



**THE INDIANAPOLIS PUBLIC LIBRARY  
REQUEST FOR PROPOSALS  
FOR SOLAR PHOTOVOLTAIC SYSTEM INSTALLATION  
AND MAINTENANCE SERVICES AT THE  
WEST PERRY BRANCH LIBRARY PROJECT  
6650 SOUTH HARDING STREET, INDIANAPOLIS, IN 46217**

**RFP Issue Date:** August 13, 2020

**Contact:** Mike Coghlan  
Facilities Projects Manager  
The Indianapolis Marion County Public Library  
2450 North Meridian Street  
Indianapolis, Indiana 46208

**Telephone:** (317) 538-5327  
**E-mail:** [mcoghlan@indypl.org](mailto:mcoghlan@indypl.org)  
**Web Site:** <http://www.indypl.org>

**I. BACKGROUND AND GENERAL INFORMATION**

The Indianapolis-Marion County Public Library ("IndyPL") by issuing this Request for Proposals ("RFP") is seeking proposals ("Proposals") from qualified Vendors ("Vendors") with experience in providing Solar Photovoltaic System Installation and Maintenance Services ("Services") for the West Perry Branch Library Project ("Project"). Services include the planning, design, procurement of materials, installation, associated documentation, maintenance and warranties of for a roof-top 159 kW DC (140kW AC) solar photovoltaic system with a ballasted racking system. Specific requirements are included in **Attachment A**.

IndyPL is seeking a Vendor whose combination of experience, personnel, and processes will provide timely, cost-effective and exemplary Services.

IndyPL intends to review the Proposals submitted by Vendors with the intent of entering into a fixed-sum fee Agreement ("Agreement") with a Vendor for the Services.

IndyPL is committed to supporting and encouraging economic growth and business opportunities in Marion County by strengthening IndyPL's relationships with minority, women, disability and veteran-owned business enterprises by providing an equal opportunity for participation in all IndyPL business.

The IndyPL Board of Trustees, with Resolution 28-2020, has adopted Minority/Women/Disability/Veteran-Owned Business Enterprise Utilization Goals. The utilization goal for Minority-owned Business Enterprises (MBE) is fifteen percent (15%). The utilization goal for Women-owned Business Enterprises (WBE) is eight percent (8%). The utilization goal for Disability-owned Business Enterprises (DOBE) is one percent (1%). The utilization goal for Veteran-owned Business Enterprises (VBE) is three percent (3%).

Compliance with the utilization goals will be based on the cumulative amount of Work issued under the Contract. To assist in evaluating the Proposals, **Attachment B** – Vendor Proposal Sheet, Subcontractor/Suppliers List, and Non-Collusion Affidavit requires listing of all subcontractors/suppliers proposed to be used on the Project.

IndyPL understands that solar photovoltaic ("PV") installations can lower facility reliance on utility-generated electricity and reduce the carbon footprint of our operations, while providing environmental leadership for the community.

IndyPL currently has two (2) other locations with PC installations (East Washington 24kW and Eagle 66.2kW) with Fronius inverters.

The West Perry Branch is currently under construction, with Powers & Sons providing Construction Manager as Constructor Services for the Project.

This RFP describes the Services, terms, and conditions for the Agreement.

1. Response Due Date. The responses are due at the date, time, and location established in **Attachment C**.
2. Partnerships in Response to the RFP. IndyPL will consider partnerships between Vendors to provide the Services.
3. Agreement Period. The Agreement shall cover the period required for the planning, coordination, implementation, maintenance, and warranty support of the Services.
4. Definitions. The term Vendor ("Vendor") denotes those entities submitting a Proposal in response to this RFP. The term Contractor ("Contractor") denotes the entity selected to provide the Services described in this RFP.
5. Pre-Proposal Conference. With the current COVID-19 restrictions on gatherings, no Pre-Proposal Conference will be held. All questions and clarifications will be issues as described in the RFP.. Notification of planned submittal of a Proposal is required.

## II. REQUIRED SERVICES

The Contractor shall have, at a minimum, the capabilities listed in this RFP, and the

Proposal submitted shall reflect in detail the degree of expertise in utilizing these capabilities and the ability to provide and comply with the requirements hereof.

The Contractor shall have and maintain all proper and required licensures in the State of Indiana necessary to provide the Services. The Contractor shall include the services of a Licensed Electrical Contractor. The Contractor shall have the capability and workforce to conduct the planning, coordination, implementation, and support of the required Services.

This section of the RFP provides an overview of the Services requirements. Specific requirements are included in **Attachment A**.

1. General Requirements.

- a. The Services shall include the planning, coordination, implementation and support of Services as described.
- b. Contractor shall furnish all supplies, materials, vehicles, and equipment necessary for the performance of the Services under this RFP.
- c. Contractor shall provide, upon request by IndyPL, incidental or special work on a lump-sum or hourly not-to-exceed basis as mutually agreed upon in writing by the parties.
- d. Contractor shall employ at all times the quantity and quality of supervision necessary for the effective and efficient completion of the Services. Contractor's supervisors shall be fully and adequately trained and experienced in the supervision of staff. All supervisors shall have an intimate knowledge of the various tasks, equipment and materials so as to be able to both properly train and direct their staff in their individual tasks.
- e. Contractor shall employ at all times the quantity and quality trained and experienced employees for the Services and shall take reasonable precautions to ensure such employees are reliable and of good character.
- f. Contractor's employees and subcontractors, while on IndyPL premises, shall wear appropriate identification furnished by the Contractor. Any of the Contractor's employees and subcontractors not having valid identification may be required to leave the premises immediately upon request by an IndyPL representative. Under no circumstances shall any person not displaying proper identification accompany Contractor's employees and subcontractors on the premises. Violation of this rule by a Contractor's employees, subcontractors or agents will result in the automatic removal of that person from the Services.

2. Planning.

- a. Based upon the schedule in **Attachment C**, the Contractor shall prepare and monitor a schedule for the Services.
- b. When situations and conditions requiring adjustment to the work plan to meet the schedule arise, the Contractor shall make recommendations and take necessary actions to ensure the Services are completed within the required schedule.

3. Implementation.

- a. Contractor shall be responsible for a complete implementation of the Services.
- b. Contractor shall be responsible for securing all required local governmental agency permits and inspections for the Services.
- c. Work may occur at any time with full coordination with the Construction Manager for access to the Project site.

4. IndyPL Required Activities.

- a. Provide a designated IndyPL representative for the Services.
- b. Provide Contractor access to the Service location.

### **III. ATTACHMENTS**

Attachment A – Scope of Services

Attachment B – Vendor Proposal Sheet, Subcontractors/Suppliers List, and Non-Collusion Affidavit

In addition to submission of information required by the Vendor Proposal Sheet, if a Vendor believes that additional services or adaptations for the Projects beyond those specified in the RFP are required or recommended to fulfill the Projects intent, the Vendor shall also propose the additional services or adaptations and the associated costs or fees for those additions. In all events, Vendors shall clearly specify which costs, if any, are not included in the fees submitted in the Vendor Proposal Sheet.

Attachment C – Request for Proposal Schedule

The Request for Proposal Schedule ("Schedule") for this RFP is a guide. IndyPL reserves the right to make changes to the Schedule and will provide proper notification to all Vendors at the time any changes occur.

Attachment D – E-Verify Affidavit

The Contractor shall agree to enroll in and participate in the E-Verify Program as required by Indiana Code 22-5-1.7-11 during the hiring process for all employees hired after the date of the Agreement. The Contractor shall also agree to require its subcontractors who may perform work under the Agreement to certify to the Contractor that the subcontractor does not knowingly employ or contract with an unauthorized alien and that the subcontractor has enrolled and is participating in the E-Verify program. The Contractor shall agree to maintain this certification throughout the duration of the term of a contract with a subcontractor. IndyPL may terminate a resulting Agreement for default if the Contractor fails to cure a breach of these E-Verify provisions no later than thirty (30) days after being notified by IndyPL of such breach. As a condition to submitting a Proposal and to entering into an Agreement, the Contractor shall execute the E-Verify Affidavit, which shall be an exhibit to the Agreement. Such affidavit shall be in the form attached to this RFP.

Attachment E – Draft Agreement

Attachment F – Technical Specifications and Plans

Technical Specifications prepared by Schmidt Associates:

- Section 26 05 00 – Common Work Results for Electrical.

- Section 26 05 19 – Low-Voltage Electrical Power Conductors and Cables.
- Section 26 05 26 – Grounding and Bonding for Electrical Systems.
- Section 26 05 29 – Hangers and Supports for Electrical Systems.
- Section 26 05 33 – Raceways and Boxes for Electrical Systems.
- Section 26 28 16 – Enclosed Switches and Circuit Breakers.
- Section 26 31 00 – Photovoltaic Collectors Solar.

Construction Documents prepared by Schmidt Associates dated January 17, 2020:

- AR100 – Overall Roof Plan.
- A-300 – Building Sections.
- E-001 – Symbols, Abbreviations & General Notes – Electrical.
- ES101 –Site Plan.
- EP101 - Power Plan.
- EPR101 - Roof PV Plan.
- E-501 – Details.
- E-601 – Schematics.

#### Attachment G – Letter of Intent to Perform as a Subcontractor/Supplier

Within three (3) business days of notification by IndyPL, a Vendor shall submit a fully executed "Letter of Intent to Perform as a Subcontractor/Supplier" form for each M/W/V/D Owned Business Enterprise ("XBE") subcontractor/supplier listed on their Vendors Proposal Sheet, Subcontractors/Suppliers List, and Non-Collusion Affidavit.

#### **IV. GENERAL TERMS AND CONDITIONS GOVERNING THE RFP**

1. Request for Proposal. IndyPL is notifying Vendors who have the potential to furnish the requested Services. Upon request, each Vendor will receive one copy of the RFP from IndyPL or receive a copy via download from IndyPL's website. Vendors are responsible for making copies as required to satisfy their needs. Vendors are encouraged to initiate preparation of their proposals immediately upon receipt of this RFP, to allow time for all relevant questions and information needs to be identified and answered, and for preparation of a comprehensive and complete response.
2. Point of Contact. All communication with IndyPL shall be directed to the single point of contact for IndyPL identified on the first page of the RFP.
3. Schedule of Activities. **Attachment C** outlines the schedule of major activities for the RFP and the Contractor selection process. IndyPL reserves the right to amend the schedule as necessary.
4. Vendor Qualifications. The Vendor shall have the following minimum qualifications:
  - a. A sound business reputation and required licensures in the State of Indiana necessary to provide the Services;
  - b. Proven capabilities in delivering Services on time and on budget;
  - c. Appropriate resources to satisfy the requirements for the Services requested by this RFP;
  - d. Demonstrated track record in planning, coordination, implementation, and support for similar service relationships; and
  - e. Demonstrated track record in overall client satisfaction.

5. Vendor Rights. All materials submitted in response to this RFP become the property of IndyPL upon delivery, shall not be returned to the Vendor and may be appended to any formal documentation, which would further define or expand the contractual relationship between IndyPL and a selected Vendor. Each Vendor, as an express condition for IndyPL's consideration of such Vendor Proposal, agrees that the contents of every other Proposal is confidential, proprietary and may contain trade secret information in technical. No submissions or supporting documentation will be returned to Vendor.

Vendors submitting Proposals should recognize that IndyPL is a public body and, as a public body, IndyPL is subject to disclosure requirements and must abide by public record laws. Neither party shall be liable for disclosures required by law.

6. Reservation of Rights. This RFP does not commit IndyPL to award an Agreement, to pay any costs incurred in the preparation of a Proposal to this request, or to otherwise contract for any Services. IndyPL reserves the right to accept or reject any or all Proposals received as a result of this RFP, to negotiate with any qualified Vendors, to award only a portion of the Services, to award Services to more than one Vendor, or to cancel in part or in its entirety this RFP, if it is in the best interest of IndyPL to do so. IndyPL will evaluate Proposals based upon the effectiveness of the perceived performance as it relates to IndyPL's specific requirements. The lowest fee Proposal shall not necessarily be selected. IndyPL specifically reserves the right to reject any or all Proposals or any part thereof; or to waive any defects or informalities in a Proposal when it is determined by IndyPL to be in IndyPL's best interest.
7. Late Proposals Not Considered. Proposals received after the Proposal Submission Deadline established in **Attachment C** will not be considered.
8. Inconsistency or Error in the RFP. Any Vendor believing that there is any ambiguity, inconsistency or error in the RFP shall promptly notify IndyPL in writing of such apparent discrepancy. Failure to so notify IndyPL by the Proposal Submission Deadline will constitute a waiver of claim of ambiguity, inconsistency or error.
9. Vendor Errors or Omissions. IndyPL is not responsible for any errors or omissions in Vendor's Proposal.
10. Addenda. IndyPL shall not be responsible for any oral instructions given by any employees or representatives of IndyPL in regard to the Proposal instructions, Services requirements, or proposal documents as described in this RFP. Any changes in or clarifications to this RFP will be in the form of a written addendum, which will be furnished to all Vendors who are listed with IndyPL as having received the RFP or to any other Vendor who requests an addendum.
11. Vendor Incurred Costs. The Vendor shall be responsible for all costs incurred in preparing a Proposal or responding to this RFP.
12. Modification or Withdrawal of Proposal. A Proposal may not be modified, withdrawn or cancelled by a Vendor for ninety (90) days following the Proposal Submission

Deadline and each Vendor so agrees in submitting the Proposal. Proposals may be withdrawn, altered and/or resubmitted at any time prior to the Proposal Submission Deadline. Notice of pre-submittal date withdrawal shall be in writing over the signature of the Vendor or may be submitted to IndyPL by facsimile or electronic mail transmission. If by facsimile or electronic mail transmission, written confirmation over the signature of the Vendor shall have been mailed and postmarked on or before the Proposal Submission Deadline. Withdrawn Proposals may be resubmitted up to the Proposal Submission Deadline.

13. Rejection of Proposals. IndyPL reserves the right to reject any or all Proposals received, or any part thereof; to accept any Proposal or any part thereof; or to waive any informality when it is deemed to be in IndyPL's best interest. Any Vendor objecting to the rejection of a Proposal, or portion thereof, shall submit a written protest stating the reasons for the protest to IndyPL within five (5) calendar days from the date of IndyPL's Written Notice of Intent to Enter into an Agreement as established in **Attachment C**.
14. Vendor Certification. By submission of a proposal, the Vendor certifies that the Vendor has not paid or agreed to pay any fee or commission, or any other item of value contingent on the award of a contract to any employee, official or current contracting consultant of IndyPL.
15. Exceptions. It is the intent of IndyPL to award an Agreement on a fair, competitive basis. For this reason, IndyPL may view the notation of any "Exception" in response to any material condition or requirement of the RFP as an attempt by the Vendor to vary the terms of the RFP, which, in fact, may result in giving such Vendor an unfair advantage over other Vendors. For this reason, IndyPL will, at its option, not allow exceptions to any material requirement if, in the opinion of IndyPL, the exceptions alter the overall intent of this RFP, unless the exception would be of material benefit to IndyPL.
16. IndyPL's Right to Disqualify For Conflict of Interest. IndyPL reserves the right to disqualify any Vendor on the basis of any real or apparent conflict of interest that is disclosed by the Proposal submitted or any other data available to IndyPL. The right of disqualification is at the sole discretion of IndyPL. Any Vendor submitting a Proposal waives any right to object at any future time, before any agency or board, including but not limited to, IndyPL Board of Trustees, or any court, to IndyPL's exercise of its right of disqualification by reason of real or apparent conflict of interest as determined by IndyPL.
17. Warranties. Any Vendor submitting a Proposal in response to this RFP warrants and guarantees that the Vendor is fully capable of providing the Services and performing each and every task set forth in the Proposal. No limitation or exception to this warranty provision will be acceptable to IndyPL; except, it is understood that the Vendor is not responsible for any problems in performance caused by improper acts or omissions by IndyPL.
18. Covenant against Contingent Fees. The Vendor warrants that no person or selling agent has been employed or retained to solicit or secure the Agreement upon an agreement or understanding for a commission, percentage, brokerage, or

contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Vendor for the purpose of securing business.

For breach or violation of this warranty, IndyPL shall have the right to immediately terminate the Agreement without liability or in its discretion to deduct from fees or payments due the Vendor the commission, percentage brokerage or contingent fee.

19. Gratuities. IndyPL may immediately terminate consideration of a Vendor Proposal or the right of a Contractor under the Agreement if it is found that gratuities in the form of entertainment, gifts or otherwise of any value were offered or given by the Vendor, or any representative of the Vendor, to any officer or employee of IndyPL with a view toward securing the Vendor selection or Agreement, or the making of any determinations with respect to the issuance or performance of an Agreement; provided that the existence of facts upon which IndyPL makes such findings shall be an issue and may be reviewed in any court of law. In the event of such termination, IndyPL shall be entitled to pursue the same remedies against the Vendor or Contractor as IndyPL could pursue in the event of default by the Vendor or Contractor.
20. Diversity and Inclusion in Employment. Any Contractor in performing work under an Agreement resulting from this RFP shall not discriminate against any worker, employee or applicant because of race, creed, color, religion, gender, national origin, age or disability or veteran status, nor otherwise commit an unfair employment practice. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are dealt with during employment, without regard to their race, creed, color, religion, gender, national origin, age, disability or veteran status.
21. Protest of Award. Any person or entity who has an objection to the awarding of the Agreement to any Vendor by IndyPL, shall lodge that protest, in writing, with IndyPL no later than 5:00 p.m. local time of the fifth (5th) calendar day following release of IndyPL's Notice of Intent to Enter into an Agreement letter. IndyPL retains the right to reject all protests not filed within this time and those found to be without merit.
22. Vendor Inquiries. Any questions that arise relating to this RFP shall be directed, in writing, or via e-mail to the Point of Contact identified on the cover page.
23. News Releases. News releases pertaining to this RFP or the Services shall not be made without prior approval of IndyPL.
24. Standard/Licensure Requirements. The Contractor shall provide documentation to IndyPL evidencing all necessary business licenses to provide the Services prior to the awarding of the contract.
25. Out of State Vendors. It shall be a condition to the Agreement that any out-of-state Vendor that may be selected as the Contractor shall be duly registered and qualified to do business within the State of Indiana.



26. Investments. By submission of a Proposal, the Vendor certifies that the Vendor is not engaged in any investment activities in Iran pursuant to Ind. Code § 5-22-16.5-13(b).
27. Award. IndyPL reserves the right to award the Services to one (1) or more Vendors when deemed to be in IndyPL's best interest.

## **V. TERMS AND CONDITIONS GOVERNING THE AGREEMENT**

IndyPL operates as a Municipal Corporation within the City of Indianapolis and Marion County. In addition to the requirements included in Article II of the RFP, a Contractor entering into a contract with IndyPL shall agree to a number of general terms and conditions. If a Vendor cannot agree to any of the stated general terms and conditions, their Proposal shall clearly state the reason for any such non-compliance. The submission of a Proposal constitutes the agreement of the Vendor that any agreement to be drawn as a result of an award herein will be prepared by the IndyPL. The submission of a Proposal shall further constitute the consent of the Vendor that it shall not insist on the use of standard contract agreements, documents or forms, and that it waives any demand for the use of its standard agreements. The Agreement will be drafted under the supervision of IndyPL's attorney and shall be the controlling document. The Contractor may be requested to submit copies of their applicable standard contract forms for information purposes.

1. Compliance with Laws. In performing the Services, the Contractor shall comply with all applicable laws, ordinances, rules, regulations, and codes of Federal, State and local governments.
2. Continuation during Disputes. The Contractor agrees that, notwithstanding the existence of any dispute between the parties, insofar as is possible under the terms of the Agreement to be entered into, each party shall continue to perform the obligations required of it during the continuation of any such dispute, unless enjoined or prohibited by any court.
3. Organization Employment Disclaimer. Any Agreement entered into as the result of this RFP will not constitute, create, give rise to or otherwise recognize a joint venture, agreement or relationship, partnership or formal business organization of any kind between the parties, and the rights and obligations of the parties shall be only those expressly set forth therein. The Contractor will agree that no persons supplied by it in the performance of the contract are employees of IndyPL and further agrees that no rights of IndyPL's civil service, retirement or personnel rules accrue to such persons.

The Contractor shall have the sole responsibility for all salaries, wages, bonuses, retirement, withholdings, workers' compensation and occupational disease compensation insurance, unemployment compensation, other benefits and taxes and premiums appurtenant thereto concerning such persons provided by the Contractor in the performance of the Services and shall indemnify and hold IndyPL harmless with respect thereto.

4. Method of Payment. Contractor will be paid in accordance with payment procedures as stipulated in the Agreement. The Contractor shall be required to

participate in the IndyPL Electronic Fund Transfer ("EFT") invoice payment program for the electronic transfer of funds directly to the Contractor's designated banking account for payment of approved invoices. Invoices submitted shall contain the purchase order number under which the Agreement is awarded. Contractor shall submit payments/invoices/reports to the addressee designated in the Agreement. The Contractor shall, at a minimum, submit monthly invoices, for each payment requested, such statement to also include a detailed breakdown of all charges. All approved invoices will be paid as stipulated in the Agreement unless any items thereon are questioned, in which event payment will be withheld pending verification of the amount claimed and the validity of the claim. The Contractor shall provide complete cooperation during any such investigation.

5. Material Mark-up Expense. Contractor shall not be permitted to add a material mark-up expense or fee for additional equipment and/or materials secured and provided as part of the Services.
6. Pre-Payment for Equipment or Services. Unless authorized by a Resolution of the IndyPL Board of Trustees, IndyPL is not permitted to pay for any materials or services not yet on site or provided, nor is the Contractor permitted to invoice for materials or services not yet on site or provided.
7. Changes. Any and all changes, revisions or modifications to the Services must be previously authorized in writing by the IndyPL Designated Representative. IndyPL shall not be required to pay for any Services component provided under a change order that is not approved by IndyPL. Upon request, the Contractor shall provide documentation of time and material spent on each change order.
8. Insurance. Contractor shall secure, pay for and maintain the following insurance policies in full force and effect throughout the term of an Agreement that may be entered between Contractor and IndyPL, which policies shall protect against any loss or claim arising from or relating to the Agreement, Contractor's Service and activities, or presence at IndyPL facilities, and any act or omission of Contractor or its employees and/or agents or Subcontractors in connection with the Services provided under the Agreement, and shall cover the contractual indemnification liability assumed by Contractor pursuant to the Agreement:
  - a. Commercial General Liability Insurance with limits of not less than One Million Dollars (\$1,000,000) per occurrence for bodily injury (including death), personal injury, property damage, fire legal liability, contractual liability and products and completed operations, and Two Million Dollars (\$2,000,000) general aggregate. The policy shall be written on an occurrence basis. The policy shall also not have exclusions for any of Contractor's activities at the facilities. Any deductible shall be at Contractor's expense.
  - b. Business automobile coverage, including coverage for owned, leased, and hired vehicles, which shall include vehicle and property (cargo) damage, and bodily injury, in an amount not less than Two Million Dollars (\$2,000,000.00) per accident.
  - c. Workers' Compensation insurance, affording coverage in excess of the applicable state laws covering all of Contractor's employees, and Employer's

Liability coverage in excess of the applicable state laws but no less than One Million Dollars (\$1,000,000.00) each accident, One Million Dollars (\$1,000,000.00) each employee and Two Million Dollars (\$2,000,000.00) policy limit.

- d. Property Insurance coverage for all materials, equipment, and other items owned, borrowed, or leased by Contractor shall be Contractor's responsibility. IndyPL shall not be responsible for such materials, equipment, and other items owned, borrowed, or leased by Contractor.
  - e. Umbrella Liability insurance at not less than Five Million Dollars (\$5,000,000) limit for each occurrence providing for excess coverage over the limits and coverage prescribed above in sections (a), (b), (c) and (d) above, which such policy shall be written on an occurrence basis.
  - f. All insurance policies addressed in Sections 6. (a), (b), and (e) above shall be endorsed to name the following as additional insured's:  
  
Indianapolis-Marion County Public Library and its trustees, directors, officers, employees, representatives, volunteers, agents, contractors, licensees, and successors.
  - g. All insurance policies required hereunder: (1) shall be endorsed to state that the insurance is primary and not contributive to any other insurance available to IndyPL; (2) shall provide for a waiver of rights of subrogation against the additional insurers on the part of the insurance carriers; (3) shall be written with insurance companies licensed to do business in the State of Indiana and rated no lower than A-VII in the most current edition of A.M. Best's Property-Casualty Key Rating Guide, and (4) shall provide for no less than thirty (30) days advance written notice to IndyPL prior to cancellation, non-renewal or material modification.
  - h. Contractor shall deliver to IndyPL, prior to commencement of the Services under an Agreement, Certificates of Insurance confirming the existence or issuance of all insurance policies required to be carried hereunder ("Certificates of Insurance"). If any such policy is not obtained, or if all Certificates of Insurance are not delivered to IndyPL by the aforementioned time, or if any of such policies are canceled, IndyPL shall have the right to terminate the Agreement immediately and/or deny Contractor access to IndyPL facilities.
  - i. These insurance provisions are minimum requirements and shall not relieve Contractor of its indemnity, defense and hold harmless obligations.
9. Suspension of Work/Termination or Suspension. IndyPL reserves the exclusive right to terminate or suspend all or any portion of the Services for which the Contractor is employed by giving one (1) day written notice to the Contractor; however, if any portion of the Services shall be terminated or suspended, IndyPL shall pay the Contractor equitably for all work properly performed prior to termination. If the Services are suspended and the Contractor is not given an order to resume work within sixty (60) days from the effective date of the suspension, the Agreement will be considered terminated.

10. Prime Contractor Responsibility. Planned use of subcontractors in connection with providing the requested Services should be clearly explained and described in the Vendor Proposal. The Contractor shall be responsible for the performance of the Services under the Agreement whether or not subcontractors are used. In contractor/ subcontractor arrangements involving more than one firm, it does not matter to IndyPL which firm assumes the lead, as long as that firm assumes full responsibility for the performance of the Services as delineated in the Agreement. IndyPL will only enter into an Agreement with the prime contractor. If a Subcontractor of Contractor fails to perform in a reasonable manner IndyPL may require Contractor to terminate the Subcontractor. Any increased cost or expense incurred by reason of any such termination shall be borne by Contractor.

At the request of IndyPL, Contractor shall promptly remove from IndyPL premises any employee of Contractor who, in the sole opinion of IndyPL, has been negligent, wasteful, dishonest or otherwise unsatisfactory in performing their duties.

11. State Sales Tax. IndyPL, as a Municipal Corporation, is Indiana State Sales tax-exempt. IndyPL will provide the tax-exempt certificate and supporting documentation following issuance of a Notice of Intent to Award a Contract.
12. Non-appropriation. Notwithstanding any other provision of this Agreement, if funds for the continued fulfillment of the Agreement by IndyPL are at any time insufficient or not forthcoming through failure of any entity to appropriate funds or otherwise, then IndyPL shall have the right to terminate the Agreement without penalty by giving written notice documenting the lack of funding.
13. Audit of Contract Records. The Contractor shall keep all resulting contract records separate and make them available for audit by IndyPL personnel or Indiana State Board of Accounts personnel during the term of the Agreement and upon request for a period of 3 years after the end of the Agreement term and completion of the Services.

## VI. REQUIRED PROPOSAL FORMAT

1. General Requirements. The Proposals shall contain all information responsive to the RFP and the items listed below.
2. Specific Proposal Format and Content. Information contained in the Proposals shall not exceed forty (40) doubles-sided pages, including the Vendor Proposal Sheet, Subcontractors/Suppliers List, and Non-Collusion Affidavit, and excluding the cover sheets and tab dividers. In order to facilitate comparison and review of the Proposals, each Vendor should use tab dividers with section numbers and titles consistent with the format outlined below:
- a. Vendor Introduction and Cover Letter:
    - 1) Vendor name, address, phone, fax and e-mail address.
    - 2) Contact person for the Vendor's response to the RFP.
    - 3) Include a statement of availability to meet the schedule in **Attachment C**.
    - 4) Signature of the contact person. This signature serves as verification the Vendor is a legal entity, the Vendor does not discriminate, the contact

- person is authorized to act on the Vendor's behalf, the Vendor has not paid or agreed to pay any fee or commission, or any other item of value contingent on the award of a contract to any person associated with IndyPL, and the Proposal will remain valid for at least ninety (90) days.
- b. Vendor Proposal Sheet, Subcontractors/Suppliers List, and Non-Collusion Affidavit included as **Attachment B**.
  - c. Vendor Profile and Experience:
    - 1) Background information on the Vendor and its operations, including years in business, the nature of services provided, and the size of permanent staff and crew.
    - 2) Information relating to the business organization of the Vendor and any third-party or sub-contractor that may be partnering with the Vendor.
    - 3) The Vendor shall provide the resumes of all employees intended to serve in supervisory and management roles for the Services.
    - 4) Description of any incidents or claims against a contract, or pending litigations to which the Vendor is a party.
  - d. Vendor References:
    - 1) The Vendor shall provide a list of the major contracts presently held by the Vendor representative of Services similar to the RFP. The Vendor shall identify three (3) contacts from this list as references by providing the name, position, and phone number for the Contract Manager at each location.
    - 2) The Vendor shall provide a list of the major contracts representative of the Services similar to the RFP that have been closed within the last three years. The Vendor shall identify three (3) contacts from this list as references by providing the name, position and phone number for the Contract Manager at each location.
  - e. The Vendor shall provide a sample work plan outlining the approach, processes, and procedures the Vendor intends to follow in providing the Services.
  - f. Executed E-Verify Affidavit included as **Attachment D**.
  - g. To the extent a Vendor is incapable of complying with or takes exception to any aspect of the requirements, proposal terms, and general terms and conditions described in the RFP, including **Attachment E**, the Vendor shall specifically identify and describe such exceptions in this section of its response to this RFP.
  - h. Additional information. Vendor may provide any other information within the maximum page limit that they believe add to their Proposal.
3. Proposal Submittal Instructions. One (1) original, three (3) print copies, and one (1) electronic PDF copy on a flash or thumb drive of the Proposal shall be sealed in a package showing the following information on the outside of the package:
- a. Vendor's Name.
  - b. Request for Proposal title.
- The Proposal package shall be personally delivered, sent by delivery service, or sent by mail to the Point of Contact at the address identified on the RFP cover page. Regardless of the mode of delivery, the Proposal shall be received by IndyPL by the Proposal Submission Deadline established in **Attachment C** in order to be considered.
4. Opening. The Proposals received by the deadline will be opened publicly at the date, time, and location established in **Attachment C**.

5. Additional Information. Following receipt of the Proposals, IndyPL reserves the right to request additional information from and conduct discussions to clarify the Proposals with Vendors reasonably susceptible of being awarded the Services. IndyPL will not share information gathered in such discussions with any other competing Vendors.
6. Best and Final Proposals. Following the additional information and/or discussions with the Vendors reasonably susceptible of being awarded the Services, IndyPL reserves the right to request the Vendors provide a Best and Final Proposal. The terms and conditions for submitting a Proposal described above, including late submission, inconsistency or errors, Vendor incurred costs, modification or withdrawal, apply to the Best and Final Proposal.
7. Confidential Information and Public Records - Vendors are advised materials contained in the Proposals are subject to the Indiana Public Records Act, IC 5-14-3 et seq. ("IPRA"), to which IndyPL must abide. All materials submitted in response to this RFP become the property of IndyPL and shall be subject to disclosure under the IPRA. After the contract award, the entire submission may be viewed and copied by any member of the public, including news agencies and competitors. Vendors claiming a statutory exception from disclosure under the IPRA of any information included in its Proposal shall:
  - a. Place all documents they consider confidential (including the requisite number of copies) in a sealed envelope clearly marked "Confidential" with the Vendor Name, IndyPL Point of Contact Name, and the RFP Title.
  - b. Indicate in the Cover Letter for the Proposal that confidential information or materials are included in the submission along with a general description of the information for which confidential treatment is sought.
  - c. Indicate in the Cover Letter which statutory exception(s) provision of the IPRA applies to each listed confidential material item.
  - d. Provide a redacted version of the Proposal information and materials to properly identify (and black-out) those sections for which the Vendor claims an exception from disclosure under the IPRA.

IndyPL reserves the right to make determinations of confidentiality upon consultation with legal counsel. If IndyPL does not agree with the claim that the information designated is confidential under one of the cited disclosure exceptions to the IPRA, it may either discuss its interpretation of the allowable exceptions with the Vendor or reject the Proposal. If agreement can be reached on the nature of the requested confidential materials, the Proposal will be considered. If agreement cannot be reached, IndyPL will remove the Proposal from consideration for award and return the entire "Confidential" package to the Vendor. The rest of the Proposal and other supporting documentation will not be returned to Vendor and remain part of the RFP file.

To be clear - IndyPL will not consider prices, fees, or wage rates to be confidential information.

By submission of its Proposal a Vendor acknowledges that IndyPL is required to make disclosures as required by law, and nothing herein shall obligate IndyPL to defend a Vendor's designation of its Proposal or portions thereof as confidential and excepted from disclosure. IndyPL shall not be liable for disclosures required by law.

## **VII. EVALUATION CRITERIA**

IndyPL will evaluate Proposals based upon the effectiveness of the perceived performance as it relates to IndyPL's specific requirements. Upon review of the information included in the Proposals, IndyPL will select the Vendor that best meets the needs of IndyPL based on a combination of all of the criteria. Overall cost, although an important factor, will be only one of the criteria considered. IndyPL will evaluate the Proposals based on the criteria listed below in no particular order of priority:

1. The satisfaction level of current and former clients of the Vendor under contracts similar to the requirements of IndyPL;
2. Compatibility with existing equipment;
3. Proposed XBE utilization;
4. Proposed overall cost;
5. Perceived effectiveness of the Work Plan; and
6. Any other criteria deemed relevant by IndyPL.

## **VIII. AWARD**

The Contractor shall be ready to proceed with the Services within seven (7) days after the later of receipt of the Notice of Intent to Enter into an Agreement. IndyPL shall conduct a conference with the Contractor after issuing the Notice of Intent to Enter into an Agreement. The purpose of this conference will be establishing all lines of communication, to review equipment, schedules, work procedures, and other matters.

**Attachment A**  
**Request for Proposals**  
**Solar Photovoltaic System Installation and Maintenance Services**  
**at the West Perry Branch Library Project**  
**Scope of Services**

1. Refer to **Attachment F** for Technical Specifications and Plans of the System.
2. The Contractor shall furnish and install all labor and materials required for a completely functional grid-tied solar photovoltaic system with public facing dashboard. Work includes, but is not limited to:
  - Securing all required permits.
  - Coordination with the local electrical utility for connection into the grid and interconnection agreement.
  - Solar panels.
  - Racking system.
  - Ballast.
  - Pedestals.
  - Roof penetrations.
  - Electrical panels.
  - Disconnects.
  - Wiring and conduit from electrical panel to the panels.
  - Lightning protection.
  - Inverters.
  - Inverter wiring and conduit.
  - Dashboard display monitor with mount.
  - Commissioning.
  - Tying the panel into the existing electrical system.
3. Requests for Equipment Substitutions:
  - a. The products of the manufacturer referred to in the RFP establish the standard of quality required by IndyPL. Products from manufacturers other than listed may be used only if approved by IndyPL per the schedule in the RFP. IndyPL is the sole judge of equivalency of proposed substitute products.
  - b. If the Vendor desires to use a substitute product, they shall make application to IndyPL in writing, stating and fully identifying the proposed substitute, and submit substantiating data, samples, brochures, etc., of the substitute product proposed. It is the Vendor's responsibility to provide sufficient evidence by tests or other means to support any request for approval of a substitution.
  - c. Prior to proposing any substitute product, the Vendor shall be satisfied that the product proposed is, in fact, equal to or exceeds the requirements; that it will fit into the space allocated; that it affords comparable ease of operation, maintenance and service, that it is comparable in appearance, longevity, and suitability for the installation; and that the proposed substitution is in IndyPL's best interest.
  - d. Acceptance of substitutions shall not relieve the Vendor from responsibility for compliance with the requirements of the RFP. Notification to all Vendors of an approved substitution will be documented by addendum per the schedule in the RFP.
  - e. The contract completion time shall not be extended by any circumstances



**Attachment A**  
**Request for Proposals**  
**Solar Photovoltaic System Installation and Maintenance Services**  
**at the West Perry Branch Library Project**  
**Scope of Services**

resulting from proposed substitution, nor shall the Vendor be entitled to any compensation for any delay caused thereby or related thereto.

4. Public Facing Dashboard - The Services also include a public facing dashboard with resource use including these components:
- a. Track and provide views of the following meter points on a sub-hourly (maximum 15- minute) basis:
    - 1) Whole-building level for electricity.
    - 2) Solar PV production.
  - b. Energy data inputs:
    - 1) The system will collect interval data directly from remotely readable meters using industry standard communication protocols.
    - 2) The system will have the capability to consolidate meter readings and to create virtual meter points by adding and/or subtracting the readings from multiple meters at the same interval, to produce a calculated time series of resource use.
    - 3) The system will have the capacity to store at least 5 years of data, trended at intervals up to 15 minutes, for analysis, reporting, and visualization.
  - c. Resource costs tracking:
    - 1) The technology will calculate and provide visualizations of real-time (and historic) costs using estimated (and user definable) flat rates in \$/ unit.
  - d. Energy unit conversion:
    - 1) The technology will have the capability to convert, display, and report energy use in equivalent environmental metrics such as CO2 equivalent, trees planted, miles driven in a car, and define any desired conversion standard.
  - e. Dashboard:
    - 1) The unit is a minimum 48" display for a public-facing configurable dashboard display for occupants and visitors to view the IndyPL defined aspects of energy consumed in the building. The metrics include energy use intensity, current usage, cumulative savings over time, or other performance metrics and trends.
    - 2) The Contractor shall provide all necessary hardware, mounting equipment, software, and connectivity for the dashboard.
    - 3) The dashboard shall have the capability to display current and historic weather data.
    - 4) The dashboard shall have the capability to display videos and other images prepared by IndyPL or others showing energy and resource conservation measures incorporated into building.
  - f. The Contractor shall provide training for IndyPL staff to add and modify content.

**Attachment A**  
**Request for Proposals**  
**Solar Photovoltaic System Installation and Maintenance Services**  
**at the West Perry Branch Library Project**  
**Scope of Services**

5. Structural Review Allowance - The Contractor shall include a \$1,500 allowance for a structural review of the contractor proposed PV panel frame attachment to the building structure by IndyPL's structural engineer, RM Consulting. The Contractor will be billed directly from the engineer for their services.
6. Electrical Review Allowance - The Contractor shall include a \$2,000 allowance for IndyPL's electrical engineer, Schmidt Associates, to answer questions relating to the RFP, review the Contractor prepared submittals, and to inspect the completed work. The Contractor will be billed directly from the engineer for their services.
7. Roof Membrane - The existing roof is a GAF EverGuard Thermoplastic Polyolefin (TPO) fully adhered membrane installed by Foster Contracting.
8. Roof Penetrations - The Contractor shall make the roof penetrations shown and as required for their work to install the System. This roof penetration work shall be coordinated with the CM and completed by the roofing contractor Foster Contracting to maintain the existing membrane warranty. The Contractor shall include a \$2,500 allowance for Foster Contracting to perform the work. The Contractor will be billed directly from Foster Contracting for their services. Contact Nelson Smiley at 317.464.7597.
9. Coordination - The Project will be under construction at during the installation of the System. The Construction Manager for the Project is Powers & Sons. Coordinate all activities on site with the CM for installation of the System with Powers & Sons Project Superintendent Phil Hadley at 317.716.1204.
10. Commissioning - The Contractor shall work with IndyPL's commissioning agent, Facility Commissioning Group, to confirm complete operation of the PV System.
11. Warranty - The Contractor shall warrant the entire system as well as system equipment and all its components for a minimum of two (2) years from date of final acceptance of the system as documented by IndyPL. If the manufacturer's warranty is longer than two (2) years, the vendor shall to provide the full length manufacturer's warranty on all components of the system.
  - a. This warrant shall cover the replacement of all parts and labor to replace the same made necessary by normal usage and wear. This warrant shall also cover any programming changes as required by IndyPL during the warranty period to ensure that the system has the correct operating.
  - b. The Contractor shall repair, adjust, and/or replace, whichever IndyPL determines to be in its best interests, any defective equipment, materials, or workmanship, as well as such parts of the work damaged or destroyed by such defect, during the warranty period, at the Contractor's sole cost and expense.

**Attachment A**  
**Request for Proposals**  
**Solar Photovoltaic System Installation and Maintenance Services**  
**at the West Perry Branch Library Project**  
**Scope of Services**

- c. In the event that any of the equipment specified, supplied, and installed as part of the work should fail to produce capacities, fail to meet the Specifications, or fail to perform as warranted by the manufacturer of the equipment involved, the Contractor shall, in conjunction with the equipment manufacturer, remove and replace such equipment with equipment that will meet requirements without additional cost to IndyPL.
12. Maintenance - The Contractor shall be responsible to provide service within forty-eight (48) hours after notification by IndyPL. The Contractor will be responsible for repairing any deficiencies and or programming errors that are discovered during the use of the system during the entire warranty period.

**Attachment B**  
**Request for Proposals**  
**Solar Photovoltaic System Installation and Maintenance Services**  
**at the West Perry Branch Library Project**  
**Vendor Proposal Sheet, Subcontractors/Suppliers List, and Non-Collusion Affidavit**

**VENDOR PROPOSAL SHEET**

**VENDOR:** \_\_\_\_\_

Address: \_\_\_\_\_

City/State: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

Agent of Vendor (if applicable): \_\_\_\_\_

Email address: \_\_\_\_\_

**Vendor Certification:**

The undersigned acknowledges that I/we have received and thoroughly reviewed the Request for Proposals (RFP) dated August 13, 2020, including the addenda which I\we have listed below, and have visited the Library site to understand the entire Scope of Services required under the RFP.

Pursuant to notices given, the undersigned, with complete understanding of the requirements and conditions, shall provide the Services fully in accordance with the requirements of the RFP.

**Acknowledgement of Receipt of Addenda:**

I/We have received and reviewed the Addenda listed below, and have included the provisions thereof in the response to the RFP.

Addenda Received: \_\_\_\_\_

**Attachment B**  
**Request for Proposals**  
**Solar Photovoltaic System Installation and Maintenance Services**  
**at the West Perry Branch Library Project**  
**Vendor Proposal Sheet, Subcontractors/Suppliers List, and Non-Collusion Affidavit**

**VENDOR PROPOSAL SHEET**

**VENDOR:** \_\_\_\_\_

**Proposal Certification:**

The Vendor proposes to complete the Services as described in this Proposal for the following expense, including two (2) years of annual maintenance services, a \$1,500 allowance for work by the IndyPL structural engineer, a \$1,500 allowance for work by the IndyPL electrical engineer, and a \$2,500 allowance for Foster Contracting to provide and seal the roof penetrations:

\$ \_\_\_\_\_ Written Amount: \_\_\_\_\_

**Proposed Manufacturer of Inverter System:**\_\_\_\_\_

**Proposed Manufacturer of Metering System If Not Included with Inverter:**\_\_\_\_\_

**Proposed Manufacturer of the Solar Cell:**\_\_\_\_\_

**Proposed Manufacturer of the Solar Panel Module:**\_\_\_\_\_

**Proposed Solar Panel Efficiency Rate:**\_\_\_\_\_

**Proposed Solar Panel Degradation Rate:**\_\_\_\_\_

**Proposed Public Facing Dashboard System:**\_\_\_\_\_

**Other Expenses, If Any:**

_____	\$ _____
_____	\$ _____
_____	\$ _____

**Attachment B**  
**Request for Proposals**  
**Solar Photovoltaic System Installation and Maintenance Services**  
**at the West Perry Branch Library Project**  
**Vendor Proposal Sheet, Subcontractors/Suppliers List, and Non-Collusion Affidavit**

**SUBCONTRACTORS/SUPPLIERS LIST**

Vendor shall enter the names, the type of work to be done, and the value in the following Subcontractors/Suppliers List for all the subcontractors and suppliers that the Vendor proposes to use for the Project. The Vendor shall identify all the XBE subcontractors/suppliers in the List including subcontractors/suppliers that may have multiple certifications.

Except as otherwise specifically stated by the Vendor, omission of any names of subcontractors/suppliers herein shall constitute their representation the Vendors proposes to use its own forces for that portion of the Project. Failure to furnish all information requested may render the proposal non-responsive.

Upon award of an Agreement, the named subcontractors/suppliers shall be employed to perform the work and/or provide the materials unless changes are specifically authorized by IndyPL.

			Check if Applicable			
Full Subcontractor Name	Scope of Work	Value	MBE	WBE	DBD	VBE
		\$				
		\$				
		\$				
		\$				

			Check if Applicable			
Full Supplier Name	Scope of Materials	Value	MBE	WBE	DBD	VBE
		\$				
		\$				
		\$				
		\$				

(Duplicate and provide additional sheets if necessary)

**Proposal Contents Checklist:**

- \_\_\_\_\_ Vendor Introduction and Cover Letter.
- \_\_\_\_\_ Vendor Proposal Sheet, Subcontractors/Suppliers List, and Non-Collusion Affidavit included as **Attachment B**.
- \_\_\_\_\_ Vendor Profile and Experience.
- \_\_\_\_\_ Vendor References.
- \_\_\_\_\_ Vendor Sample Work Plan.
- \_\_\_\_\_ Executed E-Verify Affidavit included as **Attachment D**.
- \_\_\_\_\_ Vendor Comments on the Terms and Conditions included in **Attachment E**.
- \_\_\_\_\_ Vendor Additional Information within the maximum page limit.
- \_\_\_\_\_ One (1) original, three (3) print copies, and one (1) electronic PDF copy.

**Attachment B**  
**Request for Proposals**  
**Solar Photovoltaic System Installation and Maintenance Services**  
**at the West Perry Branch Library Project**  
**Vendor Proposal Sheet, Subcontractors/Suppliers List, and Non-Collusion Affidavit**

**NON-COLLUSION AFFIDAVIT**

The undersigned, on behalf of the Vendor, being first duly sworn, deposes and states that the Vendor has not, nor has any other member, representative, employee or agent of the Vendor, entered into any combination, collusion or agreement with any person relative to the Service fees to be proposed by anyone at such letting, to prevent any person from submitting a proposal, or to induce anyone to refrain from submitting a proposal.

The undersigned further deposes and states that this Proposal is made without reference to any other proposal and without any agreement, understanding or combination with any other person referring to such proposal.

The undersigned further deposes and states that no person, firm or entity has or will receive directly or indirectly, any rebate, fee, gift, commission or thing of value on account of such Proposal.

Vendor: \_\_\_\_\_

By (Signature): \_\_\_\_\_

Printed Name and Title: \_\_\_\_\_

*Important – Notary Signature and Seal Required in the Space Below*

STATE OF \_\_\_\_\_

Seal:

COUNTY OF \_\_\_\_\_

Subscribed and sworn to before me this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

My commission expires: \_\_\_\_\_ (Signed) \_\_\_\_\_

Residing in \_\_\_\_\_ County, State of \_\_\_\_\_

**Attachment C**  
**Request for Proposals**  
**Solar Photovoltaic System Installation and Maintenance Services**  
**at the West Perry Branch Library Project**  
**Schedule of Activities**

RFP Issued	August 13, 2020
Public Notices	August 14 and 21, 2020
Pre-Proposal Conference and Site Tour	With the current COVID-19 restrictions on gatherings, no Pre-Proposal Conference will be held. All questions and clarifications will be issues as described in the RFP.
Questions and Substitution Requests Due from Vendors	August 25, 2020 at 4:00 pm
Answers to Questions sent to Vendors	August 27, 2020 at 4:00 pm
RFP Due and Public Opening ("Proposal Submission Deadline")	September 8, 2020, 2:00 pm Library Services Center 2450 North Meridian Street, Indianapolis, IN 46208
IndyPL Evaluation Committee Meets to Discuss the Responses to the RFP	September 18, 2020
IF NEEDED: IndyPL Submits Questions to and/or Requests Discussions with Offerors Reasonably Susceptible of Being Awarded the Contract	September 21, 2020
IF NEEDED: Responses to Questions and/or Discussions with Offerors	September 30, 2020 between 1:00 pm and 4:00 pm Discussion times TBD
IF NEEDED: Best and Final Offer Due	October 7, 2020 at 2:00 pm Library Services Center, Room 221 2450 North Meridian Street, Indianapolis, IN 46208
Preliminary Recommendation Presented to IndyPL Board Facilities Committee	October 13, 2020 Library Services Center, Room 221 2450 North Meridian Street, Indianapolis, IN 46208
Final Recommendation to IndyPL Board of Trustees at their monthly public meeting.	October 26, 2020 at 6:30 pm Wayne Branch Library 198 South Girls School Road, Indianapolis, IN 46231
Notification of Intent to Enter Into an Agreement	October 27, 2020
Post Award Planning and Coordination Meeting	November 24, 2020, time to be determined
Execute Agreement	December 1, 2020
Start Installation Work	April 1, 2021
Substantial Completion	April 30, 2021



**Attachment D**  
**Request for Proposals**  
**Solar Photovoltaic System Installation and Maintenance Services**  
**at the West Perry Branch Library Project**  
**E-Verify Affidavit**

Pursuant to Indiana Code 22-5-1.7-11, the Contractor entering into a contract with the Indianapolis-Marion County Public IndyPL is required to enroll in and verify the work eligibility status of all its newly hired employees through the E-Verify program. The Contractor is not required to verify the work eligibility status of all its newly hired employees through the E-Verify program if E-Verify no longer exists.

1. Contractor affirms that Contractor does not knowingly employ an unauthorized alien.
2. Contractor affirms under the penalties of perjury that it has enrolled and is participating in the E-Verify program. Contractor is not required to participate should the E-Verify program cease to exist.
3. Contractor agrees to provide documentation demonstrating that Contractor has enrolled and is participating in the E-Verify program.
4. Library may terminate for default if Contractor fails to cure a breach of this provision no later than thirty (30) days after being notified.

I affirm, under the penalties for perjury, that the foregoing representations are true.

(Contractor): \_\_\_\_\_

By (Written Signature):

\_\_\_\_\_

(Printed Name):

\_\_\_\_\_

(Title):

\_\_\_\_\_

*Important – Notary Signature and Seal Required in the Space Below*

STATE OF \_\_\_\_\_

Seal:

COUNTY OF \_\_\_\_\_

Subscribed and sworn to before me this \_\_\_\_ day of \_\_\_\_\_ 20\_\_.

My commission expires: \_\_\_\_\_ (Signed) \_\_\_\_\_

Residing in \_\_\_\_\_ County, State of \_\_\_\_\_

**Attachment E**  
**Request for Proposals Solar Photovoltaic System Installation and Maintenance Services**  
**at the West Perry Branch Library Project**  
**Draft Agreement**

AIA A105-2017, Short Form of Agreement Between Owner and Contractor, as modified.

# AIA<sup>®</sup> Document A105<sup>™</sup> – 2017

## *Standard Short Form of Agreement Between Owner and Contractor*

AGREEMENT made as of the 1st day of December in the year 2020  
(In words, indicate day, month and year.)

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

Indianapolis-Marion County Public Library  
2450 North Meridian Street  
Indianapolis, Indiana 46208

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

TBD

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

Indianapolis-Marion County Public Library – Solar Photovoltaic System Installation and  
Maintenance Services – West Perry Branch Library  
6650 South Harding Street  
Indianapolis, Indiana 46217

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

Schmidt Associates  
415 Massachusetts Avenue  
Indianapolis, IN 46204

The Owner and Contractor agree as follows.

### **ADDITIONS AND DELETIONS:**

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

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

TABLE OF ARTICLES

1	THE CONTRACT DOCUMENTS
2	DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION
3	CONTRACT SUM
4	PAYMENTS
5	INSURANCE
6	GENERAL PROVISIONS
7	OWNER
8	CONTRACTOR
9	ARCHITECT
10	CHANGES IN THE WORK
11	TIME
12	PAYMENTS AND COMPLETION
13	PROTECTION OF PERSONS AND PROPERTY
14	CORRECTION OF WORK
15	MISCELLANEOUS PROVISIONS
16	TERMINATION OF THE CONTRACT
17	OTHER TERMS AND CONDITIONS

**ARTICLE 1 THE CONTRACT DOCUMENTS**

§ 1.1 The Contractor shall complete the Work described in the Contract Documents for the Project. The Contract Documents consist of

- .1 this Agreement signed by the Owner and Contractor;
- .2 Owner's Request for Proposals for Solar Photovoltaic System Installation and Maintenance Services at the West Perry Branch Library Project, dated August 13, 2020, including any and all addenda thereto, and all documents attached thereto and made reference to therein (collectively referred to as the "RFP");

*(Table deleted)*

*(Paragraphs deleted)*.3 Contractor's response to the RFP, dated [REDACTED], including all documents attached thereto and made reference to therein ;

*(Table deleted)*

.4 written orders for changes in the  
*(Paragraphs deleted)*  
Work issued after execution of this Agreement.

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## ARTICLE 2 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

The number of calendar days available to the Contractor to substantially complete the Work is the Contract Time. The date of commencement of the Work shall be **April 1, 2021**. The Contractor shall substantially complete the Work not later than **April 30, 2021**, subject to adjustment as provided in Article 10 and Article 11.

*(Paragraphs deleted)*

## ARTICLE 3 CONTRACT SUM

§ 3.1 Subject to additions and deductions in accordance with Article 10, the Contract Sum is:

**TBD**

§ 3.2 For purposes of payment, the Contract Sum includes the following values related to portions of the Work:

*(Paragraphs deleted)*

**TBD**

*(Table deleted)*

§ 3.3

*(Paragraphs deleted)*

Unit prices, if any, are as follows: **TBD**

§ 3.4 Allowances included in the Contract Sum, if any, are as follows:

*(Paragraphs deleted)*

**TBD**

*(Table deleted)*

§ 3.5

*(Paragraphs deleted)*

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

*(Table deleted)*

*(Paragraph deleted)*

§ 3.6 The Contract Sum shall include all items and services necessary for the proper execution and completion of the Work.

## ARTICLE 4 PAYMENT

§ 4.1 Owner shall pay the Contractor, in accordance with Article

*(Paragraphs deleted)*

12.

*(Paragraphs deleted)*

## ARTICLE 5 INSURANCE

§ 5.1 The Contractor shall provide Contractor's general liability and other insurance as follows:

Contractor shall secure, pay for and maintain the following insurance policies in full force and effect throughout the term of the Agreement, which policies shall protect against any loss or claim arising from or relating to this Agreement, Contractor's activities or presence at the Project, and any negligent act or omission of Contractor or its employees and/or agents or subcontractors in connection with the Services provided under this Agreement, and shall cover the contractual indemnification liability assumed by Contractor pursuant to this Agreement:

(A) Commercial General Liability Insurance with limits of not less than One Million Dollars (\$1,000,000) per occurrence for bodily injury (including death) and property damage, products and completed operations liability, contractual liability and fire damage, and Two Million Dollars (\$2,000,000) general aggregate. The policy shall be written on an occurrence basis. The policy shall also not have exclusions for any of Contractor's activities at the Project. Any deductible shall be at Contractor's cost;

(B) Workers' Compensation insurance, affording coverage in accordance with the applicable state laws covering all of Contractor's employees, and Employer's Liability coverage in accordance with the applicable state laws but no less than One Million Dollars (\$1,000,000) each accident, One Million Dollars (\$1,000,000)

each employee and Two Million Dollars (\$2,000,000) policy limit;

(C) Property Insurance coverage for all tools, materials, equipment and other items owned, borrowed or leased by Contractor shall be Contractor's responsibility. Owner shall not be responsible for such tools, materials, equipment and other items owned, borrowed or leased by Contractor. Owner shall not be responsible for equipment and materials to be installed at the Facilities by Contractor until such time that the equipment or materials are installed by Contractor and such installation is deemed substantially complete;

(D) Business automobile coverage, including coverage for owned, leased, and hired vehicles, which shall include vehicle and property (cargo) damage, and bodily injury, in an amount not less than Two Million Dollars (\$2,000,000.00) per accident.;

(E) Umbrella Liability insurance at not less than Five Million Dollars (\$5,000,000) limit for each occurrence and in the aggregate providing for excess coverage over the limits and coverages prescribed above in clauses (A), (B) and (D) above, which such policy shall be written on an occurrence basis;

(F) All insurance policies addressed in clauses (A), (C), (D) and (E) above shall be endorsed to name the following as additional insureds:

Indianapolis-Marion County Public Library and its trustees, directors, officers, employees, volunteers, representatives, agents, contractors, licensees and successors.

All insurance policies required hereunder (i) shall be endorsed to state that the insurance is primary and not contributive to any other insurance available to Owner, (ii) shall provide for a waiver of rights of subrogation against the additional insured's on the part of the insurance carriers, (iii) shall be written with insurance companies licensed to do business in the State of Indiana and rated no lower than A- in the most current edition of A.M. Best's Property-Casualty Key Rating Guide, and (iv) shall provide for no less than thirty (30) days advance written notice to Owner prior to cancellation, non-renewal or material modification.

Contractor shall deliver to Owner, prior to providing the Work under this Agreement, Certificates of Insurance confirming the existence or issuance of all insurance policies required to be carried hereunder ("Certificates of Insurance"). If any such policy is not obtained, or if all Certificates of Insurance are not delivered to Owner by the aforementioned time, or if any of such policies are canceled, Owner shall have the right to terminate this Agreement immediately and/or deny Contractor access to the Project.

These insurance provisions are minimum requirements and shall not relieve Contractor of its indemnity, defense and hold harmless obligations.

If Contractor's insurance contains a deductible (or self-insured retention amount), Contractor shall disclose the amount, and be responsible for payment of any claim equal to or less than the deductible (or self-insured retention amount). Owner reserves the right to reject insurance policies with a deductible (or self-insured retention amount) in excess of \$15,000 for which adequate financial strength of the Contractor cannot be demonstrated to the satisfaction of Owner.

*(Table deleted)*

*(Paragraphs deleted)*

§ 5.2 The Owner shall provide property insurance to cover the value of the Owner's property, including any Work provided under this Agreement. The Contractor is entitled to receive an increase in the Contract Sum equal to the insurance proceeds related to a loss for damage to the Work covered by the Owner's property insurance.

§ 5.3 The Contractor shall obtain an endorsement to its general liability insurance policy to cover the Contractor's obligations under Section 8.12.

§ 5.4 Each party shall provide certificates of insurance showing their respective coverages prior to commencement of the Work.

§ 5.5 Unless specifically precluded by the Owner's property insurance policy, the Owner and Contractor waive all

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rights against each other and any of their subcontractors, suppliers, agents and employees, each of the other, for damages caused by fire or other causes of loss to the extent covered by property insurance or other insurance applicable to the Work.

§ 5.6 These insurance requirements are intended to satisfy the minimum insurance requirements required by Ind. Code § 5-16-13-10.

## **ARTICLE 6 GENERAL PROVISIONS**

### **§ 6.1 THE CONTRACT**

The Contract represents the entire and integrated agreement between the parties and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a written modification in accordance with Article 10.

### **§ 6.2 THE WORK**

The term "Work" means the construction and services required by the Contract Documents, and includes all other labor, materials, equipment and services provided, or to be provided, by the Contractor to fulfill the Contractor's obligations.

### **§ 6.3 INTENT**

The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all.

*(Paragraphs deleted)*

## **ARTICLE 7 OWNER**

### **§ 7.1 INFORMATION AND SERVICES REQUIRED OF THE OWNER**

§ 7.1.1 If requested by the Contractor in writing prior to Contractor commencing the Work required hereunder, and the Contractor has no other reasonably practicable way of obtaining the information, the Owner shall furnish surveys reasonably necessary for Contractor to complete the Work required by the Contract Documents, as well as a legal description of the site. Contractor shall be liable to Owner for any and all costs incurred by Owner in providing such surveys and information.

§ 7.1.2 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, the Owner shall obtain and pay for other necessary approvals, easements, assessments and charges.

*(Paragraph deleted)*

### **§ 7.2 OWNER'S RIGHT TO STOP THE WORK**

If the Contractor fails to correct Work which is not in accordance with the Contract Documents, the Owner may direct the Contractor in writing to stop the Work until the correction is made.

### **§ 7.3 OWNER'S RIGHT TO CARRY OUT THE WORK**

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a seven day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies, correct such deficiencies. In such case, the Contract Sum shall be adjusted to deduct the cost of correction from payments due the Contractor.

### **§ 7.4 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS**

§ 7.4.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project.

§ 7.4.2 The Contractor shall coordinate and cooperate with the Owner's own forces and separate contractors employed by the Owner.

§ 7.4.3 Costs caused by delays or by improperly timed activities or defective construction which result from the action or inaction of Contractor shall be borne by the Contractor. The Owner shall not be liable to the Contractor and/or any

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Subcontractor for claims or damages of any nature caused by or arising out of delays. Contractor's sole remedy against Owner for delays shall be the allowance of additional time for completion of the Work.

**§ 7.5 OWNER'S DETERMINATION THAT CONTRACTOR IS NOT RESPONSIBLE**

If Owner makes a determination that Contractor or any lower tier contractor has violated §§ 8.3, 8.4, 8.13, or 8.14 of this agreement, pursuant to Ind. Code § 5-16-13-15 (b)(2) the Owner shall find that the Contractor is not responsible and shall determine for how long a period the Contractor was not responsible. In determining the length of time the Contractor was not responsible, the Owner shall take into consideration the severity of the violation.

**ARTICLE 8 CONTRACTOR**

**§ 8.1 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR**

§ 8.1.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

§ 8.1.2 The Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by the Owner. Before commencing activities, the Contractor shall (1) take field measurements and verify field conditions; (2) carefully compare this and other information known to the Contractor with the Contract Documents; and (3) promptly report errors, inconsistencies or omissions discovered to the Owner.

**§ 8.2 CONTRACTOR'S CONSTRUCTION SCHEDULE**

The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's information a Contractor's construction schedule for the Work.

**§ 8.3 SUPERVISION AND CONSTRUCTION PROCEDURES**

§ 8.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures, and for coordinating all portions of the Work.

§ 8.3.2 The Contractor represents and confirms it is a Tier 1 Contractor as defined by Ind. Code § 5-16-13-4 (1). The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner the names of subcontractors (defined as Tier 2 contractors, Tier 3 contractors, or Lower tier contractors accordingly as defined by Ind. Code § 5-16-13-4 (2)-(4)) or suppliers for each portion of the Work. The Contractor shall not contract with any Tier 2 contractor, Tier 3 contractor, or Lower tier contractor or supplier to whom the Owner has made a timely and reasonable objection.

§ 8.3.3 Pursuant to Ind. Code § 5-16-13-9 the Contractor shall contribute to the project at least 15% of the total contract price as determined at the time of the award of contract. The Contractor may contribute in work performed by the Contractor's employees, materials supplied by the Contractor, services supplied by the Contractor's employees, or any combination of the above-mentioned contributions.

**§ 8.4 LABOR AND MATERIALS; EMPLOYMENT REQUIREMENTS**

§ 8.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work.

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

§ 8.4.3 Pursuant to Ind. Code § 5-16-13-11(1) The Contractor affirms under penalties of perjury that Contractor does not knowingly employ an unauthorized alien.

The Contractor shall enroll in and verify the work eligibility status of all his/her/its newly hired employees through the E-Verify program as defined in IC 22-5-1.7-3. Contractor is not required to verify the work eligibility status of all newly hired employees of Contractor through the E-Verify program if the E-Verify program no longer exists. Additionally, the Contractor is not required to participate if Contractor is self-employed and does not employ any

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employees.

Contractor shall not knowingly employ or contract with an unauthorized alien, as that term is defined in 8 U.S.C. § 1324a(h)(3). Contractor shall not retain an employee or contract with a person that Contractor subsequently learns is an unauthorized alien.

Contractor shall require his/her/its subcontractors, who perform work under this contract, to certify to Contractor that the subcontractor does not knowingly employ or contract with an unauthorized alien and that the subcontractor has enrolled and is participating in the E-Verify program. Contractor agrees to maintain this certification throughout the duration of the term of a contract with a subcontractor.

Prior to commencement of Work, Contractor shall provide Owner the E-Verify case verification number for each individual required to be verified pursuant to Ind. Code § 22-5-1.7.

Owner may terminate the Agreement for default if Contractor fails to cure a breach of this Section 8.4.3 no later than thirty (30) days after being notified by Owner of such breach.

§ 8.4.4 Contractor shall not pay cash to any individual employed by the Contractor for work done by the individual on the Work.

§ 8.4.5 Contractor shall be in compliance with and shall require any lower tier contractor to comply with the Fair Labor Standards Act of 1938, as amended.

§ 8.4.6 The Contractor shall and shall require any lower tier contractor to keep the payroll and related records ("payroll records") of the Contractor and any other tier of contractor for a period of three years after completion of the Work. The payroll records shall be available for inspection by the Indiana Department of Workforce Development at any time during this retention period.

§ 8.4.7 Contractor shall and shall require any lower tier contractors to be in compliance with all laws and regulations for workers compensation, workers occupational disease compensation and unemployment compensation as required by Ind. Code § 5-16-13-11 (4) and (5).

§ 8.4.8 Contractor shall and shall require any lower tier contractors to be in compliance with all laws and regulations for drug testing, including without limitation, Ind. Code § 4-13-18-1 through Ind. Code § 4-13-18-7, as required by Ind. Code § 5-16-13-11 (6).

§ 8.4.9 The Contractor shall and shall require any Tier 2 contractors to comply with the provisions of Ind. Code § 5-16-13-12 regarding access by employees to training or apprenticeship programs.

#### § 8.5 WARRANTY

The Contractor warrants to the Owner that: (1) materials and equipment furnished under the Contract will be new and of good quality unless otherwise required or permitted by the Contract Documents; (2) the Work will be free from defects not inherent in the quality required or permitted; (3) Contractor shall comply with all requirements, specifications, directives and material handling and installation requirements of any and all material suppliers providing materials, systems and/or components for use in the Work, including all technical specifications, product guides, installation instructions and the like; (4) for a minimum of two years from the date of final completion and acceptance by the Owner of the Work, all labor and material shall be free of defects in workmanship and installation; (5) for a minimum of five years (or longer as provided by the applicable manufacturers) the materials, components and/or systems included in the Work shall be free from any and all defects, including defects in the installed product for fiber, backing and manufacturing; and (6) the Work will conform to the requirements of the Contract Documents.

#### § 8.6 TAXES

The Contractor shall pay sales, consumer, use and similar taxes that are legally required when the Contract is executed.

#### § 8.7 PERMITS, FEES AND NOTICES

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§ 8.7.1 The Contractor shall obtain all construction/improvement permits and other permits, approvals, licenses and inspections necessary for proper execution and completion of the Work. Owner shall pay for any and all filing fees associated therewith.

§ 8.7.2 The Contractor shall comply with and give notices required by agencies having jurisdiction over the Work. If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume full responsibility for such Work and shall bear the attributable costs. The Contractor shall promptly notify Owner in writing of any known inconsistencies in the Contract Documents with such governmental laws, rules and regulations.

#### § 8.8 SUBMITTALS

The Contractor shall promptly review, approve in writing and submit to Owner Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents. Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents.

#### § 8.9 USE OF SITE

The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits, the Contract Documents and the Owner.

#### § 8.10 CUTTING AND PATCHING

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

#### § 8.11 CLEANING UP

The Contractor shall keep the premises and surrounding area free from accumulation of debris and trash related to the Work. At the completion of the Work, the Contractor shall remove its tools, construction equipment, machinery and surplus material; and shall properly dispose of waste materials.

#### § 8.12 INDEMNIFICATION

To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Owner's consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder.

#### §8.13 MISCLASSIFICATION

The Contractor shall not misclassify workers employed by the Contractor. If Owner suspects misclassification of one or more workers employed by Contractor or by any lower tier contractor, the Owner may request, pursuant to Ind. Code § 5-16-13-14, that the Indiana Department of Workforce Development investigate the suspected worker misclassification. The Indiana Department of Workforce Development may refer the matter to the appropriate agency or official upon a finding that worker misclassification has occurred based on a review of information and/or records submitted to the Department by the Owner.

#### §8.14 STATUTORY VIOLATIONS

§8.14.1 The Owner is required to report pursuant to Ind. Code § 5-16-13-15 (b) (1) the following suspected statutory violations by the Contractor or any lower tier contractor to the appropriate agency: 1) Suspected violations by the Contractor of the E-Verify provisions of this contract shall be reported to the Indiana Department of Labor, 2) Suspected violations of the state minimum wage law or the Fair Labor Standards Act of 1938, as amended, shall be reported to the Indiana Department of Labor, 3) Suspected violations by the Contractor or lower tier contractors of the worker's compensation or occupational diseases statutes shall be reported to the Worker's Compensation Board of Indiana; and 4) Suspected violations by the Contractor or lower tier contractors of the unemployment insurance statutes shall be reported to the Indiana Department of Workforce Development.

§8.14.2 For violations other than those listed in §8.14.1 above, the Owner shall notify the Contractor of any suspected violations or breaches of state law as required by Ind. Code § 5-16-13-15 (b)(2). The notification shall be signed by the chief executive officer of the Owner and shall be sent by a method that enables the Owner to verify receipt of the notice. The Contractor shall have 30 days after notice is received to remedy the violation or breach. The Contractor may continue work during the 30-day remedy period.

## **ARTICLE 9 ARCHITECT**

§ 9.1 The Architect will provide administration of the Contract as described in the Contract Documents. The Architect will have authority to act on behalf of the Owner to the extent provided in the Contract Documents.

§ 9.2 The Architect will visit the site at intervals appropriate to the stage of construction to become familiar with the progress and quality of the Work.

§ 9.3 The Architect will not have control over or charge of, and will not be responsible for, construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility. The Architect will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents.

§ 9.4 Based on the Architect's observations and evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor.

§ 9.5 The Architect has authority to reject Work that does not conform to the Contract Documents.

§ 9.6 The Architect will promptly review and approve or take appropriate action upon Contractor's submittals.

§ 9.7 The Architect will promptly interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request from either the Owner or Contractor.

§ 9.8 Interpretations and decisions of the Architect will be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor.

§ 9.9 The Architect's duties, responsibilities and limits of authority as described in the Contract Documents shall not be changed without written consent of the Owner.

## **ARTICLE 10 CHANGES IN THE WORK**

§ 10.1 The Owner, without invalidating the Contract, may order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly in writing.

§ 10.2 The Owner will have authority to order minor changes in the Work not involving changes in the Contract Sum or the Contract Time and not inconsistent with the intent of the Contract Documents. Such orders shall be binding on the Owner and Contractor. The Contractor shall carry out such orders promptly.

*(Paragraph deleted)*

## **ARTICLE 11 TIME**

§ 11.1 Time limits stated in the Contract Documents are of the essence of the Contract.

§ 11.2 If the Contractor is delayed at any time in progress of the Work by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control, the Contract Time shall be subject to equitable adjustment.

*(Paragraph deleted)*

## **ARTICLE 12 PAYMENTS AND COMPLETION**

### **§ 12.1 CONTRACT SUM**

The Contract Sum stated in the Agreement, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

### **§ 12.2 APPLICATIONS FOR PAYMENT**

§ 12.2.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Owner an itemized Application for Payment for Work completed in accordance with the values, if any, stated in the

Agreement. Such Application shall be supported by data substantiating the Contractor's right to payment as the Owner may reasonably require. Payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment stored, and protected from damage, off the site at a location agreed upon in writing.

§ 12.2.2 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment, all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall be free and clear of liens, claims, security interests or other encumbrances adverse to the Owner's interests, and Contractor shall, as a condition precedent to Owner's obligation to make any payment to Contractor, tender to Owner written and signed, verified partial waivers of all liens and claims with each application for payment, executed by Contractor and Contractor's subcontractors and material suppliers on the form provided by Owner.

### § 12.3 CERTIFICATES FOR PAYMENT

The Owner will, within seven days after receipt of the Contractor's Application for Payment, either issue a Certificate for Payment for such amount as Owner determines is properly due, or notify the Contractor of the Owner's reasons for withholding approval in whole or in part.

### § 12.4 PROGRESS PAYMENTS

§ 12.4.1 After Owner has issued a Certificate for Payment, payment shall be made in the manner provided in the Contract Documents; provided, however, that Owner may tender payment to Contractor without issuing a Certificate for Payment and such tender of payment shall not eliminate Contractor's obligation to submit Applications for Payment for future payment requests as provided in paragraphs 12.2.1 and 12.2.2.

§ 12.4.2 The Contractor shall promptly pay each subcontractor and supplier.

§ 12.4.3 The Owner shall not have responsibility for payments to a subcontractor or supplier.

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

### § 12.5 SUBSTANTIAL COMPLETION

§ 12.5.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use.

§ 12.5.2 When the Work or designated portion thereof is substantially complete, the Owner will make an inspection to determine whether the Work is substantially complete. When the Owner determines that the Work is substantially complete it shall prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

### § 12.6 FINAL COMPLETION AND FINAL PAYMENT

§ 12.6.1 Upon receiving notice from Contractor that the Work is complete, Owner will inspect the Work. When the Owner finds the Work acceptable and the Contract fully performed, it will promptly issue final payment.

§ 12.6.2 Final payment shall not become due until the Contractor submits to the Owner releases and waivers of liens, and data establishing payment or satisfaction of obligations, such as receipts, claims, security interests or encumbrances arising out of the Contract.

§ 12.6.3 Acceptance of final payment by the Contractor, a subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final payment.

## ARTICLE 13 PROTECTION OF PERSONS AND PROPERTY

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The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs, including all those required by law in connection with performance of the Contract. The Contractor shall take reasonable precautions to prevent damage, injury or loss to employees on the Work, the Work and materials and equipment to be incorporated therein, and other property at the site or adjacent thereto. The Contractor shall promptly remedy damage and loss to property caused in whole or in part by the Contractor, or by anyone for whose acts the Contractor may be liable.

#### **ARTICLE 14 CORRECTION OF WORK**

§ 14.1 The Contractor shall promptly correct Work rejected by Owner as failing to conform to the requirements of the Contract Documents. The Contractor shall bear the cost of correcting such rejected Work, including the costs of uncovering, replacement and additional testing.

§ 14.2 In addition to the Contractor's other obligations including warranties under the Contract, the Contractor shall, for a period of one year after Substantial Completion, correct work not conforming to the requirements of the Contract Documents.

§ 14.3 If the Contractor fails to correct nonconforming Work within a reasonable time, the Owner may correct it in accordance with Section 7.3.

#### **ARTICLE 15 MISCELLANEOUS PROVISIONS**

##### **§ 15.1 ASSIGNMENT OF CONTRACT**

Neither party to the Contract shall assign the Contract as a whole without written consent of the other.

##### **§ 15.2 TESTS AND INSPECTIONS**

§ 15.2.1 At the appropriate times, the Contractor shall arrange and bear cost of tests, inspections and approvals of portions of the Work required by the Contract Documents or by laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities.

§ 15.2.2 If the Owner requires additional testing, the Contractor shall perform those tests.

*(Paragraph deleted)*

##### **§ 15.3 GOVERNING LAW**

The Contract shall be governed by the law of the State of Indiana.

#### **ARTICLE 16 TERMINATION OF THE CONTRACT**

##### **§ 16.1 TERMINATION BY THE CONTRACTOR**

If the Owner, without justification, fails to make payment as provided in Section 12.4.1, the Contractor may, upon thirty (30) days' written notice to the Owner, terminate the Contract and recover from the Owner payment for Work executed through the date of such termination.

##### **§ 16.2 TERMINATION BY THE OWNER FOR CAUSE**

§ 16.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the subcontractors;
- .3 persistently disregards laws, ordinances, or rules, regulations or orders of a public authority having jurisdiction; or
- .4 is otherwise guilty of substantial breach of a provision of the Contract Documents.

§ 16.2.2 When any of the above reasons exist, the Owner, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may

- .1 take possession of the site and of all materials thereon owned by the Contractor, and
- .2 finish the Work by whatever reasonable method the Owner may deem expedient.

§ 16.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 16.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.



§ 16.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the Owner. This obligation for payment shall survive termination of the Contract.

§16.2.5 Nothing contained in this Agreement shall limit in any manner any and all rights or remedies otherwise available to Owner by reason of a default by Contractor under this Agreement, including, without limitation, the right to seek full reimbursement from Contractor for all costs and expenses incurred or to be incurred by Owner by reason of Contractor's default hereunder and which Owner would not have otherwise incurred if Contractor had not defaulted hereunder. Contractor shall not under any circumstances be compensated for lost anticipated profits or costs resulting from the termination.

#### § 16.3 **TERMINATION BY THE OWNER FOR CONVENIENCE**

The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause. The Contractor shall be entitled to receive payment for Work executed through the date of such termination.

### **ARTICLE 17 OTHER TERMS AND CONDITIONS**

§17.1 **Equal Opportunity/Non-Discrimination.** The Contractor and the Contractor's Subcontractors shall not discriminate against an employee or applicant for employment because of race, religion, color, sex or national origin. The Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, religion, color, sex or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the policies of non-discrimination. Further, pursuant to Ind. Code § 5-16-6-1, Contractor understands and agrees:

- (a) That in the hiring of employees for the performance of work under this contract or any subcontract hereunder, no contractor, or subcontractor, nor any person acting on behalf of such contractor or subcontractor, shall, by reason of race, religion, color, sex, national origin or ancestry, discriminate against any citizen of the state of Indiana who is qualified and available to perform the work to which the employment relates;
- (b) That no contractor, subcontractor, nor any person on his behalf shall, in any manner, discriminate against or intimidate any employee hired for the performance of work under this contract on account of race, religion, color, sex, national origin or ancestry;
- (c) That there may be deducted from the amount payable to the contractor by the state of Indiana or by any municipal corporation thereof, under this contract, a penalty of five dollars (\$5.00) for each person for each calendar day during which such person was discriminated against or intimidated in violation of the provisions of the contract; and
- (d) That this contract may be cancelled or terminated by the state of Indiana or by any municipal corporation thereof, and all money due or to become due hereunder may be forfeited, for a second or any subsequent violation of the terms or conditions of this section of the contract.

§17.2 **Investment Verification Requirements Of Ind. Code § 5-22-16.5-13.** Pursuant to Ind. Code § 5-22-16.5-13(b), Contractor certifies that Contractor is not engaged in any investment activities in Iran.

§17.3 **Records.** Contractor shall maintain complete and accurate records of all documents associated with providing the Services under this Agreement. All such records shall be available for inspection and audit by Owner, its designee, or the Indiana State Board of Accounts. Failure to maintain accurate records and valid licenses, registrations, certifications, or insurance shall constitute breach of this Agreement and may result in termination of the Agreement.

§17.4 **Laws, Rules, and Regulations.** In performing the Work, Contractor warrants that it has knowledge of, understands, and shall comply with all applicable federal, state, and local laws and regulations, including without limitation, those laws and regulations relating to public works, environment, health, safety, and welfare, discrimination in employment, conflicts

of interest, and accounting records and requirements. SHOULD ANY APPLICABLE LAW OR REGULATION CHANGE DURING THE TERM OF THIS AGREEMENT, CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH THE VERSION OF SUCH LAW OR REGULATION IN FORCE AT THE TIME THE SERVICES ARE PROVIDED UNDER THIS AGREEMENT.

**§17.5 Permits and Licenses.** Contractor and any of its approved sub-contractors shall obtain and keep in effect all permits, licenses, registrations, insurance certificates, and other certificates or approvals required for every aspect of the Work performed under this Agreement. At the request of Owner, Contractor shall provide Owner with copies of all licenses, permits, registrations, insurance certificates, and other certificates and approvals related to performing the Work described under this Agreement. Contractor and any of its employees and subcontractors will comply with all applicable licensing standards, certification standards, accrediting standards and any other laws or regulations governing the Work to be provided by Contractor pursuant to this Agreement. Owner shall not be required to reimburse Contractor for any services performed when Contractor or its employees, contractors or subcontractors are not in compliance with such applicable standards, laws or regulations. Contractor shall give Owner immediate verbal and written notice of any revocation or cancellation of any required license, permit, registration, and insurance certificate or approval. If the Contractor is a foreign (out-of-state) entity, it shall be required to furnish a certificate from the Secretary of State of Indiana showing that the entity is registered and authorized to transact business in the State of Indiana.

**§17.6 Records; Audit.** Contractor shall maintain books, records, documents, and other evidence directly pertinent to performance of the Work under this Agreement in accordance with generally accepted accounting principles and practices consistently applied. Contractor shall also maintain the financial information and data used by Contractor in the submission or preparation of any cost submission, statement or summary submitted to Owner or any funding agency. Owner shall, until the expiration of three (3) years after final payment under this Agreement, have access to and the right to examine, inspect, audit, and copy directly pertinent books, documents, papers and records of Contractor involving any transaction related to this Agreement. The periods of access and examination as described herein shall continue until any disputes, claims, or litigation arising out of the performance of this Agreement has been resolved.

**§17.7 Non-Appropriation.** Notwithstanding any other provision of this Agreement, if funds for the continued fulfillment of this Agreement by Owner are at any time insufficient or not forthcoming through failure of any entity to appropriate funds or otherwise, then Owner shall have the right to terminate this Agreement without penalty by giving written notice documenting the lack of funding.

**§ 17.8 Right to Delay or Suspension of Work.** Owner may, at any time and for any reason, direct Contractor to delay or suspend the Work under this Agreement for a period of time. Such direction shall specify the period during which the Work is to be stopped. If Owner directs Contractor to delay or suspend the Work for a reason other than necessity arising by reason of any act or omission of Contractor or Contractors subcontractors or material suppliers, or any of their respective agents or employees, Contractor shall be entitled only to payment of that portion of total compensation that therefore has not been paid to Contractor to the date of such suspension on account of the Work actually and satisfactorily performed by it prior to such delay or suspension. Contractor shall resume the Work upon the date specified in such direction or upon such other date as Owner may thereafter specify upon reasonable notice to Contractor.

**§ 17.9 Limitation of Liability.**

§ 17.9 .1 Owner shall not, under any circumstances, be liable for any damages (whether foreseen, unforeseen, actual, consequential, or otherwise) suffered by the Contractor, its agents, or subcontractors (or anyone else for whom the Contractor may be liable) arising from or in connection with any injury or damage suffered while on or around the Project site or any portion thereof.

§ 17.9 .2 Notwithstanding anything to the contrary contained elsewhere in this Agreement, in no event shall the Contractor or any subcontractors or material suppliers claim or receive any consequential or other special damages, or lost profits on account of any claim submitted in connection with this Agreement, including, without limitation, expenses arising from Owner's performance or nonperformance of the terms of this Agreement, or otherwise, or claim damages for delay for any reason, for which the exclusive and sole remedy shall be an extension of the time for completion of the services, if such is warranted and permitted by Owner.

**§ 17.10 Mechanics Liens.** Contractor will pay when due all claims for services, material or labor incurred at Contractor's request in the performance of this Contract. To the fullest extent permitted by law, Contractor will indemnify, defend and

hold harmless owner and the Project from and against any and all mechanics' liens or stop notices of any kind or character whatsoever that may be recorded, filed or served with respect to the Project by Contractor or Contractor's Subcontractors or material suppliers arising out of or in any manner connected with the performance of this Contract or any subcontract made pursuant to or in connection with the performance of this Contract. Contractor will, at its own expense, defend any and all actions based upon such mechanics' liens or stop notices and will pay all charges of attorneys and all costs and other expenses arising therefrom. If Contractor fails to defend any such action to Owner is a party, Owner may defend itself with counsel of its choice, and Contractor will indemnify Owner from and against all costs and fees incurred by Owner in such action. If any such lien or stop notice is recorded or served with respect to the Project or Contractor's Subcontractors or material suppliers arising out of or in any manner connected with the performance of this Contract, Contractor will, at its sole cost and expense, immediately record or file, or cause to be recorded or filed, in the office of the appropriate public official in which such lien or stop notice was recorded, or with person(s) on whom such notice was served, a bond executed by a good and sufficient surety, and approved by Owner, in a sum equal to two (2) times the amount of such lien or stop notice, which bond will guarantee the payment of any amounts that Contractor's subcontractors or material suppliers may recover on the lien or stop notice together with any attorneys' fees and costs of suit in the action, if any, that such Subcontractors or material suppliers may recover therein.

**§17.11 Non-Collusion.** Except with the Owner's knowledge and consent, the Contractor shall not engage in any activity, or accept any employment, interest or contribution that would reasonably appear to compromise the Contractor's professional judgment with respect to this Project. Contractor represents and warrants that no officer, director, employee or agent of Owner has been or will be employed, retained or paid a fee, or otherwise has received or will receive any personal compensation or consideration by or from Contractor or any of Contractor's directors, officers, employees or agents in connection with the obtaining, arranging or negotiation of this Agreement. Both parties agree that the consideration to be paid by Owner under this Agreement represents fair and reasonable consideration relative to the value of work to be provided by Contractor to Owner.

**§17.12 Identification of Tier Contractors.** The Contractor understands and agrees that the terms and conditions of Ind. Code § 5-16-13 are made a part hereof and incorporated herein by reference and that Contractor shall conform in all respects to such provisions and further represents and confirms it is a Tier 1 Contractor as defined by Ind. Code § 5-16-13-4 (1). The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner the names of subcontractors (defined as Tier 2 contractors, Tier 3 contractors, or Lower tier contractors accordingly as defined by Ind. Code § 5-16-13-4 (2)-(4)) and material and equipment suppliers for each portion of the Work. The Contractor shall not contract with any Tier 2 contractor, Tier 3 contractor, or Lower tier contractor or supplier to whom the Owner has made a timely and reasonable objection.

**§ 17.13 Drug Testing – Compliance with all Laws and Regulations.** Contractor shall and shall require any lower tier contractors to be in compliance with all laws and regulations for drug testing, including without limitation, Ind. Code § 4-13-18-1 through Ind. Code § 4-13-18-7, as required by Ind. Code § 5-16-13-11 (6). Further, pursuant to Ind. Code §4-13-18-7, Contractor understands and agrees that:

- (1) That the Contractor shall implement its employee drug testing program described in the contractor's plan.
- (2) Owner shall terminate this Contract if Contractor:
  - (A) fails to implement its employee drug testing program during the term of the contract;
  - (B) fails to provide information regarding implementation of the Contractor's employee drug testing program at the request of the Owner; or
  - (C) provides to the Owner false information regarding the Contractor's employee drug testing program.

**§ 17.14 Use of Domestic Steel Products.**

§17.14.1 Pursuant to Indiana Code §5-16-8, if any steel or foundry products are to be used or supplied in the performance of the Work under this contract and/or any subcontract entered into by Contractor in furtherance of the performance of the Work, only steel or foundry products made in the United States shall be used or supplied in the performance of the Work under this contract and any subcontracts, unless Owner determines, in writing, that the cost of steel or foundry products is considered to be unreasonable. As defined in Indiana Code §5-16-8-1, "steel products" means products rolled, formed, shaped, drawn, extruded, forged, cast, fabricated, or otherwise similarly processed, or processed by a combination of two (2) or more of such operations, from steel made in the United States by the open hearth, basic oxygen, electric furnace, Bessemer, or other steel making process and "foundry products" means products cast from ferrous and nonferrous metals by foundries in the United States.



§ 17.14.2 For purposes of the preceding paragraph, the price of any steel or foundry products of domestic (United States) origin is not considered unreasonable if the price does not exceed the sum of:

- (1) the bid or offered price of like steel or foundry products of foreign origin (including any applicable duty); plus
- (2) a differential of fifteen percent (15%) of the bid or offered price of the steel or foundry products of foreign origin.

§17.14.3 In furtherance of this section 17.14, Contractor shall provide to Owner, to Owner's reasonable satisfaction verifiable evidence of the applicable comparative pricing of domestic and foreign steel products which will be used in completion of the Work.

This Agreement entered into as of the day and year first written above.  
(Paragraphs deleted)

OWNER (Signature)  
M. Jacqueline Nytes  
Chief Executive Officer

(Printed name and title)  
(Rows deleted)

CONTRACTOR-TBD (Signature)

(Printed name and title)

**Attachment F**  
**Request for Proposals**  
**Solar Photovoltaic System Installation and Maintenance Services**  
**at the Eagle Branch Library Project**  
**Plans and Technical Specifications**

Technical Specifications prepared by Schmidt Associates:

- Section 26 05 00 – Common Work Results for Electrical.
- Section 26 05 19 – Low-Voltage Electrical Power Conductors and Cables.
- Section 26 05 26 – Grounding and Bonding for Electrical Systems.
- Section 26 05 29 – Hangers and Supports for Electrical Systems.
- Section 26 05 33 – Raceways and Boxes for Electrical Systems.
- Section 26 28 16 – Enclosed Switches and Circuit Breakers.
- Section 26 31 00 – Photovoltaic Collectors Solar.

Construction Documents prepared by Schmidt Associates dated January 17, 2020:

- AR100 – Overall Roof Plan.
- A-300 – Building Sections.
- E-001 – Symbols, Abbreviations & General Notes – Electrical.
- ES101 –Site Plan.
- EP101 - Power Plan.
- EPR101 - Roof PV Plan.
- E-501 – Details.
- E-601 – Schematics.

## SECTION 260500 - COMMON WORK RESULTS FOR ELECTRICAL

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section Includes:

1. Electrical equipment coordination and installation.
2. Codes and standards.
3. Work and workmanship.
4. Drawings and minor deviations.
5. Continuous operations.
6. Sleeves for raceways and cables.
7. Sleeve seals.
8. Grout.
9. Common electrical installation requirements.
10. Miscellaneous work.
11. Protection and treatment of property.
12. Electrical connections to equipment.
13. Temporary lighting and power.

#### 1.3 DEFINITIONS

- A. EPDM: Ethylene-propylene-diene terpolymer rubber.

#### 1.4 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 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 installation of required supporting devices and set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed.
- C. Coordinate location of access panels and doors for electrical items that are behind finished surfaces or otherwise concealed. Access doors and panels are specified in Division 08 Section "Access Doors and Frames."
- D. Rough-in: Verify exact location of rough-in prior to installation, checking mounting heights with equipment manufacturers or casework suppliers.
- E. Each Contractor and subcontractor shall study all Drawings applicable to this work so complete coordination between trades will be effected. Special attention shall be given to points where ducts cross and where pipes, ducts, and conduit pass through walls.
- F. It is responsibility of each Contractor and Subcontractor to leave necessary room for other trades. No extra compensation will be allowed to cover cost of removing piping, conduit, ducts or equipment found encroaching on space required by others.

#### 1.5 CODES AND STANDARDS

- A. All materials and workmanship shall comply with all applicable Codes, Specifications, local ordinances, industry standards, and utility company regulations.
- B. In case of difference between building codes, specifications, state laws, local ordinances, industry standards, utility company regulations, and Contract Documents, most stringent shall govern. Contractor shall promptly notify Architect/Engineer in writing of such difference.
- C. Non-Compliance: Should Contractor perform Work that does not comply with requirements of applicable building codes, state laws, local ordinances, industry standards, and utility company regulations, Contractor shall bear all costs related to correcting deficiencies.
- D. Applicable codes and standards shall include all state laws, local ordinances, utility company regulations and applicable requirements of following nationally accepted codes and standards.
- E. Building codes (with all state and local amendments) shall include, but not be limited to following:
  1. National Electrical Code.
  2. International Building Code.
  3. Indiana Accessibility Code.
  4. International Fire Code.
  5. International Mechanical Code.
  6. International Plumbing Code.

7. Indiana Accessibility Code.
- F. These requirements shall be considered minimum and shall be exceeded when so indicated on Drawings or herein specified.
- G. Permits: Contractor shall pay for all building permits required by the Work, permits for opening streets, and for connection to various utilities, including fees for electric meter installation and other requirements necessary to carry out the Work.
- H. Where streets or sidewalks are cut, they shall be repaired to at least as good a condition as they were before, all at expense of this Contractor. Permits shall be posted in a prominent place at building Site properly protected from weather and physical damage.
- I. Industry Standards, Codes and Specifications
  1. IEEE: Institute of Electrical and Electronic Engineers.
  2. ASA: American Standards Association.
  3. ASTM: American Society of Testing Materials.
  4. IPCEA: Insulated Power Cable Engineers Association.
  5. NBS: National Bureau of Standards.
  6. NEMA: National Electric Manufacturers Association.
  7. NFPA: National Fire Protection Association.
  8. UL: Underwriters Laboratories.
  9. NECA: National Electrical Contractors Association.
  10. OSHA: Occupational Safety and Health Act.
- J. Occupancy Safety and Health Standards
  1. All Work shall comply with current requirements of U.S. Department of Labor Occupational Safety and Health Administration, entitles Occupational Safety and Health Standards; National Consensus Standards and Established Federal Standards.
- K. Work and Workmanship
  1. Provide all required labor, materials, equipment and Contractor's services necessary for complete installation of systems required in full conformity with requirements of authorities having jurisdiction; all as indicated on Drawings and herein specified.
  2. Finished job shall be functional and complete in every detail including all such items required for complete system, whether or not these items are specified or shown on Drawings.
  3. Special attention shall be given to accessibility of working and controlling parts. Adjustable parts shall be within easy reach. Removable parts shall have space for removal.
  4. Each Contractor shall become fully acquainted with details of all Work to be performed by other trades and take necessary steps to integrate and coordinate its work with other trades.

5. Wherever tables or schedules show quantities of materials, they shall not be used as a final count. These figures are provided only as a guide to Contractor. Each Contractor shall be responsible for furnishing all materials on Drawings or as specified.
6. Owner and Architect/Engineer have full power to reject Work, materials, or equipment not in accordance with these Specifications and Drawings or are not in compliance with manufacturer's specifications or drawings which are approved by Owner or Architect/Engineer.
7. Work or equipment that is rejected shall be removed and replaced to satisfaction of Owner, at Contractor's expense. Work or equipment that is rejected shall be so stated in writing by Owner or Architect/Engineer.
8. Decisions that Owner or Architect/Engineer may make with respect to questions concerning quality, fitness of materials, equipment, and workmanship shall be binding upon parties and entities involved in that Work.

L. Drawings and Minor Deviations

1. Electrical Drawings show general arrangement of all raceways, equipment, and appurtenances. They shall be followed as closely as actual building construction and Work of other trades will permit. Electrical Work shall conform to requirements shown on all Drawings. Because of small scale of Electrical Drawings, it is not possible to indicate all offsets, fittings, and accessories which may be required. Contractor shall investigate structural and finish conditions affecting Work and shall arrange its Work accordingly, providing such fittings and accessories as may be required to meet such conditions.
2. In event of conflict of requirements detailed in Drawings, General Conditions, these General Provisions and subsequent sections of these Specifications, Bidder shall inform Architect/Engineer of such conflict in writing not later than 5 days before bids are due. If such notification is not provided, Contractor shall accept Architect/Engineer's decision to resolve such conflict without further compensation.
3. For purpose of clarity and legibility, Drawings are essentially diagrammatic, although size and location of equipment and piping are drawn to scale wherever possible. Verify Contract Documents information at Site.
4. Drawings indicate required sizes and points of termination of conduits and ducts and suggest routes. It is not intention of Drawings to indicate all necessary offsets. Install work in manner to conform to structure, avoid obstructions, preserve headroom, and keep openings and passageways clear. Do not scale from Drawings.

M. Continuous Operations

1. All Work shall be performed in a manner that allows Owner to operate existing facility on continuous basis. Temporary feeders or branch circuits shall be provided as required to maintain continuous operation of Owner's facility.

2. Should an outage be required, Contractor shall submit work procedure 5 working days before outage. Work procedure shall indicate step by step procedure which Contractor expects to follow to perform its work. Each shall indicate condition of power source, commercial or diesel, calendar day and time of day from commencement to completion of work. All outages shall be scheduled at Owner's convenience. Contractor shall include all overtime pay for workmen in its Bid.

## PART 2 - PRODUCTS

### 2.1 SLEEVES FOR RACEWAYS AND CABLES

- A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends.

### 2.2 SLEEVE SEALS

- A. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable.
  1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Advance Products & Systems, Inc.
    - b. Calpico, Inc.
    - c. Metraflex Co.
    - d. Pipeline Seal and Insulator, Inc.
  2. Sealing Elements: EPDM interlocking links shaped to fit surface of cable or conduit. Include type and number required for material and size of raceway or cable.
  3. Pressure Plates: Plastic. Include two for each sealing element.
  4. Connecting Bolts and Nuts: [Carbon steel with corrosion-resistant coating] [Stainless steel] of length required to secure pressure plates to sealing elements. Include one for each sealing element.

### 2.3 GROUT

- A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

### PART 3 - EXECUTION

#### 3.1 COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION

- A. Comply with NECA 1.
- B. Measure indicated mounting heights to bottom of unit for suspended items and to center of unit for wall-mounting items.
- C. 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.
- D. 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.
- E. Right of Way: Give to piping systems installed at a required slope.

#### 3.2 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Electrical penetrations occur when raceways, cables, wireways, cable trays, or busways penetrate concrete slabs, concrete or masonry walls, or fire-rated floor and wall assemblies, except where tunnels, chases, or shafts are provided in Project.
- B. Concrete Slabs and Walls: Install sleeves for penetrations, unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls of design that will seal against passage of water between sleeves and concrete floor.
- C. Use pipe sleeves, unless penetration arrangement requires rectangular sleeved opening.
- D. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies, unless openings compatible with firestop system used are fabricated during construction of floor or wall.
- E. Cut sleeves to length for mounting flush with both surfaces of walls.
- F. Extend sleeves installed in floors 2 inches above finished floor level.
- G. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway or cable, unless indicated otherwise.
- H. Seal space outside of sleeves with grout for penetrations of concrete and masonry



1. Promptly pack grout solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect grout while curing.
- I. 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. Comply with requirements in Division 07 Section "Joint Sealants."
- J. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at raceway and cable penetrations. Install sleeves and seal raceway and cable penetration sleeves with firestop materials. Comply with requirements in Division 07 Section "Penetration Firestopping."
- K. Underground, Exterior-Wall Penetrations: Install cast-iron pipe sleeves. Size sleeves to allow for 1-inch annular clear space between raceway or cable and sleeve for installing mechanical sleeve seals.

### 3.3 SLEEVE-SEAL INSTALLATION

- A. Install to seal exterior wall and slab-on-grade penetrations.
- B. Use type and number of sealing elements recommended by manufacturer for raceway or cable material and size. Position raceway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

### 3.4 FIRESTOPPING

- A. Apply firestopping to penetrations of fire-rated floor and wall assemblies for electrical installations to restore original fire-resistance rating of assembly. Firestopping materials and installation requirements are specified in Division 07 Section "Penetration Firestopping."

### 3.5 MISCELLANEOUS WORK

- A. Painting
  1. Touch-up existing equipment where finishes are marred or damaged due to construction Work.
- B. Special Coatings
  1. Equipment furnished with factory-applied finish shall be protected from damage by installing Contractor. Damaged surface shall be repaired by installing Contractor to match original finish or shall be replaced with new before final acceptance.

C. Floor and Wall Openings

1. Floor and wall openings for electrical Work shall be provided by Electrical Contractor.
2. Final sizes and exact locations of electrical penetrations in floor and wall openings are responsibility of Electrical Contractor.

D. Roof Openings

1. Roof openings for electrical Work shall be provided by General Contractor, if shown on Architectural or Structural Drawings. Openings not shown on Architectural Drawings shall be provided by Electrical Contractor.
2. Final sizes and exact locations of electrical penetrations through roof structure are responsibility of Electrical Contractor.
3. Roof flashing and equipment counterflashing shall be provided by Electrical Contractor.

E. Concrete Bases

1. Concrete bases for electrical equipment shall be provided by Electrical Contractor.
2. Concrete bases shall comply with requirements specified in Division 26 Section "Hangers and Supports for Electrical Systems."

F. Concrete Light Fixture Pole Bases

1. Concrete pole bases for light fixtures shall be provided by Electrical Contractor.
2. Concrete pads shall comply with requirements specified in Division 26 Section "Exterior Lighting."

G. Platforms and Supports

1. Platforms and supporting stands shall be provided by Electrical Contractor for their respective equipment.
2. Each piece of equipment or apparatus suspended from ceiling or mounted above floor level shall be provided with suitable structural support, platform, or carrier in accordance with best recognized practice.
3. Contractors shall exercise extreme care that structural members of building are not overloaded by such equipment. In all cases, details of such hangers, platforms and supports together with total weights of mounted equipment shall be approved by Structural Engineer.
4. Provide all structural supports for proper attachment of electrical equipment supplied and also for equipment such as motor controllers, supplied as Work of other Divisions or by Owner for mounting connection and installation in this Division.
5. Concrete pads shall comply with requirements specified in Division 26 Section "Hangers and Supports for Electrical Systems."

H. Access Doors

1. Electrical Contractor shall provide all access doors required for access to electrical equipment. Access doors shall comply with requirements specified in Division 8 Section "Access Doors and Frames."

I. Cutting and Patching

1. Electrical Contractor shall provide all cutting and patching required for installation of new conduit and wiring. Cutting and patching shall comply with requirements of Division 1 Section "Cutting and Patching."

J. Excavation and Backfilling

1. Electrical Contractor shall provide all excavation and backfilling required for installation of new electrical equipment. Excavation and backfilling shall comply with requirements of Division 31.

K. Dust Protection

1. Temporary partitions or barriers required to protect existing building or facilities shall be provided by General Contractor. General Contractor shall coordinate necessity and location of such protection with Owner. Electrical Contractor shall maintain clean work area with daily sweeping.
2. Electrical Contractor shall provide dust protection for operations requiring same which are in addition to those shown on Drawings. Dust partitions or barriers are required to protect existing equipment. Contractor's operations which could cause dust shall be performed with dust barriers erected.

3.6 PROTECTION AND TREATMENT OF PROPERTY

- A. Repair and replace with new all property damaged in installation of underground lines to meet approval of Owner and authorities having jurisdiction.
- B. Replace base and wearing surfaces of streets with same kind and thickness of material as existing. Replace brick, concrete, and asphalt surface to width 6 inches wider than disturbed area. Replace entire surface, if more than 30% has been disturbed.
- C. Replace sidewalks, curbs, gutters, and driveways with same kind of thickness of materials. Replace entire section of concrete walks or driveways.
- D. Regrade and replant lawn areas.
- E. Protect existing utilities. Cap existing utilities that are abandoned.

### 3.7 ELECTRICAL CONNECTIONS TO EQUIPMENT

- A. In event that supplier of equipment requires a larger starter or disconnect than those indicated in Documents, that supplier shall reimburse Contractor difference in cost for supplying these items.
- B. Connections and wiring diagrams shown on Drawings or described in Specifications are typical and are for bidding purposes only. Detailed diagrams and instructions shall be provided by Contractor supplying equipment, if connections are different from those shown on Drawings.
- C. Additional relays, switches, contactors, etc. which may be required for control purposes in addition to those specified for and indicated on Drawings shall be provided by Mechanical Contractor and its subcontractors. These devices shall be mounted by supplier within 5 feet of apparatus to be installed. Electrical Contractor shall provide all additional conduit, wire, and electrical connections without additional charge to Owner.
- D. Wiring diagrams shall be specially drawn so they will specifically apply to this Project. "Typical" wiring diagrams will not be acceptable for installation purposes. In event that several pieces of mechanical equipment from different suppliers are combined into one system, Mechanical Contractor shall furnish complete wiring and control diagram to enable Electrical Contractor to make proper connection. Diagrams shall be submitted to Architect/Engineer for approval before actual wiring.
- E. Mechanical Contractor shall furnish to Electrical Contractor written notice of approval and acceptance of all control wiring installed for mechanical system by Electrical Contractor. Such approval shall be given within 30 days of completion of all such control wiring. Two copies of letter shall be sent to Architect/Engineer.

### 3.8 TEMPORARY LIGHTING AND POWER

- A. Electrical Contractor shall arrange for and provide a temporary electrical service for Project as indicated in Division 01.

END OF SECTION 260500

## SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Copper building wire rated 600 V or less.
  - 2. Connectors, splices, and terminations rated 600 V and less.

#### 1.3 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.

### PART 2 - PRODUCTS

#### 2.1 COPPER BUILDING WIRE

- A. Description: Flexible, insulated and uninsulated, drawn copper current-carrying conductor with an overall insulation layer or jacket, or both, rated 600 V or less.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Cerro Wire LLC.
  - 2. Encore Wire Corporation.
  - 3. General Cable Technologies Corporation.
  - 4. Southwire Company.
- C. Standards:
  - 1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
  - 2. RoHS compliant.

3. Conductor and Cable Marking: Comply with wire and cable marking according to UL's "Wire and Cable Marking and Application Guide."
- D. Conductors: Copper, complying with ASTM B 3 for bare annealed copper and with ASTM B 8 for stranded conductors.
- E. Conductor Insulation:
  1. Type THHN and Type THWN-2: Comply with UL 83.

## 2.2 CONNECTORS AND SPLICES

- A. Description: Factory-fabricated connectors, splices, and lugs of size, ampacity rating, material, type, and class for application and service indicated; listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  1. AFC Cable Systems; a part of Atkore International.
  2. Ideal Industries, Inc.
  3. ILSCO.
  4. NSi Industries LLC.
  5. O-Z/Gedney; a brand of Emerson Industrial Automation.
  6. Thomas & Betts Corporation; A Member of the ABB Group.
- C. Jacketed Cable Connectors: For steel and aluminum jacketed cables, zinc die-cast with set screws, designed to connect conductors specified in this Section.
- D. Lugs: One piece, seamless, designed to terminate conductors specified in this Section.
  1. Material: Bronze.
  2. Type: One hole with standard barrels.
  3. Termination: Compression.

## PART 3 - EXECUTION

### 3.1 CONDUCTOR MATERIAL APPLICATIONS

- A. Feeders: Copper; solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- B. Feeders: Copper for feeders smaller than No. 2 AWG; copper or aluminum for feeders No. 1 AWG and larger. Conductors shall be solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

- C. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- D. Provide stranded conductors for motors and locations where vibration or movement is present.

### 3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

- A. Service Entrance: Copper - Type THHN/THWN-2, single conductors in raceway Aluminum - Type XHHW-2, single conductors in raceway.
- B. Exposed Feeders: Copper - Type THHN/THWN-2, single conductors in raceway Aluminum - Type XHHW-2, single conductors in raceway.
- C. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspace: Copper - Type THHN/THWN-2, single conductors in raceway Aluminum - Type XHHW-2, single conductors in raceway,.
- D. Feeders Concealed below Slabs-on-Grade, and Underground: Copper - Type THHN/THWN-2, single conductors in raceway Aluminum - Type XHHW-2, single conductors in raceway.
- E. Exposed Branch Circuits, Including in Crawlspace: Type THHN/THWN-2, single conductors in raceway.
- F. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN/THWN-2, single conductors in raceway Metal-clad cable, Type MC.
- G. Branch Circuits Concealed below Slabs-on-Grade, and Underground: Type THHN/THWN-2, single conductors in raceway.

### 3.3 INSTALLATION OF CONDUCTORS AND CABLES

- A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.
- B. Complete raceway installation between conductor and cable termination points according to Section 260533 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.
- C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

- E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.
- F. Support cables according to Section 260529 "Hangers and Supports for Electrical Systems."
- G. Voltage Drop
  - 1. Voltage drop shall not exceed 3% from branch panelboard to last outlet.
- H. Provide separate, individual neutral conductors for all single phase, 120 volt and 277 volt branch circuits. Do not combine neutrals for these circuits.
- I. Do not splice feeders without prior approval from the Engineer.
- J. Metal-Clad Cable Installation (Branch Circuits):
  - 1. Install metal-clad cable for all branch circuits within the building envelope from the last branch circuit panelboard to the last device.
  - 2. Do not use metal-clad cable in the following circumstances:
    - a. Areas where there is no ceiling, except where cable is exiting panelboards in electrical rooms.
    - b. Do not use for branch circuits to and from dimming racks.
    - c. Do not use for branch circuits to sound system equipment.

### 3.4 CONNECTIONS

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.
- B. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
  - 1. Use oxide inhibitor in each splice, termination, and tap for aluminum conductors.
- C. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches of slack.

### 3.5 IDENTIFICATION

- A. Identify and color-code conductors and cables according to Section 260553 "Identification for Electrical Systems."



- B. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

### 3.6 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

### 3.7 FIRESTOPPING

- A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Section 078413 "Penetration Firestopping."

### 3.8 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
  - 1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors for compliance with requirements.
  - 2. Perform each of the following visual and electrical tests:
    - a. Inspect exposed sections of conductor and cable for physical damage and correct connection according to the single-line diagram.
    - b. Test bolted connections for high resistance using one of the following:
      - 1) A low-resistance ohmmeter.
      - 2) Calibrated torque wrench.
      - 3) Thermographic survey.
    - c. Inspect compression-applied connectors for correct cable match and indentation.
    - d. Inspect for correct identification.
    - e. Inspect cable jacket and condition.
    - f. Continuity test on each conductor and cable.
    - g. Uniform resistance of parallel conductors.
- B. Cables will be considered defective if they do not pass tests and inspections.
- C. Prepare test and inspection reports to record the following:
  - 1. Procedures used.
  - 2. Results that comply with requirements.

3. Results that do not comply with requirements, and corrective action taken to achieve compliance with requirements.

END OF SECTION 260519

## SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section includes grounding and bonding systems and equipment.
- B. Section includes grounding and bonding systems and equipment, plus the following special applications:
  - 1. Foundation steel electrodes.

#### 1.3 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For grounding to include in emergency, operation, and maintenance manuals.
  - 1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:
    - a. Plans showing as-built, dimensioned locations of grounding features specified in "Field Quality Control" Article, including the following:
      - 1) Ground rods.
      - 2) Grounding arrangements and connections for separately derived systems.

## PART 2 - PRODUCTS

## 2.1 SYSTEM DESCRIPTION

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with UL 467 for grounding and bonding materials and equipment.

## 2.2 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Burndy; Part of Hubbell Electrical Systems.
  - 2. ERICO International Corporation.
  - 3. Fushi Copperweld Inc.
  - 4. Harger Lightning & Grounding.
  - 5. ILSCO.
  - 6. O-Z/Gedney; a brand of Emerson Industrial Automation.
  - 7. Thomas & Betts Corporation; A Member of the ABB Group.

## 2.3 CONDUCTORS

- A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.
- B. Bare Copper Conductors:
  - 1. Solid Conductors: ASTM B 3.
  - 2. Stranded Conductors: ASTM B 8.
  - 3. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch in diameter.
  - 4. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
  - 5. Bonding Jumper: Copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.
- C. Grounding Bus: Predrilled rectangular bars of annealed copper, 1/4 by 4 inches in cross section, with 9/32-inch holes spaced 1-1/8 inches apart. Stand-off insulators for mounting shall comply with UL 891 for use in switchboards, 600 V and shall be Lexan or PVC, impulse tested at 5000 V.
- D. Lead Content: Less than 300 parts per million.

## 2.4 CONNECTORS

- A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.
- B. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.
- C. Bus-Bar Connectors: Mechanical type, cast silicon bronze, solderless compression-type wire terminals, and long-barrel, two-bolt connection to ground bus bar.
- D. Bus-Bar Connectors: Compression type, copper or copper alloy, with two wire terminals.
- E. Beam Clamps: Mechanical type, terminal, ground wire access from four directions, with dual, tin-plated or silicon bronze bolts.
- F. Cable-to-Cable Connectors: Compression type, copper or copper alloy.
- G. Conduit Hubs: Mechanical type, terminal with threaded hub.
- H. Ground Rod Clamps: Mechanical type, copper or copper alloy, terminal with hex head bolt.
- I. Lay-in Lug Connector: Mechanical type, copper rated for direct burial terminal with set screw.
- J. Straps: Solid copper, cast-bronze clamp copper lugs. Rated for 600 A.
- K. U-Bolt Clamps: Mechanical type, copper or copper alloy, terminal listed for direct burial.
- L. Water Pipe Clamps:
  - 1. Mechanical type, two pieces with stainless-steel bolts.
    - a. Material: Die-cast zinc alloy.
    - b. Listed for direct burial.
  - 2. U-bolt type with malleable-iron clamp and copper ground connector rated for direct burial.
- M. Lead Content: Less than 300 parts per million.

## 2.5 GROUNDING ELECTRODES

- A. Ground Rods: Copper-clad steel; 3/4 inch by 10 feet.

## PART 3 - EXECUTION

## 3.1 APPLICATIONS

- A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger unless otherwise indicated.
- B. Underground Grounding Conductors: Install bare copper conductor, No. 3/0 AWG minimum.
  - 1. Bury at least 12 inches below grade.
  - 2. Duct-Bank Grounding Conductor: Bury 12 inches above duct bank when indicated as part of duct-bank installation.
- C. Grounding Bus: Install in electrical equipment rooms, in rooms housing service equipment, and elsewhere as indicated.
  - 1. Install bus horizontally, on insulated spacers 2 inches minimum from wall, 6 inches above finished floor unless otherwise indicated.
  - 2. Where indicated on both sides of doorways, route bus up to top of door frame, across top of doorway, and down; connect to horizontal bus.
- D. Conductor Terminations and Connections:
  - 1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
  - 2. Underground Connections: Welded connectors except at test wells and as otherwise indicated.
  - 3. Connections to Ground Rods at Test Wells: Bolted connectors.
  - 4. Connections to Structural Steel: Welded connectors.

## 3.2 GROUNDING AT THE SERVICE

- A. Equipment grounding conductors and grounding electrode conductors shall be connected to the ground bus. Install a main bonding jumper between the neutral and ground buses.

## 3.3 GROUNDING SEPARATELY DERIVED SYSTEMS

- A. Generator: Install grounding electrode(s) at the generator location. The electrode shall be connected to the equipment grounding conductor and to the frame of the generator.

## 3.4 EQUIPMENT GROUNDING

- A. Install insulated equipment grounding conductors with all feeders and branch circuits.

- B. Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners, heaters, dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.
- C. Water Heater, Heat-Tracing, and Antifrost Heating Cables: Install a separate insulated equipment grounding conductor to each electric water heater and heat-tracing cable. Bond conductor to heater units, piping, connected equipment, and components.
- D. Poles Supporting Outdoor Lighting Fixtures: Install grounding electrode and a separate insulated equipment grounding conductor in addition to grounding conductor installed with branch-circuit conductors.

### 3.5 INSTALLATION

- A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- B. Ground Rods: Drive rods until tops are 2 inches below finished floor or final grade unless otherwise indicated.
  - 1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.
  - 2. Use exothermic welds for all below-grade connections.
  - 3. For grounding electrode system, install at least three rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.
- C. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.
  - 1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
  - 2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.
  - 3. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.
- D. Grounding and Bonding for Piping:

1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes; use a bolted clamp connector or bolt a lug-type connector to a pipe flange by using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
  2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
- E. Concrete-Encased Grounding Electrode (Ufer Ground): Fabricate according to NFPA 70; use a minimum of 20 feet of bare copper conductor not smaller than No. 4 AWG.
1. If concrete foundation is less than 20 feet long, coil excess conductor within base of foundation.
  2. Bond grounding conductor to reinforcing steel in at least four locations and to anchor bolts. Extend grounding conductor below grade and connect to building's grounding grid or to grounding electrode external to concrete.
- F. Connections: Make connections so possibility of galvanic action or electrolysis is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact are galvanically compatible.
1. Use electroplated or hot-tin-coated materials to ensure high conductivity and to make contact points closer in order of galvanic series.
  2. Make connections with clean, bare metal at points of contact.
  3. Make aluminum-to-steel connections with stainless-steel separators and mechanical clamps.
  4. Make aluminum-to-galvanized-steel connections with tin-plated copper jumpers and mechanical clamps.
  5. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.
- 3.6 FIELD QUALITY CONTROL
- A. Perform tests and inspections.
- B. Tests and Inspections:
1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
  2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.



3. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, and at individual ground rods. Make tests at ground rods before any conductors are connected.
    - a. Measure ground resistance no fewer than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.
    - b. Perform tests by fall-of-potential method according to IEEE 81.
  4. Prepare dimensioned Drawings locating each test well, ground rod and ground-rod assembly, and other grounding electrodes. Identify each by letter in alphabetical order, and key to the record of tests and observations. Include the number of rods driven and their depth at each location, and include observations of weather and other phenomena that may affect test results. Describe measures taken to improve test results.
- C. Grounding system will be considered defective if it does not pass tests and inspections.
- D. Prepare test and inspection reports.
- E. Report measured ground resistances that exceed the following values:
1. Power and Lighting Equipment or System with Capacity of 500 kVA and Less: 10 ohms.
  2. Power and Lighting Equipment or System with Capacity of 500 to 1000 kVA: 5 ohms.
- F. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.

END OF SECTION 260526

## SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Steel slotted support systems.
  - 2. Conduit and cable support devices.
  - 3. Support for conductors in vertical conduit.
  - 4. Structural steel for fabricated supports and restraints.
  - 5. Mounting, anchoring, and attachment components, including powder-actuated fasteners, mechanical expansion anchors, concrete inserts, clamps, through bolts, toggle bolts, and hanger rods.

#### 1.3 INFORMATIONAL SUBMITTALS

- A. Welding certificates.

#### 1.4 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel according to the following:
  - 1. AWS D1.1/D1.1M.
  - 2. AWS D1.2/D1.2M.

### PART 2 - PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design hanger and support system.

## 2.2 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

- A. Steel Slotted Support Systems: Preformed steel channels and angles with minimum 13/32-inch- diameter holes at a maximum of 8 inches o.c. in at least one surface.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. B-line, an Eaton business.
    - b. ERICO International Corporation.
    - c. Flex-Strut Inc..
    - d. GS Metals Corp.
    - e. G-Strut.
    - f. Thomas & Betts Corporation; A Member of the ABB Group.
    - g. Unistrut; Part of Atkore International.
    - h. Wesanco, Inc.
  - 2. Standard: Comply with MFMA-4 factory-fabricated components for field assembly.
  - 3. Material for Channel, Fittings, and Accessories: Galvanized steel.
  - 4. Channel Width: Selected for applicable load criteria 1-5/8 inches 1-1/4 inches 13/16 inches.
  - 5. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
- B. Conduit and Cable Support Devices: Steel and malleable-iron Stainless-steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.
- C. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for nonarmored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be made of malleable iron.
- D. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M steel plates, shapes, and bars; black and galvanized.
- E. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:
  - 1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
    - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- 1) Hilti, Inc..
  - 2) ITW Ramset/Red Head; Illinois Tool Works, Inc..
  - 3) MKT Fastening, LLC.
  - 4) Simpson Strong-Tie Co., Inc..
2. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated stainless steel, for use in hardened portland cement concrete, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
- a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- 1) B-line, an Eaton business.
  - 2) Empire Tool and Manufacturing Co., Inc..
  - 3) Hilti, Inc..
  - 4) ITW Ramset/Red Head; Illinois Tool Works, Inc..
  - 5) MKT Fastening, LLC.
3. Concrete Inserts: Steel or malleable-iron, slotted support system units are similar to MSS Type 18 units and comply with MFMA-4 or MSS SP-58.
4. Clamps for Attachment to Steel Structural Elements: MSS SP-58 units are suitable for attached structural element.
5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
6. Toggle Bolts: All Stainless-steel springhead type.
7. Hanger Rods: Threaded steel.

### PART 3 - EXECUTION

#### 3.1 APPLICATION

- A. Comply with the following standards for application and installation requirements of hangers and supports, except where requirements on Drawings or in this Section are stricter:
1. NECA 1.
  2. NECA 101
- B. Comply with requirements in Section 078413 "Penetration Firestopping" for firestopping materials and installation for penetrations through fire-rated walls, ceilings, and assemblies.
- C. Comply with requirements for raceways and boxes specified in Section 260533 "Raceways and Boxes for Electrical Systems."
- D. Maximum Support Spacing and Minimum Hanger Rod Size for Raceways: Space supports for EMT, and GRC as required by NFPA 70. Minimum rod size shall be 1/4 inch in diameter.

- E. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.
  - 1. Secure raceways and cables to these supports with single-bolt conduit clamps.
- F. Obtain approval from Architect/Engineer before cutting or welding to structural members, or before hanging heavy equipment.

### 3.2 SUPPORT INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this article.
- B. Raceway Support Methods: In addition to methods described in NECA 1, EMT and GRC may be supported by openings through structure members, according to NFPA 70.
- C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.
- D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
  - 1. To Wood: Fasten with lag screws or through bolts.
  - 2. To New Concrete: Bolt to concrete inserts.
  - 3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
  - 4. To Existing Concrete: Expansion anchor fasteners.
  - 5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches thick.
  - 6. To Steel: Beam clamps (MSS SP-58, Type 19, 21, 23, 25, or 27), complying with MSS SP-69 Spring-tension clamps.
  - 7. To Light Steel: Sheet metal screws.
  - 8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate.
- E. Drill holes for expansion anchors in concrete at locations and to depths that avoid the need for reinforcing bars.

### 3.3 CONCRETE BASES

- A. Construct concrete bases of dimensions indicated, but not less than 4 inches larger in both directions than supported unit and 4" high, and so anchors will be a minimum of 10 bolt diameters from edge of the base.
- B. Use 4000-psi, 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements are specified in Section 033000 "Cast-in-Place Concrete." Anchor equipment to concrete base as follows:
  - 1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
  - 2. Install anchor bolts to elevations required for proper attachment to supported equipment.
  - 3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

### 3.4 PAINTING

- A. Touchup: Comply with requirements in Section 099600 "High-Performance Coatings" for cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal.
- B. All panelboards, cabinets, switchboards, motor controllers, control panels and other enclosures shall be cleaned and paint touched-up as necessary to duplicate factory-finished appearance. Touch-up paint shall exactly match color, composition, and quality of factory-applied finish.
- C. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 260529

## SECTION 260533 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section Includes:

1. Metal conduits and fittings.
2. Nonmetallic conduits and fittings.
3. Metal wireways and auxiliary gutters.
4. Boxes, enclosures, and cabinets.
5. Handholes and boxes for exterior underground cabling.

- B. Related Requirements:

1. Section 078413 "Penetration Firestopping" for firestopping at conduit and box entrances.
2. Section 260519 "Low-Voltage Electrical Power Conductors and Cables" for locations where metal-clad cable may be allowed in lieu of conduit/conductors.
3. Section 260543 "Underground Ducts and Raceways for Electrical Systems" for exterior ductbanks, manholes, and underground utility construction.
4. Section 270528 "Pathways for Communications Systems" for conduits, wireways, surface pathways, innerduct, boxes, faceplate adapters, enclosures, cabinets, and handholes serving communications systems.

#### 1.3 DEFINITIONS

- A. GRC: Galvanized rigid steel conduit.

#### 1.4 ACTION SUBMITTALS

- A. Product Data,:

1. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.

2. Shop Drawings: For custom enclosures and cabinets. Include plans, elevations, sections, and attachment details.

## PART 2 - PRODUCTS

### 2.1 METAL CONDUITS AND FITTINGS

#### A. Metal Conduit:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. AFC Cable Systems; a part of Atkore International.
  - b. Allied Tube & Conduit; a part of Atkore International.
  - c. Anamet Electrical, Inc.
  - d. Calconduit.
  - e. Electri-Flex Company.
  - f. Picoma Industries, Inc.
  - g. Republic Conduit.
  - h. Southwire Company.
  - i. Thomas & Betts Corporation; A Member of the ABB Group.
  - j. Western Tube and Conduit Corporation.
  - k. Wheatland Tube Company.
2. Listing and Labeling: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
3. GRC: Comply with ANSI C80.1 and UL 6.
4. EMT: Comply with ANSI C80.3 and UL 797.
5. FMC: Comply with UL 1; zinc-coated steel.
6. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.

#### B. Metal Fittings:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. AFC Cable Systems; a part of Atkore International.
  - b. Anamet Electrical, Inc.
  - c. Calconduit.
  - d. O-Z/Gedney; a brand of Emerson Industrial Automation.
  - e. Thomas & Betts Corporation; A Member of the ABB Group.
2. Comply with NEMA FB 1 and UL 514B.



3. Listing and Labeling: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
  4. Fittings, General: Listed and labeled for type of conduit, location, and use.
  5. Fittings for EMT:
    - a. Material: Steel.
    - b. Type: Setscrew.
  6. Expansion Fittings: PVC or steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.
- C. Joint Compound for GRC,: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

## 2.2 NONMETALLIC CONDUITS AND FITTINGS

### A. Nonmetallic Conduit:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. CANTEX INC.
  - b. Thomas & Betts Corporation; A Member of the ABB Group.
2. Listing and Labeling: Nonmetallic conduit shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
3. RNC: Type EPC-40-PVC, unless otherwise indicated, complying with NEMA TC 2 and UL 651 unless otherwise indicated.

### B. Nonmetallic Fittings:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. CANTEX INC.
  - b. Kraloy.
  - c. Lamson & Sessions.
  - d. Thomas & Betts Corporation; A Member of the ABB Group.
  - e. Topaz Electric; a division of Topaz Lighting Corp.
2. Fittings, General: Listed and labeled for type of conduit, location, and use.
3. Fittings for RNC: Comply with NEMA TC 3; match to conduit or type and material.
4. Solvents and Adhesives: As recommended by conduit manufacturer.

### 2.3 METAL WIREWAYS AND AUXILIARY GUTTERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. B-line, an Eaton business.
  - 2. Hoffman; a brand of Pentair Equipment Protection.
  - 3. MonoSystems, Inc.
  - 4. Square D.
- B. Description: Sheet metal, complying with UL 870 and NEMA 250, [Type 1] [Type 3R] [Type 4] [Type 12] <Insert type> unless otherwise indicated, and sized according to NFPA 70.
  - 1. Metal wireways installed outdoors shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- C. Fittings and Accessories: Include covers, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.
- D. Wireway Covers: [Hinged type] [Screw-cover type] [Flanged-and-gasketed type] unless otherwise indicated.
- E. Finish: Manufacturer's standard enamel finish.

### 2.4 BOXES, ENCLOSURES, AND CABINETS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Adalet.
  - 2. Crouse-Hinds, an Eaton business.
  - 3. EGS/Appleton Electric.
  - 4. Erickson Electrical Equipment Company.
  - 5. FSR Inc.
  - 6. Hoffman; a brand of Pentair Equipment Protection.
  - 7. Hubbell Incorporated.
  - 8. Hubbell Incorporated; Wiring Device-Kellems.
  - 9. Kraloy.
  - 10. Milbank Manufacturing Co.
  - 11. MonoSystems, Inc.
  - 12. Oldcastle Enclosure Solutions.
  - 13. O-Z/Gedney; a brand of Emerson Industrial Automation.
  - 14. RACO; Hubbell.
  - 15. Spring City Electrical Manufacturing Company.

16. Thomas & Betts Corporation; A Member of the ABB Group.
  17. Topaz Electric; a division of Topaz Lighting Corp.
  18. Wiremold / Legrand.
- B. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.
- C. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.
- D. Cast-Metal Outlet and Device Boxes: Comply with NEMA FB 1, aluminum, Type FD, with gasketed cover.
- E. Metal Floor Boxes:
1. Manufacturers: Subject to compliance with requirements, provide products by one of following:
    - a. Raised access floor boxes by Legrand Wiremold.
    - b. Raised access floor boxes by FSR.
    - c. Raised access floor boxes by Hubbell.
  2. Material: sheet metal.
  3. Type: Fully adjustable.
  4. Shape: Rectangular.
  5. Listing and Labeling: Metal floor boxes shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
  6. Assembly shall meet UL Scrub Water Exclusion Test.
  7. Provide concrete pour pan or epoxy-coated box for on-grade applications.
  8. Provide fire-resistant floor box where indicated on Drawings.
  9. Floor outlet boxes:
    - a. Minimum 8-gang with dividers between line voltage and low voltage compartments.
    - b. Provide quantity of devices indicated on Drawings.
    - c. Coverplates:
      - 1) Flanged for carpet applications.
      - 2) Non-flanged for tile, concrete and wood floor applications.
    - d. Provide 1-1/2" knockouts for low voltage compartments.
    - e. Provide all required mounting brackets.
- F. Luminaire Outlet Boxes: Nonadjustable, designed for attachment of luminaire weighing 50 lb. Outlet boxes designed for attachment of luminaires weighing more than 50 lb shall be listed and marked for the maximum allowable weight.

- G. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.
- H. Cast-Metal Access, Pull, and Junction Boxes: Comply with NEMA FB 1 and UL 1773, cast aluminum with gasketed cover.
- I. Box extensions used to accommodate new building finishes shall be of same material as recessed box.
- J. Device Box Dimensions: 4 inches square by 2-1/8 inches deep.
- K. Gangable boxes are prohibited.
- L. No through-wall boxes or utility handy boxes will be accepted.
- M. Hinged-Cover Enclosures: Comply with UL 50 and NEMA 250, [Type 1] [Type 3R] [Type 4] [Type 12] <Insert type> with continuous-hinge cover with flush latch unless otherwise indicated.
  - 1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
  - 2. Interior Panels: Steel; all sides finished with manufacturer's standard enamel.
- N. Cabinets:
  - 1. NEMA 250, [Type 1] [Type 3R] [Type 12] <Insert type> galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
  - 2. Hinged door in front cover with flush latch and concealed hinge.
  - 3. Key latch to match panelboards.
  - 4. Metal barriers to separate wiring of different systems and voltage.
  - 5. Accessory feet where required for freestanding equipment.
  - 6. Nonmetallic cabinets shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

## 2.5 HANDHOLES AND BOXES FOR EXTERIOR UNDERGROUND WIRING

- A. General Requirements for Handholes and Boxes:
  - 1. Boxes and handholes for use in underground systems shall be designed and identified as defined in NFPA 70, for intended location and application.
  - 2. Boxes installed in wet areas shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Polymer-Concrete Handholes and Boxes with Polymer-Concrete Cover: Molded of sand and aggregate, bound together with polymer resin, and reinforced with steel, fiberglass, or a combination of the two.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. Armorcast Products Company.
  - b. NewBasis.
  - c. Oldcastle Precast, Inc.
  - d. Quazite: Hubbell Power Systems, Inc.
2. Standard: Comply with SCTE 77.
3. Configuration: Designed for flush burial with [open] [closed] [integral closed] bottom unless otherwise indicated.
4. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure and handhole location.
5. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
6. Cover Legend: Molded lettering, "ELECTRIC."
7. Handholes 12 Inches Wide by 24 Inches Long and Larger: Have inserts for cable racks and pulling-in irons installed before concrete is poured.

### PART 3 - EXECUTION

#### 3.1 RACEWAY APPLICATION

- A. Outdoors: Apply raceway products as specified below unless otherwise indicated:
  1. Exposed Conduit: GRC.
  2. Concealed Conduit, Aboveground: GRC.
  3. Underground Conduit: RNC, Type EPC-40-PVC, [direct buried] [concrete encased].
  4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
  5. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.
- B. Indoors: Apply raceway products as specified below unless otherwise indicated:
  1. Exposed, Not Subject to Physical Damage: EMT.
  2. Exposed, Not Subject to Severe Physical Damage: EMT.
  3. Exposed and Subject to Severe Physical Damage: GRC. Raceway locations include the following:
    - a. Loading dock.
    - b. Corridors used for traffic of mechanized carts, forklifts, and pallet-handling units.
    - c. Mechanical rooms.
    - d. Gymnasiums.
  4. Concealed in Ceilings and Interior Walls and Partitions: EMT.

5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
  6. Damp or Wet Locations: GRC.
  7. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4 stainless steel in institutional and commercial kitchens and damp or wet locations.
  8. Install all branch circuit conduits above floor slab, except the following locations may be used under slab: kitchen, floor boxes, auditorium, and gymnasium: RNC, Type EPC 40 PVC.
  9. Feeder conduits may be installed below floor slab in RNC, Type EPC 40 PVC.
- C. Minimum Raceway Size: 3/4-inch trade size.
- D. Raceway Fittings: Compatible with raceways and suitable for use and location.
1. GRC: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
  2. EMT: Use setscrew, steel fittings. Comply with NEMA FB 2.10.
  3. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.
- E. Do not install aluminum conduits, boxes, or fittings in contact with concrete or earth.
- F. Install surface raceways only where indicated on Drawings.
- G. Do not install nonmetallic conduit above slab or grade unless noted otherwise.

### 3.2 INSTALLATION

- A. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for hangers and supports.
- B. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.
- C. Do not install raceways or electrical items on rotating equipment.
- D. Do not fasten conduits onto the bottom side of a metal deck roof. Support conduits only from building structure.
- E. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
- F. Complete raceway installation before starting conductor installation.

- G. Arrange stub-ups so curved portions of bends are not visible above finished slab.
- H. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches of changes in direction.
- I. Make bends in raceway using large-radius preformed ells. Field bending shall be according to NFPA 70 minimum radii requirements. Use only equipment specifically designed for material and size involved.
- J. Conceal conduit within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.
- K. Support conduit within 12 inches of enclosures to which attached.
- L. Do not embed raceways in slabs.
- M. Transition all underground/underslab conduits below grade to a galvanized rigid conduit elbow prior to turning up through and above floor/grade.
- N. Stub-Ups to Above Recessed Ceilings:
  - 1. Use EMT or GRC for raceways.
  - 2. Use a conduit bushing or insulated fitting to terminate stub-ups not terminated in hubs or in an enclosure.
- O. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.
- P. Do not support cables, raceway, etc., from ceiling support wires.
- Q. In general, conduit routing is not shown on Drawings. Circuit numbers are indicated by each device. Contractor is responsible for providing conduit installation required to connect all devices shown on Drawings. No more than three (3) circuits are allowed in a conduit run, unless wiring is increased in size in accordance with National Electrical Code.
- R. Conduits to be supported by wall brackets shall have their supports spaced not more than 4'-6" inches on center.
- S. Raceways and boxes shall be supported directly from structural system, not from ceiling suspensions system or roof deck. Additional support shall be provided at junction or pull boxes.
- T. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.

- U. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch trade size and insulated throat metal bushings on 1-1/2-inch trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.
- V. Install raceways square to the enclosure and terminate at enclosures with locknuts. Install locknuts hand tight plus 1/4 turn more.
- W. Do not rely on locknuts to penetrate nonconductive coatings on enclosures. Remove coatings in the locknut area prior to assembling conduit to enclosure to assure a continuous ground path.
- X. Cut conduit perpendicular to the length. For conduits 2-inch trade size and larger, use roll cutter or a guide to make cut straight and perpendicular to the length.
- Y. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.
- Z. Install raceway sealing fittings at accessible locations according to NFPA 70 and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings according to NFPA 70.
- AA. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:
  - 1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
  - 2. Where an underground service raceway enters a building or structure.
  - 3. Conduit extending from interior to exterior of building.
  - 4. Conduit extending into pressurized duct and equipment.
  - 5. Conduit extending into pressurized zones that are automatically controlled to maintain different pressure set points.
  - 6. Where otherwise required by NFPA 70.
- BB. Comply with manufacturer's written instructions for solvent welding RNC and fittings.
- CC. Expansion-Joint Fittings:
  - 1. Install in each run of aboveground RNC that is located where environmental temperature change may exceed 30 deg F and that has straight-run length that exceeds 25 feet. Install in each run of aboveground GRC conduit that is located where environmental temperature change may exceed 100 deg F and that has straight-run length that exceeds 100 feet.



2. Install type and quantity of fittings that accommodate temperature change listed for each of the following locations:
    - a. Outdoor Locations Not Exposed to Direct Sunlight: 125 deg F temperature change.
    - b. Outdoor Locations Exposed to Direct Sunlight: 155 deg F temperature change.
    - c. Indoor Spaces Connected with Outdoors without Physical Separation: 125 deg F temperature change.
    - d. Attics: 135 deg F temperature change.
  3. Install fitting(s) that provide expansion and contraction for at least 0.00041 inch per foot of length of straight run per deg F of temperature change for PVC conduits. Install fitting(s) that provide expansion and contraction for at least 0.000078 inch per foot of length of straight run per deg F of temperature change for metal conduits.
  4. Install expansion fittings at all locations where conduits cross building or structure expansion joints.
  5. Install each expansion-joint fitting with position, mounting, and piston setting selected according to manufacturer's written instructions for conditions at specific location at time of installation. Install conduit supports to allow for expansion movement.
- DD. Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 72 inches of flexible conduit for recessed and semirecessed luminaires, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.
1. Use LFMC in damp or wet locations subject to severe physical damage.
  2. Use LFMC in damp or wet locations not subject to severe physical damage.
- EE. Set metal floor boxes level and flush with finished floor surface.
- FF. Protect conduits during construction with temporary plugs or caps. All conduit shall be securely capped until wire or cable is installed therein.
- GG. Provide four 1 inch spare conduits stubbed-out into furred ceiling space above each flush mounted panelboard or cabinet.
- HH. Convenience outlets, switches, or other devices located on walls shall be serviced from ceiling, unless otherwise indicated.

### 3.3 OUTLET BOX INSTALLATION

- A. Outlet and device boxes shall be installed flush and shall be properly centered in ceiling tiles, wall finishes, or casework elements. Heights as indicated by Contract Documents are approximate and may be shifted slightly to match nearest block course, wainscots, and architectural details. Verify cabinet details, wall elevations, reflected ceiling plans, equipment rough-in locations, and door swings with Architectural, Mechanical, and Equipment Drawings prior to box or outlet rough-in.
- B. Light switches shall be roughed-in adjacent to door openings on strike side of door. Verify location with Architect/Engineer's Drawings. Switch shall clear door frame by 6 inches.
- C. Outlet boxes shall be of a type appropriate for use and location. Adjacent devices shall be ganged in multiple gang boxes under a common finish plate.
- D. Outlet Boxes shall be securely and rigidly attached on both sides and supported plumb, level, and true to building lines using any of following methods:
  - 1. Telescoping screw gun box bracket (Caddy TSGB16).
  - 2. Rigid box support (Caddy RBS16).
- E. Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give priority to ADA requirements. Install boxes with height measured to center of box unless otherwise indicated.
- F. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall. Prepare block surfaces to provide a flat surface for a raintight connection between box and cover plate or supported equipment and box.
- G. Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel.
- H. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.
- I. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.
- J. Finish plates shall not span different types of wall finishes either vertically or horizontally. Plates shall cover mortar joints and cut-openings completely.
- K. Outlet, junction, and pull boxes and their covers shall have corrosion protection suitable for atmosphere in which they are installed. Provide gaskets for all boxes installed outside and other wet or damp locations (tunnels, crawl spaces, pits, etc.).
- L. Outlet boxes shall be protected to prevent entrance of plaster, and debris shall be thoroughly cleaned from box before installation of conductors.

### 3.4 JUNCTION BOX INSTALLATION

- A. Junction boxes shall be installed as indicated by Contract Documents and required for proper installation. Boxes shall be installed in accessible spaces or behind access panels. Boxes located above "snap-in" or "lay-in" removable ceilings will be considered accessible.
- B. Junction boxes shall be used where necessary to facilitate installation of raceways and pulling of wire or cable. Boxes shall be sized in accordance with NEC and installed such that conduit entry will permit longest radius for conductors contained therein.
- C. Support all boxes in accordance with National Electrical Code.

### 3.5 MOUNTING HEIGHTS

- A. Distance from finished floor to center of device, unless otherwise specified as follows:
  - 1. Receptacles 18 inches.
  - 2. Switches and dimmers 46 inches.
  - 3. Receptacles or switch above countertop 2 inches above backsplash to bottom.
  - 4. Fire alarm pull station 46 inches.
  - 5. Fire alarm signal device 80 inches to bottom of device housing.
- B. Exceptions:
  - 1. At junction of different materials in wall finishes.
  - 2. Where outlets occur in moldings, break in wall surface or unsuitable location in tile, wood or similar finish.
  - 3. Where outlets conflict with locations of wall-mounted equipment such as radiators, convectors, unit heaters, etc.
  - 4. As noted otherwise.

### 3.6 INSTALLATION OF UNDERGROUND CONDUIT

- A. Direct-Buried Conduit:
  - 1. Excavate trench bottom to provide firm and uniform support for conduit. Prepare trench bottom as specified in Section 312000 "Earth Moving" for pipe less than 6 inches in nominal diameter.
  - 2. Install backfill as specified in Section 312000 "Earth Moving."

3. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled backfill to within 12 inches of finished grade, make final conduit connection at end of run and complete backfilling with normal compaction as specified in Section 312000 "Earth Moving."
4. Install manufactured galvanized steel conduit elbows for stub-ups at poles and equipment and at building entrances through floor.
  - a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete for a minimum of 12 inches on each side of the coupling.
  - b. For stub-ups at equipment mounted on outdoor concrete bases and where conduits penetrate building foundations, extend steel conduit horizontally a minimum of 60 inches from edge of foundation or equipment base. Install insulated grounding bushings on terminations at equipment.
5. Underground Warning Tape: Comply with requirements in Section 260553 "Identification for Electrical Systems."

### 3.7 INSTALLATION OF UNDERGROUND HANDHOLES AND BOXES

- A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting conduits to minimize bends and deflections required for proper entrances.
- B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.
- C. Elevation: In paved areas, set so cover surface will be flush with finished grade. Set covers of other enclosures 1 inch above finished grade.
- D. Install handholes with bottom below frost line, below grade.
- E. Install removable hardware, including pulling eyes, cable stanchions, cable arms, and insulators, as required for installation and support of cables and conductors and as indicated. Select arm lengths to be long enough to provide spare space for future cables but short enough to preserve adequate working clearances in enclosure.
- F. Field-cut openings for conduits according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.

3.8 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.9 FIRESTOPPING

- A. Install firestopping at penetrations of fire-rated floor and wall assemblies. Comply with requirements in Section 078413 "Penetration Firestopping."

3.10 PROTECTION

- A. Protect coatings, finishes, and cabinets from damage and deterioration.
  - 1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
  - 2. Repair damage to paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION 260533

## SECTION 262816 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Fusible switches.
  - 2. Nonfusible switches.
  - 3. Enclosures.

#### 1.3 DEFINITIONS

- A. NC: Normally closed.
- B. NO: Normally open.

#### 1.4 ACTION SUBMITTALS

- A. Product Data with Shop Drawings:
  - 1. Product Data: For each type of enclosed switch, circuit breaker, accessory, and component indicated. Include dimensioned elevations, sections, weights, and manufacturers' technical data on features, performance, electrical characteristics, ratings, accessories, and finishes.
    - a. Enclosure types and details for types other than NEMA 250, Type 1.
    - b. Current and voltage ratings.
    - c. Short-circuit current ratings (interrupting and withstand, as appropriate).
    - d. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices, accessories, and auxiliary components.
  - 2. Shop Drawings: For enclosed switches and circuit breakers. Include plans, elevations, sections, details, and attachments to other work.

- a. Wiring Diagrams: For power, signal, and control wiring.

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.
  - 1. Test procedures used.
  - 2. Test results that comply with requirements.
  - 3. Results of failed tests and corrective action taken to achieve test results that comply with requirements.
- B. Manufacturer's field service report.

#### 1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For enclosed switches and circuit breakers to include in emergency, operation, and maintenance manuals. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:
  - 1. Manufacturer's written instructions for testing and adjusting enclosed switches and circuit breakers.

#### 1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Fuses: Equal to 10 percent of quantity installed for each size and type, but no fewer than three of each size and type.
  - 2. Fuse Pullers: Two for each size and type.

#### 1.8 QUALITY ASSURANCE

- A. Source Limitations: Obtain enclosed switches and circuit breakers, overcurrent protective devices, components, and accessories, within same product category, from single source from single manufacturer.
- B. Product Selection for Restricted Space: Drawings indicate maximum dimensions for enclosed switches and circuit breakers, including clearances between enclosures, and adjacent surfaces and other items. Comply with indicated maximum dimensions.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

- D. Comply with NFPA 70.

#### 1.9 PROJECT CONDITIONS

- A. Environmental Limitations: Rate equipment for continuous operation under the following conditions unless otherwise indicated:
  - 1. Ambient Temperature: Not less than minus 22 deg F and not exceeding 104 deg F.
  - 2. Altitude: Not exceeding 6600 feet.
- B. Interruption of Existing Electric Service: Do not interrupt electric service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electric service according to requirements indicated:
  - 1. Notify [Architect] [Construction Manager] [Owner] no fewer than [seven] <Insert number> days in advance of proposed interruption of electric service.
  - 2. Indicate method of providing temporary electric service.
  - 3. Do not proceed with interruption of electric service without [Architect's] [Construction Manager's] [Owner's] written permission.
  - 4. Comply with NFPA 70E.

#### 1.10 COORDINATION

- A. Coordinate layout and installation of switches, circuit breakers, and components with equipment served and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.

### PART 2 - PRODUCTS

#### 2.1 FUSIBLE SWITCHES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Eaton Electrical Inc.; Cutler-Hammer Business Unit; DH Series.
  - 2. General Electric Company; GE Consumer & Industrial - Electrical Distribution; TH series.
  - 3. Siemens Energy & Automation, Inc.; HF Series.
  - 4. Square D; a brand of Schneider Electric.; H Series.
- B. Type HD, Heavy Duty, Single Throw, [240] [600]-V ac, 1200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, with clips or bolt pads to accommodate indicated fuses, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.



## C. Accessories:

1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
2. Neutral Kit: Internally mounted; insulated, capable of being grounded and bonded; labeled for copper and aluminum neutral conductors.
3. Class R Fuse Kit: Provides rejection of other fuse types when Class R fuses are specified.
4. Fuse Puller Kit: Provide fuse puller for each fuse.
5. Auxiliary Contact Kit: One NO/NC (Form "C") auxiliary contact(s), arranged to activate before switch blades open.
6. Lugs: Mechanical type, suitable for number, size, and conductor material.
7. Service-Rated Switches: Labeled for use as service equipment.
8. Accessory Control Power Voltage: Remote mounted and powered..

## 2.2 NONFUSIBLE SWITCHES

## A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Inc.; Cutler-Hammer Business Unit; DH Series.
2. General Electric Company; GE Consumer & Industrial - Electrical Distribution; TH series.
3. Siemens Energy & Automation, Inc.; HNF Series.
4. Square D; a brand of Schneider Electric; HU Series.

## B. Type HD, Heavy Duty, Single Throw, [240] [600]-V ac, 1200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.

## C. Accessories:

1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
2. Neutral Kit: Internally mounted; insulated, capable of being grounded and bonded; labeled for copper and aluminum neutral conductors.
3. Auxiliary Contact Kit: One NO/NC (Form "C") auxiliary contact(s), arranged to activate before switch blades open.
4. Lugs: Mechanical type, suitable for number, size, and conductor material.
5. Accessory Control Power Voltage: Remote mounted and powered..

## 2.3 ENCLOSURES

## A. Enclosed Switches and Circuit Breakers: NEMA AB 1, NEMA KS 1, NEMA 250, and UL 50, to comply with environmental conditions at installed location.

1. Indoor, Dry and Clean Locations: NEMA 250, Type 1.
2. Outdoor Locations: NEMA 250, Type 3R.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine elements and surfaces to receive enclosed switches and circuit breakers for compliance with installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 INSTALLATION

- A. Install individual wall-mounted switches and circuit breakers with tops at +72 inches above finished floor unless otherwise indicated.
- B. Temporary Lifting Provisions: Remove temporary lifting eyes, channels, and brackets and temporary blocking of moving parts from enclosures and components.
- C. Install fuses in fusible devices.
- D. Comply with NECA 1.

#### 3.3 IDENTIFICATION

- A. Comply with requirements in Section 260553 "Identification for Electrical Systems."
  1. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.
  2. Label each enclosure with engraved metal or laminated-plastic nameplate.

#### 3.4 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
  1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.
- B. Acceptance Testing Preparation:

1. Test insulation resistance for each enclosed switch and circuit breaker, component, connecting supply, feeder, and control circuit.
2. Test continuity of each circuit.

C. Tests and Inspections:

1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
3. Perform the following infrared scan tests and inspections and prepare reports:
  - a. Initial Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each enclosed switch and circuit breaker. Remove front panels so joints and connections are accessible to portable scanner.
  - b. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each enclosed switch and circuit breaker 11 months after date of Substantial Completion.
  - c. Instruments and Equipment: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
4. Test and adjust controls, remote monitoring, and safeties. Replace damaged and malfunctioning controls and equipment.

D. Enclosed switches and circuit breakers will be considered defective if they do not pass tests and inspections.

E. Prepare test and inspection reports, including a certified report that identifies enclosed switches and circuit breakers and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

### 3.5 ADJUSTING

- A. Adjust moving parts and operable components to function smoothly, and lubricate as recommended by manufacturer.
- B. Set field-adjustable circuit-breaker trip ranges260574.99 "Short Circuit/Coordination Study/Arc Flash Hazard Analysis".

END OF SECTION 262816

## SECTION 263100 - Photovoltaic Collectors Solar

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. PV modules
  - 2. Combiner boxes
  - 3. Inverters
  - 4. Racking

#### 1.3 DEFINITIONS

- A. CEC: California Energy Commission.
- B. ETFE: Ethylene tetrafluoroethylene.
- C. FEP: Fluorinated ethylene propylene.
- D. IP Code: Required ingress protection to comply with IEC 60529.
- E. MPPT: Maximum power point tracking.
- F. PTC: USA standard conditions for PV.
- G. PV: Photovoltaic.
- H. STC: Standard Test Conditions defined in IEC 61215.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
  - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for PV panels.

2. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.

B. Shop Drawings: For PV arrays.

1. Include plans, elevations, sections, and mounting details.
2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
3. Detail fabrication and assembly.
4. Include diagrams for power, signal, and control wiring.

1.5 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.
- B. Warranty: For manufacturer's special materials and workmanship warranty and minimum power output warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For PV arrays to include in operation and maintenance manuals.

1.7 WARRANTY

- A. Manufacturer's Special Materials and Workmanship Warranty: Manufacturer agrees to repair or replace components of PV modules that fail in materials or workmanship within specified warranty period.
  1. Manufacturer's materials and workmanship warranties include, but are not limited to, the following:
    - a. Faulty operation of PV modules.
    - b. Delamination
    - c. Back sheet adhesion loss
    - d. Junction box failure
    - e. Frame breakage
    - f. Discoloration
    - g. Cell cracks
    - h. Burn marks
  2. Warranty Period: 2 years on workmanship and materials and 25 years on linear performance from date of Substantial Completion.

- a. 5 year warranty for Inverters
  - b. 20 year warranty for racking
- B. Manufacturer's Special Minimum Power Output Warranty: Manufacturer agrees to repair or replace components of PV modules that fail to exhibit the minimum power output within specified warranty period. Special warranty, applying to modules only, applies to materials only, on a prorated basis, for period specified.
  - 1. Manufacturer's minimum power output warranties include, but are not limited to, the following warranty periods, from date of Substantial Completion:
    - a. Minimum power output to 80 percent or more, for a period of 25 years at STC.

## PART 2 - PRODUCTS

### 2.1 APPROVED SUPPLIERS/INSTALLERS

- A. Subject to compliance with general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections Requirements. The complete system shall be supplied and installed by one of the following:
  - 1. PSG Energy Group
  - 2. Telamon
  - 3. Johnson Melloh Solutions
  - 4. No equals.

### 2.2 MANUFACTURED UNITS

- A. Subject to compliance with general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections requirements. Provide product indicated on Drawings by one of the following:
  - 1. SMA (or equivalent)
  - 2. Canadian Solar (or equivalent)

### 2.3 PERFORMANCE REQUIREMENTS

- A. NRTL (Nationally Recognized Testing Laboratory) Listing: Entire assembly shall be listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for electrical and fire safety, Class A and Class C, according to UL 1703.
- B. FM approved for NFPA 70, Class 1, Division 2, Group C and Group D hazardous locations.

## 2.4 SYSTEM DESCRIPTION

### A. Grid-Tied PV System:

1. Connected via a bidirectional utility meter to the electrical utility.
2. Array shall be able to provide 159kW DC (140kW AC)
3. System Components:
  - a. PV Modules - Tier 1
  - b. Mounting structure
  - c. Combiner Box.
  - d. Inverter.

## 2.5 GROUNDING

- A. Coordinate all grounding requirements with IP&L. Contact Robert Grubb at robert.grubb@aes.com for all questions.
- B. Effectively Grounded Equipment per IURC rule 170 IAC 4-4.3-7
  1. If a customer-generator facility is to be connected to three-phase, four (4) wire primary utility distribution lines, the generator shall appear to the primary utility distribution line as an effective grounded source.

## 2.6 ARRAY CONSTRUCTION

- A. Roof Mounted
- B. Manufacturers:
  1. Ecolibrium
  2. Sollega
  3. Aerocompact
  4. RBI
  5. DCE
- C. Service Life: 25 years.

## 2.7 INVERTER

- A. Manufacturers
  1. SMA
  2. Fimer
  3. Fronius

- B. Electrical system is 208Y/120V. Provide all equipment required such as any transformers etc.
- C. Control Type: Pulse width modulation control.
- D. Control Type: Maximum power point tracker control.
- E. Inverter Characteristics:
- F. Fronius Symo 15.0-3 208 or equivalent
- G. Enclosure:
  - 1. NEMA 250, Type 4X.
  - 2. Enclosure Material: Galvanized Steel
  - 3. Cooling Methods:
    - a. Fan convection cooling.
    - b. Passive cooling.
    - c. Natural cooling.
  - 4. Protective Functions:
    - a. AC over/under voltage.
    - b. AC over/under frequency.
    - c. Ground over current.
    - d. Over-temperature.
    - e. AC and de overcurrent.
    - f. DC over voltage.
- H. Disconnects:
  - 1. Low-voltage disconnect.
  - 2. Low-voltage reconnect.
  - 3. High-temperature disconnect.
  - 4. High-temperature reconnect.
- I. Regulatory Approvals:
  - 1. IEEE1547.1.
  - 2. IEEE 1547.3.
  - 3. UL 1741.
- J. Characteristics:
  - 1. Inverter Dimensions: Per Fronius Symo 15.0-3 208 specifications.
  - 2. Inverter Weight: Per Fronius Symo 15.0-3 208 specifications.
  - 3. Equivalents are permitted with approval per RFP requirements.



## 2.8 EQUIPMENT FOR ELECTRICITY METERING BY UTILITY COMPANY

- A. Meters will be furnished by utility company.

## 2.9 EQUIPMENT FOR ELECTRICITY METERING BY OWNER

- A. General Requirements for Owner's Meters: Features may be integral to inverters or separate components:
  - 1. Comply with UL 1244.
  - 2. Meters shall have an accuracy of 0.2 percent of reading, complying with requirements in ANSI C12.20.
  - 3. Enclosure: NEMA 250 Type 3R minimum, with hasp for padlocking or sealing.
  - 4. Identification: Comply with requirements in Division 26 Section "Identification for Electrical Systems".
  - 5. Memory Backup: Self-contained to maintain memory throughout power outages of 72 hours, minimum.
  - 6. Sensors: Current-sensing type, with current or voltage output, selected for optimum range and accuracy for meters indicated for this application.
    - a. Type: Solid core.
  - 7. Kilowatt-hour/Demand Meter: Electronic single and three -phase meters measuring electricity use and demand. Demand shall be integrated over a 15-minute or 20-minute interval, matching the utility company.
    - a. Voltage and Phase Configuration: Meter shall be designed for use on circuits with voltage rating and phase configuration indicated for its application.
    - b. Display: LCD with characters not less than 0.25 inch high, indicating accumulative kilowatt-hours, current time and date, current demand, and historic peak demand, and time and date of historic peak demand. Retain accumulated kilowatt-hour and historic peak demand in a nonvolatile memory, until reset.
  - 8. Solar Irradiance Meter: Precision plus or minus 8 percent, 0 to 1500 W per square meter.
  - 9. PV Module Temperature Meter: Platinum sensor, range minus 20 to plus 110 deg C, precision plus or minus 0.5 deg C.
  - 10. Ambient Temperature Meter: Platinum sensor, range minus 30 to plus 80 deg C, precision plus or minus 0.5 deg C.
- B. Data Transmission Cable: Class 2 RS485 data cable in raceway (Verify if owner requires serial or TCP modbus cables).
- C. Software: Integrated HTTP web interface, a product of meter manufacturer, suitable for viewing kilowatt-hour, demand, isolation, PV module temperature, and ambient temperature with web browser and 10/100 MB TCP/IP LAN interface.

PART 3 - EXECUTION

3.1 EXAMINATION

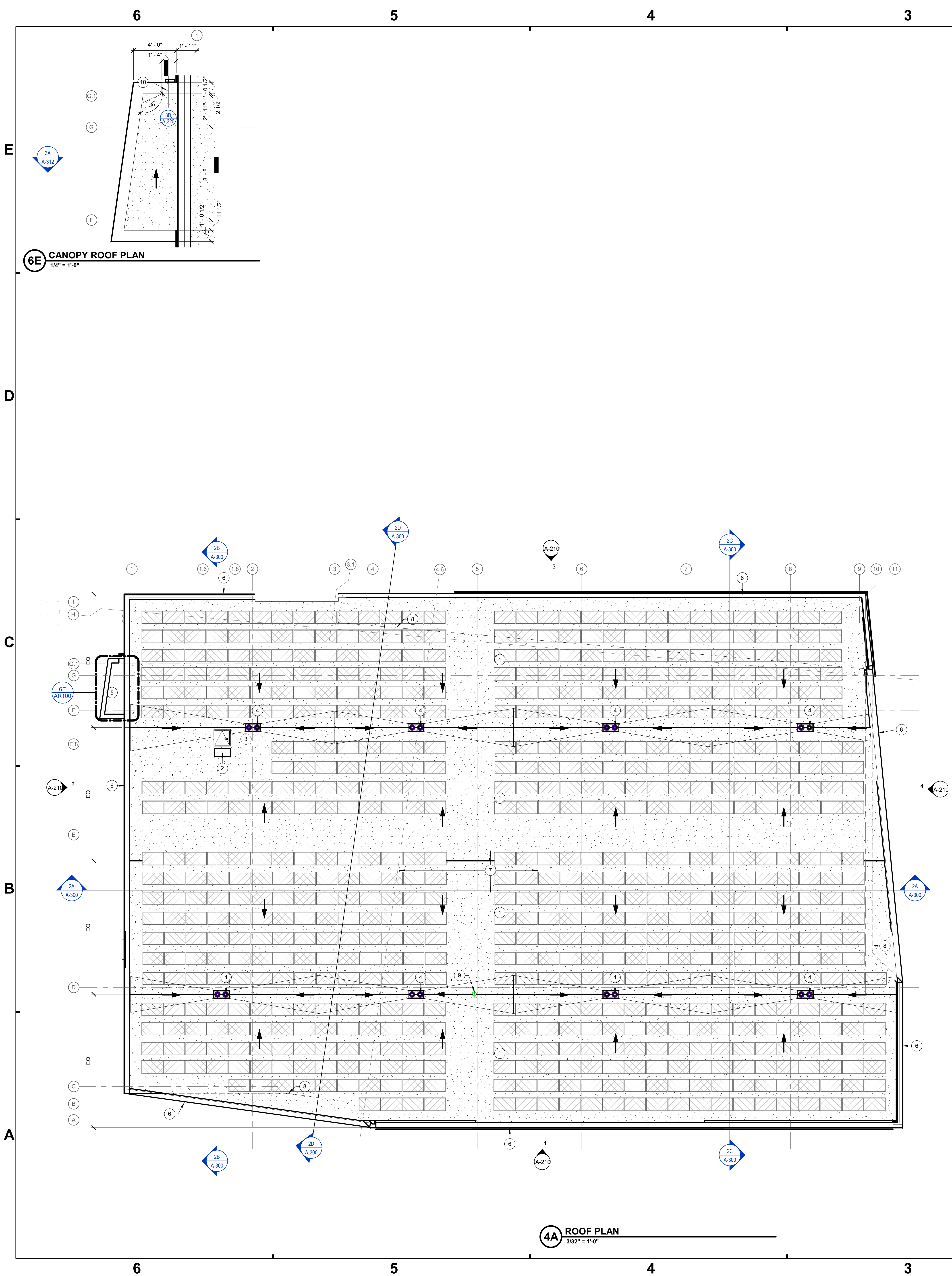
- A. Execution must be in compliance with NEC and Fire Code.
- B. Examine substrate areas and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- C. Do not begin installation until mounting surfaces have been properly prepared.
- D. If preparation of mounting surfaces is the responsibility of another installer, notify Designer of unsatisfactory preparation before proceeding.
- E. Examine modules and array frame before installation. Reject modules and arrays that are wet, moisture damaged, or mold damaged.
- F. Examine roofs, supports, and supporting structures for suitable conditions where PV system will be installed.
- G. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.
- B. Perform tests and inspections with the assistance of a factory-authorized service representative.
- C. PV module will be considered defective if it does not pass tests and inspections.
- D. Prepare test and inspection reports.

END OF SECTION 263100



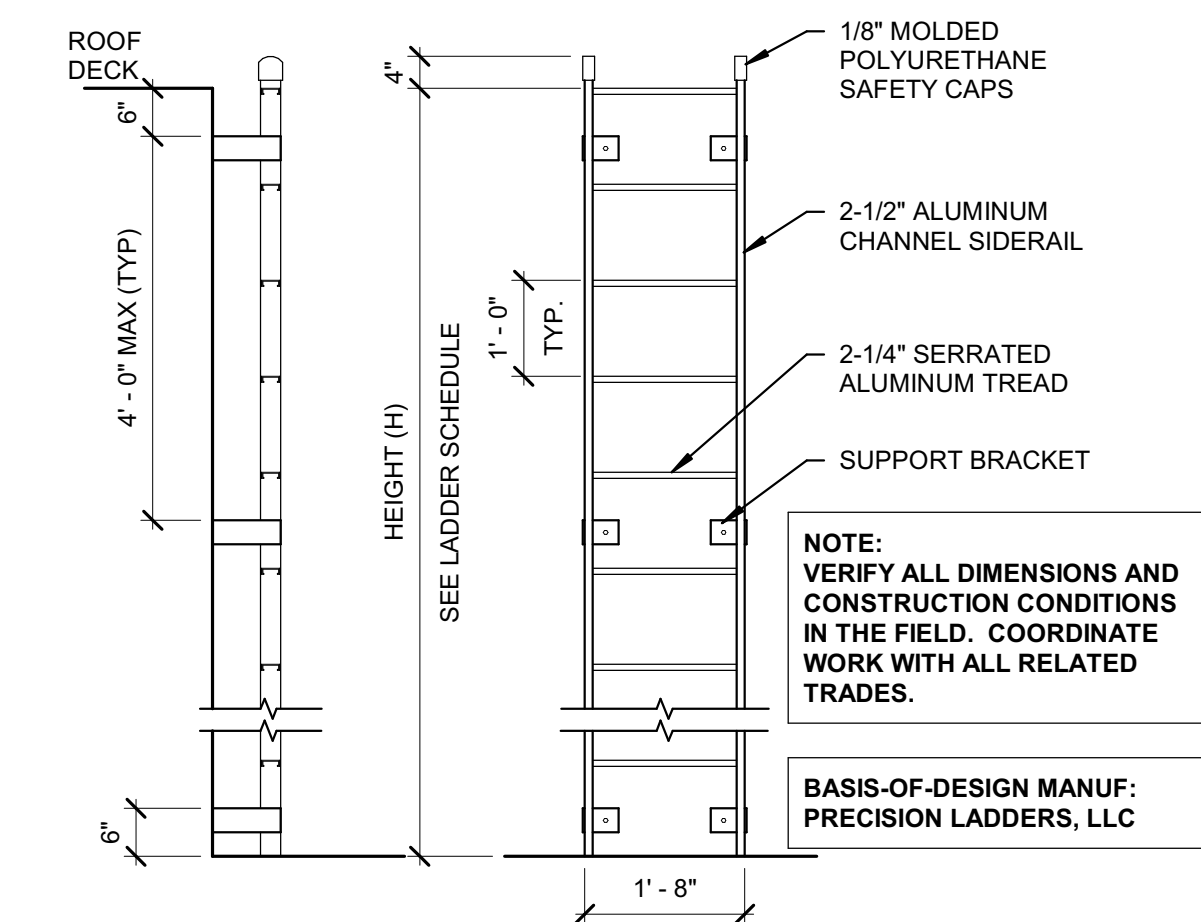


### General Roof Plan Notes

- A. Where utilized, tapered insulation shall be installed to achieve positive drainage with a minimum resultant slope of 1/4" per foot, unless noted otherwise.
- B. Low slope roof areas shall have a minimum of 4" rigid insulation over metal roof deck. Saddles, crickets, and slope portions of flat roof deck shall be formed by tapered insulation. Areas where tapered insulation is anticipated have been indicated, but shall not be considered all inclusive. It is Contractor's responsibility to provide sloped surfaces to achieve proper drainage.
- C. Roof penetrations and equipment shown shall not be considered all inclusive. Coordinate with Mechanical, Plumbing and Electrical Documents to confirm penetrations and equipment locations. Flash all roof penetrations in accordance with roofing manufacturer's recommendations. Provide crickets to allow for proper drainage around units.
- D. Roof walkway pads or blocks shall be installed in accordance with roofing manufacturer's recommendation where indicated and around entire perimeter of rooftop equipment.

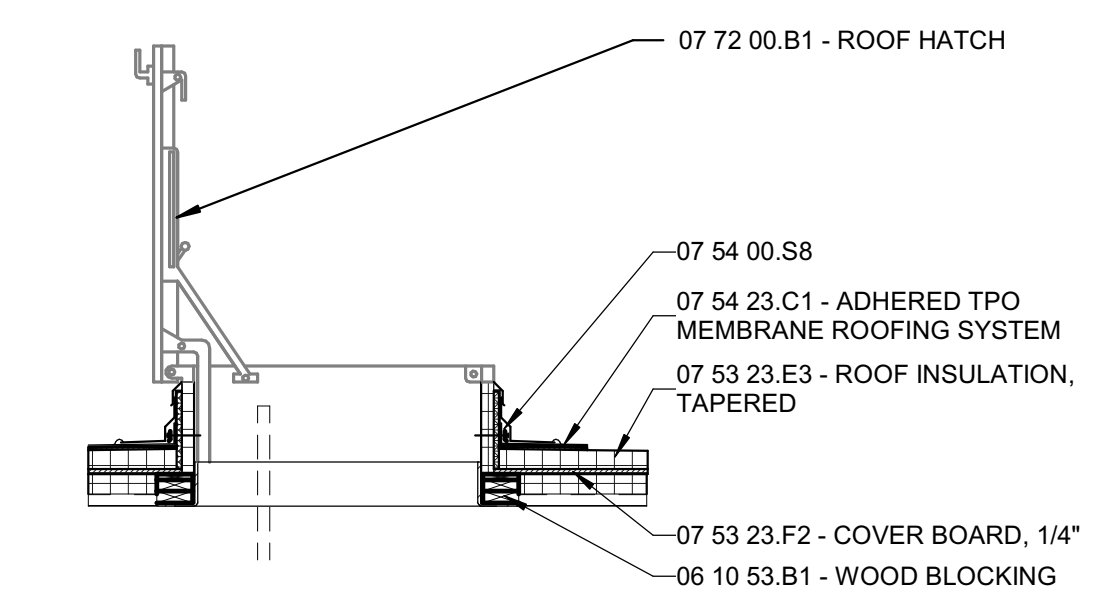
### ROOF PLAN NOTES

#	Note
1	07 54 23 - ROOF TYPE SP-1 OVER FLAT ROOF STRUCTURE.
2	07 54 23 - FLEXIBLE WALKWAY PAD.
3	07 72 00 - ROOF ACCESS HATCH. SEE DETAIL 28/A100.
4	ROOF DRAIN AND OVERFLOW DRAIN. COORDINATE WITH P-SERIES DRAWINGS
5	CANOPY BELOW. SEE ENLARGED PLAN
6	077100 - PREMANUFACTURED ROOF EDGE FASCIA
7	PHOTOVOLTAIC ARRAY ON BALLASTED RACKS - SEE E-SERIES DRAWINGS
8	LINE OF WALL BELOW. REFERENCE FLOOR PLANS.
9	GAS FIREPLACE VENT - FLASH ACCORDING TO ROOFING MANUFACTURERS RECOMMENDATIONS. SEE M-SERIES DRAWINGS
10	07 62 00 - 4" GUTTER AND 3" X 3" DOWNSPOUT CONNECTED TO PERIMETER DRAIN. SEE C-SERIES DRAWINGS.



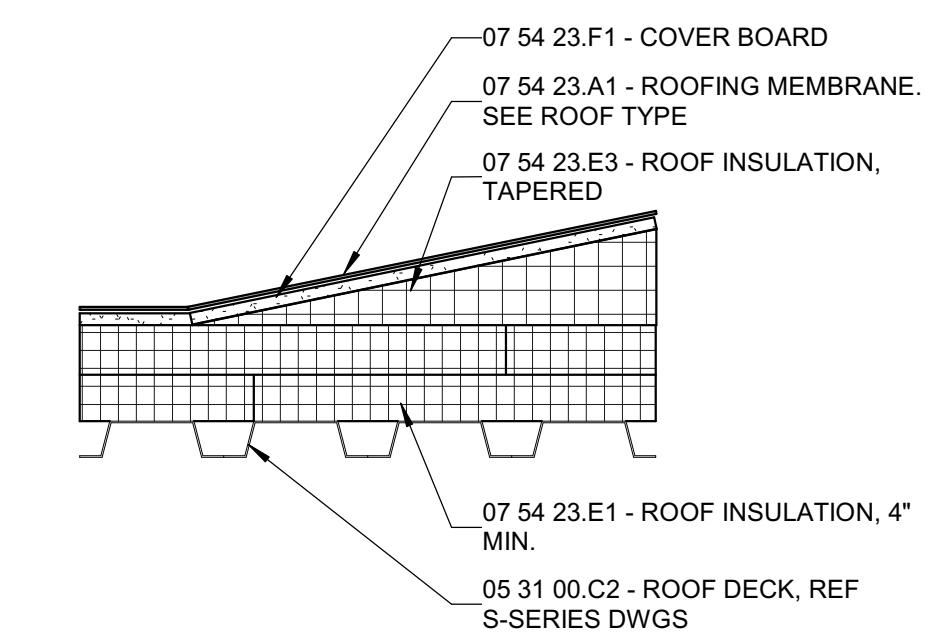
### 1C ALUM FIXED LADDER TO ROOF HATCH

1/2" = 1'-0"



### 1B ROOF HATCH

1/2" = 1'-0"



NOTE: NO STRUCTURAL SLOPE.

### 1A ROOF TYPE - SP-1

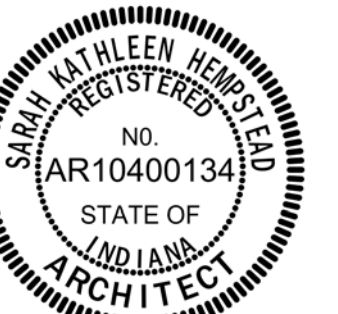
1 1/2" = 1'-0"



**SCHMIDT  
ASSOCIATES**

415 Massachusetts Avenue  
Indianapolis, IN 46204  
www.schmidt-arch.com

Project No. 2016-053.WPL  
Project Date 01.17.2020  
Produced DM



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#	Revision	Date
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KEY PLAN

The Indianapolis  
Public Library



West Perry Branch  
Library

OVERALL ROOF PLAN

AR100



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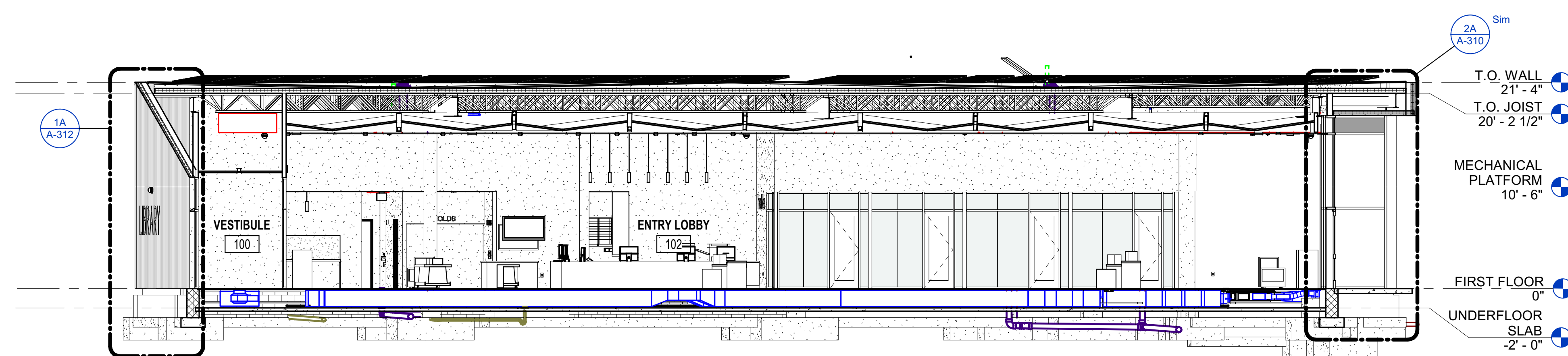
## KEY PLAN

The Indianapolis  
Public Library

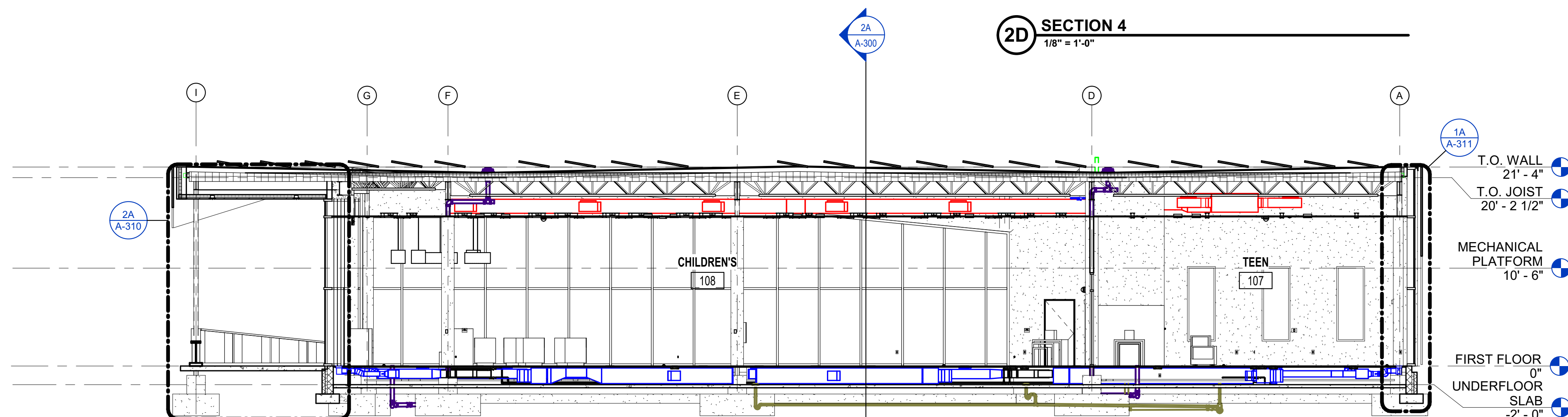
West Perry Branch  
Library

BUILDING SECTIONS

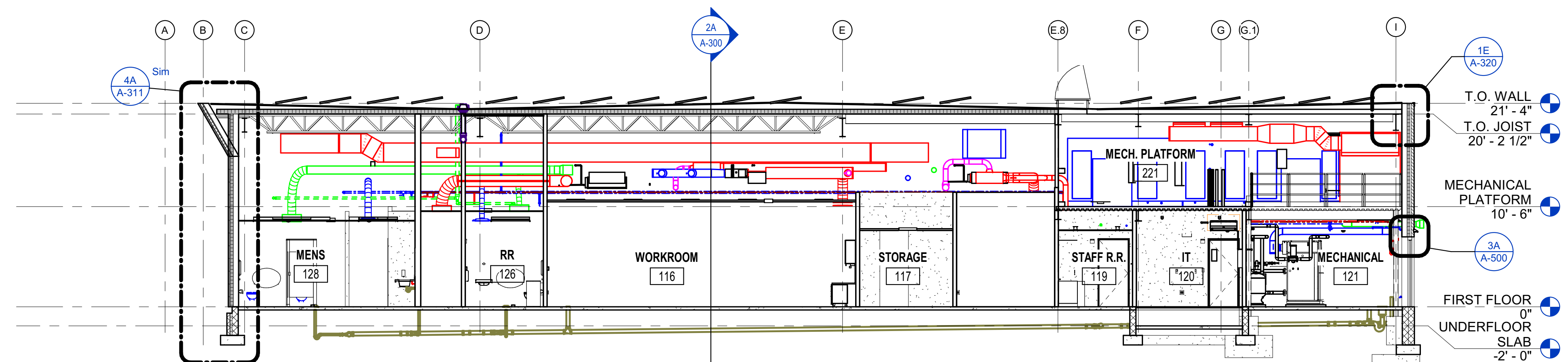
A-300



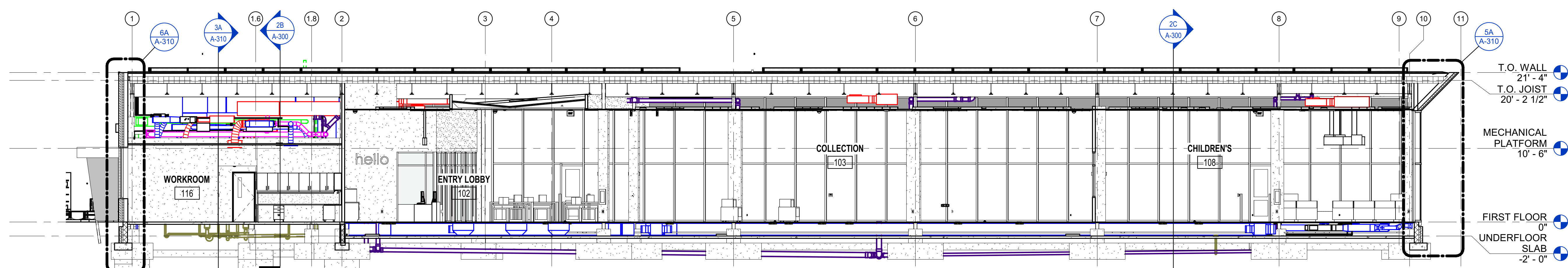
**2D** SECTION 4  
1/8" = 1'-0"



**2C** SECTION 3  
1/8" = 1'-0"



**2B** SECTION 2  
1/8" = 1'-0"



**2A** SECTION 1  
1/8" = 1'-0"

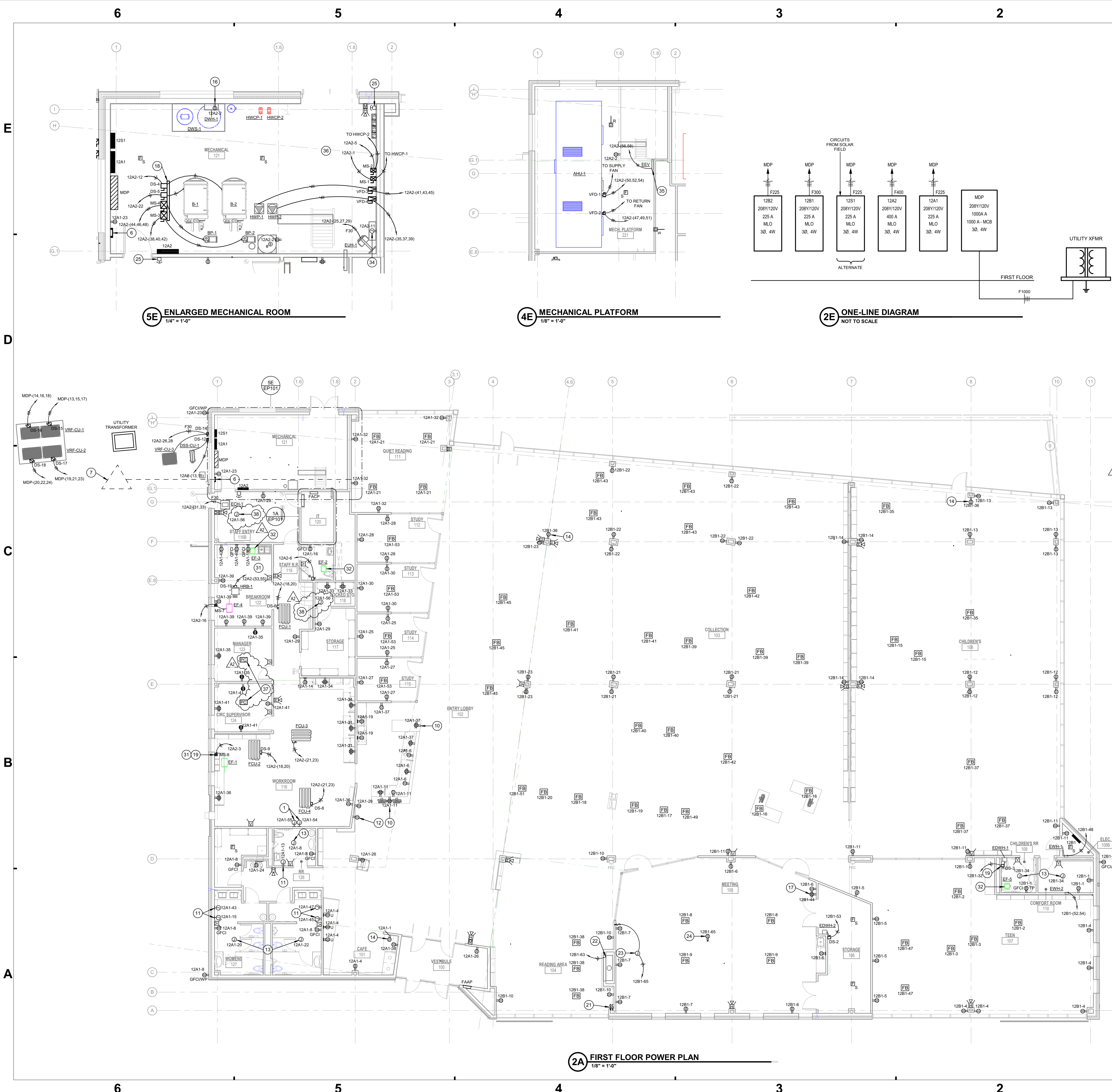












GENERAL POWER NOTES	
#	NOTES
A	REFER TO SHEET E-601 FOR ADDITIONAL INFORMATION.
B	ALL DEVICES SHOWN ON COLUMNS SHALL BE CENTERED ON COLUMN.
C	COORDINATE ALL WALL MOUNTED DEVICE LOCATIONS WITH ARCHITECT PRIOR TO ROUGH-IN.
D	COORDINATE ALL FLOOR BOX LOCATIONS WITH SHELVING AND CASEWORK.

POWER PLAN NOTES	
#	NOTES
1	120V CONNECTIONS FOR BOOK SORTER. COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER'S INSTALLATION GUIDELINES.
2	PROVIDE #3/0 IN 34°C GROUNDING ELECTRODE CONDUCTOR BACK TO MAIN GROUNDING ELECTRODE BUS LOCATED IN MECHANICAL ROOM. SEE DETAIL 10E-601.
3	PROVIDE UL LISTED GROUNDING CONNECTION AT UNDER FLOOR PEDESTAL.
4	UNDERFLOOR SMOKE DETECTORS. SEE FIGURE A.17.7.3.2.1 "Example of Proper Mounting of Smoke Detectors" IN 2016 NFPA 72.
5	BUILDING GROUNDING ELECTRODE SYSTEM BUS. SEE DETAIL 1E/E-601 FOR ADDITIONAL INFORMATION.
6	GROUNDING ELECTRODE TRAD. COORDINATE LOCATION WITH UTILITY TRANSFORMER. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
7	INVERTER WIRE AND CONDUIT FOR REFERENCE ONLY. COORDINATE EXACT REQUIREMENTS WITH SOLAR CONTRACTOR.
8	ZONE DISTRIBUTION BOX EQUAL TO HUBBELL ZB11C2WXTM. NUMBER IN BOX REPRESENTS NUMBER OF CIRCUITS.
9	RECEPTACLE FOR SELF CHECK OUT COMPUTERS. MOUNT INSIDE CASE WORK.
10	120V CONNECTION FOR HAND DRYER.
11	RECEPTACLE INDICATED FOR MONITOR. COORDINATE EXACT LOCATION AND ELEVATION WITH T-SERIES DRAWINGS.
12	120V CONNECTION FOR AUTOMATIC FLUSH VALVES AND FAUCETS.
13	RECEPTACLE FOR ECO READER. COORDINATE EXACT ELEVATION WITH CASEWORK.
14	MOUNT RECEPTACLE INDICATED ABOVE RACK ON WALL.
15	COORDINATE RECEPTACLE LOCATION AND ELEVATION WITH TANKLESS WATER HEATER LOCATION.
16	COORDINATE QUADRUPEX RECEPTACLE INDICATED WITH RACK LOCATION AND ELEVATION PRIOR TO ROUGH-IN.
17	PROVIDE UNISTRUT SUPPORT FOR POWER EQUIPMENT MOUNTING.
18	MOUNT ELECTRICAL EQUIPMENT INDICATED ABOVE ACCESSIBLE CEILING.
19	INDOOR UNIT IS POWER FROM OUTDOOR UNIT LOCATED IN MECHANICAL YARD.
20	FIRE PLACE LIGHTING AND GAS CONTROL TOGGLE SWITCHES. SEE MANUFACTURER'S INSTALLATION GUIDELINES FOR EXACT REQUIREMENTS.
21	120V CONNECTION AT FIRE PLACE TERMINAL STRIP. PROVIDE WIRING TO EXHAUST FAN ON ROOF AND TO LIGHT AND GAS TOGGLE SWITCHES (NOTE 21). SEE MANUFACTURER'S INSTALLATION GUIDELINES FOR EXACT REQUIREMENTS.
22	120V CONNECTION FOR MOTORIZED SCREEN. CONNECT TO LOW VOLTAGE UP/DOWN SWITCH.
23	RECEPTACLE IN CEILING FOR PROJECTOR.
24	BOILER EPO. SEE SCHEMATIC 4B/E-601 FOR ADDITIONAL INFORMATION.
25	SPLITTER EQUAL TO HUBBELL SP31 REQUIRED WHEN FLOOR BOXES ARE ON THE SAME CIRCUIT.
26	EXTENDER CABLE EQUAL TO CEXT111MFLX.
27	MAINTAIN 8'-0" CLEAR ALONG COLUMN LINES "E" AND "S" FOR FIRE PATHWAY.
28	MAINTAIN 4'-0" CLEAR CENTERED ON ROOF DRAINS FOR MAINTENANCE ACCESS.
29	MAINTAIN 4'-0" SETBACK FROM ROOF EDGE. TYPICAL.
30	E.C. SHALL CONNECT MOTORIZED DAMPER TO CIRCUIT SERVING FAN.
31	CONNECT EXHAUST FAN INDICATED TO RESTROOM LIGHTING CIRCUIT AND SWITCH.
32	SEE DETAIL SAE-501 FOR ROOF MOUNTED RECEPTACLE. COORDINATE LOCATION WITH INVERTERS.
33	120V CONNECT FOR TEMPERATURE CONTROL PANEL. COORDINATE EXACT LOCATION WITH M.C.
34	MULTIPLE EEV UNITS SHALL BE ON CIRCUIT SHOWN. COORDINATE EXACT REQUIREMENTS WITH M.C.
35	NO ROUTING OF ANY TYPE OF SYSTEM SHALL OCCUR IN OPENING TO MECHANICAL PLATFORM.
36	PLUG LOAD CONTROLLER. PROVIDE SIGNAL FROM OCCUPANCY SENSOR IN ROOM.
37	120V CONNECTION FOR DOOR POWER SUPPLY.

**5E ENLARGED MECHANICAL ROOM**  
1/4" = 1'-0"

**4E MECHANICAL PLATFORM**  
1/8" = 1'-0"

**2E ONE-LINE DIAGRAM**  
NOT TO SCALE

**2A FIRST FLOOR POWER PLAN**  
1/8" = 1'-0"

**1A ENLARGED I.T. ROOM**  
1/4" = 1'-0"

**SCHMIDT ASSOCIATES**  
415 Massachusetts Avenue  
Indianapolis, IN 46204  
www.schmidt-arch.com

Project No. 2016-053.WPL  
Project Date 01.17.2020  
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A2	Addendum#2	02.13.2020

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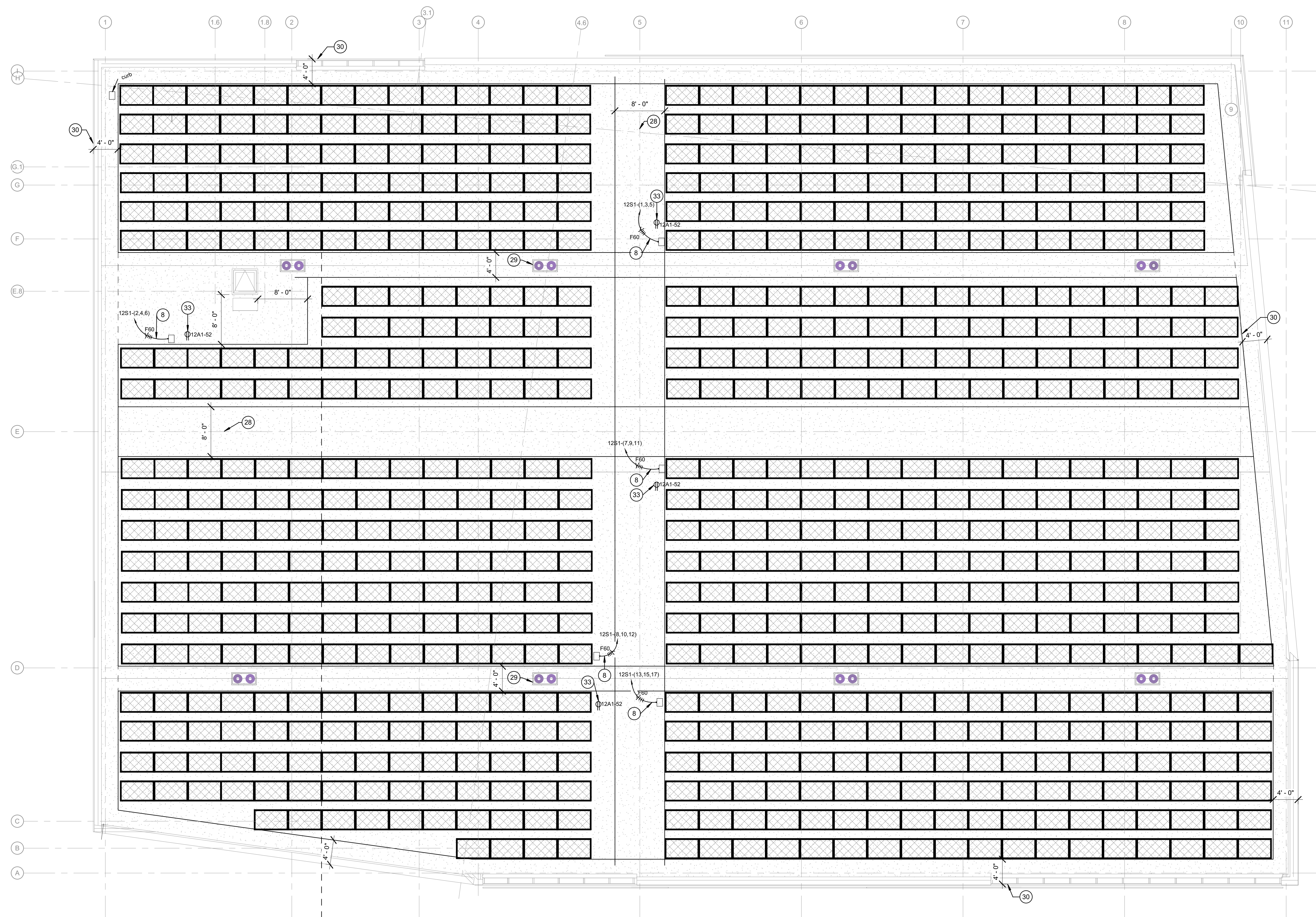
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POWER PLAN

EP101

NOTES:  
1. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE 2017 NATIONAL ELECTRICAL CODE (NEC) AND THE 2017 ILLINOIS ELECTRICAL CODE (IEC).  
2. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE 2017 NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 70-2017.  
3. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE 2017 NATIONAL ELECTRICAL CODE (NEC) AND THE 2017 ILLINOIS ELECTRICAL CODE (IEC).  
4. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE 2017 NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 70-2017.





**2A** **ROOF POWER PLAN**  
1/8" = 1'-0"

GENERAL POWER NOTES	
#	NOTES
A	REFER TO SHEET E-001 FOR ADDITIONAL INFORMATION.
B	ALL DEVICES SHOWN ON COLUMNS SHALL BE CENTERED ON COLUMN.
C	COORDINATE ALL WALL MOUNTED DEVICE LOCATIONS WITH ARCHITECT PRIOR TO ROUGH-IN.
D	COORDINATE ALL FLOOR BOX LOCATIONS WITH SHELVING AND CASEWORK.

#	NOTES
1	120V CONNECTIONS FOR BOOK SORTER. COORDINATE EACT REQUIREMENTS WITH MANUFACTURERS INSTALLATION GUIDELINES.
3	PROVIDE #3/0 IN 3/4" CONDUITING ELECTRODE CONDUCTOR BACK TO MAIN GROUNDING ELECTRODE BUS LOCATED IN MECHANICAL ROOM. SEE DETAIL 101E-011.
4	PROVIDE UL LISTED GROUNDING CONNECTION AT UNDER FLOOR PEDESTAL.
5	UNDERFLOOR SMOKE DETECTORS. SEE FIGURE A 17.7.3.21 "Example of Proper Mounting of Smoke Detectors" IN 2016 NFPA 72.
6	BUILDING GROUNDING ELECTRODE SYSTEM BUS. SEE DETAIL 1/E-6/01 FOR ADDITIONAL INFORMATION.
7	GROUNDING ELECTRODE TRIAD. COORDINATE LOCATION WITH ELEVATOR TRANSFORMER. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
8	INSULATE WIRE AND CONDUIT FOR REFERENCE ONLY. COORDINATE EACT REQUIREMENTS WITH SOLAR CONTRACTOR.
9	ZONE DISTRIBUTION BOX EQUAL TO HUBBELL 2B11C2WXTM. NUMBER IN BOX REPRESENTS NUMBER OF CIRCUITS.
10	RECEPTACLE SELF CHECK OUTLET COMPUTERS. MOUNT INSIDE CASE WORK.
11	120V CONNECTION FOR HAND DRYER.
12	RECEPTACLE INDICATED FOR MONITOR. COORDINATE EACT LOCATION AND ELEVATION WITH T-SERIES DRAWINGS.
13	120V CONNECTION FOR AUTOMATIC FLUSH VALVES AND FAUCETS.
14	RECEPTACLE FOR ECO READER. COORDINATE EACT ELEVATION WITH CASEWORK.
15	MOUNT RECEPTACLE INDICATED ABOVE RACK ON WALL.
16	COORDINATE RECEPTACLE LOCATION AND ELEVATION WITH TANKLESS WATER HEATER LOCATION.
17	COORDINATE QUADRIPOLEX RECEPTACLE INDICATED WITH RACK LOCATION AND ELEVATION PRIOR TO ROUGH-IN.
18	PROVIDE UNITS WITH 120V POWER EQUIPMENT MOUNTING.
19	MOUNT ELECTRICAL EQUIPMENT INDICATED ABOVE ACCESSIBLE CEILING.
20	INDOOR UNIT IS POWER FROM OUTDOOR UNIT LOCATED IN MECHANICAL YARD.
21	FIRE PLACE LIGHTING AND GAS CONTROL TOGGLE SWITCHES. SEE RECEPTACLE INSTALLATION GUIDELINES FOR EACT REQUIREMENTS.
22	120V CONNECTION AT FIRE PLACE TERMINAL STRIP. PROVIDE WIRING TO EXHAUST FAN ON ROOF AND TO LIGHT AND GAS TOGGLE SWITCHES (NOTE 21).
23	SEE MANUFACTURERS INSTALLATION GUIDELINES FOR EACT REQUIREMENTS.
24	120V CONNECTION FOR MOTORIZED SCREEN. CONNECT TO LOW VOLTAGE UPDOWN SWITCH.
24	RECEPTACLE IN CEILING FOR PROJECTOR.
26	BOILER EPO. SEE SCHEMATIC 4BE-6/01 FOR ADDITIONAL INFORMATION.
26	SPLITTER EQUAL TO HUBBELL SP31 REQUIRED WHEN FLOOR BOXES ARE ON THE SAME CIRCUIT.
27	EXTENDER CABLE EQUAL TO CEXT111MFLXX.
28	MAINTAIN 4"-0" CLEAR ALONG COLUMN LINES "1E" AND "5" FOR FIRE PATHWAY.
28	MAINTAIN 4"-0" CLEAR UNDER FLOOR DRAINS FOR MAINTENANCE ACCESS.
30	MAINTAIN 4"-0" SETBACK FROM ROOF EDGE. TYPICAL.
31	E.C. SHALL CONNECT MOTORIZED DAMPER TO CIRCUIT SERVING FAN.
32	CONNECT EXHAUST FAN INDICATED TO RESTROOM LIGHTING CIRCUIT AND SWITCH.
33	SEE DETAIL 5/AE-5/01 FOR ROOF MOUNTED RECEPTACLE. COORDINATE LOCATION WITH INVERTERS.
34	120V CONNECTION FOR TEMPERATURE CONTROL PANEL. COORDINATE EACT LOCATION WITH MC.
35	MULTIPLE EHV UNITS SHALL BE ON CIRCUIT SHOWN. COORDINATE EACT REQUIREMENTS WITH MC.
36	MULTIPLE EHV UNITS SHALL BE ON CIRCUIT SHOWN. COORDINATE EACT REQUIREMENTS WITH MC.



**SCHMIDT**  
ASSOCIATES

415 Massachusetts Avenue  
Indianapolis, IN 46204  
[www.schmidt-arch.com](http://www.schmidt-arch.com)

Project No. 2016-053.WPL

Project Date 01.17.2020

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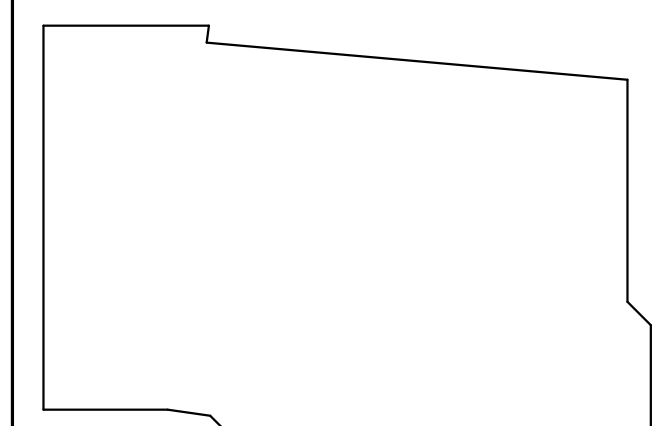
Sarah K Hempstead

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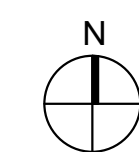
#	Revision	Date
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INDIANAPOLIS, IN 46217



## KEY PLAN



THE INDIANAPOLIS  
PUBLIC LIBRARY



The  
INDIANAPOLIS PUBLIC  
Library

ROOF POWER PLAN -  
ALTERNATE  
PHOTOVOLTAIC LAYOUT

EPR101



6

5

4

3

2

1

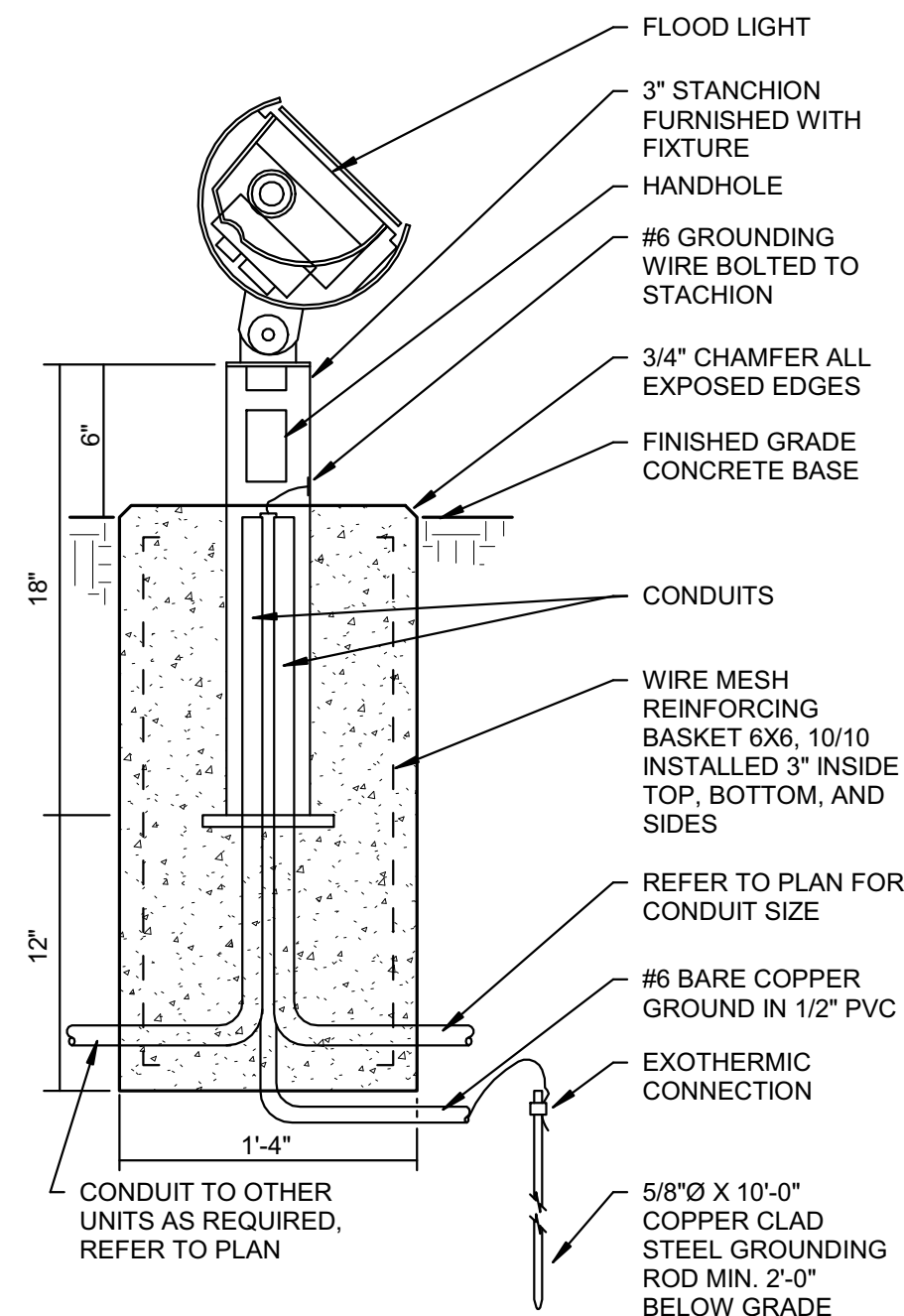
E

D

C

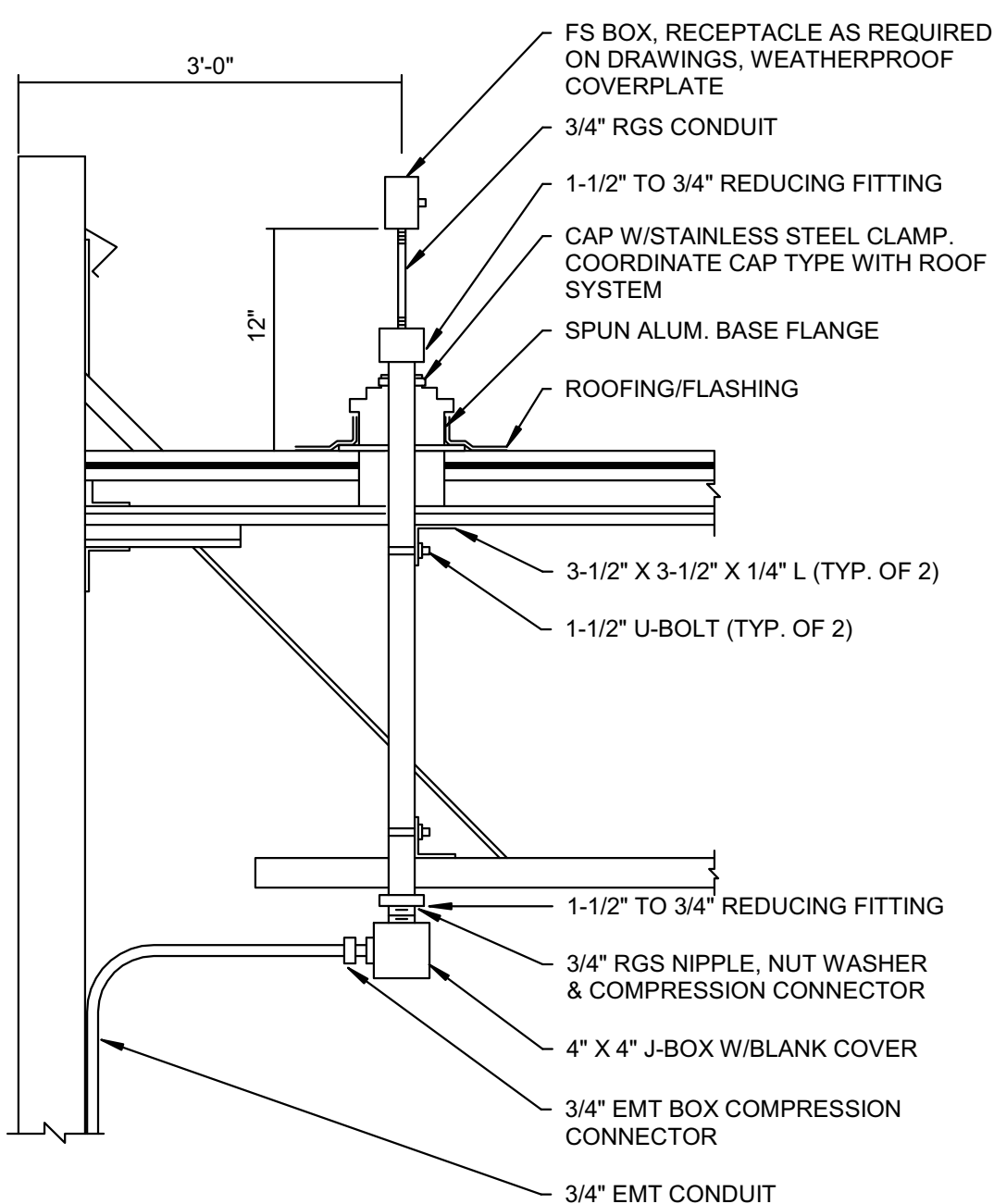
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A



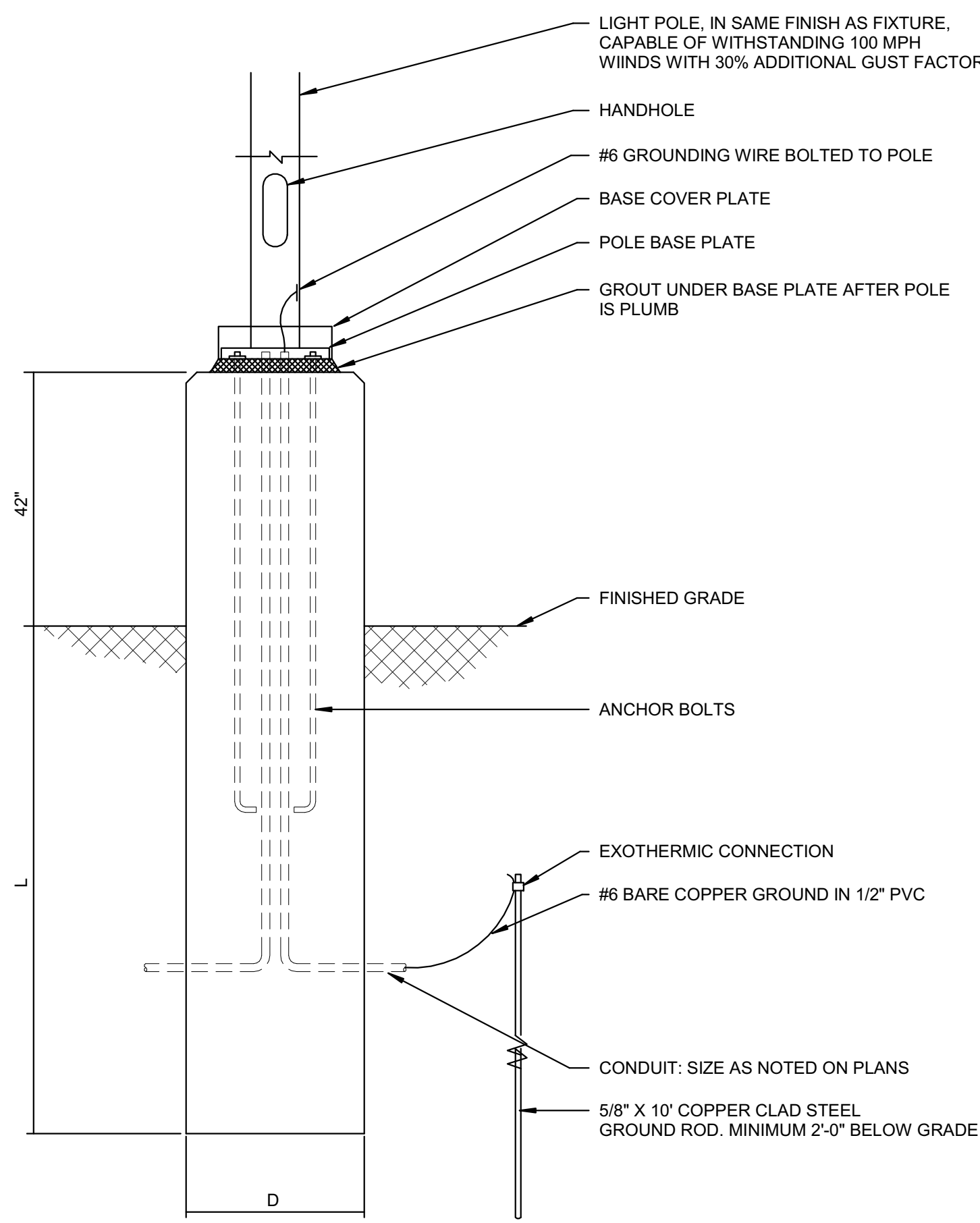
- NOTES:
1. PROVIDE 4000 PSI 28 DAY STRENGTH CONCRETE FOR BASE.
  2. RUB FINISHED ALL EXPOSED CONCRETE.
  3. SLIGHT CROWN TOP FOR DRAINAGE.

**5C FLOODLIGHT STANCHION BASE DETAIL**  
NOT TO SCALE



- NOTE:
1. STRUCTURAL DETAIL SHOWN IS TO BE REPRESENTATIVE ONLY. REFER TO ARCHITECTURAL DRAWINGS AND STRUCTURAL DRAWINGS FOR ACTUAL CONDITIONS ON THIS PROJECT

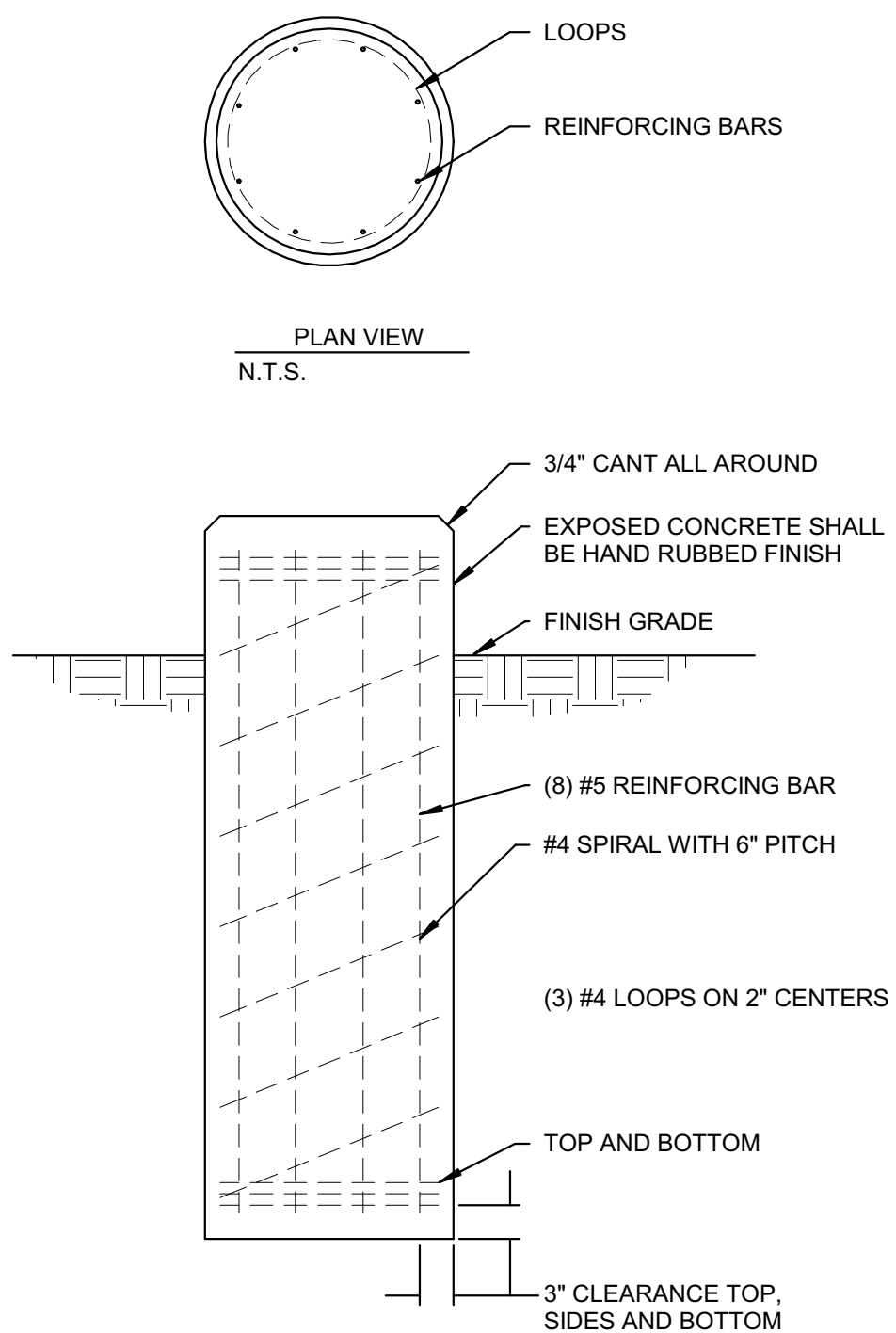
**5A ROOF MOUNTED RECEPTACLE MOUNTING DETAIL**  
NOT TO SCALE



DIMENSIONS			
POLE HEIGHT	L	D	
0'-0" < POLE HEIGHT ≤ 12'-0"	4'-6"	1'-6"	
12'-0" < POLE HEIGHT ≤ 20'-0"	5'-0"	2'-0"	
20'-0" < POLE HEIGHT ≤ 30'-0"	6'-0"	2'-6"	
30'-0" < POLE HEIGHT ≤ 40'-0"	7'-0"	3'-0"	

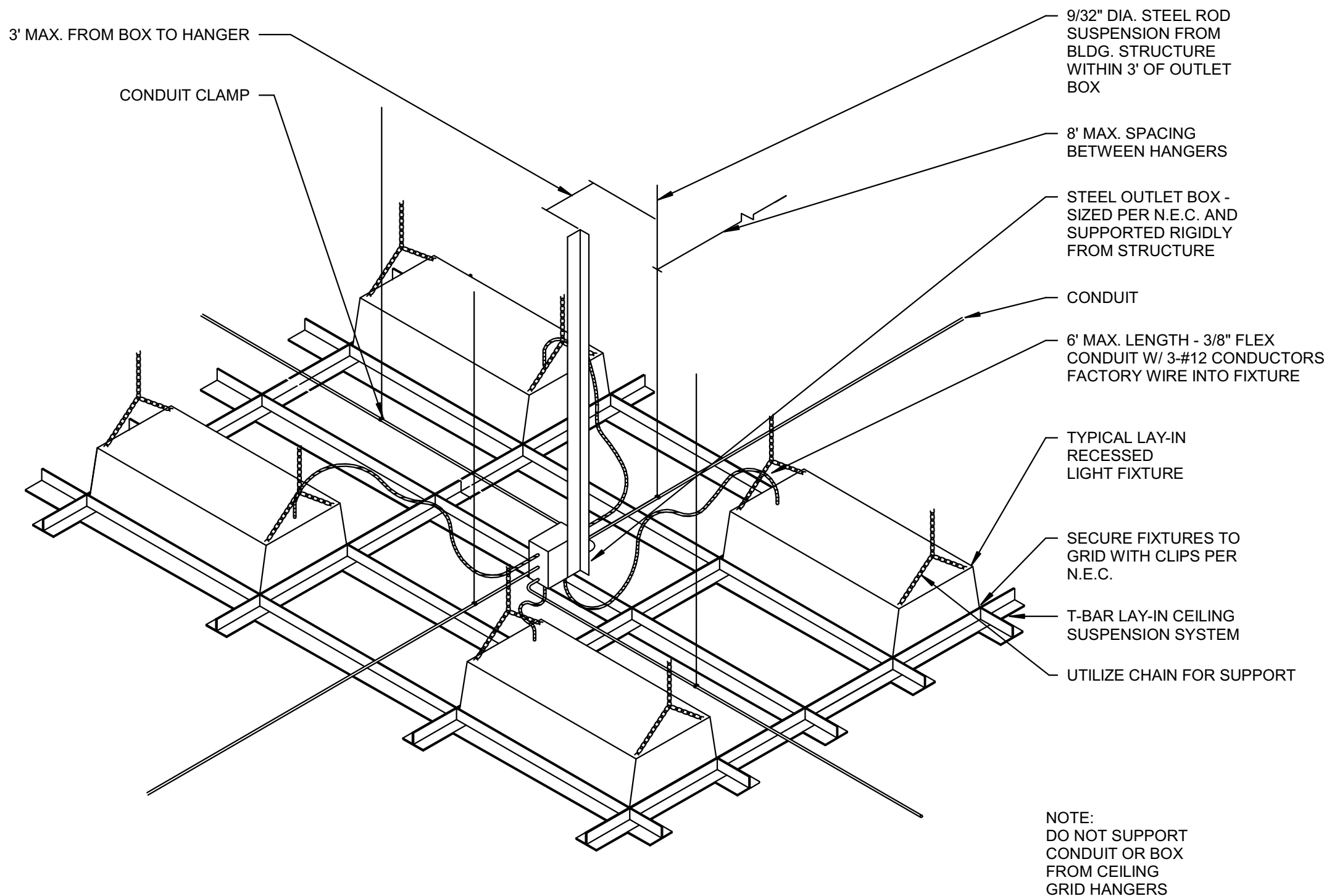
- NOTES:
1. VERIFY ANCHOR BOLT LOCATIONS WITH MANUFACTURER'S TEMPLATE PRIOR TO BASE CONSTRUCTION
  2. REFER TO POLE BASE CONCRETE AND REINFORCING DETAIL 3 FOR ADDITIONAL REQUIREMENTS
  3. THIS POLE BASE SHALL BE USED WHERE POLE IS IN GRASSY AREA PROTECTED BY CURB OR OTHER BARRIER

**4C POLE BASE - 42"**  
NOT TO SCALE

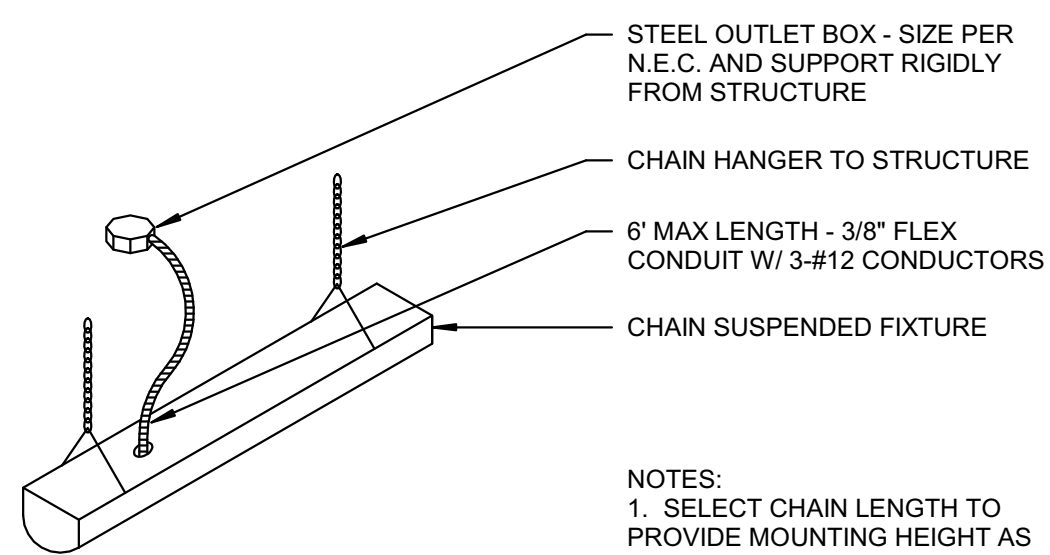


- NOTES:
1. USE 4000 PSI 28 DAY STRENGTH CONCRETE FOR POLE BASE
  2. PLACE CONCRETE THE SAME DAY BASE IS DRILLED
  3. USE SONOTUBE FORM ABOVE GRADE AND EXTEND TO 6" BELOW GRADE
  4. REFER TO POLE BASE DETAIL FOR DIMENSIONS

**4A POLE BASE CONCRETE AND REINFORCING DETAIL**  
NOT TO SCALE

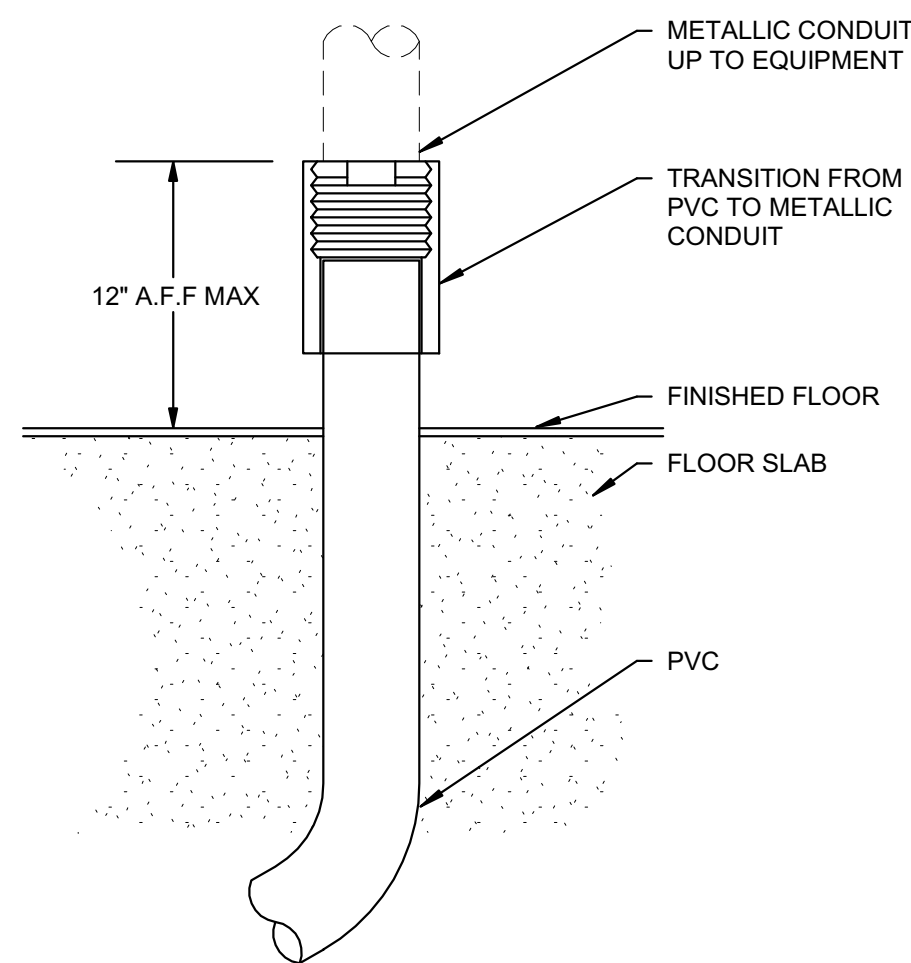


**1E RECESSED LIGHTING INSTALLATION**  
NOT TO SCALE



- NOTES:
1. SELECT CHAIN LENGTH TO PROVIDE MOUNTING HEIGHT AS REQUIRED ON DRAWINGS
  2. PROVIDE TWO CHAIN HANGERS FOR EACH FIXTURE. ADJUST TO HANG FIXTURE LEVEL

**2C CHAIN SUSPENDED LIGHTING INSTALLATION**  
NOT TO SCALE



**2B CONDUIT STUB-UP DETAIL**  
NOT TO SCALE



**SCHMIDT ASSOCIATES**

415 Massachusetts Avenue  
Indianapolis, IN 46204  
www.schmidt-arch.com

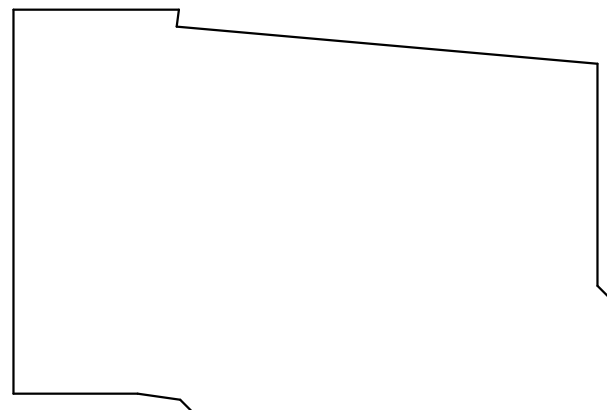
Project No. 2016-053.WPL  
Project Date 01.17.2020  
Produced DLJ



*Sarah K. Hempstead*  
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# Revision Date

6650 SOUTH HARDING STREET  
INDIANAPOLIS, IN 46217



KEY PLAN



THE INDIANAPOLIS  
PUBLIC LIBRARY



DETAILS

E-501

6

5

4

3

2

1



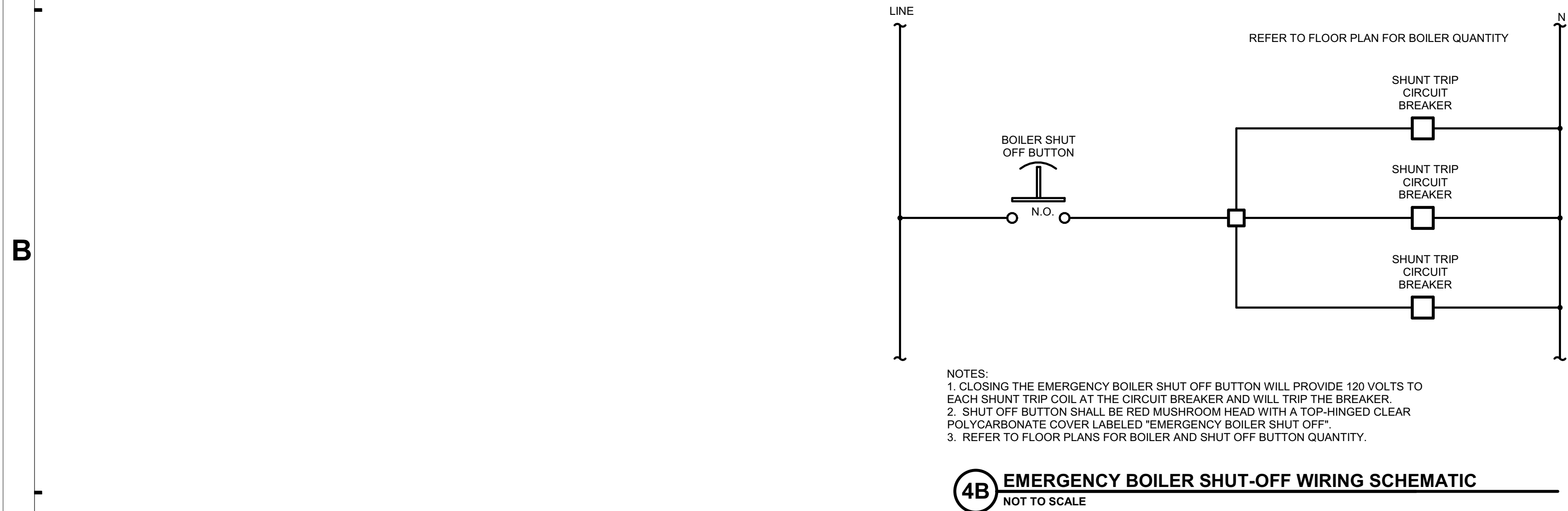
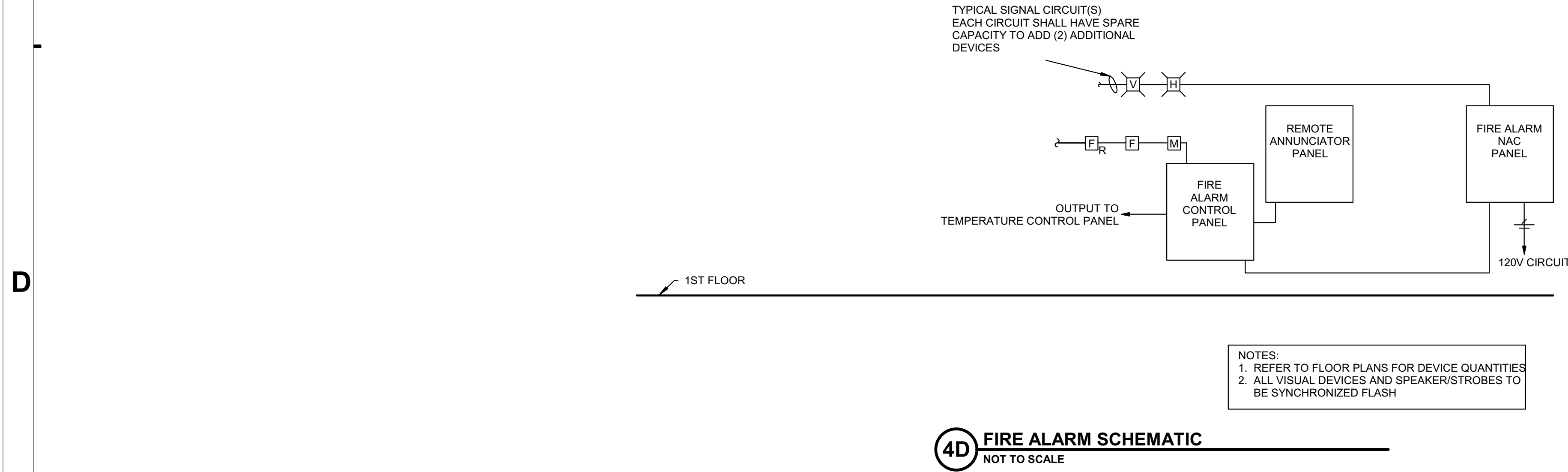
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D

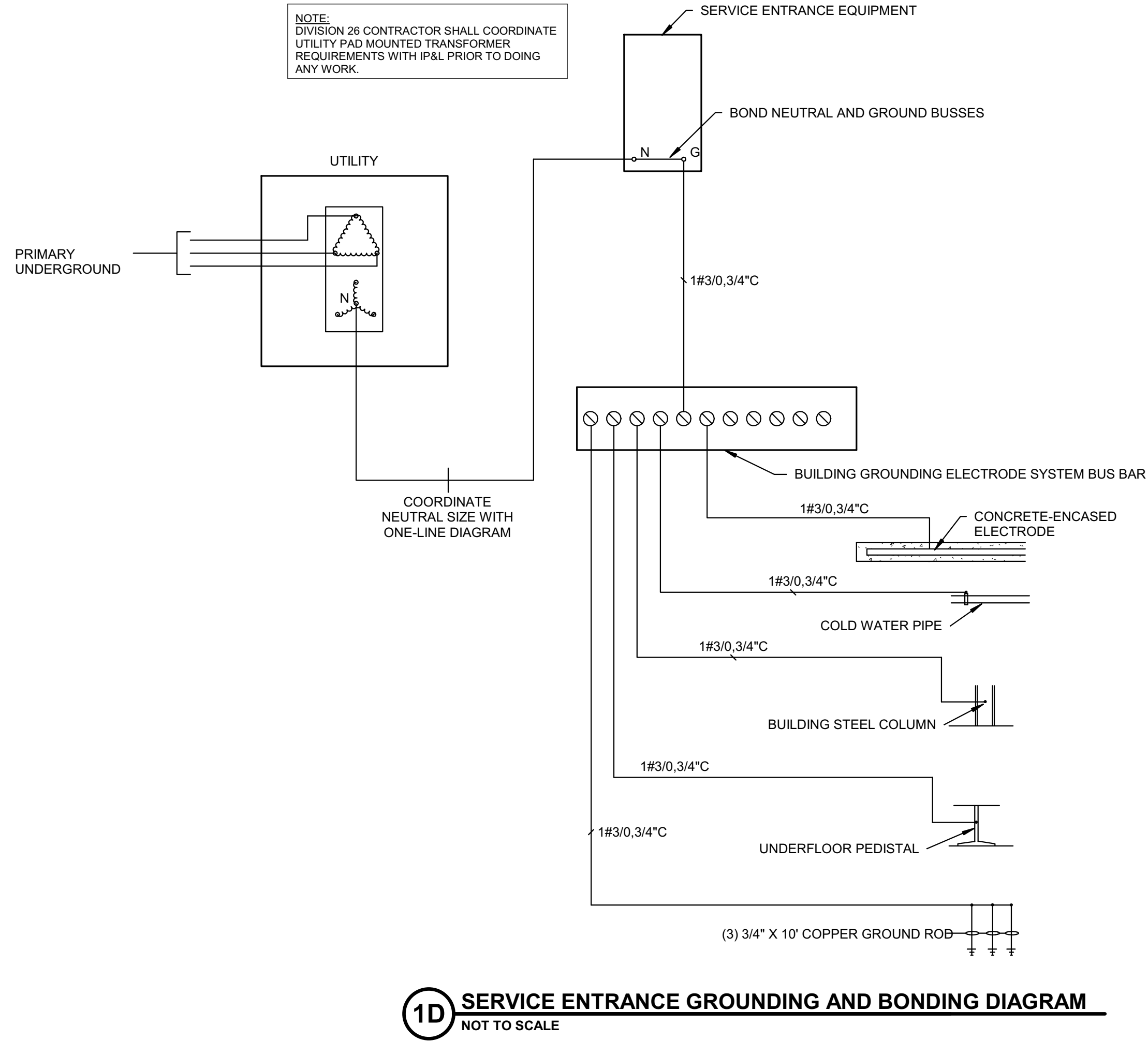
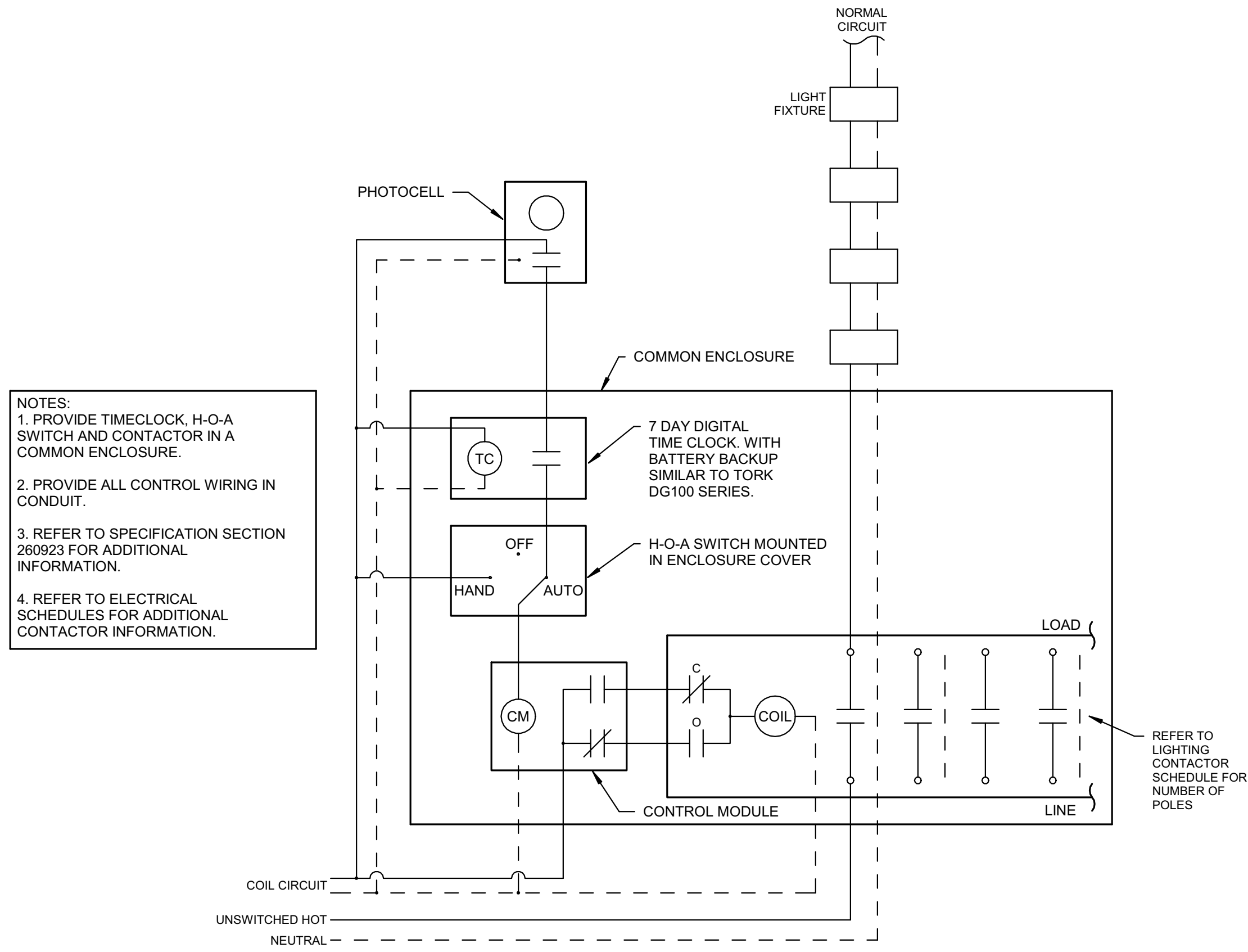
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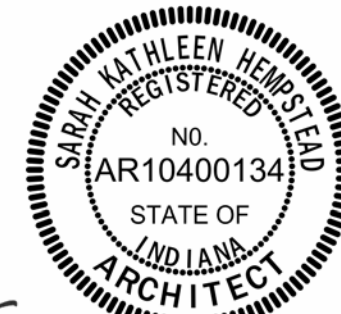
**1B EXTERIOR LIGHTING CONTROL SYSTEM SCHEMATIC**  
NOT TO SCALE



**SCHMIDT  
ASSOCIATES**

415 Massachusetts Avenue  
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www.schmidt-arch.com

Project No. 2016-053.WPL  
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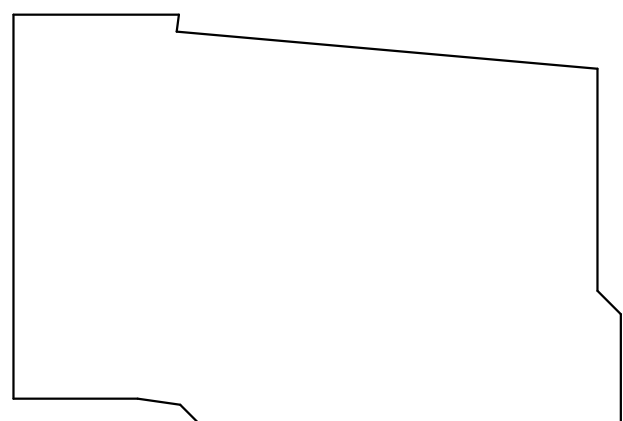


*Sarah K. Hempstead*

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#	Revision	Date
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INDIANAPOLIS, IN 46217



KEY PLAN

THE INDIANAPOLIS  
PUBLIC LIBRARY



SCHEMATICS

E-601

**Attachment G**  
**Request for Proposals**  
**Solar Photovoltaic System Installation and Maintenance Services**  
**at the Eagle Branch Library Project**  
**Letter of Intent to Perform as a Subcontractor/Supplier**

Within three (3) business days of notification by IndyPL, a Vendor shall submit a fully executed "Letter of Intent to Perform as a Subcontractor/Supplier" form for each M/W/V/D Owned Business Enterprise ("XBE") subcontractor/supplier listed on their Vendors Proposal Sheet, Subcontractors/Suppliers List, and Non-Collusion Affidavit.

**PROJECT:**     **Solar Photovoltaic System Installation and Maintenance Services at the West Perry Branch Library Project**

**VENDOR:**     \_\_\_\_\_

**M/W/V/D Entity:**     \_\_\_\_\_

The XBE Entity is currently certified by \_\_\_\_\_  
XBE Entity must provide a copy of their certification to the Vendor.

The Vendor affirms its intent to utilize the XBE Entity on the Project, and intends to enter an agreement with the listed XBE Entity who will provide the following Scope of Work:

\_\_\_\_\_

Estimated Value of Subcontract/Supplies:     \$ \_\_\_\_\_

This document shall not serve as an actual agreement between the two parties. A separate agreement will describe in detail the contractual obligations of the Vendor and the XBE Entity.

The Vendor hereby affirms its intent to utilize the XBE Entity on the Project, and intends to enter a contractual agreement with the listed XBE Entity who will provide the scope of work for the stated value.

\_\_\_\_\_  
Vendor Representative's Signature

\_\_\_\_\_  
XBE Entity Representative's Signature

\_\_\_\_\_  
Vendor Printed Name

\_\_\_\_\_  
XBE Entity Printed Name

\_\_\_\_\_  
Vendor Title

\_\_\_\_\_  
XBE Entity Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date

XBE Entity Representative's Email: \_\_\_\_\_

XBE Entity Representative's Telephone: \_\_\_\_\_