



Historic Preservation Services
Community Development & Neighborhood Services
281 North College Avenue
P.O. Box 580
Fort Collins, CO 80522.0580
970.224.6078
preservation@fcgov.com
fcgov.com/historicpreservation

CERTIFICATE OF APPROPRIATENESS

ISSUED: September 12, 2025

EXPIRATION: September 12, 2026

Sarah C. Fonte
c/o Matt Scherer, Reenergize Co, Inc.
1805 E. 58th Ave., Unit K
Denver, CO 80216

Dear Sarah Fonte:

This letter provides you with confirmation that the proposed changes to your designated Fort Collins landmark property, the Moyer House at 1605 Sheely Dr., have been approved by the City's Historic Preservation Division because the proposed work meets the criteria and standards in Chapter 14, [Article IV](#) of the Fort Collins Municipal Code.

1. Rooftop solar panels with associated equipment

Notice of the approved application has been provided to building and zoning staff to facilitate the processing of any permits that are needed for the work.

Please note that all ensuing work must conform to the approved plans. Any non-conforming alterations are subject to stop-work orders, denial of Certificate of Occupancy, and restoration requirements and penalties.

If the approved work is not completed prior to the expiration date noted above, you may apply for an extension by contacting staff at least 30 days prior to expiration. Extensions may be granted for up to 12 additional months, based on a satisfactory staff review of the extension request.

Property owners can appeal staff design review decisions by filing a written notice of appeal to the Director of Community Development & Neighborhood Services within fourteen (14) days of this decision. If you have any questions regarding this approval, or if I may be of any assistance, please do not hesitate to contact me. I can be reached at yjones@fcgov.com or at 970-224-6078.

Sincerely,

Yani Jones
Historic Preservation Planner

Applicable Code Standard	Summary of Code Requirement and Analysis (Rehabilitation)	Standard Met (Y/N)
SOI #1	<p><i>A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.</i></p> <p>This solar project will not change the residential use of the property.</p>	Y
SOI #2	<p><i>The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.</i></p> <p>No distinctive materials will be removed for this proposed solar panel project. Although the panels will be located toward the front of the house, the location conforms to the solar policy adopted by the Historic Preservation Commission 4/17/2024, exceeding the required 8” setback from the roof ridge and edge for flush-mounted solar panels on post-1950 buildings, and so this Standard is considered met.</p>	Y
SOI #3	<p><i>Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.</i></p> <p>The proposed solar panel system is clearly a modern feature, which avoids creating a false sense of historical development. This Standard is considered met.</p>	Y
SOI #4	<p><i>Changes to a property that have acquired historic significance in their own right will be retained and preserved.</i></p>	N/A
SOI #5	<p><i>Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.</i></p> <p>Because the proposed solar panels could easily be removed, and because their physical impact is limited to the roof, the distinctive materials, features, finishes, construction techniques, and examples of craftsmanship characteristic of this property will be preserved, and so this Standard is considered met.</p>	Y

SOI #6	<i>Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.</i>	N/A
SOI #7	<i>Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.</i>	N/A
SOI #8	<i>Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.</i>	N/A
SOI #9	<p><i>New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.</i></p> <p>The installation of roof-mounted solar panels will not destroy historic roof material and would clearly be a modern addition. For those reasons, this Standard is met.</p>	Y
SOI #10	<p><i>New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.</i></p> <p>The solar panels could be removed in the future without impacting the integrity of the historic home and its environment, and so this Standard is met.</p>	Y



Solar PV

BUILDING PERMIT APPLICATION:

All information on the application must be filled out (as applicable).

Scope of work (check one)

New system installation ☐

Alterations to an existing system ☒
(new equipment or expansion)

Reinstallation of an existing system ☐
(same equipment and same location)

USE / TYPE OF BUILDING (check the correct uses below):

Residential ☒

Commercial ☐

Single family detached ☒

Duplex/Two-Family ☐

Single Family Attached (Townhome) ☐

Multi-Family (Apartment/Condo) ☐

Garage ☐

Bank ☐

Bar ☐

Church ☐

Hotel/Motel ☐

Medical Office ☐

Retail ☐

Other ☐: _____

JOB SITE ADDRESS: 1605 Sheely Dr, Fort Collins, CO 80526, USA

UNIT#: _____

PROPERTY OWNER INFO: (All owner information is required – NOT optional)

Last Name FRONTE First Name SARAH Middle _____

Street Address 1605 SHEELY DR City FORT COLLINS State CO Zip 80526

Phone # (720) 530-5259 Email sjfronte@hotmail.com

CONTRACTOR INFO:

Company Name REENERGIZECO INC

License Holder Name MATT SCHERER LIC # ME-1919 CERT # S3078

CONSTRUCTION INFO (check any that apply):

PV (photovoltaic) ☒

Thermal Hydronic System ☐

Battery Storage ☐

Mounting: Ground ☐

Roof ☒

UTILITIES INFO:

Electric Service Upgrade? Yes ☐ No ☒ Existing Amps 125 New Amps _____

Electric Meter Relocation? Yes ☐ No ☒

Meter change out? Yes ☐ No ☒

Panel change out? Yes ☐ No ☒

VALUE OF CONSTRUCTION (materials and labor): \$ 3960

DESCRIPTION OF WORK (Include KWh and number of solar panels):

NEW 2.64KW PV SYSTEM ADDITION - 6 MODULES - GRID-TIED

JOB SITE SUPERVISOR CONTACT INFO: Name MATT SCHERER Phone 9709885682

SUBCONTRACTOR INFO:

Electrical _____ Plumbing _____

Applicant: I hereby acknowledge that I have read this application and state that the above information is correct and agree to comply with all requirements contained herein and City of Fort Collins ordinances and state laws regulating building construction.

Applicant Signature [Signature]

Type or Print Name MATT SCHERER

Phone # 9709885682

Email permits@reenergizeco.com

THIS APPLICATION EXPIRES 180 DAYS FROM APPLICATION DATE

NEW PV ADDITION SYSTEM DESIGN

6 MODULES - 2.640 kW DC, 1.920 kW AC SYSTEM SIZE

FONTE RESIDENCE - 1605 SHEELY DRIVE, FORT COLLINS, CO 80526 APN: 0102601

DESIGN ENGINEER


**WYSSLING**
CONSULTING
CORPORATE EXPERIENCE WITH SMALL BUSINESS VALUE

76 N. MEADOWBROOK DRIVE
ALPINE UT 84004
swyssling@wysslingconsulting.com
(201) 874-3483

IN PARTNERSHIP WITH

HEART & SOLAR
design@heartandsolar.com

SOLAR COMPANY/CLIENT


**REENERGIZECO, INC.**
1805 EAST 58TH AVENUE UNIT K
DENVER, CO
LIC #: EC.0102500/ ME.3001101

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FONTE RESIDENCE
1605 SHEELY DRIVE
FORT COLLINS, CO 80526
COORDINATES: 40.566454, -105.092209
APN: 0102601

COVER PAGE

ACCOUNT #: 634336-53949
CUSTOMER NAME: SARAH FONTE
METER #: 14583916



Signed 9/08/2025

SCOTT E WYSSLING, PE
CO LICENSE NO PE.0054597

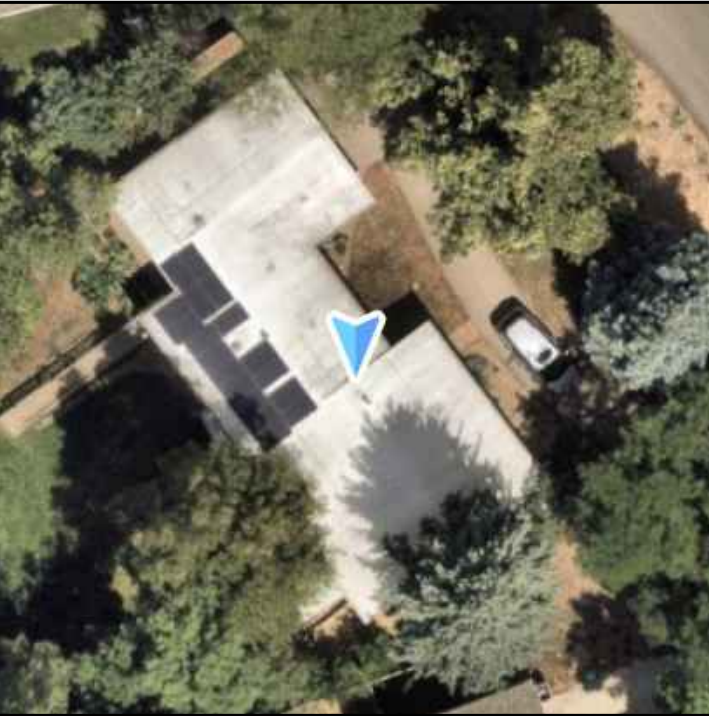
DC SYSTEM SIZE: 2.640kW
AC SYSTEM SIZE: 1.920kW

AHJ: FORT COLLINS
UTILITY: FCU

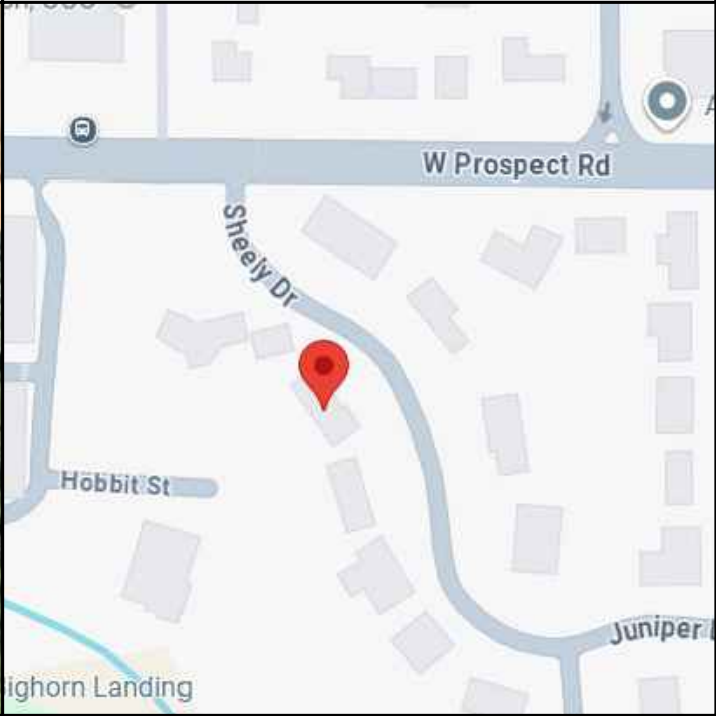
DRAWN BY: ASP
INITIAL DESIGN DATE: 09/05/2025 REV: B

PV-1

AERIAL MAP NTS



VICINITY MAP NTS



SHEET INDEX

PV-1	COVER PAGE
PV-2	SITE PLAN
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SCOPE OF WORK

SYSTEM SIZE: 2.640kW DC / 1.920kW AC SYSTEM SIZE
PV MODULE: (6) HYUNDAI HIN-T440NF(BK)
INVERTER: (6) ENPHASE IQ8MC-72-M-US

ROOF STORIES: 1
ROOF TYPE(S): MEMBRANE
MOUNTING(S) & RACKING(S): SUNMODO NANOMOUNTS (ROOF MOUNT) WITH SMR RAIL
FLASHING: SUNMODO SEALING GASKET
ROOF BEING REPLACED: NO
ROOF CONDITION: GOOD
ROOF HEIGHT: 15 FEET

INTERCONNECTION: LOAD BREAKER
MAIN SERVICE PANEL LOCATION: 1ST FLOOR
ISOLATED MAIN DISCONNECT RATING: (E) 125A
ISOLATED MAIN BREAKER RATING: (E)100A
MAIN SERVICE PANEL RATING: (E) 200A
MAIN BREAKER RATING: (E) 100A
OCPD: 50A PV BREAKER

FCU METER NUMBER: 14583916

NEW DC SYSTEM SIZE: 2.640 kW
NEW AC SYSTEM SIZE: 1.920 kW

EXISTING DC SYSTEM SIZE: 7.290 kW
EXISTING DC SYSTEM SIZE: 6.282 kW
EXISTING ESS SIZE:15.000 kWh

ARRAY	TILT	AZIMUTH
1	7°	143°

GOVERNING CODES

2023 NATIONAL ELECTRIC CODE
2021 INTERNATIONAL BUILDING CODE
2021 INTERNATIONAL RESIDENTIAL CODE
2021 INTERNATIONAL FIRE CODE
2021 INTERNATIONAL FUEL GAS CODE
2021 INTERNATIONAL EXISTING BUILDING CODE
2021 INTERNATIONAL ENERGY CONSERVATION CODE
2021 INTERNATIONAL MECHANICAL CODE
2021 INTERNATIONAL PLUMBING CODE

AS ADOPTED BY FORT COLLINS INCLUDING ANY AMENDMENTS OR ADDITIONAL LISTED REQUIREMENTS. DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF FORT COLLINS UTILITY.

EQUIPMENT IS COMPATIBLE WITH UL2703, UL1741, UL1703 / UL61730, AND UL9540A AS APPLICABLE

DESIGN CRITERIA

WIND SPEED: 140 MPH
GROUND SNOW LOAD: 35 PSF
ASCE: 7-16
EXPOSURE CATEGORY: B
BUILDING OCCUPANCY: R-3
CONSTRUCTION TYPE: TYPE V-B
SPRINKLERS: NO

DATE	REVISION	COMMENT
9/08/2025	REV B	SLD PAGE UPDATED

<div><div>N</div><div></div></div> <div>FCU METER NUMBER: 14583916 FCU UTILITY ACCOUNT NUMBER: 634336-53949 FCU UTILITY ACCOUNT NAME: SARAH FONTE</div>	ROOF DESCRIPTION							
	ROOF #	ROOF TYPE	TILT	PITCH	AZIMUTH	ROOF FRAMING	MODULE COUNT	ARRAY SQ. FT.
	1	MEMBRANE	7°	1.5:12	143°	2X4@24" O.C. TRUSSES	6	126.00
	TOTAL ROOF AREA SQ. FT.		3288		TOTAL ARRAY SQ. FT.		126.00	ROOF COVER %
TOTAL EXISTING ARRAY SQ FT		378		TOTAL COMBINED SQ FT		504	COMBINED ROOF COVER %	15.33

SYSTEM INFORMATION	

SYSTEM INFORMATION	
MODULE COUNT/TYPE	(6) HYUNDAI HIN-T440NF(BK)
INVERTER COUNT/TYPE	(6) ENPHASE IQ8MC-72-M-US
MODULE WEIGHT	50.01 LBS
MODULE DIMENSIONS	67.80" x 44.60"
UNIT WEIGHT OF ARRAY	2.38 PSF

LEGEND	
ROOF VENT (TYP.)	
PLUMBING VENT (TYP.)	
A/C UNIT	
SATELLITE DISH	
ELECTRICAL MAST	
CHIMNEY	
FIRECODE PATHWAY	

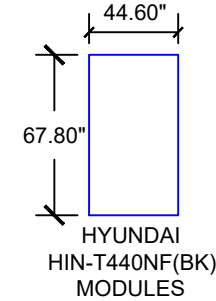
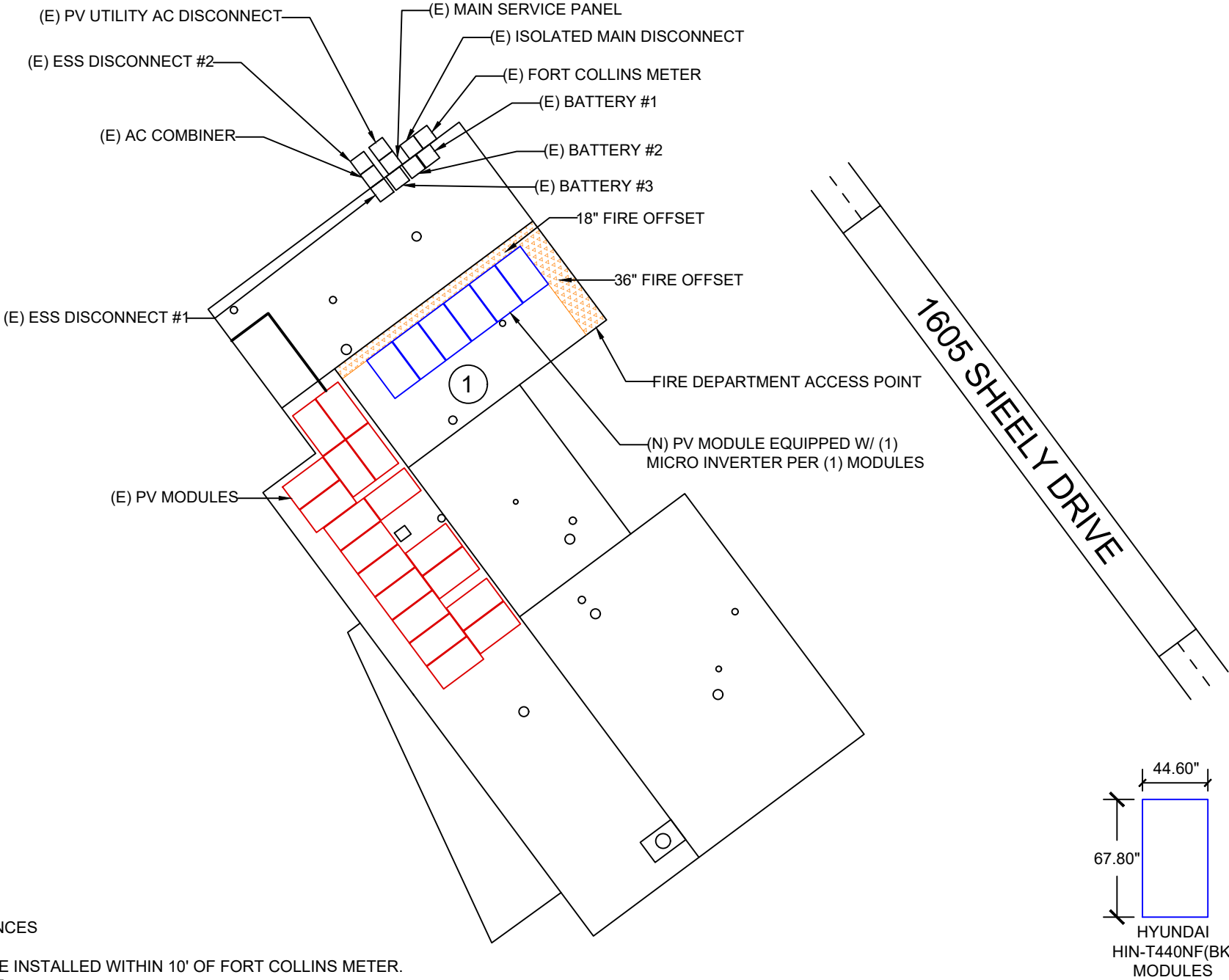
EXISTING EQUIPMENT DETAIL:
(18) REC SOLAR REC405AA PURE
(18) ENPHASE IQ8A-72-2-US INVERTERS

NEW DC SYSTEM SIZE: 2.640 kW
NEW AC SYSTEM SIZE: 1.920 kW

EXISTING DC SYSTEM SIZE: 7.290 kW
EXISTING DC SYSTEM SIZE: 6.282 kW
EXISTING ESS SIZE:15.000 kWh

SITE PLAN NOTES

- ALL OBSTRUCTIONS MUST BE VERIFIED BEFORE WORK COMMENCES
 - CONDUIT TO BE RUN IN ATTIC IF POSSIBLE
 - VISIBLE LOCKABLE LABELED PV UTILITY AC DISCONNECT WILL BE INSTALLED WITHIN 10' OF FORT COLLINS METER.
 - PV UTILITY AC DISCONNECT SHALL BE READILY ACCESSIBLE 24/7
 - REQUIRED ELECTRICAL CLEARANCE TO BE MAINTAINED
 - MAIN SERVICE PANEL LOCATION: 1ST FLOOR
 - METER LOCATION: 1ST FLOOR
- NOTE: EQUIPMENT LOCATIONS ARE DEFINED BUT MAY BE APPROXIMATE DUE TO EXISTING CONDITIONS



SCALE: 1/16" = 1'-0"

DESIGN ENGINEER

WYSSLING CONSULTING
CORPORATE EXPERIENCE WITH SMALL BUSINESS VALUE

76 N. MEADOWBROOK DRIVE
ALPINE UT 84004
swyssling@wysslingconsulting.com
(201) 874-3483

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design@heartandsolar.com

SOLAR COMPANY/CLIENT

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FONTE RESIDENCE

1605 SHEELY DRIVE
FORT COLLINS, CO 80526
COORDINATES: 40.566454, -105.092209
APN: 0102601

SITE PLAN

ACCOUNT #: 634336-53949
CUSTOMER NAME: SARAH FONTE
METER #: 14583916

Signed 9/08/2025

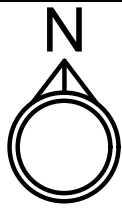
SCOTT E WYSSLING, PE
CO LICENSE NO PE.0054597

DC SYSTEM SIZE: 2.640kW
AC SYSTEM SIZE: 1.920kW

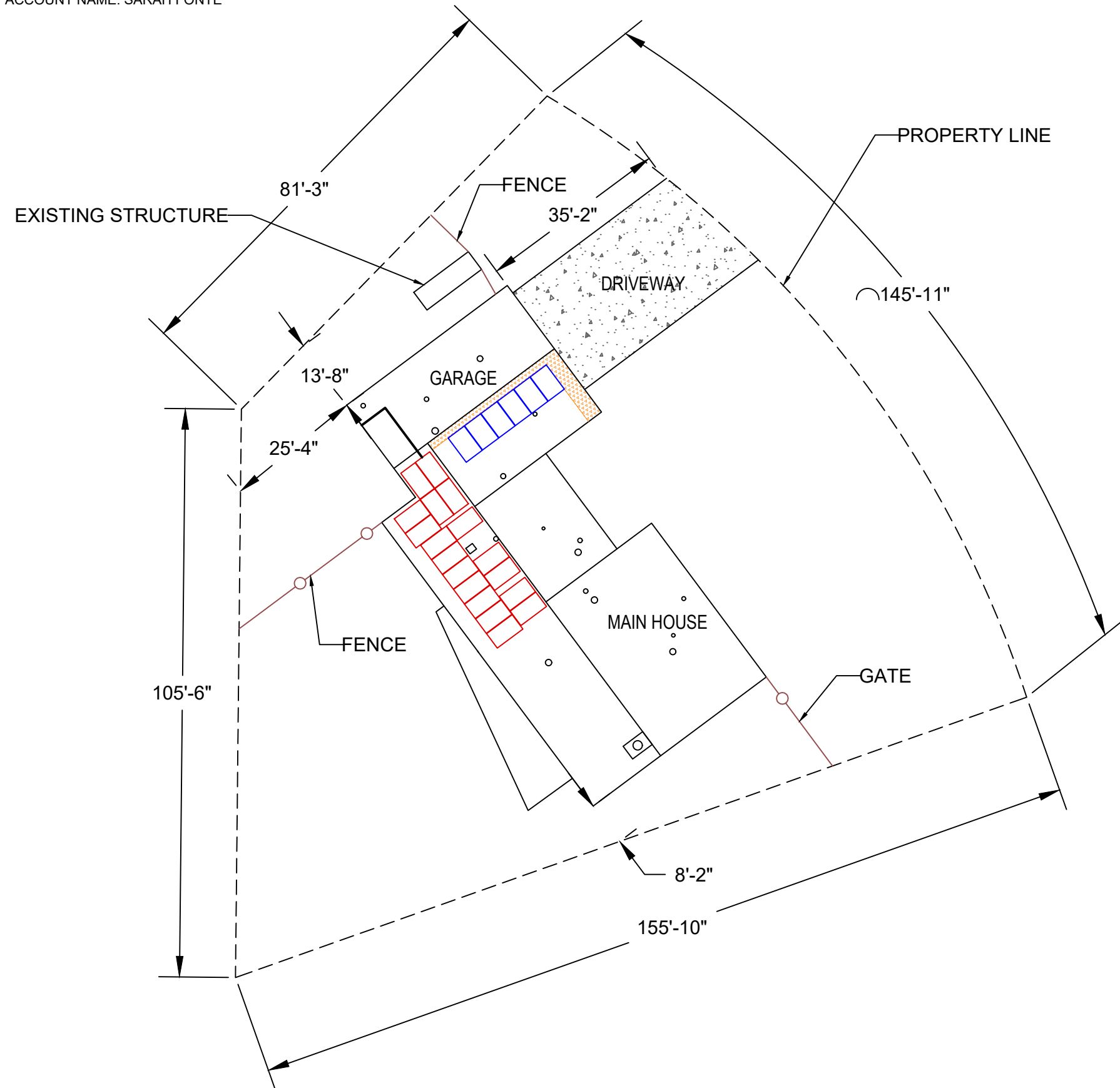
AHJ: FORT COLLINS
UTILITY: FCU

DRAWN BY: ASP
INITIAL DESIGN DATE: 09/05/2025
REV: B

PV-2

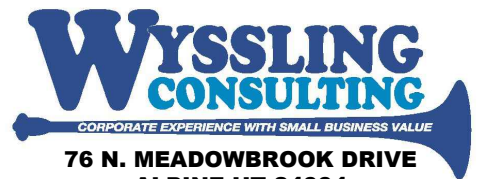


FCU METER NUMBER: 14583916
FCU UTILITY ACCOUNT NUMBER: 634336-53949
FCU UTILITY ACCOUNT NAME: SARAH FONTE



SCALE: 3/64" = 1'-0"

DESIGN ENGINEER



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ALPINE UT 84004

swyssling@wysslingconsulting.com
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**FONTE
RESIDENCE**
1605 SHEELY DRIVE
FORT COLLINS, CO 80526
COORDINATES: 40.566454, -105.092209
APN: 0102601

PROPERTY PLAN

ACCOUNT #: 634336-53949
CUSTOMER NAME: SARAH FONTE
METER #: 14583916



Signed 9/08/2025

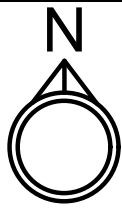
SCOTT E WYSSLING, PE
CO LICENSE NO PE.0054597

DC SYSTEM SIZE: 2.640kW
AC SYSTEM SIZE: 1.920kW

AHJ: FORT COLLINS
UTILITY: FCU

DRAWN BY: ASP
INITIAL DESIGN DATE: 09/05/2025 REV: B

PV-3



FCU METER NUMBER: 14583916
FCU UTILITY ACCOUNT NUMBER: 634336-53949
FCU UTILITY ACCOUNT NAME: SARAH FONTE

PV MODULES: (6) HYUNDAI HIN-T440NF(BK)
ROOF TYPE(S): MEMBRANE
ROOF CONDITION: GOOD
MOUNTING TYPE(S): SUNMODO NANOMOUNTS (ROOF MOUNT) WITH SMR RAIL
FLASHING: SUNMODO SEALING GASKET
ROOF HEIGHT: 15'
ROOF FRAMING MATERIAL: WOOD
DECKING THICKNESS: 1/2"

TOTAL ATTACHMENTS: 14

24" ATTIC MEMBER SPACING

48" MAX SPACING

18" FIRE OFFSET

36" FIRE OFFSET

MAX CANTILEVER DISTANCE: 8"

1

EXACT LOCATION OF ROOF FRAMING MAY VARY; INSTALLER TO FOLLOW ENGINEER (WHERE APPLICABLE) AND MANUFACTURER INSTRUCTIONS/GUIDELINES WHEN INSTALLING.

ATTACHMENT DESCRIPTION

ROOF #	ROOF TYPE	TILT	ARRAY TILT	AZIMUTH	ROOF FRAMING	TOTAL POINTS	MAX SPACING	MAX CANTILEVER	ATTACHMENT	MIN EMBEDMENT
1	MEMBRANE	7°	7°	143°	2X4@24" O.C. TRUSSES	14	48"	8"	(1) M8X110 LAG SCREW	2.5"

DESIGN ENGINEER



**76 N. MEADOWBROOK DRIVE
ALPINE UT 84004**

swyssling@wysslingconsulting.com
(201) 874-3483

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design@heartandsolar.com

SOLAR COMPANY/CLIENT



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**FONTE
RESIDENCE**

1605 SHEELY DRIVE
FORT COLLINS, CO 80526
COORDINATES: 40.566454, -105.092209
APN: 0102601

ATTACHMENT PLAN

ACCOUNT #: 634336-53949
CUSTOMER NAME: SARAH FONTE
METER #: 14583916



Signed 9/08/2025

SCOTT E WYSSLING, PE
CO LICENSE NO PE.0054597

DC SYSTEM SIZE: 2.640kW
AC SYSTEM SIZE: 1.920kW

AHJ: FORT COLLINS
UTILITY: FCU

DRAWN BY: ASP
INITIAL DESIGN DATE: 09/05/2025 REV: B

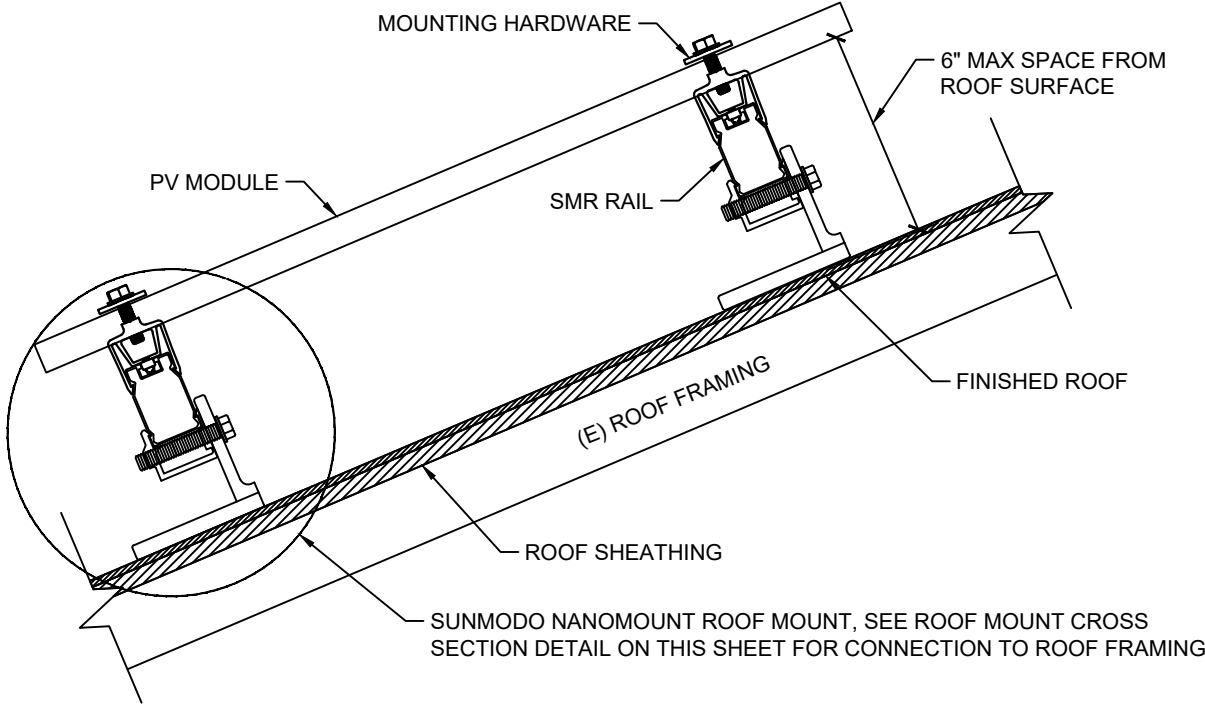
PV-4

SCALE: 3/32" = 1'-0"

ROOF SECTIONS	R1	WIND SPEED: 140 MPH	GROUND SNOW LOAD: 35 PSF	ROOF TYPE: MEMBRANE	ROOF LAYERS (IF APPLICABLE): 1
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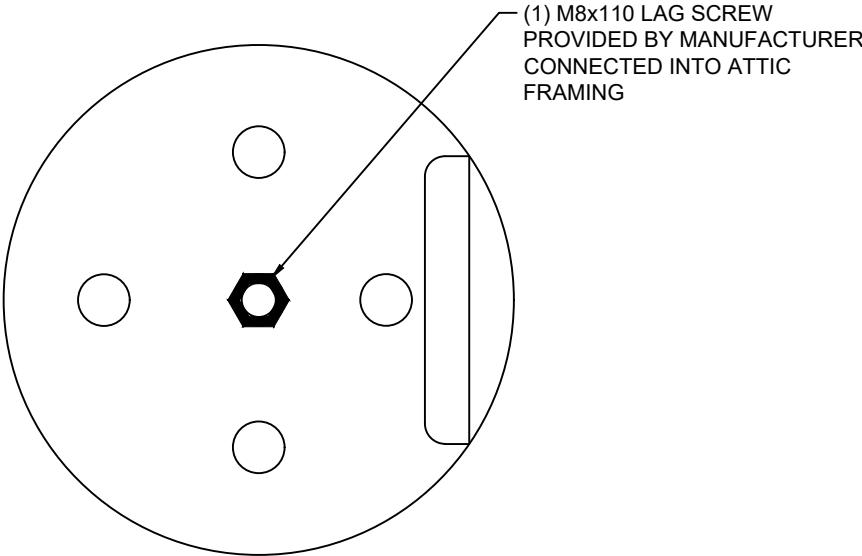
GENERAL ROOF MOUNT DETAIL

NTS



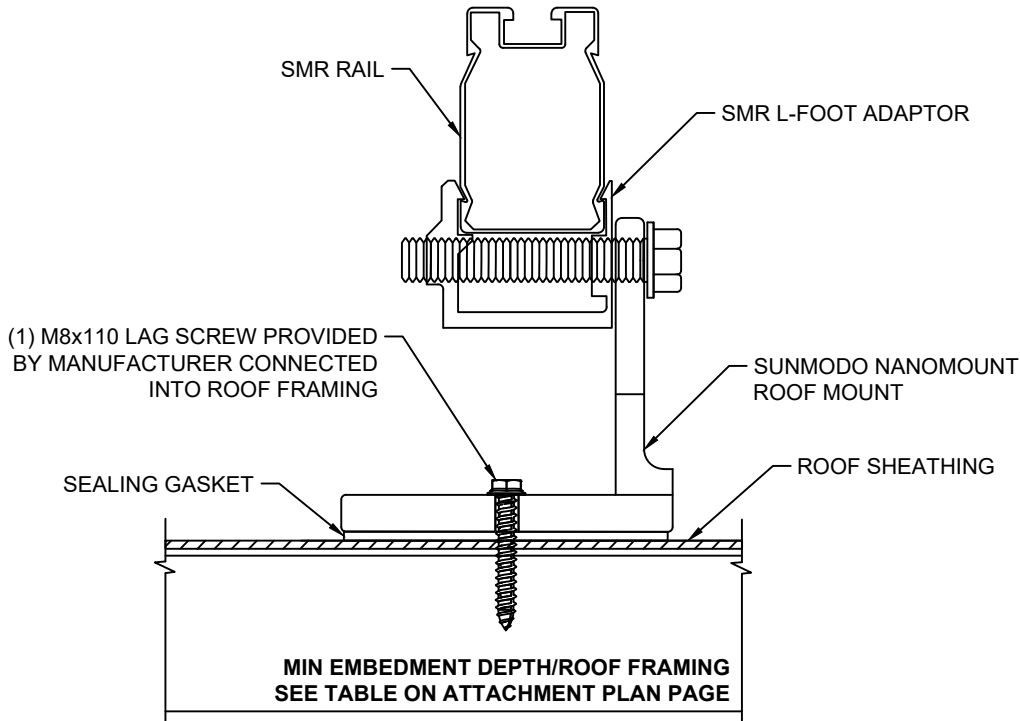
ROOF MOUNT PLAN VIEW DETAIL

NTS



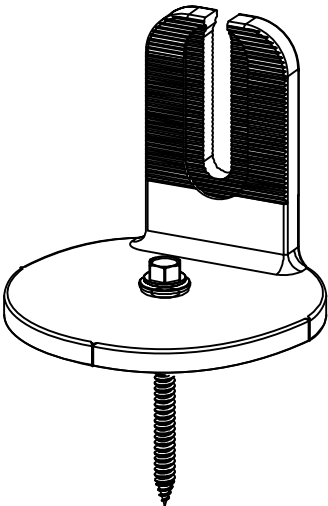
ROOF MOUNT CROSS SECTION DETAIL

NTS



ROOF MOUNT

NTS



DESIGN ENGINEER

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FONTE
RESIDENCE

1605 SHEELY DRIVE
FORT COLLINS, CO 80526
COORDINATES: 40.566454, -105.092209
APN: 0102601

MOUNTING DETAILS

ACCOUNT #: 634336-53949
CUSTOMER NAME: SARAH FONTE
METER #: 14583916



Signed 9/08/2025

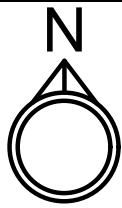
SCOTT E WYSSLING, PE
CO LICENSE NO PE.0054597

DC SYSTEM SIZE: 2.640kW
AC SYSTEM SIZE: 1.920kW

AHJ: FORT COLLINS
UTILITY: FCU

DRAWN BY: ASP
INITIAL DESIGN DATE: 09/05/2025
REV: B

PV-5



FCU METER NUMBER: 14583916
FCU UTILITY ACCOUNT NUMBER: 634336-53949
FCU UTILITY ACCOUNT NAME: SARAH FONTE

MODULE: (6) HYUNDAI HIN-T440NF(BK)
INVERTER: (6) ENPHASE IQ8MC-72-M-US

STRING 1: (6) MODULES



SCALE: 3/32" = 1'-0"

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Wyssling
CONSULTING

CORPORATE EXPERIENCE WITH SMALL BUSINESS VALUE

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FONTE
RESIDENCE

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FORT COLLINS, CO 80526
COORDINATES: 40.566454, -105.092209
APN: 0102601

STRING PLAN

ACCOUNT #: 634336-53949
CUSTOMER NAME: SARAH FONTE
METER #: 14583916



DC SYSTEM SIZE: 2.640kW
AC SYSTEM SIZE: 1.920kW

AHJ: FORT COLLINS
UTILITY: FCU

DRAWN BY: ASP
INITIAL DESIGN DATE: 09/05/2025 REV: B

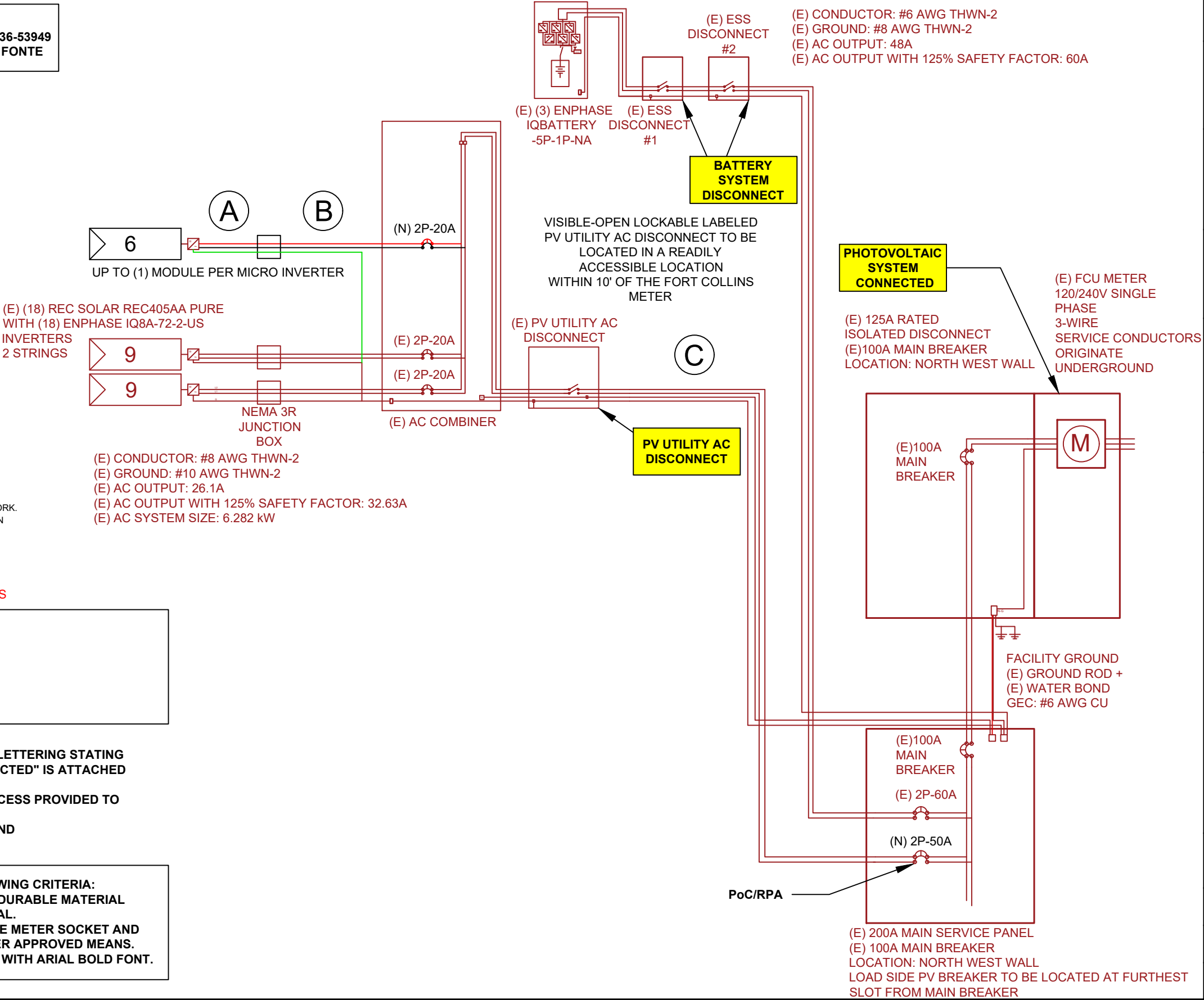
EE-1

MODULE TYPE: (6) HYUNDAI HIN-T440NF(BK)
INVERTER TYPE: (6) ENPHASE IQ8MC-72-M-US 240V

NOTE: ALL EQUIPMENT MUST BE UTILIZED IN ACCORDANCE WITH MANUFACTURER'S INTENDED USE AND DESIGN SPECIFICATIONS. ALL EQUIPMENT MAY BE SUBSTITUED BASED ON AVAILABILITY. WHEN SUBSTITUED, EQUIPMENT MUST BE EQUIVALENT.

FCU METER NUMBER: 14583916
FCU UTILITY ACCOUNT NUMBER: 634336-53949
FCU UTILITY ACCOUNT NAME: SARAH FONTE

CONDUCTOR SCHEDULE										
TAG	# WIRES IN CONDUIT	MINIMUM WIRE SIZE	TYPE, MATERIAL	MINIMUM GROUND WIRE SIZE	GROUND TYPE, MATERIAL	CONDUIT	AMPS (BEFORE 125% SAFETY FACTOR)	TOTAL AMPS	WIRE AMPERAGE RATING TABLE 310.15(B)(16)	MINIMUM OCPD
A	3	#12 AWG	Q CABLE	#6 AWG	BARE CU	FREE AIR	7.98	9.98	25	20
B	3	#10 AWG	THWN-2, CU	#12 AWG	THWN-2, CU	3/4 EMT	7.98	9.98	35	20
C	4	#8 AWG	THWN-2, CU	#10 AWG	THWN-2, CU	3/4 EMT	34.08	42.6	50	50



INSTALLER / ELECTRICIAN NOTE:
EC IS TO MEASURE VOLTAGE BEFORE STARTING WORK.
IF RESULT IS ANY OTHER VOLTAGE MEASURED THAN
120/240V, DO NOT PROCEED. CONTACT ENGINEER.

EXISTING EQUIPMENT DETAIL:
(18) REC SOLAR REC405AA PURE
(18) ENPHASE IQ8A-72-2-US INVERTERS

NEW DC SYSTEM SIZE: 2.640 kW
NEW AC SYSTEM SIZE: 1.920 kW

EXISTING DC SYSTEM SIZE: 7.290 kW
EXISTING DC SYSTEM SIZE: 6.282 kW
EXISTING ESS SIZE: 15.000 kWh

1. YELLOW PLACARD WITH BLACK LETTERING STATING "PHOTOVOLTAIC SYSTEM CONNECTED" IS ATTACHED AT THE MAIN BILLING METER.
2. 24/7, UNESCORTED, KEYLESS ACCESS PROVIDED TO ALL UTILITY EQUIPMENT.
3. PLACARDS TO BE PERMANENT AND NON-REMOVABLE.

- ALL PLACARDS TO MEET THE FOLLOWING CRITERIA:
1. MADE OF WEATHER PROOF AND DURABLE MATERIAL SUCH AS HARD PLASTIC OR METAL.
 2. PERMANENTLY ATTACHED TO THE METER SOCKET AND EQUIPMENT WITH RIVETS OR OTHER APPROVED MEANS.
 3. AT LEAST 1 1/2" HIGH BY 3" WIDE WITH ARIAL BOLD FONT.

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FONTE RESIDENCE
1605 SHEELY DRIVE
FORT COLLINS, CO 80526
COORDINATES: 40.566454, -105.092209
APN: 0102601

THREE LINE DIAGRAM

ACCOUNT #: 634336-53949
CUSTOMER NAME: SARAH FONTE
METER #: 14583916

DC SYSTEM SIZE: 2.640kW
AC SYSTEM SIZE: 1.920kW

AHJ: FORT COLLINS
UTILITY: FCU

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EE-2

PV MODULE		INVERTER	
MODEL	HYUNDAI HIN-T440NF(BK)	MODEL	ENPHASE IQ8MC-72-M-US
PMAX	440W	MAX INPUT DC VOLTAGE	60V
VOC	38.8V	MAX DC CURRENT	25A
VMP	32.3V	MAX OUTPUT POWER	320W
IMP	13.63A	MAXIMUM CONT. OUTPUT CURRENT	1.33A
ISC	14.39A	CEC EFFICIENCY	0.97
MAX SERIES FUSE RATING	30A	NOMINAL AC VOLTAGE	240V
		MAX UNITS PER 20A CIRCUIT	12

ELECTRICAL CALCULATIONS

TAG A
FROM MODULES TO JUNCTION BOX

LARGEST STRING: 6 MODULES
NUMBER OF INVERTERS: 6
AMPS PER INVERTER: 1.33A
6 * 1.33A = 7.98A * 1.25 = 9.98A TOTAL AMPS

CONDUCTOR SIZE: #12 AWG
CONDUCTOR MAX: 25A, GOOD
OCPD: 20A, GOOD

TAG B
FROM JUNCTION BOX TO AC COMBINER

LARGEST STRING: 6 MODULES
NUMBER OF INVERTERS: 6
AMPS PER INVERTER: 1.33A
6 * 1.33A = 7.98A * 1.25 = 9.98A TOTAL AMPS

CONDUCTOR SIZE: #10 AWG
CONDUCTOR MAX: 35A, GOOD
OCPD: 20A, GOOD

TAG C
FROM AC COMBINER TO INTERCONNECTION

TOTAL MODULES: 6
TOTAL INVERTERS: 6
AMPS PER INVERTER: 1.33A
6 * 1.33A = 7.98A * 1.25 = 9.975A
18 * 1.45A = 26.1 * 1.25 = 32.625A
TOTAL AMPS: 42.6A

CONDUCTOR SIZE: #8 AWG
CONDUCTOR MAX: 50A, GOOD
OCPD: 50A, GOOD

TEMPERATURE CORRECTED VOC				
MODULE VOC	VOC COEFFICIENT	COLDEST TEMPERATURE	ADJUSTED VOC	INVERTER/ OPTIMIZER MAX
38.8	-0.25	-23.00	43.46	60, GOOD

FCU METER NUMBER: 14583916
FCU UTILITY ACCOUNT NUMBER: 634336-53949
FCU UTILITY ACCOUNT NAME: SARAH FONTE

DESIGN ENGINEER




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FONTE
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ELECTRICAL NOTES

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1) **PHOTOVOLTAIC AC DISCONNECT**
MAXIMUM AC OPERATING CURRENT: 7.98
NOMINAL OPERATING AC VOLTAGE: 240

AT POINT OF INTERCONNECTION, MARKED AT DISCONNECTING MEANS [NEC 690.56]

2) **⚠️WARNING** DUAL POWER SOURCE
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

AT POINT OF INTERCONNECTION [NEC 705.12(C),690.59]

3) **MAIN PHOTOVOLTAIC SYSTEM DISCONNECT**

EACH PV SYSTEM DISCONNECTING MEANS SHALL PLAINLY INDICATE WHETHER IN THE OPEN (OFF) OR CLOSED (ON) POSITION AND BE PERMANENTLY MARKED [NEC 690.13(B)]

4) **PHOTOVOLTAIC DC DISCONNECT**

AT EACH DC DISCONNECTING MEANS [NEC 690.13(B)]

5) **PHOTOVOLTAIC AC DISCONNECT**

AT EACH AC DISCONNECTING MEANS [NEC 690.13(B)]

6) **WARNING: PHOTOVOLTAIC POWER SOURCE**

AT EXPOSED RACEWAYS, CABLE TRAYS, AND OTHER WIRING METHODS; SPACED AT MAXIMUM 10 FT SECTION OR WHERE SEPARATED BY ENCLOSURES, WALLS, PARTITIONS, CEILINGS, OR FLOORS [NEC 690.31(D)(2)]

7) **⚠️WARNING**
ELECTRICAL SHOCK HAZARD
DO NOT TOUCH TERMINALS
TERMINALS ON BOTH LINE AND LOAD SIDES
MAY BE ENERGIZED IN THE OPEN POSITION

AT BUILDING OR STRUCTURE MAIN DISCONNECTING MEANS [NEC 690.12(E), NEC 690.13(B)]

8) **⚠️ WARNING**
PHOTOVOLTAIC SYSTEM COMBINER PANEL
DO NOT ADD LOADS

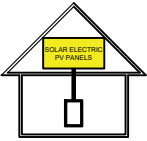
AT AC COMBINER PANEL [NEC 690.13(B)]

9) **⚠️WARNING**
INVERTER OUTPUT CONNECTION. DO NOT RELOCATE THIS OVERCURRENT DEVICE

A PERMANENT WARNING LABEL SHALL BE APPLIED TO THE DISTRIBUTION EQUIPMENT ADJACENT TO THE BACK-FED BREAKER FROM THE INVERTER [NEC 705.12(B)(2)] (BREAKER INTERCONNECTION ONLY)

10) **SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN**

TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUTDOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN ARRAY



FOR PV SYSTEMS THAT SHUT DOWN THE ARRAY AND CONDUCTORS LEAVING THE ARRAY: THE TITLE "SOLAR PV SYSTEM IS EQUIPPED WITH RAPID SHUTDOWN" SHALL UTILIZED CAPITALIZED CHARACTERS WITH A MINIMUM HEIGHT OF 3/8 IN. IN BLACK ON YELLOW BACKGROUND, AND THE REMAINING CHARACTERS SHALL BE CAPITALIZED WITH A MINIMUM HEIGHT OF 3/16 IN. IN BLACK ON WHITE BACKGROUND [NEC 690.12(D)]

11) **RAPID SHUTDOWN SWITCH FOR SOLAR PV**

A RAPID SHUTDOWN SWITCH SHALL HAVE A LABELED LOCATED ON OR NO MORE THAN 8 FT FROM THE SWITCH THAT INCLUDES THIS WORDING. THE LABEL SHALL BE REFLECTIVE, WITH ALL LETTERS CAPITALIZED AND HAVING A MINIMUM HEIGHT OF 3/8 IN., IN WHITE ON RED BACKGROUND [NEC 690.12(D)(2)]

12) **⚠️ WARNING**
MULTIPLE SOURCES OF POWER. A PV SYSTEM IS PRESENT.
DISCONNECT ALL POWER SOURCES BEFORE SERVICING

PLACE LABEL AT MAIN SERVICE PANEL

13) **PHOTOVOLTAIC SYSTEM CONNECTED**

LOCATED ON THE UTILITY METER; PERMANENT AND NON REMOVABLE LABEL

14) **PV UTILITY AC DISCONNECT**

LOCATED AT AC DISCONNECT; PERMANENT AND NON REMOVABLE LABEL

15) **BATTERY SYSTEM DISCONNECT**

LOCATED AT ESS DISCONNECT; PERMANENT AND NON REMOVABLE LABEL

LABELING NOTES:

1. LABELS CALLED OUT ACCORDING TO ALL COMMON CONFIGURATIONS. ELECTRICIAN TO DETERMINE EXACT REQUIREMENTS IN THE FIELD PER CURRENT NEC AND LOCAL CODES AND MAKE APPROPRIATE ADJUSTMENTS.
2. LABELING REQUIREMENTS BASED ON THE NATIONAL ELECTRIC CODE, OSHA STANDARD 19010.145, ANSI Z535.
3. MATERIAL BASED ON THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
4. LABELS TO BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED [NEC 110.21] THEY SHALL BE PERMANENTLY ATTACHED, WEATHER/SUNLIGHT RESISTANT, AND SHALL NOT BE HAND WRITTEN PER NEC 110.21(B)
5. APPLICABLE LABELS TO BE A MINIMUM LETTER HEIGHT OF 3/8", WHITE ON RED BACKGROUND; REFLECTIVE, AND PERMANENTLY AFFIXED [IFC 605.11.1.1]


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FONTE RESIDENCE
1605 SHEELY DRIVE
FORT COLLINS, CO 80526
COORDINATES: 40.566454, -105.092209
APN: 0102601

LABELS

ACCOUNT #: 634336-53949
CUSTOMER NAME: SARAH FONTE
METER #: 14583916

DC SYSTEM SIZE: 2.640kW
AC SYSTEM SIZE: 1.920kW

AHJ: FORT COLLINS
UTILITY: FCU

DRAWN BY: ASP
INITIAL DESIGN DATE: 09/05/2025 REV: B

GENERAL NOTES

- 1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND REVIEW ALL MANUFACTURER INSTALLATION DOCUMENTS PRIOR TO INITIATING CONSTRUCTION.
- 2. ALL COMPONENTS SHALL BE NEW AND LISTED BY A RECOGNIZED ELECTRICAL TESTING LABORATORY AND LISTED FOR THEIR SPECIFIC APPLICATION.
- 3. OUTDOOR EQUIPMENT SHALL BE NEMA 3R RATED OR BETTER.
- 4. ACCESS TO ELECTRICAL COMPONENTS OVER 150 VOLTS TO GROUND SHALL BE RESTRICTED TO QUALIFIED PERSONNEL.
- 5. CONTRACTOR SHALL OBTAIN ELECTRICAL PERMITS PRIOR TO INSTALLATION AND SHALL COORDINATE ALL INSPECTIONS, TESTING COMMISSIONING, AND ACCEPTANCE WITH THE HOMEOWNER, UTILITY CO. AND CITY INSPECTORS AS NEEDED.
- 6. EACH MODULE TO BE GROUNDED USING THE SUPPLIED CONNECTION POINT PER THE MANUFACTURER'S REQUIREMENTS. ALL PV MODULES, EQUIPMENT, AND METALLIC COMPONENTS ARE TO BE BONDED. IF THE EXISTING GROUNDING ELECTRODE SYSTEM CANNOT BE VERIFIED OR IS ONLY METALLIC WATER PIPING, IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSTALL A SUPPLEMENTAL GROUNDING ELECTRODE.
- 7. DC CONDUCTORS SHALL BE RUN IN EMT AND/OR MC (METAL CLAD CABLE) AND SHALL BE LABELED.
- 8. EXPOSED NON-CURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT SHALL BE GROUNDED IN ACCORDANCE WITH APPLICABLE NEC.
- 9. CONFIRM LINE SIDE VOLTAGE AT THE ELECTRIC UTILITY SERVICE PRIOR TO CONNECTING INVERTER. VERIFY SERVICE VOLTAGE IS WITHIN INVERTER VOLTAGE OPERATIONAL RANGE.
- 10. ELECTRICAL CONTRACTOR TO PROVIDE CONDUIT EXPANSION JOINTS AND ANCHOR CONDUIT RUNS AS REQUIRED PER CODE.
- 11. ALL WIRING MUST BE PROPERLY SUPPORTED BY DEVICES OR MECHANICAL MEANS DESIGNED AND LISTED FOR SUCH USE, AND FOR ROOF-MOUNTED SYSTEMS, WIRING MUST BE PERMANENTLY AND COMPLETELY HELD OFF OF THE ROOF SURFACE.
- 12. ALL ROOF PENETRATIONS MUST BE SEALED OR FLASHED.
- 13. EQUIPMENT MAY BE SUBSTITUTED FOR SIMILAR EQUIPMENT BASED ON AVAILABILITY, SUBSTITUTED EQUIPMENT SHALL COMPLY WITH DESIGN CRITERIA.
- 14. REMOVAL OF AN INTERACTIVE INVERTER OR OTHER EQUIPMENT SHALL NOT DISCONNECT THE BONDING CONNECTION BETWEEN THE GROUNDING ELECTRODE CONDUCTOR AND THE PHOTOVOLTAIC SOURCE AND/OR OUTPUT CIRCUIT GROUNDED CONDUCTORS.
- 15. WHENEVER A DISCREPANCY IN THE QUALITY OF EQUIPMENT ARISES ON THE DRAWING OR SPECIFICATIONS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL MATERIAL AND SERVICES REQUIRED BY THE STRICTEST CONDITIONS NOTED ON THE DRAWINGS OR IN THE SPECIFICATIONS TO ENSURE COMPLETE COMPLIANCE AND LONGEVITY OF THE OPERABLE SYSTEM REQUIRED BY THE ENGINEERS.
- 16. AC DISCONNECT SHALL BE LOCATED WITHIN 10' OF FORT COLLINS METER. AC DISCONNECT SHALL BE LOCATED ON SAME WALL OF HOUSE WHERE POSSIBLE. IF AC DISCONNECT CANNOT BE WITHIN 10' OF METER, THEN PHOTOS SHALL BE PROVIDED OF THE OBSTRUCTION FOR REVIEW.
- 17. IF APPLICABLE, ENERGY STORAGE SYSTEM (ESS) CAN BE USED DURING ON-GRID OPERATION TO SHIFT GENERATION FOR TIME OF USE (TOU) AND WILL NOT OPERATE OFF GRID.

GENERAL ELECTRICAL NOTES

- 1. CONDUIT A AND B AMPS EQUAL TO LARGEST STRING ON TAG.
- 2. CONDUIT A SHALL BE RUN THROUGH ATTIC IF POSSIBLE.
- 3. ALL WIRING MUST BE PROPERLY SUPPORTED BY DEVICES OR MECHANICAL MEANS DESIGNED AND/OR LISTED FOR SUCH USE, AND FOR ROOF-MOUNTED SYSTEMS, WIRING MUST BE PERMANENTLY AND COMPLETELY HELD OFF OF THE ROOF SURFACE.
- 4. EQUIPMENT MAY BE SUBSTITUTED FOR SIMILAR EQUIPMENT BASED ON AVAILABILITY, SUBSTITUTED EQUIPMENT SHALL COMPLY WITH DESIGN CRITERIA. WIRE SIZES ARE BASED ON MINIMUMS AND ARE NOT MEANT TO LIMIT UPSIZING AS REQUIRED BY FIELD CONDITIONS/AVAILABILITY.
- 5. WIRING SHALL COMPLY WITH MAXIMUM CONTINUOUS CURRENT OUTPUT AT 25°C AND MAXIMUM VOLTAGE AT 600V; WIRE SHALL BE WET RATED AT 90°C.
- 6. EXPOSED PHOTOVOLTAIC SYSTEM CONDUCTORS ON THE ROOF WILL BE TYPE 2 OR PV-TYPE WIRE.
- 7. PHOTOVOLTAIC SYSTEM CONDUCTORS SHALL BE IDENTIFIED AND GROUPED. THE MEANS OF IDENTIFICATION SHALL BE PERMITTED BY SEPARATE COLOR-CODING, MARKING TAPE, TAGGING OR OTHER APPROVED MEANS.
- 8. ALL CONDUCTORS AND TERMINATIONS SHALL BE RATED FOR INSTALL LOCATION
- 9. ALL EXTERIOR CONDUIT, FITTINGS, AND BOXES SHALL BE RAIN-TIGHT AND APPROVED FOR USE IN WET LOCATIONS.
- 10. ALL METALLIC RACEWAYS AND EQUIPMENT SHALL BE BONDED AND ELECTRICALLY CONTINUOUS.
- 11. WHERE SIZES OF JUNCTION BOXES, RACEWAYS, AND CONDUITS ARE NOT SPECIFIED, CONTRACTOR SHALL SIZE THEM ACCORDING TO APPLICABLE CODES.
- 12. REMOVAL OF A UTILITY-INTERACTIVE INVERTER OR OTHER EQUIPMENT SHALL NOT DISCONNECT THE BUILDING CONNECTION BETWEEN THE GROUNDING ELECTRODE CONDUCTOR AND THE PV SOURCE AND/OR OUTPUT CIRCUIT GROUNDED CONDUCTOR.
- 13. FOR GROUNDED SYSTEMS, THE PHOTOVOLTAIC SOURCE AND OUTPUT CIRCUITS SHALL BE PROVIDED WITH A GROUND-FAULT PROTECTION DEVICE OR SYSTEM THAT DETECTS A GROUND FAULT, INDICATES THAT FAULT HAS OCCURRED, AND AUTOMATICALLY DISCONNECTS ALL CONDUCTORS OR CAUSES THE INVERTER TO AUTOMATICALLY CEASE SUPPLYING POWER TO OUTPUT CIRCUITS.
- 14. FOR UNGROUNDED SYSTEMS, THE INVERTER IS EQUIPPED WITH GROUND FAULT PROTECTION AND A GFI FUSE PORT FOR GROUND FAULT INDICATION.
- 15. PV MODULE FRAMES SHALL BE BONDED TO RACKING RAIL OR BARE COPPER GEC/GEC PER THE MODULE MANUFACTURER'S LISTED INSTRUCTION SHEET.
- 16. PV MODULE RACKING RAIL SHALL BE BONDED TO BARE COPPER GEC VIA WEEB LUG, IL SCO GBL-4DBT LAY IN LUG, OR EQUIVALENT LISTED LUG.
- 17. THE PHOTOVOLTAIC INVERTER WILL BE LISTED AS UL 1741 COMPLIANT.
- 18. RACKING AND BONDING SYSTEM TO BE UL2703 RATED.
- 19. ANY REQUIRED GROUNDING ELECTRODE CONDUCTOR WILL BE CONTINUOUS, EXCEPT FOR SPLICES OR JOINTS AS BUSBARS WITHIN LISTED EQUIPMENT
- 20. WHEN BACKFEED BREAKER IS THE METHOD OF UTILITY INTERCONNECTION, THE BREAKERS SHALL NOT READ "LINE AND LOAD."
- 21. WHEN APPLYING THE 120% RULE, THE SOLAR BREAKER TO BE POSITIONED AT THE OPPOSITE END OF THE BUSBAR FROM THE MAIN BREAKER.
- 22. THE WORKING CLEARANCE AROUND THE EXISTING ELECTRICAL EQUIPMENT AS WELL AS THE NEW ELECTRICAL EQUIPMENT WILL BE MAINTAINED.
- 23. LISTED CONDUIT AND CONDUCTOR SIZES ARE BASED ON MINIMUM CODE REQUIREMENTS AND ARE NOT MEANT TO LIMIT UPSIZING AS REQUIRED BY FIELD CONDITIONS/AVAILABILITY.
- 24. ENPHASE IQ8MC-72-M-US INVERTERS HAVE INTEGRATED GROUND AND DOUBLE INSULATION. NO GEG OR EGC IS REQUIRED. THE DC CIRCUIT IS ISOLATED AND INSULATED FROM GROUND AND MEETS THE REQUIREMENTS OF NEC.
- 25. CALCULATIONS ARE BASED ON A) ASHRAE #2 AVERAGE HIGH = 32°C B)NEC TABLE 310.15(B)2(a) 75° DERATE FACTOR = 0.96 C) NEC TABLE NEC 310.15(B)(16) 75°C.
- 26. SUPPLEMENTAL GROUNDING ELECTRODE TO BE INSTALLED NO CLOSER THAN 6' FROM EXISTING WHEN REQUIRED. NEC 250.53(A)(2) DOES NOT REQUIRE IT IF CONTRACTOR CAN PROVE THAT A SINGLE ROD HAS A RESISTANCE TO EARTH OF 25 OHMS OR LESS.
- 27. WHEN CABLE, INCLUDING PV CABLE(S), IS RUN BETWEEN ARRAYS OR TO JUNCTION BOXES IT SHALL BE ENCLOSED IN CONDUIT. [NEC 300.4, 690.31(A) AND (C)]
- 28. THE CABLE CONNECTORS USED ON THE OUTPUT SIDE OF THE OPTIMIZER OR MICROINVERTER TOGETHER WITH THE ARRAY CABLE USED BETWEEN THEM ARE OF THE SAME MANUFACTURER OR ARE LISTED FOR COMPATIBILITY. [NEC 690.33(C)]
- 29. SOME WIRE CONNECTORS SUPPLY INSTRUCTIONS FOR THE PRELIMINARY PREPARATION OF CONDUCTORS, SUCH AS USE OF CONDUCTOR TERMINATION COMPOUND (ANTIOXIDANT COMPOUND). SOME CONNECTORS ARE SHIPPED PRE-FILLED WITH CONDUCTOR TERMINATION COMPOUND (ANTIOXIDANT COMPOUND). FOR NON-PREFILLED CONNECTORS, CONDUCTOR TERMINATION COMPOUND MAY BE USED IF RECOMMENDED BY THE CONNECTOR MANUFACTURER AS PRELIMINARY PREPARATION OF THE CONDUCTOR.

DESIGN ENGINEER


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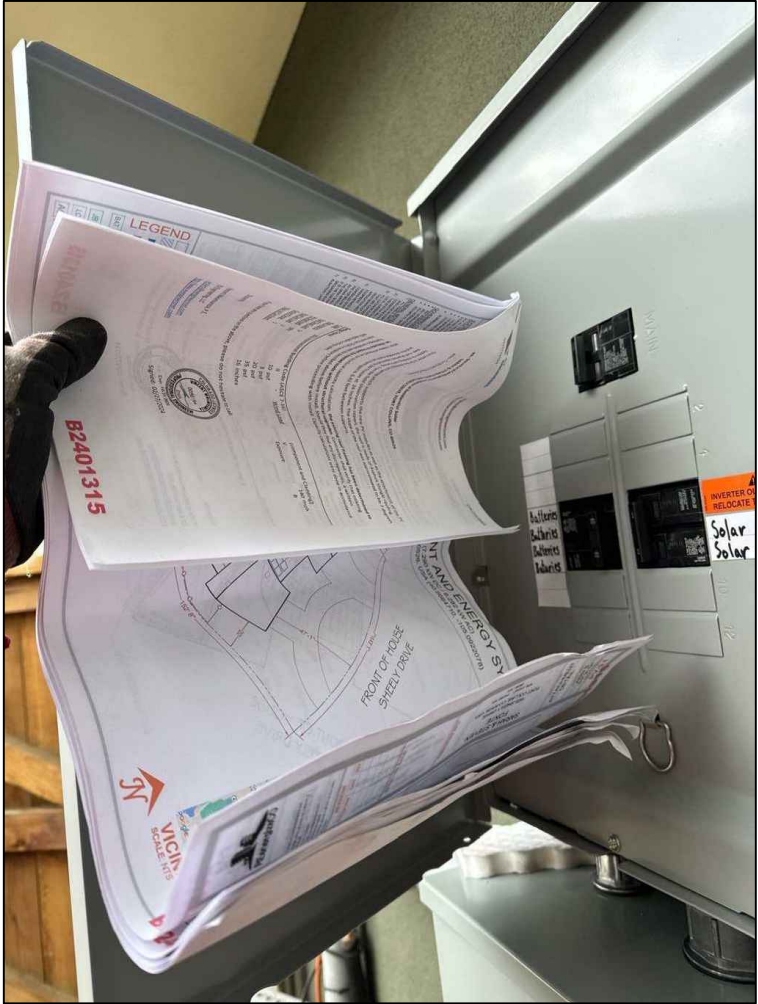
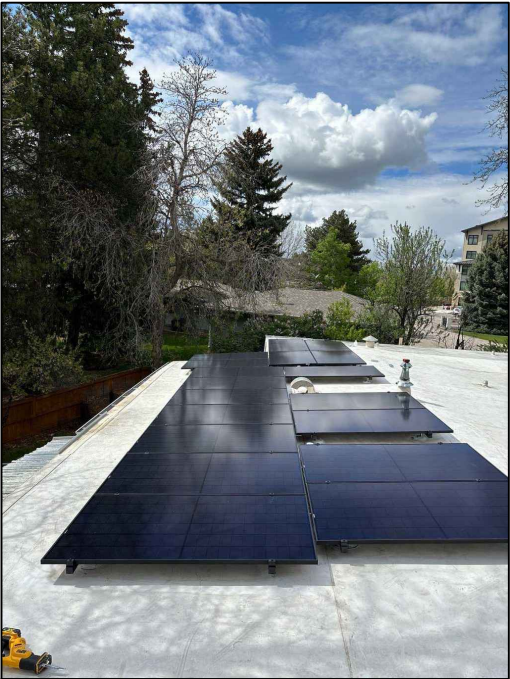
DESIGN NOTES

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METER #: 14583916

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SITE PHOTOS

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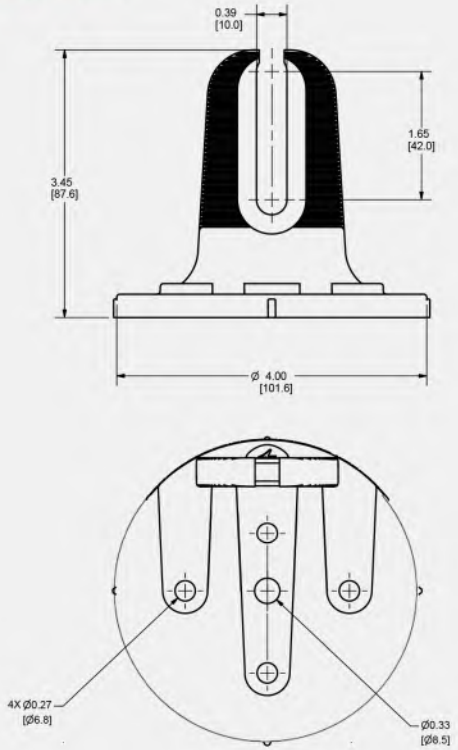
NanoMount®



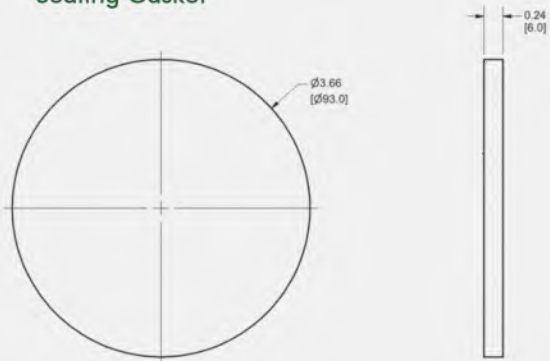
Part Number	Description
NANOMOUNT-B	NanoMount® <ul style="list-style-type: none">• NanoMount• Sealing Gasket

See Published data for allowable loads. Care should be taken to avoid concentrated loads during installation.

NanoMount®



Sealing Gasket



Material: Aluminum and Neoprene Gasket with Mastic Tape

Dimensions shown are inches (and millimeters) Details are subject to change without notice



Lag Bolt Assembly



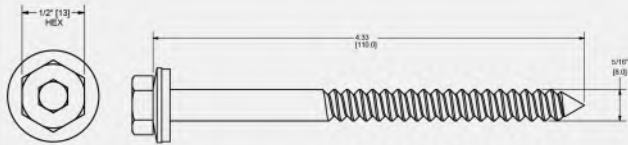
Decking Screw Assembly



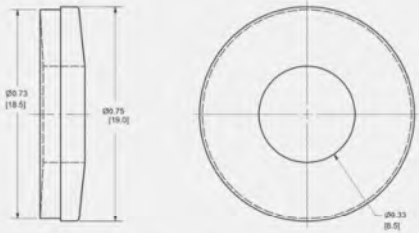
Item No.	Part Number	Description
1	LAG-B	Lag Bolt Assembly <ul style="list-style-type: none">• M8X110 Hex Head Lag Bolt• Sealing Washer
2	SCREW-B	Decking Screw Assembly <ul style="list-style-type: none">• #14 X 3" Self-Tapping Screw• Sealing Washer

Cut Sheet

1. M8X110 Hex Head Lag Bolt

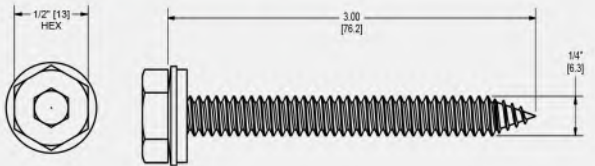


Sealing Washer

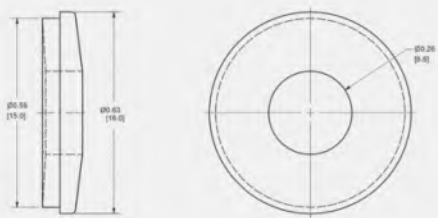


Material: Stainless Steel and EPDM

2. #14 X 3" Self-Tapping Screw



Sealing Washer



Material: Stainless Steel and EPDM

Dimensions shown are inches (and millimeters) Details are subject to change without notice

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SOLAR COMPANY/CLIENT

REENERGIZECO, INC.

1805 EAST 58TH AVENUE UNIT K
DENVER, CO

LIC #: EC.0102500/ ME.3001101

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FONTE RESIDENCE

1605 SHEELY DRIVE
FORT COLLINS, CO 80526

COORDINATES: 40.566454, -105.092209
APN: 0102601

SPECIFICATION SHEET

ACCOUNT #: 634336-53949

CUSTOMER NAME: SARAH FONTE

METER #: 14583916

DC SYSTEM SIZE: 2.640kW

AC SYSTEM SIZE: 1.920kW

AHJ: FORT COLLINS

UTILITY: FCU

DRAWN BY: ASP

INITIAL DESIGN DATE: 09/05/2025 REV: B



SMR100 Rail



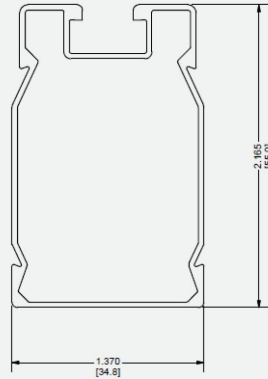
SMR200 Rail



Part Number	Description
A20422-168-BK	SMR100 Rail, Black Anodized, 168"
A20431-168-BK	SMR200 Rail, Black Anodized, 168"
A20440-BK1	SMR100 Rail End Cap, Black
A20440-BK2	SMR200 Rail End Cap, Black

Cut Sheet

SMR100 Rail



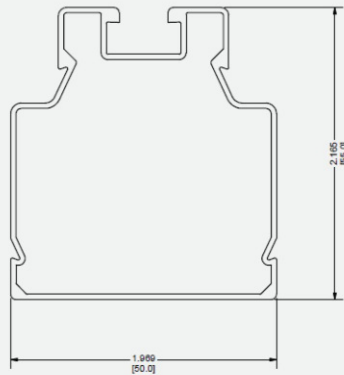
Mechanical Properties

Material: 6005-T5 Aluminum
Weight: 0.4126 lbs/ft (0.614 kg/m)
Ultimate Tensile Strength: 37.7 ksi (260 MPa)
Yield Strength: 34.8 ksi (240 MPa)

Section Properties

Sx: 0.196 in³ (3.21 cm³)
Sy: 0.146 in³ (2.39 cm³)
Area (X-section): 0.352 in² (2.27 cm²)

SMR200 Rail



Mechanical Properties

Material: 6005-T5 Aluminum
Weight: 0.453 lbs/ft (0.626 kg/m)
Ultimate Tensile Strength: 37.7 ksi (260 MPa)
Yield Strength: 34.8 ksi (240 MPa)

Section Properties

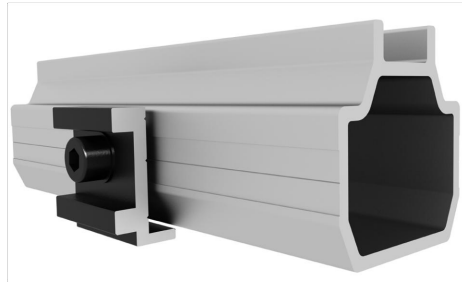
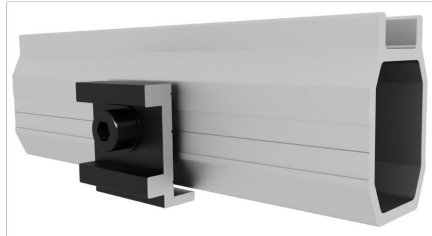
Sx: 0.223 in³ (3.74 cm³)
Sy: 0.189 in³ (3.10 cm³)
Area (X-section): 0.388 in² (1.22 cm²)

D10225-V001
Dimensions shown are inches (and millimeters)

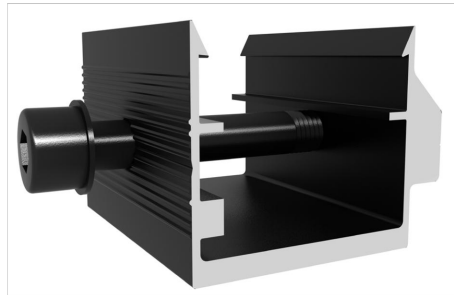
Details are subject to change without notice



SMR Rail Splices



L-Foot Adaptors

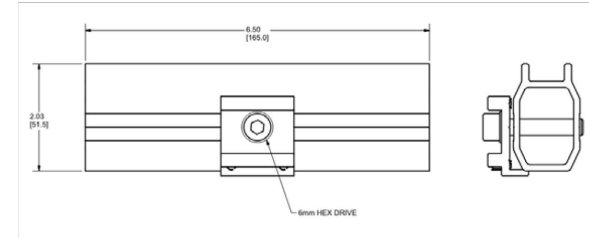


Part Number	Description
K10421-BK1	SMR100 Structural Bonding Rail Splice
K10427-BK1	SMR200 Structural Bonding Rail Splice
K10433-BK1	SMR100 L-Foot Adaptor
K10434-BK1	SMR200 L-Foot Adaptor

Cut Sheet

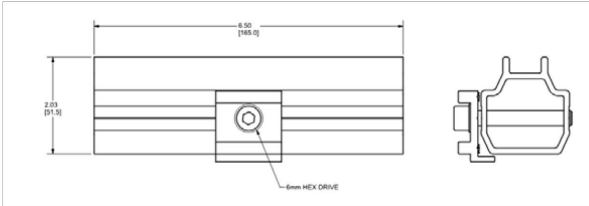
SMR100 Bonding Rail Splice

Material: Aluminum



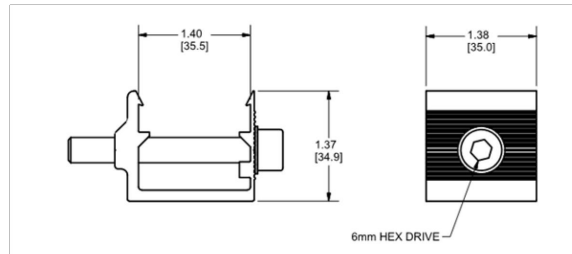
SMR200 Bonding Rail Splice

Material: Aluminum



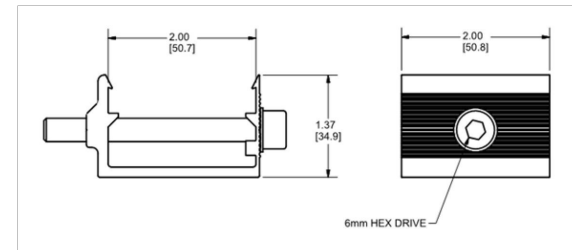
SMR 100 L-Foot Adaptor

Material: Aluminum



SMR 200 L-Foot Adaptor

Material: Aluminum



D10225-V001
Dimensions shown are inches (and millimeters)

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COORDINATES: 40.566454, -105.092209
APN: 0102601

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CUSTOMER NAME: SARAH FONTE
METER #: 14583916

DC SYSTEM SIZE: 2.640kW
AC SYSTEM SIZE: 1.920kW

AHJ: FORT COLLINS
UTILITY: FCU

DRAWN BY: ASP
INITIAL DESIGN DATE: 09/05/2025 REV: B



Pop-On Mid Clamp



Pop-On End Clamp



Shared Rail Mid/End Clamp

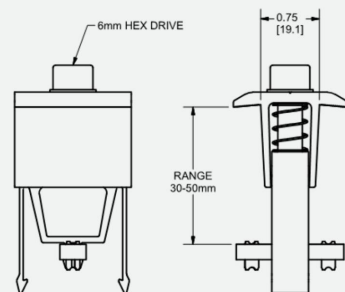


Part Number	Description
K10417-BK1	Pop-On Bonding Mid Clamp, Black
K10418-BK1	Pop-On End Clamp, Black
K10419-BK1	Shared Rail Bonding Mid Clamp, Black
K10420-BK1	Shared Rail End Clamp, Black

Cut Sheet

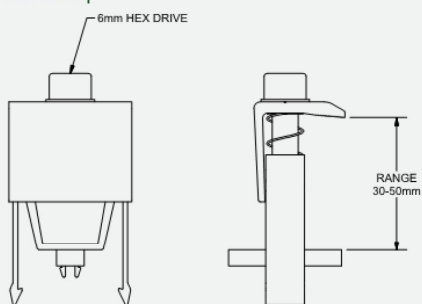
Pop-On Bonding Mid Clamp

Material: Aluminum



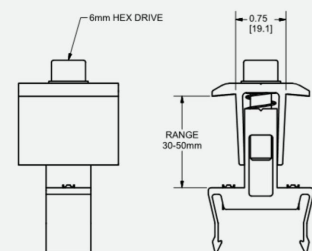
Pop-On End Clamp

Material: Aluminum



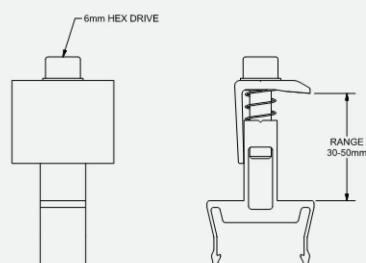
Shared Rail Bonding Mid Clamp

Material: Aluminum



Shared Rail End Clamp

Material: Aluminum



D10225-V001

Dimensions shown are inches (and millimeters)

Details are subject to change without notice



SunDock Rail-Free Accessories



Parts Description:
Top Mount Cable Clip



Parts Description:
Side Mount Cable Clip



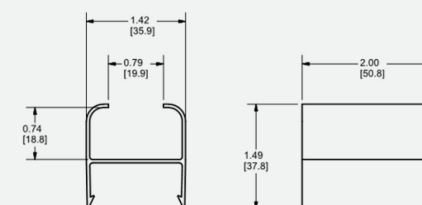
Parts Description:
Microinverter Mount

Part Number	Description
A20408-001	Top Mount Cable Clip
A20427-BK1	Side Mount Cable Clip (SMR100)
A20434-BK1	Side Mount Cable Clip (SMR200)
K50052-001	Microinverter Mount Kit

Cut Sheet

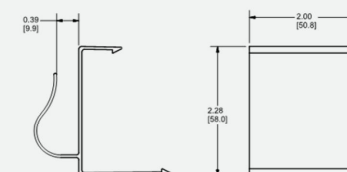
Top Mount Cable Clip

Material: Aluminum



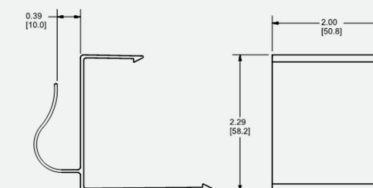
Side Mount Cable Clip (SMR100)

Material: Aluminum



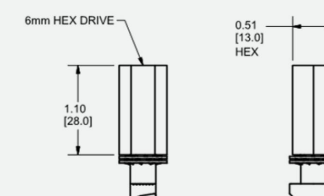
Side Mount Cable Clip (SMR200)

Material: Aluminum



Microinverter Mount

Material: Aluminum



D10225-V001

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FORT COLLINS, CO 80526
COORDINATES: 40.566454, -105.092209
APN: 0102601

SPECIFICATION SHEET

ACCOUNT #: 634336-53949
CUSTOMER NAME: SARAH FONTE
METER #: 14583916

DC SYSTEM SIZE: 2.640kW
AC SYSTEM SIZE: 1.920kW

AHJ: FORT COLLINS
UTILITY: FCU

DRAWN BY: ASP
INITIAL DESIGN DATE: 09/05/2025 REV: B

SMR Pitched Roof System

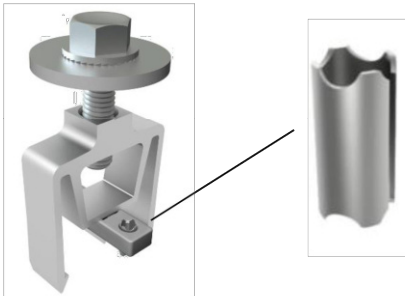


SunModo Racking Self-Bonding System

SunModo’s SMR system meets the stringent requirements of UL 2703 and CSA C22.2 No. 61730-2 which covers rack mounting systems, mounting grounding/bonding components, and clamping/retention devices for photovoltaic (PV) modules. The SMR system is intended for, but not limited to, PV module installations on residential roof tops, commercial buildings, and freestanding ground mount structures.

The SMR system components are designed in accordance with the National Electrical Code, ANSI/NFPA 70 and Model Building Codes. These code requirements cover rack mounting systems and clamping devices intended for use with PV module systems with a maximum system voltage of 1500V.

The SMR self-bonding system is for use with PV modules that have a maximum series fuse rating of 30A. This means the maximum number of PV modules in the SMR system is limited by the system voltage, so if a system has multiple inverters, the SunModo racking system can theoretically go on forever.



Mid Clamp with Bonding Pins

DESIGN ENGINEER


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UTILITY: FCU

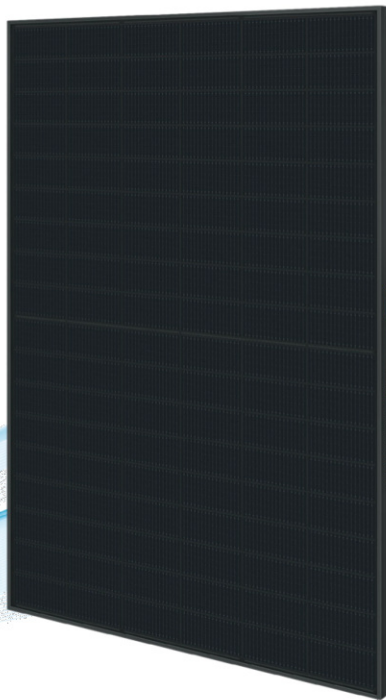
DRAWN BY: ASP
INITIAL DESIGN DATE: 09/05/2025 REV: B

HD HYUNDAI SOLAR MODULE

NF(BK) Series

Premium N-Type TOPCon Module

HiN-T430NF(BK) | HiN-T435NF(BK) | HiN-T440NF(BK)



22.53%
High Efficiency



High-End
TOPCon
Technology



Higher
Bifaciality



Long-Term
Reliability



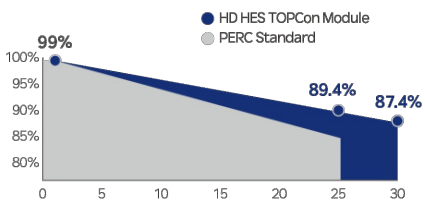
Compatible
with Carport
Applications



For Residential
(Full Black Design)

HD Hyundai's Warranty Provisions

- 25 YEARS**
 - 25-Year Product Warranty
 - Materials and workmanship
- 30 YEARS**
 - 30-Year Performance Warranty
 - First year degradation: 1%
 - Linear warranty after initial year: with 0.4%p annual degradation, 87.4% is guaranteed up to 30years



*Refer to HD HES standard warranty for details.

Certification



- ISO 9001 : Quality management systems
- ISO 14001 : Environmental management systems
- ISO 45001 : Occupational health and safety management systems
- UL 61730: Photovoltaic (PV) module safety qualification (CSA)
- IEC 61701: Salt mist corrosion testing
- IEC 62716: Ammonia corrosion testing
- IEC 62804: Potential Induced Degradation (PID) testing
- IEC 60068-2-68: Sand and dust testing for environmental durability

Electrical Characteristics

HiN-TxxxNF(BK)		HiN-T430NF(BK)		HiN-T435NF(BK)		HiN-T440NF(BK)	
Item	Unit	BNPI		BNPI		BNPI	
Nominal output (Pmax)	W	430	476	435	482	440	488
Open circuit voltage (Voc)	V	38.4	38.4	38.6	38.6	38.8	38.8
Short circuit current (Isc)	A	14.25	15.79	14.32	15.87	14.39	15.94
Voltage at Pmax (Vmpp)	V	31.9	31.9	32.1	32.1	32.3	32.3
Current at Pmax (Impp)	A	13.48	14.94	13.56	15.02	13.63	15.10
Module efficiency	%	22.02		22.28		22.53	
Power Class Sorting	W	0 ~ +5					
Temperature coefficient of Pmax	%/K	-0.30					
Temperature coefficient of Voc	%/K	-0.25					
Temperature coefficient of Isc	%/K	0.046					
Bifaciality	%	80%±10%					

*STC : Irradiance 1,000 W/m², cell temperature 25°C, AM=1.5 / Test uncertainty for Pmax ±3%; Voc ±3%; Isc ±3%

**The electrical properties of BNPI are measured under the irradiance corresponding to 1000 W/m² on the module front and 135 W/m² on the module rear.

Additional Power Gain from rear side					
Pmpp gain	Pmpp[W]	Vmpp[V]	Impp[A]	Voc[V]	Isc[A]
5%	458	32.30	14.18	38.80	14.97
15%	493	32.30	15.27	38.80	16.12
25%	528	32.40	16.36	38.90	17.27

*Electrical characteristics with different rear power gain (reference to 440W)

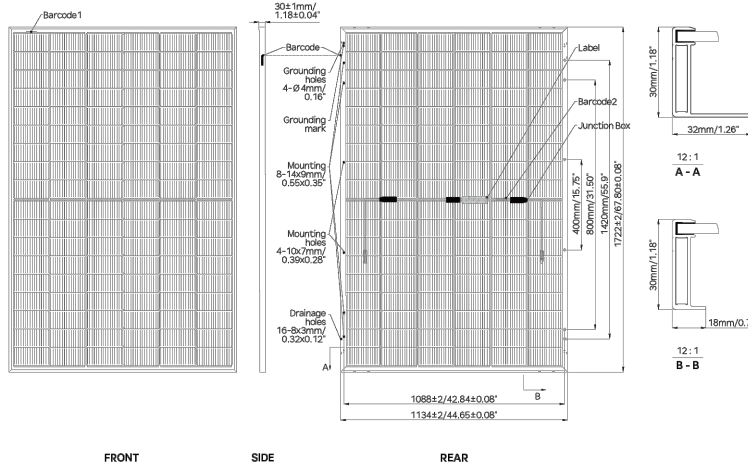
Mechanical Characteristics

Dimensions	1,722mm (L) x 1,134mm (W) x 30mm (H) (67.8in x 44.6in x 1.2in)
Weight	24.5 kg (50.01lbs)
Solar Cells	N-Type TOPCon, 108 (6x18) monocrystalline 16BB half-cut bifacial cells
Output Cables	Cable : (+)1,200mm(47.2in), (-)1,200mm(47.2in) / Customized length available Connector : Stäubli MC4 genuine Connector / Compatible, IP68
Junction Box	3-part, 3 bypass diodes, IP68 rated
Construction	Front : 2.0mm(0.08in) semi-tempered solar glass with high transmittance and anti-reflective coating Rear : 2.0mm(0.08in) semi-tempered solar glass
Frame	Anodized aluminum alloy

Shipping Configurations

Packing Direction	Vertical	Packing pallet weight (kg)	912
Container Size (HC)	40'	Modules Per Pallet (pcs)	36
Pallets Per Container	26	Modules Per Container (pcs)	936

Module Diagram (unit : mm)



Sales & Marketing
hes.sales@hd.com

HD Hyundai Energy Solutions reserves the right to update or modify the specifications and features listed in this datasheet without prior notice. Always check the latest version of the datasheet for accurate information. Before using the product, please refer to the Installation and Operation Manual and Warranty. We retain the right of final interpretation.

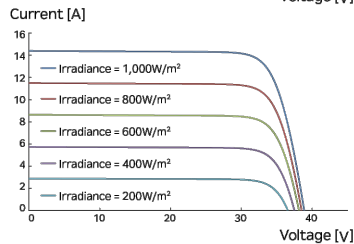
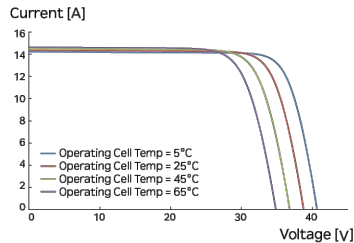


Installation Safety Guide

- Only qualified personnel should install or perform maintenance.
- Be aware of dangerous high DC voltage.
- Do not handle or install modules when they are wet.

Nominal Module Operation Temperature	44°C ± 2°C
Operating Temperature	-40°C~+85°C
Maximum System Voltage	DC 1,500 V
Maximum Reverse Current	30A
Maximum Test Load	Front 5,400Pa *Rear 5,400Pa
Fire Performance	Type 29

I-V Curves (HiN-T440NF(BK))



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APN: 0102601

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UTILITY: FCU

DRAWN BY: ASP
INITIAL DESIGN DATE: 09/05/2025 REV: B



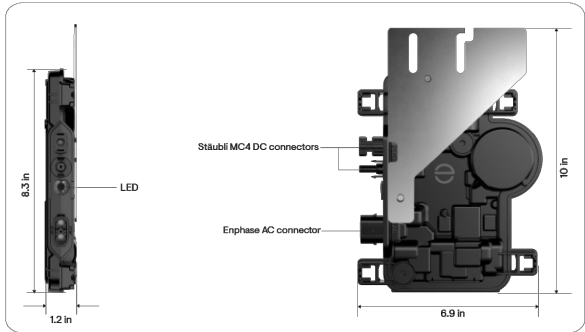
NORTH AMERICA DATA SHEET

IQ8MC Microinverter

Our newest IQ8 Series Microinverters^{1,2,3} are the industry's first microgrid-forming⁴, software-defined microinverters with split-phase power conversion capability to convert DC power to AC power efficiently.



Key specifications	IQ8MC-72-M-US @240 VAC	IQ8MC-72-M-US @208 VAC
Peak output power	330 VA	315 VA
Nominal grid voltage (L-L)	240 V split-phase (L-L), 180°	208 V single-phase (L-L), 120°
Nominal frequency	60 Hz	60 Hz
CEC weighted efficiency	97%	96.5%
Maximum input DC voltage	60 V	60 V
MPPT voltage range	25–45 V	25–45 V
Maximum module I _{sc}	20 A	20 A
Ambient temperature range	–40°C to 65°C (–40°F to 149°F)	



¹ IQ8 Series Microinverters can be added to existing IQ7 systems on the same IQ Gateway only in the following grid-tied configurations: Solar Only or Solar + Battery (IQ Battery 317/10T and IQ Battery 5P) without backup.
² IQ7 Series Microinverters cannot be added to a site with existing IQ8 Series Microinverters on the same gateway. Mixed system of IQ7 and IQ8 will not support IQ8-specific PCS features and grid-forming capabilities.
³ IQ Microinverters ship with default settings that meet North America's IEEE 1547 interconnection standard requirements. Region-specific adjustments may be requested by an Authority Having Jurisdiction (AHJ) or utility representative, according to the IEEE 1547 interconnection standard. Use an IQ Gateway to make these changes during installation.
⁴ Meets UL 1741 only when installed with IQ System Controller 2 or 3.

Input data (DC)	Units	IQ8MC-72-M-US
Commonly used module pairings ⁵	W	260–460
Module compatibility	–	To meet compatibility, PV modules must be within the following max. input DC voltage and max. module I _{sc} . Module compatibility can be checked at https://enphase.com/installers/microinverters/calculator .
MPPT voltage range	V	25–45
Operating range	V	18–58
Min./Max. start voltage	V	22/58
Max. input DC voltage	V	60
Max. continuous operating DC current	A	14
Max. input DC short-circuit current	A	25
Max. module I _{sc}	A	20
Overvoltage class DC port	–	II
DC port backfeed current	mA	0
PV array configuration	–	Ungrounded array; no additional DC side protection required; AC side protection requires a maximum of 20 A per branch circuit.

Output data (AC)	Units	IQ8MC-72-M-US @240 VAC	IQ8MC-72-M-US @208 VAC
Peak output power	VA	330	315
Max. continuous output power	VA	320	310
Nominal grid voltage (L-L)	V	240, split-phase (L-L), 180°	208, single-phase (L-L), 120°
Min./Max. grid voltage ⁶	V	211–264	183–229
Max. continuous output current	A	1.33	1.49
Nominal frequency	Hz	60	
Extended frequency range	Hz	47–68	
AC short-circuit fault current over three cycles	Arms	2.70	
Max. units per 20 A (L-L) branch circuit ⁷	–	12	10
Total harmonic distortion	%	<5	
Overvoltage class AC port	–	III	
AC port backfeed current	mA	18	
Power factor setting	–	1.0	
Grid-tied power factor (adjustable)	–	0.85 leading ... 0.85 lagging	
Peak efficiency	%	97.4	97.2
CEC weighted efficiency	%	97.0	96.5
Nighttime power consumption	mW	33	25

Mechanical data	IQ8MC-72-M-US
Ambient temperature range	–40°C to 65°C (–40°F to 149°F)
Relative humidity range	4% to 100% (condensing)


⁵ No enforced DC/AC ratio.
⁶ Nominal voltage range can be extended beyond nominal if required by the utility.
⁷ Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

DESIGN ENGINEER


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FONTE RESIDENCE
1605 SHEELY DRIVE
FORT COLLINS, CO 80526
COORDINATES: 40.566454, -105.092209
APN: 0102601

SPECIFICATION SHEET

ACCOUNT #: 634336-53949
CUSTOMER NAME: SARAH FONTE
METER #: 14583916

DC SYSTEM SIZE: 2.640kW
AC SYSTEM SIZE: 1.920kW

AHJ: FORT COLLINS
UTILITY: FCU

DRAWN BY: ASP
INITIAL DESIGN DATE: 09/05/2025 REV: B

Mechanical data	IQ8MC-72-M-US
DC connector type	Stäubli MC4
Dimensions (H × W × D); Weight	212 mm (8.3") × 175 mm (6.9") × 30.2 mm (1.2"); 1.1 kg (2.43 lb)
Cooling	Natural convection – no fans
Approved for wet locations; Pollution degree	Yes; PD3
Enclosure	Class II double-insulated, corrosion-resistant polymeric enclosure
Environ. category; UV exposure rating	NEMA Type 6; outdoor
Compliance	IQ8MC-72-M-US
Certifications	CA Rule 21 (UL 1741-SA), UL 62109-1, IEEE 1547:2018 (UL 1741-SB 3 rd Ed.), FCC Part 15 Class B, ICES-0003 Class B, CAN/CSA-C22.2 NO. 107.1-01. This product is UL Listed as PV rapid shutdown equipment and conforms with NEC 2014, NEC 2017, NEC 2020, and NEC 2023 section 690.12 and C22.1-2018 Rule 64-218 rapid shutdown of PV systems for AC and DC conductors when installed according to the manufacturer's instructions.

DSH-00049-5.0-EN-2024-12-10

Revision history


Revision	Date	Description
DSH-00049-5.0	December 2024	Updated information on backward compatibility with IQ7 Series Microinverters.
DSH-00049-4.0	February 2024	Added information about IEEE 1547 interconnection standard requirements.
DSH-00049-3.0	October 2023	Included NEC 2023 specification in the “Compliance” section.
DSH-00049-2.0	September 2023	Updated module compatibility information.
DSH-00049-1.0	May 2023	Preliminary release.

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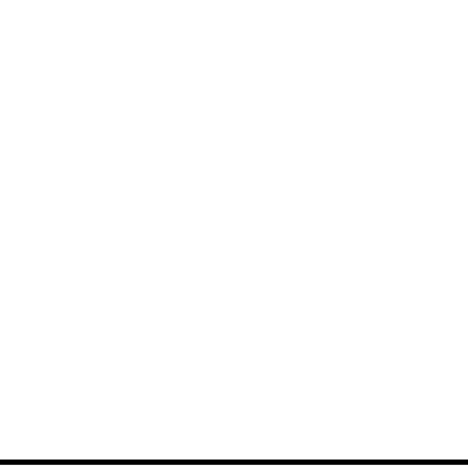
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