

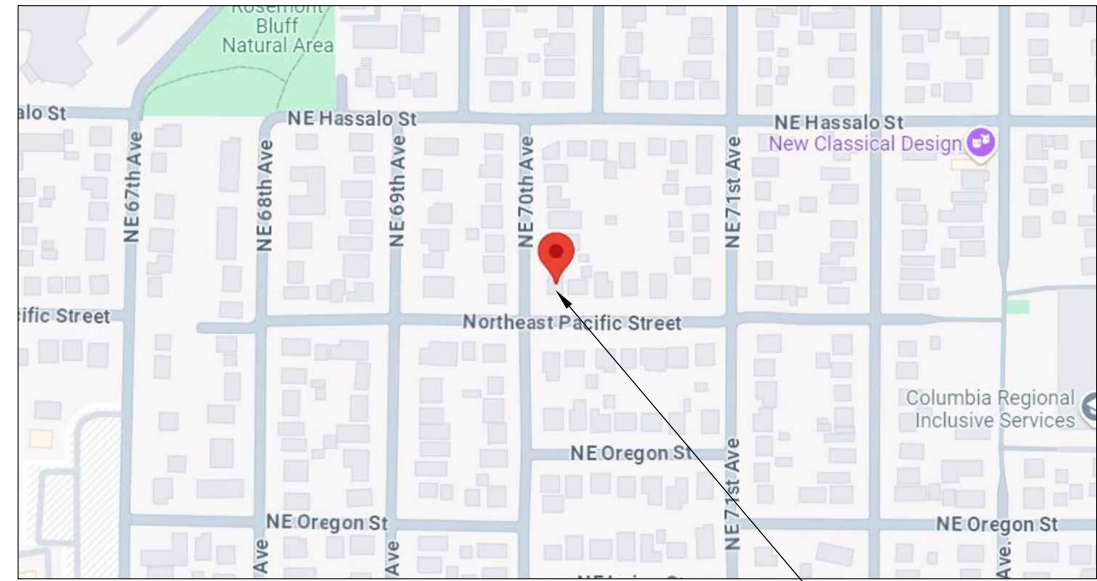
ROOF MOUNT PHOTOVOLTAIC SYSTEM

CODES:

THIS PROPOSED INSTALLATION COMPLIES WITH THE FOLLOWING:
2020 NATIONAL ELECTRICAL CODE
2021 PORTLAND FIRE CODE
2023 OREGON RESIDENTIAL SPECIALTY CODE
2014 OREGON FIRE CODE
AS ADOPTED BY CITY OF PORTLAND

24-101480 REV 01 RS

VICINITY MAP:



SITE LOCATION

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APPENDIX	MANUFACTURER SPECIFICATION SHEETS

CONSTRUCTION NOTES:

- CONDUIT AND CONDUCTOR SPECIFICATIONS ARE BASED ON MINIMUM CODE REQUIREMENTS AND ARE NOT MEANT TO LIMIT UP-SIZING AS REQUIRED BY FIELD CONDITIONS.
- ALL SOLAR ENERGY SYSTEM EQUIPMENT SHALL BE SCREENED TO THE MAXIMUM EXTENT POSSIBLE AND SHALL BE PAINTED A COLOR SIMILAR TO THE SURFACE UPON WHICH THEY ARE MOUNTED.
- MODULES SHALL BE TESTED , LISTED AND IDENTIFIED WITH FIRE CLASSIFICATION IN ACCORDANCE WITH UL 2703. SMOKE AND CARBON MONOXIDE ALARMS ARE REQUIRED PER SECTION R314 AND 315 TO BE VERIFIED AND INSPECTED BY INSPECTOR IN THE FIELD.
- DIG ALERT (811) TO BE CONTACTED AND COMPLIANCE WITH EXCAVATION SAFETY PRIOR TO ANY EXCAVATION TAKING PLACE
- PHOTOVOLTAIC SYSTEM GROUND WILL BE TIED INTO EXISTING GROUND AT MAIN SERVICE FROM DC DISCONNECT/INVERTER AS PER 2020 NEC SEC 250.166(A).
- SOLAR PHOTOVOLTAIC SYSTEM EQUIPMENT WILL BE INSTALLED IN ACCORDANCE WITH REQUIREMENTS OF ART. 690 OF THE 2020 NEC
- THE MAIN SERVICE PANEL WILL BE EQUIPPED WITH A GROUND ROD OR UFER
- UTILITY COMPANY WILL BE NOTIFIED PRIOR TO ACTIVATION OF THE SOLAR PV SYSTEM
- SOLAREEDGE OPTIMIZERS ARE LISTED TO IEC 62109-1 (CLASS II SAFETY) AND UL 1741 STANDARDS
- INSTALL CREW TO VERIFY ROOF STRUCTURE PRIOR TO COMMENCING WORK. EMT CONDUIT ATTACHED TO THE ROOF USING CONDUIT MOUNT.

City of Portland
Reviewed for
Code Compliance

Date:3/7/2025
Permit #: 24-101480-REV-01-RS



EXPIRES: 12/31/2026

CLIENT:
ERIN HANLY
908 NE 70TH AVE, PORTLAND, OR 97213
AHJ: CITY OF PORTLAND
UTILITY: PGE - PORTLAND GENERAL
ELECTRIC
METER: 32647541
APN: R193671
PHONE: (503) 333-4990
EMAIL: EKMPDX@GMAIL.COM

SYSTEM:
SYSTEM SIZE (DC): 14 X 415 = 5.810 kW
SYSTEM SIZE (AC): 3.800 kW @ 240V
MODULES: 14 X HANWHA QCELL: Q.PEAK
DUO BLK ML-G10+ 415
OPTIMIZERS: 14 X SOLAREEDGE S500B
INVERTER: SOLAREEDGE SE3800H-USRGM
[SI1]

REVISIONS		
NO.	REVISED BY	DATE
3	V.S.	12/28/2024
4	V.M.	2/11/2025
5	W.D.H.	2/24/2025



FREEDOM FOREVER LLC
43445 BUSINESS PARK DR #110, TEMECULA,
CA 92590
Tel: (800) 385-1075
GREG ALBRIGHT

Greg Albright

CONTRACTOR LICENSE:
SUPERVISING MASTER ELECTRICIAN 6576S

PROJECT DETAILS			
JOB NO: 507301	DATE: 2/24/2025	DESIGNED BY: W.D.H.	SHEET: PV-1

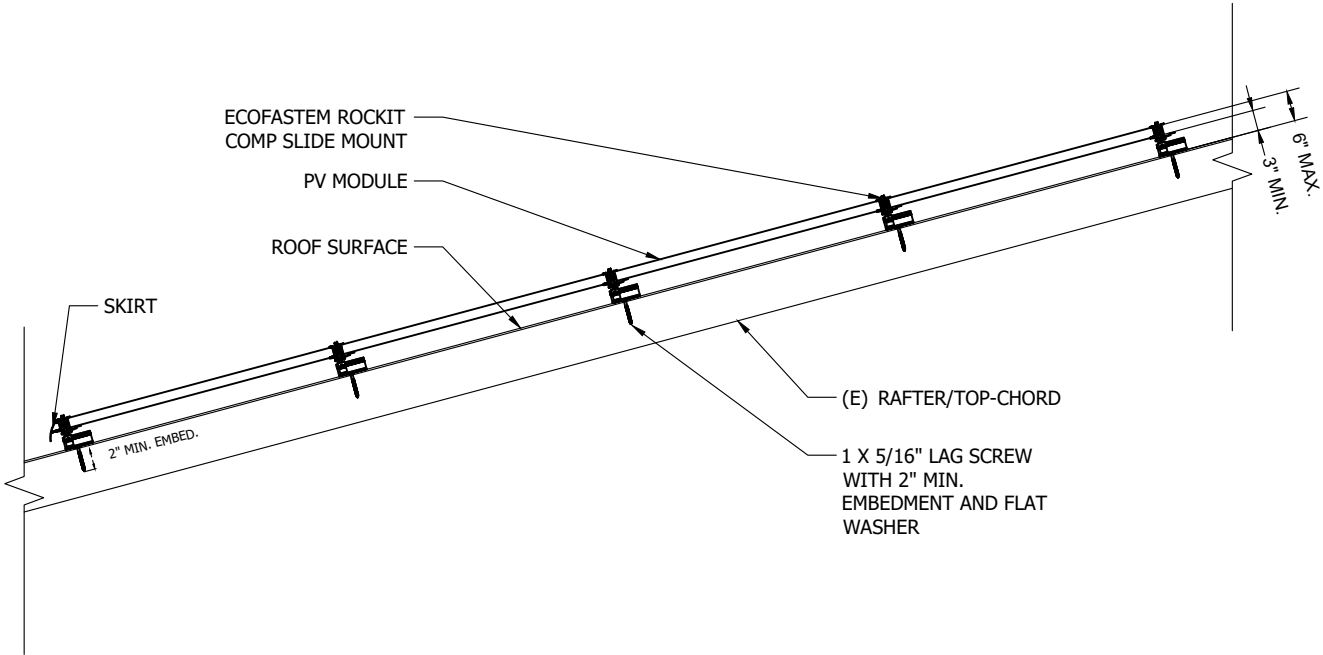
02/27/25
Updated Table of Contents

THIS SYSTEM DESIGNED WITH:
WIND SPEED: 98
WIND EXPOSURE: B
SNOW LOAD: 25
DEAD LOAD: 2.79 PSF

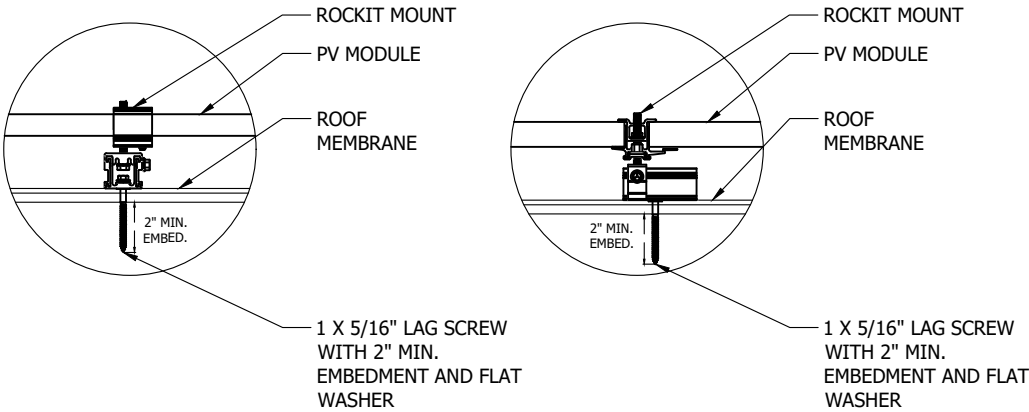
12/11/24
added design criteria

TABLE 1 – ARRAY INSTALLATION									
	ROOF PITCH	ROOFING TYPE	ATTACHMENT TYPE	FRAMING TYPE	MAX UNBRACED LENGTH(FT.)	STRUCTURAL ANALYSIS RESULT	PENETRATION PATTERN	MAX ATTACHMENT SPACING (IN.)	MAX RAIL OVERHANG(IN.)
ROOF 1	22	Comp Shingle	Ecofasten RockIt Comp Slide	2x4 @ 24” O.C.	8	PASS	STAGGERED	24	8
ROOF 2	22	Comp Shingle	Ecofasten RockIt Comp Slide	2x4 @ 24” O.C.	8	PASS	STAGGERED	24	8
ROOF 3	22	Comp Shingle	Ecofasten RockIt Comp Slide	2x4 @ 24” O.C.	8	PASS	STAGGERED	24	8
ROOF 4	22	Comp Shingle	Ecofasten RockIt Comp Slide	2x4 @ 24” O.C.	8	PASS	STAGGERED	24	8
ROOF 5	22	Comp Shingle	Ecofasten RockIt Comp Slide	2x4 @ 24” O.C.	8	PASS	STAGGERED	24	8
1. CONTRACTOR TO VERIFY FRAMING TYPE AND MAX UNBRACED LENGTH PRIOR TO INSTALLATION. IF THE ABOVE INFORMATION DOES NOT MATCH FIELD CONDITIONS, NOTIFY ENGINEER OF RECORD IMMEDIATELY.									
2. WHERE COLLAR TIES OR RAFTER SUPPORTS EXIST, CONTRACTOR SHALL USE RAFTERS WITH COLLAR TIES AS ATTACHMENT POINTS.									
3. MAX RAIL OVERHANG APPLICABLE FOR RAILED ATTACHMENT INSTALLATIONS.									

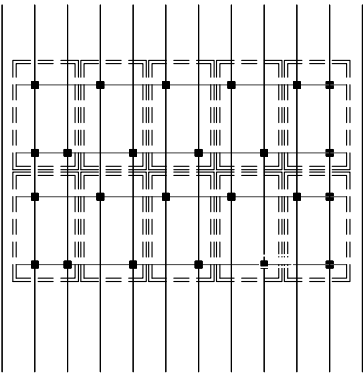
02/25/25
Structural upgrades removed



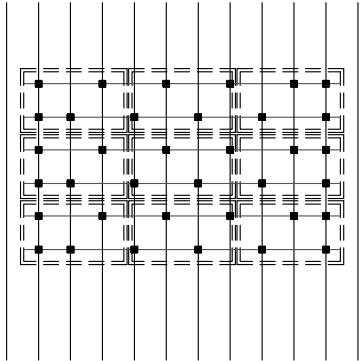
SOLAR PV ARRAY SECTION VIEW
Scale: NTS



ATTACHMENT DETAIL
Scale: NTS



STACKED DETAIL
For Illustration purposes only



STAGGERED DETAIL
For Illustration purposes only

City of Portland
Reviewed for
Code Compliance

Date:3/7/2025
Permit #: 24-101480-REV-01-RS

REGISTERED PROFESSIONAL
ENGINEER
93098PE
OREGON
MAY 10, 2022
RYAN NGO

EXPIRES: 12/31/2026

CLIENT:
ERIN HANLY
908 NE 70TH AVE, PORTLAND, OR 97213
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INVERTER: SOLAREEDGE SE3800H-USRGM [SI1]

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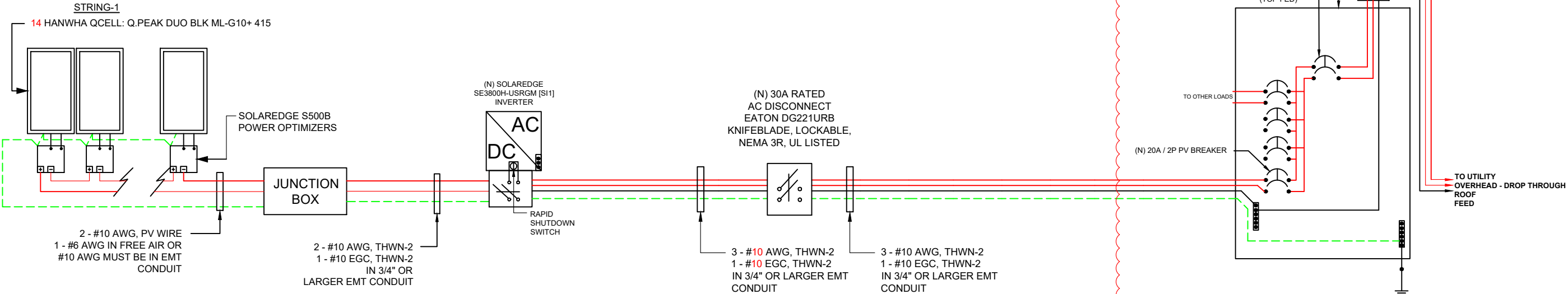
FREEDOM FOREVER LLC
43445 BUSINESS PARK DR #110, TEMECULA, CA 92590
Tel: (800) 385-1075
GREG ALBRIGHT

CONTRACTOR LICENSE:
SUPERVISING MASTER ELECTRICIAN 6576S

MOUNTING DETAILS			
JOB NO:	DATE:	DESIGNED BY:	SHEET:
507301	2/24/2025	W.D.H.	PV-3

BACKFEED BREAKER SIZING						
MAX. CONTINUOUS OUTPUT 16.00A @ 240V						
16.00	X	1.25	=	20.00AMPS	20A BREAKER - OK	
SEE 705.12 OF 2020 NEC						
200	X	1.20	=	240		
240	-	200	=	40A ALLOWABLE BACKFEED		

PV SYSTEM
5.810 kW-DC
3.800 kW-AC



02/25/25
POI updated

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THREE LINE DIAGRAM			
JOB NO:	DATE:	DESIGNED BY:	SHEET:
507301	2/24/2025	W.D.H.	PV-4