REQUESTS FOR PROPOSALS
for
Installation of Rooftop Solar System

Issued October 20, 2021
by

Metro Waste Authority
We Know Where It Should Go

300 East Locust Street, Suite 100
Des Moines, IA 50309
(515) 244-0021

Proposal Deadline: 4:00 p.m. CST, November 9, 2021

Table of Contents

SECTION I. PROJECT OVERVIEW

Metro Waste Authority is soliciting proposals from qualified solar PV providers to design, engineer, build, and maintain installation of rooftop ballasted solar photovoltaic (PV) project(s) at the site address(es) below. Respondents may bid for either or both of two scenarios: a PPA, or Metro Waste Authority having sole ownership of the system. Respondents shall have demonstrated experience designing, planning, scheduling, permitting, and constructing complete solar PV systems, have knowledge of local utilities net metering and interconnection requirements, provide project financial analysis, and provide system monitoring and maintenance. Proposer is responsible for all permitting and licenses and should include the cost of all permitting in their proposal. Respondents should be familiar with Mid-American Energy Tariffs and interconnection regulations and have established on-site safety standards. Metro Waste Authority reserves the right to modify the scope of the project at any time.

SECTION II. PURPOSE OF RFP

Metro Waste Authority's interest in pursuing solar PV projects reflects the following prioritized goals:

1. Meet Metro Waste Authority's objective of reducing Central Office electric grid consumption by at least 25% and make progress toward the Iowa DNR's Environmental Management System's goal of greenhouse gas reduction;
2. Visibly show MWA's commitment to renewable energy through visible local projects;
3. Reduce grid electricity purchases and electricity costs;
4. Support Iowa solar businesses, jobs, and workforce development;
5. Reduce MWA's impact on the climate by reducing greenhouse gas emissions.

SECTION III. PROJECT DETAILS

Metro Waste Authority is seeking proposals for our Central Office. Metro Waste Authority has the right to refuse the Project bid.

Facility	Address	Type
Central Office (main bid)	300 E Locust St, Des Moines	Rooftop ballasted

Desired Solar PV System Description
Metro Waste Authority is seeking the above rooftop ballasted PV systems. Further detail showing aerial images of the above facilities is provided in Attachment 1.

Interconnect
MWA started interconnect application process with MidAmerican Energy on August 9, 2021, with the following equipment.

- Solar Panels: Silfab SIL-400NU
- Inverter- SolarEdge SE 100KUS
- Optimizers- P860

Project Financing
Metro Waste Authority will finance everything themselves for the entirety of the process and will own the system in full for one bid. The other bid will reflect a PPA (lease buyback) of the system with MWA providing finances to purchase the entirety of the solar panels.

System Ownership
Metro Waste Authority requests an option for a solar PV system to be owned by Metro Waste Authority and an option for a PPA.

Operation and Maintenance (O&M)
The selected Proposer will provide O&M services for the contract life.

Monitoring
Metro Waste Authority requests a monitoring system for system performance and public education through Metro Waste Authority's website and an educational display monitor at the Material Recovery Facility.

SECTION IV. SCOPE OF WORK

Design Guidelines
The Proposer shall include design documents for all elements of the project, including, but not limited to, structural, architectural, mechanical, and electrical. Proposer should consider the following guidelines when designing the solar PV system.

The Proposer shall develop a design for new PV systems that maximize both system size relative to individual facility demand and cost savings for Metro Waste Authority in terms of cost per Kilowatt-hour (kWh). Electrical service information for array tie-in considerations will be viewable during a formal walkthrough. 12 months of electric statements for the building are provided in Attachment 2.

Code Specifications
The installation and power generation and transmission equipment shall comply with applicable building, mechanical, fire, seismic, structural, and electrical codes. Only products that are listed, tested, identified, or labeled by Underwriters Laboratories (UL) or another nationally recognized testing laboratory shall be used as components in the project. Construction must comply with current adopted City Building Code, which includes: International Building Code, National Electric Code (NEC) and State Fire Marshall.

Warranties
The Proposer must provide their standard system warranty coverage along with specific equipment warranty coverage for modules, inverter, racking and workmanship.

- **Panels:** *Minimum* 25-Year Power Output.
- **Inverter:** *Minimum 14* -year inverter warranty.
- **Workmanship:** *Minimum* One Year Limited Warranty

Inspection and Commissioning
To ensure compliance with all electrical codes, an inspection by a licensed electrical inspector is mandatory after construction is complete as well as by the State electrical inspector. Because conduit will require the puncture of the roof surface, roof will need to remain watertight after installation. Commissioning tests shall be included in the final inspection and QCP.

System Monitoring
Monitoring of system performance (separate from utility meter monitoring requirements) and providing public education are two important elements of this RFP. Metro Waste Authority will favor a proposal that includes a monitoring system that can be used to monitor system performance, as well as Metro Waste Authority's website for public viewing. Data storage, management, and display will be the responsibility of the Proposer. In addition, the selected vendor must design and install one on-site kiosk (monitor viewing station) designed specifically for educational purposes at the MRF.

Additionally, the regularly collected data should reflect, but not be limited to, the following:
- Average and accumulated output (kWh/day, kWh/year, and cumulative kWh) versus building load
- Capacity factor
- Air quality emissions averted and real-world equivalents conversion (e.g., homes powered, vehicle miles drive, trees planted, etc.)

Operation and Management of System
The successful respondent will provide O&M of the entire solar electric system over the contract life.

Contract Length
6 Years with buyback with option of buyback with PPA bid.

Final Design Package
The winning Proposer and Metro Waste Authority will negotiate to develop the contents of the final design package. Metro Waste Authority's requested sections are included below. **These are NOT required in the proposal bid**. The "Proposal Requirements" section specifies detailed bid submission requirements.

- **Solar PV Description**
  A summary of the solar PV system types, sizes, annual production, and site locations.
- **Schedule**
  The equipment procurement and solar PV installation schedule for each site.
- **Design and Engineering Documents**
  The design documents for all elements of the project, including, but not limited to, structural, architectural, mechanical, and electrical. Drawings shall be stamped by an Engineer registered in the State of Iowa.
- **Site Drawings**
  Layout drawing of installation site providing location of all equipment.
- **Equipment Details and Specifications**
  A high-level summary listing all solar PV system equipment and their associated specification sheets.
- **Incentives**
  The Proposer shall be responsible for completing and submitting in a timely manner all documentation required to qualify each system for available rebates and incentives. All RECs are to be assigned to the Metro Waste Authority.
- **Electrical Interconnection**
  Interconnect application process has begun and arrangements are in place for installation.
- **Manuals**
  This includes equipment, installation, and O&M manuals for proper system monitoring over the life of the contract.
- **Monitoring**
  A description of controls, monitors, and instrumentation to be used for the solar PV system. This includes web-based monitoring for performance verification and public education.
- **Safety Plan**
  The Proposer's plan to ensure safety for all personnel. The Proposer shall report accidents, claims, and other on-going safety related issues to Metro Waste Authority in a manner consistent with MWA-wide reporting systems.
- **Quality Control Plan (QCP)**
  At a minimum, the QCP should conform to "IEC 62446 Grid-Connected PV Systems – Minimum Requirements for System Documentation, Commissioning Tests, and Inspections."
- **Construction Plan**
  This includes the appropriate documentation, plan, and timeline. All submittals, drawings, disruption plans, and contract documents shall be reviewed prior to submittal for design review/permits. The sites, except for the solar PV system footprint, shall be returned to pre-construction condition as needed.
- **Close Out Report**
  The Proposer shall report progress of project contract closeout to Metro Waste Authority in a manner consistent with MWA's reporting requirements. At a minimum, this should include the following information: system nameplate size, overall installed system cost, and estimated and guaranteed annual kWh production (if applicable).

SECTION V. SCHEDULE

The schedule for this RFP is as indicated below. It may be modified at the discretion of Metro Waste Authority. An addendum will be issued in the event of any scheduling changes.

Responsible Party	Project Milestone	Date/Time
MWA	RFP Issued	October 20, 2021
MWA	Site Walkthrough	October 26, 2021, 10 A.M.
Proposer	RFP Questions Deadline	October 27, 2021
MWA	Answers to RFP Questions Distributed	October 29, 2021
Proposer	Notice of Intent to Submit Proposal Deadline	November 3, 2021
Proposer	RFP Deadline	November 9, 2021, 4:00 P.M.
MWA	Selection of Recommendation for Award	November 17, 2021
MWA & Proposer	Contract Executed	November 19, 2021
MWA & Proposer	Systems Commissioning & Operation Deadline	January 31, 2022*

*According to timeline on DNR grant, data should be gathered from panel operation from January 2022-December 2022.

The schedule dates are subject to change at the sole discretion of MWA.

Questions Pertaining to the RFP

Please submit questions via email to Nicholas Johnson at njo@mwatoday.com by October 27th, 2021. Michael McCoy (mmc@mwatoday.com) should be cc'd on all emails. Responses to questions will be shared with all Proposers.

Notice of Intent to Submit Proposal

Respondents must submit via email to njo@mwatoday.com their Notice of Intent to Submit a proposal by November 3rd, 2021 to ensure receipt of all addendums and other project documents. Addendums to this RFP based on submitted technical questions, along with changes to the proposal schedule, will be issued via email to Proposers who have confirmed intent to submit.

RFP Submission Guidelines

One electronic proposal shall be submitted via email to Nicholas Johnson at njo@mwatoday.com. The proposal must be signed by a company official authorized to make a legal and binding offer submitted to the address listed. Any bid may be withdrawn at any time prior to the due date with a written request signed by the authorized respondent representative. Revised proposals may be submitted up to the original due date/time. Bid proposals shall remain valid for 90 days after the RFP due date.

Selection Process

Depending on the number and quality of the proposals received, Metro Waste Authority reserves the right to either not select or select a vendor. The successful respondent will align on a formal agreement with Metro Waste Authority.

SECTION VI. PROPOSAL REQUIREMENTS

One electronic proposal shall be submitted via email to Nicholas Johnson at njo@mwatoday.com. The proposal must be signed by a company official authorized to make a legal and binding offer submitted to the email address listed. Proposals received after the proposal submission deadline will be returned to the respondent un-opened. Proposals will not be considered for award unless submitted in the format described below. Fax proposals will not be accepted.

- **Cover Letter**
  Cover letter must be addressed to Michael McCoy, Executive Director, and signed by a legally authorized representative of the respondent. It must summarize key provisions of the proposal and include the respondent contact's name, address, phone and email. Specify if the Proposal includes any Proposer's trade secrets that must be shielded in case Metro Waste Authority is subject to the Freedom of Information Act (FOIA).
- **Executive Summary**
  Include key provisions of the proposal, including understanding of Metro Waste Authority's goals, pricing, respondent's role on project, brief description of proposed system, financing, relevant experience with local governments, and key timeline dates.
- **Technical Solution**
  Describe your technical approach to the design and construction of the solar project including:
    - Technical approach, design, equipment, and installation;
        - Guaranteed power capacity (kW-DC and kW-AC) at each identified facility;
        - Estimated annual electricity production (kWh-AC);
        - Panel, inverter, ballasts;
        - Equipment and workmanship warranties.
    - Attachments showing the conceptual physical layout of the proposed PV arrays, inverter, and conduit;
    - PVSYST or similar report indicating production of the proposed systems;
    - Proposed monitoring system including, but not limited to, equipment requirements, data output, and maintenance requirements.
    - Operations & maintenance plan offered for the project.
- **Executive Summary**
  Include key provisions of the proposal, including understanding of Metro Waste Authority's goals, pricing, respondent's
- **Proposer Profile**
  Years in business, description of background working with local governments, applicable state licensing, OSHA background and safety protocol, insurance, workman's compensation rating, and quality control documentation.
- **Project Experience**
  Include a minimum of 4 and maximum of 10 projects completed in the last 3 years similar in scope and complexity to the proposed project. Highlight companies permitting and interconnection experience with local utility.
- **References**
  Provide 3 project references, including the contact person's name, email address, telephone number, and organization, as well as the nature of work performed, its location, and total project size (kW).
- **Litigation**
  Indicate whether the Proposer, any team member, or any corporate officers have been party to any lawsuit involving the performance of any equipment it has installed and provide a summary of the issues and lawsuit status.
- **Project Team**
  Organization chart and bios (length of time with firm, key projects, work history) of key team members and subcontractors, and their capability to perform work. Please only profile individuals that will directly be working on this project. Clearly identify the project manager.
- **Safety**
  Include a brief description of the safety practices of your firm, as well as the OSHA Reporting Indicators for the last 3 years.
- **Proposed Schedule**
  Identify key project milestones and include any necessary review periods for Metro Waste Authority.
- **Additional Information (Optional)**
  If the Proposer believes that additional information must be included in their bid that is not covered in the above sections, it can be included in this section.

SECTION VII. PROPOSAL EVALUATION

Metro Waste Authority will evaluate proposals according to the evaluation criteria below. Points will be awarded based on the relative merit of the information provided in the response to the solicitation. Selection will be based on the total number of points awarded by the evaluation committee and result in a proposal for negotiation of a contract. Metro Waste Authority reserves the right to make multiple awards, one award, or no awards as a result of this solicitation.

- Proposal Cost 50 points
- Technical Approach/ Implementation Schedule 10 points
- Proposal's Alignment to Proposed Format 5 points
- Proposer's State of Iowa Presence 5 points
- Proposer Qualifications/Project Experience 30 points

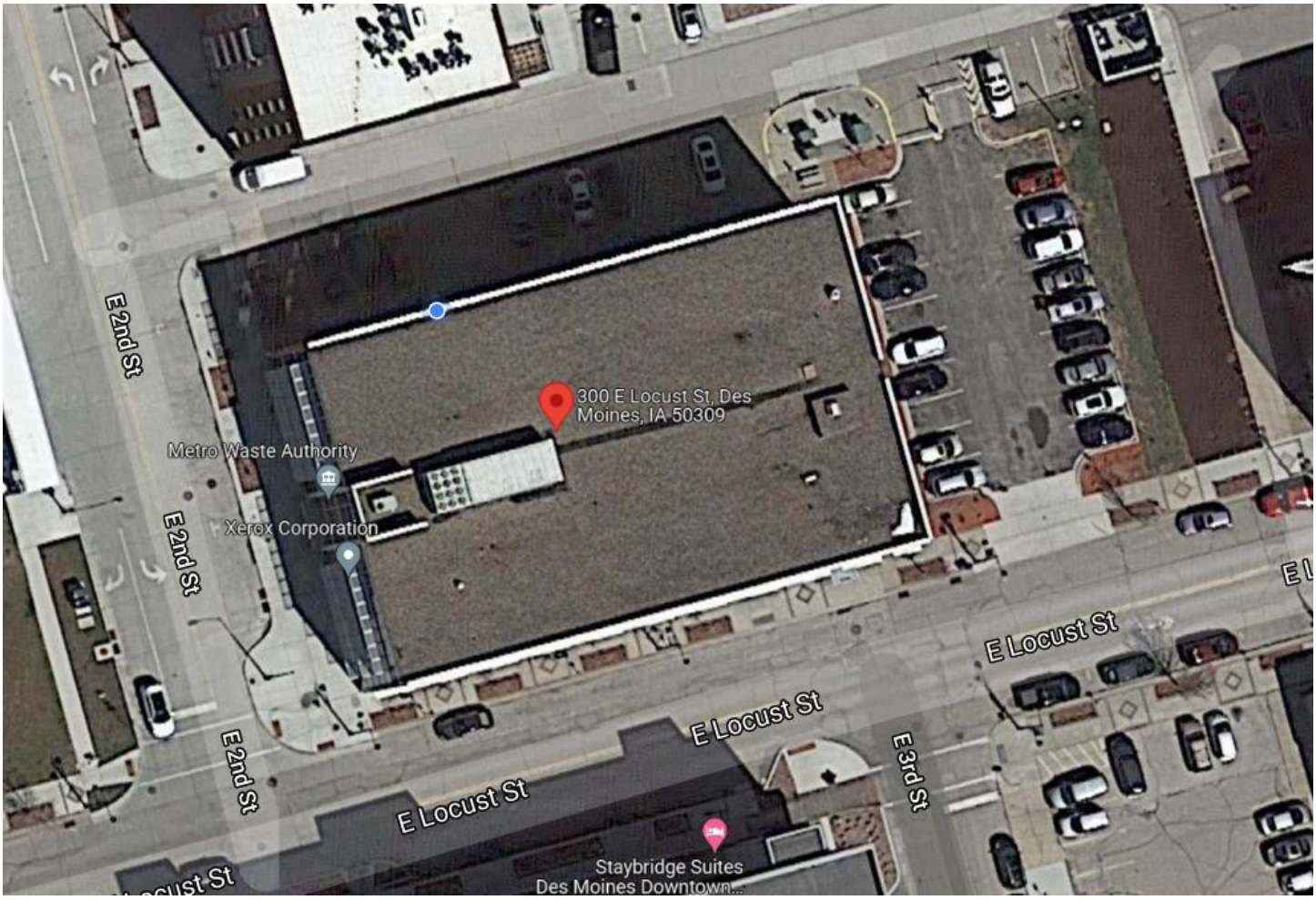
Metro Waste Authority may elect to conduct interviews with selected respondents to ask questions or for more detail on the proposed project. Metro Waste Authority reserves the right to seek supplemental information from any respondent at any time after official proposal opening and before award. This will be limited to clarification or more detail on information included in the original proposal. Upon acceptance of a proposal and intent to award, the successful respondent will be required to execute and return all required project documents and certificates of insurance within 10 business days from the Notice of Award. Should the selected firm fail or refuse to execute the project documents, Metro Waste Authority reserves the right to accept the next best proposal.

SECTION VII. METRO WASTE AUTHORITY CONTACT PERSON

Nick Johnson
Executive Coordinator
515.323.6519
njo@mwatoday.com

Attachment 1

Rooftop of 300 E Locust, Des Moines



Attachment 2

Design and Specs

SLINGSHOT
ARCHITECTURE

October 6, 2021

Mr. Michael McCoy
Metro Waste Authority
300 East Locust Street
Des Moines, IA 50309

RE: Solar RFP, Design Drawings and Specifications

Mr. McCoy,

Attached are drawings and specifications for the Solar RFP design.

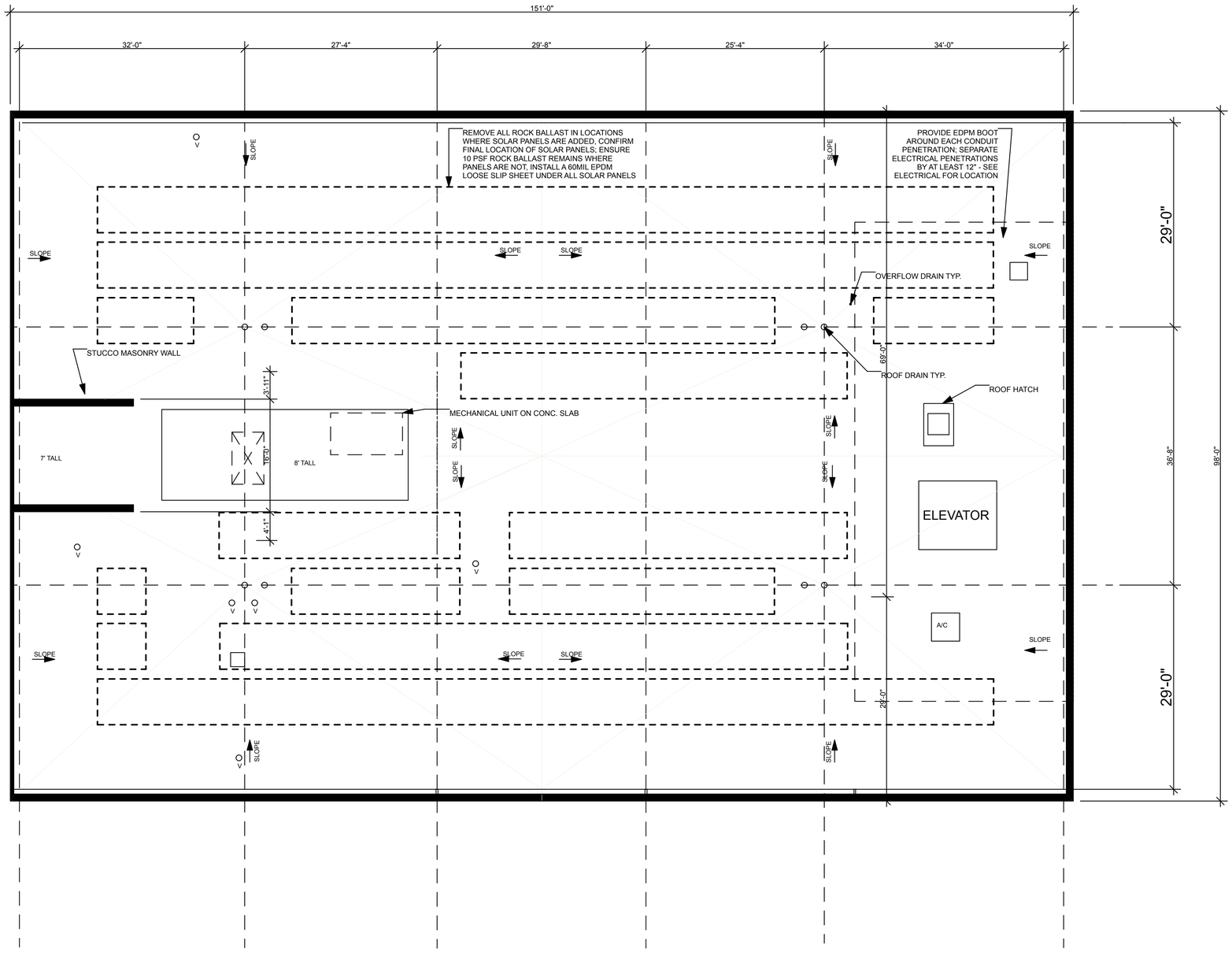
Attached are as follows:
- A.101 - Roof Plan
- E.000 - Electrical Cover Sheet
- E.101 - First Floor Plan
- E.103 - Third Floor Plan
- E.104 - Roof Plan
- Specifications - 26 0050, 26 0519, 26 0526, 26 0529, 26 0533, 26 0553, 26 2726, 26 2816, 26 9000,

We estimate the budget to be $200,000 for solar panels and associated electrical work. Roofing patching will be minimal, allow $3,000. Removal of roof ballast is necessary where solar panels will be located to avoid reinforcing of the existing roof structure. Budget $12,000 for this removal. An EPDM loose slip sheet should be installed under the solar panels. Budget $15,000. We would recommend carrying general conditions and contingency in the amount of $23,000 (10%). Total project budget of $253,000.

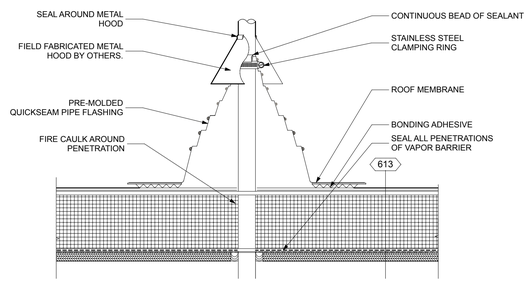
Respectfully submitted,

David Voss, AIA
Principal
Slingshot Architecture, Inc.

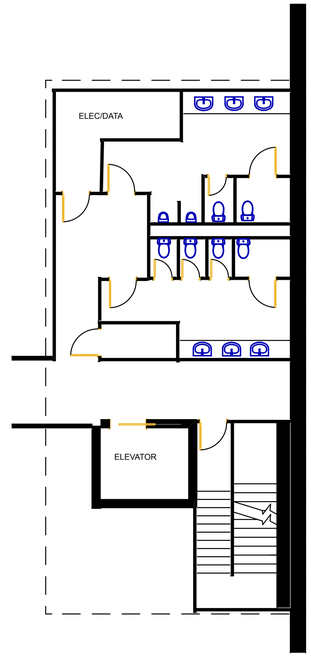
SLINGSHOTARCHITECTURE.COM
305 EAST COURT AVE, DES MOINES, IA 50309
T 515-243-0074



1 A.101 ROOF PLAN
SCALE: 1/8" = 1'-0"



3 A.101 EPDM BOOT @ ELEC. PENETRATION
SCALE: 3" = 1'-0"



2 A.101 THIRD FLOOR PARTIAL PLAN
SCALE: 1/8" = 1'-0"

GNILSHOT
ARCHITECTURE
305 EAST COURT AVENUE, DES MOINES, IA 50309
T 515-243-0074

SOLAR RFP

300 E LOCUST ST #100
DES MOINES IA 50309

2021.16

*** PROJECT STATUS ***
2021.10.07

REVISION SCHEDULE

NO.	DESCRIPTION	DATE

PRELIMINARY - NOT FOR CONSTRUCTION

ROOF PLAN

A.101

NOTE:
VERIFY BUILDING DIMENSIONS FOR ROUGH-IN WORK WITH ARCHITECT'S DRAWINGS.

ELECTRICAL SYMBOLS LIST

NOTE: NOT ALL SYMBOLS SHOWN MAY BE REQUIRED FOR THIS PROJECT

WIRING DEVICES

- DUPLEX WALL RECEPTACLE
- DUPLEX WALL RECEPTACLE ABOVE COUNTER BACKSPLASH OR AS INDICATED
- GFI DUPLEX GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE
- T DUPLEX TAMPER-RESISTANT RECEPTACLE
- WP GFI DUPLEX WEATHERPROOF GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE WITH COVER
- U DUPLEX RECEPTACLE WITH USB CHARGER PORT
- H DUPLEX RECEPTACLE INSTALLED HORIZONTALLY
- E DUPLEX RECEPTACLE ON BACKUP POWER
- QUADRUPLEX RECEPTACLE
- QUADRUPLEX RECEPTACLE ABOVE COUNTER BACKSPLASH OR AS INDICATED
- DUPLEX CEILING RECEPTACLE
- J JUNCTION BOX

DISTRIBUTION

- SURFACE-MOUNT PANEL
- FLUSH-MOUNT PANEL
- TRANSFORMER
- M METER

EQUIPMENT WIRING

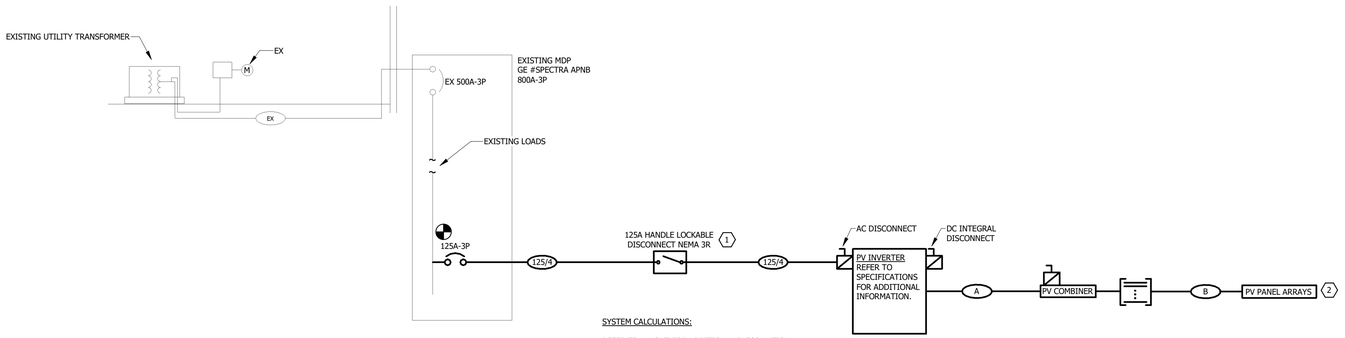
- DISCONNECTING MEANS
- WP WEATHERPROOF DISCONNECTING MEANS
- F FUSED DISCONNECTING MEANS
- MS MOTOR STARTER
- VFD VARIABLE FREQUENCY DRIVE W/INTEGRAL DISCONNECT
- S_m MOTOR RATED SWITCH

MISCELLANEOUS

- EX EXISTING - TO REMAIN
- EXR EXISTING - TO BE RELOCATED
- ER EXISTING - TO BE REMOVED
- CONDUIT
- SWITCH-LEG IN CONDUIT
- UC UNDER GROUND CONDUIT
- EC EMPTY CONDUIT
- POINT OF NEW CONNECTION
- WP WEATHERPROOF
- AFF ABOVE FINISHED FLOOR
- AFG ABOVE FINISH GRADE
- WM DEVICE ON WIREMOLD
- WG WIRE GUARD
- [FS] FIRE STOP
- EZ PASS-THROUGH

COMMUNICATIONS SYSTEMS

- TP TELEPHONE OUTLET FOR WALL MOUNTED TELEPHONE
- # DATA OUTLET IN WALL W/ # OF JACKS
- DATA OUTLET ABOVE COUNTER BACKSPLASH
- WAP WIRELESS ACCESS POINT
- DATA OUTLET IN CEILING
- TELEVISION OUTLET IN WALL
- INTERCOM PUSH BUTTON
- AV AV JUNCTION BOX LOCATION
- ADA ADA PUSH BUTTON



SYSTEM CALCULATIONS:

REFER TO LAYOUT FOR ADDITIONAL INFORMATION

2 ELECTRICAL RISER
No Scale

GENERAL NOTES:

A. ELECTRICAL POWER OUTAGES, IF REQUIRED, SHOULD BE STRATEGICALLY MINIMIZED AND SCHEDULED CLOSELY WITH OWNER. CHANGEOVERS COULD BE REQUIRED TO OCCUR AT ANY HOUR.

B. MAINTAIN ALL SERVICE CLEARANCES REQUIRED BY THE UTILITY.

C. INSTALL ALL CONDUCTORS PER MANUFACTURER'S RECOMMENDATIONS.

D. CONTRACTOR SHALL FOLLOW APPROVED UTILITY INTERCONNECTION APPLICATION.

REFERENCED NOTES:

(NOT ALL NOTES MAY BE APPLICABLE TO THIS SHEET)

1. COORDINATE EXACT LOCATION OF UTILITY PV DISCONNECT WITH UTILITY PRIOR TO ROUGH-IN. AT LOCATION OF PV UTILITY DISCONNECT SHALL BE A PERMANENT PLAQUE READING "INTERCONNECTION DISCONNECT SWITCH". DISCONNECT SHALL NOT OPEN THE NEUTRAL. COORDINATE ALL UTILITY REQUIREMENTS WITH UTILITY PRIOR TO ROUGH-IN.
2. GROUND PV SYSTEM AS PER NEC 690.

SHEET INDEX

PROJECT MANAGER
JOSH NIELSEN
JNIELSEN@MODUS-ENG.COM

ELECTRICAL ENGINEER
COLE SCHUMACHER
CSCHUMACHER@MODUS-ENG.COM

MODUS
WATERLOO | DES MOINES | IOWA CITY
214 EAST 4TH ST | 130 EAST 3RD ST | 118 EAST COLLEGE ST
WATERLOO, IOWA | DES MOINES, IOWA | IOWA CITY, IOWA
(319)235-0650 | (515)251-7280 | (319)248-4600

PRELIMINARY
NOT FOR CONSTRUCTION
MODUS MADRIS
DATE:

21-141 MWA HQ PV DESIGN

300 E Locust St #100, Des Moines, IA 50309

VERSION	DATE
REVIEW DOCUMENTS	10/01/21

SHEET NAME:
COVER SHEET

SHEET:
E000

10/1/2021 9:49:37 AM

NOTE:
VERIFY BUILDING DIMENSIONS FOR ROUGH-IN WORK WITH ARCHITECT'S DRAWINGS.

EX METERING CABINET
AND METER
(APPROXIMATE LOCATION)

1 EX MDP

**MAIN ELEC ROOM
(APPROX)**

1 FIRST FLOOR PLAN
NO SCALE

GENERAL NOTES:

A. ALL DISCONNECTS ON MECHANICAL EQUIPMENT SHALL BE MOUNTED ON STRUCTURE TO ALLOW REMOVAL OF THE EQUIPMENT FOR MAINTENANCE WITH A MINIMUM OF WIRING WORK. VERIFY NEC CLEARANCE REQUIREMENTS ARE MET PRIOR TO ROUGH-IN.

B. MAINTAIN SERVICE CLEARANCE AROUND ALL MECHANICAL & ELECTRICAL EQUIPMENT. DO NOT ROUTE PIPING OR CONDUIT IN CLEARANCE SPACE.

C. ALL RECEPTACLE CIRCUITS SHALL HAVE DEDICATED NEUTRALS.

D. INSTALL DEVICES SUCH THAT NO TWO DEVICES ON OPPOSITE SIDES OF SAME WALL ARE WITHIN 6" OF EACH OTHER.

E. PROVIDE CONDUIT SLEEVES WITH INSULATED BUSHINGS SERVING ALL LOW VOLTAGE CABLING. DO NOT EXCEED 40% FILL.

REFERENCED NOTES: (#)

(NOT ALL NOTES MAY BE APPLICABLE TO THIS SHEET)

1. PROVIDE NEW BREAKER IN SWITCHBOARD 'MDP' FOR NEW SOLAR INVERTERS. UTILIZE EXISTING PROVISION IN SWITCHBOARD.

2 PHOTO OF EX METER
NO SCALE

PRELIMINARY
NOT FOR CONSTRUCTION
DATE:

MMS CONSULTANTS
WATERLOO | DES MOINES | IOWA CITY
214 EAST 4TH ST. WATERLOO, IOWA (319)235-0650
130 EAST 3RD ST DES MOINES, IOWA (515)251-7280
118 EAST COLLEGE ST IOWA CITY, IOWA (319)248-4600

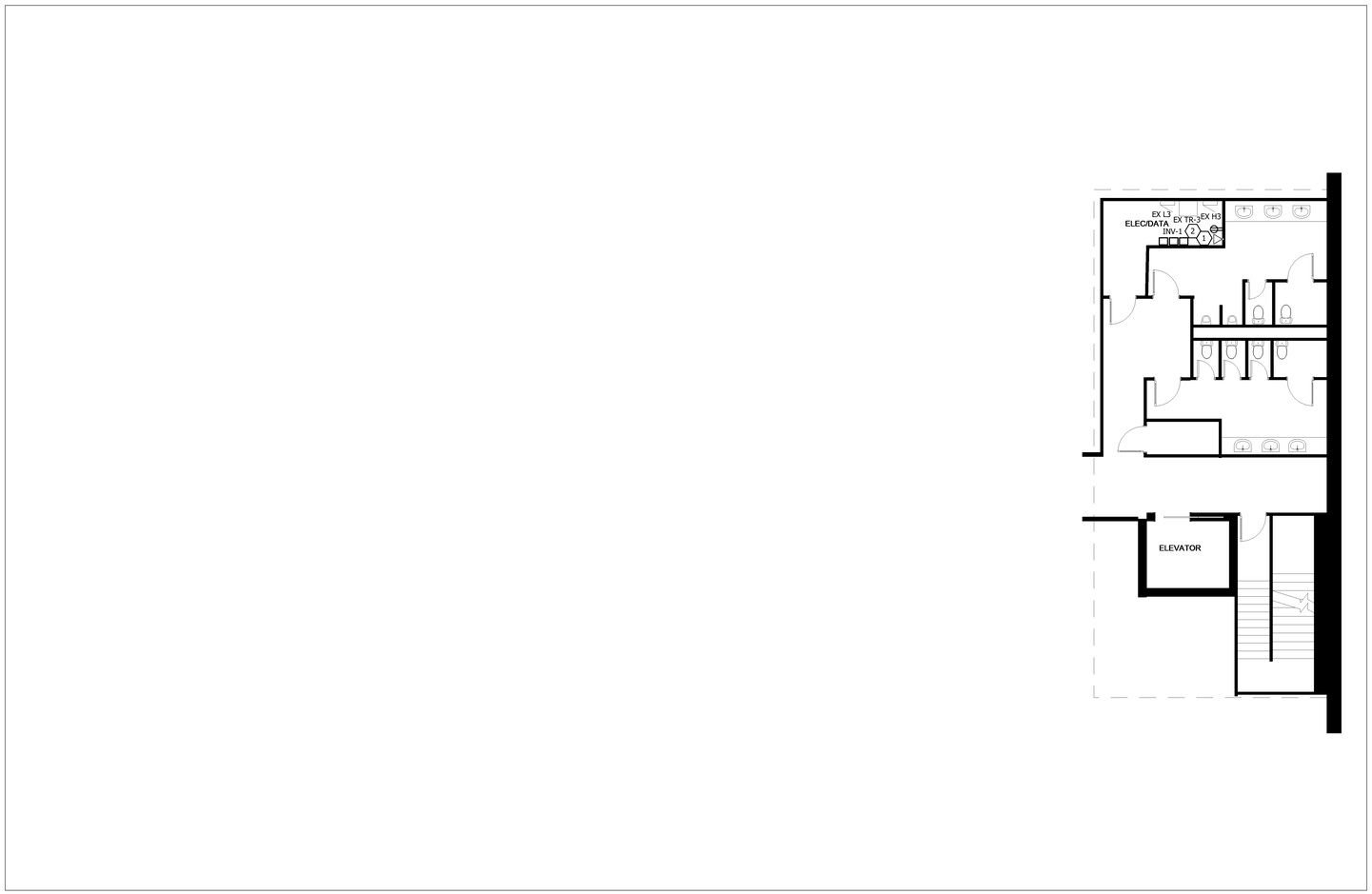
21-141 MWA HQ PV DESIGN

300 E Locust St #100, Des Moines, IA 50309

DATE	VERSION
10/01/21	REVIEW DOCUMENTS

SHEET NAME:
FIRST FLOOR PLAN

SHEET:
E101



1 THIRD FLOOR PLAN
No Scale

NOTE:
VERIFY BUILDING DIMENSIONS FOR ROUGH-IN WORK WITH ARCHITECT'S DRAWINGS.

GENERAL NOTES:

A. ALL DISCONNECTS ON MECHANICAL EQUIPMENT SHALL BE MOUNTED ON STRUCTURE TO ALLOW REMOVAL OF THE EQUIPMENT FOR MAINTENANCE WITH A MINIMUM OF WIRING WORK. VERIFY NEC CLEARANCE REQUIREMENTS ARE MET PRIOR TO ROUGH-IN.

B. MAINTAIN SERVICE CLEARANCE AROUND ALL MECHANICAL & ELECTRICAL EQUIPMENT. DO NOT ROUTE PIPING OR CONDUIT IN CLEARANCE SPACE.

C. ALL RECEPTACLE CIRCUITS SHALL HAVE DEDICATED NEUTRALS.

D. INSTALL DEVICES SUCH THAT NO TWO DEVICES ON OPPOSITE SIDES OF SAME WALL ARE WITHIN 6" OF EACH OTHER.

E. PROVIDE CONDUIT SLEEVES WITH INSULATED BUSHINGS SERVING ALL LOW VOLTAGE CABLING. DO NOT EXCEED 40% FILL. RECEPTACLES PER NEC 406.12 AND 517.18 (C).

REFERENCED NOTES: ⬡

(NOT ALL NOTES MAY BE APPLICABLE TO THIS SHEET)

1. PROVIDE NECESSARY CONNECTIONS FOR TRACKING WEB INTERFACE IN ELECTRICAL ROOM. CIRCUIT DEVICE TO A SPARE 20A-1P CIRCUIT BREAKER IN 208V BRANCH PANEL IN ELECTRICAL ROOM. PROVIDE ROUGH-IN FOR DATA CONNECTION. DATA DEVICE AND CABLING INSTALLATION PERFORMED BY OWNER.

2. RIGIDLY MOUNT INVERTERS TO SOUTH WALL. COORDINATE EXACT LOCATION TO MAINTAIN NEC CLEARANCE OF EXISTING ELECTRICAL EQUIPMENT.

PRELIMINARY
NOT FOR CONSTRUCTION
DATE:

MMS CONSULTANTS
WATERLOO | DES MOINES | IOWA CITY
214 EAST 4TH ST | WATERLOO, IOWA | (319)235-0650
130 EAST 3RD ST | DES MOINES, IOWA | (515)251-7280
118 EAST COLLEGE ST | IOWA CITY, IOWA | (319)248-4600

21-141 MWA HQ PV DESIGN

300 E Locust St #100, Des Moines, IA 50309

VERSION	DATE
REVIEW DOCUMENTS	10/01/21

SHEET NAME: THIRD FLOOR PLAN

SHEET: E103

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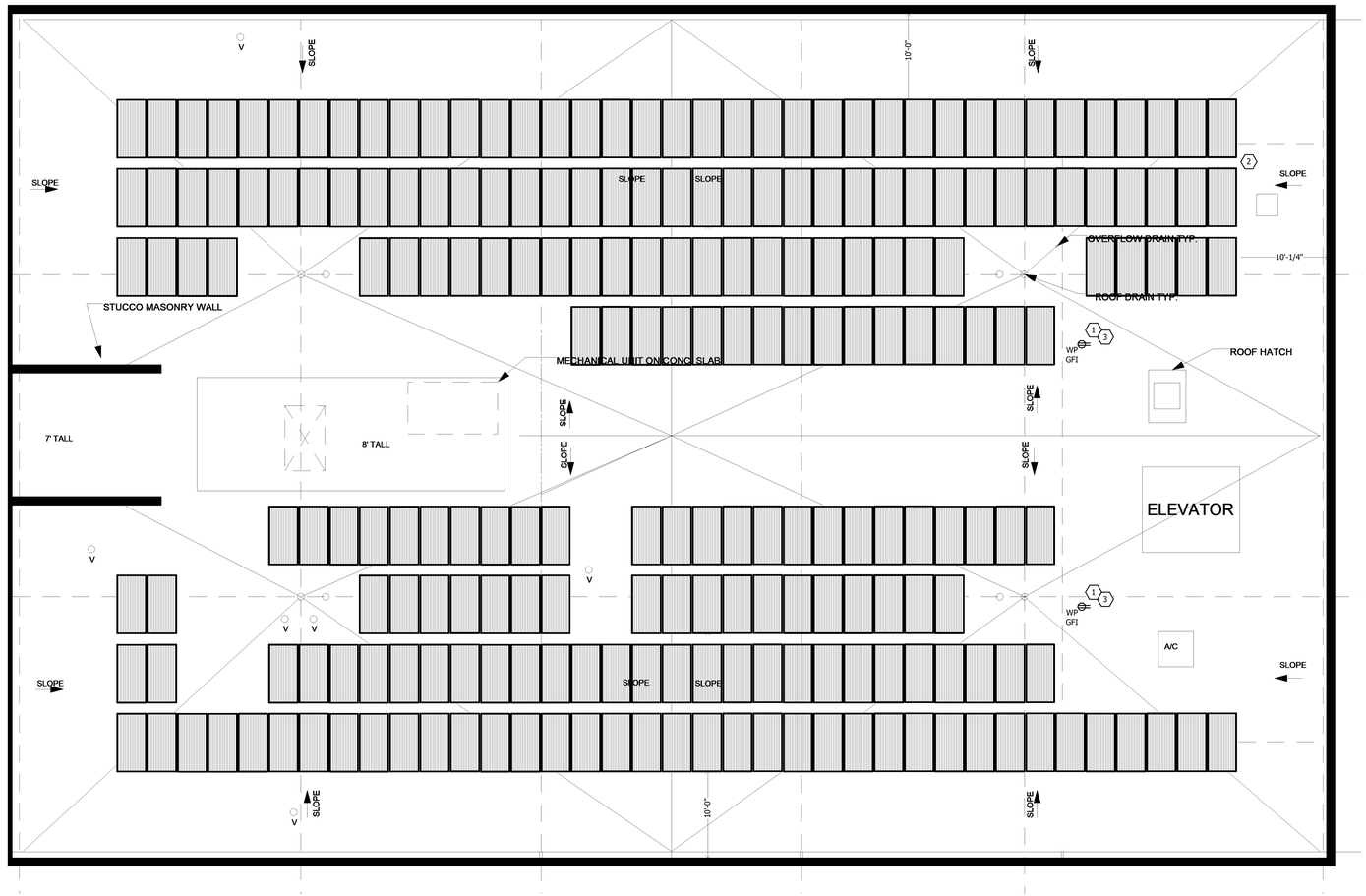

1 ROOF ELECTRICAL PLAN
1/8" = 1'-0"

Components		
Component	**Name**	**Count**
Inverters	SE100KUS (SolarEdge)	1 (100.0 kW)
Strings	10 AWG (Copper)	7 (581.8 ft)
Optimizers	P860 (SolarEdge)	126 (108.4 kW)
Module	Silfab Solar Inc., SIL-400 NU (400W)	245 (98.0 kW)

Wiring Zones			
Description	**Combiner Poles**	**String Size**	**Stringing Strategy**
Wiring Zone	-	13-38	Along Racking

Field Segments									
Description	**Racking**	**Orientation**	**Tilt**	**Azimuth**	**Intrarow Spacing**	**Frame Size**	**Frames**	**Modules**	**Power**
Field Segment 1	Fixed Tilt	Landscape (Horizontal)	10°	74.2°	0.0 ft	1x1	245	245	98.0 kW

SYSTEM SCHEDULE

NOTE:
VERIFY BUILDING DIMENSIONS FOR ROUGH-IN WORK WITH ARCHITECT'S DRAWINGS.

GENERAL NOTES:

A. ALL DISCONNECTS ON EQUIPMENT SHALL BE MOUNTED ON STRUCTURE TO ALLOW REMOVAL OF THE EQUIPMENT FOR MAINTENANCE WITH A MINIMUM OF WIRING WORK. VERIFY NEC CLEARANCE REQUIREMENTS ARE MET PRIOR TO ROUGH-IN.

B. MAINTAIN SERVICE CLEARANCE AROUND ALL MECHANICAL & ELECTRICAL EQUIPMENT. DO NOT ROUTE PIPING OR CONDUIT IN CLEARANCE SPACE.

C. SURFACE RACEWAY SHALL NOT BE USED IN ANY FINISHED AREAS WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

D. ALL RECEPTACLE CIRCUITS SHALL HAVE DEDICATED NEUTRALS.

E. INSTALL DEVICES SUCH THAT NO TWO DEVICES ON OPPOSITE SIDES OF SAME WALL ARE WITHIN 6" OF EACH OTHER.

F. PROVIDE CONDUIT SLEEVES WITH INSULATED BUSHINGS SERVING ALL LOW VOLTAGE CABLING. DO ON EXCEED 40% FILL.

G. PROVIDE AND INSTALL ALL ELECTRICAL CONTROL AND DISCONNECTING MEANS FOR ALL PHOTOVOLTAIC EQUIPMENT. COORDINATE AND VERIFY REQUIREMENTS WITH SCHEDULES AND SHOP DRAWINGS.

REFERENCED NOTES: ⬡#

(NOT ALL NOTES MAY BE APPLICABLE TO THIS SHEET)

1. PV COMBINER CABINET. 600V, CIRCUITS FUSED AT 15 AMPS. NEMA 3R AND UL 1741 LISTED. PROVIDE WEATHER PROOF DISCONNECT AT COMBINER. COORDINATE EXACT LOCATION AND FEEDER ROUTE WITH DESIGN TEAM PRIOR TO INSTALLATION. THE INVERTER AND OPTIMIZERS SHALL BE EQUIPPED WITH A RAPID SHUTDOWN FEATURE THAT CONFORMS TO NEC 690.12.
2. CONDUIT TO PENETRATE ROOF FOR CONNECTION TO INVERTER.. REFER TO ARCHITECTURAL DRAWINGS FOR PENETRATION LOCATION AND REQUIREMENTS.
3. INSTALL COMPONENTS FOR SOLAR ARRAY ON ROOF-MOUNTED UNISTRUT. COORDINATE ROOF PENETRATION WITH ROOF DETAILS.

PRELIMINARY NOT FOR CONSTRUCTION

MMS CONSULTANTS
WATERLOO | DES MOINES | IOWA CITY
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21-141 MWA HQ PV DESIGN

300 E Locust St #100, Des Moines, IA 50309

VERSION	DATE
REVIEW DOCUMENTS	10/01/21

SHEET NAME: ROOF PLAN

SHEET: E104

SECTION 26 0050

BASIC ELECTRICAL REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Basic Electrical Requirements specifically applicable to Electrical Division Specification Sections.

1.02 WORK BY OWNER

A. The Following Work or Sub Contracts Will Be Supplied and Furnished By The Owner:
   1. Interconnect Agreement

B. Contractor's Responsibility:
   1. Review owner reviewed Interconnect Agreement.

1.03 OWNER OCCUPANCY PROVIDED

A. The owner will occupy the premises during the construction period.

B. Limit use of site and premises to allow owner occupancy.

C. Cooperate with the owner to minimize conflict and to facilitate owner's operations.

D. Schedule the work to accommodate this requirement.

1.04 REGULATORY REQUIREMENTS

A. This contractor shall give proper authorities all requisite notices relating to work in their charge, obtain official permits, licenses for temporary construction and pay proper fees for it.

B. This contractor is to be solely answerable for and shall promptly make good all damage, injury or delay to other contractors, to neighboring premises or to persons or property of the public by themselves, by their employees or through any operation under their charge, whether in the contract or extra work.

C. No attempt has been made to reproduce in these specifications any of the rules or regulations contained in city, state or federal ordinances and codes pertaining to the work covered by these specifications that the contractor be thoroughly familiar with all such ordinances and codes.

D. The fact that said various rules, regulations and ordinances are not repeated in this specification does not relieve the contractor of the responsibility of making the entire installation in accordance with the requirement of those authorities having jurisdiction.

E. All work shall comply with the applicable recommendations of:
   1. The National Board of Fire Underwriters
   2. The ANSI-NFPA 70 National Electrical Code
   3. The National Fire Protection Association (NFPA)
   4. The Occupations Safety and Health Act (OSHA)
   5. IBC Building Code (current) and any current applicable city building and or electrical codes.
   6. Fire Protection: Conform to International Fire Code (IFC) and NFPA.

F. Conform to latest approved versions of codes.

1.05 PROJECT/SITE CONDITIONS

A. Install work in locations shown on drawings unless prevented by project conditions.

B. Prepare drawings showing proposed rearrangement of work to meet project conditions, including changes to work specified in other sections. Obtain permission of owner and architect/engineer before proceeding.

C. This contractor, before submitting their bid, shall visit the site of the project to familiarize themselves with locations and conditions affecting their work.

D. It is the intent of this specification that the contractor furnish all labor and material required to complete the installation as outlined in the drawings and specifications. No additions to the

contract price will be allowed due to the failure of this contractor to properly evaluate the effect of existing conditions on the work to be done under this contract.

E. Whenever renovation or remodeling or relocation of existing equipment is included in the contract, it is imperative that all locations of existing wiring conduits, electrical panels, equipment, services and grades be noted on the job site before bid is submitted and that all elevations and grades be verified before roughing in new work.

F. This contractor shall provide, as necessary, for the installation of their work and in accordance with materials other than the structure.

1.06 OWNER'S RIGHT OF SALVAGE

A. Before beginning construction, the contractor shall check and verify with the owner each item of existing equipment that must be removed.

B. The owner will designate which items of material or equipment not reused that they may wish to keep. The contractor shall then remove these items with care and store in a location designated by the owner for the owner's disposal.

C. All other items of equipment to be removed and not specified for reuse in new construction or reserved by the owner for their use shall become the property of the contractor and shall be removed from the site.

1.07 PROTECTION AND MAINTENANCE

A. Where necessary to connect to any existing utility service, this electrical contractor shall contact the owner and shall coordinate any building service connection with the owner so that normal operation to the building is disrupted as little as possible.

B. This contractor shall protect existing equipment in finished areas from dirt, dust and damage as a result of their work.

1.08 DEMOLITION

A. Preserve services to the existing facility. Extend/reroute/reconnect the existing systems as required providing for the continued function of these systems.

1.09 CUTTING AND PATCHING

A. This contractor shall do all cutting and patching necessary for the installation of his work in all existing and new buildings unless otherwise noted.

B. In areas where the integrity of new or existing fire separation assembly/wall is compromised by the work, this contractor shall be responsible to patch and/or seal openings as necessary to maintain and/or return fire separation to rating as required by applicable codes.

1.10 CLEANING AND RUBBISH

A. This contractor, upon completion of their work, shall remove all rubbish and debris resulting from their operation and shall remove it from site at their own expense.

B. As far as their work is concerned, all equipment shall be cleaned and the premises left in first class condition.

1.11 SEALING AND PENETRATION

A. Clearance around the piping passing through fire or smoke rated construction shall be sealed to maintain the rated integrity of the construction (1 hr. 2 hrs. etc.). One and two-hour rated assemblies are to be patched on both sides of the assembly.

B. Manufacturer offering products to comply with the requirements include the following:
   1. Dow Corning "Silicone RTV Foam"
   2. 3-M Corporation "Fire Barrier Caulk and Putty"
   3. Thomas & Betts "Flame Safe Fire Stop System"

C. Installation of these products are to be in strict accordance with the manufacturer's recommendations.

D. This contractor shall submit shop drawings showing approved sealing assemblies to be utilized on this project.

1.12 HAZARDOUS MATERIALS

A. If the contractor stores any hazardous solvents or other materials on the site, they shall obtain copies of the safety data sheets for the materials and post them at the site. The contractor shall inform the owner and all employed of any potential exposure to this material.

B. At no time shall any product containing asbestos be incorporated into the work.
   1. If asbestos materials are encountered, report to the owner. The owner will be responsible for asbestos removal.

1.13 AS-BUILT DRAWINGS

A. This electrical contractor shall provide (at the conclusion of the project) one clean, non-torn, neat and legible "as-built" set of drawings to the owner. These drawings shall show the routing of conduit, wiring and equipment drawn in at scaled locations. All circuits shall be labeled and shall conform to labeled panel breakers. All dimensions indicated shall be referenced to a column line. A set of construction drawings will be furnished for this work.

B. All electrical panels and electrical installed equipment shall be shown on the "as-built" drawings.

1.14 REVIEW OF MATERIALS

A. This contractor shall submit to the engineer for review one (1) electronic copy giving a complete list of materials, fixtures, devices and panels they propose to furnish. The brochure shall contain complete information as to the make of equipment, type, size, capacities, dimensions, and illustration. One of the returned copies shall be kept on the job at all times.

B. Checking of submittal drawings by the engineer does not relieve the contractor of the responsibility for the accuracy of such drawings and for their conformity to drawings and specifications unless the contractor notifies engineer, in writing, of such deviation at time such drawings are furnished.

C. This contractor shall mark the date and sign each set. This indicates that each of them have been checked in their entirety before submitting to the engineer. Submittals that are not dated and signed by the contractor will not be accepted or checked and will be marked "resubmit" and sent back to the contractor.

1.15 TEST OF SYSTEMS

A. This contractor shall, before concealed, test all systems installed under this contract as called for in these specifications and as required by local codes. Tests shall be made in the presence of the engineer, local authorities or their duly authorized representative. Any defects discovered in testing shall be corrected and the tests repeated until all defects are eliminated.

B. This contractor shall be held responsible for all damage resulting from defects in the system.

C. Each individual feeder circuit shall be tested at the panel and in testing for insulation resistance to ground; the power equipment shall be connected for proper operation. In no case shall the insulation resistance to ground be less than that required by the National Electrical Code (NEC).

1.16 SCOPE OF WORK

A. This contractor shall furnish all the labor and material necessary to install a complete electrical system for the building. The system shall include all items of work as outlined in these specifications and on the drawings.

B. All work shall be performed by a well-qualified, licensed electrician with a thorough knowledge of the various systems involved in this building. It shall be this contractor's responsibility to see that their employees are familiar with all the various codes and tests applicable to this work.

C. All equipment shall be new and of the type specified by the engineer unless otherwise noted in these specifications or on the drawings to remain and or be reused.

D. If there is a discrepancy between the drawings and the specifications or within either document, the more stringent requirement shall be estimated unless brought to the engineer's attention and an addendum is issued for clarification.

1.17 ELECTRICAL UTILITY COMPANY

A. Any fees by the utility company are to be billed directly to the owner.

B. The contractor is required to assist the owner in the preparation of all utility company rebate forms that deal with equipment furnished and/or installed as a part of this contractor.

1.18 SECURE NETWORKABLE DEVICES

A. Update network devices to the most current software/firmware.

B. Change default password of all networkable devices.
   1. Passwords shall have at least eight characters.
   2. Include uppercase and lowercase letters, numerals, and special characters

C. Supply MAC address and serial number of all networkable devices.

D. Work with the Owner's IT department to align to existing IT standards.

E. Provide to the owner a printed and/or electronic spreadsheet log of all network information including, IP addresses, MAC addresses, logins and password information during system training.

1.19 SYSTEM CONFIGURATION AND PROGRAMMING FILES

A. Supply system configuration and programming files where export is available.

B. Supply uncompiled programming for systems applicable.

C. All configuration and programming shall be property of the owner at conclusion of the project.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION 26 0050

SECTION 26 0519

ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Building wire

B. Wiring connectors

1.02 RELATED SECTIONS

A. Specification Section 26 0553 - Identification for Electrical Systems

1.03 REFERENCES

A. NECA Standard of Installation (National Electrical Contractors Association)

B. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems (International Electrical Testing Association)

C. NFPA 70 - National Electrical Code

D. Product Data: Provide for each cable assembly type.

E. Test Reports: Indicate procedures and values obtained.

F. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency specified under Regulatory Requirements.

1.04 SUBMITTALS

A. Project Record Documents: Record actual locations of components and circuits.

B. Project Record Documents: Provide documentation of the manufacturer’s recommended lug torque value for aluminum conductors, the date the lugs were torqued, and installed torque readings.

1.05 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years experience.

1.06 REGULATORY REQUIREMENTS

A. Conform to NFPA 70.

B. Furnish products listed and classified by Underwriters Laboratories Inc., as suitable for the purpose specified and indicated.

1.07 PROJECT CONDITIONS

A. Verify that field measurements are as indicated.

B. Wire and cable routing indicated is approximate unless dimensioned. Include wire and cable lengths within 10 foot of length shown.

1.08 COORDINATION

A. Where wire and cable destination is indicated and routing is not shown, determine exact routing and lengths required.

PART 2 PRODUCTS

2.01 BUILDING WIRE

A. Manufacturers:
   1. Okanite
   2. Bell/Hubbell #BICC
   3. American Insulated Wire
   4. General Cable
   5. Southwire
   6. United Copper Industries

7. Encore Wire Corporation
8. Engineer approved equal.

B. Description: Insulated conductor wire.
1. All wire shall be stranded. Refer to Section 26 0553 Identification for Electrical Systems for conductor color requirements.
2. Wire sizes #12 AWG and smaller shall be solid. Wire sizes #10 AWG and larger shall be stranded.
3. Provide solid wire pigtails at all wiring devices and lighting control devices.

C. Conductor:
1. Copper
2. Feeders, where sizing is indicated at the Electrical Riser Digram, may use compact aluminum equal to Southwire #AlumaFlex® Aluminum (AA-8176) Conductor.

D. Insulation Voltage Rating: 600 volts.

E. Insulation: NFPA 70, type #THHN/THWN-2. All cable installation procedures or sizing shall be based on 75 deg C temperature rating.

2.02 WIRING CONNECTORS

A. Split Bolt Connectors:
1. Burndy
2. Engineer approved equal.

B. Spring Wire Connectors:
1. Thomas & Betts
2. Engineer approved equal.

C. Compression Connectors:
1. Burndy
2. Thomas & Betts
3. Engineer approved equal.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that interior of building has been protected from weather.

B. Verify that raceway installation is complete and supported.

3.02 WIRING METHODS

A. Exterior Locations: Use only building wire, type #THHN/THWN-2 insulation, in raceway. Use liquid-tight wiring methods. Use liquid-tight connections.

B. Interior Installations: Use only building wire, type #THHN/THWN-2 insulation, in raceway.

C. Use wiring methods indicated.

3.03 INSTALLATION

A. Route wire and cable as required meeting project conditions.

B. Install cable in accordance with the NECA "Standard of Installation."

C. Use stranded conductors for feeders and branch circuits larger than 12 AWG.

D. Use #10 AWG conductors for 20 ampere, 120 volt branch circuits longer than 75 feet.

E. Use #10 AWG conductors for 20 ampere, 208/240 volt branch circuits longer than 200 feet.

F. It shall be the responsibility of the electrical contractor to verify all voltage drop and size all wire accordingly.

G. Pull all conductors into raceway at same time.

H. Use suitable wire pulling lubricant for building wire #4 AWG and larger.

I. Clean conductor surfaces before installing lugs and connectors.

J. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise.

K. Use suitable reducing connectors or mechanical connector adaptors for connecting aluminum conductors to copper conductors.

L. Identify and color code wire and cable under provisions of Specification Section 26 0553 - Identification for Electrical Systems. Identify each conductor with its circuit number or other designation indicated.

3.04 FIELD QUALITY CONTROL

A. Perform field inspection and testing.

B. Inspect wire and cable for physical damage and proper connection.

C. Measure tightness of bolted connections and compare torque measurements with manufacturer's recommended values.

D. Verify continuity of each branch circuit conductor.

END OF SECTION 26 0519

SECTION 26 0526

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Mechanical connectors

B. Wire

1.02 SUMMARY

A. Provide all labor, materials, and equipment necessary to properly install a grounding system conductor in all new wiring, which shall be in full compliance with all applicable codes as accepted by the authorities having jurisdiction. The secondary distribution system shall include a grounding conductor in all raceways in addition to the return path of the metallic conduit.

B. Provide and install all grounding and bonding as required by the National Electrical Code (NEC) including but not limited to Article 800 of the NEC.

1.03 REFERENCES

A. ANSI/NFPA 70 - National Electrical Code

B. IEEE 837-2014: Standard for Qualifying Permanent Connections Used in Substation Grounding

C. IEEE Emerald Book

D. IEEE Green Book

1.04 REGULATORY REQUIREMENTS

A. Conform to requirements of ANSI/NFPA 70.

B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

PART 2 PRODUCTS

2.01 MECHANICAL CONNECTORS

A. All grounding connectors shall be in accordance with UL 467 and UL listed for use with rods, conductors, reinforcing bars, etc., as appropriate.

B. Connectors and devices used in the grounding systems shall be fabricated of copper or bronze materials, and properly applied for their intended use. All connectors and devices shall be compatible with the surfaces being bonded and shall not cause galvanic corrosion by dissimilar metals.

C. Lugs: Substantial construction, of cast copper or bronze with "ground" (micro-flat) surfaces, twin clamp, and two-hole tongue equal to Burndy QQA Series.

D. Grounding and Bonding Bushings: Malleable iron.
   1. Manufacturers:
      a. Thomas & Betts
      b. Engineer approved equal.

E. Grounding Screw and Pigtail: Raco #983.

F. Mechanical lugs or wire terminals shall be used to bond ground wires together or to junction boxes and panel cabinets.

2.02 WIRE

A. Material: Stranded copper.

B. Size to meet NFPA 70 requirements as a minimum. Increase size if called for on drawings or in these specifications.

C. Insulated THWN (or bare as noted elsewhere).

PART 3 EXECUTION

3.01 GENERAL

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

B. Grounding shall meet (or exceed as required to meet these specifications) all the requirements of the N.E.C., the NFPA, and applicable standards of IEEE.

C. Where there is a conflict between these specifications and the above applicable codes/standards or between this section of these specifications and other sections, then the most stringent or excessive requirement shall govern. Where there is an omission of a code/standard requirement in these specifications then the current code/standard requirements shall comply.

D. Requirement in these specifications to comply with a specific code/standard article, etc. is not to be construed as deleting of requirements of other applicable codes/standards and their articles, etc.

3.02 GROUNDING CONDUCTORS

A. Grounding conductors shall be provided with every circuit to meet (or exceed as required to meet these specifications and/or drawings) the requirements of NEC 250.

B. At every voltage level, new portions of the electrical power distribution system shall be grounded with a dedicated copper conductor, which extends from termination back to power source in supply panelboard.

C. Provide green insulated ground wire for all receptacles and for equipment of all voltages. In addition to grounding strap connection to metallic outlet boxes, a supplemental grounding wire and screw equal to Raco No. 983 shall be provided to connect receptacle ground terminal to the box.

3.03 EXTERIOR GRADE MOUNTED EQUIPMENT

A. General:

1. Bond each equipment enclosure, metal rack support, mounting channels, etc. to ground electrode system at each rack with an insulated copper ground conductor sized to match the grounding electrode conductor required by applicable table in NEC 250 based on equipment feeder size, but in no case shall conductor be smaller than #6 copper or larger than #2 copper. This connection is in addition to grounding electrode connections required for services.

3.04 MISCELLANEOUS GROUNDING CONNECTIONS

A. Grounding conductors shall be so installed as to permit shortest and most direct path from equipment to ground; be installed in conduit; be bonded to conduit at both ends when conduit is metal; have connections accessible for inspection; and made with accepted solderless connectors brazed or bolted to the equipment or to be grounded; in NO case be a current carrying conductor; have a green jacket unless it is bare copper; be run in conduit with power and branch circuit conductors.

B. All surfaces to which grounding connections are made shall be thoroughly cleaned to maximum conductive condition immediately before connections are made thereto. Metal rust proofing shall be removed at grounding contact surfaces, for 0 ohms by digital Vm. Exposed bare metal at the termination point shall be painted.

C. All ground connections that are buried or in otherwise inaccessible locations, shall be welded exothermically. The weld shall provide a connection which shall not corrode or loosen and which shall be equal or larger in size than the conductors joined together. The connection shall have the same current carrying capacity as the largest conductor.

D. Install ground bushings on all metal conduits where the continuity of grounding is broken between the conduit and the electrical distribution system (i.e. metal conduit stub-up from wall outlet box to ceiling space. Provide an appropriately sized bond jumper from the ground bushing to the respective equipment ground bus or ground bus bar.

3.05 TESTING AND REPORTS

A. Raceway Continuity: Metallic raceway system as a component of the facilities ground system shall be tested for electrical continuity. Resistance to ground throughout the system shall not exceed specified limits.

B. Upon completion of testing, the testing conditions and results shall be certified by the electrical contractor and submitted to the engineer.

3.06 FIELD QUALITY CONTROL

A. Inspect grounding and bonding system conductors and connections for tightness and proper installation.

B. Use suitable test instrument with current certificate of calibration to measure resistance to ground of system.

END OF SECTION 26 0526

SECTION 26 0529

HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Product requirements

B. Formed steel channel

C. Sleeves

1.02 REFERENCES

A. NECA Standard of Installation (National Electrical Contractors Association)

B. NFPA 70 - National Electrical Code

1.03 SUBMITTALS

A. Product Data: Provide manufacturers catalog data for fastening systems.

B. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation, and installation of products.

1.04 REGULATORY REQUIREMENTS

A. Conform to requirements of NFPA 70.

B. Products: Listed and classified by Underwriters Laboratories, Inc. as suitable for the purpose specified and indicated.

PART 2 PRODUCTS

2.01 PRODUCT REQUIREMENTS

A. Materials and Finishes:
   1. Corrosion resistant.
   2. Select materials, sizes, and types of anchors, fasteners and supports to carry the loads of equipment and conduit, including weight of wire in conduit.

B. Anchors and Fasteners:
   1. Concrete Structural Elements: Use expansion anchors and preset inserts.
   2. Steel Structural Elements: Use beam clamps and welded fasteners.
   3. Concrete Surfaces: Use self-drilling anchors and expansion anchors.
   4. Hollow Masonry, Plaster, and Gypsum Board Partitions: Use toggle bolts and hollow wall fasteners.
   5. Solid Masonry Walls: Use expansion anchors and preset inserts.
   6. Sheet Metal: Use sheet metal screws.

2.02 FORMED STEEL CHANNEL

A. Manufacturers:
   1. Globe Strut
   2. Uni-Strut
   3. Kindorf
   4. Power-Strut
   5. Erico
   6. Engineer approved equal.

B. Description: Galvanized steel.

2.03 SLEEVES

A. For conduits passing through wall, below grade, underground wall sleeves for conduits 4" or larger shall be continuous rigid steel. Seal with Linkseal, or engineer approved equal, at two diameters larger than conduit.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install products in accordance with manufacturer's instructions and utility company regulations where applicable.

B. Provide anchors, fasteners and supports in accordance with NECA "Standard of Installation".
   1. Do not fasten supports to pipes, ducts, mechanical equipment, or conduit.
   2. Do not use spring steel clips and clamps.
   3. Do not use powder-actuated anchors.
   4. Do not drill or cut structural members.

C. Fabricate supports from structural steel or formed steel members or steel channel. Rigidly weld members or use hexagon-head bolts to present neat appearance with adequate strength and rigidity. Use spring lock washers under all nuts.

D. Install surface-mounted cabinets and panelboards with minimum of four anchors.

E. Use steel channel supports to stand cabinets and panelboards one inch (1") off wall in all wet and damp locations.

F. Use sheet metal channel to bridge studs above and below cabinets and panelboards recessed in hollow partitions.

G. All pathways and hangers shall be independently hung.

END OF SECTION 26 0529

SECTION 26 0533

RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Conduit requirements

B. Conduit types

C. Box types

1.02 REFERENCES

A. ANSI C80.1 - Rigid Steel Conduit, Zinc Coated

B. ANSI C80.3 - Electrical Metallic Tubing, Zinc Coated

C. ANSI C80.5 - Rigid Aluminum Conduit

D. ANSI/NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies

E. ANSI/NFPA 70 - National Electrical Code

F. NEMA 250 - Enclosures for Electric Equipment

G. NECA (National Electrical Contractor's Association) Standard of Installation

H. NEMA WD 6 - Wiring Device Configurations

1.03 PROJECT RECORD DOCUMENTS

A. Accurately record actual routing of conduits larger than two inches.

B. Record actual locations and mounting heights of outlet, pull, and junction boxes on project record documents.

1.04 REGULATORY REQUIREMENTS

A. Conform to requirements of ANSI/NFPA 70.

B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

1.05 SUBMITTALS

A. Product Data: Provide dimensions, knockout sizes and locations, materials, fabrication details, finishes, and accessories.

B. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation, and installation of product.

1.06 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect, and handle products to the site.

B. Accept products on site. Inspect for damage.

C. Protect products from corrosion and entrance of debris by storing above grade. Provide appropriate covering.

1.08 PROJECT CONDITIONS

A. Verify that field measurements are as shown on the drawings.

B. Verify routing and termination locations of conduit prior to rough in.

C. Conduit routing is shown on the drawings in approximate locations unless dimensioned. Route as required completing the wiring system.

PART 2 PRODUCTS

2.01 CONDUIT REQUIREMENTS

A. Minimum Size: 1/2 inch for power wiring and 1 inch for low voltage wiring unless noted otherwise.

B. Size conduit per ANSI/NFPA 70.

C. Above Grade Outdoor Locations: Use rigid steel and aluminum conduit. Aluminum conduit shall not contact concrete mortar or block.

D. Wet and Damp Locations:
   1. Use rigid steel conduit and intermediate metal conduit.

E. Dry Locations:
   1. Concealed: Use rigid steel conduit, intermediate metal conduit or electrical metallic tubing.
   2. Exposed: Use rigid steel conduit, intermediate metal conduit or electrical metallic tubing.

2.02 CONDUIT TYPES

A. Metal Conduit:
   1. Rigid Steel Conduit: ANSI C80.1
   2. Rigid Aluminum Conduit: ANSI C80.5
   3. Intermediate Metal Conduit (IMC): Rigid steel
   4. Fittings and Conduit Bodies: ANSI/NEMA FB 1; material to match conduit.

B. Flexible Metal Conduit:
   1. Description: Interlocked steel construction.
   2. Fittings: ANSI/NEMA FB 1.

C. Liquidtight Flexible Metal Conduit:
   1. Description: Interlocked steel construction with PVC jacket.
   2. Fittings: ANSI/NEMA FB 1.

D. Electrical Metallic Tubing (EMT):
   1. Description: ANSI C80.3; galvanized tubing.
   2. Fittings and Conduit Bodies: ANSI/NEMA FB 1; [steel compression type with steel lock nut, and ring or] steel setscrew fittings. Install compression type fittings in all wet and damp areas.

E. Pre-manufactured Fixture Whips:
   1. Manufacturers:
      a. Southwire
      b. EPCO
      c. Engineer approved equal.
   2. Description: UL listed flexible conduit with conductors and die-cast screw connectors on the end.
   3. Size: no longer than 6', 3/8" diameter.
   4. Wire: 14 AWG minimum for lighting and required by the load.
   5. Install between junction box and light fixture only in concealed and unfinished spaces. Use interior raceway or surface raceway where exposed in finished spaces.

F. Fittings and Conduit Bodies:
   1. NEMA TC 3
   2. Install offsets at surface boxes.
   3. Install single hole strap connectors on all exposed conduit one inch (1") and smaller.

2.03 BOX TYPES

A. General Requirements:
   1. Do not use boxes and associated accessories for applications other than as permitted by NFPA 70 and product listing.

2. Provide all boxes, fittings, supports, and accessories required for a complete raceway system and to accommodate devices and equipment to be installed.

B. Outlet Boxes:
   1. Sheet Metal Outlet Boxes: ANSI/NEMA OS 1, galvanized steel. Minimum of 4 x 4 square with depth of 1-1/2 inch

PART 3 EXECUTION

3.01 CONDUIT INSTALLATION

A. Install conduit in accordance with NECA "Standard of Installation."

B. Arrange supports to prevent misalignment during wiring installation.

C. Support conduit using coated steel, malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers.

D. Fasten conduit supports to building structure and surfaces.

E. Arrange conduit to maintain headroom and present neat appearance.

F. Route exposed conduit parallel and perpendicular to walls.

G. Maintain 12 inch clearance between conduit and surfaces with temperatures exceeding 104 degree F.

H. A run of conduit shall not contain more than the equivalent of four (4) quarter bends (360 degrees), including those bends located immediately at the outlet or body. Use conduit bodies to make sharp changes in direction (as around beams). Use hydraulic one-shot bender to fabricate bends in metal conduit larger than two inch (2") size. All conduit shall be held right to structure.

I. Avoid moisture traps; provide junction box with drain fitting at low points in conduit system.

J. No continuous section of conduit may exceed 100 feet. Utilize pull boxes as necessary. Refer to the pull box execution section for more information.

K. Exterior rooftop pathways shall be supported above roofing membrane utilizing rubber type support bases with 12 ga. galvanized channel supports (Copper B-Line Dura-Block or equivalent). Adjust height as necessary for compliance with NEC.

3.02 BOX INSTALLATION

A. Install boxes in accordance with NECA "Standard of Installation."

B. Maintain headroom and present neat mechanical appearance.

C. Install pull boxes and junction boxes above accessible ceilings and in unfinished areas only. Junction boxes shall not be installed over four foot (4’) above accessible ceilings.

D. Inaccessible Ceiling Areas: Install outlet and junction boxes no more than six inches (6") from ceiling access panel or from removable recessed luminaire.

E. Fire-stop boxes to preserve fire resistance rating of partitions and other elements. Boxes may be installed within a minimum of 24 inch separation with written approval prior to installation.

3.03 INTERFACE WITH OTHER PRODUCTS

A. Install conduit using materials and method to preserve fire resistance rating of partitions and other elements.

B. Piping and Ductwork: Route conduits through roof openings or through suitable roof jack with pitch pocket. Coordinate location with roofing installation specified.

C. Coordinate installation of outlet and junction boxes for equipment connection.

3.04 ADJUSTING

A. Install knockout closures in unused box openings.

3.05 CLEANING

A. Clean interior of boxes to remove dust, debris, and other material.

B. Clean exposed surfaces and restore finish.

END OF SECTION 26 0533

SECTION 26 0553
IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Nameplates and labels

B. Wire markers

C. Conduit markers

D. Identification

1.02 REFERENCES

A. NFPA 70 - National Electrical Code

B. NFPA 70E - Standard for Electrical Safety in the Workplace

1.03 SUBMITTALS

A. Product Data: Provide catalog data for nameplates, labels and markers.

B. Samples: Submit two nameplates 4" x 4" in size illustrating materials and engraving quality.

C. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation, and installation of product.

1.04 REGULATORY REQUIREMENTS

A. Conform to requirements of NFPA 70.

B. Products: Listed and classified by Underwriters Laboratories, Inc. as suitable for the purpose specified and indicated.

PART 2 PRODUCTS

2.01 NAMEPLATES AND LABELS

A. Nameplates:
   1. Normal power: Engraved three-layer laminated plastic white letters on black background.
   2. Emergency power: Engraved three-layer laminated plastic white letters on red background.

B. Locations:
   1. All electrical distribution and control equipment enclosure.
      a. Switchboards and Panelboards: Line 1 shall state "Panel Name"; Line 2 shall state "Fed by Panel Name" as required by NEC section 408.4(B).
   2. Single mounted breaker.
   3. Transfer switch.
   4. Fire alarm devices.

C. Letter Size:
   1. Use 1/8 inch letters for identifying individual equipment and loads.
   2. Use 1/4 inch letters for identifying grouped equipment and loads.
   3. Use 1/4 inch letters for identifying communications cabinets, transfer switches and transformers.

D. Labels: Embossed adhesive tape with 3/16 inch white letters on black background. Use only for identification of individual wall switches and receptacles, control device stations, and communication outlets.

2.02 WIRE MARKERS

A. Description: Tape feeders to indicate phases.
   1. Marker colors for 277/480V shall be as follows: phase A shall be brown, phase B shall be yellow, and phase C shall be orange.
   2. Marker colors for 120/208V shall be as follows: phase A shall be black, phase B shall be red, and phase C shall be blue.

B. Locations: Each conductor at panelboard gutters, pull boxes, outlet and junction boxes, and each load connection.

C. Legend:
   1. Power and Lighting Circuits: Branch circuit or feeder number indicated.
   2. Control Circuits: Control wire number indicated on schematic and interconnection diagrams.

2.03 CONDUIT MARKERS

A. Location: Mark conduit longer than 20 feet.

B. Spacing: 30 feet on center.

C. Color:
   1. 480 Volt System: Orange
   2. 208 Volt System: Black
   3. Fire Alarm System: Red
   4. Other Systems: Green

D. Legend:
   1. 480 Volt System: H- (name of feeder)
   2. 208 Volt System: L- (name of feeder)
   3. Fire Alarm System: FA
   4. Telephone System: TS
   5. Computer System: CS

2.04 IDENTIFICATION

A. Identify All Junction Boxes With Appropriate Marker As Follows:
   1. 480 Volt System: Orange (circuit name and number)
   2. 208 Volt System: Black (circuit name and number)

B. Write the circuit number of each device inside the device box (not ON the device cover). Coordinate exact requirements with the owner prior to installation.

PART 3 EXECUTION

3.01 PREPARATION

A. Degrease and clean surfaces to receive nameplates and labels.

3.02 INSTALLATION

A. Install nameplate and label parallel to equipment lines.

B. Secure nameplate to equipment front using screws.

C. Secure nameplate to inside surface of door on panelboard that is recessed in finished locations.

D. Identify conduit using field painting.

E. Paint colored band on each conduit longer than 6 feet.

F. Paint bands 20 foot on center.

END OF SECTION 26 0553

SECTION 26 2726

WIRING DEVICES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Ground fault circuit interrupting receptacles

B. Emergency pushbutton

C. General purpose contactor

1.02 RELATED REQUIREMENTS

A. Specification Section 26 0533 - Raceway and Boxes for Electrical Systems

1.03 REFERENCE STANDARDS

A. NECA 1 - Standard Practices for Good Workmanship in Electrical Contracting; National Electrical Contractors Association; 2010

B. NEMA WD 1 - General Color Requirements for Wiring Devices; National Electrical Manufacturers Association; 1999 (R 2005)

C. NEMA WD 6 - Wiring Device -- Dimensional Requirements; National Electrical Manufacturers Association; 2002 (R 2008)

D. NFPA 70 - National Electrical Code; National Fire Protection Association; 2011

E. UL Standard 943 - Standard for Safety for Ground-Fault Circuit Interrupters (GFCIs)

1.04 SUBMITTALS

A. Product Data: Provide manufacturer's catalog information showing dimensions, colors, and configurations.

1.05 QUALITY ASSURANCE

A. Conform to requirements of NFPA 70.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

C. Products: Provide products listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

PART 2 PRODUCTS

2.01 GROUND FAULT CIRCUIT INTERRUPTING RECEPTACLES

A. Receptacles: Complying with NEMA WD 6 and WD 1. Class A GFCI rated.
   1. Style: Hard use specification grade
   2. Device Body: Impact resistant plastic with impact-resistant nylon face. Auto-grounding strap.
   3. Configuration: NEMA WD 6, type as specified and indicated.
   4. Rating: Match branch circuit and load characteristics. Default rating is 5-20R, 125V, 20A.
   5. Standards: Receptacles comply with NEMA WD 6 and WD 1.
   6. Wiring: Back and side wire connections. Accepts #14-#10 AWG solid and stranded copper conductors.
   7. Provide #12 AWG solid pigtails at each device. Splice to building wire within outlet box.
   8. Color: Selected during submittal phase. Provide color chart upon request.

B. Types
   1. GFCI Duplex Receptacles
      a. Manufacturers:
         1) Pass & Seymour #2097
         2) Cooper SGF20
         3) Hubbell GFRST20
         4) Leviton GFNT2

b. Description: Specification grade duplex GFCI receptacle.
c. Receptacles noted as "GFI" on plans.

2.02 EMERGENCY PUSHBUTTON: EXTERIOR APPLICATIONS

A. Yellow indoor/outdoor surface mount turn to reset stopper station with red pushbutton assembly, 120/240V rated, 1 NO + 1NC contact, ADA compliant, with clear polycarbonate cover suitable for -40 to 250 degrees Fahrenheit, and stainless steel backplate. Provide engraved nameplate above pushbutton that shall read: EMERGENCY POWER OFF.
   1. Manufacturers:
      a. STI SS2271PO-EN
      b. Engineer approved equal.

2.03 EMERGENCY PUSHBUTTON: INTERIOR APPLICATIONS, AESTHETICALLY PLEASING

A. Red flush complete illuminated LED pushbutton assembly, 120V rated, 1 NO + 1NC contact, aluminum drilled front plate with fixing screws, and empty flush mounted protective box. Provide engraved nameplate above pushbutton that shall read: EMERGENCY POWER OFF.
   1. Manufacturers:
      a. Square D XB4BW34G5 - Assembly, XAPE301 - Cover, XAPE901 - Box.
      b. Cutler Hammer
      c. Siemens
      d. Engineer approved equal.

2.04 GENERAL PURPOSE CONTACTOR

A. Contactors: NEMA ICS 2 and UL 508; electrically held, 30 amps rated.

B. Coil Operating Voltage: 120 volts, 60 Hertz.

C. Poles: 6, Normally closed.

D. Enclosure: ANSI/NEMA ICS 6; NEMA Type 1.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that outlet and switch boxes are installed at proper height.

B. Verify that wall openings are neatly cut and will be completely covered by wall plates.

C. Verify that branch circuit wiring installation is completed, tested, and ready for connection to wiring devices.

3.02 PREPARATION

A. Provide extension rings as needed to bring outlet and switch boxes flush with finished surface.

B. Clean debris from outlet and switch boxes prior to device installation.

3.03 INSTALLATION

A. Install securely, in a neat and workmanlike manner, as specified in NECA 1.

B. Install devices plumb and level.

C. Connect wiring device grounding terminal to outlet box with bonding jumper.

D. Connect wiring devices by wrapping conductor around screw terminal.

E. Install galvanized steel plates on outlet boxes and junction boxes in unfinished areas, above accessible ceilings, and on surface mounted outlets.

F. The feeding of receptacles downstream of GFI receptacles for protection in lieu of providing multiple GFI receptacles is NOT allowed.

3.04 FIELD QUALITY CONTROL

A. Inspect each wiring device for defects.

B. Verify that each receptacle device is energized.

C. Test each receptacle device for proper polarity.

D. Test each GFCI receptacle device for proper operation.

3.05 ADJUSTING

A. Adjust devices and wall plates to be flush and level.

3.06 CLEANING

A. Clean exposed surfaces to remove splatters and restore finish.

END OF SECTION 26 2726

SECTION 26 2816
ENCLOSED STARTERS AND SWITCHES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Safety switches

1.02 RELATED REQUIREMENTS

A. Specification Section 26 0529 - Hangers and Supports for Electrical Systems

B. Specification Section 26 0553 - Identification for Electrical Systems

1.03 REFERENCE STANDARDS

A. NEMA FU 1 - Low Voltage Cartridge Fuses; National Electrical Manufacturers Association

B. NEMA KS 1 - Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum); National Electrical Manufacturers Association

C. NETA STD ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems; International Electrical Testing Association

D. NFPA 70 - National Electrical Code; National Fire Protection Association

E. NECA - Standard of Installation (published by the National Electrical Contractors Association)

1.04 SUBMITTALS

A. Project Record Documents: Record actual locations of enclosed switches.

1.05 QUALITY ASSURANCE

A. Conform to requirements of NFPA 70.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience and with service facilities within 100 miles of Project.

C. Products: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

PART 2 PRODUCTS

2.01 SAFETY SWITCHES

A. Manufacturers
   1. Square D
   2. General Electric
   3. Eaton
   4. Siemens
   5. Engineer approved equal.

B. Heavy duty safety switches shall be used for all motor loads over 1 HP and all non-motor loads 20 amps and greater.
   1. Fusible Switch Assemblies: NEMA KS 1, Type HD enclosed load interrupter knife switch.
      a. Externally operable handle interlocked to prevent opening front cover with switch in ON position.
      b. Handle lockable in OFF position.
      c. Fuse clips: Designed to accommodate NEMA FU1, Class R fuses, with rejection clips designed to permit installation of Class R fuses only.
      d. Indicated as a disconnect switch with a "F" on the drawings.
   2. Nonfusible Switch Assemblies: NEMA KS 1, Type HD enclosed load interrupter knife switch.
      a. Externally operable handle interlocked to prevent opening front cover with switch in ON position.
      b. Handle lockable in OFF position.

3. Enclosures: NEMA KS 1.
    a. Interior Dry Locations: Type 1 .
    b. Exterior Locations: Type 3R.
    c. Enclosures shall be provided with a method of opening the cover without opening the switch.
4. Enclosure shall include a grounding bar.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with NECA "Standard of Installation."

B. Install in accordance with manufacturer's instructions.

C. Install plumb and provide in accordance with Specification Section 26 0529 - Hangers and Supports for Electrical Systems.

D. Height to be five foot (5') to operating handle.

E. Provide adhesive label with white letters on black background for associated equipment.

F. Apply adhesive tag on inside door of each fused switch indicating NEMA fuse class and size installed.

3.02 FIELD QUALITY CONTROL

A. Inspect and test in accordance with NETA STD ATS, except Section 4.

B. Perform inspections and tests listed in NETA STD ATS, Section 7.5.1.2.

END OF SECTION 26 2816

SECTION 26 9000

PHOTOVOLTAIC SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Photovoltaic modules

B. Mounting for photovoltaic modules (Ballasted racking system)

C. Wiring for photovoltaic modules

D. Grid-tie Inverters

E. Combiner boxes

F. DC optimizers

1.02 SECTION INTENT

A. The intent of this section is to establish the minimum requirements for the installation of the photovoltaic panels shown on the plans.

B. Power, cable and raceway installation required for this system will be installed as indicated elsewhere in the electrical specifications, unless stated otherwise in this section.

1.03 RELATED SECTIONS

A. Specification Section 26 0519 – Electrical Power conductors and Cables

B. Specification Section 26 0526 – Grounding and Bonding for Electrical System

C. Specification Section 26 0533 – Raceway and Boxes for Electrical Systems

D. Specification Section 26 0553 – Identification for Electrical Systems

E. Specification Section 26 2816 – Enclosed Switches

1.04 REFERENCES

A. NECA Standard of Installation (published by the National Electrical Contractors Association)

B. NFPA 70 – National Electric Code
   1. Article 690 – Solar Photovoltaic (PV) Systems

C. UL Listing: All material and equipment shall be listed, label, or certified by Underwriters Laboratories, Inc. All power supplies and computers shall be UL listed. Provide UL listing cards for all components specified herein. Install all equipment in compliance with applicable NEC and IEEE recommendations and procedures.

1.05 SUBMITTALS

A. Product Data: Provide catalog data for all materials and components unless submitted elsewhere in this specification.

B. Samples: Submit samples of mounting hardware as requested by Design Team.

C. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation, and installation of product.
   1. Include system average weight per squarefoot.

D. System Layout: Provide system layout with panel angles identified as well as circuiting groups appropriate for the power conversion equipment.

E. Submit cut sheet, detailed system riser diagram, all wire, devices, and provide written confirmation from the factory that they are an authorized representative for the submitted product. This document shall be included as part of the submittal data.

F. Provide complete brochure information on all components and accessory equipment. All information shall be clearly marked to indicate items provided.

1.06 PROJECT CONDITIONS

A. It is the intent of these specifications and the accompanying plans that the contractor furnishes and installs a system complete in every respect and ready to operate. Unless otherwise noted, all miscellaneous items and accessories required for such installation whether or not each such item or accessory is shown on the drawings or mentioned in these specifications shall be furnished and installed.

B. Verify that field measurements are as depicted on the drawings. Wire routing shown on drawings is approximate unless dimensioned. Route wire as required to meet project conditions. Where wire routing is not shown and destination only is indicated, determines exact routing and lengths required.

C. Support wires as specified elsewhere in this specification.

1.07 TECHNOLOGY OBSOLESCENCE

A. The customer reserves the right with vendor approval, to modify the list of equipment based on equipment available at time of installation in order to guard against technology obsolescence

1.08 BIDDING INFORMATION

A. Refer to general conditions in architectural portion of specification. The electrical contractor (responsible for Division 26) shall include in their base bid a complete Photovoltaic Renewable Energy solution, installed and provided by an approved bidder.

1.09 WORK INCLUDED

A. Permits:
   1. The electrical contractor is responsible for producing and providing any documentation for obtaining permits necessary and all expenses associated with the permitting process required by local AHJ and State Fire Marshal.
   2. Contractor shall coordinate with local utility for net metering requirements.

PART 2 PRODUCTS

2.01 PHOTOVOLTAIC MODULES

A. Basis of Design:
   1. Silfab

B. Key Features:
   1. Monocrystalline or Polycrystalline type, minimum 600V maximum system voltage. +/- 3% module tolerance power rating measurement.
   2. Minimum power of 390W +- 5% under Standard Test Conditions
   3. Dimensions: Compatible with space available.
   4. Electrical Connection: Series wiring configuration of junction box, carrying IP65 rating. Cable shall be adequate for wiring between modules.
   5. Operating Module Temperature: Capable of generating power at -20 deg F to +115 deg F.
   6. Listing: UL1703
   7. Warranty: 10 Year guaranty to exhibit 90% of original minimum rated power, 20 year guaranty to exhibit 80% of original minimum rated power.
   8. Refer to quantity on plans. Note that this is subject to an alternate bid for reduction of modules with same total KW performance. Refer to plans for KW size.
   9. Hail and wind resistant.

2.02 MOUNTING FOR PHOTOVOLTAIC MODULES (BALLASTED RACKING SYSTEM)

A. Manufacturers:
   1. DynoRaxx Evolution FR
   2. DPW Power-Fab
   3. UniRac
   4. Everest
   5. Panel Claw
   6. Engineer approved equal.

B. Construction and Performance
   1. Material: Fiberglass ballast baskets with 10 deg tilt or aluminum rails with adjustable tilt legs.
   2. Mounting Hardware: Galvanized Steel rails and stainless steel pins.
   3. Configuration: Refer to plans for module layout.
   4. Provide all necessary concrete ballast blocks for code compliant installation. Total system installation shall be able to withstand 90 mph winds (refer to local codes for higher wind velocity requirements).
   5. Provide a divorcing sheet to separate the ballast rack and the roof membrane. Divorce sheet shall be compatible with the roof membrane. Coordinate with the general contractor.
   6.

C. Installation Notes:
   1. Refer to architectural roof plan for the slope of the roof. Install racking system along the same elevation lines for a level appearance.
   2. Do not install any panels or racks within ten feet of the roof edge.

2.03 WIRING FOR PHOTOVOLTAIC MODULES

A. Installation Notes:
   1. All work shall be done in accordance with local applicable codes.
   2. Wiring shall be designed to achieve no more than 3% voltage drop between module and inverters.
   3. Provide DC disconnects for each string (when there are greater than 2 strings) of modules after or integral to the comviner box between inverter and modules.
   4. Provide AC disconnect between inverter and [Supply Side] [Load Side] connection. Coordinate exact locations with Utility and authority having jurisdiction.
   5. At end of string, transition from module wiring whips to metallic conduit and building wire in sealed junction box.
   6. All conduit shall be routed on top of roof on top of Erico Caddy Pyramid 25 or equivalent roof conduit supports.
   7. Submittal drawings shall include complete wiring diagram including conduit size, proposed routing, wire count and configuration, and roof connection points for approval.
   8. Provide rapid shutdown per NEC 690.12.

2.04 GRID TIE INVERTERS

A. Basis of Design:
   1. Solar Edge

B. Key Features:
   1. Capable of output power to match system size (refer to plans) nominal power output at 3 phase 480 96.0% efficiency
   2. Total harmonic distortion of <3%.
   3. Power factor shall be unity (1.0).
   4. Standby consumption (night time) shall be less than 1W. Operational consumption shall be less than 22W.
   5. Shall have integral ventilation fan.
   6. Device shall have UL 1741 certification.
   7. Anti-islanding functionality.
   8. Pure Sine-wave output.
   9. MPPT (Maximum Power Point Tracking).
   10. Integral Ground fault detection.
   11. Input voltage minimum of 600VDC compatible.
   12. Arc Fault protections shall be provided either integral to inverter or combiner box.

C. Monitoring and Communication Capabilities:

1. Building Automation System: Inverter shall have capabilities to communicate to the BAS via the Modbus or BacNet protocol. Provide the inverter manufacturer's points lists for the BAS contractor.
2. Web Based Monitoring: The inverter shall contain a web-based monitoring server that allows for remote PC monitoring by the owner.

D. Warranty: 10 year warranty against defective product.

2.05 COMBINER BOXES

A. Basis of Design:
1. Solar BOS
2. Shoals
3. Cooper
4. Engineer approved equal.

B. Key Features:
1. Minimum 600VDC voltage rating
2. UL 1741 listed
3. Reinforced, plated busbars
4. NEMA 4 or 4X enclosure rating.
5. Warranty: 5-year standard warranty.
6. Arc Fault protections shall be provided either integral to inverter or combiner box.

2.06 DC OPTIMIZERS

A. Basis of Design:
1. Solar Edge
2. Alencom
3. Engineer approved equal.

B. Key Features:
1. MPPT
2. Weighted efficiency 98.5%
3. module level voltage shutdown
4. Module level monitoring
5. Arc fault compliant
6. Rapid shut down compliant
7. UL1741
8. 600VDC compatible
9. IP68

C. Monitoring and Communication Capabilities:
1. Building Automation System: Inverter shall have capabilities to communicate to the BAS via the Modbus or BacNet protocol. Provide the inverter manufacturer's points lists for the BAS contractor.
2. Web Based Monitoring: The inverter shall contain a web-based monitoring server that allows for remote PC monitoring by the owner.

D. Warranty: 10 year warranty against defective product.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install system in accordance with manufacturer's instructions.

B. Provide all system grounding and bonding required by the NEC including connections to supports.

3.02 ACCEPTANCE TESTING

A. The Following Testing Will Be Done in Order to Insure a Fully Functional System.
1. Demonstrate operation of all modules producing power.
2. Verification testing of inverters.

3.03 TRAINING

A. The vendor will provide a minimum of one-day (6 hours) of hands-on training for customer staff to cover connecting, monitoring, and troubleshooting of the installed equipment.

3.04 DOCUMENTATION

A. The contractors shall provide three full documentation sets to the owner for approval upon completion of the installation. Documentation shall include the items detailed in the sub-sections above.

B. Documentation shall be submitted within ten working days of the completion of each testing phase. This is inclusive of draft as-built drawings. Draft drawings may include annotations done by hand. Machine generated (final) copies of all drawings shall be submitted within thirty working days of the completion of installation.

C. All documentation, including hard copy and electronic forms shall become the property of the owner.

3.05 WARRANTY

A. The bidder shall warrant the entire PV system (equipment and components) to be free from defect in materials and workmanship, under normal use and service for a period of one-year from the date of acceptance. The warranty shall cover 100% of labor and transportation cost for replacement. The bidder should include all costs associated with this warranty.

END OF SECTION 26 9000

Attachment 3

Draft Contract

AGREEMENT FOR DESIGN, INSTALLATION AND COMMISSIONING OF SOLAR/PHOTOVOLTAIC SYSTEM

This Agreement for Design, Engineering, Building and Maintain Installation of a Rooftop Ballasted Solar Photovoltaic System ("Agreement") is made as of the ___ day of _____, 2021, between Metro Waste Authority ("MWA") and _____ _____ ("Design-Builder") (together, "Parties").

1. **Services**. Design-Builder shall furnish to MWA the labor, equipment, material, and services as described in Exhibit A attached hereto and incorporated herein by this reference ("Services" or "Work").

2. **Term**. Design-Builder shall commence providing services under this Agreement upon execution of the Agreement by both parties and will diligently perform such Services as required and will achieve Final Completion of the Services on or before the ___ day of _____, 202_. Final Completion means that each of the following has been achieved in accordance with Prudent Industry Practices and the other requirements of the RFP and Contract Documents—including but not limited to: (a) Achievement of Mechanical Completion and all conditions thereto continue to be satisfied; (b) Successful testing of all systems comprising the System in accordance with the requirements of the Agreement; and (c) The System is capable of operating safely in accordance with Prudent Industry Practices and all applicable Laws.

3. **Liquidated Damages**. Time is of the essence for all Work under this Agreement. It is hereby understood and agreed that it is and will be difficult and/or impossible to ascertain and determine the actual damage that MWA will sustain in the event of and by reason of Design-Builder's delay; therefore, Design-Builder agrees that it shall pay to MWA the sum of XXXXX DOLLARS ($XXXXX) per day as liquidated damages for each and every day's delay beyond the Final Completion Date that Final Completion is not achieved. It is hereby understood and agreed that this amount is not a penalty.

   In the event any portion of the liquidated damages is not paid to MWA, MWA may deduct that amount from any money due or that may become due the Design-Builder under this Agreement. MWA may seek recovery of Liquidated Damages from the Respondent's Performance Bond Surety and/or MWA may seek recovery of Liquidated Damages from the Respondent or the Performance Bond Surety without having exhausted remedies against the other.

4. **Grants/Rebates/Incentives**. Design-Builder shall use commercially reasonable efforts to support MWA in obtaining or maintaining grants/rebates/incentives for the Site(s). Design-Builder shall use commercially reasonable efforts to support MWA in obtaining an extension, if allowed and if necessary.
5. **Submittal of Documents**. Design-Builder shall not commence the Work under this Agreement until the Design-Builder has submitted and MWA has approved the relevant documents, which are: a performance bond; payment (labor and material) bond; endorsement of insurance; and fully executed Agreement.

6. **Compensation**. As compensation for the Work, MWA shall pay to the Design-Builder_____DOLLARS ($ _____) ("Total Contract Price"). Such amount shall not be increased without the express approval of the Board.

7. **Expenses**. MWA shall not be liable to Design-Builder for any costs or expenses paid

or incurred by Design-Builder in performing services for MWA outside of this Agreement.

8. **Payment.** On a monthly basis, Design-Builder shall submit an application for payment based upon the estimated value for materials delivered or services performed under the Agreement as of the date of submission ("Application for Payment"). MWA may deduct from any payment an amount necessary to protect MWA from loss because of: (1) any sums expended by MWA in performing any of Design-Builder's obligations under the Agreement which Design-Builder has failed to perform or has performed inadequately; (2) defective Work not remedied; (3) stop notices as allowed by state law; (4) reasonable doubt that the Work can be completed for the unpaid balance of the Total Contract price or by the scheduled completion date; (5) unsatisfactory prosecution of the Work by Design-Builder; (6) unauthorized deviations from the Agreement; (7) failure of the Design-Builder to maintain or submit on a timely basis proper and sufficient documentation as required by the Agreement or by MWA during the prosecution of the Work; (8) erroneous or false estimates by the Design-Builder of the value of the Work performed; (9) any sums representing expenses, losses, or damages, as determined by MWA,incurred by MWA for which Design-Builder is liable under the Contract; and (10) any other sums which MWA is entitled to recover from Design-Builder under the terms of the Agreement or pursuant to state law. The failure by MWA to deduct any of these sums from a progress payment shall not constitute a waiver of MWA's right to such sums. MWA shall retain 10% from all amounts owing as retention.

9. **Independent Contractor**. Design-Builder, in the performance of this Agreement, shall be and act as an independent contractor. Design-Builder understands and agrees that he/she and all of his/her employees shall not be considered officers, employees, agents, partner, or joint venture of MWA, and are not entitled to benefits of any kind or nature normally provided employees of MWA and/or to which MWA's employees are normally entitled, including, but not limited to, State Unemployment Compensation or Worker's Compensation. Design-Builder shall assume full responsibility for payment of all federal, state, and local taxes or contributions, including unemployment insurance, social security and income taxes with respect to Design-Builder's employees. Design-Builder shall be liable for its own actions, including its negligence or gross negligence, and shall be liable for the acts, omissions, or errors of its agents or employees.

10. **Standard of Care**. Design-Builder's Services will be performed, findings obtained, reports and recommendations prepared in accordance with generally and currently accepted principles and practices of Solar Practices and all Applicable Law, including MWA's Design Guides and Technical Specifications. Design-Builder represents and warrants that it is fully experienced in projects of the nature and scope of Work, and that it is properly qualified, licensed and equipped to supply and perform the Work. The Work completed herein must meet the approval of MWA and shall be subject to MWA's general right of inspection and supervision to secure the satisfactorycompletion thereof.

11. **Notice to Proceed.** After the design of the system is approved by MWA, MWA shall provide a Notice to Proceed to Design-Builder at which time Design-Builder shall proceed with the construction Work.

12. **Site Examination.** Design-Builder has examined the Site and certifies that it accepts all measurements, specifications and conditions affecting the Work to be performed at the Site. By submitting its quote, Design-Builder warrants that it has made all Site

examination(s) that it deems necessary as to the condition of the Site, its accessibility for materials, workers and utilities, and Design-Builder's ability to protect existing surface and subsurface improvements. No claim for allowance of time or money will be allowed as to any other undiscovered condition on the Site.

13. **Materials**. Design-Builder shall furnish, at his/her own expense, all labor, materials, equipment, supplies and other items necessary to complete the services to be provided pursuant to this Agreement.

    13.1. **Anti-Trust Claim**. Design-Builder and its subcontractor(s) agree to assign to MWA all rights, title, and interest in and to all causes of action they may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the Contract or a subcontract. This assignment shall be made and become effective at the time MWA tenders final payment to the Design-Builder, without further acknowledgment by the parties.

    13.2. **Substitutions.** No substitutions of material from those specified in the Work Specifications shall be made without the prior written approval of MWA.

    13.3. **Hazardous Materials.** If modules using hazardous materials are tobe provided by Design-Builder, then the environmental impact of the hazardous material usage must be discussed, including any special maintenance requirements and proper disposal/recycling of the modules at the end of their useful life. Modules containing hazardous materials must comply with the EPA Landfill Disposal Requirements. Any additional costs and/or MWA responsibilities related to modules containing hazardous materials must be clearly identified.

14. **Equipment and Labor.** Design-Builder shall furnish all tools, equipment, apparatus, facilities, transportation, labor, and material necessary to furnish the services herein described, the services to be performed at such times and places as directed by and subject to the approval of the authorized MWA representative indicated in the Work specifications attached hereto.

15. **Warranty/Quality.** Unless a longer warranty is called for elsewhere in this Agreement, the Design-Builder, manufacturer, or their assigned agents shall guarantee the workmanship, product or service performed against defective workmanship, defects or failures of materials for a minimum period of five (5) years from filing the Notice of Completion.

16. **Correction of Errors.** Design-Builder shall perform, at its own cost and expense and without reimbursement from MWA, any work necessary to correct errors or omissions which are caused by the Design-Builder's failure to comply with the standardof care required herein.

17. **Change in Scope of Work.** Any change in the scope of the Work, method of performance, nature of materials or price thereof, or any other matter materially affecting the performance or nature of the Work shall not be paid for or accepted unless such change, addition, or deletion is approved in advance and in writing by a valid change order executed by MWA's Board of Directors. Design-Builder specifically understands, acknowledges, and agrees that MWA shall have the right to request any alterations, deviations, reductions, or additions to the Project or Work, and the cost thereof shall be added to or deducted from the amount of the Contract Price by fair and reasonable valuations. Design-Builder also agrees to provide MWA with all information

requested to substantiate the cost of the change order and to inform MWA whether the Work will be done by the Design-Builder or a subcontractor. In addition to any other information requested, Design-Builder shall submit, prior to approval of the change order, its request for a time extension (if any), as well as all information necessary to substantiate its belief that such change will delay the completion of the Work. If Design-Builder fails to submit its request for a time extensionor the necessary supporting information, it shall be deemed to have waived its right to request such extension.

For all approved changes in the scope of work that result in a net increase in costs to Design-Builder, the following format shall be used, supported by attached documentation.

	WORK PERFORMED OTHER THAN BY DESIGN-BUILDER	**ADD**
(a)	Material (attach itemized quantity & unit cost plus sales tax)	$
(b)	Add Labor (attach itemized hours & rates, fully encumbered)	$
(c)	Add Equipment (attach suppliers' invoice)	$
(d)	Subtotal	$
(e)	Add overhead and profit for any and all tiers of Subcontractor, the total not to exceed 10% of item (d)	$
(f)	Subtotal	$
(g)	Add overhead and profit for Design-Builder, not to exceed 5% of Item (f)	$
(h)	Subtotal	$
(i)	Add Bond and Insurance, not to exceed two percent (2%) of Item (h)	$
(j)	TOTAL	$
(k)	Time	___ Days

	WORK PERFORMED BY DESIGN-BUILDER	**ADD**
(a)	Material (attach itemized quantity & unit cost plus sales tax)	
(b)	Add Labor (attach itemized hours & rates, fully encumbered)	
(c)	Add Equipment (attach suppliers' invoice)	
(d)	Subtotal	
(e)	Add overhead and profit for Design-Builder, not to exceed 15% of item (d).	
(f)	Subtotal	
(g)	Add Bond and Insurance, not to exceed 2% of Item (f)	
(h)	TOTAL	
(i)	Time	___ Days

18. **Workers.** Design-Builder shall provide competent supervision of personnel employed on the job Site, use of equipment, and quality of workmanship. Design-Builder shall always enforce strict discipline and good order among its employees and the employees of its subcontractors and shall not employ or work any unfit person or anyone not skilled in work assigned to him or her. MWA may evaluate the Design-Builder in any manner which is permissible under the law. Any person in the employ of the Design-Builder or a subcontractor whom MWA may deem incompetent or unfit shall be dismissed from the Site and shall not again be employed at Site without written consent from MWA.

19. **Safety and Security.** Design-Builder is responsible for maintaining safety in the performance of this Agreement.

20. **Clean Up.** Debris shall be removed from the Premises. The Site shall be in order at all

times when work is not actually being performed and shall be maintained in a reasonably clean condition.

21. Protection of Work and Property. Design-Builder shall erect and properly maintain at all times, as required by conditions and progress of the Work, all necessary safeguards, signs, barriers, lights, and security persons for protection of workers and the public, and shall post danger signs warning against hazards created by the Work. In an emergency affecting life and safety of life or of Work or of adjoining property, Design-Builder, without special instruction or authorization from MWA, is permitted to act at his discretion to prevent such threatened loss or injury.

22. Force Majeure. Design-Builder shall be excused from performance hereunder during the time and to the extent that it is prevented from obtaining delivery, or performing by act of God, fire, strike, loss, or shortage of transportation facilities, lock-out, commandeering of materials, product, plant, or facilities by the government, when satisfactory evidence thereof is presented to MWA, provided that it is satisfactorily established that the non-performance is not due to the fault or neglect of the Design-Builder.

23. Termination.

23.1. For Convenience by MWA. MWA may, at any time, with or without reason, terminate this Agreement and compensate Design-Builder only for services satisfactorily rendered to the date of termination. Written notice by MWA shall be sufficient to stop further performance of services by Design-Builder. Notice shall be deemed given when received by the Design-Builder or no later than three (3) days after the day of mailing, whichever is sooner. In the event that MWA terminates this Agreement pursuant to this section, MWA shall compensate Design-Builder for work completed to date as a pro-rata amount of the full fees, costs, and expenses.

23.2. With Cause by MWA. MWA may terminate this Agreement upon giving of written notice of intention to terminate for cause. Cause shall include:

23.2.1. material violation of this Agreement by the Design-Builder; or

23.2.2. any act by Design-Builder exposing MWA to liability to others for personal injury or property damage; or

23.2.3. Design-Builder is adjudged a bankrupt, Design-Builder makes a general assignment for the benefit of creditors or a receiver is appointed on account of Design-Builder's insolvency.

Written notice by MWA shall contain the reasons for such intention to terminate and unless within three (3) calendar days after that notice the condition or violation shall cease, or satisfactory arrangements for the correction thereof be made, this Agreement shall upon the expiration of the three (3) calendar days cease and terminate. In the event of this termination, MWA may secure the required services from another Design-Builder and, if the expense, fees, and costs to MWA exceed the cost of providing the service pursuant to this Agreement, Design-Builder shall immediately pay the excess expense, fees, and/or costs to MWA upon the receipt of MWA's notice of these expense, fees, and/or costs. The foregoing provisions are in addition to and not a limitation of any otherrights or remedies available to MWA.

23.3. Upon termination, Design-Builder shall provide MWA with all documents produced maintained or collected by Design-Builder pursuant to this Agreement, whether or not such documents are final or draft documents.

24. Indemnification. To the furthest extent permitted by law, Design-Builder shall, at its sole expense, defend, indemnify, and hold harmless MWA, and its agents, representatives, officers, consultants, employees, trustees, and volunteers (the "indemnified parties") from any and all demands, losses, liabilities, claims, suits, and actions (the "claims") of any kind, nature, and description, including, but not limited to, personal injury, death, property damage, and consultants and/or attorneys' fees and costs, directly or indirectly arising out of, connected with, or resultingfrom the performance of the Agreement or from any activity, work, or thing done, permitted, or suffered by the Design-Builder under or in conjunction with this Agreement, unless the claims are caused wholly by the sole negligence or willful misconduct of the indemnified parties. MWA shall have the right to accept or reject any legal representation that Design-Builder proposes to defend the indemnified parties.

25. Insurance.

25.1. The Design-Builder shall procure and maintain at all times it performs any portion of the Services the following insurance:

25.1.1. General Liability. Two Million Dollars ($2,000,000) combined single limit per occurrence for bodily injury, personal injury and property damage in the form of Comprehensive General Liability and Contractual Liability. If Commercial General Liability or other form with a general aggregate limit is used, either the general aggregate limit shall apply separately to each project/location or the general aggregate limit shall be twice the required occurrence limit.

25.1.2. Automobile Liability Insurance. One Million Dollars ($1,000,000) combined single limit per occurrence for any automobile that shall protect the Design-Builder and MWA from all claims of bodily injury, property damage, personal injury, death, and medical payments arising performing any portion of the Services by Design-Builder.

25.1.3. Workers' Compensation and Employers' Liability Insurance. For all of the Design-Builder's employees who are subject to this Agreement and to the extent required by the applicable state or federal law, Design-Builder shall keep in full force and effect, a Workers' Compensation policy. That policy shall provide employers' liability coverage with minimum liability coverage of One Million Dollars ($1,000,000) per accident for bodily injury or disease. Design-Builder shall provide an endorsement that the insurer waives the right of subrogation against MWA and itsrespective elected officials, officers, employees, agents, representatives, consultants, trustees, and volunteers.

25.1.4. Professional Liability (Errors and Omissions). One Million Dollars ($1,000,000) for errors and omissions as appropriate to profession of engineer designing photovoltaic system, coverage to continue through completion of construction plus two years thereafter.

25.1.5. Builder's Risk Insurance. On a replacement cost value basis, Design-Builder shall procure and maintain, during the life of this Agreement, Builder's Risk (Course of Construction), or similar first party property coverage to insure against all risks of accidental physical loss and shall include without limitation the perils of vandalism and/or malicious mischief (both without any limitation regarding vacancy or occupancy), sprinkler leakage, civil authority, theft, sonic disturbance, earthquake, flood, collapse, wind, fire, war, terrorism, lightning, smoke, and rioting. Coverage shall include debris removal, demolition, increased costs due to enforcement of all applicable ordinances and/or laws in the repair and replacement of damaged and undamaged portions of the property, and reasonable costs for engineering services and expenses required as a result of any insured loss upon the Work and Project, including completed Work and Work in progress, to the full insurable value thereof.

25.1.6. Umbrella or Excess Liability. Four Million Dollars ($4,000,000) per occurrence to meet the policy limit requirements of the required policies if Design-Builder's underlying policy limits are less than required. There shall be no gap between the per occurrence amount of any underlying policy and the start of the coverage under the Umbrella Liability Insurance Policy. Any Umbrella Liability Insurance Policy shall protect Design-Builder, MWA, State, and Project Manager(s) in amounts, and that complies with all requirements for Commercial General Liability and Automobile Liability and Employers' Liability Insurance.

25.1.7. Other Insurance Provisions: The policies are to contain, or be endorsed to contain, the following provisions:

25.1.7.1. For the general liability and automobile liability policies:

25.1.7.1.1. MWA, its representatives, consultants, trustees, officers, officials, employees, agents, and volunteers ("Additional Insureds") are to be covered as additional insureds as respects liability arising out of activities performed by or on behalf of Design-Builder; instruments of Service and completed operations of the Design-Builder; premises owned, occupied or used by Design-Builder; or automobiles owned, leased, hired or borrowed by Design-Builder. The coverage shall contain no special limitations on the scope of protection afforded to the Additional Insureds.

25.1.7.1.2. For any claims related to the projects, Design-Builder's insurance coverage shall be primary insurance as respects the Additional Insureds. Any insurance or self-insurance maintained by the Additional Insureds shall be in excess of the Design-Builder's insurance and shall not contribute with it.

25.1.7.1.3. Any failure to comply with reporting or other provisions of the policies including breaches of warranties shall not affect coverage provided to

the Additional Insureds.

25.1.7.2. Design-Builder's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

25.1.7.3. Each insurance policy required by this clause shall be endorsed to state that coverage shall not be suspended, voided, canceled by either party, reduced in coverage or in limits except after thirty (30) days prior written notice by certified mail, return receipt requested, has been given to MWA.

25.1.7.4. Design-Builder shall furnish MWA with Certificates of Insurance showing maintenance of the required insurance coverage and original endorsements affecting coverage. The endorsements are to be signed by a person authorized by that insurer to bind coverage on its behalf. All endorsements are tobe received and approved by MWA before Work commence.

25.1.8. Acceptability of Insurers. Insurance is to be placed with insurers with a current A.M. Best's rating of no less than A:VII, unless otherwise acceptable to MWA.

26. Payment Bond and Performance Bond. Design-Builder shall not commence the Work until it has provided to MWA, in a form acceptable to MWA, a Payment (Labor and Material) Bond and a Performance Bond, each in an amount equivalent to one hundred percent (100%) of the Construction Price issued by a surety admitted to issue bonds in the State of Iowa and otherwise acceptable to MWA.

27. Permits and Licenses. Design-Builder and all Design-Builder's employees or agents shall secure and maintain in force, at Design-Builder's sole cost and expense, such permits and licenses as are required by law in connection with the furnishing of materials, supplies, or services pursuant to this Agreement.

28. Assignment. The rights, burdens, duties, or obligations of Design-Builder pursuant to this Agreement shall not be assigned by the Design-Builder without the prior written consent of MWA.

29. Subcontractors. Subcontractors, if any, engaged by the Design-Builder for any Service or Work under this Agreement shall be subject to the approval of MWA. Design- Builder agrees to bind every subcontractor by the terms of the Agreement as far as suchterms are applicable to subcontractor's work, including, without limitation, all indemnification, insurance, bond, and warranty requirements. If Design-Builder shall subcontract any part of this Agreement, Design-Builder shall be fully responsible to MWA for acts and omissions of its subcontractor and of persons either directly or indirectly employed by itself. Nothing contained in this Agreement shall create any contractual relations between any subcontractor and MWA.

30. Compliance with Laws. Design-Builder shall observe and comply with all rules and regulations of the governing board of MWA and all federal, state, and local laws, ordinances and regulations. Design-Builder shall give all notices required by any law, ordinance, rule and regulation bearing on conduct of the Work as indicated or specified. If Design-Builder observes that any of the Work required by this Agreement is at variance with any such laws, ordinance, rules or regulations, Design-Builder shall notify

MWA, in writing, and, at the sole option of MWA, any necessary changes to the scope of the Work shall be made and this Agreement shall be appropriately amendedin writing, or this Agreement shall be terminated effective upon Design-Builder's receipt of a written termination notice from MWA. If Design-Builder performs any work that is in violation of any laws, ordinances, rules or regulations, without first notifying MWA of the violation, Design-Builder shall bear all costs arising therefrom. Design-Builder hereby acknowledges that the Project Manager(s), the Project Inspector(s), and MWA have authority to approve and/or stop Work if the Design-Builder's Work does not comply with the requirements of the Contract Documents or all applicable laws. Design-Builder shall be liable for any delaycaused by its non-compliant Work.

31. Certified Payroll Records: Design-Builder and its subcontractor(s) shall keep accurate certified payroll records of employees and shall make them available to MWA immediately upon request.

32. Audit. Design-Builder shall establish and maintain books, records, and systems of account, in accordance with generally accepted accounting principles, reflecting all business operations of Design-Builder transacted under this Agreement. Design-Builder shall retain these books, records, and systems of account during the Term of this Agreement and for three (3) years thereafter. Design-Builder shall permit MWA, its agent, other representatives, or an independent auditor to audit, examine, and make excerpts, copies, and transcripts from all books and records, and to make audit(s) of all billing statements, invoices, records, and other data related to the Services covered by this Agreement. Audit(s) may be performed at any time, provided that MWA shallgive reasonable prior notice to Design-Builder and shall conduct audit(s) during Design-Builder's normal business hours, unless Design-Builder otherwise consents.

33. Anti-Discrimination. It is the policy of MWA that in connection with all work performed under contracts there be no discrimination against any employee engaged in the work because of race, color, ancestry, national origin, religious creed, physical disability, medical condition, marital status, sexual orientation, gender, age or any other protected class. In addition, the Design-Builder agrees to require like compliance by all its subcontractors.

34. Environmental Attributes and Energy Credits. MWA shall own all right, title, and interest associated with or resulting from the development, construction, installation and ownership of any facilities installed on the Project ("Generating Facilities"). This ownership includes the production, sale, purchase or use of the energy output including, and includes without limitation:

34.1. All Environmental Incentives associated in any way with the Generating Facilities. "Environmental Incentives" means all rights, credits (including tax credits), rebates, benefits, reductions, offsets and allowances and entitlements of any kind, howsoever entitled or named (including carbon credits and allowances), whether arising under federal, state or local law, international treaty, trade association membership or the like arising from the Generating Facilities or the energy produced or otherwise from the development, construction, installation or ownership of the Generating Facilities or the production, sale, purchase, consumption or use of the energy produced from the Generating Facilities. Without limiting the forgoing, Environmental Incentives includes green tags, renewable energy credits, tradable renewable certificates, portfolio energy credits, the right to apply for (and entitlement to receive) incentives under the California Solar Initiative or other incentive programs offered by the State of California and

the right to claim federal income tax credits under Section 45 or 48 of the Code as such credits are available arising from the Environmental Attributes of the Generating Facilities or the energy produced from the Generating Facilities or the production, sale, purchase, consumption or use of the energy produced from the Generating Facilities.

34.2. All rights and interests in performance-based incentive payments.

34.3. All reporting rights and the exclusive rights to claim responsibility for the delivery of the energy from the Generating Facilities.

34.4. All reporting rights and the exclusive rights to claim responsibility for the reductions in emissions of pollution and greenhouse gases resulting from the generation and delivery of energy.

34.5. All carbon reduction credits and/or renewal energy credits, however those terms are defined under applicable laws.

35. Limitation of MWA Liability. Other than as provided in this Agreement, MWA's financial obligations under this Agreement shall be limited to the payment of the compensation provided in this Agreement. Notwithstanding any other provision of this Agreement, in no event, shall MWA be liable, regardless of whether any claim is based on contract or tort, for any special, consequential, indirect or incidental damages, including, but not limited to, lost profits or revenue, arising out of or in connection with this Agreement for the services performed in connection with this Agreement.

36. Attorney Fees and Costs. Should litigation be necessary to enforce any terms or provisions of this Agreement, then each party shall bear its own litigation and collection expenses, witness fees, court costs, and attorney's fees.

37. Notice. Any notice required or permitted to be given under this Agreement shall be deemed to have been given, served, and received if given in writing and either personally delivered or deposited in the United States mail, registered or certified mail, postage prepaid, return receipt required, or sent by overnight delivery service, or facsimile transmission, addressed as follows:

MWA
ADDRESS

Design-Builder
ADDRESS

Any notice personally given or sent by facsimile transmission shall be effective upon receipt. Any notice sent by overnight delivery service shall be effective the business day next following delivery thereof to the overnight delivery service. Any notice given by mail shall be effective three (3) days after deposit in the United States mail.

38. Governing Law. This Agreement shall be governed by and the rights, duties and obligations of the Parties shall be determined and enforced in accordance with the laws of the State of Iowa. The Parties further agree that any action or proceeding brought to enforce the terms and conditions of this Agreement shall be maintained in Polk County, Iowa where MWA's administrative offices are located.

39. **Severability**. If any term, condition or provision of this Agreement is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remaining provisions will nevertheless continue in full force and effect, and shall not be affected, impaired or invalidated in any way.

40. **Waiver**. The waiver by either party of any breach of any term, covenant, or condition herein contained shall not be deemed to be a waiver of such term, covenant, condition, or any subsequent breach of the same or any other term, covenant, or condition herein contained.

41. **Captions and Interpretations.** Paragraph headings in this Agreement are used solely for convenience, and shall be wholly disregarded in the construction of this Agreement. No provision of this Agreement shall be interpreted for or against a party because that party of its legal representative drafted such provision, and this Agreement shall be construed as if jointly prepared by the Parties.

42. **Incorporation of Recitals and Exhibits**. The Recitals and each exhibit attached hereto are hereby incorporated herein by reference.

43. **Cooperation.** The Parties hereto hereby agree to execute all such other documents and to take all such other action as may be reasonably necessary to effect the purposes of this Agreement.

44. **Binding Contract.** This Agreement shall be binding upon the parties hereto and upon their successors and assigns, and shall inure to the benefit of said parties and their successors and assigns.

45. **Authority to Bind Parties.** Neither party in the performance of any and all duties under this Agreement, except as otherwise provided in this Agreement, has any authority to bind the other to any agreements or undertakings.

46. **No Rights in Third Parties.** This Agreement does not create any rights in, or inure to the benefit of, any third party except as expressly provided herein.

47. **Signature Authority.** Each party has the full power and authority to enter into and perform this Agreement, and the person signing this Agreement on behalf of each Party has been properly authorized and empowered to enter into this Agreement.

48. **Counterparts.** This Agreement and all amendments to it may be executed in counterparts, each of which shall be deemed an original. A facsimile or electronic signature shall be deemed to be the equivalent of the actual original signature. All counterparts so executed shall constitute one document binding all the Parties hereto.

49. **Provisions Required By Law Deemed Inserted.** Each and every provision of law and clause required by law to be inserted in this Agreement shall be deemed to be inserted herein and this Agreement shall be read and enforced as though it were included therein.

50. **Entire Contract.** This Agreement sets forth the entire contract between the parties hereto and fully supersedes any and all prior agreements, understanding, written or oral, between the parties hereto pertaining to the subject matter thereof. This Agreement may be modified only in writing upon mutual consent.

IN WITNESS WHEREOF, the Parties hereto have executed this Agreement on the date indicated below.

MWA

Date:_____, 20

By: _____

Print Name: _____

Print Title: _____

Address:_____

Telephone:_____

Facsimile:_____

E-Mail:_____

[DESIGN-BUILDER]

Date:_____, 20

By: _____

Print Name: _____

Print Title: _____

License No.:_____

Address:_____

Telephone:_____

Facsimile:_____

E-Mail:_____

Attachment 4

Utility Statements for 300 East Locust Street, Des Moines, IA 50309 (12 Months)

MIDAMERICAN ENERGY COMPANY
Obsessively, Relentlessly At Your Service™

800-329-6261
MidAmericanEnergy.com

› Date Billed: 06/18/20
› Account Number: 17581-46011
› Invoice 000657280

Total Amount Due by 07/10/20 **$4,622.54**

A late payment charge of $69.34 will be assessed if payment is received after 07/10/20.

Service For:
METRO WASTE AUTHORITY
300 E LOCUST ST
DES MOINES IA 50309

Current Charges Summary

› Last Bill	› Payments and Credits	› New Charges
$2,822.39	$2,822.39	$4,622.54

Payments and Credits Applied to Your Account

05/28/20	Check	$2,822.39

New Charges This Month

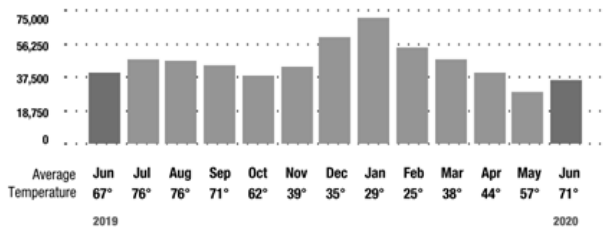
Electric Charges	$4,622.54

See details about this bill on Page 3

You Used

Electric Usage

	Last Year	Current
Monthly kWh Usage	40,800	36,150
Number of Days	32	30
Average Temperature	67°	71°
Average Cost per Day	$150.81	$154.08
Average Usage per Day	1,275	1,205



[Keep]

[Send]

MIDAMERICAN ENERGY COMPANY
Obsessively, Relentlessly At Your Service™

› Account Number: 17581-46011

Total Amount Due by 07/10/20 **$4,622.54**

For online bill payment log in to My Account at MidAmericanEnergy.com

ICF00171014550020100110

☐ Monthly ☐ One Time

$ _____ My Contribution ☐ $5 ☐ $10 ☐ $20

I want to contribute to the Renewable Advantage Program

METRO WASTE AUTHORITY
ATTN MANAGEMENT PROFESSIONS
STE 200 NORTH
1080 JORDAN CREEK PKWY
WEST DES MOINES IA 50266-6016

MidAmerican Energy Company
PO Box 8020
Davenport IA 52808-8020
14 BG 13

01001758146011900000462254000004691880000000000002

MIDAMERICAN ENERGY COMPANY
Obsessively, Relentlessly At Your Service™

Were you unable to resolve a dispute with MidAmerican Energy? If you have a complaint that is unresolved, you may request assistance from the Iowa Utilities Board by calling 515-725-7321 or the toll-free number, 877-565-4450, writing to 1375 E. Court Ave, Des Moines Iowa 50319-0069, or sending an email to customer@iub.iowa.gov. You may view tariff and rate schedule information on our website at MidAmericanEnergy.com or at any of our customer office locations.

Our GreenAdvantage® program allows you to promote a verified amount of renewable energy your business uses. In 2019, 61.3% of the energy delivered to your business came from renewable sources. Learn more about GreenAdvantage and how we can help you meet your business sustainability goals at **MidAmericanEnergy.com**.

Don't let summer thunderstorms leave you in the dark! Sign up for outage alerts by calling 888-427-5632 or logging in to your My Account at **MidAmericanEnergy.com**.

Summer billing season starts in June and runs through September. For tips on saving energy during the summer or to start Budget Billing for a more predictable monthly bill, visit **MidAmericanEnergy.com**.

June is National Safety Month. June is also peak construction season for Safety Through Asset Reliability (STAR) infrastructure improvement projects. If you see a crew working near your property or the roadway, be sure to slow down, move over and stay clear of the work area.

Visit MidAmericanEnergy.com to make a payment online

Call us at 800-432-4524 to make a phone payment

Visit MidAmericanEnergy.com/payment-options to find the closest customer office or walk-in payment location

Mail your payment to:
MidAmerican Energy Company
PO Box 8020
Davenport, IA 52808-8020

CARES SUPPORTS COMMUNITIES

We've pledged $500,000 to COVID-19 response efforts through MidAmerican Energy CARES. Donations have helped more than 30 organizations including food banks, community foundations and United Way agencies across our territory. Learn more at **MidAmericanEnergy.com**.

MIDAMERICAN ENERGY COMPANY
Obsessively, Relentlessly At Your Service℠

800-329-6261
MidAmericanEnergy.com

› Date Billed: 06/18/20
› Account Number: 17581-46011
› Invoice 000657280

Total Amount Due by 07/10/20 $4,622.54

A late payment charge of $69.34 will be assessed if payment is received after 07/10/20.

Electric Charges Detail

Meter No: S64186056

30 Billing Days		
Company Reading	06/18/20	14817
Company Reading	05/19/20	14576
Current Usage		241
Meter Multiplier		150
Total kWh		**36,150**
Company Reading	06/18/20	1.143
Meter Multiplier		150
Peak kW		**171**
Company Reading	06/18/20	4019
Company Reading	05/19/20	3905
Current Usage		114
Meter Multiplier		150
Total kVARh		**17,100**
Company Reading	06/18/20	0.751
Meter Multiplier		150
Reactive Demand		**113**

Rate: LS Large General Summer

Supply and Delivery		**$4,056.64**
▶ Basic Service Charge		$175.00
▶ Energy Charge	36,150 X 0.07088	$2,562.31
▶ Rate Equalization Factor	36,150 X -0.00218	-$78.81
▶ Energy Adjustment Clause	36,150 X 0.00682	$246.54
▶ Transmission Cost Adjustment	200 X 0.93000	$186.00
▶ KW Demand Charge	200 X 4.81000	$962.00
▶ Reactive Demand Charge	13 X 0.50000	$6.50
▶ Energy Efficiency Charge	36,150 X 0.00093	$33.62
▶ Demand Response Charge	36,150 X 0.00043	$15.54
▶ Income Tax Adjustment	36,150 X -0.00144	-$52.06
Taxes and Fees		**$565.90**
▶ 7.50% Electric Franchise Fee		$304.25
▶ 6.00% State Sales Tax		$261.65
	Total	**$4,622.54**

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METRO WASTE AUTHORITY

MIDAMERICAN ENERGY COMPANY
Obsessively, Relentlessly At Your Service™

800-329-6261
MidAmericanEnergy.com

› Date Billed: 07/20/20
› Account Number: 17581-46011
› Invoice 501806252

Total Amount Due by 08/11/20 **$5,039.91**

A late payment charge of $75.60 will be assessed if payment is received after 08/11/20.

Service For:
METRO WASTE AUTHORITY
300 E LOCUST ST
DES MOINES IA 50309

Current Charges Summary

› Last Bill	› Payments and Credits	› New Charges
$4,622.54	$4,622.54	$5,039.91

Payments and Credits Applied to Your Account

06/29/20	Check	$4,622.54

New Charges This Month

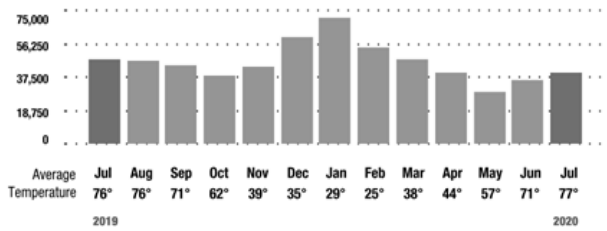
Electric Charges	$5,039.91

See details about this bill on Page 3

You Used

Electric Usage

	Last Year	Current
Monthly kWh Usage	47,550	40,500
Number of Days	30	29
Average Temperature	76°	77°
Average Cost per Day	$177.22	$173.79
Average Usage per Day	1,585	1,397



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MIDAMERICAN ENERGY COMPANY
Obsessively, Relentlessly At Your Service™

› Account Number: 17581-46011

Total Amount Due by 08/11/20 **$5,039.91**

For online bill payment log in to My Account at MidAmericanEnergy.com

ICF00203007812020100110

☐ Monthly ☐ One Time

$ _____ ☐ $5 ☐ $10 ☐ $20
My Contribution
I want to contribute to the Renewable Advantage Program

METRO WASTE AUTHORITY
ATTN MANAGEMENT PROFESSIONS
STE 200 NORTH
1080 JORDAN CREEK PKWY
WEST DES MOINES IA 50266-6016

MidAmerican Energy Company
PO Box 8020
Davenport IA 52808-8020
14 BG 13

0100175814601190000050399100000511551000000000008

MIDAMERICAN ENERGY COMPANY
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Were you unable to resolve a dispute with MidAmerican Energy? If you have a complaint that is unresolved, you may request assistance from the Iowa Utilities Board by calling 515-725-7321 or the toll-free number, 877-565-4450, writing to 1375 E. Court Ave, Des Moines Iowa 50319-0069, or sending an email to customer@iub.iowa.gov. You may view tariff and rate schedule information on our website at MidAmericanEnergy.com or at any of our customer office locations.

We are continuously working to provide safe and reliable service through our STAR (Safety Through Asset Reliability) initiatives. Substation animal protection, smart sensors and gas system replacement projects are just a few STAR projects that keep your service reliable and affordable.

Summer billing season starts in June and runs through September. For tips on saving energy during the summer or to start Budget Billing for a more predictable monthly bill, visit **MidAmericanEnergy.com**.

Visit MidAmericanEnergy.com to make a payment online

Call us at 800-432-4524 to make a phone payment

Visit MidAmericanEnergy.com/payment-options to find the closest customer office or walk-in payment location

Mail your payment to:
MidAmerican Energy Company
PO Box 8020
Davenport, IA 52808-8020

MIDAMERICAN ENERGY COMPANY
Obsessively, Relentlessly At Your Service™

800-329-6261
MidAmericanEnergy.com

› Date Billed: 07/20/20
› Account Number: 17581-46011
› Invoice 501806252

Total Amount Due by 08/11/20 $5,039.91

A late payment charge of $75.60 will be assessed if payment is received after 08/11/20.

Electric Charges Detail

Meter No: S64186056

29 Billing Days		
Company Reading	07/17/20	15087
Company Reading	06/18/20	14817
Current Usage		270
Meter Multiplier		150
Total kWh		**40,500**
Company Reading	07/17/20	1.231
Meter Multiplier		150
Peak kW		**185**
Company Reading	07/17/20	4161
Company Reading	06/18/20	4019
Current Usage		142
Meter Multiplier		150
Total kVARh		**21,300**
Company Reading	07/17/20	0.828
Meter Multiplier		150
Reactive Demand		**124**

Rate: LS Large General Summer

Supply and Delivery		**$4,422.91**
▶ Basic Service Charge		$175.00
▶ Energy Charge	40,000 X 0.07088	$2,835.20
▶ Energy Charge	500 X 0.06069	$30.35
▶ Rate Equalization Factor	40,500 X -0.00218	-$88.29
▶ Energy Adjustment Clause	40,500 X 0.00775	$313.88
▶ Transmission Cost Adjustment	200 X 0.93000	$186.00
▶ KW Demand Charge	200 X 4.81000	$962.00
▶ Reactive Demand Charge	24 X 0.50000	$12.00
▶ Energy Efficiency Charge	40,500 X 0.00093	$37.67
▶ Demand Response Charge	40,500 X 0.00043	$17.42
▶ Income Tax Adjustment	40,500 X -0.00144	-$58.32
Taxes and Fees		**$617.00**
▶ 7.50% Electric Franchise Fee		$331.72
▶ 6.00% State Sales Tax		$285.28
	Total	**$5,039.91**

ICFO02030078120202001 00
METRO WASTE AUTHORITY

MIDAMERICAN ENERGY COMPANY
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800-329-6261
MidAmericanEnergy.com

› Date Billed: 07/20/20
› Account Number: 17581-46011
› Invoice 501806252

Total Amount Due by 08/11/20 **$5,039.91**

A late payment charge of $75.60 will be assessed if payment is received after 08/11/20.

Service For:
METRO WASTE AUTHORITY
300 E LOCUST ST
DES MOINES IA 50309

Current Charges Summary

› Last Bill	› Payments and Credits	› New Charges
$4,622.54	$4,622.54	$5,039.91

Payments and Credits Applied to Your Account

06/29/20	Check	$4,622.54

New Charges This Month

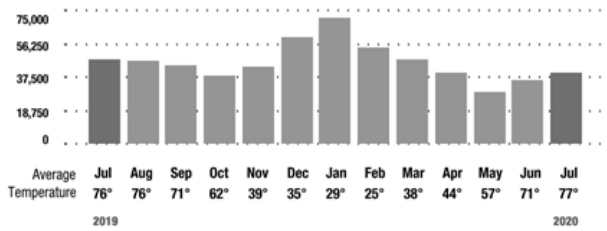
Electric Charges	$5,039.91

See details about this bill on Page 3

You Used

Electric Usage

	Last Year	Current
Monthly kWh Usage	47,550	40,500
Number of Days	30	29
Average Temperature	76°	77°
Average Cost per Day	$177.22	$173.79
Average Usage per Day	1,585	1,397



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MIDAMERICAN ENERGY COMPANY
Obsessively, Relentlessly At Your Service™

› Account Number: 17581-46011

Total Amount Due by 08/11/20 **$5,039.91**

For online bill payment log in to My Account at MidAmericanEnergy.com

ICF00203007812020100110

☐ Monthly ☐ One Time

$ _____ ☐ $5 ☐ $10 ☐ $20
My Contribution
I want to contribute to the Renewable Advantage Program

METRO WASTE AUTHORITY
ATTN MANAGEMENT PROFESSIONS
STE 200 NORTH
1080 JORDAN CREEK PKWY
WEST DES MOINES IA 50266-6016

MidAmerican Energy Company
PO Box 8020
Davenport IA 52808-8020
14 BG 13

0100175814601190000050399100000511551000000000008

MIDAMERICAN ENERGY COMPANY
Obsessively, Relentlessly At Your Service℠

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MidAmerican Energy Company
PO Box 8020
Davenport, IA 52808-8020

MIDAMERICAN ENERGY COMPANY
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800-329-6261
MidAmericanEnergy.com

› Date Billed: 07/20/20
› Account Number: 17581-46011
› Invoice 501806252

Total Amount Due by 08/11/20 $5,039.91

A late payment charge of $75.60 will be assessed if payment is received after 08/11/20.

Electric Charges Detail

Meter No: S64186056

29 Billing Days		
Company Reading	07/17/20	15087
Company Reading	06/18/20	14817
Current Usage		270
Meter Multiplier		150
Total kWh		**40,500**
Company Reading	07/17/20	1.231
Meter Multiplier		150
Peak kW		**185**
Company Reading	07/17/20	4161
Company Reading	06/18/20	4019
Current Usage		142
Meter Multiplier		150
Total kVARh		**21,300**
Company Reading	07/17/20	0.828
Meter Multiplier		150
Reactive Demand		**124**

Rate: LS Large General Summer

Supply and Delivery		**$4,422.91**
▶ Basic Service Charge		$175.00
▶ Energy Charge	40,000 X 0.07088	$2,835.20
▶ Energy Charge	500 X 0.06069	$30.35
▶ Rate Equalization Factor	40,500 X -0.00218	-$88.29
▶ Energy Adjustment Clause	40,500 X 0.00775	$313.88
▶ Transmission Cost Adjustment	200 X 0.93000	$186.00
▶ KW Demand Charge	200 X 4.81000	$962.00
▶ Reactive Demand Charge	24 X 0.50000	$12.00
▶ Energy Efficiency Charge	40,500 X 0.00093	$37.67
▶ Demand Response Charge	40,500 X 0.00043	$17.42
▶ Income Tax Adjustment	40,500 X -0.00144	-$58.32
Taxes and Fees		**$617.00**
▶ 7.50% Electric Franchise Fee		$331.72
▶ 6.00% State Sales Tax		$285.28
	Total	**$5,039.91**

ICFO02030078120202001 00
METRO WASTE AUTHORITY

MIDAMERICAN ENERGY COMPANY
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800-329-6261
MidAmericanEnergy.com

› Date Billed: 09/16/20
› Account Number: 17581-46011
› Invoice 503927739

Total Amount Due by 10/08/20 **$4,704.35**

A late payment charge of $70.57 will be assessed if payment is received after 10/08/20.

Service For:
METRO WASTE AUTHORITY
300 E LOCUST ST
DES MOINES IA 50309

Current Charges Summary

› Last Bill	› Payments and Credits	› New Charges
-$17.22	$0.00	$4,721.57

Payments and Credits Applied to Your Account
No Payments Applied

New Charges This Month

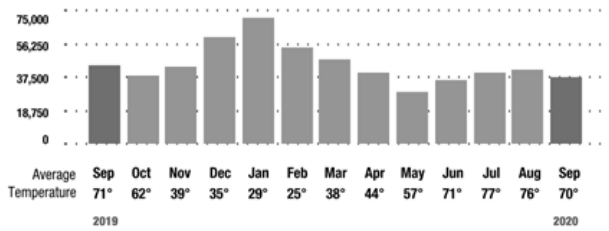
Electric Charges	$4,721.57

See details about this bill on Page 3

You Used

Electric Usage

	Last Year	Current
Monthly kWh Usage	44,850	38,100
Number of Days	32	30
Average Temperature	71°	70°
Average Cost per Day	$160.10	$157.38
Average Usage per Day	1,402	1,270



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MIDAMERICAN ENERGY COMPANY
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› Account Number: 17581-46011

Total Amount Due by 10/08/20 **$4,704.35**

For online bill payment log in to My Account at MidAmericanEnergy.com

ICF00261011851020120110

☐ Monthly ☐ One Time

$ _____ My Contribution ☐ $5 ☐ $10 ☐ $20

I want to contribute to the Renewable Advantage Program

METRO WASTE AUTHORITY
ATTN MANAGEMENT PROFESSIONS
STE 200 NORTH
1080 JORDAN CREEK PKWY
WEST DES MOINES IA 50266-6016

MidAmerican Energy Company
PO Box 8020
Davenport IA 52808-8020
3 14 BG 13

01001758146011900000470435000004774920000000000003

MIDAMERICAN ENERGY COMPANY
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Were you unable to resolve a dispute with MidAmerican Energy? If you have a complaint that is unresolved, you may request assistance from the Iowa Utilities Board by calling 515-725-7321 or the toll-free number, 877-565-4450, writing to 1375 E. Court Ave, Des Moines Iowa 50319-0069, or sending an email to customer@iub.iowa.gov. You may view tariff and rate schedule information on our website at MidAmericanEnergy.com or at any of our customer office locations.

Keeping you safe. Your bill this month includes important natural gas safety information. Review the enclosed brochure for information on how to prevent natural gas leaks and what to do if you suspect a leak.

Stay safe this harvest season. Be aware of overhead power lines and required machine clearance when working in fields this fall.

Summer billing season started in June and runs through September. For tips on saving energy during the summer or to start Budget Billing for a more predictable monthly bill, visit **MidAmericanEnergy.com**.

Visit MidAmericanEnergy.com to make a payment online

Call us at 800-432-4524 to make a phone payment

Visit MidAmericanEnergy.com/payment-options to find the closest customer office or walk-in payment location

Mail your payment to:
MidAmerican Energy Company
PO Box 8020
Davenport, IA 52808-8020

SCAMS

Beware of threatening calls from scammers who pose as MidAmerican Energy employees and demand immediate payment for fake past due bills. HANG UP and log in to My Account to check your real bill.

Visit **MidAmericanEnergy.com** for more scam tips.

MIDAMERICAN ENERGY COMPANY
Obsessively, Relentlessly At Your Service™

800-329-6261
MidAmericanEnergy.com

› Date Billed: 09/16/20
› Account Number: 17581-46011
› Invoice 503927739

Total Amount Due by 10/08/20 $4,704.35

A late payment charge of $70.57 will be assessed if payment is received after 10/08/20.

Electric Charges Detail

Meter No: S64186056

30 Billing Days		
Company Reading	09/16/20	15620
Company Reading	08/17/20	15366
Current Usage		254
Meter Multiplier		150
Total kWh		**38,100**
Company Reading	09/16/20	1.199
Meter Multiplier		150
Peak kW		**180**
Company Reading	09/16/20	4423
Company Reading	08/17/20	4304
Current Usage		119
Meter Multiplier		150
Total kVARh		**17,850**
Company Reading	09/16/20	0.793
Meter Multiplier		150
Reactive Demand		**119**

Rate: LS Large General Summer

Supply and Delivery		**$4,242.20**
▶ Basic Service Charge		$175.00
▶ Energy Charge	38,100 X 0.07088	$2,700.53
▶ Rate Equalization Factor	38,100 X -0.00218	-$83.06
▶ Energy Adjustment Clause	38,100 X 0.00775	$295.28
▶ Transmission Cost Adjustment	200 X 0.93000	$186.00
▶ KW Demand Charge	200 X 4.81000	$962.00
▶ Reactive Demand Charge	19 X 0.50000	$9.50
▶ Energy Efficiency Charge	38,100 X 0.00093	$35.43
▶ Demand Response Charge	38,100 X 0.00043	$16.38
▶ Income Tax Adjustment	38,100 X -0.00144	-$54.86
Taxes and Fees		**$479.37**
▶ 5.00% Electric Franchise Fee		$212.11
▶ 6.00% State Sales Tax		$267.26
	Total	**$4,721.57**

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METRO WASTE AUTHORITY

MIDAMERICAN ENERGY COMPANY
Obsessively, Relentlessly At Your Service™

800-329-6261
MidAmericanEnergy.com

› Date Billed: 10/15/20
› Account Number: 17581-46011
› Invoice 505021147

Total Amount Due by 11/06/20 **$2,893.15**

A late payment charge of $43.40 will be assessed if payment is received after 11/06/20.

Service For:
METRO WASTE AUTHORITY
300 E LOCUST ST
DES MOINES IA 50309

Current Charges Summary

› Last Bill	› Payments and Credits	› New Charges
$4,704.35	$4,704.35	$2,893.15

Payments and Credits Applied to Your Account

09/30/20	Check	$4,704.35

New Charges This Month

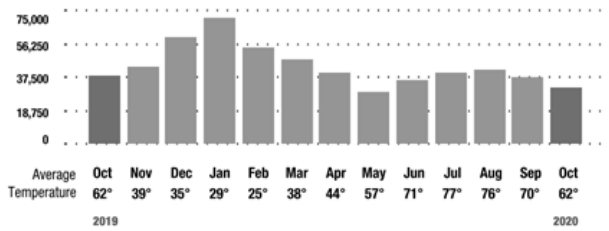
Electric Charges	$2,893.15

See details about this bill on Page 3

You Used

Electric Usage

	Last Year	Current
Monthly kWh Usage	38,550	31,800
Number of Days	29	29
Average Temperature	62°	62°
Average Cost per Day	$114.59	$99.76
Average Usage per Day	1,329	1,097



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MIDAMERICAN ENERGY COMPANY
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› Account Number: 17581-46011

Total Amount Due by 11/06/20 **$2,893.15**

For online bill payment log in to My Account at MidAmericanEnergy.com

ICF00290013382020180110

☐ Monthly ☐ One Time

$ _____ ☐ $5 ☐ $10 ☐ $20

My Contribution

I want to contribute to the Renewable Advantage Program

METRO WASTE AUTHORITY
ATTN MANAGEMENT PROFESSIONS
STE 200 NORTH
1080 JORDAN CREEK PKWY
WEST DES MOINES IA 50266-6016

MidAmerican Energy Company
PO Box 8020
Davenport IA 52808-8020
1 14 BG 13

0100175814601190000028931500000293655000000000006

MIDAMERICAN ENERGY COMPANY
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October starts winter billing season, which runs through May. Since the cost to produce electricity is lower in the winter, the price you pay per kilowatt hour is less. For tips on saving energy during the winter or to start Budget Billing for a more predictable monthly bill, visit **MidAmericanEnergy.com**.

Safety Through Asset Reliability (STAR) initiatives are how we deliver on our promise to provide you reliable, affordable energy for generations to come. Have you seen a STAR project happening in your neighborhood? Learn more at **MidAmericanEnergy.com/STAR**.

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Call us at 800-432-4524 to make a phone payment

Visit MidAmericanEnergy.com/payment-options to find the closest customer office or walk-in payment location

Mail your payment to:
MidAmerican Energy Company
PO Box 8020
Davenport, IA 52808-8020

MIDAMERICAN ENERGY COMPANY
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800-329-6261
MidAmericanEnergy.com

› Date Billed: 10/15/20
› Account Number: 17581-46011
› Invoice 505021147

Total Amount Due by 11/06/20 $2,893.15

A late payment charge of $43.40 will be assessed if payment is received after 11/06/20.

Electric Charges Detail

Meter No: S64186056

29 Billing Days		
Company Reading	10/15/20	15832
Company Reading	09/16/20	15620
Current Usage		212
Meter Multiplier		150
Total kWh		**31,800**
Company Reading	10/15/20	0.918
Meter Multiplier		150
Peak kW		**138**
Company Reading	10/15/20	4508
Company Reading	09/16/20	4423
Current Usage		85
Meter Multiplier		150
Total kVARh		**12,750**
Company Reading	10/15/20	0.678
Meter Multiplier		150
Reactive Demand		**102**

Rate: LS Large General Winter

Supply and Delivery		**$2,599.42**
▶ Basic Service Charge		$175.00
▶ Energy Charge	31,800 X 0.03619	$1,150.84
▶ Rate Equalization Factor	31,800 X -0.00218	-$69.32
▶ Energy Adjustment Clause	31,800 X 0.00775	$246.45
▶ Transmission Cost Adjustment	200 X 0.93000	$186.00
▶ KW Demand Charge	200 X 4.56000	$912.00
▶ Reactive Demand Charge	2 X 0.50000	$1.00
▶ Energy Efficiency Charge	31,800 X 0.00093	$29.57
▶ Demand Response Charge	31,800 X 0.00043	$13.67
▶ Income Tax Adjustment	31,800 X -0.00144	-$45.79
Taxes and Fees		**$293.73**
▶ 5.00% Electric Franchise Fee		$129.97
▶ 6.00% State Sales Tax		$163.76
	Total	**$2,893.15**

ICFO02900133820202001 00
METRO WASTE AUTHORITY

MIDAMERICAN ENERGY COMPANY
Obsessively, Relentlessly At Your Service™

800-329-6261
MidAmericanEnergy.com

› Date Billed: 10/15/20
› Account Number: 17581-46011
› Invoice 505021147

Total Amount Due by 11/06/20 **$2,893.15**

A late payment charge of $43.40 will be assessed if payment is received after 11/06/20.

Service For:
METRO WASTE AUTHORITY
300 E LOCUST ST
DES MOINES IA 50309

Current Charges Summary

› Last Bill	› Payments and Credits	› New Charges
$4,704.35	$4,704.35	$2,893.15

Payments and Credits Applied to Your Account

09/30/20	Check	$4,704.35

New Charges This Month

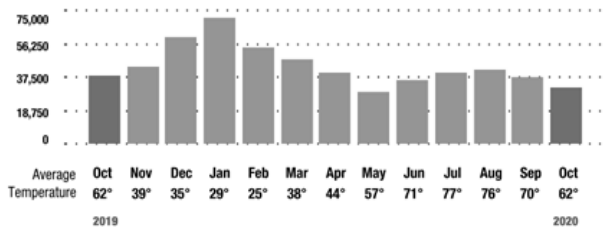
Electric Charges	$2,893.15

See details about this bill on Page 3

You Used

Electric Usage

	Last Year	Current
Monthly kWh Usage	38,550	31,800
Number of Days	29	29
Average Temperature	62°	62°
Average Cost per Day	$114.59	$99.76
Average Usage per Day	1,329	1,097



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MIDAMERICAN ENERGY COMPANY
Obsessively, Relentlessly At Your Service™

› Account Number: 17581-46011

Total Amount Due by 11/06/20 **$2,893.15**

For online bill payment log in to My Account at MidAmericanEnergy.com

ICF00290013382020180110

☐ Monthly ☐ One Time

$ _____ ☐ $5 ☐ $10 ☐ $20

My Contribution

I want to contribute to the Renewable Advantage Program

METRO WASTE AUTHORITY
ATTN MANAGEMENT PROFESSIONS
STE 200 NORTH
1080 JORDAN CREEK PKWY
WEST DES MOINES IA 50266-6016

MidAmerican Energy Company
PO Box 8020
Davenport IA 52808-8020
1 14 BG 13

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MIDAMERICAN ENERGY COMPANY
Obsessively, Relentlessly At Your Service℠

Were you unable to resolve a dispute with MidAmerican Energy? If you have a complaint that is unresolved, you may request assistance from the Iowa Utilities Board by calling 515-725-7321 or the toll-free number, 877-565-4450, writing to 1375 E. Court Ave, Des Moines Iowa 50319-0069, or sending an email to customer@iub.iowa.gov. You may view tariff and rate schedule information on our website at MidAmericanEnergy.com or at any of our customer office locations.

October starts winter billing season, which runs through May. Since the cost to produce electricity is lower in the winter, the price you pay per kilowatt hour is less. For tips on saving energy during the winter or to start Budget Billing for a more predictable monthly bill, visit **MidAmericanEnergy.com**.

Safety Through Asset Reliability (STAR) initiatives are how we deliver on our promise to provide you reliable, affordable energy for generations to come. Have you seen a STAR project happening in your neighborhood? Learn more at **MidAmericanEnergy.com/STAR**.

Visit MidAmericanEnergy.com to make a payment online

Call us at 800-432-4524 to make a phone payment

Visit MidAmericanEnergy.com/payment-options to find the closest customer office or walk-in payment location

Mail your payment to:
MidAmerican Energy Company
PO Box 8020
Davenport, IA 52808-8020

MIDAMERICAN ENERGY COMPANY
Obsessively, Relentlessly At Your Service™

800-329-6261
MidAmericanEnergy.com

› Date Billed: 10/15/20
› Account Number: 17581-46011
› Invoice 505021147

Total Amount Due by 11/06/20 $2,893.15

A late payment charge of $43.40 will be assessed if payment is received after 11/06/20.

Electric Charges Detail

Meter No: S64186056

29 Billing Days		
Company Reading	10/15/20	15832
Company Reading	09/16/20	15620
Current Usage		212
Meter Multiplier		150
Total kWh		**31,800**
Company Reading	10/15/20	0.918
Meter Multiplier		150
Peak kW		**138**
Company Reading	10/15/20	4508
Company Reading	09/16/20	4423
Current Usage		85
Meter Multiplier		150
Total kVARh		**12,750**
Company Reading	10/15/20	0.678
Meter Multiplier		150
Reactive Demand		**102**

Rate: LS Large General Winter

Supply and Delivery		**$2,599.42**
▶ Basic Service Charge		$175.00
▶ Energy Charge	31,800 X 0.03619	$1,150.84
▶ Rate Equalization Factor	31,800 X -0.00218	-$69.32
▶ Energy Adjustment Clause	31,800 X 0.00775	$246.45
▶ Transmission Cost Adjustment	200 X 0.93000	$186.00
▶ KW Demand Charge	200 X 4.56000	$912.00
▶ Reactive Demand Charge	2 X 0.50000	$1.00
▶ Energy Efficiency Charge	31,800 X 0.00093	$29.57
▶ Demand Response Charge	31,800 X 0.00043	$13.67
▶ Income Tax Adjustment	31,800 X -0.00144	-$45.79
Taxes and Fees		**$293.73**
▶ 5.00% Electric Franchise Fee		$129.97
▶ 6.00% State Sales Tax		$163.76
	Total	**$2,893.15**

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METRO WASTE AUTHORITY

MIDAMERICAN ENERGY COMPANY
Obsessively, Relentlessly At Your Service™

800-329-6261
MidAmericanEnergy.com

› Date Billed: 11/16/20
› Account Number: 17581-46011
› Invoice 506137912

Total Amount Due by 12/08/20 **$917.61**

A late payment charge of $13.76 will be assessed if payment is received after 12/08/20.

Service For:
METRO WASTE AUTHORITY
300 E LOCUST ST
DES MOINES IA 50309

Current Charges Summary

› Last Bill	› Payments and Credits	› New Charges
$2,893.15	$5,786.30	$3,810.76

Payments and Credits Applied to Your Account

10/29/20	Check	$2,893.15
11/04/20	Check	$2,893.15

New Charges This Month

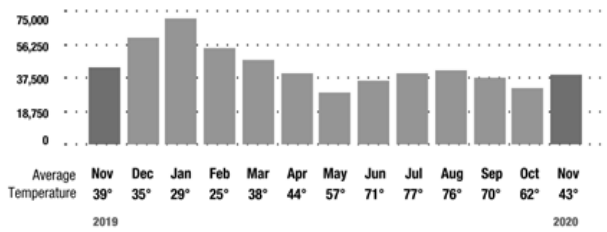
Electric Charges	$3,810.76

See details about this bill on Page 3

You Used

Electric Usage

	Last Year	Current
Monthly kWh Usage	43,500	39,750
Number of Days	29	30
Average Temperature	39°	43°
Average Cost per Day	$137.70	$127.02
Average Usage per Day	1,500	1,325



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MIDAMERICAN ENERGY COMPANY
Obsessively, Relentlessly At Your Service™

› Account Number: 17581-46011

Total Amount Due by 12/08/20 **$917.61**

For online bill payment log in to My Account at MidAmericanEnergy.com

ICF00322014620020100110

METRO WASTE AUTHORITY
ATTN MANAGEMENT PROFESSIONS
STE 200 NORTH
1080 JORDAN CREEK PKWY
WEST DES MOINES IA 50266-6016

I CARE

☐ Monthly ☐ One Time

$ _____ ☐ $5 ☐ $10 ☐ $20

My Contribution

I want to contribute to the I CARE program

MidAmerican Energy Company
PO Box 8020
Davenport IA 52808-8020
14 BG 13

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MIDAMERICAN ENERGY COMPANY
Obsessively, Relentlessly At Your Service℠

Were you unable to resolve a dispute with MidAmerican Energy? If you have a complaint that is unresolved, you may request assistance from the Iowa Utilities Board by calling 515-725-7321 or the toll-free number, 877-565-4450, writing to 1375 E. Court Ave, Des Moines Iowa 50319-0069, or sending an email to customer@iub.iowa.gov. You may view tariff and rate schedule information on our website at MidAmericanEnergy.com or at any of our customer office locations.

Help your neighbor by donating to MidAmerican Energy's I CARE program. Your tax-deductible donation will stay in your community and go directly toward providing heating and weatherization assistance to low-income customers in need. Visit our website to complete a contribution form. You can also make a monthly pledge by marking the boxes on this month's bill stub and returning it with your payment.

This month your bill includes the At Your Service quarterly newsletter for customers.

Visit MidAmericanEnergy.com to make a payment online

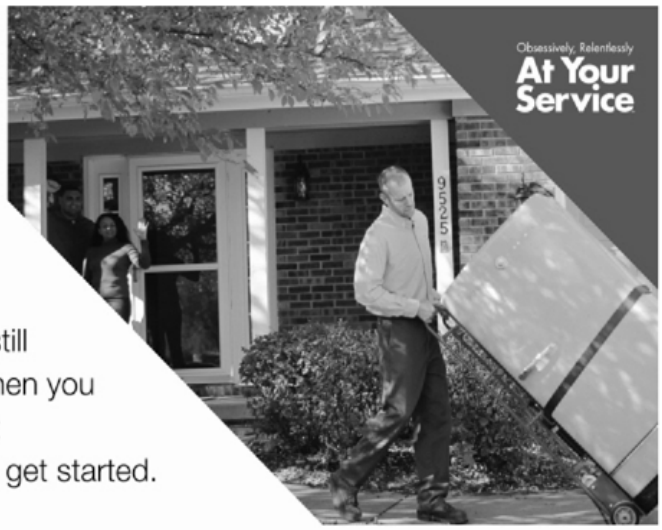
Call us at 800-432-4524 to make a phone payment

Visit MidAmericanEnergy.com/payment-options to find the closest customer office or walk-in payment location

Mail your payment to:
MidAmerican Energy Company
PO Box 8020
Davenport, IA 52808-8020

RECYCLING PAYS

Do you have an old refrigerator or freezer that still works? You may be eligible for a $55 rebate when you schedule your free recycling pickup online! Visit **MidAmericanEnergy.com/appliance-recycling** to get started.



MIDAMERICAN ENERGY COMPANY
Obsessively, Relentlessly At Your Service™

800-329-6261
MidAmericanEnergy.com

› Date Billed: 11/16/20
› Account Number: 17581-46011
› Invoice 506137912

Total Amount Due by 12/08/20 $917.61

A late payment charge of $13.76 will be assessed if payment is received after 12/08/20.

Electric Charges Detail

Meter No: S64186056

30 Billing Days		
Company Reading	11/14/20	16097
Company Reading	10/15/20	15832
Current Usage		265
Meter Multiplier		150
Total kWh		**39,750**
Company Reading	11/14/20	1.935
Meter Multiplier		150
Peak kW		**290**
Company Reading	11/14/20	4563
Company Reading	10/15/20	4508
Current Usage		55
Meter Multiplier		150
Total kVARh		**8,250**
Company Reading	11/14/20	0.440
Meter Multiplier		150
Reactive Demand		**66**

Rate: LS Large General Winter

Supply and Delivery		**$3,423.87**
▶ Basic Service Charge		$175.00
▶ Energy Charge	39,750 X 0.03619	$1,438.55
▶ Rate Equalization Factor	39,750 X -0.00218	-$86.66
▶ Energy Adjustment Clause	39,750 X 0.00775	$308.06
▶ Transmission Cost Adjustment	290 X 0.93000	$269.70
▶ KW Demand Charge	290 X 4.56000	$1,322.40
▶ Energy Efficiency Charge	39,750 X 0.00093	$36.97
▶ Demand Response Charge	39,750 X 0.00043	$17.09
▶ Income Tax Adjustment	39,750 X -0.00144	-$57.24
Taxes and Fees		**$386.89**
▶ 5.00% Electric Franchise Fee		$171.19
▶ 6.00% State Sales Tax		$215.70
	Total	**$3,810.76**

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METRO WASTE AUTHORITY

MIDAMERICAN ENERGY COMPANY
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800-329-6261
MidAmericanEnergy.com

› Date Billed: 12/17/20
› Account Number: 17581-46011
› Invoice 507228892

Total Amount Due by 01/08/21 **$1,666.10**

A late payment charge of $24.99 will be assessed if payment is received after 01/08/21.

Service For:
METRO WASTE AUTHORITY
300 E LOCUST ST
DES MOINES IA 50309

Current Charges Summary

› Last Bill	› Payments and Credits	› New Charges
$917.61	$3,810.76	$4,559.25

Payments and Credits Applied to Your Account

11/30/20	Check	$3,810.76

New Charges This Month

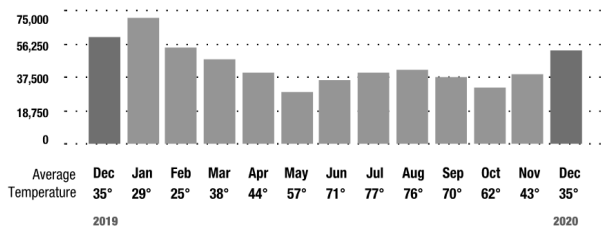
Electric Charges	$4,559.25

See details about this bill on Page 3

You Used

Electric Usage

	Last Year	Current
Monthly kWh Usage	60,150	53,250
Number of Days	33	33
Average Temperature	35°	35°
Average Cost per Day	$144.57	$138.15
Average Usage per Day	1,823	1,614



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MIDAMERICAN ENERGY COMPANY
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› Account Number: 17581-46011

Total Amount Due by 01/08/21 **$1,666.10**

For online bill payment log in to My Account at MidAmericanEnergy.com

ICF00353020528020100110

METRO WASTE AUTHORITY
ATTN MANAGEMENT PROFESSIONS
STE 200 NORTH
1080 JORDAN CREEK PKWY
WEST DES MOINES IA 50266-6016

I CARE

☐ Monthly ☐ One Time

$ _____ ☐ $5 ☐ $10 ☐ $20

My Contribution

I want to contribute to the I CARE program

MidAmerican Energy Company
PO Box 8020
Davenport IA 52808-8020
14 BG 13

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MIDAMERICAN ENERGY COMPANY
Obsessively, Relentlessly At Your Service™

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Help your neighbor by donating to MidAmerican Energy's I CARE program. Your tax-deductible donation will stay in your community and go directly toward providing heating and weatherization assistance to low-income customers in need. You can make a monthly pledge by marking the boxes on this month's bill stub and returning it with your payment or visiting our website to make your donation online.

Visit MidAmericanEnergy.com to make a payment online

Call us at 800-432-4524 to make a phone payment

Visit MidAmericanEnergy.com/payment-options to find the closest customer office or walk-in payment location

Mail your payment to:
MidAmerican Energy Company
PO Box 8020
Davenport, IA 52808-8020

HAPPY HOLIDAYS

No matter the weather, our team remains obsessively, relentlessly at your service 24/7.
Happy holidays from your MidAmerican Energy team!

MIDAMERICAN ENERGY COMPANY
Obsessively, Relentlessly At Your Service℠

800-329-6261
MidAmericanEnergy.com

› Date Billed: 12/17/20
› Account Number: 17581-46011
› Invoice 507228892

Total Amount Due by 01/08/21 $1,666.10

A late payment charge of $24.99 will be assessed if payment is received after 01/08/21.

Electric Charges Detail

Meter No: S64186056

33 Billing Days		
Company Reading	12/17/20	16452
Company Reading	11/14/20	16097
Current Usage		355
Meter Multiplier		150
Total kWh		**53,250**
Company Reading	12/17/20	2.068
Meter Multiplier		150
Peak kW		**310**
Company Reading	12/17/20	4614
Company Reading	11/14/20	4563
Current Usage		51
Meter Multiplier		150
Total kVARh		**7,650**
Company Reading	12/17/20	0.336
Meter Multiplier		150
Reactive Demand		**50**

Rate: LS Large General Winter

Supply and Delivery		**$4,096.36**
▶ Basic Service Charge		$175.00
▶ Energy Charge	53,250 X 0.03619	$1,927.12
▶ Rate Equalization Factor	53,250 X -0.00218	-$116.09
▶ Energy Adjustment Clause	53,250 X 0.00775	$412.69
▶ Transmission Cost Adjustment	310 X 0.93000	$288.30
▶ KW Demand Charge	310 X 4.56000	$1,413.60
▶ Energy Efficiency Charge	53,250 X 0.00093	$49.52
▶ Demand Response Charge	53,250 X 0.00043	$22.90
▶ Income Tax Adjustment	53,250 X -0.00144	-$76.68
Taxes and Fees		**$462.89**
▶ 5.00% Electric Franchise Fee		$204.82
▶ 6.00% State Sales Tax		$258.07
	Total	**$4,559.25**

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METRO WASTE AUTHORITY

MIDAMERICAN ENERGY COMPANY
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800-329-6261
MidAmericanEnergy.com

› Date Billed: 01/20/21
› Account Number: 17581-46011
› Invoice 508288784

Total Amount Due by 02/11/21 **$5,258.78**

A late payment charge of $78.88 will be assessed if payment is received after 02/11/21.

Service For:
METRO WASTE AUTHORITY
300 E LOCUST ST
DES MOINES IA 50309

Current Charges Summary

Last Bill	Payments and Credits	New Charges
$1,666.10	$1,666.10	$5,258.78

Payments and Credits Applied to Your Account

12/31/20	Check	$1,666.10

New Charges This Month

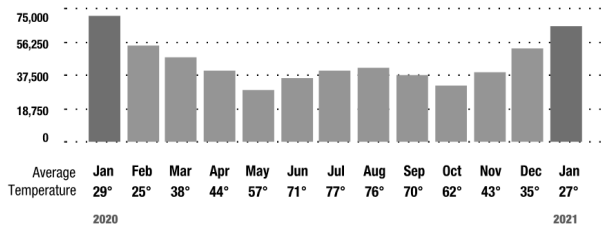
Electric Charges	$5,258.78

See details about this bill on Page 3

You Used

Electric Usage

	Last Year	Current
Monthly kWh Usage	71,250	65,400
Number of Days	36	34
Average Temperature	29°	27°
Average Cost per Day	$148.17	$154.67
Average Usage per Day	1,979	1,924



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MIDAMERICAN ENERGY COMPANY
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› Account Number: 17581-46011

Total Amount Due by 02/11/21 **$5,258.78**

For online bill payment log in to My Account at MidAmericanEnergy.com

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☐ Monthly ☐ One Time

$ _____ My Contribution $5 $10 $20

I want to contribute to the Renewable Advantage Program

METRO WASTE AUTHORITY
ATTN MANAGEMENT PROFESSIONS
STE 200 NORTH
1080 JORDAN CREEK PKWY
WEST DES MOINES IA 50266-6016

MidAmerican Energy Company
PO Box 8020
Davenport IA 52808-8020
14 BG 13

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MIDAMERICAN ENERGY COMPANY
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PO Box 8020
Davenport, IA 52808-8020

MIDAMERICAN ENERGY COMPANY
Obsessively, Relentlessly At Your Service™

800-329-6261
MidAmericanEnergy.com

- Date Billed: 01/20/21
- Account Number: 17581-46011
- Invoice 508288784

Total Amount Due by 02/11/21 $5,258.78

A late payment charge of $78.88 will be assessed if payment is received after 02/11/21.

Electric Charges Detail

Meter No: S64186056

34 Billing Days		
Company Reading	01/20/21	16888
Company Reading	12/17/20	16452
Current Usage		436
Meter Multiplier		150
Total kWh		**65,400**
Company Reading	01/20/21	2.179
Meter Multiplier		150
Peak kW		**327**
Company Reading	01/20/21	4662
Company Reading	12/17/20	4614
Current Usage		48
Meter Multiplier		150
Total kVARh		**7,200**
Company Reading	01/20/21	0.188
Meter Multiplier		150
Reactive Demand		**28**

Rate: LS Large General Winter

Supply and Delivery		**$4,724.87**
Basic Service Charge		$175.00
Energy Charge	65,400 X 0.03619	$2,366.83
Rate Equalization Factor	65,400 X -0.00174	-$113.80
Energy Adjustment Clause	65,400 X 0.00775	$506.85
Transmission Cost Adjustment	327 X 0.93000	$304.11
KW Demand Charge	327 X 4.56000	$1,491.12
Energy Efficiency Charge	65,400 X 0.00093	$60.82
Demand Response Charge	65,400 X 0.00043	$28.12
Income Tax Adjustment	65,400 X -0.00144	-$94.18
Taxes and Fees		**$533.91**
5.00% Electric Franchise Fee		$236.24
6.00% State Sales Tax		$297.67
	Total	**$5,258.78**

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METRO WASTE AUTHORITY

MIDAMERICAN ENERGY COMPANY
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800-329-6261
MidAmericanEnergy.com

› Date Billed: 02/19/21
› Account Number: 17581-46011
› Invoice 509399885

Total Amount Due by 03/15/21 **$5,728.97**

A late payment charge of $85.93 will be assessed if payment is received after 03/15/21.

Service For:
METRO WASTE AUTHORITY
300 E LOCUST ST
DES MOINES IA 50309

Current Charges Summary

Last Bill	Payments and Credits	New Charges
$5,258.78	$5,258.78	$5,728.97

Payments and Credits Applied to Your Account

02/03/21	Check	$5,258.78

New Charges This Month

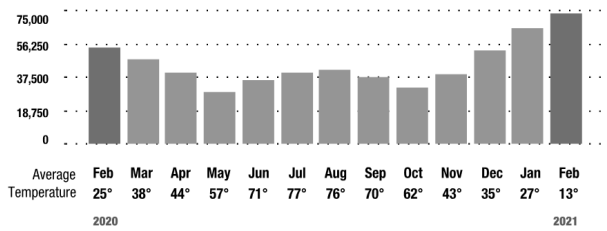
Electric Charges	$5,728.97

See details about this bill on Page 3

You Used

Electric Usage

	Last Year	Current
Monthly kWh Usage	54,900	73,650
Number of Days	28	30
Average Temperature	25°	13°
Average Cost per Day	$162.22	$190.96
Average Usage per Day	1,961	2,455



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MIDAMERICAN ENERGY COMPANY
Obsessively, Relentlessly At Your Service™

› Account Number: 17581-46011

Total Amount Due by 03/15/21 **$5,728.97**

For online bill payment log in to My Account at MidAmericanEnergy.com

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☐ Monthly ☐ One Time

$ _____ My Contribution $5 $10 $20

I want to contribute to the Renewable Advantage Program

METRO WASTE AUTHORITY
ATTN MANAGEMENT PROFESSIONS
STE 200 NORTH
1080 JORDAN CREEK PKWY
WEST DES MOINES IA 50266-6016

MidAmerican Energy Company
PO Box 8020
Davenport IA 52808-8020
6 14 BG 13

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MIDAMERICAN ENERGY COMPANY
Obsessively, Relentlessly At Your Service™

The Des Moines customer office will close for business on March 31, 2021. We're still obsessively, relentlessly at your service – our Business Advantage team is available to help you at 800-329-6261, Monday through Friday from 7 a.m. until 6 p.m. or online at **MidAmericanEnergy.com**.

Were you unable to resolve a dispute with MidAmerican Energy? If you have a complaint that is unresolved, you may request assistance from the Iowa Utilities Board by calling 515-725-7321 or the toll-free number, 877-565-4450, writing to 1375 E. Court Ave, Des Moines Iowa 50319-0069, or sending an email to customer@iub.iowa.gov. You may view tariff and rate schedule information on our website at MidAmericanEnergy.com or at any of our customer office locations.

Save energy and money in the new year! New 2021 energy efficiency program and rebate information is available at **MidAmericanEnergy.com/ee**. Rebates can help you save on heating and cooling equipment, business lighting, small business equipment upgrades and so much more.

Snow and cold pose no risk to your meter, but if your meter becomes encased in ice it can interfere with your meter operating safely. Don't try to clear an ice-covered meter – call MidAmerican at 888-427-5632 for assistance.

Visit MidAmericanEnergy.com to make a payment online

Call us at 800-432-4524 to make a phone payment

Visit MidAmericanEnergy.com/payment-options to find the closest customer office or walk-in payment location

Mail your payment to:
MidAmerican Energy Company
PO Box 8020
Davenport, IA 52808-8020

MIDAMERICAN ENERGY COMPANY
Obsessively, Relentlessly At Your Service™

800-329-6261
MidAmericanEnergy.com

› Date Billed: 02/19/21
› Account Number: 17581-46011
› Invoice 509399885

Total Amount Due by 03/15/21 $5,728.97

A late payment charge of $85.93 will be assessed if payment is received after 03/15/21.

Electric Charges Detail

Meter No: S64186056

30 Billing Days		
Company Reading	02/19/21	17379
Company Reading	01/20/21	16888
Current Usage		491
Meter Multiplier		150
Total kWh		**73,650**
Company Reading	02/19/21	2.255
Meter Multiplier		150
Peak kW		**338**
Company Reading	02/19/21	4704
Company Reading	01/20/21	4662
Current Usage		42
Meter Multiplier		150
Total kVARh		**6,300**
Company Reading	02/19/21	0.191
Meter Multiplier		150
Reactive Demand		**29**

Rate: LS Large General Winter

Supply and Delivery		**$5,147.32**
▶ Basic Service Charge		$175.00
▶ Energy Charge	67,600 X 0.03619	$2,446.44
▶ Energy Charge	6,050 X 0.03519	$212.90
▶ Rate Equalization Factor	73,650 X -0.00146	-$107.53
▶ Energy Adjustment Clause	73,650 X 0.00775	$570.79
▶ Transmission Cost Adjustment	338 X 0.93000	$314.34
▶ KW Demand Charge	338 X 4.56000	$1,541.28
▶ Energy Efficiency Charge	73,650 X 0.00093	$68.49
▶ Demand Response Charge	73,650 X 0.00043	$31.67
▶ Income Tax Adjustment	73,650 X -0.00144	-$106.06
Taxes and Fees		**$581.65**
▶ 5.00% Electric Franchise Fee		$257.37
▶ 6.00% State Sales Tax		$324.28
	Total	**$5,728.97**

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METRO WASTE AUTHORITY

MIDAMERICAN ENERGY COMPANY
Obsessively, Relentlessly At Your Service™

800-329-6261
MidAmericanEnergy.com

› Date Billed: 03/22/21
› Account Number: 17581-46011
› Invoice 510528726

Total Amount Due by 04/13/21 **$4,212.60**

A late payment charge of $63.19 will be assessed if payment is received after 04/13/21.

Service For:
METRO WASTE AUTHORITY
300 E LOCUST ST
DES MOINES IA 50309

Current Charges Summary

› Last Bill	› Payments and Credits	› New Charges
$5,728.97	$5,728.97	$4,212.60

Payments and Credits Applied to Your Account

03/02/21	Check	$5,728.97

New Charges This Month

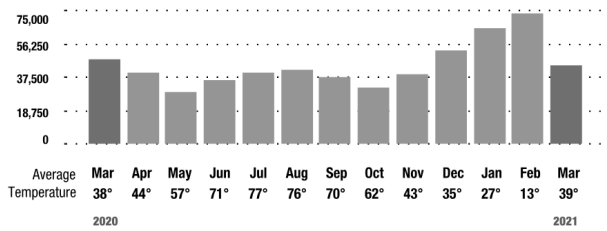
Electric Charges	$4,212.60

See details about this bill on Page 3

You Used

Electric Usage

	Last Year	Current
Monthly kWh Usage	47,700	45,000
Number of Days	31	31
Average Temperature	38°	39°
Average Cost per Day	$133.60	$135.89
Average Usage per Day	1,539	1,452



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MIDAMERICAN ENERGY COMPANY
Obsessively, Relentlessly At Your Service™

› Account Number: 17581-46011

Total Amount Due by 04/13/21 **$4,212.60**

For online bill payment log in to My Account at MidAmericanEnergy.com

ICF00082008463020100110

☐ Monthly ☐ One Time

$ _____ My Contribution $5 $10 $20

I want to contribute to the Renewable Advantage Program

METRO WASTE AUTHORITY
ATTN MANAGEMENT PROFESSIONS
STE 200 NORTH
1080 JORDAN CREEK PKWY
WEST DES MOINES IA 50266-6016

MidAmerican Energy Company
PO Box 8020
Davenport IA 52808-8020
14 BG 13

01001758146011900000421260000004275790000000000001

MIDAMERICAN ENERGY COMPANY
Obsessively, Relentlessly At Your Service™

The Des Moines customer office will close for business on March 31, 2021. We're still obsessively, relentlessly at your service – our Business Advantage team is available to help you at 800-329-6261, Monday through Friday from 7 a.m. until 6 p.m. or online at **MidAmericanEnergy.com**.

Were you unable to resolve a dispute with MidAmerican Energy? If you have a complaint that is unresolved, you may request assistance from the Iowa Utilities Board by calling 515-725-7321 or the toll-free number, 877-565-4450, writing to 1375 E. Court Ave, Des Moines Iowa 50319-0069, or sending an email to customer@iub.iowa.gov. You may view tariff and rate schedule information on our website at MidAmericanEnergy.com or at any of our customer office locations.

Prepare for storm-related outages by signing up for outage alerts! When your power goes out, we'll send you email and/or text alerts with outage status, work updates, estimated time of restoration and more. Sign up in your My Account at **MidAmericanEnergy.com** or by calling 888-427-5632.

Visit MidAmericanEnergy.com to make a payment online

Call us at 800-432-4524 to make a phone payment

Visit MidAmericanEnergy.com/payment-options to find the closest customer office or walk-in payment location

Mail your payment to:
MidAmerican Energy Company
PO Box 8020
Davenport, IA 52808-8020

STAR
Safety Through Asset Reliability

Safety is the STAR at MidAmerican! STAR - Safety Through Asset Reliability - is our commitment to constantly improve our systems, the way we work, and our technology to keep your lights on and gas flowing safely and reliably.
Learn more at **MidAmericanEnergy.com/STAR**.

MIDAMERICAN ENERGY COMPANY
Obsessively, Relentlessly At Your Service™

800-329-6261
MidAmericanEnergy.com

› Date Billed: 03/22/21
› Account Number: 17581-46011
› Invoice 510528726

Total Amount Due by 04/13/21 $4,212.60

A late payment charge of $63.19 will be assessed if payment is received after 04/13/21.

Electric Charges Detail

Meter No: S64186056

31 Billing Days		
Company Reading	03/22/21	17679
Company Reading	02/19/21	17379
Current Usage		300
Meter Multiplier		150
Total kWh		**45,000**
Company Reading	03/22/21	2.066
Meter Multiplier		150
Peak kW		**310**
Company Reading	03/22/21	4756
Company Reading	02/19/21	4704
Current Usage		52
Meter Multiplier		150
Total kVARh		**7,800**
Company Reading	03/22/21	0.369
Meter Multiplier		150
Reactive Demand		**55**

Rate: LS Large General Winter

Supply and Delivery		**$3,784.90**
▶ Basic Service Charge		$175.00
▶ Energy Charge	45,000 X 0.03619	$1,628.55
▶ Rate Equalization Factor	45,000 X -0.00146	-$65.70
▶ Energy Adjustment Clause	45,000 X 0.00775	$348.75
▶ Transmission Cost Adjustment	310 X 0.93000	$288.30
▶ KW Demand Charge	310 X 4.56000	$1,413.60
▶ Energy Efficiency Charge	45,000 X 0.00093	$41.85
▶ Demand Response Charge	45,000 X 0.00043	$19.35
▶ Income Tax Adjustment	45,000 X -0.00144	-$64.80
Taxes and Fees		**$427.70**
▶ 5.00% Electric Franchise Fee		$189.25
▶ 6.00% State Sales Tax		$238.45
	Total	**$4,212.60**

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METRO WASTE AUTHORITY

MIDAMERICAN ENERGY COMPANY
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800-329-6261
MidAmericanEnergy.com

› Date Billed: 04/20/21
› Account Number: 17581-46011
› Invoice 511617492

Total Amount Due by 05/12/21 **$3,451.84**

A late payment charge of $51.78 will be assessed if payment is received after 05/12/21.

Service For:
METRO WASTE AUTHORITY
300 E LOCUST ST
DES MOINES IA 50309

Current Charges Summary

Last Bill	Payments and Credits	New Charges
$4,212.60	$4,212.60	$3,451.84

Payments and Credits Applied to Your Account

03/31/21	Check	$4,212.60

New Charges This Month

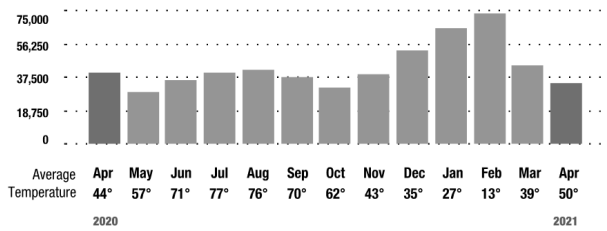
Electric Charges	$3,451.84

See details about this bill on Page 3

You Used

Electric Usage

	Last Year	Current
Monthly kWh Usage	40,200	34,500
Number of Days	31	29
Average Temperature	44°	50°
Average Cost per Day	$126.36	$119.02
Average Usage per Day	1,297	1,190



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MIDAMERICAN ENERGY COMPANY
Obsessively, Relentlessly At Your Service™

› Account Number: 17581-46011

Total Amount Due by 05/12/21 **$3,451.84**

For online bill payment log in to My Account at MidAmericanEnergy.com

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☐ Monthly ☐ One Time

$ _____ My Contribution ☐ $5 ☐ $10 ☐ $20

I want to contribute to the Renewable Advantage Program

METRO WASTE AUTHORITY
ATTN MANAGEMENT PROFESSIONS
STE 200 NORTH
1080 JORDAN CREEK PKWY
WEST DES MOINES IA 50266-6016

MidAmerican Energy Company
PO Box 8020
Davenport IA 52808-8020
14 BG 13

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MIDAMERICAN ENERGY COMPANY
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Were you unable to resolve a dispute with MidAmerican Energy? If you have a complaint that is unresolved, you may request assistance from the Iowa Utilities Board by calling 515-725-7321 or the toll-free number, 877-565-4450, writing to 1375 E. Court Ave, Des Moines Iowa 50319-0069, or sending an email to customer@iub.iowa.gov. You may view tariff and rate schedule information on our website at MidAmericanEnergy.com or at any of our customer office locations.

Visit MidAmericanEnergy.com to make a payment online

Call us at 800-432-4524 to make a phone payment

Visit MidAmericanEnergy.com/payment-options to find the closest customer office or walk-in payment location

Mail your payment to:
MidAmerican Energy Company
PO Box 8020
Davenport, IA 52808-8020

MIDAMERICAN ENERGY COMPANY
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800-329-6261
MidAmericanEnergy.com

› Date Billed: 04/20/21
› Account Number: 17581-46011
› Invoice 511617492

Total Amount Due by 05/12/21 $3,451.84

A late payment charge of $51.78 will be assessed if payment is received after 05/12/21.

Electric Charges Detail

Meter No: S64186056

29 Billing Days		
Company Reading	04/20/21	17909
Company Reading	03/22/21	17679
Current Usage		230
Meter Multiplier		150
Total kWh		**34,500**
Company Reading	04/20/21	1.750
Meter Multiplier		150
Peak kW		**263**
Company Reading	04/20/21	4812
Company Reading	03/22/21	4756
Current Usage		56
Meter Multiplier		150
Total kVARh		**8,400**
Company Reading	04/20/21	0.483
Meter Multiplier		150
Reactive Demand		**72**

Rate: LS Large General Winter

Supply and Delivery		**$3,101.39**
▶ Basic Service Charge		$175.00
▶ Energy Charge	34,500 X 0.03619	$1,248.56
▶ Rate Equalization Factor	34,500 X -0.00146	-$50.37
▶ Energy Adjustment Clause	34,500 X 0.00775	$267.38
▶ Transmission Cost Adjustment	263 X 0.98000	$257.74
▶ KW Demand Charge	263 X 4.56000	$1,199.28
▶ Energy Efficiency Charge	34,500 X 0.00093	$32.09
▶ Demand Response Charge	34,500 X 0.00043	$14.84
▶ Income Tax Adjustment	34,500 X -0.00125	-$43.13
Taxes and Fees		**$350.45**
▶ 5.00% Electric Franchise Fee		$155.07
▶ 6.00% State Sales Tax		$195.38
	Total	**$3,451.84**

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METRO WASTE AUTHORITY

MIDAMERICAN ENERGY COMPANY
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800-329-6261
MidAmericanEnergy.com

› Date Billed: 05/19/21
› Account Number: 17581-46011
› Invoice 512727290

Total Amount Due by 06/10/21 **$3,032.09**

A late payment charge of $45.48 will be assessed if payment is received after 06/10/21.

Service For:
METRO WASTE AUTHORITY
300 E LOCUST ST
DES MOINES IA 50309

Current Charges Summary

› Last Bill	› Payments and Credits	› New Charges
$3,451.84	$3,451.84	$3,032.09

Payments and Credits Applied to Your Account

04/29/21	Check	$3,451.84

New Charges This Month

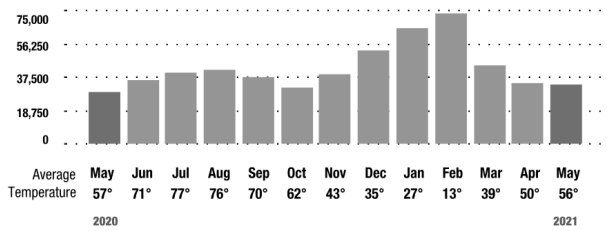
Electric Charges	$3,032.09

See details about this bill on Page 3

You Used

Electric Usage

	Last Year	Current
Monthly kWh Usage	29,550	33,450
Number of Days	29	29
Average Temperature	57°	56°
Average Cost per Day	$97.32	$104.55
Average Usage per Day	1,019	1,153



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MIDAMERICAN ENERGY COMPANY
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› Account Number: 17581-46011

Total Amount Due by 06/10/21 **$3,032.09**

For online bill payment log in to My Account at MidAmericanEnergy.com

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☐ Monthly ☐ One Time

$ _____ My Contribution ☐ $5 ☐ $10 ☐ $20

I want to contribute to the Renewable Advantage Program

METRO WASTE AUTHORITY
ATTN MANAGEMENT PROFESSIONS
STE 200 NORTH
1080 JORDAN CREEK PKWY
WEST DES MOINES IA 50266-6016

MidAmerican Energy Company
PO Box 8020
Davenport IA 52808-8020
6 14 BG 13

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MIDAMERICAN ENERGY COMPANY
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Were you unable to resolve a dispute with MidAmerican Energy? If you have a complaint that is unresolved, you may request assistance from the Iowa Utilities Board by calling 515-725-7321 or the toll-free number, 877-565-4450, writing to 1375 E. Court Ave, Des Moines Iowa 50319-0069, or sending an email to customer@iub.iowa.gov. You may view tariff and rate schedule information on our website at MidAmericanEnergy.com or at any of our customer office locations.

As hotter weather approaches, we want you to be informed of our summer Peak Alert program. What is a Peak Alert? MidAmerican issues a Peak Alert when high temperatures could result in a high demand for electricity. Our generating capacity is more than enough to meet customer needs, but when a Peak Alert is issued we ask customers to reduce their electric usage to help manage peak load conditions. Please visit **MidAmericanEnergy.com/peak-alerts** for more information.

This month your bill includes the At Your Service quarterly newsletter for customers.

Summer billing season starts in June and runs through September. For tips on saving energy during the summer or to start Budget Billing for a more predictable monthly bill, visit **MidAmericanEnergy.com**.

Visit MidAmericanEnergy.com to make a payment online

Call us at 800-432-4524 to make a phone payment

Visit MidAmericanEnergy.com/payment-options to find the closest customer office or walk-in payment location

Mail your payment to:
MidAmerican Energy Company
PO Box 8020
Davenport, IA 52808-8020

RECYCLING PAYS

Do you have an old refrigerator or freezer that still works? You may be eligible for a $50 rebate. Schedule your free pickup at **MidAmericanEnergy.com/appliance-recycling**.

MIDAMERICAN ENERGY COMPANY
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800-329-6261
MidAmericanEnergy.com

› Date Billed: 05/19/21
› Account Number: 17581-46011
› Invoice 512727290

Total Amount Due by 06/10/21 $3,032.09

A late payment charge of $45.48 will be assessed if payment is received after 06/10/21.

Electric Charges Detail

Meter No: S64186056

29 Billing Days		
Company Reading	05/19/21	18132
Company Reading	04/20/21	17909
Current Usage		223
Meter Multiplier		150
Total kWh		**33,450**
Company Reading	05/19/21	1.354
Meter Multiplier		150
Peak kW		**203**
Company Reading	05/19/21	4884
Company Reading	04/20/21	4812
Current Usage		72
Meter Multiplier		150
Total kVARh		**10,800**
Company Reading	05/19/21	0.544
Meter Multiplier		150
Reactive Demand		**82**

Rate: LS Large General Winter

Supply and Delivery		**$2,724.26**
▶ Basic Service Charge		$175.00
▶ Energy Charge	33,450 X 0.03619	$1,210.56
▶ Rate Equalization Factor	33,450 X -0.00146	-$48.84
▶ Energy Adjustment Clause	33,450 X 0.00775	$259.24
▶ Transmission Cost Adjustment	203 X 0.98000	$198.94
▶ KW Demand Charge	203 X 4.56000	$925.68
▶ Energy Efficiency Charge	33,450 X 0.00093	$31.11
▶ Demand Response Charge	33,450 X 0.00043	$14.38
▶ Income Tax Adjustment	33,450 X -0.00125	-$41.81
Taxes and Fees		**$307.83**
▶ 5.00% Electric Franchise Fee		$136.21
▶ 6.00% State Sales Tax		$171.62
	Total	**$3,032.09**

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METRO WASTE AUTHORITY

MIDAMERICAN ENERGY COMPANY
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800-329-6261
MidAmericanEnergy.com

› Date Billed: 06/21/21
› Account Number: 17581-46011
› Invoice 513882105

Total Amount Due by 07/13/21 **$5,495.49**

A late payment charge of $82.43 will be assessed if payment is received after 07/13/21.

Service For:
METRO WASTE AUTHORITY
300 E LOCUST ST
DES MOINES IA 50309

Current Charges Summary

› Last Bill	› Payments and Credits	› New Charges
$3,032.09	$3,032.09	$5,495.49

Payments and Credits Applied to Your Account

06/04/21	Check	$3,032.09

New Charges This Month

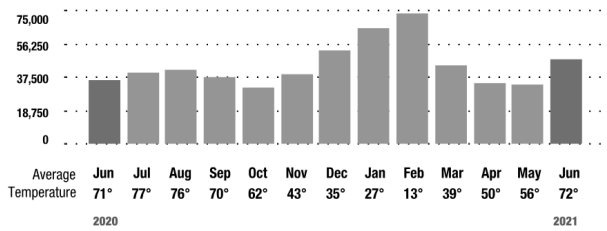
Electric Charges	$5,495.49

See details about this bill on Page 3

You Used

Electric Usage

	Last Year	Current
Monthly kWh Usage	36,150	47,550
Number of Days	30	33
Average Temperature	71°	72°
Average Cost per Day	$154.08	$166.53
Average Usage per Day	1,205	1,441



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MIDAMERICAN ENERGY COMPANY
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› Account Number: 17581-46011

Total Amount Due by 07/13/21 **$5,495.49**

For online bill payment log in to My Account at MidAmericanEnergy.com

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☐ Monthly ☐ One Time

$ _____ ☐ $5 ☐ $10 ☐ $20
My Contribution

I want to contribute to the Renewable Advantage Program

METRO WASTE AUTHORITY
ATTN MANAGEMENT PROFESSIONS
STE 200 NORTH
1080 JORDAN CREEK PKWY
WEST DES MOINES IA 50266-6016

MidAmerican Energy Company
PO Box 8020
Davenport IA 52808-8020
14 BG 13

01001758146011900000549549000005577920000000000003

MIDAMERICAN ENERGY COMPANY
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June is National Safety Month. June is also peak construction season for Safety Through Asset Reliability (STAR) infrastructure improvement projects. If you see a crew working near your property or the roadway, be sure to slow down, move over and stay clear of the work area. Learn more about our current and ongoing STAR projects at **MidAmericanEnergy.com/STAR**.

Summer billing season starts in June and runs through September. For tips on saving energy during the summer or to start Budget Billing for a more predictable monthly bill, visit **MidAmericanEnergy.com**.

Visit MidAmericanEnergy.com to make a payment online

Call us at 800-432-4524 to make a phone payment

Visit MidAmericanEnergy.com/payment-options to find the closest customer office or walk-in payment location

Mail your payment to:
MidAmerican Energy Company
PO Box 8020
Davenport, IA 52808-8020

June is National Safety Month

We are dedicated to ensuring your energy services remain safe and reliable. But, we don't stop there – we also provide you and your family with the resources you need to know how to be safe around electricity and natural gas. Refresh yourself on the essentials of energy safety at **MidAmericanEnergy.com/safety**.

MIDAMERICAN ENERGY COMPANY
Obsessively, Relentlessly At Your Service™
800-329-6261
MidAmericanEnergy.com

- Date Billed: 06/21/21
- Account Number: 17581-46011
- Invoice 513882105

Total Amount Due by 07/13/21 $5,495.49

A late payment charge of $82.43 will be assessed if payment is received after 07/13/21.

Electric Charges Detail

Meter No: S64186056

33 Billing Days		
Company Reading	06/21/21	18449
Company Reading	05/19/21	18132
Current Usage		317
Meter Multiplier		150
Total kWh		**47,550**
Company Reading	06/21/21	1.277
Meter Multiplier		150
Peak kW		**192**
Company Reading	06/21/21	5034
Company Reading	05/19/21	4884
Current Usage		150
Meter Multiplier		150
Total kVARh		**22,500**
Company Reading	06/21/21	0.841
Meter Multiplier		150
Reactive Demand		**126**

Rate: LS Large General Summer

Supply and Delivery		**$4,937.55**
Basic Service Charge		$175.00
Energy Charge	40,000 X 0.07088	$2,835.20
Energy Charge	7,550 X 0.06069	$458.21
Rate Equalization Factor	47,550 X -0.00146	-$69.42
Energy Adjustment Clause	47,550 X 0.00775	$368.51
Transmission Cost Adjustment	200 X 0.98000	$196.00
KW Demand Charge	200 X 4.81000	$962.00
Reactive Demand Charge	26 X 0.50000	$13.00
Energy Efficiency Charge	47,550 X 0.00090	$42.80
Demand Response Charge	47,550 X 0.00033	$15.69
Income Tax Adjustment	47,550 X -0.00125	-$59.44
Taxes and Fees		**$557.94**
5.00% Electric Franchise Fee		$246.88
6.00% State Sales Tax		$311.06
	Total	**$5,495.49**

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METRO WASTE AUTHORITY