conduit and Tubing.
- I. NFPA 70 - National Electrical Code.
- J. UL 1 - Flexible Metal Conduit.
- K. UL 6 - Electrical Rigid Metal Conduit-Steel.
- L. UL 360 - Liquid-Tight Flexible Steel Conduit.
- M. UL 514B - Conduit, Tubing, and Cable Fittings.
- N. UL 651 - Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings.
- O. UL 797 - Electrical Metallic Tubing-Steel.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate minimum sizes of conduits with the actual conductors to be installed, including adjustments for conductor sizes increased for voltage drop.

2. Coordinate the arrangement of conduits with structural members, ductwork, piping, equipment and other potential conflicts installed under other sections or by others.
 3. Verify exact conduit termination locations required for boxes, enclosures, and equipment installed under other sections or by others.
 4. Coordinate the work with other trades to provide roof penetrations that preserve the integrity of the roofing system and do not void the roof warranty.
 5. Notify Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.
- B. Sequencing:
1. Do not begin installation of conductors and cables until installation of conduit is complete between outlet, junction and splicing points.

1.4 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store conduit and fittings in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.1 CONDUIT APPLICATIONS

- A. Do not use conduit and associated fittings for applications other than as permitted by NFPA 70 and product listing.
- B. Outdoor Underground Installations:
1. Unless otherwise indicated, use rigid non-metallic conduit
- C. Outdoor Locations Above Grade: Use rigid steel conduit.
- D. Dry Locations:
1. Concealed: Use electrical metallic tubing.
 2. Exposed: Use electrical metallic tubing.
- E. Connection to Motors: Use liquid-tight flexible metal conduit, except use flexible metal conduit in air plenums.
- F. Connection to Vibrating Equipment (including transformers):
1. Indoors: Use flexible metal conduit.
 2. Outdoors: Use liquid-tight flexible metal conduit.

2.2 CONDUIT REQUIREMENTS

- A. Existing Work: Where existing conduits are indicated to be reused, they may be reused only where they comply with specified requirements, are free from corrosion, and integrity is verified by pulling a mandrel through them.
- B. Provide all conduit, fittings, supports, and accessories required for a complete raceway system.
- C. Provide products listed, classified, and labeled as suitable for the purpose intended.
- D. Minimum Conduit Size, Unless Otherwise Indicated:
1. Branch Circuits: 1/2 inch (16 mm) trade size.

- E. Where conduit size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

2.3 GALVANIZED STEEL RIGID METAL CONDUIT (RMC)

- A. Description: NFPA 70, Type RMC galvanized steel rigid metal conduit complying with ANSI C80.1 and listed and labeled as complying with UL 6.
- B. Fittings:
 - 1. Non-Hazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 - 2. Material: Use steel.
 - 3. Connectors and Couplings: Use threaded type fittings only. Threadless set screw and compression (gland) type fittings are not permitted.

2.4 FLEXIBLE METAL CONDUIT (FMC)

- A. Description: NFPA 70, Type FMC standard wall steel flexible metal conduit listed and labeled as complying with UL 1, and listed for use in classified firestop systems to be used.
- B. Fittings:
 - 1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 - 2. Material: Use steel.

2.5 LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC)

- A. Description: NFPA 70, Type LFMC polyvinyl chloride (PVC) jacketed steel flexible metal conduit listed and labeled as complying with UL 360.
- B. Fittings:
 - 1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 - 2. Material: Use steel.

2.6 ELECTRICAL METALLIC TUBING (EMT)

- A. Description: NFPA 70, Type EMT steel electrical metallic tubing complying with ANSI C80.3 and listed and labeled as complying with UL 797.
- B. Colored EMT:
 - 1. Manufacturer: Allied Tube and Conduit.
 - 2. Color Code:
 - a. Fire Alarm: Red
- C. Fittings:
 - 1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 - 2. Material: Use steel.
 - 3. Connectors and Couplings: Use compression (gland) or set-screw type.
 - a. Do not use indenter type connectors and couplings.
 - 4. Damp or Wet Locations (where permitted): Use fittings listed for use in wet locations.

2.7 RIGID POLYVINYL CHLORIDE (PVC) CONDUIT

- A. Description: NFPA 70, Type PVC rigid polyvinyl chloride conduit complying with NEMA TC 2 and listed and labeled as complying with UL 651; Schedule 40 unless otherwise indicated, Schedule 80 where subject to physical damage; rated for use with conductors rated 90 degrees C.
- B. Fittings:
 - 1. Manufacturer: Same as manufacturer of conduit to be connected.
 - 2. Description: Fittings complying with NEMA TC 3 and listed and labeled as complying with UL 651; material to match conduit.

2.8 ACCESSORIES

- A. Conduit Joint Compound: Corrosion-resistant, electrically conductive; suitable for use with the conduit to be installed.
- B. Solvent Cement for PVC Conduit and Fittings: As recommended by manufacturer of conduit and fittings to be installed.
- C. Pull Strings: Use nylon cord with average breaking strength of not less than 200 pound-force (890 N).

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that mounting surfaces are ready to receive conduits.
- C. Verify that conditions are satisfactory for installation prior to starting work.

3.2 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Perform work in accordance with NECA 1 (general workmanship).
- C. Install galvanized steel rigid metal conduit (RMC) in accordance with NECA 101.
- D. Install rigid polyvinyl chloride (PVC) conduit in accordance with NECA 111.
- E. Conduit Routing:
 - 1. Unless dimensioned, conduit routing indicated is diagrammatic.
 - 2. When conduit destination is indicated without specific routing, determine exact routing required.
 - 3. Conceal all conduits unless specifically indicated to be exposed.
 - 4. Conduits in the following areas may be exposed, unless otherwise indicated:
 - a. Electrical rooms.
 - b. Mechanical equipment rooms.
 - 5. Unless otherwise approved, do not route conduits exposed:
 - a. Across floors.
 - b. Across roofs.
 - c. Across top of parapet walls.
 - d. Across building exterior surfaces.
 - 6. Conduits installed underground or embedded in concrete may be routed in the shortest possible manner unless otherwise indicated. Route all other conduits

parallel or perpendicular to building structure and surfaces, following surface contours where practical.

7. Arrange conduit to maintain adequate headroom, clearances, and access.
8. Arrange conduit to provide no more than the equivalent of four 90 degree bends between pull points.
9. Arrange conduit to prevent moisture traps. Provide drain fittings at low points and at sealing fittings where moisture may collect.
10. Maintain minimum clearance of 12 inches (300 mm) between conduits and hot surfaces.
11. Group parallel conduits in the same area together on a common rack.

F. Conduit Support:

1. Secure and support conduits in accordance with NFPA 70 and Section 26 05 29 using suitable supports and methods approved by the authority having jurisdiction.
2. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
3. Installation Above Suspended Ceilings: Do not provide support from ceiling support system. Do not provide support from ceiling grid or allow conduits to lay on ceiling tiles.
4. Use conduit strap to support single surface-mounted conduit.
 - a. Use clamp back spacer with conduit strap for damp and wet locations to provide space between conduit and mounting surface.
5. Use metal channel (strut) with accessory conduit clamps to support multiple parallel surface-mounted conduits.
6. Use conduit clamp to support single conduit from beam clamp or threaded rod.
7. Use of spring steel conduit clips for support of conduits is permitted only as follows:
 - a. Support of electrical metallic tubing (EMT) 1-1/2 inch trade size concealed above accessible ceilings and within hollow stud walls.
8. Use of wire for support of conduits is not permitted.

G. Connections and Terminations:

1. Use approved zinc-rich paint or conduit joint compound on field-cut threads of galvanized steel conduits prior to making connections.
2. Where two threaded conduits must be joined and neither can be rotated, use three-piece couplings or split couplings. Do not use running threads.
3. Use suitable adapters where required to transition from one type of conduit to another.
4. Terminate threaded conduits in boxes and enclosures using threaded hubs or double lock nuts for dry locations and raintight hubs for wet locations.
5. Provide insulated bushings on box connectors 1-inch and larger, on conduits stubbed above an accessible ceiling, and on conduits used for telecommunications pathways.
6. Secure joints and connections to provide maximum mechanical strength and electrical continuity.

H. Penetrations:

1. Do not penetrate or otherwise notch or cut structural members, including footings and grade beams, without approval of Structural Engineer.
2. Make penetrations perpendicular to surfaces unless otherwise indicated.
3. Seal interior of conduits entering the building from underground at first accessible point to prevent entry of moisture and gases.
4. Where conduits penetrate waterproof membrane, seal as required to maintain integrity of membrane.

5. Make penetrations for roof-mounted equipment within associated equipment openings and curbs where possible to minimize roofing system penetrations. Where penetrations are necessary, seal as indicated or as required to preserve integrity of roofing system and maintain roof warranty.
 6. Install firestopping to preserve fire resistance rating of partitions and other elements.
- I. Conduit Movement Provisions: Where conduits are subject to movement, provide expansion and expansion/deflection fittings to prevent damage to enclosed conductors or connected equipment. This includes, but is not limited to:
 1. Where conduits cross structural joints intended for expansion, contraction, or deflection.
 2. Where calculated in accordance with NFPA 70 for rigid polyvinyl chloride (PVC) conduit installed above ground to compensate for thermal expansion and contraction.
 3. Where conduits are subject to earth movement by settlement or frost.
 - J. Condensation Prevention: Where conduits cross barriers between areas of potential substantial temperature differential, provide junction box or type C conduit with approved sealing compound at an accessible point near the penetration to prevent condensation. This includes, but is not limited to:
 1. Where conduits pass from outdoors into conditioned interior spaces.
 2. Where conduits pass from unconditioned interior spaces into conditioned interior spaces.
 3. Where conduits penetrate coolers or freezers.
 - K. Provide pull string in all empty conduits and in conduits where conductors and cables are to be installed by others. Leave minimum slack of 12 inches (300 mm) at each end.
 - L. Provide grounding and bonding in accordance with Section 26 05 26.
 - M. Identify conduits in accordance with Section 26 05 53.
- 3.3 FIELD QUALITY CONTROL
- A. Repair cuts and abrasions in galvanized finishes using zinc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.
 - B. Correct deficiencies and replace damaged or defective conduits.
- 3.4 CLEANING
- A. Clean interior of conduits to remove moisture and foreign matter.
- 3.5 PROTECTION
- A. Immediately after installation of conduit, use suitable caps to provide protection from entry of moisture and foreign material and do not remove until ready for installation of conductors.

END OF SECTION 26 05 33.13

SECTION 26 05 33.16

BOXES FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Outlet and device boxes up to 100 cubic inches (1,650 cu cm), including those used as junction and pull boxes.
- B. Cabinets and enclosures, including junction and pull boxes larger than 100 cubic inches (1,650 cu cm).

1.2 REFERENCE STANDARDS

- A. NECA 1 - Standard for Good Workmanship in Electrical Construction.
- B. NECA 130 - Standard for Installing and Maintaining Wiring Devices.
- C. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable.
- D. NEMA OS 1 - Sheet-Steel Outlet Boxes, Device Boxes, Covers, and Box Supports.
- E. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
- F. NFPA 70 - National Electrical Code.
- G. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations.
- H. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations.
- I. UL 508A - Industrial Control Panels.
- J. UL 514A - Metallic Outlet Boxes.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate the work with other trades to avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and working clearances for electrical equipment required by NFPA 70.
 - 2. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.
 - 3. Coordinate minimum sizes of boxes with the actual installed arrangement of conductors, clamps, support fittings, and devices, calculated according to NFPA 70.
 - 4. Coordinate minimum sizes of pull boxes with the actual installed arrangement of connected conduits, calculated according to NFPA 70.
 - 5. Coordinate the placement of boxes with millwork, furniture, devices, equipment, etc. installed under other sections or by others.
 - 6. Coordinate the work with other trades to preserve insulation integrity.
 - 7. Coordinate the work with other trades to provide walls suitable for installation of flush-mounted boxes where indicated.
 - 8. Notify Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.4 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.1 BOXES

- A. General Requirements:
 - 1. Do not use boxes and associated accessories for applications other than as permitted by NFPA 70 and product listing.
 - 2. Provide all boxes, fittings, supports, and accessories required for a complete raceway system and to accommodate devices and equipment to be installed.
 - 3. Provide products listed, classified, and labeled as suitable for the purpose intended.
 - 4. Where box size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
 - 5. Provide grounding terminals within boxes where equipment grounding conductors terminate.
- B. Outlet and Device Boxes Up to 100 cubic inches (1,650 cu cm), Including Those Used as Junction and Pull Boxes:
 - 1. Use sheet-steel boxes for dry locations unless otherwise indicated or required.
 - 2. Use cast iron boxes or cast aluminum boxes for damp or wet locations unless otherwise indicated or required; furnish with compatible weatherproof gasketed covers.
 - 3. Use suitable concrete type boxes where flush-mounted in concrete.
 - 4. Use suitable masonry type boxes where flush-mounted in masonry walls.
 - 5. Use raised covers suitable for the type of wall construction and device configuration where required.
 - 6. Use shallow boxes where required by the type of wall construction.
 - 7. Do not use "through-wall" boxes designed for access from both sides of wall.
 - 8. Sheet-Steel Boxes: Comply with NEMA OS 1, and list and label as complying with UL 514A.
 - 9. Cast Metal Boxes: Comply with NEMA FB 1, and list and label as complying with UL 514A; furnish with threaded hubs.
 - 10. Boxes for Supporting Luminaires and Ceiling Fans: Listed as suitable for the type and weight of load to be supported; furnished with fixture stud to accommodate mounting of luminaire where required.
 - 11. Boxes for Ganged Devices: Use multigang boxes of single-piece construction. Do not use field-connected gangable boxes unless specifically indicated or permitted.
- C. Cabinets and Enclosures, Including Junction and Pull Boxes Larger Than 100 cubic inches (1,650 cu cm):
 - 1. Comply with NEMA 250, and list and label as complying with UL 50 and UL 50E, or UL 508A.
 - 2. NEMA 250 Environment Type, Unless Otherwise Indicated:
 - 3. Junction and Pull Boxes Larger Than 100 cubic inches (1,650 cu cm):
 - a. Provide screw-cover or hinged-cover enclosures unless otherwise indicated.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that mounting surfaces are ready to receive boxes.
- C. Verify that conditions are satisfactory for installation prior to starting work.

3.2 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install boxes in accordance with NECA 1 (general workmanship) and, where applicable, NECA 130, including mounting heights specified in those standards where mounting heights are not indicated.
- C. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.
- D. Box Locations:
 - 1. Locate boxes to be accessible. Provide access panels in accordance with Section 08 31 00 as required where approved by the Architect.
 - 2. Locate boxes so that wall plates do not span different building finishes.
 - 3. Locate boxes so that wall plates do not cross masonry joints.
 - 4. Fire Resistance Rated Walls: Install flush-mounted boxes such that the required fire resistance will not be reduced.
 - 5. Locate junction and pull boxes as indicated, as required to facilitate installation of conductors, and to limit conduit length and/or number of bends between pulling points in accordance with Section 26 05 33.13.
 - 6. Locate junction and pull boxes in the following areas, unless otherwise indicated:
 - a. Concealed above accessible suspended ceilings.
 - b. Within joists in areas with no ceiling.
 - c. Electrical rooms.
 - d. Mechanical equipment rooms.
- E. Box Supports:
 - 1. Secure and support boxes in accordance with NFPA 70 and Section 26 05 29 using suitable supports and methods approved by the authority having jurisdiction.
 - 2. Provide independent support from building structure except for cast metal boxes (other than boxes used for fixture support) supported by threaded conduit connections in accordance with NFPA 70. Do not provide support from piping, ductwork, or other systems.
- F. Install boxes plumb and level.
- G. Install boxes as required to preserve insulation integrity.
- H. Install permanent barrier between ganged wiring devices when voltage between adjacent devices exceeds 300 V.
- I. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 84 00.
- J. Close unused box openings.

K. Install blank wall plates on junction boxes and on outlet boxes with no devices or equipment installed or designated for future use.

L. Provide grounding and bonding in accordance with Section 26 05 26.

3.3 CLEANING

A. Clean interior of boxes to remove dirt, debris, plaster and other foreign material.

3.4 PROTECTION

A. Immediately after installation, protect boxes from entry of moisture and foreign material until ready for installation of conductors.

END OF SECTION 26 05 33.16

SECTION 26 05 53

IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Electrical identification requirements.
- B. Identification nameplates and labels.
- C. Wire and cable markers.
- D. Warning signs and labels.

1.2 REFERENCE STANDARDS

- A. ANSI Z535.2 - American National Standard for Environmental and Facility Safety Signs.
- B. ANSI Z535.4 - American National Standard for Product Safety Signs and Labels.
- C. NFPA 70 - National Electrical Code.
- D. NFPA 70E - Standard for Electrical Safety in the Workplace.
- E. UL 969 - Marking and Labeling Systems.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Verify final designations for equipment, systems, and components to be identified prior to fabrication of identification products.
- B. Sequencing:
 - 1. Do not conceal items to be identified, in locations such as above suspended ceilings, until identification products have been installed.
 - 2. Do not install identification products until final surface finishes and painting are complete.

1.4 FIELD CONDITIONS

- A. Do not install adhesive products when ambient temperature is lower than recommended by manufacturer.

PART 2 PRODUCTS

2.1 IDENTIFICATION REQUIREMENTS

- A. Identification for Equipment:
 - 1. Use identification nameplate to identify each piece of electrical distribution and control equipment and associated sections, compartments, and components.
 - a. Transfer Switches:
 - 1) Identify voltage and phase.
 - 2) Identify power source and circuit number for both normal power source and standby power source. Include location when not within sight of equipment.

- 3) Identify short circuit current rating based on the specific overcurrent protective device type and settings protecting the transfer switch.
2. Available Fault Current Documentation: Use identification label to identify the available fault current and date calculations were performed at locations requiring documentation by NFPA 70, including but not limited to the following.
 - a. Service equipment.
 3. Arc Flash Hazard Warning Labels: Use warning labels to identify arc flash hazards for electrical equipment, such as switchboards, panelboards, industrial control panels, meter socket enclosures, and motor control centers that are likely to require examination, adjustment, servicing, or maintenance while energized.
 - a. Legend: Include orange header that reads "WARNING", followed by the word message "Arc Flash and Shock Hazard; Appropriate PPE Required; Do not operate controls or open covers without appropriate personal protection equipment; Failure to comply may result in injury or death; Refer to NFPA 70E for minimum PPE requirements" or approved equivalent.
- B. Identification for Conductors and Cables:
1. Color Coding for Power Conductors 600 V and Less: Comply with Section 26 05 19.
 2. Use identification nameplate or identification label to identify color code for ungrounded and grounded power conductors inside door or enclosure at each piece of feeder or branch-circuit distribution equipment when premises has feeders or branch circuits served by more than one nominal voltage system.
 3. Use wire and cable markers to identify circuit number or other designation indicated for power, control, and instrumentation conductors and cables at the following locations:
 - a. At each source and load connection.
 - b. Within boxes when more than one circuit is present.
 4. Use wire and cable markers to identify connected grounding electrode system components for grounding electrode conductors.

2.2 IDENTIFICATION NAMEPLATES AND LABELS

- A. Identification Nameplates:
1. Materials:
 2. Mounting Holes for Mechanical Fasteners: Two, centered on sides for sizes up to 1 inch (25 mm) high; Four, located at corners for larger sizes.
- B. Identification Labels:
1. Materials: Use self-adhesive laminated plastic labels; UV, chemical, water, heat, and abrasion resistant.
 2. Text: Use factory pre-printed or machine-printed text. Do not use handwritten text unless otherwise indicated.

2.3 WIRE AND CABLE MARKERS

- A. Markers for Conductors and Cables: Use wrap-around self-adhesive vinyl cloth, wrap-around self-adhesive vinyl self-laminating, heat-shrink sleeve, plastic sleeve, plastic clip-on, or vinyl split sleeve type markers suitable for the conductor or cable to be identified.
- B. Markers for Conductor and Cable Bundles: Use plastic marker tags secured by nylon cable ties.
- C. Legend: Power source and circuit number or other designation indicated.

- D. Text: Use factory pre-printed or machine-printed text, all capitalized unless otherwise indicated.
- E. Minimum Text Height: 1/8 inch (3 mm).
- F. Color: Black text on white background unless otherwise indicated.

2.4 WARNING SIGNS AND LABELS

- A. Comply with ANSI Z535.2 or ANSI Z535.4 as applicable.
- B. Warning Signs:
 - 1. Materials:
 - 2. Minimum Size: 7 by 10 inches (178 by 254 mm) unless otherwise indicated.
- C. Warning Labels:
 - 1. Materials: Use factory pre-printed or machine-printed self-adhesive polyester or self-adhesive vinyl labels; UV, chemical, water, heat, and abrasion resistant; produced using materials recognized to UL 969.
 - 2. Machine-Printed Labels: Use thermal transfer process printing machines and accessories recommended by label manufacturer.
 - 3. Minimum Size: 2 by 4 inches (51 mm by 102 mm) unless otherwise indicated.

PART 3 EXECUTION

3.1 PREPARATION

- A. Clean surfaces to receive adhesive products according to manufacturer's instructions.

3.2 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install identification products to be plainly visible for examination, adjustment, servicing, and maintenance. Unless otherwise indicated, locate products as follows:
 - 1. Surface-Mounted Equipment: Enclosure front.
 - 2. Flush-Mounted Equipment: Inside of equipment door.
 - 3. Free-Standing Equipment: Enclosure front; also enclosure rear for equipment with rear access.
 - 4. Elevated Equipment: Legible from the floor or working platform.
 - 5. Interior Components: Legible from the point of access.
 - 6. Conductors and Cables: Legible from the point of access.
- C. Install identification products centered, level, and parallel with lines of item being identified.
- D. Secure nameplates to exterior surfaces of enclosures using stainless steel screws and to interior surfaces using self-adhesive backing or epoxy cement.
- E. Install self-adhesive labels and markers to achieve maximum adhesion, with no bubbles or wrinkles and edges properly sealed.
- F. Secure rigid signs using stainless steel screws.

END OF SECTION 26 05 53

SECTION 26 05 83
WIRING CONNECTIONS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Electrical connections to equipment.

1.2 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Obtain and review shop drawings, product data, manufacturer's wiring diagrams, and manufacturer's instructions for equipment furnished under other sections.
 - 2. Determine connection locations and requirements.
- B. Sequencing:
 - 1. Install rough-in of electrical connections before installation of equipment is required.
 - 2. Make electrical connections before required start-up of equipment.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Flexible Conduit: As specified in Section 26 05 33.13.
- B. Wire and Cable: As specified in Section 26 05 19.

2.2 EQUIPMENT CONNECTIONS

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that equipment is ready for electrical connection, wiring, and energization.

3.2 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. Install disconnect switches, controllers, control stations, and control devices to complete equipment wiring requirements.
- D. Install terminal block jumpers to complete equipment wiring requirements.
- E. Install interconnecting conduit and wiring between devices and equipment to complete equipment wiring requirements.

END OF SECTION 26 05 83

SECTION 28 46 00
FIRE DETECTION AND ALARM

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Fire alarm system design and installation, including all components, wiring, and conduit.
- B. Circuits from protected premises to supervising station, including conduit.

1.2 REFERENCE STANDARDS

- A. 36 CFR 1191 - Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines.
- B. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design.
- C. NFPA 70 - National Electrical Code.
- D. NFPA 72 - National Fire Alarm and Signaling Code.

1.3 QUALITY ASSURANCE

- A. Designer Qualifications: NICET Level III or IV (3 or 4) certified fire alarm technician or registered fire protection engineer, employed by fire alarm control panel manufacturer, Contractor, or installer, with experience designing fire alarm systems in the jurisdictional area of the authorities having jurisdiction.
- B. Installer Qualifications: Firm with minimum 3 years documented experience installing fire alarm systems of the specified type and providing contract maintenance service as a regular part of their business.
 - 1. Authorized representative of control unit manufacturer; submit manufacturer's certification that installer is authorized; include name and title of manufacturer's representative making certification.
 - 2. Installer Personnel: At least 2 years of experience installing fire alarm systems.
 - 3. Supervisor: NICET level III or IV (3 or 4) certified fire alarm technician; furnish name and address.

PART 2 PRODUCTS

2.1 FIRE ALARM SYSTEM

- A. Fire Alarm System: Provide modifications and extensions to the existing automatic fire detection and alarm system:
 - 1. Provide all components necessary, regardless of whether shown in Contract Documents or not.
 - 2. Comply with the following; where requirements conflict, order of precedence of requirements is as listed:
 - a. ADA Standards.
 - b. The requirements of the local authority having jurisdiction, which is _____.
 - c. Applicable local codes.
 - d. Contract Documents (drawings and specifications).
 - e. NFPA 72; where the word "should" is used consider that provision mandatory; where conflicts between requirements require deviation from NFPA 72, identify deviations clearly on design documents.

- B. Supervising Stations and Fire Department Connections:
 - 1. Public Fire Department Notification: By on-premises supervising station.
 - 2. On-Premises Supervising Station: Existing proprietary station operated by Owner, located at _____.
 - 3. Means of Transmission to On-Premises Supervising Station: Directly connected noncoded system.
- C. Circuits:
 - 1. Initiating Device Circuits (IDC): Class B, Style A.
 - 2. Signaling Line Circuits (SLC) Within Single Building: Class B, Style 0.5.
- D. Power Sources:
 - 1. Primary: Dedicated branch circuits of the facility power distribution system.
 - 2. Secondary: Storage batteries.
 - 3. Capacity: Sufficient to operate entire system for period specified by NFPA 72.
 - 4. Each Computer System: Provide uninterruptible power supply (UPS).

2.2 EXISTING COMPONENTS

- A. On-Premises Supervising Station: Include as part of this work all modifications necessary to existing supervising station to accommodate new fire alarm work.
- B. Clearly label components that are "Not In Service."
- C. Remove unused existing components and materials from site and dispose of properly.

2.3 FIRE SAFETY SYSTEMS INTERFACES

- A. Supervision: Provide supervisory signals in accordance with NFPA 72 for the following:
 - 1. Fire pump(s).

2.4 COMPONENTS

- A. General:
 - 1. Provide flush mounted units where installed in finish areas; in unfinished areas, surface mounted unit are acceptable.
 - 2. Provide legible, permanent labels for each control device, using identification used in operation and maintenance data.
- B. Fire Alarm Control Units: Analog, addressable type; listed, classified, and labeled as suitable for the purpose intended.
- C. Circuit Conductors: Copper; provide 200 feet (60 m) extra; color code and label.
- D. Locks and Keys: Deliver keys to Owner.
- E. Instruction Charts: Printed instruction chart for operators, showing steps to be taken when a signal is received (normal, alarm, supervisory, and trouble); easily readable from normal operator's station.
 - 1. Frame: Stainless steel or aluminum with polycarbonate or glass cover.
 - 2. Provide one for each control unit where operations are to be performed.
 - 3. Obtain approval of Owner prior to mounting; mount in location acceptable to Owner.
 - 4. Provide extra copy with operation and maintenance data submittal.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install in accordance with applicable codes, NFPA 72, NFPA 70, and Contract Documents.
- B. Conceal all wiring, conduit, boxes, and supports where installed in finished areas.
- C. Obtain Owner's approval of locations of devices, before installation.
- D. Install instruction cards and labels.

3.2 INSPECTION AND TESTING FOR COMPLETION

- A. Notify Owner 7 days prior to beginning completion inspections and tests.
- B. Notify authorities having jurisdiction and comply with their requirements for scheduling inspections and tests and for observation by their personnel.
- C. Provide the services of the installer's supervisor or person with equivalent qualifications to supervise inspection and testing, correction, and adjustments.
- D. Prepare for testing by ensuring that all work is complete and correct; perform preliminary tests as required.
- E. Provide all tools, software, and supplies required to accomplish inspection and testing.
- F. Perform inspection and testing in accordance with NFPA 72 and requirements of local authorities; document each inspection and test.
- G. Correct defective work, adjust for proper operation, and retest until entire system complies with Contract Documents.

3.3 CLOSEOUT

- A. Closeout Demonstration: Demonstrate proper operation of all functions to Owner.
 - 1. Be prepared to conduct any of the required tests.
 - 2. Have at least one copy of operation and maintenance data, preliminary copy of project record drawings, input/output matrix, and operator instruction chart(s) available during demonstration.
 - 3. Have authorized technical representative of control unit manufacturer present during demonstration.
 - 4. Demonstration may be combined with inspection and testing required by authority having jurisdiction; notify authority having jurisdiction in time to schedule demonstration.
 - 5. Repeat demonstration until successful.

END OF SECTION 28 46 00

Scope of Work:

The selected CONTRACTOR will be responsible to deliver to the OWNER the following:

- The Project shall be constructed and completed in accordance with this *Plan and Specifications*.
- The Project shall be constructed and completed in accordance with the *Proposal* submitted by the Selected CONTRACTOR.
- The CONTRACTOR will communicate to the OWNER and/or ENGINEER to all types of materials to be used for this Project. Further, the CONTRACTOR will present his Intent and/or Plan to keep all Patrons safe during the Construction.
- The CONTRACTOR will provide a schedule of work to coordinate planned outages with the OWNER. Based on coordination with OWNER, not all locations will be accessible simultaneously.
- Upon approval of the materials, coordinated schedule and Safety Plan by the OWNER; the CONTRACTOR will begin the project.
- **Removal and Replacement of Fire Pump Controller:** Existing pipes, electrical conduits and communication lines must be protected and maintained by the Contractor during construction. Safety necessitated service outages required by the CONTRACTOR must be coordinated and approved by the OWNER. CONTRACTOR must take care existing fire and safety systems are maintained to the extent possible.
- **Replacement of Finishes:** The Contractor will be required to restore all finishes to the satisfaction of the OWNER.
- **Cleaning Up: Daily and Continuous cleaning up on this project is a HIGH PRIORITY. We do not want any accidents due to Contractor's inability to provide for a clean Site.**

The Contractor shall at all times keep the site free from accumulations of waste materials or rubbish cause by his employees or the work; and at the completion of the Work he shall remove all his rubbish from the Site and all his tools, equipment, ladders or scaffolding and surplus materials, and shall leave his work clean and ready for use. In case of dispute, the Owner may remove the rubbish and surplus materials and charge the cost to the Contractor.

PROPOSAL BID BOND

RETURN WITH BID

OWNER: City of Berwyn
PROJECT: Berwyn Police Department
Fire Pump Controller Project

WE _____ as **PRINCIPAL**,

and _____ as **SURETY**, are held jointly, severally and firmly bound unto the above Local Agency (hereafter referred to as "LA") in the penal sum of **5%** of the total bid price, or for the amount specified in the Proposal documents in effect on the date of invitation for bids, whichever is the lesser sum. We bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly to pay to the LA this sum under the conditions of this instrument.

WHEREAS, THE CONDITION OF THE FOREGOING OBLIGATION IS SUCH that, the said **PRINCIPAL** is submitting a written proposal to the **OWNER** acting through its awarding authority for the construction of the work designated as the above section.

THEREFORE, if the Proposal is accepted and a contract awarded to the **PRINCIPAL** by the **OWNER** for the above-designated section and the **PRINCIPAL** shall within fifteen (15) days after award enter into a formal Contract, furnish Surety guaranteeing the faithful performance of the work, and furnish evidence of the required insurance coverage, all as provided in the "Standard Specifications for Road and Bridge Construction" and applicable Supplemental Specifications, then this obligation shall become void; otherwise it shall remain in full force and effect.

IN THE EVENT the **OWNER** determines the **PRINCIPAL** has failed to enter into a formal Contract in compliance with any requirements set forth in the preceding paragraph, then the **OWNER** acting through its awarding authority shall immediately be entitled to recover the full penal sum set out above, together with all court costs, all attorney fees, and any other expense of recovery.

IN TESTIMONY WHEREOF, the said **PRINCIPAL** and the said **SURETY** have caused this instrument to be signed by their respective officers this _____ day of _____ A.D., 2020.

PRINCIPAL

(Company Name)

(Company Name)

BY: _____
(Signature & Title)

BY: _____
(Signature & Title)

(If **PRINCIPAL** is a joint venture of two or more contractors, the company names, and authorized signatures of each contractor must be affixed.)

SURETY

BY: _____
(Signature of Attorney-in-Fact)

(Name of Surety)

STATE OF ILLINOIS,
COUNTY OF _____

I, _____, a Notary Public in and for said county, do hereby certify that

_____ who are each personally
(insert names of individuals signing on behalf of PRINCIPAL & SURETY)

known to me to be the same persons whose names are subscribed to the foregoing instrument on behalf of **PRINCIPAL** and **SURETY**, appeared before me this day in person and acknowledged respectively, that they signed and delivered said instrument as their free and voluntary act for the uses and purposes therein set forth.

Given under my hand and notarial seal this _____ day of _____ A.D., 2020

NOTICE
1. Improper execution of this form (i.e. missing signatures or seals or incomplete certification) will result in bid being declared irregular.
2. If bid bond is used in lieu of proposal guaranty check, it must be on this form and must be submitted with bid.

My commission expires _____

Notary Public

RETURN WITH BID

PROPOSAL	Owner:	CITY OF BERWYN
	Township:	BERWYN
	County:	COOK

1. **PROPOSAL OF:** _____

(Name and Address of Bidder)

and includes the specified fire pump controller replacement, and all other appurtenant construction.

2. The Plans and Specifications for the proposed improvement are those prepared by the **City of Berwyn 6700 West 26th Street Berwyn, Illinois 60402**, and which Plans and/or Specifications are designated as:

THE BERWYN Police Department
FIRE PUMP CONTROLLER REPLACEMENT PROJECT

3. The general requirements and covenants that will govern over this project are those prepared by: the "International Building Code", dated 2012, and/or the Illinois Department of Transportation, and included in the "Standard Specifications for Road and Bridge Construction", adopted and in effect on the date of invitations for Bids.

4. The undersigned agrees to complete the work within **ten (10) working days**, unless additional time is granted in accordance with the Specifications.

5. Accompanying this Proposal is either a Bid Bond or Proposal guarantee check, complying with the Specifications, made payable to the **City Treasurer** of the **City of Berwyn**. The amount of the Bid Security is:

(in Writing)

(_____).
(In Figures)

PROPOSAL, Cont'd.

RETURN WITH BID

6. If this Proposal is accepted and the undersigned shall fail to execute a Contract and Contract Bond, as required herein, it is hereby agreed that the amount of the cash, check, or Bid Bond shall become the property of the Owner, and shall be considered as payment of damages due to delay and other causes suffered by the Owner, because of the failure to execute said Contract and Contract Bond; otherwise, said check, cash, or Bid Bond shall be returned to the undersigned.
7. Lump Sum pricing is to be provided to cover all costs associated with the scope of work defined herein. Base bid and alternate should have an individual and total price.
8. A bid will be declared unacceptable if either bid or alternate prices nor a total price is shown.
9. A bid will be declared unacceptable if there are omissions or irregularities of any kind which may tend to make the Proposal incomplete, indefinite, or ambiguous as to its meaning.
10. The undersigned firm certifies that it has not been convicted of bribery or attempting to bribe an officer or employee of the State of Illinois, nor has the firm made an admission of guilt of such conduct which is a matter of record, nor has an official, agent, or employee of the firm committed bribery or attempted bribery on behalf of the firm and pursuant to the direction or authorization of a responsible official of the firm. The undersigned firm further certifies that it is not barred from bidding on this Contract as a result of a conviction for the violation of State laws prohibiting bid rigging or bid rotating.
11. The undersigned submits herewith his "Schedule of Prices", **on the forms included in this section**, covering the work to be performed under this Contract; he understands that he must show in the schedule the lump sum prices for which he proposes to perform each scope of work, that the extensions must be made by him, and that, if not so done, his Proposal may be rejected as irregular.

RETURN WITH BID

THE BID

PROPOSAL OF: _____

(Name and Address of Bidder)

Item No.	Description	Unit	Quantity	Unit Price	Total
1	Fire Pump Controller Replacement	1		Lump Sum	
BIDDER'S PROPOSAL FOR COMPLETION OF ENTIRE IMPROVEMENT:					

RETURN WITH BID

PROPOSAL Cont'd.

(If an Individual)

Signature of Bidder _____

Business Address _____

Phone Number _____

(If a partnership)

Firm Name _____

Signed By _____

Business Address _____

Phone Number _____

Insert Names and Addresses
Of All Partners:

(If a corporation)

Corporate Name _____

Signed By _____

President

Signed By _____

Phone Number _____

Insert Names of Officers:
President _____

Treasurer _____

Attest: _____

Secretary

(S E A L)

RETURN WITH BID

CERTIFICATE OF UNDERSTANDING
REGARDING
HOLD HARMLESS & INSURANCE COVERAGE REQUIREMENTS

OWNER: CITY OF BERWYN
PROJECT DESCRIPTION: BERWYN POLICE DEPARTMENT
FIRE PUMP CONTROLLER REPLACEMENT PROJECT

THIS IS TO CERTIFY THAT I, _____, President/Principal/Partner of _____ (hereinafter referred to as the "Contractor"), have read the "Hold Harmless and Insurance Provisions" incorporated in the attached Proposal Document and possess full authority and power to legally bind said Contractor to same.

I, FURTHER AGREE AND CERTIFY, that if awarded a Contract for the above named project, I will direct our insurance agent or representative to provide any and all required insurance policies outlined in said "Hold Harmless and Insurance Requirements" to afford the required coverage for the Owner and Engineer, the City of Berwyn, and any and all other entities so named in said "Insurance Requirements" section.

I, FURTHER UNDERSTAND, that all expenses relating to the issuance of said policies of insurance will be solely at the Contractor's expense, and that the Contractor will pay all liability for failure to keep said insurance policies in full force and effect for the duration of the project and as required in said "Insurance Requirements". Additionally, I will not allow any reduction in any of the "Limits of Coverage" afforded in said policies. I further understand and agree that we, as Contractor, will be totally liable and responsible for any direct and/or indirect consequences arising from our failure to comply with these Insurance Requirements.

FINALLY, I UNDERSTAND AND AGREE, that if said Insurance Requirements are not fulfilled, we, the Contractor, will bear full responsibility for paying any and all costs of litigation, including but not limited to, settlement costs and attorney's fees resulting from any and all claims against the Owner and/or Engineer relating to the subject project.

Dated this _____ day of _____, 2020

CONTRACTOR'S NAME:

ADDRESS _____

WITNESS:

SIGNED BY: _____
(President/Principal/Partner)

BY: _____
(SECRETARY/NOTARY) (SEAL)

(Typed/Printed Name)

CONTRACTOR'S BID RIGGING CERTIFICATION

RETURN WITH BID

As Required Under Article 33E, "Public Contracts", of the Criminal Code of 1961 (720 ILCS 5/22E-1 thru 5/33E-13) _____

(Print Name of Contractor)

a _____, _____
(Corporations, Partnership) (Sole Proprietorship)

as part of his/its bid on this Contract hereby certifies that the Contractor is not barred from bidding on this Contract as a result of a violation of either Section 5/33E-3 (bid-rigging) or 5/33E-4 (bid-rotating) of Article 33E of Act 5 "Criminal Code of 1961", as amended.

Dated: _____

By: _____
(Signature)

Title: _____

STATE OF ILLINOIS
COUNTY OF _____

I, the undersigned, a notary public in and for the State and County aforesaid, hereby certify that _____ (Name of Signatory) appeared before me this day in person and, being first duly sworn on oath, acknowledge that he/she executed the foregoing certifications as his/her free act and deed.

Dated: _____

(Notary Public)

(NOTARY SEAL)

RETURN WITH BID

CONTRACTOR'S TAX DELINQUENCY CERTIFICATION

As required under 65 ICLS 5/11-42.1-1, provisions require that the Contractor certify that there are no delinquent taxes outstanding that are otherwise due the Department of Revenue unless they are being contested in accordance with established procedures. The undersigned official of the Contractor hereby certifies that there are no violations of the aforementioned act or if violations do exist, there are being contested properly.

Dated: _____

Contractor: _____

By: _____
(Signature)

Title: _____

STATE OF ILLINOIS
COUNTY OF _____

I, the undersigned, a notary public in and for the State and County aforesaid, hereby certify that _____ (Name of Signatory) appeared before me this day in person and, being first duly sworn on oath, acknowledge that he/she executed the foregoing certifications as his/her free act and deed.

Dated: _____

(Notary Public)

(NOTARY SEAL)

**CONTRACTOR'S DRUG-FREE
WORKPLACE CERTIFICATION**

RETURN WITH BID

Pursuant to 30 ILCS 580/1, et seq. ("Drug-Free Workplace Act"), the undersigned Contractor hereby certifies to the contracting agency that it will provide a drug-free workplace by:

A. Publishing a statement:

- 1) Notifying employees that the unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance including cannabis, is prohibited in the grantee's or Contractor's workplace.
- 2) Specifying the actions that will be taken against employees for violations of such prohibition.
- 3) Notifying the employee that, as a condition of employment on such Contract or grant, the employee will:
 - (a) abide by the terms of the statement; and
 - (b) notify the employer of any criminal drug statute conviction for a violation occurring in the workplace no later than five (5) days after such conviction.

B. Establishing a drug-free awareness program to inform employees about:

- 1) the dangers of drug abuse in the workplace;
- 2) the grantee's or Contractor's policy of maintaining a drug-free workplace;
- 3) any available drug counseling, rehabilitation, and employee assistance program; and
- 4) the penalties that may be imposed upon employees for drug violations.

C. Making it a requirement to give a copy of the statement required by Subsection A to each employee engaged in the performance of the Contract or grant, and to post the statement in a prominent place in the workplace.

D. Notifying the contracting agency within 10 days after receiving notice under page (b) of paragraph 3) of Subsection A from an employee or otherwise receiving actual notice of such conviction.

CONTRACTOR'S DRUG-FREE WORKPLACE CERTIFICATION,
Cont'd.

RETURN WITH BID

- E. Imposing a sanction on, or requiring the satisfactory participation in a drug abuse assistance or rehabilitation program by any employee who is so convicted, as required by the 30 ILCS 580/5.

- F. Assisting employees in selecting a course of action in the event of drug counseling treatment and rehabilitation is required and indicating that a trained referral team is in place.

- G. Making a good faith effort to continue to maintain a drug-free workplace through implementation of this Section.

Failure to abide by this certification shall subject the Contractor to the penalties in 30 ILCS 580/6.

Dated: _____ Contractor: _____
By: _____
Title: _____

STATE OF ILLINOIS }
COUNTY OF _____ } SS

I, the undersigned, a notary public in and for the State and Country aforesaid, hereby certify that _____
_____ (Name of Signatory) appeared before me this day in person and, being first duly sworn on oath, acknowledged that he/she executed the foregoing certification as his/her free act and deed.

Dated: _____

(Notary Public)

(NOTARY SEAL)

SUBSTANCE ABUSE PREVENTION
PROGRAM CERTIFICATION

RETURN WITH BID

Pursuant to Public Act 95-6035, the undersigned hereby certifies that it is in compliance with the terms and provisions of the Substance Abuse Prevention on Public Works Act. In particular, the undersigned hereby represents and warrants to the City of Berwyn as follows:

The Substance Abuse Prevention on Public Works Act, Public Act 95-6035, prohibits the use of drugs and alcohol, as defined in the Act, by employees of the Contractor and the employees of all approved Subcontractors while performing work on a public works project. The Contractor/Subcontractor herewith certifies that it has a superseding collective bargaining agreement of makes the public filing of its written substance abuse prevention program for the prevention of substance abuse among its employees who are not covered by a collective bargaining agreement dealing with the subject as mandated by the Act.

(Complete either A or B below)

- A. The undersigned representative of the Contractor/Subcontractor certifies that the contracting entity has signed collective bargaining agreements that are in effect for all of its employees, and that deal with the subject matter of Public Act 95-6035.

Contractor/Subcontractor

Name of Authorized Representative (type or print)

Title of Authorized Representative (type or print)

Date: _____

Signature of Authorized Representative

- B. The undersigned representative of the Contractor/Subcontractor certifies that the contracting entity has in place for all of its employees not covered by a collective bargaining agreement that deals with the subject of the Act, the attached substance abuse prevention program that meets or exceeds the requirements of Public Act 95-0635.

Contractor/Subcontractor

Name of Authorized Representative (type or print)

Title of Authorized Representative (type or print)

Date: _____

Signature of Authorized Representative

CONTRACT BOND

KNOW ALL MEN BY THESE PRESENTS, that we _____, a corporation organized under the laws of the State of _____, and licensed to do business in the State of Illinois as Principal, and _____, a Corporation organized and existing under the laws of the State of _____, with authority to do business in the State of Illinois, as Surety, certify that we are rated by A.M. Best to be "A-" or better, and are held and firmly bound unto the City of Berwyn, Cook County, State of Illinois, in the penal sum of _____, lawful money of the United States, well and truly be paid unto said City of Berwyn, for the payment of which we bind ourselves, our successors, and assigns, jointly, severally, and firmly by these presents.

THE CONDITION OF THE FOREGOING OBLIGATION IS SUCH that whereas, the said Principal has entered into a written Contract with the City of Berwyn for the construction of the work for:

The Berwyn Police Department

Fire Pump Controller Replacement Project

Which Contract is hereby referred to and made a part hereof, as if written herein at length, and whereby the said Principal has promised and agreed to perform said work in accordance with the terms of said Contract, and has promised to pay all sums of money due for any labor, materials, apparatus, fixtures, or machinery furnished to said Principal for the purpose of performing such work and has further agreed to pay all direct and indirect damages to any person, firm, company or Corporation suffered or sustained on account of the performance of such work during the time thereof and until such work is completed and accepted; and has further agreed that this Bond shall inure to the benefit of any person, firm, company, or Corporation to whom any money may be due from the Principal, Subcontractor, or otherwise for any such labor, materials, apparatus, fixtures, or machinery so furnished, and that suit may be maintained on such Bond by any person, firm, company or Corporation for the recovery of any such money.

NOW, THEREFORE, if the said Principal shall well and truly perform said work in accordance with the terms of said Contract, and shall pay all sums of money due or to

become due for any labor, materials, apparatus, fixtures, or machinery furnished to him for the purposes of constructing such work, and shall commence and complete the work within the time prescribed in said Contract, and shall pay and discharge all damages, direct and indirect, that may be suffered or sustained on account of such work during the time of performance thereof and until the said work shall have been accepted, and shall hold the Owner and the Engineer harmless on account of any such damages, and shall in all respects fully and faithfully comply with all the provisions, conditions, and requirements of said Contract, and shall remove and replace any defects in workmanship or materials which may be apparent or may develop within a period of one (1) year from the date of final acceptance, then this shall be null and void; otherwise, to remain in full force and effect.

AND the said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the Contract or to the work, to be performed thereunder, or the Specifications accompanying the same, shall in any way affect its obligation on this Bond, and it does herein waive notice of any such change, extension of time, alteration or addition to the terms of the Contract, or to the work or to the Specifications.

IN WITNESS WHEREOF, we have duly executed the foregoing obligation this _____ Day of _____, 2020.

ATTEST:

Secretary

(S E A L)

Corporate Name _____

By _____
President

Surety _____
(Attorney-In-Fact)

Address _____

STATE OF _____)
COUNTY OF _____)

I, _____ A Notary Public in and for said County, in the State aforesaid, do hereby certify that _____ and _____ to me personally known to be President and Secretary, respectively, of _____, a Corporation, and also known to me to be the persons whose names are subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that as such president and Secretary, respectively, they signed, sealed, and delivered the said instrument as the free and voluntary act of said Corporation for the uses and purposes therein set forth, and that they were duly authorized to execute the same by the Board of Directors of said Corporation.

Given under my hand and Notarial Seal this _____ day of _____ 2020,

(Notary Public)

STATE OF _____)
COUNTY OF _____) S.S

I, _____, a Notary Public in and for said County, in the State aforesaid, do hereby certify that _____ (Attorney in Fact) who is personally known to me to be the same person who signed the above and foregoing instrument as the Attorney In Fact for _____ (Surety Company) appeared before me this day in person and acknowledged that he executed the foregoing instrument under authority given to him as the free and voluntary act of said Surety, for the uses and purposes therein set forth.

Given under my hand and Notarial Seal this _____ day of _____ 2020.

(Notary Public)

Approved this _____ day of _____ A.D., 2020.

CITY OF BERWYN

ATTEST:

By _____
Robert J. Lovero, Mayor

Margaret M. Paul, City Clerk
(MUNICIPAL SEAL)