SCOPE OF WORK

THESE PLANS ARE FOR THE INSTALLATION OF A ROOF MOUNTED PHOTOVOLTAIC (PV) SYSTEM. THE PV SYSTEM WILL BE INTERCONNECTED WITH THE Xcel UTILITY GRID THROUGH EXISTING ELECTRICAL EQUIPMENT AND WILL OPERATE IN PARALLEL VIA SUPPLY (LST) SIDE CONNECTION WITH NET ENERGY METER.

GOVERNING BUILDING CODES

1. 2019 Denver Building Code Amendments, DBCA
2. 2018 International Residential Code, IRC
3. 2020 National Electrical Code, NEC
4. IEEE 1547
5. ASCE 7 Minimum Design Loads for Building and Other Structures
6. UL Standards
   6.1. Racking - UL 2703
   6.2. PV Module - UL 1703
   6.3. Inverter - UL 1741

DESIGN SPECIFICATIONS

1. AHU - Denver Building Department
2. Utility - Xcel
3. Building Risk Category II
4. Design Wind Speed (ULT) - 115MPH
5. Design Snow Load - 35PSF
6. Exposure Category - C
7. Mean Roof Height - 20FT
8. Roof Slope - 23°, 45°

PV SYSTEM SPECIFICATIONS

1. PV Module: 17 x REC350 AA; 5.95kWdc
2. Inverter: SE6000H-US
3. Racking: Unirac Lite_RT Mini
4. Roof Type: Shingle
5. Azimuth: 180°, 270°

PV INSTALLATION OVERVIEW

ELECTRICAL
a. Point of Connection: Supply (LST)
b. Max INV Output Current: 25A
c. PV AC Dedicated OCP Device Rating: 25A * 125% = 31.25A, 40A OCP
d. Utility AC Disconnect Req'd: Yes

STRUCTURAL
a. Max Allowable Spacing Between Attach Points: 4FT
b. Min. Number of Attachment Points: 38
c. Weight Per Attachment Point: 24.1LBS/ATTACH
da. PV Dead Load: 2.96PSF
e. Length of Rail Required: 116FT
1. INSTALLATION TO BE COMPLIANT WITH NFPA 1 & NFPA70 (NATIONAL ELECTRICAL CODE).
2. THE INVERTER HAS INTEGRATED GROUND AND NO DC GEC IS REQUIRED. THE DC CIRCUIT IS ISOLATED AND INSULATED FROM GROUND AND MEETS THE REQUIREMENTS OF 690.35 (UNGROUNDED PHOTOVOLTAIC POWER SYSTEMS).
3. THE LOCATION OF THE INVERTER SHALL BE SUBJECT TO CHANGE AND WILL BE DETERMINED ON SITE BY THE CONTRACTOR.
4. THE INVERTER IS EQUIPPED WITH A RAPID SHUTDOWN SYSTEM AND SATISFIES THE REQUIREMENTS OF THE NEC SEC. 690.12
5. ALL EQUIPMENT TO BE LISTED OR LABELED FOR ITS APPLICATION (UL OR OTHER APPROVED LISTINGS)
6. THE INVERTER HAS INTEGRATED GROUND AND NO DC GEC IS REQUIRED. THE DC CIRCUIT IS ISOLATED AND INSULATED FROM GROUND AND MEETS THE REQUIREMENTS OF 690.35 (UNGROUNDED PHOTOVOLTAIC POWER SYSTEMS).
7. ALL OUTDOOR EQUIPMENT SHALL BE RAIND TIGHT WITH MINIMUM NEMA 3-R RATING.
8. THE EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE NATIONAL FIRE CODE, NF, AND THE NATIONAL ELECTRICAL CODE, NEC.
9. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND SPECIFICATIONS BEFORE COMMENCING.
10. ALL OUTDOOR EQUIPMENT SHALL BE RAIND TIGHT WITH MINIMUM NEMA 3-R RATING.
11. THE ACTUAL LOCATION OF THE ARRAY AND PLACEMENT OF THE EQUIPMENT SHALL BE DETERMINED ON SITE BY THE CONTRACTOR.
12. ALL EQUIPMENT SHALL MEET MINIMUM SETBACKS AS REQUIRED BY THE SITE CONDITIONS AND/OR ROOF OBSTRUCTIONS. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND SPECIFICATIONS BEFORE COMMENCING.
13. THE EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE BUILDING CODES SET FORTH BY THE NATIONAL FIRE CODE, NF, AND THE NATIONAL ELECTRICAL CODE, NEC.
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NEC LABEL NOTES:
1. THE WARNING SIGN(S) OR LABEL(S) SHALL COMPLY WITH NEC 110.21(B)
2. LABELS SHALL BE SUITABLE FOR THE ENVIRONMENT WHERE THEY ARE INSTALLED.
3. LABELS TO BE A MIN LETTER HEIGHT OF 3/8" AND PERMANENTLY AFFIXED.
4. LABELS SHALL ALSO COMPLY WITH THE SPECIFIC REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.

CAUTION
POWER TO THIS BUILDING IS ALSO SUPPLIED FROM ROOF MOUNTED PV ARRAY WITH SAFETY DISCONNECTS AS SHOWN. PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN TO REDUCE SHOCK HAZARD IN THE ARRAY.

PV SYSTEM SPECIFICATIONS
1. PV MODULE: 17 x REC350 AA; 5.95kWdc
2. INVERTER: SE6000H-US
3. RACKING: Unirac Lite_RT Mini
4. ROOF TYPE: SHINGLE
5. AZIMUTH: 180°, 270°
6. ROOF SLOPE: 23°, 45°

WARNING
ELECTRIC SHOCK HAZARD
TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION.

WARNING
PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN
TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN THE ARRAY.

WARNING
PV SYSTEM AC DISCONNECT
RATED AC OUTPUT CURRENT: 25A
NOMINAL OPERATING VOLTAGE: 240VAC
WARNING: PHOTOVOLTAIC POWER SOURCE
UTILITY CONNECTION: DO NOT RELOCATE THIS OVERCURRENT DEVICE
WARNING: DUAL POWER SUPPLY SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM
WARNING
ELECTRIC SHOCK HAZARD TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION.

MAX SYSTEM VOLTAGE: 480VDC
MAX CIRCUIT CURRENT: 20A
WARNING: PHOTOVOLTAIC POWER SOURCE

UTILITY METER (E)
MAIN SERVICE PANEL (E)
PV AC DISCONNECT (N)
PV DC/AC INVERTER (N)
W/ INTEGRATED DC DISCO AND EQUIPPED WITH RAPID SHUTDOWN

PV SITE PLAN W/ MODULE LAYOUT

DRIVEWAY
WALKWAY
N GAYLORD ST
**PV System Specifications**

1. **PV Module:**
   - 17 x REC350 AA; 5.95kWdc

2. **Inverter:**
   - SE6000H-US

3. **Racking:**
   - Unirac Lite_RT Mini

4. **Roof Type:**
   - Shingle

5. **Azimuth:**
   - 180°, 270°

6. **Roof Slope:**
   - 23°, 45°

**XCEL Notes:**

1. 200A/240VAC UTILITY METER TO BE LABELED WITH PLACARD "PHOTOVOLTAIC SYSTEM CONNECTED"

2. THE AC DISCONNECT SHALL BE ACCESSIBLE, LOCKABLE, VISIBLE FROM NET METER, AND LABELED WITH PLACARD "UTILITY PHOTOVOLTAIC DISCONNECT"
PV SYSTEM SPECIFICATIONS

1. **PV MODULE**: 17 x REC350 AA; 5.95kWdc
2. **INVERTER**: SE6000H-US
3. **RACKING**: Unirac Lite_RT Mini
4. **ROOF TYPE**: SHINGLE
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4. ROOF TYPE: SHINGLE
5. AZIMUTH: 180°, 270°
6. ROOF SLOPE: 23°, 45°
Single Phase Inverter with HD-Wave Technology for North America


OUTPUT

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<td>Safety Monitoring, Stopping Protective, Country Configured With Technologies</td>
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INVERTERS

Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking efficiency
- Fixed voltage inverter for longer strings
- Integrated arc fault protection and rapid shutdown for NEC 2014 and 2017, per article 690.11 and 690.12
- UL1741 SA certified, for CPUC Rule 21 grid compliance
- 12-25 Year Warranty

solaredge.com
Power Optimizer
For North America
P320 / P340 / P370 / P400 / P405 / P505

PV power optimization at the module-level

- Specifically designed to work with SolarEdge Inverters
- Up to 25% more energy
- Superior efficiency (99.5%)
- Mitigates all types of module mismatch losses, from manufacturing tolerance to partial shading
- Flexible system design for maximum space utilization

Fast installation with a single bolt
Next generation maintenance with module-level monitoring
Meets NEC requirements for arc fault protection (AFCI) and Photovoltaic Rapid Shutdown System (PVRSS)

Flexible system design for maximum space utilization

/ Power Optimizer
For North America
P320 / P340 / P370 / P400 / P405 / P505

Optimizer model
(Part number)
Compatibility
P320
P340
P370
P400
P405
P505

Features
- Single phase (120V)
- Three Phase (240V)
- Three Phase (480V)

PV System Design

Minimum String Length

Maximum String Power

Parallel Strings of Different Lengths or Operations

PV System Design Using

(Inverter output)

Sizing (Single-Phase)

Sizing (Three-Phase)

Sizing (Three-Phase)

Sizing (Three-Phase)
SOLAR MOUNT defined the standard in solar racking. New enhancements are designed to get installers off the roof faster than ever before. Components are pre-assembled and optimized to reduce installation steps and save labor time. Our new grounding & bonding process eliminates copper wire and grounding straps to reduce costs. Utilize the microinverter mount with a wire management clip for an easier installation.

OPTIMIZED COMPONENTS
INTEGRATED BONDING & PRE-ASSEMBLED PARTS
Cost conscious & pre-assembled and optimized to reduce installation steps as shown here. For new grounding & bonding process eliminates copper wire and grounding straps to reduce costs. Utilize the mounting system with a wire management clip for easier installation.

VERSATILITY
ONE PRODUCT - MANY APPLICATIONS
Adjusts for building detail to the critical in a durable and compact design to bond & protect all metal sheathing using a large variety of fasteners including flat, hex, dome, or compression nuts. Available in black, white, and dark anodized finishes to accommodate your projects financial and aesthetic requirements.

AUTOMATED DESIGN TOOL
DESIGN PLATFORM AT YOUR SERVICE
Creating a solar system is as easy as 1, 2, 3... And SOLARMOUNT makes it even easier. Our design platform tool allows for selection of matching components to simplify your design process. Simply enter your project data, and our design tool automatically generates a design plan. You will enjoy the ability to make changes to your design quickly and easily. The system is pre-built to meet code and all the latest safety standards.

UNIRAC CUSTOMER SERVICE MEANS THE HIGHEST LEVEL OF PRODUCT SUPPORT
UNIRAC CUSTOMER SERVICE MEANS THE HIGHEST LEVEL OF PRODUCT SUPPORT

TECHNICAL SUPPORT
Our technical support team is dedicated to answering questions & addressing issues in real-time to make our products easy to install, maintain, and schedule repairs, as well as ensure reliability. The goal of our support team is to provide you with the best experience possible. Whether you need help with installation, troubleshooting, or general inquiries, we’re here to help.

CERTIFIED QUALITY PROVIDER
Unirac is the only PV mounting system with ISO 9001, 14001 and OHSAS 18001 certification, which means we are dedicated to safety, environmental responsibility, and continuous improvement. We are committed to providing you with the highest quality product and service.

BANKABLE WARRANTY
Unirac is the only system company that backs our products with a 30-year limited warranty on all metal parts, labor, and accessories. Plus, our products are backed by our exclusive solar protection guarantee, which ensures that we are always there for you.

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Sheet Number and Title: R04 - RACKING DATASHEET
Sheet Size: ANSI Full Bleed B (17.00 x 11.00 Inches)

Drawing History

Contact Info
PHOTON BROTHERS
7705 W 108th Ave
Westminster, CO 80021

Contractor Info
PHOTON BROTHERS
7705 W 108th Ave
Westminster, CO 80021
(303) 898-1665
Peterjkirsch@gmail.com

Parcel Number: 5024-08-015-000
Assessor Phone # (720) 865-2700

Project Location:
PETER J KIRSCH RESIDENCE
805 N Gaylord St,
Denver, CO 80206

Project Type - Photovoltaic

PV SYSTEM SPECIFICATIONS
1. PV MODULE: 17 x REC350 AA; 5.95kWdc
2. INVERTER: SE6000H-US
3. RACKING: Unirac Lite_RT Mini
4. ROOF TYPE: SHINGLE
5. AZIMUTH: 180°, 270°
6. ROOF SLOPE: 23°, 45°
June 5th, 2019

Re: SOLMOUNT RoofTech RT Mini

To Whom it May Concern,

The interface and hardware between the RoofTech RT-Mini and the Unirac SOLMOUNT L-foot are compatible and can be used in conjunction with each other as shown in picture below.

Unirac has not analyzed or tested SM racking products in conjunction with this solution. The installer is solely responsible for:

- Complying with all applicable local or national building codes, including code requirements that are more strenuous than the guidelines set forth in the install manuals;
- Ensuring that the products are appropriate for the particular installation and the installation environment;
- Ensuring that the roof, its rafters, its insulation, connections, and any other structural support members can support the array under all code level loading conditions (this total building assembly is referred to as the building structure);
- Ensuring correct and appropriate design parameters are used in determining the design loading used for design of the specific installation. Parameters, such as snow loading, wind speed, exposure, and topographic factor should be confirmed with the local building official or a licensed professional engineer

Please contact Unirac with any questions.

Regards,

Connor Morrison
Residential Product Manager

Unirac, Inc. • www.unirac.com

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