REAL ESTATE TRANSFER DISCLOSURE STATEMENT
(CALIFORNIA CIVIL CODE § 1102, ET SEQ.)
(C.A.R. Form TDS, Revised 6/23)

☐ This property is a duplex, triplex or fourplex. A TDS is required for all units. This TDS is for all units (or ☐ only unit(s) _____).
THIS DISCLOSURE STATEMENT CONCERNS THE REAL PROPERTY SITUATED IN THE CITY OF West Hills **, COUNTY OF** Los Angeles **, STATE OF CALIFORNIA, DESCRIBED AS** 6944 Lena Ave, West Hills, CA 91307 **.**

THIS STATEMENT IS A DISCLOSURE OF THE CONDITION OF THE ABOVE DESCRIBED PROPERTY IN COMPLIANCE WITH § 1102 OF THE CIVIL CODE AS OF (DATE) 06/20/2024 **. IT IS NOT A WARRANTY OF ANY KIND BY THE SELLER(S) OR ANY AGENT(S) REPRESENTING ANY PRINCIPAL(S) IN THIS TRANSACTION, AND IS NOT A SUBSTITUTE FOR ANY INSPECTIONS OR WARRANTIES THE PRINCIPAL(S) MAY WISH TO OBTAIN.**

I. COORDINATION WITH OTHER DISCLOSURE FORMS

This Real Estate Transfer Disclosure Statement is made pursuant to § 1102 of the Civil Code. Other statutes require disclosures, depending upon the details of the particular real estate transaction (for example: special study zone and purchase-money liens on residential property).

Substituted Disclosures: The following disclosures and other disclosures required by law, including the Natural Hazard Disclosure Report/Statement that may include airport annoyances, earthquake, fire, flood, or special assessment information, have or will be made in connection with this real estate transfer, and are intended to satisfy the disclosure obligations on this form, where the subject matter is the same:

☐ Inspection reports completed pursuant to the contract of sale or receipt for deposit.
■ Additional inspection reports or disclosures: _____
Seller may have obtained a limited number of third-party inspections that will be supplied to Buyer at buyers request if available.
☐ *No substituted disclosures for this transfer.*

II. SELLER'S INFORMATION

The Seller discloses the following information with the knowledge that even though this is not a warranty, prospective Buyers may rely on this information in deciding whether and on what terms to purchase the subject property. Seller hereby authorizes any agent(s) representing any principal(s) in this transaction to provide a copy of this statement to any person or entity in connection with any actual or anticipated sale of the property.

THE FOLLOWING ARE REPRESENTATIONS MADE BY THE SELLER(S) AND ARE NOT THE REPRESENTATIONS OF THE AGENT(S), IF ANY. THIS INFORMATION IS A DISCLOSURE AND IS NOT INTENDED TO BE PART OF ANY CONTRACT BETWEEN THE BUYER AND SELLER.

Seller ☐ is ■ is not occupying the property.

A. The subject property has the items checked below:*

■ Range
☐ Oven
■ Microwave
■ Dishwasher
☐ Trash Compactor
☐ Garbage Disposal
■ Washer/Dryer Hookups
■ Rain Gutters
■ Burglar Alarms
☐ Carbon Monoxide Device(s)
☐ Smoke Detector(s)
☐ Fire Alarm
☐ TV Antenna
☐ Satellite Dish
☐ Intercom
■ Central Heating
■ Central Air Conditioning
☐ Evaporator Cooler(s)

Buyer is aware that the security system does not convey with sale of the home. Electronic Locksets, Kwikset 914 (or similar, present and in place) will be removed and replaced with a standard lock prior to the close of escrow.

☐ Wall/Window Air Conditioning
■ Sprinklers
■ Public Sewer System
☐ Septic Tank
☐ Sump Pump
☐ Water Softener
■ Patio/Decking
☐ Built-in Barbecue
☐ Gazebo
☐ Security Gate(s)
■ Garage:
☐ Attached ■ Not Attached
☐ Carport
☐ Automatic Garage Door Opener(s)
☐ Number Remote Controls ____
☐ Sauna
☐ Hot Tub/Spa:
☐ Locking Safety Cover

☐ Pool:
☐ Child Resistant Barrier
☐ Pool/Spa Heater:
☐ Gas ☐ Solar ☐ Electric
■ Water Heater:
☐ Gas ☐ Solar ☐ Electric
■ Water Supply:
■ City ☐ Well
☐ Private Utility or
Other Los Angeles Department of Water & Power (LADWP)
■ Gas Supply:
■ Utility ☐ Bottled (Tank)
☐ Window Screens
☐ Window Security Bars
☐ Quick Release Mechanism on Bedroom Windows
☐ Water-Conserving Plumbing Fixtures

Exhaust Fan(s) in _____ 220 Volt Wiring in _____ Fireplace(s) in Living room
☐ Gas Starter _____ ■ Roof(s): Type: Shingles Age: 2 years (approx.)
☐ Other: _____

Are there, to the best of your (Seller's) knowledge, any of the above that are not in operating condition? ☐ Yes/■ No. If yes, then describe. (Attach additional sheets if necessary): List of items in the home may not be complete. Any items remaining in home at time of sale will be left.
Seller has never occupied this property. Seller encourages Buyer to have their own inspections performed and verify all information relating to this property

(*see note on page 2)

Age of roof indicates it was replaced during prior ownership - Details unknown.

Opendoor Brokerage Inc., 303 2nd St STE 600 South Tower San Francisco CA 94107 Phone: 4807799000 Fax:
Mark Biggins Produced with Lone Wolf Transactions (zipForm Edition) 717 N Harwood St, Suite 2200, Dallas, TX 75201 www.lwolf.com

Property Address: 6944 Lena Ave, West Hills, CA 91307 Date: 06/20/2024

B. Are you (Seller) aware of any significant defects/malfunctions in any of the following? ☐ Yes/■ No. If yes, check appropriate space(s) below.

☐ Interior Walls ☐ Ceilings ☐ Floors ☐ Exterior Walls ☐ Insulation ☐ Roof(s) ☐ Windows ☐ Doors ☐ Foundation ☐ Slab(s)
☐ Driveways ☐ Sidewalks ☐ Walls/Fences ☐ Electrical Systems ☐ Plumbing/Sewers/Septics ☐ Other Structural Components

(Describe: Seller has never occupied this property. Seller encourages Buyer to have their own inspections performed and verify all information relating to this property)

If any of the above is checked, explain. (Attach additional sheets if necessary.):

*Installation of a listed appliance, device, or amenity is not a precondition of sale or transfer of the dwelling. The carbon monoxide device, garage door opener, or child-resistant pool barrier may not be in compliance with the safety standards relating to, respectively, carbon monoxide device standards of Chapter 8 (commencing with § 13260) of Part 2 of Division 12 of, automatic reversing device standards of Chapter 12.5 (commencing with § 19890) of Part 3 of Division 13 of, or the pool safety standards of Article 2.5 (commencing with § 115920) of Chapter 5 of Part 10 of Division 104 of, the Health and Safety Code. Window security bars may not have quick-release mechanisms in compliance with the 1995 edition of the California Building Standards Code. § 1101.4 of the Civil Code requires all single-family residences built on or before January 1, 1994, to be equipped with water-conserving plumbing fixtures after January 1, 2017. Additionally, on and after January 1, 2014, a single-family residence built on or before January 1, 1994, that is altered or improved is required to be equipped with water-conserving plumbing fixtures as a condition of final approval. Fixtures in this dwelling may not comply with § 1101.4 of the Civil Code.

C. Are you (Seller) aware of any of the following:

1.	Substances, materials, or products which may be an environmental hazard such as, but not limited to, asbestos, formaldehyde, radon gas, lead-based paint, mold, fuel or chemical storage tanks, and contaminated soil or water on the subject property	☐ Yes ■ No
2.	Features of the property shared in common with adjoining landowners, such as walls, fences, and driveways, whose use or responsibility for maintenance may have an effect on the subject property	■ Yes ☐ No
3.	Any encroachments, easements or similar matters that may affect your interest in the subject property	☐ Yes ■ No
4.	Room additions, structural modifications, or other alterations or repairs made without necessary permits	☐ Yes ■ No
5.	Room additions, structural modifications, or other alterations or repairs not in compliance with building codes	☐ Yes ■ No
6.	Fill (compacted or otherwise) on the property or any portion thereof	☐ Yes ■ No
7.	Any settling from any cause, or slippage, sliding, or other soil problems	☐ Yes ■ No
8.	Flooding, drainage or grading problems	☐ Yes ■ No
9.	Major damage to the property or any of the structures from fire, earthquake, floods, or landslides	☐ Yes ■ No
10.	Any zoning violations, nonconforming uses, violations of "setback" requirements	☐ Yes ■ No
11.	Neighborhood noise problems or other nuisances	☐ Yes ■ No
12.	CC&R's or other deed restrictions or obligations	■ Yes ☐ No
13.	Homeowners' Association which has any authority over the subject property	☐ Yes ■ No
14.	Any "common area" (facilities such as pools, tennis courts, walkways, or other areas co-owned in undivided interest with others)	☐ Yes ■ No
15.	Any notices of abatement or citations against the property	☐ Yes ■ No
16.	Any lawsuits by or against the Seller threatening to or affecting this real property, claims for damages by the Seller pursuant to § 910 or 914 threatening to or affecting this real property, claims for breach of warranty pursuant to § 900 threatening to or affecting this real property, or claims for breach of an enhanced protection agreement pursuant to § 903 threatening to or affecting this real property, including any lawsuits or claims for damages pursuant to § 910 or 914 alleging a defect or deficiency in this real property or "common areas" (facilities such as pools, tennis courts, walkways, or other areas co-owned in undivided interest with others)	☐ Yes ■ No

If the answer to any of these is yes, explain. (Attach additional sheets if necessary.):

Seller has never occupied this property. Seller encourages Buyer to have their own inspections performed and verify all information relating to this property

2) Shared fence line with adjoining house. **12) Buyer to confirm CC&Rs per neighborhood**

D. **1.** The Seller certifies that the property, as of the close of escrow, will be in compliance with § 13113.8 of the Health and Safety Code by having operable smoke detector(s) which are approved, listed, and installed in accordance with the State Fire Marshal's regulations and applicable local standards.

2. The Seller certifies that the property, as of the close of escrow, will be in compliance with § 19211 of the Health and Safety Code by having the water heater tank(s) braced, anchored, or strapped in place in accordance with applicable law.

Seller certifies that the information herein is true and correct to the best of the Seller's knowledge as of the date signed by the Seller.

Seller Megan Meyer Authorized Signer on Behalf of **Opendoor Property Trust I** Date **06/20/2024**

Seller _____ Date _____

Property Address: 6944 Lena Ave, West Hills, CA 91307 Date: 06/20/2024

III. AGENT'S INSPECTION DISCLOSURE

(To be completed only if the Seller is represented by an agent in this transaction.)

THE UNDERSIGNED, BASE ON THE ABOVE INQUIRY OF THE SELLER(S) AS TO THE CONDITION OF THE PROPERTY AND BASED ON A REASONABLY COMPETENT AND DILIGENT VISUAL PECTION OF THE ACCESSIBLE AREAS OF HE PROPERTY CONJUNCTION W H THAT INQUIRY, STATES THE FOLLOW G:

- [x] See attached Agent Visual Inspection Disclosure (AVID For)
- [ ] Agent notes no items for disclosure.
- [ ] Agent notes the following items: _____

Agent (Broker Representing Seller) Opendoor Brokerage Inc. By Alexis Schlattman Date 06/20/2024
(Please Print) (Associate Licensee or Broker Signature)

IV. AGENT'S INSPECTION DISCLOSURE

(To be completed only if the agent who has obtained the offer is other than the agent above.)

THE UNDERSIGNED, BASED ON A REASONABLY COMPETENT AND DILIGENT VISUAL PECTION OF THE ACCESSIBLE AREAS OF HE PROPERTY, STATES THE FOLLOW G:

- [ ] See attached Agent Visual Inspection Disclosure (AVID For)
- [ ] Agent notes no items for disclosure.
- [ ] Agent notes the following items: _____

Agent (Broker Obtaining the Offer) _____ By _____ Date _____
(Please Print) (Associate Licensee or Broker Signature)

V. BUYER(S) AND SELLER(S) MAY WISH TO OBTAIN PROFESSIONAL ADVICE AND/OR INSPECTION OF THE PROPERTY AND TO PROVIDE FOR APPROPRIATE PROVISIONS IN A CONTRACT BETWEEN BUYER AND SELLER(S) W H RESPECT TO ANY ADVICE/INSPECTIONS/DEFECTS.

I/WE ACKNOWLEDGE RECEIPT OF A COPY OF THIS STATEMENT.

Seller Megan Meyer Authorized Signer on Behalf of Opendoor Property Trust I Date 06/20/2024 Buyer _____ Date _____

Seller _____ Date _____ Buyer _____ Date _____

Agent (Broker Representing Seller) Opendoor Brokerage Inc. By Alexis Schlattman Date 06/20/2024
(Please Print) (Associate Licensee or Broker Signature)

Agent (Broker Obtaining the Offer) _____ By _____ Date _____
(Please Print) (Associate Licensee or Broker Signature)

§ 1102.3 OF THE CIVIL CODE PROVIDES A BUYER WITH THE RIGHT TO RESCIND A PURCHASE CONTRACT FOR AT LEAST THREE DAYS AFTER THE DELIVERY OF THIS DISCLOSURE IF DELIVERY OCCURS AFTER THE SIGNING OF AN OFFER TO PURCHASE. IF YOU WISH TO RESCIND THE CONTRACT, YOU MUST ACT W H HE PRESCRIBED PERIOD.

A REAL ESTATE BROKER QUALIFIE TO ADVISE ON REAL ESTATE. IF YOU DESIRE LEGAL ADVICE, CONSULT YOUR ATTORNEY.

Published and Distributed b :
REAL ESTATE BUSINESS SERVICES, LLC.
a subsidiary of the CALIFORNIA ASSOCIATION OF REALTORS
525 South Virgil Avenue, Los Angeles, California 90020

SELLER PROPERTY QUESTIONNAIRE

(C.A.R. Form SPQ, Revised 12/23)

This form is not a substitute for the Real Estate Transfer Disclosure Statement (TDS). It is used by the Seller to provide additional information when a TDS is completed. If Seller is exempt from completing a TDS, Seller should complete an Exempt Seller Disclosure (C.A.R. Form ESD) or may use this form instead:

NOTE TO SELLER: YOU ARE STRONGLY ADVISED TO CAREFULLY REVIEW THE DISCLOSURE INFORMATION ADVISORY (C.A.R. Form DIA) BEFORE YOU COMPLETE THIS SELLER PROPERTY QUESTIONNAIRE. ALL SELLERS OF CALIFORNIA REAL PROPERTY ARE REQUIRED TO PROVIDE VARIOUS DISCLOSURES, EITHER BY CONTRACT, OR BY STATUTE OR CASE LAW. MANY DISCLOSURES MUST BE MADE WITHIN CERTAIN TIME LIMITS. TIMELY AND THOROUGH DISCLOSURES HELP TO REDUCE DISPUTES AND FACILITATE A SMOOTH SALES TRANSACTION.

Seller makes the following disclosures with regard to the real property or manufactured home described as **6944 Lena Ave, West Hills, CA 91307**, Assessor's Parcel No. **2026-024-011**, situated in **West Hills**, County of **Los Angeles** California ("Property").

☐ This property is a duplex, triplex or fourplex. A SPQ is required for all units. This SPQ is for ALL units (or ☐ only unit(s) _____).

1. **Disclosure Limitation: The following are representations made by the Seller and are not the representations of the Agent(s), if any. This disclosure statement is not a warranty of any kind by the Seller or any agents(s) and is not a substitute for any inspections or warranties the principal(s) may wish to obtain. This disclosure is not intended to be part of the contract between Buyer and Seller. Unless otherwise specified in writing, Broker and any real estate licensee or other person working with or through Broker has not verified information provided by Seller. A real estate broker is qualified to advise on real estate transactions. If Seller or Buyer desires legal advice, they should consult an attorney.**
2. **Note to Seller, PURPOSE:** To tell the Buyer about known material or significant items affecting the value or desirability of the Property and help to eliminate misunderstandings about the condition of the Property.
   - Answer based on actual knowledge and recollection at this time.
   - Something that you do not consider material or significant may be perceived differently by a Buyer.
   - Think about what you would want to know if you were buying the Property today.
   - Read the questions carefully and take your time.
   - If you do not understand how to answer a question, or what to disclose or how to make a disclosure in response to a question, whether on this form or a TDS, you should consult a real estate attorney in California of your choosing. A broker cannot answer the questions for you or advise you on the legal sufficiency of any answers or disclosures you provide.
3. **Note to Buyer, PURPOSE:** To give you more information about known material or significant items affecting the value or desirability of the Property and help to eliminate misunderstandings about the condition of the Property.
   - Something that may be material or significant to you may not be perceived the same way by the Seller.
   - If something is important to you, be sure to put your concerns and questions in writing (C.A.R. form BMI).
   - Sellers can only disclose what they actually know. Seller may not know about all material or significant items.
   - Seller's disclosures are not a substitute for your own investigations, personal judgments or common sense.
4. **SELLER AWARENESS:** For each statement below, answer the question "Are you (Seller) aware of..." by checking either "Yes" or "No." **A "yes" answer is appropriate no matter how long ago the item being asked about happened or was documented unless otherwise specified.** Explain any "Yes" answers in the space provided or attach additional comments and check **paragraph 19.**
5. **DOCUMENTS:** **ARE YOU (SELLER) AWARE OF...**
   Reports, inspections, disclosures, warranties, maintenance recommendations, estimates, studies, surveys or other documents (whether prepared in the past or present, including any previous transaction, and whether or not Seller acted upon the item), pertaining to **(i)** the condition or repair of the Property or any improvement on this Property in the past, now or proposed; or **(ii)** easements, encroachments or boundary disputes affecting the Property whether oral or in writing and whether or not provided to the Seller ..... ☐ Yes ■ No
   Note: If yes, provide any such documents in your possession to Buyer.
   Explanation: _____
6. **STATUTORILY OR CONTRACTUALLY REQUIRED OR RELATED:** **ARE YOU (SELLER) AWARE OF...**
   A. Within the last 3 years, the death of an occupant of the Property upon the Property ..... ☐ Yes ■ No
   (Note to seller: The manner of death may be a material fact to the Buyer, and should be disclosed, except for a death by HIV/AIDS.)
   B. An Order from a government health official identifying the Property as being contaminated by methamphetamine. (If yes, attach a copy of the Order.) ..... ☐ Yes ☒ No
   C. The release of an illegal controlled substance on or beneath the Property ..... ☐ Yes ☒ No
   D. Whether the Property is located in or adjacent to an "industrial use" zone ..... ☐ Yes ☒ No
   (In general, a zone or district allowing manufacturing, commercial or airport uses.)
   E. Whether the Property is affected by a nuisance created by an "industrial use" zone ..... ☐ Yes ☒ No
   F. Whether the Property is located within 1 mile of a former federal or state ordnance location (In general, an area once used for military training purposes that may contain potentially explosive munitions.) ..... ☐ Yes ☒ No
   G. Whether the Property is a condominium or located in a planned unit development or other common interest subdivision ..... ☐ Yes ■ No

H. Insurance claims affecting the Property within the past 5 years ..... ☐ Yes ■ No
I. Matters affecting title of the Property ..... ☐ Yes ☒ No
J. Plumbing fixtures on the Property that are non-compliant plumbing fixtures as defined by Civil Code § 1101.3 ..... ☒ Yes ☐ No
K. Material facts or defects affecting the Property not otherwise disclosed to Buyer ..... ☐ Yes ■ No
Explanation, or ☐ (if checked) see attached; **J) Seller has not inspected for plumbing fixtures, buyer should verify compliance per local codes.**

7. REPAIRS AND ALTERATIONS: **ARE YOU (SELLER) AWARE OF...**

A. Any alterations, modifications, replacements, improvements, remodeling or material repairs on the Property (including those resulting from Home Warranty claims) ..... ☐ Yes ☒ No
B. Any alterations, modifications, replacements, improvements, remodeling, or material repairs to the Property done for the purpose of energy or water efficiency improvement or renewable energy? ..... ☒ Yes ☐ No
C. Ongoing or recurring maintenance on the Property (for example, drain or sewer clean-out, tree or pest control service) ..... ☐ Yes ☒ No
D. Any part of the Property being painted within the past 12 months ..... ☒ Yes ☐ No
E. Whether the Property was built before 1978 (if No, leave (a) and (b) blank)..... ☒ Yes ☐ No
(a) If yes, were any renovations (i.e., sanding, cutting, demolition) of lead-based paint surfaces started or completed (if No, leave (b) blank) ..... ☐ Yes ■ No
(b) If yes to (a), were such renovations done in compliance with the Environmental Protection Agency Lead-Based Paint Renovation Rule ..... ☐ Yes ☐ No
Explanation: **D. Interior painting done for the property. E. Home was built prior to 1978 - See Lead Based Paint Addendum**
7B. Owned solar panels present in the property, buyer should have their own inspection.

8. STRUCTURAL, SYSTEMS AND APPLIANCES: **ARE YOU (SELLER) AWARE OF...**

A. Defects in any of the following (including past defects that have been repaired): heating, air conditioning, electrical, plumbing (including the presence of polybutylene pipes), water, sewer, waste disposal or septic system, sump pumps, well, roof, gutters, chimney, fireplace foundation, crawl space, attic, soil, grading, drainage, retaining walls, interior or exterior doors, windows, walls, ceilings, floors or appliances ..... ■ Yes ☐ No
B. The leasing of any of the following on or serving the Property: solar system, water softener system, water purifier system, alarm system, or propane tank(s) ..... ☐ Yes ☒ No
C. An alternative septic system on or serving the Property ..... ☐ Yes ☒ No
D. Whether any structure on the Property is an Accessory Dwelling Unit (ADU) ..... ☐ Yes ☒ No
(1) If Yes to D, has the ADU received a permit or other government approval ..... ☐ Yes ☐ No
(2) If Yes to D, are there separate utilities and meters for the ADU ..... ☐ Yes ☐ No
8A. Previous seller mentioned new high-grade insulation in the attic was installed, details unknown
Explanation: **8A. Replaced various damaged laminate planks throughout the house. For leak repairs see section 10A.**
8A. Previous seller mentioned backup in the second bathroom; new piping was installed. Details unknown.

9. DISASTER RELIEF, INSURANCE OR CIVIL SETTLEMENT: **ARE YOU (SELLER) AWARE OF...**

Financial relief or assistance, insurance or settlement, sought or received, from any federal, state, local or private agency, insurer or private party, by past or present owners of the Property, due to any actual or alleged damage to the Property arising from a flood, earthquake, fire, other disaster, or occurrence or defect, whether or not any money received was actually used to make repairs ..... ☐ Yes ■ No
If yes, was federal flood disaster assistance conditioned upon obtaining and maintain flood insurance on the Property ..... ☐ Yes ☐ No
(**NOTE:** If the assistance was conditioned upon maintaining flood insurance, Buyer is informed that federal law, 42 USC 5154a requires Buyer to maintain such insurance on the Property and if it is not, and the Property is damaged by a flood disaster, Buyer may be required to reimburse the federal government for the disaster relief provided.)
Explanation:

10. WATER-RELATED AND MOLD ISSUES: **ARE YOU (SELLER) AWARE OF...**

A. Water intrusion, whether past or present, into any part of any physical structure on the Property; leaks from or in any appliance, pipe, slab or roof; standing water, drainage, flooding, underground water, moisture, water-related soil settling or slippage, on or affecting the Property ..... ■ Yes ☐ No
B. Any problem with or infestation of mold, mildew, fungus or spores, past or present, on or affecting the Property... ☐ Yes ☒ No
C. Rivers, streams, flood channels, underground springs, high water table, floods, or tides, on or affecting the Property or neighborhood ..... ☐ Yes ☒ No
Explanation: **10A. Leak in the water heater pan in the garage, buyer should have their own inspection.**

11. PETS, ANIMALS AND PESTS: **ARE YOU (SELLER) AWARE OF...**

A. Past or present pets on or in the Property ..... ☒ Yes ☐ No
B. Past or present problems with livestock, wildlife, insects or pests on or in the Property ..... ☐ Yes ☒ No
C. Past or present odors, urine, feces, discoloration, stains, spots or damage in the Property, due to any of the above ..... ☐ Yes ☒ No
D. Past or present treatment or eradication of pests or odors, or repair of damage due to any of the above ..... ☐ Yes ☒ No
If so, when and by whom
Explanation: **A. Previous seller had pet(s), details unknown**

Property Address: 6944 Lena Ave, West Hills, CA 91307

12. BOUNDARIES, ACCESS AND PROPERTY USE BY OTHERS: **ARE YOU (SELLER) AWARE OF...**

A. Surveys, easements, encroachments or boundary disputes ..... ☐ Yes ☒ No

B. Use or access to the Property, or any part of it, by anyone other than you, with or without permission, for any purpose, including but not limited to, using or maintaining roads, driveways or other forms of ingress or egress or other travel or drainage ..... ☐ Yes ☒ No

C. Use of any neighboring property by you ..... ☐ Yes ☒ No

Explanation:

13. LANDSCAPING, POOL AND SPA: **ARE YOU (SELLER) AWARE OF...**

A. Diseases or infestations affecting trees, plants or vegetation on or near the Property ..... ☐ Yes ☒ No

B. Operational sprinklers on the Property ..... ☒ Yes ☐ No

(1) If yes, are they ☐ automatic or ☐ manually operated.

(2) If yes, are there any areas with trees, plants or vegetation not covered by the sprinkler system ..... ☐ Yes ☒ No

C. A pool heater on the Property ..... ☐ Yes ☒ No

If yes, is it operational? ..... ☐ Yes ☐ No

D. A spa heater on the Property ..... ☐ Yes ☒ No

If yes, is it operational? ..... ☐ Yes ☐ No

E. Past or present defects, leaks, cracks, repairs or other problems with the sprinklers, pool, spa, waterfall, pond, stream, drainage or other water-related decor including any ancillary equipment, including pumps, filters, heaters and cleaning systems, even if repaired ..... ☐ Yes ☒ No

Explanation:

14. CONDOMINIUMS, COMMON INTEREST DEVELOPMENTS AND OTHER SUBDIVISIONS: (IF APPLICABLE)
ARE YOU (SELLER) AWARE OF...

A. Property being a condominium or located in a planned unit development or other common interest subdivision.... ☐ Yes ☒ No

B. Any Homeowners' Association (HOA) which has any authority over the subject property..... ☐ Yes ☒ No

C. Any "common area" (facilities such as pools, fitness centers, walkways, conference rooms, or other areas co-owned in undivided interest with others) ..... ☐ Yes ☒ No

D. CC&R's or other deed restrictions or obligations ..... ☒ Yes ☐ No

E. Any pending or proposed dues increases, special assessments, rules changes, insurance availability issues, or litigation by or against or fines or violations issued by a Homeowner Association or Architectural Committee affecting the Property ..... ☐ Yes ☒ No

F. CC&R's or other deed restrictions or obligations or any HOA Committee that has authority over improvements made on or to the Property ..... ☐ Yes ☒ No

(1) If Yes to F, any improvements made on or to the Property inconsistent with any declaration of restrictions or HOA Committee requirement ..... ☐ Yes ☐ No

(2) If Yes to F, any improvements made on or to the Property without the required approval of an HOA Committee ..... ☐ Yes ☐ No

Explanation: D) Buyer to confirm CC&Rs per neighborhood

15. TITLE, OWNERSHIP, LIENS, AND LEGAL CLAIMS: **ARE YOU (SELLER) AWARE OF...**

A. Other than the Seller signing this form, any other person or entity with an ownership interest ..... ☐ Yes ☒ No

B. Leases, options or claims affecting or relating to title or use of the Property ..... ☐ Yes ☒ No

C. Past, present, pending or threatened lawsuits, settlements, mediations, arbitrations, tax liens, mechanics' liens, notice of default, bankruptcy or other court filings, or government hearings affecting or relating to the Property, Homeowner Association or neighborhood ..... ☐ Yes ☒ No

D. Features of the property shared in common with adjoining landowners, such as walls, fences and driveways, whose use or responsibility for maintenance may have an effect on the subject property..... ■ Yes ☐ No

E. Any encroachments, easements, boundary disputes, or similar matters that may affect your interest in the subject property, whether in writing or not ..... ☐ Yes ☒ No

F. Any private transfer fees, triggered by a sale of the Property, in favor of private parties, charitable organizations, interest based groups or any other person or entity. ..... ☐ Yes ☒ No

G. Any PACE lien (such as HERO or SCEIP) or other lien on your Property securing a loan to pay for an alteration, modification, replacement, improvement, remodel or material repair of the Property ..... ☐ Yes ☒ No

H. The cost of any alteration, modification, replacement, improvement, remodel or material repair of the Property being paid by an assessment on the Property tax bill ..... ☐ Yes ☒ No

Explanation: D. Shared fence line with adjoining house.

Property Address: 6944 Lena Ave, West Hills, CA 91307

16. NEIGHBORS/NEIGHBORHOOD: ARE YOU (SELLER) AWARE OF...

A. Neighborhood noise, nuisance or other problems from sources such as, but not limited to, the following: Neighbors, traffic, parking congestion, airplanes, trains, light rail, subway, trucks, freeways, buses, schools, parks, refuse storage or landfill processing, agricultural operations, business, odor, recreational facilities, restaurants, entertainment complexes or facilities, parades, sporting events, fairs, neighborhood parties, litter, construction, air conditioning equipment, air compressors, generators, pool equipment or appliances, underground gas pipelines, cell phone towers, high voltage transmission lines, or wildlife ..... ☐ Yes ■ No

B. Any past or present disputes or issues with a neighbor which might impact the use, development and enjoyment of the Property ..... ☐ Yes ■ No

Explanation: _____

17. GOVERNMENTAL: ARE YOU (SELLER) AWARE OF...

A. Ongoing or contemplated eminent domain, condemnation, annexation or change in zoning or general plan that applies to or could affect the Property ..... ☐ Yes ■ No

B. Existence or pendency of any rent control, occupancy restrictions, improvement restrictions or retrofit requirements that apply to or could affect the Property ..... ☐ Yes ☒ No

C. Existing or contemplated building or use moratoria that apply to or could affect the Property ..... ☐ Yes ☒ No

D. Current or proposed bonds, assessments, or fees that do not appear on the Property tax bill that apply to or could affect the Property ..... ☐ Yes ■ No

E. Proposed construction, reconfiguration, or closure of nearby Government facilities or amenities such as schools, parks, roadways and traffic signals ..... ☐ Yes ■ No

F. Existing or proposed Government requirements affecting the Property **(i)** that tall grass, brush or other vegetation be cleared; **(ii)** that restrict tree (or other landscaping) planting, removal or cutting or **(iii)** that flammable materials be removed ..... ☐ Yes ☒ No

G. Any protected habitat for plants, trees, animals or insects that apply to or could affect the Property..... ☐ Yes ☒ No

H. Whether the Property is historically designated or falls within an existing or proposed Historic District ..... ☐ Yes ☒ No

I. Any water surcharges or penalties being imposed by a public or private water supplier, agency or utility; or restrictions or prohibitions on wells or other ground water supplies ..... ☐ Yes ■ No

J. Any differences between the name of the city in the postal/mailing address and the city which has jurisdiction over the property ..... ☐ Yes ■ No

Explanation: _____

18. OTHER: ARE YOU (SELLER) AWARE OF...

A. Any occupant of the Property smoking or vaping any substance on or in the Property, whether past or present .... ☐ Yes ■ No

B. Any use of the Property for, or any alterations, modifications, improvements, remodeling or material change to the Property due to, cannabis cultivation or growth ..... ☐ Yes ☒ No

C. Whether the Property was originally constructed as a Manufactured or Mobile home ..... ☐ Yes ☒ No

D. Any past or present known material facts or other significant items affecting the value or desirability of the Property not otherwise disclosed to Buyer ..... ☐ Yes ☒ No

Explanation: _____

19. ■ **(IF CHECKED) ADDITIONAL COMMENTS:** The attached addendum contains an explanation or additional comments in response to specific questions answered "yes" above. Refer to line and question number in explanation.

Seller represents that Seller has provided the answers and, if any, explanations and comments on this form and any attached addenda and that such information is true and correct to the best of Seller's knowledge as of the date signed by Seller. Seller acknowledges (i) Seller's obligation to disclose information requested by this form is independent from any duty of disclosure that a real estate licensee may have in this transaction; and (ii) nothing that any such real estate licensee does or says to Seller relieves Seller from his/her own duty of disclosure.

Seller Megan Meyer — **Authorized Signer on Behalf of Opendoor Property Trust I** — Date **06/20/2024**

Seller _____ Date _____

By signing below, Buyer acknowledges that Buyer has read, understands and has received a copy of this Seller Property Questionnaire form.

Buyer _____ Date _____

Buyer _____ Date _____

Published and Distributed by:
REAL ESTATE BUSINESS SERVICES, LLC.
a subsidiary of the California Association of REALTORS®
525 South Virgil Avenue, Los Angeles, California 90020

NEW PV SYSTEM FOR

STORMS RESIDENCE

6944 LENA AVE, WEST HILLS, CA 91307

[redacted]

SYSTEM SIZE: 6.800 kWp

CEC POWER OUTPUT: 6.303 kWp

APN: 2026024011

GENERAL NOTES

A. ALL ELECTRICAL WORK SHALL BE DESIGNED PER 2017 LOS ANGELES COUNTY ELECTRICAL CODE, 2019 CALIFORNIA ELECTRICAL CODE, AND 2017 NATIONAL ELECTRICAL CODE.

B. 110.2 APPROVAL: ALL ELECTRICAL EQUIPMENT SHALL BE LABELED, LISTED, OR CERTIFIED BY A NATIONALLY RECOGNIZED TESTING LABORATORY ACCREDITED BY THE UNITED STATES OCCUPATIONAL SAFETY HEALTH ADMINISTRATION.

C. RESIDENTIAL ROOF MOUNTED PHOTOVOLTAIC SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURES SPECIFICATIONS.

D. CONTRACTORS SHALL BE PRESENT DURING ALL INSPECTIONS.

E. THE ROOF ACCESS POINT REQUIRING A LADDER SHALL NOT BE LOCATED OVER A WINDOW, DOOR OR LOCATED WHERE IT CONFLICTS WITH OVERHEAD OBSTRUCTIONS SUCH AS TREE LIMBS, WIRES OR SIGNS [CRC 324.7.1].

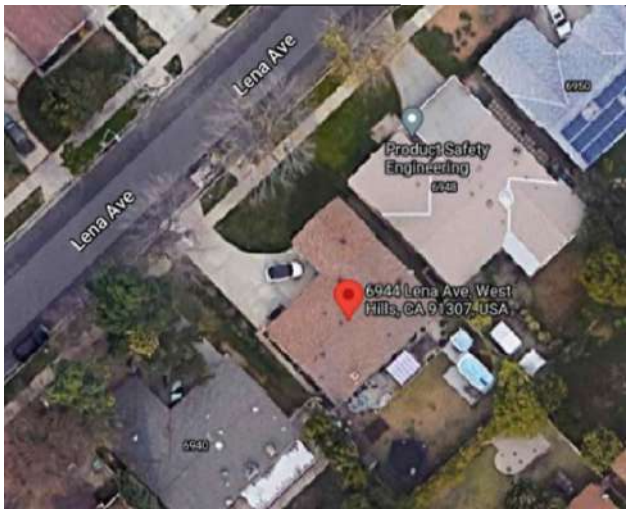
F. A LADDER SHALL BE PROVIDED AND SECURED TO THE STRUCTURE AT THE APPROVED ROOF ACCESS POINT PER NOT "C" ABOVE WITH A CAL OSHA APPROVED DEVICE DURING ALL INSPECTIONS.

SCOPE OF WORK

ALL WORK SHALL COMPLY WITH APPLICABLE, LOCAL, MUNICIPAL CODES, AND TO MANUFACTURERS' LISTINGS AND INSTALLATION INSTRUCTIONS. THE PV SOLAR SYSTEM WILL BE INTERCONNECTED AND OPERATED IN PARALLEL WITH THE UTILITY ELECTRICAL GRID PER THE REQUIREMENTS OF THE UTILITY AND APPLICABLE CODES. THE PV SOLAR SYSTEM IS DESIGNED IN COMPLIANCE WITH CEC 690.12. (RAPID SHUTDOWN).

MODULE:	(20) Q-CELLS Q.PEAK DUO BLK-G6+ 340
INVERTER:	(20) ENPHASE MICROINVERTER
RAILING:	IRONRIDGE XR10
MOUNT:	(36) IRONRIDGE FLASHFOOT 2
MSP UPGRADE:	NO

VICINITY MAP



PROJECT INFORMATION

CUSTOMER NAME: [redacted]

CONTRACTOR

NAME:	SILVERLINE HOME REMODELING INC
PHONE:	855-884-4790

AUTHORITIES HAVING JURISDICTION

BUILDING:	LOS ANGELES COUNTY
ZONING:	LOS ANGELES COUNTY
UTILITY:	PG&E

DESIGN SPECIFICATIONS

OCCUPANCY:	II
CONSTRUCTION:	SINGLE-FAMILY
ZONING:	RESIDENTIAL
WIND EXPOSURE:	C
WIND SPEED:	110 MPH

LOT INFORMATION

APN:	2026024011
LOT AREA:	7501 SQ.FT.
LIVING AREA:	1570 SQ.FT.

INSTALLER NOTES

APPLICABLE CODES

2020 LOS ANGELES COUNTY ELECTRICAL CODE
2019 CALIFORNIA BUILDING CODE
2019 CALIFORNIA RESIDENTIAL CODE
2019 CALIFORNIA ELECTRICAL CODE
2019 CALIFORNIA FIRE CODE
2019 CALIFORNIA MECHANICAL CODE
2019 CALIFORNIA GREEN CODE
2019 CALIFORNIA PLUMBING CODE
2019 CALIFORNIA ENERGY CODE
ANY OTHER LOCAL AND MUNICIPAL CODES

SHEET INDEX

SILVERLINE HOME REMODELING INC

21410 CHASE ST #4,
CANOGA PARK, CA 91304

PHONE: 855-884-4790

LIC NO.: 1001143

NEW PV SYSTEM: 6.800 kWp

[redacted]

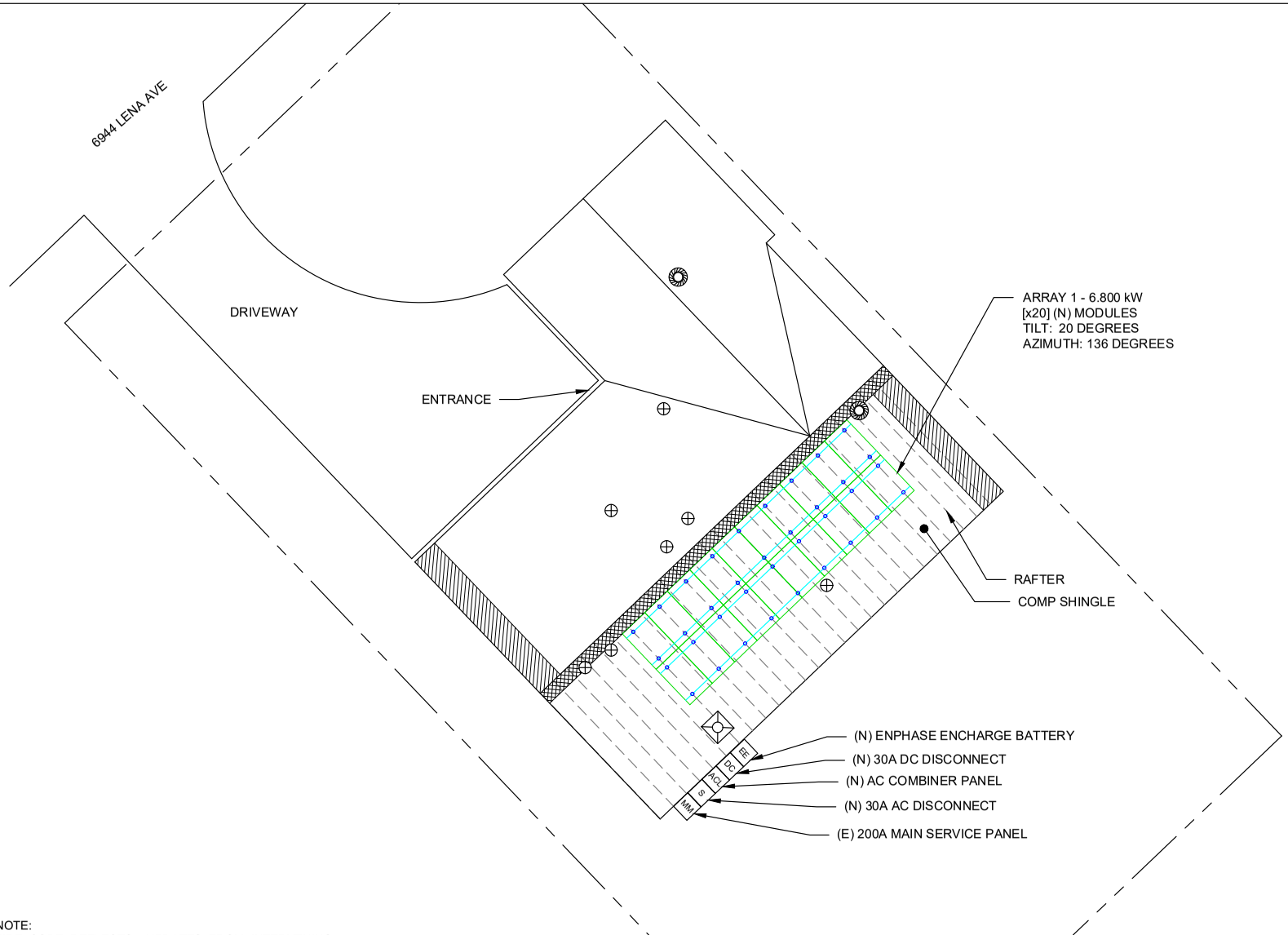
6944 LENA AVE,
WEST HILLS, CA 91307
APN: 2026024011

PAPER SIZE: 11" X 17" (ANSI B)

DRAWING TITLE:
COVER SHEET

DRAWN BY:	---
CHECKED BY:	---
DATE:	11/23/2021
DRAWING NO:	REVISION:

PV.1



NOTE:
FIRE CODE REFLECTS UPDATES FROM INTERVENING CODE CYCLE, EFFECTIVE 1 JULY 2018.
FIRE SETBACKS AND PATHWAYS COMPLY WITH IRC R324.6.1, R324.6.2, R324.7.2.6, AND IFC 1204.2.1.1,1204.2.1.2, AND 1204.2.1.3.

ROOF AREA PV COVERAGE

ROOF SURFACE AREA:	2555.21 SQ.FT.
PV SURFACE AREA:	386.26 SQ.FT.
PV SURFACE AREA COVERED:	15.12%

FIRE SETBACKS

HOUSE HAS SPRINKLERS: NO

3' FIRE CODE PATHWAY

3' FIRE CODE SETBACK

01 / PV.2 SITE PLAN

SCALE: 3/32" = 1'

N

LEGEND KEY

- MM — MAIN ELECTRICAL PANEL
- SUB — SUB PANEL
- I — AC/DC INVERTER
- ACL — AC COMBINER PANEL
- S — AC DISCONNECT
- PROPERTY LINE

SILVERLINE HOME REMODELING INC

21410 CHASE ST #4,
CANOGA PARK, CA 91304

PHONE: 855-884-4790

LIC NO.: 1001143

NEW PV SYSTEM: 6.800 kWp

6944 LENA AVE,
WEST HILLS, CA 91307
APN: 2026024011

PAPER SIZE: 11" X 17" (ANSI B)

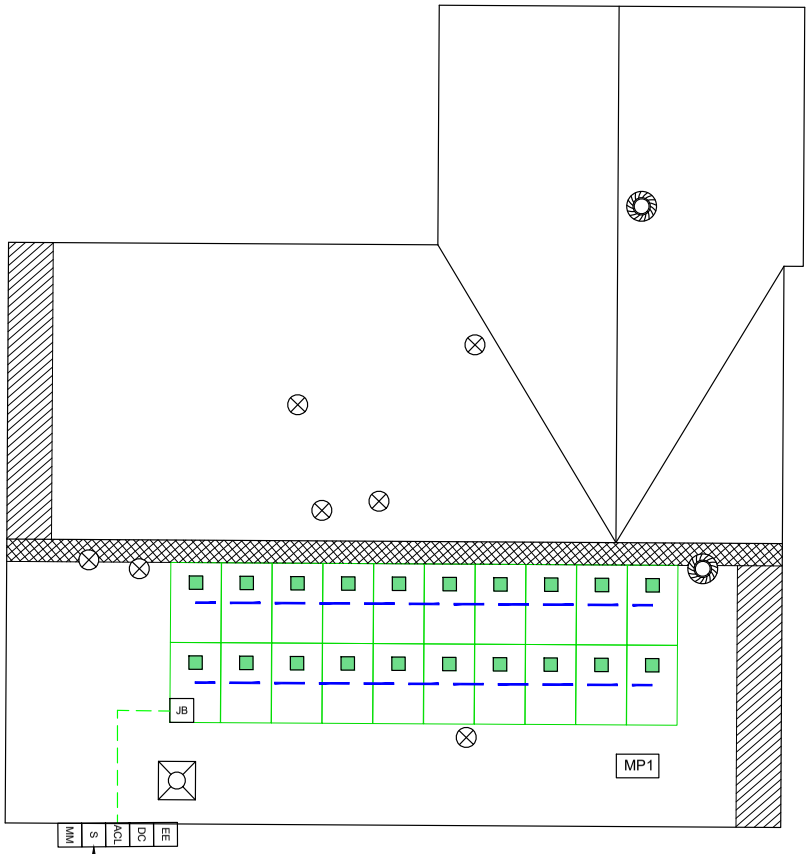
DRAWING TITLE: **SITE PLAN**

DRAWN BY:	----
CHECKED BY:	----
DATE:	11/23/2021
DRAWING NO:	REVISION:

PV.2

ROOF DETAILS - MP1:

TILT: 20 DEGREES
AZIMUTH: 136 DEGREES
MATERIAL: COMP SHINGLE



EXTERIOR PV EQUIPMENT

[x1] (E) 200A MAIN ELECTRICAL PANEL
[x1] (N) 30A AC DISCONNECT
[x1] (N) AC COMBINER PANEL
[x1] (N) ENPHASE ENCHARGE BATTERY

[x1] (N)30A DC DISCONNECT

NOTE:
FIRE CODE REFLECTS UPDATES FROM INTERVENING CODE CYCLE, EFFECTIVE 1 JULY 2018.
FIRE SETBACKS AND PATHWAYS COMPLY WITH IRC R324.6.1, R324.6.2, R324.7.2.6, AND IFC 1204.2.1.1,1204.2.1.2, AND 1204.2.1.3.

ROOF AREA PV COVERAGE

ROOF SURFACE AREA:	2555.21 SQ.FT.
PV SURFACE AREA:	386.26 SQ.FT.
PV SURFACE AREA COVERED:	15.12%

FIRE SETBACKS

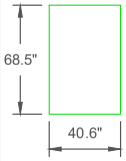
HOUSE HAS SPRINKLERS: NO

3' FIRE CODE PATHWAY
3' FIRE CODE SETBACK

01 PV.3 ROOF PLAN
SCALE: 1/8" = 1'

LEGEND KEYS

- MM — MAIN ELECTRICAL PANEL
- SUB — SUB PANEL
- ACL — AC COMBINER PANEL
- S — AC DISCONNECT
- JB — NEMA 3R JBOX
- MICROINVERTERS
- ¾" EMT CONDUIT
- MODULE STRINGING



MODULE:
Q-CELLS
Q.PEAK
DUO
BLK-G6+
340
340
WATTS

GENERAL NOTES

1. 20 DEGREES
2. 2X4 RAFTERS @ 24" O.C.
3. COMP SHINGLE
4. (20) Q-CELLS Q.PEAK DUO BLK-G6+ 340
5. PV MODULES
6. (20) ENPHASE IQ7-60-2-US
7. (20) MICROINVERTERS
8. IRONRIDGE XR10
9. (36) IRONRIDGE FLASHFOOT 2
10. WEEB CLAMPS & LUGS FOR PV GROUNDING

[redacted]

SILVERLINE HOME REMODELING INC

21410 CHASE ST #4,
CANOGA PARK, CA 91304

PHONE: 855-884-4790

LIC NO.: 1001143

NEW PV SYSTEM: 6.800 kWp

[redacted]

6944 LENA AVE,
WEST HILLS, CA 91307
APN: 2026024011

PAPER SIZE: 11" X 17" (ANSI B)

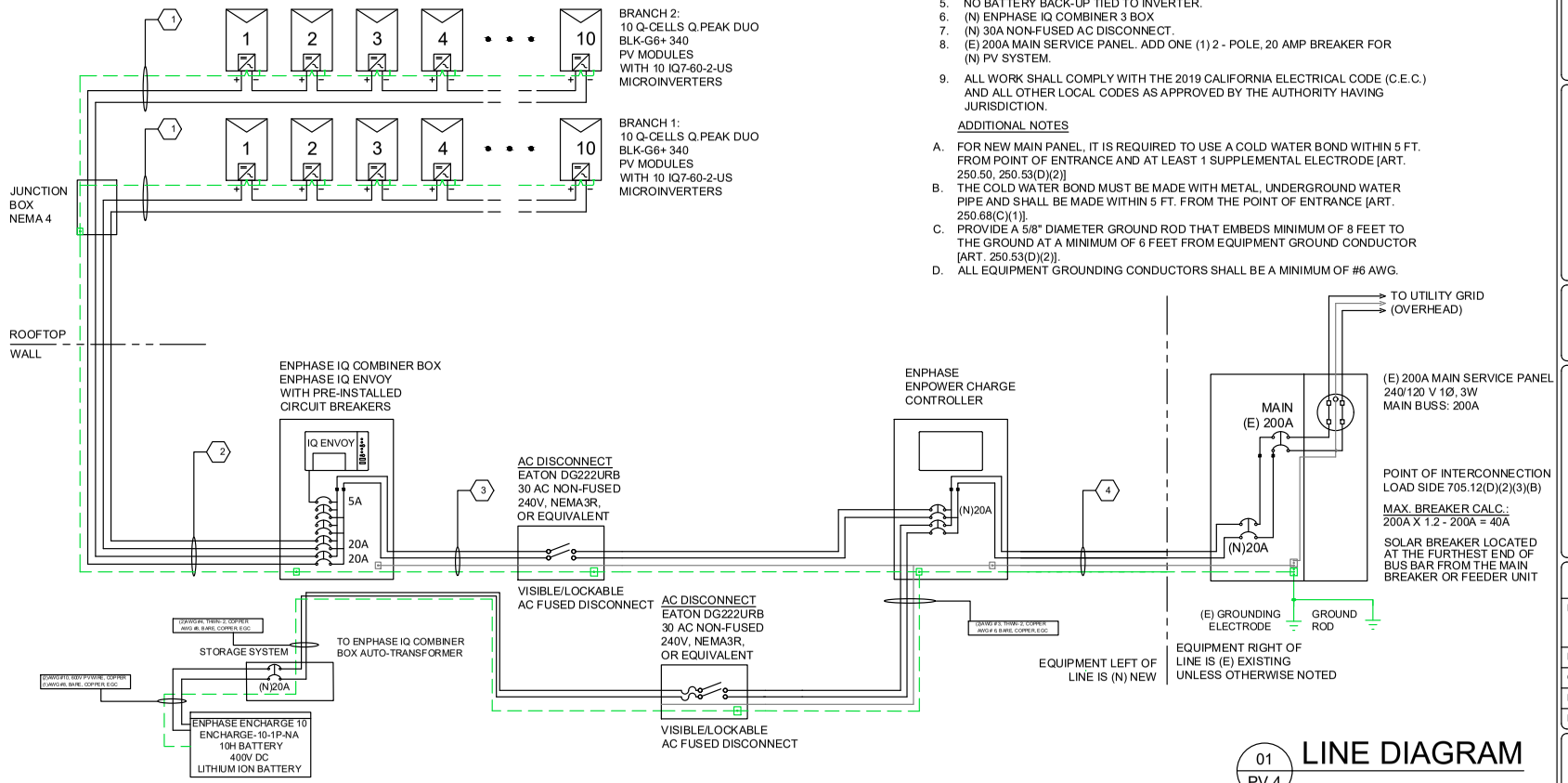
DRAWING TITLE:
ROOF PLAN

DRAWN BY:	---
CHECKED BY:	---
DATE:	11/23/2021
DRAWING NO:	REVISION:

PV.3

CONDUCTOR AND CONDUIT SCHEDULE W/ELECTRICAL CALCULATIONS

ID	TYPICAL	CONDUCTOR	CONDUIT	CURRENT-CARRYING CONDUCTORS IN CONDUIT	OCPD	EGC	TEMP. CORR. FACTOR	CONDUIT FILL FACTOR	CONT. CURRENT	MAX. CURRENT (125%)	BASE AMP.	DERATED AMP.	TERM. TEMP. RATING	AMP. @ TERMINAL
01	2	10 AWG PV WIRE, COPPER	FREE AIR	N/A	N/A	6 AWG BARE, COPPER	0.71 (56.0°C)	1.0	15A	18.75A	55A	39.05A	90°C	50A
02	1	10 AWG THWN-2, COPPER	0.75" DIA. EMT	4	N/A	8 AWG THWN-2, COPPER	0.71 (56.0°C)	0.8	15A	18.75A	40A	22.72A	75°C	35A
03	1	10 AWG THWN-2, COPPER	0.75" DIA. EMT	3	30A	8 AWG THWN-2, COPPER	0.94 (34°C)	1.0	20A	25.00A	40A	37.60A	75°C	35A
04	1	10 AWG THWN-2, COPPER	0.75" DIA. EMT	3	30A	8 AWG THWN-2, COPPER	0.94 (34°C)	1.0	20A	25.00A	40A	37.60A	75°C	35A



NOTES

1. 20 Q-CELLS Q.PEAK DUO BLK-G6+ 340 PV MODULES AND 20 ENPHASE IQ7-60-2-US MICROINVERTERS.
2. PV SOURCE CIRCUIT(S) ARE TO BE SUNLIGHT-RESISTANT PV-WIRE AS PERMITTED BY CEC 690.31(B).
3. ALL DIRECT CURRENT CIRCUITS ARE TO BE INSTALLED IN METAL RACEWAY FROM THE POINT OF PENETRATION OF THE SURFACE OF THE BUILDING OR STRUCTURE TO THE MAIN SERVICE PANEL AS MANDATED BY CEC 690.31(E).
4. WEATHERPROOF J-BOX – NEMA 3.
5. NO BATTERY BACK-UP TIED TO INVERTER.
6. (N) ENPHASE IQ COMBINER 3 BOX
7. (N) 30A NON-FUSED AC DISCONNECT.
8. (E) 200A MAIN SERVICE PANEL. ADD ONE (1) 2 - POLE, 20 AMP BREAKER FOR (N) PV SYSTEM.
9. ALL WORK SHALL COMPLY WITH THE 2019 CALIFORNIA ELECTRICAL CODE (C.E.C.) AND ALL OTHER LOCAL CODES AS APPROVED BY THE AUTHORITY HAVING JURISDICTION.

ADDITIONAL NOTES

A. FOR NEW MAIN PANEL, IT IS REQUIRED TO USE A COLD WATER BOND WITHIN 5 FT. FROM POINT OF ENTRANCE AND AT LEAST 1 SUPPLEMENTAL ELECTRODE [ART. 250.50, 250.53(D)(2)]
B. THE COLD WATER BOND MUST BE MADE WITH METAL, UNDERGROUND WATER PIPE AND SHALL BE MADE WITHIN 5 FT. FROM THE POINT OF ENTRANCE [ART. 250.68(C)(1)].
C. PROVIDE A 5/8" DIAMETER GROUND ROD THAT EMBEDS MINIMUM OF 8 FEET TO THE GROUND AT A MINIMUM OF 6 FEET FROM EQUIPMENT GROUND CONDUCTOR [ART. 250.53(D)(2)].
D. ALL EQUIPMENT GROUNDING CONDUCTORS SHALL BE A MINIMUM OF #6 AWG.

01 PV.4 LINE DIAGRAM

[redacted]

SILVERLINE HOME REMODELING INC

21410 CHASE ST #4,
CANOGA PARK, CA 91304

PHONE: 855-884-4790

LIC NO.: 1001143

NEW PV SYSTEM: 6.800 kWp

[redacted]

6944 LENA AVE,
WEST HILLS, CA 91307
APN: 2026024011

PAPER SIZE: 11" X 17" (ANSI B)

DRAWING TITLE:
LINE DIAGRAM

DRAWN BY:	---
CHECKED BY:	---
DATE:	11/23/2021
DRAWING NO:	REVISION:

PV.4

SYSTEM SUMMARY		
	BRANCH #1	BRANCH #2
NVERTERS PER BRANCH	10	10
MAX AC CURRENT	10.00A	10.00A
MAX AC OUTPUT POWER	2,400W	2,400W
ARRAY STC POWER	6,800W	
ARRAY PTC POWER	6,303W	
MAX AC CURRENT	20.00A	
MAX AC POWER	6,367W	
DERATED (CEC) AC POWER	6,114W	

DESIGN TEMPERATURES	
ASHRAE EXTREME LOW	-5.2°C (23.0°F), SOURCE: C M SCHULZ SONOMA CO 38.41°, -122.72°
ASHRAE 2% HIGH	34°C (98.8°F), SOURCE: C M SCHULZ SONOMA CO 38.41°, -122.72°

MODULES										
REF.	QTY.	MAKE AND MODEL	PMAX	PTC	ISC	IMP	VOC	VMP	TEMP. COEFF. OF VOC	FUSE RATING
PM1-20	20	Q-CELLS Q.PEAK DUO BLK-G6+ 340	340W	318.35W	10.52A	10.02A	40.66V	33.94V	-0.126V/°C (-0.37%/°C)	20A

INVERTERS										
REF.	QTY.	MAKE AND MODEL	AC VOLTAGE	GROUND	MAX OCPD RATING	RATED POWER	MAX OUTPUT CURRENT	MAX INPUT CURRENT	MAX INPUT VOLTAGE	CEC WEIGHTED EFFICIENCY
I1-20	20	ENPHASE IQ7-60-2-US (240V)	240V	FLOATING	20A	240W	1.0A	15.0A	48V	97.0%

OCPDS			
REF.	QTY.	RATED CURRENT	MAX VOLTAGE
CB1	1	30A	240VAC
BR1	1	20A	240VAC
BR2	1	20A	240VAC

BILL OF MATERIALS							
CATEGORY	MAKE	MODEL NUMBER	REF	QTY	UNIT	QTY/UNIT	DESCRIPTION
MODULE	Q-CELLS	Q.PEAK DUO BLK-G6+ 340	PM1-20	20	PIECES	1	Q-CELLS Q.PEAK DUO BLK-G6+ 340 340W, 60 CELLS, MONOCRYSTALLINE SILICON
INVERTER	ENPHASE	IQ7-60-2-US	I1-20	20	PIECES	1	ENPHASE IQ7-60-2-US 240W MICROINVERTER
WIRING	ENPHASE	Q-12-10-240	EN1-20	20	PIECES	1	ENPHASE Q CABLE Q-12-10-240
WIRING	ENPHASE	Q-TERM-R	EN12	1	PIECE	1	ENPHASE Q CABLE TERMINATOR
WIRING	ENPHASE	Q-CONN-10F	EN13	1	PIECE	1	ENPHASE Q-CONN-10F IQ INVERTER FIELD WIREABLE FEMALE CONNECTOR KIT
WIRING	ENPHASE	Q-CONN-10M	EN14	1	PIECE	1	ENPHASE Q-CONN-10M IQ INVERTER FIELD WIREABLE MALE CONNECTOR KIT
WIRING		GEN-6-AWG-BARE-CU	HDWR1	25	FEET	1	6 AWG BARE, COPPER (ARRAY GROUNDING/BONDING)
WIRING		GEN-10-AWG-THWN-2-CU-BLK	WR2	60	FEET	1	10 AWG THWN-2, COPPER, BLACK (LINE 1)
WIRING		GEN-10-AWG-THWN-2-CU-RD	WR2	60	FEET	1	10 AWG THWN-2, COPPER, RED (LINE 2)
WIRING		GEN-10-AWG-THWN-2-CU-WH	WR2	60	FEET	1	10 AWG THWN-2, COPPER, WHITE (NEUTRAL)
WIRING		GEN-8-AWG-THWN-2-CU-BLK	WR2	5	FEET	1	8 AWG THWN-2, COPPER, BLACK (LINE 1)
WIRING		GEN-8-AWG-THWN-2-CU-RD	WR2	5	FEET	1	8 AWG THWN-2, COPPER, RED (LINE 2)
WIRING		GEN-8-AWG-THWN-2-CU-WH	WR2	5	FEET	1	8 AWG THWN-2, COPPER, WHITE (NEUTRAL)
WIRING		GEN-8-AWG-THWN-2-CU-GR	WR2-3	65	FEET	1	8 AWG THWN-2, COPPER, GREEN (GROUND)
WIREWAY		GEN-EMT-0_75DIA	WR2-3	65	FEET	1	EMT CONDUIT, 0.75 DIA.
OCPD	GENERIC MANUFACTURER	GEN-CB-20A-240VAC	CB1	1	PIECES	1	CIRCUIT BREAKER, 20A, 240VAC
OCPD	GENERIC MANUFACTURER	GEN-BR-20A-240VAC	BR1	1	PIECES	1	BR, 20A, 240VAC
OCPD	GENERIC MANUFACTURER	GEN-BR-20A-240VAC	BR2	1	PIECES	1	BR, 20A, 240VAC
TRANSITION BOX	GENERIC	GEN-AWB-TB-4-4X	JB1	1	PIECES	1	TRANSITION/PASS-THROUGH BOX, WITH 4 TERMINAL BLOCKS

01
PV.05

CALCULATIONS

SILVERLINE HOME REMODELING INC

21410 CHASE ST #4,
CANOGA PARK, CA 91304

PHONE: 855-884-4790

LIC NO.: 1001143

NEW PV SYSTEM: 6.800 kWp

6944 LENA AVE,
WEST HILLS, CA 91307
APN: 2026024011

PAPER SIZE: 11" X 17" (ANSI B)

DRAWING TITLE:

DESIGN TABLES

DRAWN BY:	---
CHECKED BY:	---
DATE:	11/23/2021
DRAWING NO:	REVISION:

PV.5

1. CAUTION: AUTHORIZED SOLAR PERSONNEL ONLY!

2. WARNING: PHOTOVOLTAIC POWER SOURCE

[CEC 690.31(G)3 & 4] PLACE ON JUNCTION BOXES AND CONDUIT EVERY 10'

3. WARNING!
ELECTRIC SHOCK HAZARD
IF GROUND FAULT IS INDICATED, NORMALLY GROUNDED CONDUCTORS MAY BE UNGROUNDED AND ENERGIZED

[CEC 690.35(F)] PLACE THIS LABEL ON INVERTER(S) OR NEAR GROUND-FAULT INDICATOR (ON INVERTER(S) U.O.N.)

4. WARNING!
ELECTRIC SHOCK HAZARD
DO NOT TOUCH TERMINALS. TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

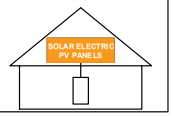
[CEC 690.5(C)] PLACE THIS LABEL ON **ALL** DISCONNECTING MEANS WHERE ENERGIZED IN AN OPEN POSITION

5. AC DISCONNECT

[CEC 690.14(C)(2)] PLACE ON AC DISCONNECT

6. SOLAR 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



[CEC 690.56(C)(1)(A)] FOR PV SYSTEMS THAT SHUT DOWN THE ARRAY AND CONDUCTORS LEAVING THE ARRAY: SIGN TO BE LOCATED ON OR NO MORE THAN 3 FT AWAY FROM SERVICE DISCONNECTING MEANS TO WHICH THE PV SYSTEMS ARE CONNECTED AND SHALL INDICATE THE LOCATION OF ALL IDENTIFIED RAPID SHUTDOWN SWITCHES IF NOT AT THE SAME LOCATION

7. RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

[CEC 690.12(5)] PLACE ON INVERTER

8. PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SHUTDOWN

[CEC 690.56(C)] PLACE AT MAIN SERVICE PANEL

9. AC DISCONNECT
AC PHOTOVOLTAIC POWER SOURCE
MAX AC OPERATING CURRENT: 20A MAX
AC OPERATING VOLTAGE: 240 VAC

[CEC 690.54] PLACE LABEL AT "INTERACTIVE POINT OF INTERCONNECTION" (AT MAIN SERVICE PANEL *AND* SUBPANEL IF APPLICABLE)

10. THIS PANEL IS FED BY MULTIPLE SOURCES (UTILITY & SOLAR)

[CEC 690.64(B)(4)] PLACE LABEL ON ALL EQUIPMENT CONTAINING OVERCURRENT DEVICES IN CIRCUITS SUPPLYING POWER TO A BUSBAR OR CONDUCTORS SUPPLIED FROM MULTIPLE SOURCES

11. SOLAR

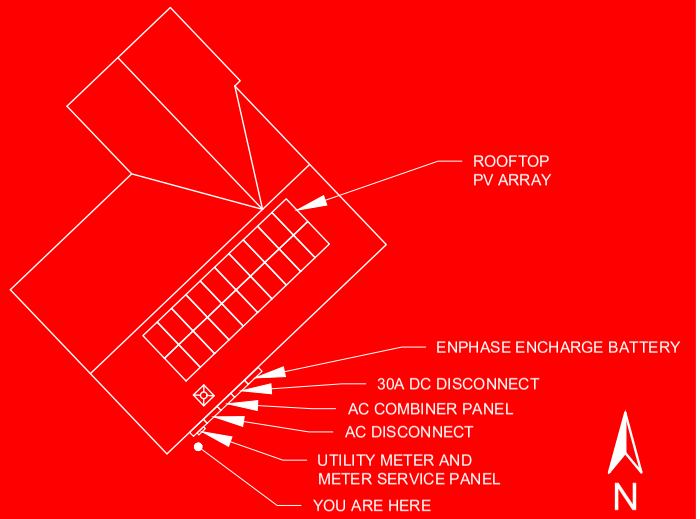
STICKER LOCATED INSIDE PANEL NEXT TO PV BREAKER

12. WARNING
INVERTER OUTPUT CONNECTION
DO NOT RELOCATE THIS OVERCURRENT DEVICE

[CEC 690.64(B)(7)] PLACE THIS LABEL AT P.O.C. TO SERVICE DISTRIBUTION EQUIPMENT (I.E. MAIN PANEL *AND* SUBPANEL IF APPLICABLE)

6"X6" DISCONNECT DIRECTORY PLAQUE
INSTALL AT MAIN SERVICE PANEL

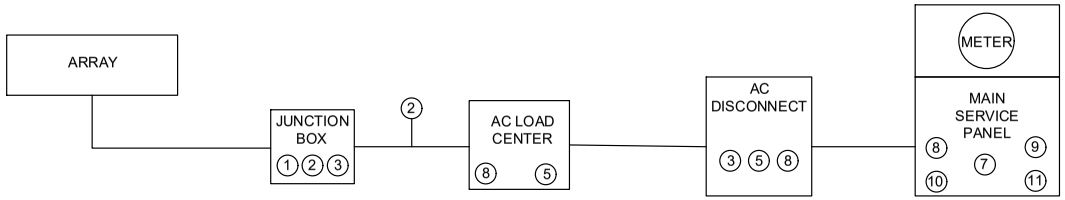
CAUTION
POWER TO THIS BUILDING ALSO SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECTS LOCATED AS SHOWN



SERVICE BY QUALIFIED PERSONNEL ONLY

FORMAT
1. WHITE LETTERING ON A RED BACKGROUND
2. MINIMUM 3/8 INCHES LETTER HEIGHT
3. ALL LETTERS SHALL BE CAPITALIZED
4. ARIAL OR SIMILAR FONT (NON-BOLD)

MATERIAL
REFLECTIVE, WEATHER RESISTANT MATERIAL SUITABLE FOR THE ENVIRONMENT (USE UL-969 AS STANDARD FOR WEATHER RATING).
DURABLE ADHESIVE MATERIALS



01 / PV.06 LABLES

SILVERLINE HOME REMODELING INC

21410 CHASE ST #4,
CANOGA PARK, CA 91304

PHONE: 855-884-4790

LIC NO.: 1001143

NEW PV SYSTEM: 6.800 kWp

6944 LENA AVE,
WEST HILLS, CA 91307
APN: 2026024011

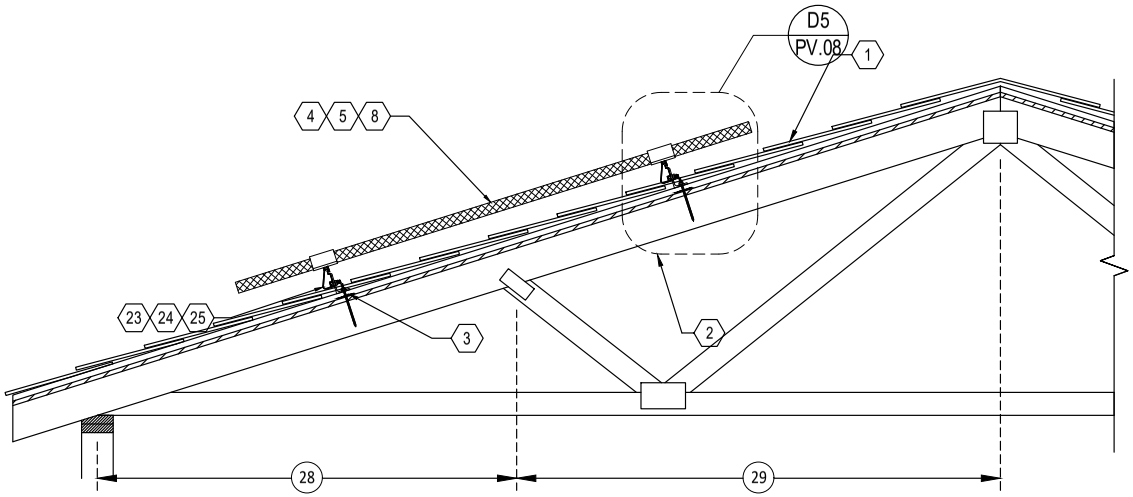
PAPER SIZE: 11" X 17" (ANSI B)

DRAWING TITLE: LABELS	
DRAWN BY:	---
CHECKED BY:	---
DATE:	11/23/2021
DRAWING NO:	REVISION:

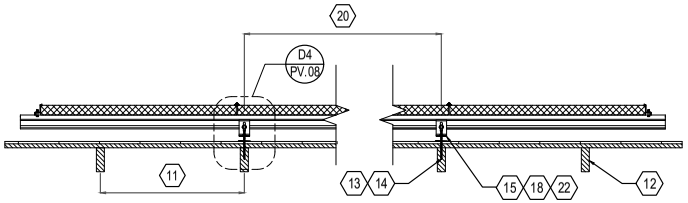
PV.6

1. ROOF MATERIAL: COMP SHINGLE
2. ROOF STRUCTURE: MANUFACTURED TRUSS
3. ATTACHMENT TYPE: IRONRIDGE FLASHFOOT 2
4. MODULE MANUFACTURER: Q-CELLS
5. MODULE MODEL: Q.PEAK DUO BLK-G6+ 340
6. MODULE LENGTH: 68.5 IN.
7. MODULE WIDTH: 40.6 IN.
8. MODULE WEIGHT: 43.9 LBS.
9. SEE SHEET PV.04 FOR DIMENSION(S)
10. MIN. FIRE OFFSET: 18" FROM RIDGE
11. RAFTER SPACING: 24 IN. O.C.
12. RAFTER SIZE: 2X4 NOMINAL
13. LAG BOLT DIAMETER: 5/16 IN.
14. LAG BOLT EMBEDMENT: 2-1/2 IN.
15. TOTAL # OF ATTACHMENTS: 36
16. TOTAL AREA: 386.26 SQ. FT.
17. TOTAL WEIGHT: 956.51 LBS.
18. WEIGHT PER ATTACHMENT: 26.57 LBS.
19. DISTRIBUTED LOAD: 2.48 PSF.
20. MAX. HORIZONTAL STANDOFF: 48 IN.
21. MAX. VERTICAL STANDOFF: LANDSCAPE: 26 IN., PORTRAIT: 32 IN.
22. STANDOFF STAGGERING: NO
23. RAIL MANUFACTURER: IRONRIDGE
24. RAIL MODEL: XR10
25. RAIL WEIGHT: 0.436 PLF.
27. MODULE CLEARANCE: 3 IN. MIN., 6 IN. MAX.
28. RAFTER SPAN 1: 3'-4"
29. RAFTER SPAN 2: 3'-8"

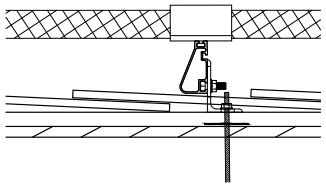
SHEET KEYNOTES



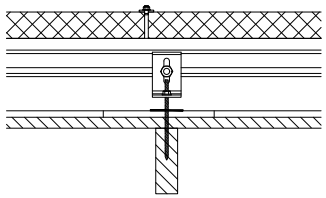
D1 PV.7 **RACKING DETAIL (TRANSVERSE)** SCALE: NTS



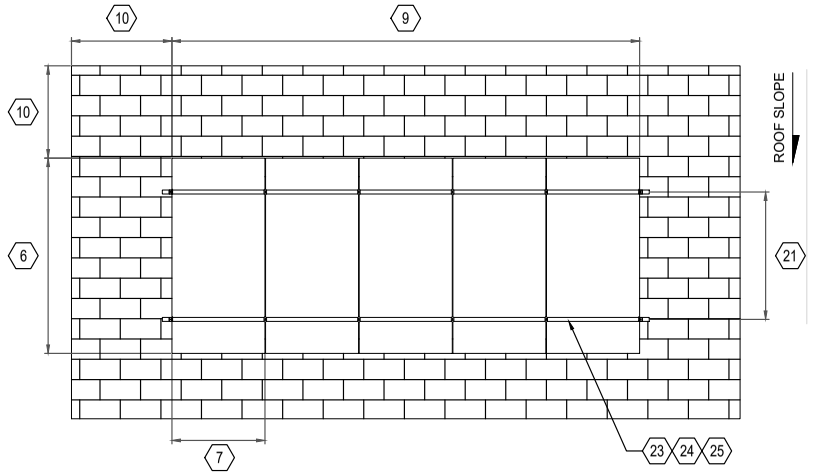
D2 PV.7 **RACKING DETAIL (LONGITUDINAL)** SCALE: NTS



D5 PV.7 **DETAIL (TRANS)** SCALE: NTS



D4 PV.7 **DETAIL (LONG)** SCALE: NTS



D3 PV.7 **RACKING DETAIL (TOP)** SCALE: NTS

SILVERLINE HOME REMODELING INC

21410 CHASE ST #4,
CANOGA PARK, CA 91304

PHONE: 855-884-4790

LIC NO.: 1001143

NEW PV SYSTEM: 6.800 kWp

6944 LENA AVE,
WEST HILLS, CA 91307
APN: 2026024011

PAPER SIZE: 11" X 17" (ANSI B)

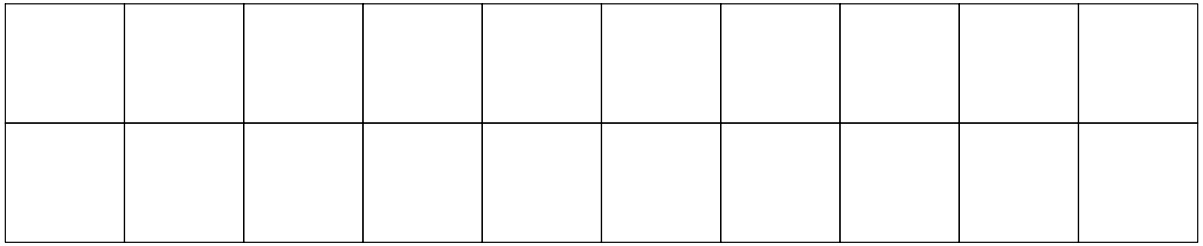
DRAWING TITLE:
ASSEMBLY DETAILS

DRAWN BY:	---
CHECKED BY:	---
DATE:	11/23/2021
DRAWING NO:	REVISION:

PV.7

6.800 kW DC (STC)
(20) Q-CELLS Q.PEAK DUO BLK-G6+ 340
MODULES & ENPHASE IQ7-60-2-US MICROINVERTERS

ARRAY 1
20 MODULES
136° AZIMUTH
20° TILT



01
PV.09
MICRO INVERTER

[redacted]

SILVERLINE HOME
REMODELING INC

21410 CHASE ST #4,
CANOGA PARK, CA 91304

PHONE: 855-884-4790

LIC NO.: 1001143

NEW PV SYSTEM: 6.800 kWp

[redacted]

6944 LENA AVE,
WEST HILLS, CA 91307
APN: 2026024011

PAPER SIZE: 11" X 17" (ANSI B)

DRAWING TITLE:	
DRAWN BY:	----
CHECKED BY:	----
DATE:	11/23/2021
DRAWING NO:	REVISION:

PV.8

Q.PEAK DUO BLK-G6

330-345

ENDURING HIGH PERFORMANCE

Q.ANTUM TECHNOLOGY: LOW LEVELISED COST OF ELECTRICITY

Higher yield per surface area, lower BOS costs, higher power classes, and an efficiency rate of up to 19.5%.

INNOVATIVE ALL-WEATHER TECHNOLOGY

Optimal yields, whatever the weather with excellent low-light and temperature behaviour.

ENDURING HIGH PERFORMANCE

Long-term yield security with Anti LID Technology, Anti PID Technology[1], Hot-Spot Protect and Traceable Quality Tra.Q™.

EXTREME WEATHER RATING

High-tech aluminium alloy frame, certified for high snow (5400 Pa) and wind loads (4000 Pa).

A RELIABLE INVESTMENT

Inclusive 12-year product warranty and 25-year linear performance warranty[2].

STATE OF THE ART MODULE TECHNOLOGY

Q.ANTUM DUO combines cutting edge cell separation and innovative wiring with Q.ANTUM Technology.

[1] APT test conditions according to IEC/TS 62804-1:2015, method B (−1500 V, 168 h)
[2] See data sheet on rear for further information.

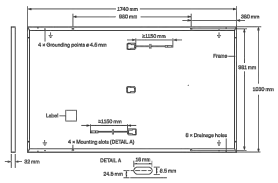
THE IDEAL SOLUTION FOR:

Rooftop arrays on residential buildings

Engineered in Germany

MECHANICAL SPECIFICATION

Format	1740 mm × 1030 mm × 32 mm (including frame)
Weight	19.9 kg
Front Cover	3.2 mm thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodised aluminium
Cell	6 × 20 monocrystalline Q.ANTUM solar half cells
Junction box	53-101 mm × 32-60 mm × 15-18 mm Protection class IP67, with bypass diodes
Cable	4 mm² Solar cable; (+) ≥1150 mm, (−) ≥1150 mm
Connector	Stäubli MC4, Amphenol UTX, Renhe 05-6, Tongling T1-Cable01S, JMTHY JM601; IP68 or Friends PV2e; IP67

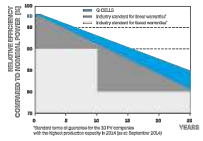


ELECTRICAL CHARACTERISTICS

POWER CLASS			330	335	340	345
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC[1] (POWER TOLERANCE +5 W / −0 W)						
Minimum	Power at MPP[1]	P_{MPP} [W]	330	335	340	345
	Short Circuit Current[1]	I_{SC} [A]	10.41	10.47	10.52	10.58
	Open Circuit Voltage[1]	V_{OC} [V]	40.15	40.41	40.66	40.92
	Current at MPP	I_{MPP} [A]	9.91	9.97	10.02	10.07
	Voltage at MPP	V_{MPP} [V]	33.29	33.62	33.94	34.25
	Efficiency[1]	η [%]	≥18.4	≥18.7	≥19.0	≥19.3
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT[2]						
Minimum	Power at MPP	P_{MPP} [W]	247.0	250.7	254.5	258.2
	Short Circuit Current	I_{SC} [A]	8.39	8.43	8.48	8.52
	Open Circuit Voltage	V_{OC} [V]	37.86	38.10	38.34	38.59
	Current at MPP	I_{MPP} [A]	7.80	7.84	7.89	7.93
	Voltage at MPP	V_{MPP} [V]	31.66	31.97	32.27	32.57

[1] Measurement tolerances P_{MPP} ±3%; I_{SC}; V_{OC} ±5% at STC: 1000 W/m², 25 ± 2 °C, AM 1.5 G according to IEC 60904-3 • [2] 800 W/m², NMOT, spectrum AM 1.5 G

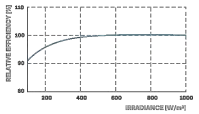
Q CELLS PERFORMANCE WARRANTY



At least 98% of nominal power during first year. Thereafter max. 0.54% degradation per year. At least 93.1% of nominal power up to 10 years. At least 85% of nominal power up to 25 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Q CELLS sales organisation of your respective country.

PERFORMANCE AT LOW IRRADIANCE



Typical module performance under low irradiance conditions in comparison to STC conditions (25 °C, 1000 W/m²).

TEMPERATURE COEFFICIENTS						
Temperature Coefficient of I_{SC}	α	[%/K]	+0.04	Temperature Coefficient of V_{OC}	β	[%/K]	−0.27
Temperature Coefficient of P_{MPP}	γ	[%/K]	−0.36	Nomal Module Operating Temperature	NMOT	[°C]	43±3

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage	V_{SYS}	[V]	1000	Safety Class		II
Maximum Reverse Current	I_R	[A]	20	Fire Rating		C
Max. Design Load, Push / Pull		[Pa]	3600 / 2667	Permitted Module Temperature on Continuous Duty		−40 °C – +85 °C
Max. Test Load, Push / Pull		[Pa]	5400 / 4000			

QUALIFICATIONS AND CERTIFICATES

VDE Quality Tested, IEC 61215:2016; IEC 61730:2018, Application Class II; This data sheet complies with DIN EN 50380.

PACKAGING INFORMATION

Number of Modules per Pallet	32
Number of Pallets per Trailer (24 t)	28
Number of Pallets per 40' HC-Container (26 t)	24
Pallet Dimensions (L × W × H)	1815 × 1150 × 1190 mm
Pallet Weight	683 kg

Note: Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product.

Hanwha Q CELLS GmbH
Sonnenallee 17-21, 06766 Bitterfeld-Wolfen, Germany | **TEL** +49 (0)3494 66 99-23444 | **FAX** +49 (0)3494 66 99-23000 | **EMAIL** sales@q-cells.com | **WEB** www.q-cells.com

Engineered in Germany

Data Sheet
Enphase Microinverters
Region: AMERICAS

Enphase IQ 7 and IQ 7+ Microinverters

The high-powered smart grid-ready Enphase IQ 7 Micro™ and Enphase IQ 7+ Micro™ dramatically simplify the installation process while achieving the highest system efficiency.

Part of the Enphase IQ System, the IQ 7 and IQ 7+ Microinverters integrate with the Enphase IQ Envoy™, Enphase IQ Battery™, and the Enphase Enlighten™ monitoring and analysis software.

IQ Series Microinverters extend the reliability standards set forth by previous generations and undergo over a million hours of power-on testing, enabling Enphase to provide an industry-leading warranty of up to 25 years.

Easy to Install

- Lightweight and simple
- Faster installation with improved, lighter two-wire cabling
- Built-in rapic shutdown compliant (NEC 2014 & 2017)

Productive and Reliable

- Optimized for high powered 60-cell and 72-cell* modules
- More than a million hours of testing
- Class II double-insulated enclosure
- UL listed

Smart Grid Ready

- Complies with advanced grid support, voltage and frequency ride-through requirements
- Remotely updates to respond to changing grid requirements
- Configurable for varying grid profiles
- Meets CA Rule 21 (UL 1741-SA)

* The IQ 7+ Micro is required to support 72-cell modules.

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE

Enphase IQ 7 and IQ 7+ Microinverters

INPUT DATA (DC)	IQ7-60-2-US		IQ7PLUS-72-2-US	
Commonly used module pairings[1]	235 W - 350 W +		235 W - 440 W +	
Module compatibility	60-cell PV modules only		60-cell and 72-cell PV modules	
Maximum input DC voltage	48 V		60 V	
Peak power tracking voltage	27 V - 37 V		27 V - 45 V	
Operating range	16 V - 48 V		16 V - 60 V	
Min/Max start voltage	22 V / 48 V		22 V / 60 V	
Max DC short circuit current (module Isc)	15 A		15 A	
Overvoltage class DC port	II		II	
DC port backfeed current	0 A		0 A	
PV array configuration	1 x 1 ungrounded array; No additional DC side protection required; AC side protection requires max 20A per branch circuit			
OUTPUT DATA (AC)	**IQ 7 Microinverter**		**IQ 7+ Microinverter**	
Peak output power	250 VA		295 VA	
Maximum continuous output power	240 VA		290 VA	
Nominal (L-L) voltage/range[2]	240 V / 211-264 V	208 V / 183-229 V	240 V / 211-264 V	208 V / 183-229 V
Maximum continuous output current	1.0 A (240 V)	1.15 A (208 V)	1.21 A (240 V)	1.39 A (208 V)
Nominal frequency	60 Hz		60 Hz	
Extended frequency range	47 - 68 Hz		47 - 68 Hz	
AC short circuit fault current over 3 cycles	5.8 Arms		5.8 Arms	
Maximum units per 20 A (L-L) branch circuit[3]	16 (240 VAC)	13 (208 VAC)	13 (240 VAC)	11 (208 VAC)
Overvoltage class AC port	III		III	
AC port backfeed current	18 mA		18 mA	
Power factor setting	1.0		1.0	
Power factor (adjustable)	0.85 leading ... 0.85 lagging		0.85 leading ... 0.85 lagging	
EFFICIENCY	**@240 V**	**@208 V**	**@240 V**	**@208 V**
Peak efficiency	97.6 %	97.6 %	97.5 %	97.3 %
CEC weighted efficiency	97.0 %	97.0 %	97.0 %	97.0 %
MECHANICAL DATA				
Ambient temperature range	-40°C to +65°C			
Relative humidity range	4% to 100% (condensing)			
Connector type	MC4 (or Amphenol H4 UTX with additional Q-DCC-5 adapter)			
Dimensions (HxWxD)	212 mm x 175 mm x 30.2 mm (without bracket)			
Weight	1.08 kg (2.38 lbs)			
Cooling	Natural convection - No fans			
Approved for wet locations	Yes			
Pollution degree	PD3			
Enclosure	Class II double-insulated, corrosion resistant polymeric enclosure			
Environmental category / UV exposure rating	NEMA Type 6 / outdoor			
FEATURES				
Communication	Power Line Communication (PLC)			
Monitoring	Enlighten Manager and MyEnlighten monitoring options. Both options require installation of an Enphase IQ Envoy.			
Disconnecting means	The AC and DC connectors have been evaluated and approved by UL for use as the load-break disconnect required by NEC 690.			
Compliance	CA Rule 21 (UL 1741-SA) UL 62109-1, UL1741/IEEE1547, 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 Shut Down Equipment and conforms with NEC-2014 and NEC-2017 section 690.12 and C22.1-2015 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according manufacturer's instructions.			

1. No enforced DC/AC ratio. See the compatibility calculator at https://enphase.com/en-us/support/module-compatibility.
2. Nominal voltage range can be extended beyond nominal if required by the utility.
3. Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE

Data Sheet
Enphase Storage System

Enphase Encharge 10

The **Enphase Encharge 10™** all-in-one AC-coupled storage system is **reliable, smart, simple,** and **safe**. It is comprised of three base Encharge 3™ storage units, has a total usable energy capacity of 10.08 kWh and twelve embedded grid-forming microinverters with 3.84 kW power rating. It provides backup capability and installers can quickly design the right system size to meet the needs of both new and retrofit solar customers.

Reliable

- Proven high reliability IQ Series Microinverters
- Ten-year limited warranty
- Three independent Encharge storage base units
- Twelve embedded IQ 8X-BAT Microinverters
- Passive cooling (no moving parts/fans)

Smart

- Grid-forming capability for backup operation
- Remote software and firmware upgrade
- Mobile app-based monitoring and control
- Support for self consumption
- Utility time of use (TOU) optimization

Simple

- Fully integrated AC battery system
- Quick and easy plug-and-play installation
- Interconnects with standard household AC wiring

Safe

- Cells safety tested
- Lithium iron phosphate (LFP) chemistry for maximum safety and longevity

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE.

Enphase Encharge 10

MODEL NUMBER	
ENCHARGE-10-1P-NA	Encharge 10 battery storage system with integrated Enphase Microinverters and battery management unit (BMU). Includes: - Three Encharge 3.38 kWh base units (B03-A01-US00-1-3) - One Encharge 10 cover kit with cover, wall mounting bracket, watertight conduit hubs, and interconnect kit for wiring between batteries (B10-C-1050-0)
ACCESSORIES	
ENCHARGE-HNDL-R1	One set of Encharge base unit installation handles
OUTPUT (AC)	**@ 240 VAC[1]**
Rated (continuous) output power	3.84 kVA
Peak output power	5.7 kVA (10 seconds)
Nominal voltage / range	240 / 211 – 264 VAC
Nominal frequency / range	60 / 57 – 61 Hz
Rated output current	16 A
Peak output current	24.6A (10 seconds)
Power factor (adjustable)	0.85 leading ... 0.85 lagging
Maximum units per 20 A branch circuit	1 unit (single phase)
Interconnection	Single-phase
Maximum AC short circuit fault current over 3 cycles	69.6 Arms
Round trip efficiency[2]	89%
BATTERY	
Total capacity	10.5 kWh
Usable capacity	10.08 kWh
Round trip efficiency	96%
Nominal DC voltage	67.2 V
Maximum DC voltage	73.5 V
Ambient operating temperature range	-15° C to 55° C (5° F to 131° F) non-condensing
Optimum operating temperature range	0° C to 30° C (32° F to 86° F)
Chemistry	Lithium iron phosphate (LFP)
MECHANICAL DATA	
Dimensions (WxHxD)	1070 mm x 664 mm x 319 mm (42.13 in x 26.14 in x 12.56 in)
Weight	Three individual 44.2 kg (97.4 lbs) base units plus 21.1 kg (48.7 lbs) cover and mounting bracket; total 154.7 kg (341 lbs)
Enclosure	Outdoor – NEMA type 3R
IQ 8X-BAT microinverter enclosure	NEMA type 6
Cooling	Natural convection – No fans
Altitude	Up to 2500 meters (8200 feet)
Mounting	Wall mount
FEATURES AND COMPLIANCE	
Compatibility	Compatible with grid-tied PV systems. Compatible with Enphase M215/M250 and IQ Series Micros, Enphase Enpower, and Enphase IQ Envoy for backup operation.
Communication	Wireless 2.4 GHz
Services	Backup, self-consumption, TOU, Demand Charge, NEM Integrity
Monitoring	Enlighten Manager and MyEnlighten monitoring options; API integration
Compliance	UL 9540, UN 38.3, UL 9540A, UL 1998, UL 991, NEMA Type 3R, AC156 EMI: 47 CFR, Part 15, Class B, ICES 003 Cell Module: UL 1973, UN 38.3 Inverters: UL 62109-1, IEC 62109-2, UL 1741SA, CAN/CSA C22.2 No. 107.1-16, and IEEE 1547
LIMITED WARRANTY	
Limited Warranty[3]	>70% capacity, up to 10 years or 4000 cycles

1. Supported in backup/off grid operations
2. AC to Battery to AC at 50% power rating
3. Whichever occurs first. Restrictions apply.

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE.

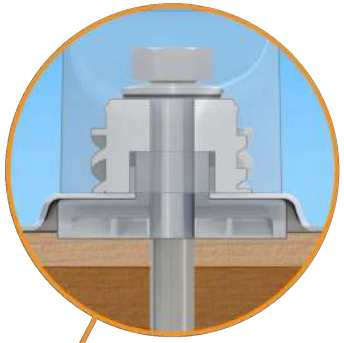
Tech Brief

IRONRIDGE

FlashFoot2

The Strongest Attachment in Solar

IronRidge FlashFoot2 raises the bar in solar roof protection. The unique water seal design is both elevated and encapsulated, delivering redundant layers of protection against water intrusion. In addition, the twist-on Cap perfectly aligns the rail attachment with the lag bolt to maximize mechanical strength.

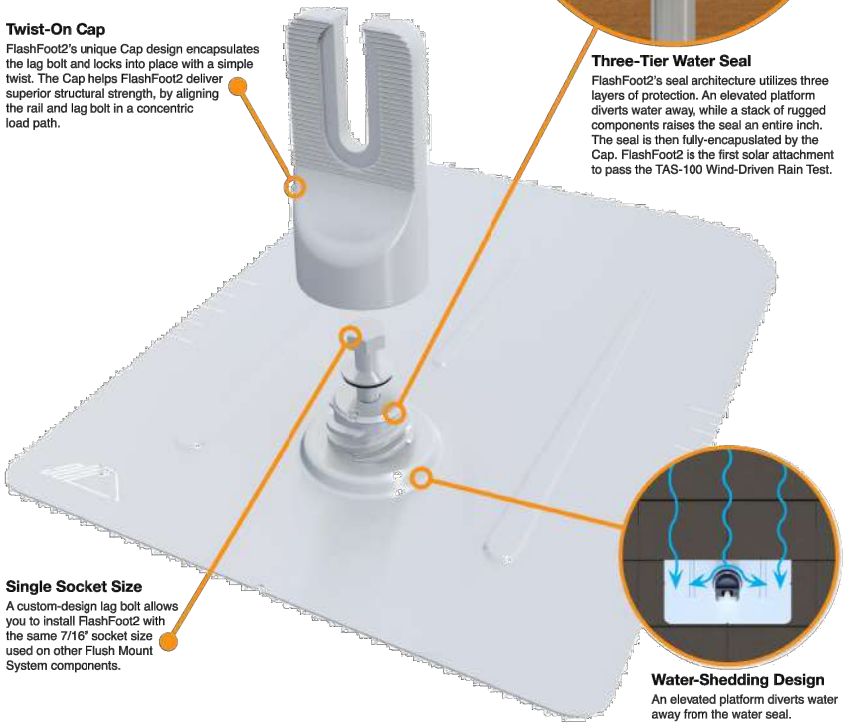


Three-Tier Water Seal

FlashFoot2's seal architecture utilizes three layers of protection. An elevated platform diverts water away, while a stack of rugged components raises the seal an entire inch. The seal is then fully-encapsulated by the Cap. FlashFoot2 is the first solar attachment to pass the TAS-100 Wind-Driven Rain Test.

Twist-On Cap

FlashFoot2's unique Cap design encapsulates the lag bolt and locks into place with a simple twist. The Cap helps FlashFoot2 deliver superior structural strength, by aligning the rail and lag bolt in a concentric load path.



Single Socket Size

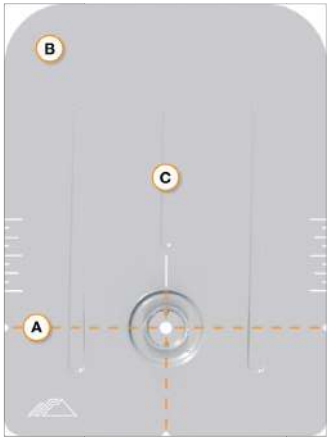
A custom-design lag bolt allows you to install FlashFoot2 with the same 7/16" socket size used on other Flush Mount System components.

Water-Shedding Design

An elevated platform diverts water away from the water seal.

Tech Brief

Installation Features



A Alignment Markers

Quickly align the flashing with chalk lines to find pilot holes.

B Rounded Corners

Makes it easier to handle and insert under the roof shingles.

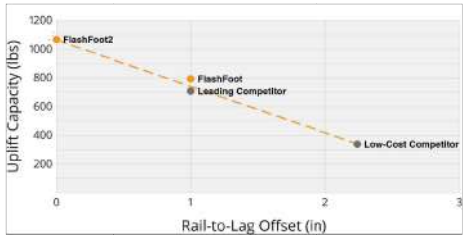
C Reinforcement Ribs

Help to stiffen the flashing and prevent any bending or crinkling during installation.

Benefits of Concentric Loading

Traditional solar attachments have a horizontal offset between the rail and lag bolt, which introduces leverage on the lag bolt and decreases uplift capacity.

FlashFoot2 is the only product to align the rail and lag bolt. This concentric loading design results in a stronger attachment for the system.



Testing & Certification

Structural Certification

Designed and Certified for Compliance with the International Building Code & ASCE/SEI-7.

Water Seal Ratings

Water Sealing Tested to UL 441 Section 27 "Rain Test" and TAS 100-95 "Wind Driven Rain Test" by Intertek. Ratings applicable for composition shingle roofs having slopes between 2:12 and 12:12.

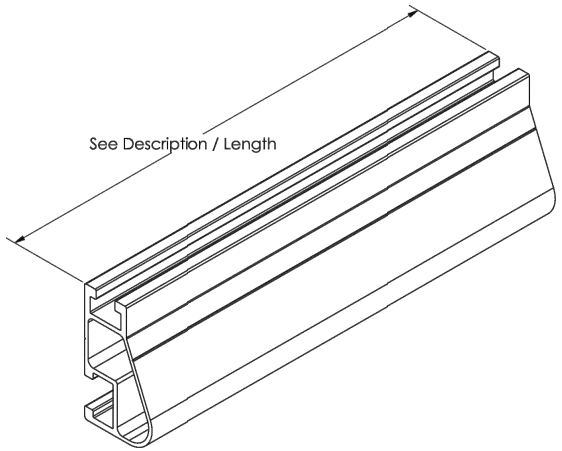
UL 2703

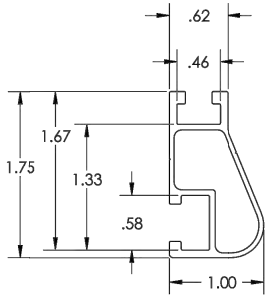
Conforms to UL 2703 Mechanical and Bonding Requirements. See Flush Mount Install Manual for full ratings.

Cut Sheet

IRONRIDGE

XR10 Rail





Rail Section Properties	
Property	Value
Total Cross-Sectional Area	0.363 in^2
Section Modulus (X-axis)	0.136 in^3
Moment of Inertia (X-axis)	0.124 in^4
Moment of Inertia (Y-axis)	0.032 in^4
Torsional Constant	0.076 in^3
Polar Moment of Inertia	0.033 in^4

Clear Part Number	Black Part Number	Description / Length	Material	Weight
XR-10-132A	XR-10-132B	XR10, Rail 132" (11 Feet)	6000-Series Aluminum	4.67 lbs.
XR-10-168A	XR-10-168B	XR10, Rail 168" (14 Feet)		5.95 lbs.
XR-10-204A	XR-10-204B	XR10, Rail 204" (17 Feet)		7.22 lbs.

v1.0

powered by Q.ANTUM DUO

Q.PEAK DUO BLK-G6+

330-345

ENDURING HIGH PERFORMANCE

VDE Quality Tested
www.VDEinfo.com
ID. 40032587

ASSEMBLED IN THE USA

EUPD RESEARCH TOP BRAND PV MODULES EUROPE 2020

25 YR Warranty
Product & Performance

Q CELLS Yield Security

Q.ANTUM TECHNOLOGY: LOW LEVELIZED COST OF ELECTRICITY

Higher yield per surface area, lower BOS costs, higher power classes, and an efficiency rate of up to 19.5%.

INNOVATIVE ALL-WEATHER TECHNOLOGY

Optimal yields, whatever the weather with excellent low-light and temperature behavior.

ENDURING HIGH PERFORMANCE

Long-term yield security with Anti LID and Anti PID Technology[1], Hot-Spot Protect and Traceable Quality Tra.Q™.

EXTREME WEATHER RATING

High-tech aluminum alloy frame, certified for high snow (5400 Pa) and wind loads (4000 Pa).

A RELIABLE INVESTMENT

Inclusive 25-year product warranty and 25-year linear performance warranty[2].

STATE OF THE ART MODULE TECHNOLOGY

Q.ANTUM DUO combines cutting edge cell separation and innovative wiring with Q.ANTUM Technology.

[1] APT test conditions according to IEC/TS 62804-1:2015, method B (–1500 V, 168 h)
[2] See data sheet on rear for further information

THE IDEAL SOLUTION FOR:

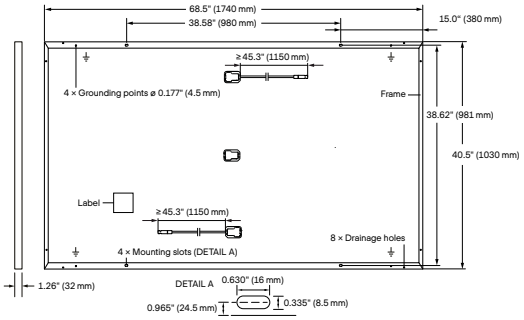
Rooftop arrays on residential buildings

Engineered in Germany

Q CELLS

MECHANICAL SPECIFICATION

Format	68.5 × 40.6 × 1.26 in (including frame) (1740 × 1030 × 32 mm)
Weight	43.9 lbs (19.9 kg)
Front Cover	0.13 in (3.2 mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodized aluminum
Cell	6 × 20 monocrystalline Q.ANTUM solar half cells
Junction Box	2.09-3.98 × 1.26-2.36 × 0.59-0.71 in (53-101 × 32-60 × 15-18 mm), Protection class IP67, with bypass diodes
Cable	4 mm² Solar cable; (+) ≥45.3 in (1150 mm), (−) ≥45.3 in (1150 mm)
Connector	Stäubli MC4; IP68

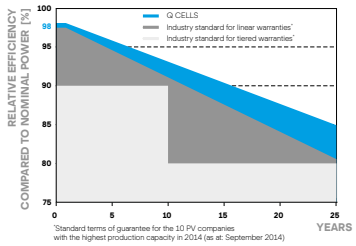


ELECTRICAL CHARACTERISTICS

POWER CLASS				330	335	340	345
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC[1] (POWER TOLERANCE +5 W / −0 W)							
Minimum	Power at MPP[1]	P_{MPP}	[W]	330	335	340	345
	Short Circuit Current[1]	I_{SC}	[A]	10.41	10.47	10.52	10.58
	Open Circuit Voltage[1]	V_{OC}	[V]	40.15	40.41	40.66	40.92
	Current at MPP	I_{MPP}	[A]	9.91	9.97	10.02	10.07
	Voltage at MPP	V_{MPP}	[V]	33.29	33.62	33.94	34.25
	Efficiency[1]	η	[%]	≥18.4	≥18.7	≥19.0	≥19.3
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT[2]							
Minimum	Power at MPP	P_{MPP}	[W]	247.0	250.7	254.5	258.2
	Short Circuit Current	I_{SC}	[A]	8.39	8.43	8.48	8.52
	Open Circuit Voltage	V_{OC}	[V]	37.86	38.10	38.34	38.59
	Current at MPP	I_{MPP}	[A]	7.80	7.84	7.89	7.93
	Voltage at MPP	V_{MPP}	[V]	31.66	31.97	32.27	32.57

[1]Measurement tolerances P_{MPP} ±3%; I_{SC}; V_{OC} ±5% at STC: 1000 W/m², 25±2°C, AM 1.5 according to IEC 60904-3 • [2]800 W/m², NMOT, spectrum AM 1.5

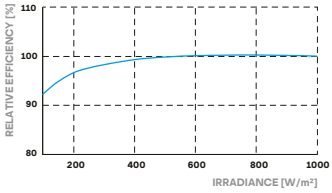
Q CELLS PERFORMANCE WARRANTY



At least 98% of nominal power during first year. Thereafter max. 0.54% degradation per year. At least 93.1% of nominal power up to 10 years. At least 85% of nominal power up to 25 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Q CELLS sales organization of your respective country.

PERFORMANCE AT LOW IRRADIANCE



Typical module performance under low irradiance conditions in comparison to STC conditions (25 °C, 1000 W/m²)

TEMPERATURE COEFFICIENTS

Temperature Coefficient of I_{SC}	α	[%/K]	+0.04	Temperature Coefficient of V_{OC}	β	[%/K]	−0.27
Temperature Coefficient of P_{MPP}	γ	[%/K]	−0.36	Nominal Module Operating Temperature	NMOT	[°F]	109±5.4 (43±3°C)

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage V_{SYS}	[V]	1000 (IEC) / 1000 (UL)	PV module classification	Class II
Maximum Series Fuse Rating	[A DC]	20	Fire Rating based on ANSI / UL 61730	TYPE 2
Max. Design Load, Push / Pull[3]	[lbs / ft²]	75 (3600 Pa) / 55 (2667 Pa)	Permitted Module Temperature on Continuous Duty	−40 °F up to +185 °F (−40 °C up to +85 °C)
Max. Test Load, Push / Pull[3]	[lbs / ft²]	113 (5400 Pa) / 84 (4000 Pa)		

[3] See Installation Manual

QUALIFICATIONS AND CERTIFICATES

UL 61730, CE-compliant,
IEC 61215:2016,
IEC 61730:2016,
U.S. Patent No. 9,893,215
(solar cells)

C Certified US
UL 61730

TÜVRheinland CERTIFIED
www.tuv.com
ID 1111220277

PACKAGING INFORMATION

Horizontal packaging	70.1 in 1780 mm	42.5 in 1080 mm	47.6 in 1208 mm	1485 lbs 674 kg	28 pallets	26 pallets	32 modules
Vertical packaging	71.5 in 1815 mm	45.3 in 1150 mm	48.0 in 1220 mm	1514 lbs 687 kg	28 pallets	24 pallets	32 modules

Note: Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product. Q CELLS supplies solar modules in two different stacking methods, depending on the location of manufacture (modules are packed horizontally or vertically). You can find more detailed information in the document "Packaging and Transport Information", available from Q CELLS.

Hanwha Q CELLS America Inc.
400 Spectrum Center Drive, Suite 1400, Irvine, CA 92618, USA | **TEL** +1 949 748 59 96 | **EMAIL** inquiry@us.q-cells.com | **WEB** www.q-cells.us

powered by Q.ANTUM DUO

Q.PEAK DUO BLK-G6+

330-345

ENDURING HIGH PERFORMANCE

VDE Quality Tested ID. 40032887 | EUPD RESEARCH TOP BRAND PV MODULES EUROPE 2019 | Q CELLS YIELD SECURITY | 25 YEAR Product and Performance Warranty Q CELLS

Q.ANTUM TECHNOLOGY: LOW LEVELIZED COST OF ELECTRICITY
Higher yield per surface area, lower BOS costs, higher power classes, and an efficiency rate of up to 19.5 %.

INNOVATIVE ALL-WEATHER TECHNOLOGY
Optimal yields, whatever the weather with excellent low-light and temperature behavior.

ENDURING HIGH PERFORMANCE
Long-term yield security with Anti LID and Anti PID Technology[1], Hot-Spot Protect and Traceable Quality Tra.Q™.

EXTREME WEATHER RATING
High-tech aluminum alloy frame, certified for high snow (5400 Pa) and wind loads (4000 Pa).

A RELIABLE INVESTMENT
Inclusive 25-year product warranty and 25-year linear performance warranty[2].

STATE OF THE ART MODULE TECHNOLOGY
Q.ANTUM DUO combines cutting edge cell separation and innovative wiring with Q.ANTUM Technology.

[1] APT test conditions according to IEC/TS 62804-1:2015, method B (−1500 V, 168 h)
[2] See data sheet on rear for further information

THE IDEAL SOLUTION FOR:

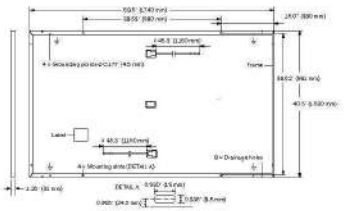
Rooftop arrays on residential buildings

Engineered in Germany

Q CELLS

MECHANICAL SPECIFICATION

Format	68.5 × 40.6 × 1.26 in (including frame) (1740 × 1030 × 32 mm)
Weight	43.9 lbs (19.9 kg)
Front Cover	0.13 in (3.2 mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodized aluminum
Cell	6 × 20 monocrystalline Q.ANTUM solar half cells
Junction Box	2.09–3.98 × 1.26–2.36 × 0.59–0.71 in (53–101 × 32–60 × 15–18 mm), Protection class IP67, with bypass diodes
Cable	4 mm² Solar cable; (+) ≥ 45.3 in (1150 mm), (−) ≥ 45.3 in (1150 mm)
Connector	Stäubli MC4; IP68

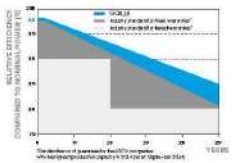


ELECTRICAL CHARACTERISTICS

POWER CLASS			330	335	340	345
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC[2] (POWER TOLERANCE +5 W / −0 W)						
Minimum	Power at MPP[3]	P_{MPP} [W]	330	335	340	345
	Short Circuit Current[3]	I_{SC} [A]	10.41	10.47	10.52	10.58
	Open Circuit Voltage[3]	V_{OC} [V]	40.15	40.41	40.66	40.92
	Current at MPP	I_{MPP} [A]	9.91	9.97	10.02	10.07
	Voltage at MPP	V_{MPP} [V]	33.29	33.62	33.94	34.25
	Efficiency[4]	η [%]	≥ 18.4	≥ 18.7	≥ 19.0	≥ 19.3
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT[2]						
Minimum	Power at MPP	P_{MPP} [W]	247.0	250.7	254.5	258.2
	Short Circuit Current	I_{SC} [A]	8.39	8.43	8.48	8.52
	Open Circuit Voltage	V_{OC} [V]	37.86	38.10	38.34	38.59
	Current at MPP	I_{MPP} [A]	7.80	7.84	7.89	7.93
	Voltage at MPP	V_{MPP} [V]	31.66	31.97	32.27	32.57

[1] Measurement tolerances P_{MPP} ±3%; I_{SC}; V_{OC} ±5% at STC: 1000 W/m², 25 ± 2 °C, AM 1.5 according to IEC 60904-3 • [2] 800 W/m², NMOT, spectrum AM 1.5

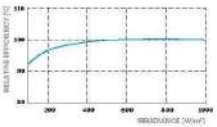
Q CELLS PERFORMANCE WARRANTY



At least 98 % of nominal power during first year. Thereafter max. 0.54 % degradation per year. At least 93.1 % of nominal power up to 10 years. At least 85 % of nominal power up to 25 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Q CELLS sales organization of your respective country.

PERFORMANCE AT LOW IRRADIANCE



Typical module performance under low irradiance conditions in comparison to STC conditions (25 °C, 1000 W/m²)

TEMPERATURE COEFFICIENTS

Temperature Coefficient of I_{SC}	α	[%/K]	+0.04	Temperature Coefficient of V_{OC}	β	[%/K]	−0.27
Temperature Coefficient of P_{MPP}	γ	[%/K]	−0.36	Nominal Module Operating Temperature	NMOT	[°F]	109 ± 5.4 (43 ± 3 °C)

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage V_{SYS}	[V]	1000 (IEC) / 1000 (UL)	Safety Class	II
Maximum Series Fuse Rating	[A DC]	20	Fire Rating based on ANSI / UL 1703	C (IEC) / TYPE 2 (UL)
Max. Design Load, Push / Pull[3]	[lbs/ft²]	75 (3600 Pa) / 55 (2667 Pa)	Permitted Module Temperature on Continuous Duty	−40 °F up to +185 °F (−40 °C up to +85 °C)
Max. Test Load, Push / Pull[3]	[lbs/ft²]	113 (5400 Pa) / 84 (4000 Pa)		

[3] See Installation Manual

QUALIFICATIONS AND CERTIFICATES

UL 1703, VDE Quality Tested, CE-compliant, IEC 61215:2016, IEC 61730:2016, Application Class II, U.S. Patent No. 9,893,215 (solar cells)

PACKAGING INFORMATION

Number of Modules per Pallet	32
Number of Pallets per 53' Trailer	28
Number of Pallets per 40' HC-Container	24
Pallet Dimensions (L × W × H)	71.5 × 45.3 × 48.0 in (1815 × 1150 × 1220 mm)
Pallet Weight	1565 lbs (683 kg)

Note: Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product.

Hanwha Q CELLS America Inc.
400 Spectrum Center Drive, Suite 1400, Irvine, CA 92618, USA | **TEL** +1 949 748 59 96 | **EMAIL** inquiry@us.q-cells.com | **WEB** www.q-cells.us

City of Los Angeles, Department of Building & Safety
APPROVED PLANS

- This set of plans are not approval for construction until the required permit fees are paid and the permit is issued.
- No inspection can be scheduled until the permit fees have been paid.

By: **DANG, ANTHONY** Date: **02/23/2022**

Application No./Permit No.: **21141-10002-20579**

- This set of plans **MUST** be at the job site during construction.
- It is unlawful to alter, change, or deviate from these plans.
- The stamping of this plan **SHALL NOT** constitute approval of violation of any provisions of any Ordinance or Law.
- **SEPARATE** permits are required for BUILDING, ELECTRICAL, PLUMBING, FIRE SPRINKLERS, ELEVATOR, HVAC, unless this permit was issued as a combination permit for a One or Two Family Dwelling pursuant to LAMC Section 91.0107.2.2 and the work by that trade does not require Plan Check. This approval is only for the items indicated on the permit work description. Other items shown on the plans are NOT included in this approval.

powered smart grid-ready
Q 7 Micro™ and Enphase IQ 7+ Micro™
lly simplify the installation process while
the highest system efficiency.

Enphase IQ System, the IQ 7 and IQ 7+ Microinverters integrate with the Enphase IQ Envoy™, Enphase IQ Battery™, and the Enphase Enlighten™ monitoring and analysis software.

IQ Series Microinverters extend the reliability standards set forth by previous generations and undergo over a million hours of power-on testing, enabling Enphase to provide an industry-leading warranty of up to 25 years.

Easy to Install

- Lightweight and simple
- Faster installation with improved, lighter two-wire cabling
- Built-in rapid shutdown compliant (NEC 2014 & 2017)

Productive and Reliable

- Optimized for high powered 60-cell and 72-cell* modules
- More than a million hours of testing
- Class II double-insulated enclosure
- UL listed

Smart Grid Ready

- Complies with advanced grid support, voltage and frequency ride-through requirements
- Remotely updates to respond to changing grid requirements
- Configurable for varying grid profiles
- Meets CA Rule 21 (UL 1741-SA)

* The IQ 7+ Micro is required to support 72-cell modules.

UL CERTIFIED

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE.

Enphase IQ 7 and IQ 7+ Microinverters

INPUT DATA (DC)	IQ7-60-2-US / IQ7-60-B-US		IQ7PLUS-72-2-US / IQ7PLUS-72-B-US	
Commonly used module pairings[1]	235 W - 350 W +		235 W - 440 W +	
Module compatibility	60-cell PV modules only		60-cell and 72-cell PV modules	
Maximum input DC voltage	48 V		60 V	
Peak power tracking voltage	27 V - 37 V		27 V - 45 V	
Operating range	16 V - 48 V		16 V - 60 V	
Min/Max start voltage	22 V / 48 V		22 V / 60 V	
Max DC short circuit current (module Isc)	15 A		15 A	
Overvoltage class DC port	II		II	
DC port backfeed current	0 A		0 A	
PV array configuration	1 x 1 ungrounded array; No additional DC side protection required; AC side protection requires max 20A per branch circuit			
OUTPUT DATA (AC)	**IQ 7 Microinverter**		**IQ 7+ Microinverter**	
Peak output power	250 VA		295 VA	
Maximum continuous output power	240 VA		290 VA	
Nominal (L-L) voltage/range[2]	240 V / 211-264 V	208 V / 183-229 V	240 V / 211-264 V	208 V / 183-229 V
Maximum continuous output current	1.0 A (240 V)	1.15 A (208 V)	1.21 A (240 V)	1.39 A (208 V)
Nominal frequency	60 Hz		60 Hz	
Extended frequency range	47 - 68 Hz		47 - 68 Hz	
AC short circuit fault current over 3 cycles	5.8 Arms		5.8 Arms	
Maximum units per 20 A (L-L) branch circuit[3]	16 (240 VAC)	13 (208 VAC)	13 (240 VAC)	11 (208 VAC)
Overvoltage class AC port	III		III	
AC port backfeed current	0 A		0 A	
Power factor setting	1.0		1.0	
Power factor (adjustable)	0.7 leading ... 0.7 lagging		0.7 leading ... 0.7 lagging	
EFFICIENCY	**@240 V**	**@208 V**	**@240 V**	**@208 V**
Peak CEC efficiency	97.6 %	97.6 %	97.5 %	97.3 %
CEC weighted efficiency	97.0 %	97.0 %	97.0 %	97.0 %
MECHANICAL DATA				
Ambient temperature range	-40°C to +65°C			
Relative humidity range	4% to 100% (condensing)			
Connector type (IQ7-60-2-US & IQ7PLUS-72-2-US)	MC4 (or Amphenol H4 UTX with additional Q-DCC-5 adapter)			
Connector type (IQ7-60-B-US & IQ7PLUS-72-B-US)	Friends PV2 (MC4 intermateable). Adaptors for modules with MC4 or UTX connectors: - PV2 to MC4: order ECA-S20-S22 - PV2 to UTX: order ECA-S20-S25			
Dimensions (WxHxD)	212 mm x 175 mm x 30.2 mm (without bracket)			
Weight	1.08 kg (2.38 lbs)			
Cooling	Natural convection - No fans			
Approved for wet locations	Yes			
Pollution degree	PD3			
Enclosure	Class II double-insulated, corrosion resistant polymeric enclosure			
Environmental category / UV exposure rating	NEMA Type 6 / outdoor			
FEATURES				
Communication	Power Line Communication (PLC)			
Monitoring	Enlighten Manager and MyEnlighten monitoring options. Both options require installation of an Enphase IQ Envoy.			
Disconnecting means	The AC and DC connectors have been evaluated and approved by UL for use as the load-break disconnect required by NEC 690.			
Compliance	CA Rule 21 (UL 1741-SA) UL 62109-1, UL1741/IEEE1547, 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 Shut Down Equipment and conforms with NEC-2014 and NEC-2017 section 690.12 and C22.1-2015 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according manufacturer's instructions.			

1. No enforced DC/AC ratio. See the compatibility calculator at https://enphase.com/en-us/support/module-compatibility.
2. Nominal voltage range can be extended beyond nominal if required by the utility.
3. Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE.

2018-05-24

CERTIFICATE OF COMPLIANCE

Certificate Number	20170112-E486080
Report Reference	E486080-20160830
Issue Date	2017-JANUARY-12
Issued to:	ENPHASE ENERGY INC 1420 N McDowell Blvd Petaluma CA 94954-6515
This is to certify that representative samples of	DISTRIBUTED GENERATION WIRING SYSTEMS AND HARNESSES Photovoltaic Wiring Harness. Models 840-00387 or Q-12-10-240, 840-00388 or Q-12-17-240, 840-00389 or Q-12-20-200, 840-00800 or Q-DCC-7, 840-00386 or Q-DCC-5, 840-00385 or Q-DCC-2. Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.
Standard(s) for Safety:	UL Subject 9703 - Outline of Investigation for Distributed Generation Wiring Harnesses
Additional Information:	See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

Look for the UL Certification Mark on the product.

Bruce Mahrenholz, Director North American Certification Program

UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at http://ul.com/aboutul/locations/

Tech Brief

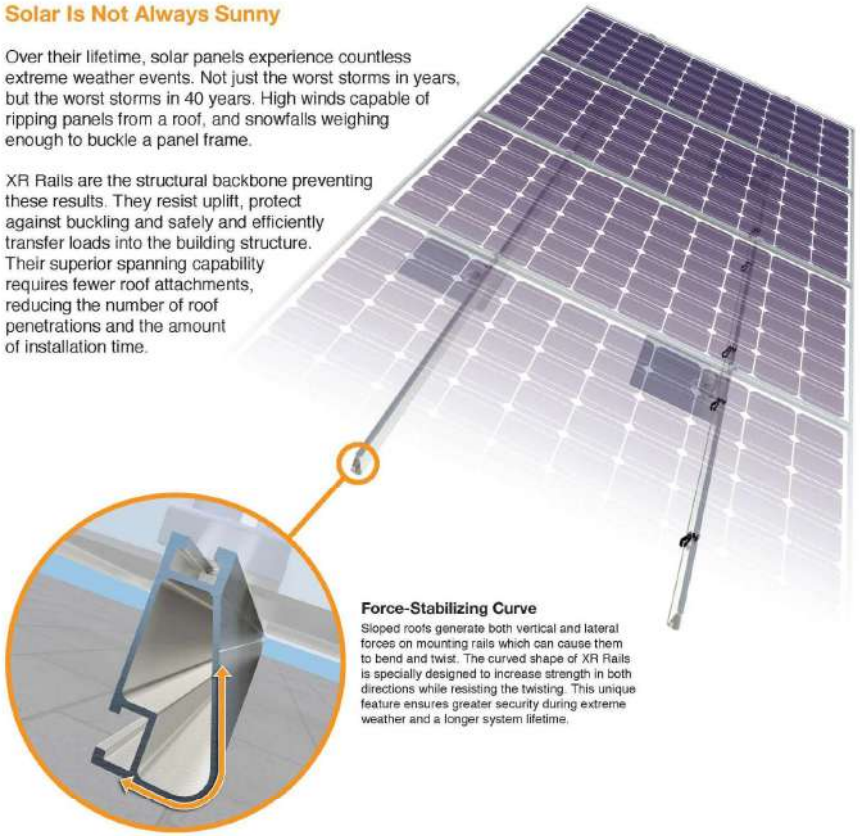
IRONRIDGE

XR Rail Family

Solar Is Not Always Sunny

Over their lifetime, solar panels experience countless extreme weather events. Not just the worst storms in years, but the worst storms in 40 years. High winds capable of ripping panels from a roof, and snowfalls weighing enough to buckle a panel frame.

XR Rails are the structural backbone preventing these results. They resist uplift, protect against buckling and safely and efficiently transfer loads into the building structure. Their superior spanning capability requires fewer roof attachments, reducing the number of roof penetrations and the amount of installation time.



Force-Stabilizing Curve

Sloped roofs generate both vertical and lateral forces on mounting rails which can cause them to bend and twist. The curved shape of XR Rails is specially designed to increase strength in both directions while resisting the twisting. This unique feature ensures greater security during extreme weather and a longer system lifetime.

Compatible with Flat & Pitched Roofs

XR Rails are compatible with FlashFoot and other pitched roof attachments.

IronRidge offers a range of tilt leg options for flat roof mounting applications.

Corrosion-Resistant Materials

All XR Rails are made of marine-grade aluminum alloy, then protected with an anodized finish. Anodizing prevents surface and structural corrosion, while also providing a more attractive appearance.

Tech Brief

XR Rail Family

The XR Rail Family offers the strength of a curved rail in three targeted sizes. Each size supports specific design loads, while minimizing material costs. Depending on your location, there is an XR Rail to match.

XR10

XR10 is a sleek, low-profile mounting rail, perfectly matched to regions without snow. It achieves 6 foot spans, while also staying light and economical.

- 6' spanning capability
- Moderate load capability
- Clear anodized finish
- Internal splices available

XR100

XR100 is the ultimate residential mounting rail. It supports a range of wind and snow conditions, while also maximizing spans.

- 8' spanning capability
- Heavy load capability
- Clear & black anodized finish
- Internal splices available

XR1000

XR1000 is a heavyweight among solar mounting rails. It's built to handle extreme climates and spans 12 feet or more for commercial applications.

- 12' spanning capability
- Extreme load capability
- Clear anodized finish
- Internal splices available

Rail Selection

The following table was prepared in compliance with applicable engineering codes and standards. Values are based on the following criteria: ASCE 7-10, Roof Zone 1, Exposure B, Roof Slope of 7 to 27 degrees and Mean Building Height of 30 ft. Visit IronRidge.com for detailed span tables and certifications.

Load		Rail Span					
Snow (PSF)	Wind (MPH)	4'	5' 4"	6'	8'	10'	12'
None	100	XR10		XR100		XR1000	
	120						
	140						
	160						
10-20	100						
	120						
	140						
	160						
30	100						
	160						
40	100						
	160						
50-70	160						
80-90	160						

25800 Commercentre Drive
Lake Forest, CA 92630 USA

Telephone: 949.448.4100
Facsimile: 949.448.4111
www.intertek.com

Test Verification of Conformity

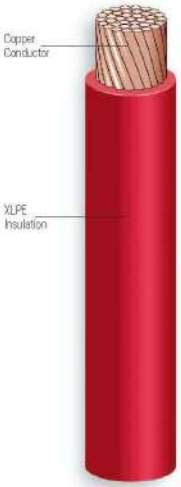
In the basis of the tests undertaken, the sample(s) of the below product have been found to comply with the requirements of the referenced specifications at the time the tests were carried out.

Applicant Name & Address:	IronRidge, Inc. 1495 Zephyr Ave. Hayward, CA 94544
Product Description:	XR Rails with Integrated Grounding.
Ratings & Principle Characteristics:	Fire Class Resistance Rating: - Class A for Steep Slope Flush-Mount (symmetrical) Applications when using Type 1 and Type 2, Listed Photovoltaic Module. - Class A for Low Slope Flush-Mount and Tilt-Mount (symmetrical and asymmetrical) Applications when using Type 1, Listed Photovoltaic Module.
Models:	51-61GD-005, 51-61GD-005B, 51-5000-001, and 51-65-001
Brand Name:	N/A
Relevant Standards:	UL Subject 2703 Outline of Investigation for Rack Mounting Systems and Clamping Devices for Flat-Plate Photovoltaic Modules and Panels, Issue Number: 1, October 4, 2010
Verification Issuing Office:	Intertek Testing Services NA, Inc. 25800 Commercentre Dr. Lake Forest, CA 92630
Date of Tests:	08/27/2014 to 01/07/2015
Test Report Number(s):	101541132LAX-002

This verification is part of the full test report(s) and should be read in conjunction with them. This report does not automatically imply product certification.

Completed by:	Amar Kacel	**Reviewed by:**	Andrew Koretoff
Title:	PV Engineer	**Title:**	Reviewer
Signature:		**Signature:**	
Date:	01/16/2015	**Date:**	01/16/2015

TYPE PHOTOVOLTAIC/RHH/RHW-2 COPPER CONDUCTOR 600V AND 1000V/2000V



ENGINEERING SPECIFICATIONS:

Listed E-326525

RoHS COMPLIANT

Standards:

Underwriters Laboratories Standards UL-4703, UL-854, UL-44
UL 1685-FT4/IEEE 1202 (70,000 Btu/hr) Flame Test (1/0 AWG and larger)
ICEA T-29-520 (210,000 Btu/hr) Flame Test
NEMA WC70/ICEA S-95-658
NFPA 70: National Electrical Code (NEC)
ARRA 2009; Section 1605 "Buy American" Compliant

CONSTRUCTION:

Conductors:

Stranded conductors, uncoated copper per ASTM-B787 and ASTM-B8

Insulation:

Cross-linked polyethylene (XLPE) insulation per UL-854, UL-4703 and UL-44

Applications:

Type Photovoltaic copper conductors are suitable for outdoor rooftop applications without conduit and for use in conduits and raceways installed underground in conduit in wet locations, and where condensation and moisture accumulations within the conduit do not exceed 90°C. Applications requiring direct burial is permitted for Type Photovoltaic per UL-854. Applications requiring type Photovoltaic conductor, temperatures shall not exceed 90°C in wet or dry locations.

Features:

Available in 600V and 1000V/2000V. All cables comply with UL's VW-1 (Vertical Wire) Flame Test. Insulation compounds are rated for flame and sunlight-resistance in all sizes and colors. Photovoltaic conductors of 1/0 through 1000 KCMIL are rated for CT use. Sequential foot markings located every foot on master reels only for 1 AWG through 1000 KCMIL unless otherwise specified. RoHS compliant. Flexibility at Low Temperature Test. Carries -40°C rating.

Type Photovoltaic/RHH/RHW-2 Copper Conductor 600V and 1000V/2000V

Size AWG	Number of Strands		Insulation Thickness XLPE (in)		Outside Diameter				Allowable Ampacity (Amps)**		Approximate Net Weight (lbs/1000 ft)		Standard Packaging (ft)	
					600V		1000V / 2000V							
	600V	1000V 2000V	600V	1000V 2000V	(mm)	(in)	(mm)	(in)	600V	1000V 2000V	600V	1000V 2000V	600V	1000V / 2000V
14	19	19	0.060	0.075	4.89	0.193	5.61	0.221	25†	25†	24	28	500' 1000' 2500' reels	500' 1000' 2500' reels
12	19	19	0.060	0.075	5.37	0.212	6.05	0.238	30†	30†	33	38	500' 1000' 2500' reels	500' 1000' 2500' reels
10	19	19	0.060	0.075	5.99	0.236	6.60	0.260	40†	40†	47	52	500' 2500' reels	500' 2500 reels
8	7*	7*	0.075	0.085	7.52	0.296	7.95	0.313	55	55	74	78	500' 1000' 2500' 5000' reels	500' 1000' 2500' 5000' reels
6	7*	7*	0.075	0.085	8.48	0.334	8.86	0.349	75	75	108	113	500' 1000' 2500' 5000' reels	500' 1000' 2500' 5000' reels
4	7*	7*	0.075	0.085	9.70	0.382	10.06	0.396	95	95	161	166	500' 1000' 2500' 5000' reels	500' 1000' 2500' 5000' reels
3	7*	7*	0.075	0.085	10.41	0.410	10.77	0.424	110	110	197	203	500' 1000' 2500' 5000' reels	500' 1000' 2500' 5000' reels
2	7*	7*	0.075	0.085	11.23	0.442	11.58	0.456	130	130	243	249	500' 1000' 2500' 5000' reels	500' 1000' 2500' 5000' reels
1	19	19	0.095	0.105	13.16	0.518	13.49	0.531	150	150	313	320	500' 1000' 2500' 5000' reels	500' 1000' 2500' 5000' reels
1/0	19	19	0.095	0.105	13.97	0.550	14.48	0.570	170	170	380	389	500' 1000' 2500' 5000' reels	500' 1000' 2500' 5000' reels
2/0	19	19	0.095	0.105	15.09	0.594	15.60	0.614	195	195	476	484	500' 1000' 2500' 5000' reels	500' 1000' 2500' 5000' reels
3/0	19	19	0.095	0.105	16.36	0.644	16.87	0.664	225	225	590	599	500' 1000' 2500' 5000' reels	500' 1000' 2500' 5000' reels
4/0	19	19	0.095	0.105	17.78	0.700	18.29	0.720	260	260	732	742	500' 1000' 2500' 5000' reels	500' 1000' 2500' 5000' reels
250	37	37	0.110	0.120	19.35	0.762	19.86	0.782	290	290	873	884	500' 1000' 2500' 4000' Reels	500' 1000' 2500' 4000' Reels
300	37	37	0.110	0.120	20.67	0.814	21.18	0.834	320	320	1035	1047	500' 1000' 3500' Reels	500' 1000' 3500' Reels
350	37	37	0.110	0.120	21.87	0.861	22.38	0.881	350	350	1198	1216	500' 1000' 3000' Reels	500' 1000' 3000' Reels
400	37	37	0.110	0.120	22.99	0.905	23.50	0.925	380	380	1358	1371	500' 1000' 3000' Reels	500' 1000' 3000' Reels
500	37	37	0.110	0.120	25.04	0.986	25.55	1.006	430	430	1680	1694	500' 1000' 2500' Reels	500' 1000' 2500' Reels
600	61	61	0.125	0.135	29.03	1.143	29.54	1.163	475	475	2057	2073	500' 1000' 2000' Reels	500' 1000' 2000' Reels
750	61	61	0.125	0.135	31.70	1.248	32.21	1.268	535	535	2508	2525	500' 1000' 1500' Reels	500' 1000' 1500' Reels
1000	61	61	0.125	0.135	35.61	1.402	36.12	1.422	615	615	3303	3322	500' 1000' Reels	500' 1000' Reels

* 8 AWG - 2 AWG: 19/w is available upon request.
**Allowable ampacities per NEC 310.15(B)(16) for 90°C. †For overcurrent protection amperages, consult NEC 240.4(D).

PRINT LEGEND: 600V
14 AWG THROUGH 1 AWG: ENCORE WIRE CORPORATION"(SIZE)"TYPE"PHOTOVOLTAIC OR RHH OR RHW-2" 90C"WET"OR"DRY"SUN"RES"-40C"600V"XLPE"(UL)"DATE"TIME"OPERATOR"QC
1/0 AWG THROUGH 1000 KCMIL: ENCORE WIRE CORPORATION"(SIZE)"TYPE"PHOTOVOLTAIC OR RHH OR RHW-2" 90C"WET"OR"DRY"SUN"RES"-40C"600V"XLPE"(UL)"FOR"CT"USE"DATE"TIME"OPERATOR"QC

PRINT LEGEND: 1000V/2000V
14 AWG THROUGH 1 AWG: ENCORE WIRE CORPORATION"(SIZE)"TYPE"PHOTOVOLTAIC OR RHH OR RHW-2" 90C"WET"OR"DRY"SUN"RES"-40C"2000V"XLPE"(UL)"DATE"TIME"OPERATOR"QC
1/0 AWG THROUGH 1000 KCMIL: ENCORE WIRE CORPORATION"(SIZE)"TYPE"PHOTOVOLTAIC OR RHH OR RHW-2" 90C"WET"OR"DRY"SUN"RES"-40C"2000V"XLPE"(UL)"FOR"CT"USE"DATE"TIME"OPERATOR"QC

Copper Lay-In Ground Lug
Direct Burial

RoHS Compliant

TYPE
CGBL

Features
- Lay-in feature
- Manufactured from high strength copper
- Stainless steel hardware

Benefits
- Provides ease of installation of continuous loop grounding conductor
- Suitable for direct burial and for use with copper conductors
- Resists oxidation and corrosion in earth or concrete

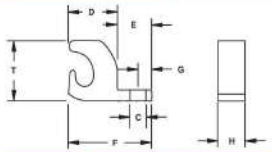


Fig. 1

Fig. 2

Catalog Number	Figure Number	Ground Wire Range	Bolt Size	Dimensions							Screw Type
				C	D	E	F	G	H	T	
GBL-4DB	1	4-14	10	.218	.680	.470	1.150	.190	.375	.825	Slot
GBL-4DB-14	1	4-14	1/4	.265	.680	.470	1.150	.210	.472	.825	Slot
*+ GBL-4DBT	1	4-14	10	.218	.680	.470	1.150	.190	.375	.825	Slot
* GBL-4DBT-14	1	4-14	1/4	.265	.680	.470	1.150	.210	.472	.825	Slot
*+ GBL-4DBTH	2	4-14	10	.218	.680	.470	1.150	.190	.375	.825	Hex
* GBL-4DBTH-14	2	4-14	1/4	.265	.680	.470	1.150	.210	.472	.825	Hex

All wire sizes, unless noted otherwise, are American Wire Gauge (AWG)
Tested to UL 467, UL File E34440
* T indicates tin plating
+ GBL-4DBT and GBL-4DBTH are UL2703 Listed UL E354420 Vol. 2
Optional MH Series mounting hardware kits available, consult ILSCO

TIGHTENING TORQUE VALUES FOR ILSCO MECHANICAL SCREW CONNECTORS

AWG. OR CIRCULAR MILL SIZE	TIGHTENING TORQUE IN INCH POUNDS	
	SCREW DRIVER	EXTERNAL DRIVE WRENCH
14	35	75
12	35	75
10	35	75
8	40	75
6	45	110
4	45	110
2	50	150
1	50	150
1/0	50	180
2/0	50	180
3/0		250
4/0		250
250		325
350		325
500		375
600		375
700		375
750		375
800		500
1000		500

TIGHTENING TORQUE VALUES FOR ILSCO SOCKETHEAD SCREW CONNECTORS

INTERNAL SOCKET SIZE ACROSS FLATS INCHES	TIGHTENING TORQUE IN INCH POUNDS
1/8	45
5/32	100
3/16	120
7/32	150
1/4	200
5/16	275
3/8	375
1/2	500
9/16	600

Please reference the instruction sheet included with your connector for specific torque values.

N

Table I shows the recommended tightening torques for silicon bronze, stainless steel, galvanized steel and aluminum alloy hardware. The shaded portion represents torques presently recommended by NEMA-CC1-1984 specification.

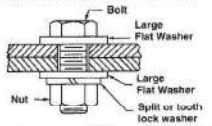
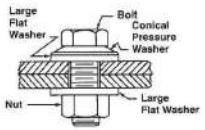
TABLE I
TIGHTENING TORQUES

Bolt Diameter	Nominal Torque Values			
	Silicon Bronze, Galvanized or Stainless Steel		Aluminum Alloy (Lubricated)	
	Ft.-Lbs.	Inch-Lbs.	Ft.-Lbs.	Inch-Lbs
1/4-18	15	180	–	–
5/16-16	20	240	14	168
3/8-13	40	480	25	300
7/16-11	55	660	40	480
1/2-10	80	960	70	840

For optimum efficiency, it is necessary that the correct bolt, nut and washer combination be used with the correct combination of conductor materials. Table II shows acceptable methods of joining different combinations of bus bar. Where different combinations of metals are being joined, a follow-up device such as a conical pressure washer is usually recommended if one, or both, bus materials are soft drawn aluminum. If both bars are hard drawn, large flat washers will suffice regardless of the bolt materials.

Other considerations which should be taken into account when selecting hardware are corrosion and vibration. For example, if severe corrosion is anticipated, non-corrosive materials such as stainless steel or silicon bronze, should be selected in preference to galvanized steel. If vibration is anticipated, the use of locking washers should be considered.

TABLE II
METHODS OF JOINING BUS BARS

If "A" Bar is and If "B" Bar is	Copper / Copper	Aluminum / Copper	Steel / Copper	Aluminum / Aluminum	Steel / Aluminum
Hard Drawn Bus such as aluminum alloy. 	(1) Silicon Bronze (2) Stainless Steel	(1) Silicon Bronze (2) Aluminum (3) Stainless Steel	(1) Silicon Bronze (2) Stainless Steel	(1) Aluminum (2) Stainless Steel (3) Silicon Bronze, Plated	(1) Aluminum (2) Stainless Steel
Soft Drawn Bus such as EC-H13 Aluminum. 	(1) Silicon Bronze (2) Stainless Steel	(1) Silicon Bronze (2) Aluminum (3) Stainless Steel (4) Conical Pressure Washer Plated or Stainless Steel	(1) Silicon Bronze (2) Stainless Steel	(1) Aluminum (2) Stainless Steel (3) Silicon Bronze Plated (4) Conical Pressure Washer Plated or Stainless Steel	(1) Aluminum (2) Stainless Steel (3) Conical Pressure Washer Plated or Stainless Steel

(1) Denotes preferred hardware usage
Note: Contact sealant recommended between aluminum to aluminum and aluminum to copper connections, unless other protective measures are taken.

Bar Connections

The tang of a compression or a mechanical connector is a bus bar, which connects to another bus bar. If you remember the rule about wire brushing and using joint compound with bare (unplated) aluminum, you cannot go wrong. Plated parts should be cleaned with a solvent if they are dirty, but never abrade or otherwise disturb the plating! Fig. 3 shows a typical bar connection and the type of hardware used.

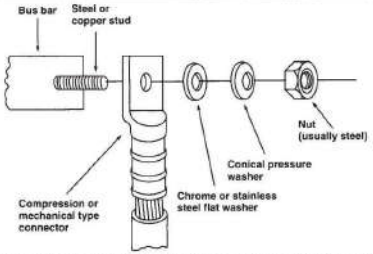


Figure 3. Contact surfaces must be clean. Use a joint compound with bare aluminum. Conical pressure washer is usually recommended if one, or both, bus materials are soft drawn aluminum.

Data Sheet
Enphase Storage System

Enphase Encharge 10

The **Enphase Encharge 10™** all-in-one AC-coupled storage system is **reliable, smart, simple,** and **safe**. It is comprised of three base Encharge 3™ storage units, has a total usable energy capacity of 10.08 kWh and twelve embedded grid-forming microinverters with 3.84 kW power rating. It provides backup capability and installers can quickly design the right system size to meet the needs of both new and retrofit solar customers.

Reliable

- Proven high reliability IQ Series Microinverters
- Ten-year limited warranty
- Three independent Encharge storage base units
- Twelve embedded IQ 8X-BAT Microinverters
- Passive cooling (no moving parts/fans)

Smart

- Grid-forming capability for backup operation
- Remote software and firmware upgrade
- Mobile app-based monitoring and control
- Support for self consumption
- Utility time of use (TOU) optimization

Simple

- Fully integrated AC battery system
- Quick and easy plug-and-play installation
- Interconnects with standard household AC wiring

Safe

- Cells safety tested
- Lithium iron phosphate (LFP) chemistry for maximum safety and longevity

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE.

Enphase Encharge 10

MODEL NUMBER	
ENCHARGE-10-1P-NA	Encharge 10 battery storage system with integrated Enphase Microinverters and battery management unit (BMU). Includes: - Three Encharge 3.36 kWh base units (B3-A01-US001-1-3) - One Encharge 10 cover kit with cover, wall mounting bracket, watertight conduit hubs, and interconnect kit for wiring between batteries (B10-C-1050-0)
ACCESSORIES	
ENCHARGE-HNDL-R1	One set of Encharge base unit installation handles
OUTPUT (AC)	**@ 240 VAC[1]**
Rated (continuous) output power[2]	3.84 kVA
Peak output power	5.7 kVA (10 seconds)
Nominal voltage / range	240 / 211 – 264 VAC
Nominal frequency / range	60 / 57 – 61 Hz
Rated output current	16 A
Peak output current	24.6A (10 seconds)
Power factor (adjustable)	0.85 leading ... 0.85 lagging
Maximum units per 20 A branch circuit	1 unit (single phase)
Interconnection	Single-phase
Maximum AC short circuit fault current over 3 cycles	69.6 Arms
Round trip efficiency[2]	89%
BATTERY	
Total capacity	10.5 kWh
Usable capacity	10.08 kWh
Round trip efficiency	96%
Nominal DC voltage	67.2 V
Maximum DC voltage	73.5 V
Ambient operating temperature range	-15° C to 55° C (5° F to 131° F) non-condensing
Optimum operating temperature range	0° C to 30° C (32° F to 86° F)
Chemistry	Lithium iron phosphate (LFP)
MECHANICAL DATA	
Dimensions (WxHxD)	1070 mm x 664 mm x 319 mm (42.13 in x 26.14 in x 12.56 in)
Weight	Three individual 44.2 kg (97.4 lbs) base units plus 21.1 kg (48.7 lbs) cover and mounting bracket; total 154.7 kg (341 lbs)
Enclosure	Outdoor – NEMA type 3R
IQ 8X-BAT microinverter enclosure	NEMA type 6
Cooling	Natural convection – No fans
Altitude	Up to 2500 meters (8200 feet)
Mounting	Wall mount
FEATURES AND COMPLIANCE	
Compatibility	Compatible with grid-tied PV systems. Compatible with Enphase IQ Series Micros, Enphase Enpower, and Enphase IQ Envoy for backup operation.
Communication	Wireless 2.4 GHz
Services	Backup, self-consumption, TOU, Demand Charge, NEM Integrity
Monitoring	Enlighten Manager and MyEnlighten monitoring options; API integration
Compliance	UL 9540, UN 38.3, UL 9540A, UL 1998, UL 991, NEMA Type 3R, AC156 EMI: 47 CFR, Part 15, Class B, ICES 003 Cell Module: UL 1973, UN 38.3 Inverters: UL 62109-1, IEC 62109-2, UL 1741SA, CAN/CSA C22.2 No. 107.1-16
LIMITED WARRANTY	
Limited Warranty[3]	>70% capacity, up to 10 years or 4000 cycles

1. Supported in backup/off grid operations
2. AC to Battery to AC at 50% power rating.
3. Whichever occurs first. Restrictions apply.

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE.

Enphase Enpower

The **Enphase Enpower**™ smart switch connects the home to grid power, the Encharge storage system, and solar PV. It provides microgrid interconnection device (MID) functionality by automatically detecting and seamlessly transitioning the home energy system from grid power to backup power in the event of a grid failure. It consolidates interconnection equipment into a single enclosure and streamlines grid independent capabilities of PV and storage installations by providing a consistent, pre-wired solution for residential applications.

Reliable

- Durable NEMA type 3R enclosure
- Ten-year limited warranty

Smart

- Controls safe connectivity to the grid
- Automatically detects grid outages
- Provides seamless transition to backup

Simple

- Connects to the load or service equipment[1] side of the main load panel
- Centered mounting brackets support single stud mounting
- Supports conduit entry from the bottom, bottom left side, and bottom right side
- Supports whole home and partial home backup and subpanel backup
- Up to 200A main breaker support
- Includes neutral-forming transformer for split phase 120/240V backup operation

1. Enpower is not suitable for use as service equipment in Canada.

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE.

Enphase Enpower

MODEL NUMBER		
EP200G101-M240US00	Enphase Enpower smart switch with neutral-forming transformer (NFT), Microgrid Interconnect Device (MID), breakers, and screws. Streamlines grid-independent capabilities of PV and storage installations.	
ACCESSORIES and REPLACEMENT PARTS		
XA-E3-PCBA-ENS	Replacement Enpower controller printed circuit board	
Circuit breakers (as needed)[2,3] BRK-100A-2P-240V BRK-125A-2P-240V BRK-150A-2P-240V BRK-175A-2P-240V BRK-200A-2P-240V BRK-20A-2P-240V-B BRK-30A-2P-240V BRK-40A-2P-240V BRK-60A-2P-240V BRK-80A-2P-240V	Not included, must order separately: • Main breaker, 2 pole, 100A, 25kAIC, CSR2100N or CSR2100 • Main breaker, 2 pole, 125A, 25kAIC, CSR2125N • Main breaker, 2 pole, 150A, 25kAIC, CSR2150N • Main breaker, 2 pole, 175A, 25kAIC, CSR2175N • Main breaker, 2 pole, 200A, 25kAIC, CSR2200N • Circuit breaker, 2 pole, 20A, 10kAIC, BR220B • Circuit breaker, 2 pole, 30A, 10kAIC, BR230B • Circuit breaker, 2 pole, 40A, 10kAIC, BR240B • Circuit breaker, 2 pole, 60A, 10kAIC, BR260 • Circuit breaker, 2 pole, 80A, 10kAIC, BR280	
EP200G-HNDL-R1	Enpower installation handle kit (order separately)	
ELECTRICAL SPECIFICATIONS		
Assembly rating	Continuous operation at 100% of its rating	
Nominal voltage / range (L-L)	240 VAC / 100 - 310 VAC	
Voltage measurement accuracy	±1% V nominal (±1.2V L-N and ±2.4V L-L)	
Nominal frequency / range	60 Hz / 56 - 63 Hz	
Frequency measurement accuracy	±0.1 Hz	
Maximum continuous current rating	160A	
Maximum output overcurrent protection device	200A	
Maximum input overcurrent protection device	200A	
Maximum overcurrent protection device rating for storage branch circuit[4]	80A	
Maximum overcurrent protection device rating for PV combiner branch circuit[4]	80A	
Neutral Forming Transformer (NFT)	• Breaker rating (pre-installed): 40A between L1 and Neutral; 40A between L2 and Neutral • Continuous rated power: 3600VA • Maximum continuous unbalance current: 30A @ 120V • Peak rated power: 8800VA for 30 seconds • Peak unbalanced current: 80A @ 120V for 30 seconds	
MECHANICAL DATA		
Dimensions (WxHxD)	50cm x 91.6cm x 24.6cm (19.7 in x 36 in x 9.7 in)	
Weight	38.5 kg (85 lbs)	
Ambient temperature range	-40° C to +50° C (-40° F to 122° F)	
Cooling	Natural convection, plus heat shield	
Enclosure environmental rating	Outdoor, NEMA type 3R, polycarbonate construction	
Altitude	To 2500 meters (8200 feet)	
WIRE SIZES		
Connections	• Main lugs, backup load lugs, and CSR breakers • BR breakers (wire provided) • AC combiner lugs, Encharge lugs, and generator (reserved for future use) lugs • Neutral (large lugs)	Cu/AL: 2 AWG - 300 KCMIL 6 AWG 14 AWG – 2 AWG Cu/AL: 6 AWG - 300 KCMIL
Neutral and ground bars	Large holes (5/16-24 UNF) Small holes (10-32 UNF)	14 AWG – 1/0 AWG 14 AWG – 6 AWG
COMPLIANCE		
Compliance	UL 1741, UL 1741 SA, UL1998, UL869A[5], UL67[5], UL508[5], UL50E[5] CSA 22.2 No. 107.1, 47 CFR, Part 15, Class B, ICES 003, AC156.	

2. Compatible with BRHDK125 Hold-Down Kit to comply with 2017 NEC 710.15E for back-fed circuit breakers.
3. The kAIC of Enpower is the same as the kAIC of the main breaker being installed as listed.
4. Not included. Installer must provide properly rated breaker per circuit breaker list above.
5. Sections from these standards were used during the safety evaluation and included in the UL 1741 listing.

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE.

Enphase
IQ Combiner 3-ES/3C-ES

X-IQ-AM1-240-3-ES
X-IQ-AM1-240-3C-ES

The **Enphase IQ Combiner 3-ES/3C-ES™** with Enphase IQ Envoy™ and integrated LTE-M1 cell modem (included only with IQ Combiner 3C-ES) consolidates interconnection equipment into a single enclosure and streamlines PV and storage installations by providing a consistent, pre-wired solution for residential applications. It offers up to four 2-pole input circuits and Eaton BR series busbar assembly.

X-IQ-AM1-240-3C-ES

X-IQ-AM1-240-3-ES

Smart

- Includes IQ Envoy for communication and control
- Includes LTE-M1 cell modem (included only with IQ Combiner 3C-ES)
- Includes solar shield to match Ensemble esthetics and deflect heat
- Flexible networking supports Wi-Fi, Ethernet, or cellular
- Optional AC receptacle available for PLC bridge
- Provides production metering and consumption monitoring

Simple

- Reduced size from IQ Combiner+ (X-IQ-AM1-240-2)
- Centered mounting brackets support single stud mounting
- Supports back and side conduit entry
- Up to four 2-pole branch circuits for 240 VAC plug-in breakers (not included)
- 80 A total PV or storage branch circuits

Reliable

- Durable NRTL-certified NEMA type 3R enclosure
- Five-year limited warranty
- Two years labor reimbursement program coverage included
- UL listed

UL LISTED

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE.

Enphase IQ Combiner 3-ES / 3C-ES

MODEL NUMBER	
IQ Combiner 3-ES (X-IQ-AM1-240-3-ES)	IQ Combiner 3-ES with Enphase IQ Envoy printed circuit board for integrated revenue grade PV production metering (ANSI C12.20 +/- 0.5%) and consumption monitoring (+/- 2.5%). Includes a silver solar shield to match the Encharge storage system and Enpower smart switch and to deflect heat.
IQ Combiner 3C-ES (X-IQ-AM1-240-3C-ES)	IQ Combiner 3C-ES with Enphase IQ Envoy printed circuit board for integrated revenue grade PV production metering (ANSI C12.20 +/- 0.5%) and consumption monitoring (+/- 2.5%). Includes Enphase Mobile Connect LTE-M1 (CELLMODEM-M1), a plug-and-play industrial-grade cell modem for systems up to 60 microinverters. (Available in the US, Canada, Mexico, Puerto Rico, and the US Virgin Islands, where there is adequate cellular service in the installation area.) Includes a silver solar shield to match the Encharge storage system and Enpower smart switch and to deflect heat.
ACCESSORIES and REPLACEMENT PARTS	(not included, order seperately)
Ensemble Communications Kit (COMMS-CELLMODEM-M1)	Includes COMMS-KIT-01 and CELLMODEM-M1 with 5-year data plan for Ensemble sites
Circuit Breakers BRK-10A-2-240 BRK-15A-2-240 BRK-20A-2P-240	Supports Eaton BR210, BR215, BR220, BR230, BR240, BR250, and BR260 circuit breakers. Circuit breaker, 2 pole, 10A, Eaton BR210 Circuit breaker, 2 pole, 15A, Eaton BR215 Circuit breaker, 2 pole, 20A, Eaton BR220
EPLC-01	Power line carrier (communication bridge pair), quantity - one pair
XA-SOLARSHIELD-ES	Replacement solar shield for Combiner 3-ES / 3C-ES
XA-PLUG-120-3	Accessory receptacle for Power Line Carrier in IQ Combiner 3-ES / 3C-ES (required for EPLC-01)
XA-ENV-PCBA-3	Replacement IQ Envoy printed circuit board (PCB) for Combiner 3-ES / 3C-ES
ELECTRICAL SPECIFICATIONS	
Rating	Continuous duty
System voltage	120/240 VAC, 60 Hz
Eaton BR series busbar rating	125 A
Max. continuous current rating	65 A
Max. continuous current rating (input from PV/storage)	64 A
Max. fuse/circuit rating (output)	90 A
Branch circuits (solar and/or storage)	Up to four 2-pole Eaton BR series Distributed Generation (DG) breakers only (not included)
Max. total branch circuit breaker rating (input)	80A of distributed generation / 90A with IQ Envoy breaker included
Production metering CT	200 A solid core pre-installed and wired to IQ Envoy
Consumption monitoring CT (CT-200-SPLIT)	A pair of 200 A split core current transformers
MECHANICAL DATA	
Dimensions (WxHxD)	37.5 x 49.5 x 16.8 cm (14.75" x 19.5" x 6.63"). Height is 21.06" (53.5 cm) with mounting brackets.
Weight	7.5 kg (16.5 lbs)
Ambient temperature range	-40° C to +46° C (-40° to 115° F)
Cooling	Natural convection, plus heat shield
Enclosure environmental rating	Outdoor, NRTL-certified, NEMA type 3R, polycarbonate construction
Wire sizes	• 20 A to 50 A breaker inputs: 14 to 4 AWG copper conductors • 60 A breaker branch input: 4 to 1/0 AWG copper conductors • Main lug combined output: 10 to 2/0 AWG copper conductors • Neutral and ground: 14 to 1/0 copper conductors Always follow local code requirements for conductor sizing.
Altitude	To 2000 meters (6,560 feet)
INTERNET CONNECTION OPTIONS	
Integrated Wi-Fi	802.11b/g/n
Cellular	CELLMODEM-M1 4G based LTE-M1 cellular modem (included only with IQ Combiner 3C-ES). Note that an Enphase Mobile Connect cellular modem is required for all Ensemble installations.
Ethernet	Optional, 802.3, Cat5E (or Cat 6) UTP Ethernet cable (not included)
COMPLIANCE	
Compliance, Combiner	UL 1741, CAN/CSA C22.2 No. 107.1, 47 CFR, Part 15, Class B, ICES 003 Production metering: ANSI C12.20 accuracy class 0.5 (PV production) Consumption metering: accuracy class 2.5
Compliance, IQ Envoy	UL 60601-1/CANCSA 22.2 No. 61010-1

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE.

Tech Brief

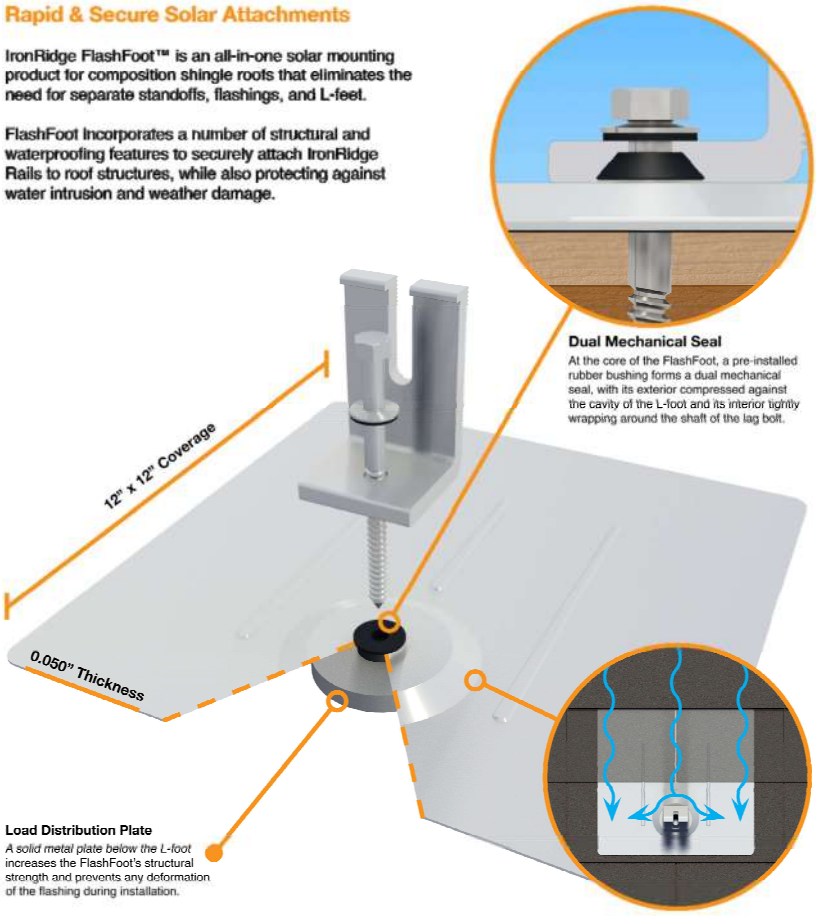
IRONRIDGE

FlashFoot™

Rapid & Secure Solar Attachments

IronRidge FlashFoot™ is an all-in-one solar mounting product for composition shingle roofs that eliminates the need for separate standoffs, flashings, and L-feet.

FlashFoot incorporates a number of structural and waterproofing features to securely attach IronRidge Rails to roof structures, while also protecting against water intrusion and weather damage.



Dual Mechanical Seal
At the core of the FlashFoot, a pre-installed rubber bushing forms a dual mechanical seal, with its exterior compressed against the cavity of the L-foot and its interior tightly wrapping around the shaft of the lag bolt.

Load Distribution Plate
A solid metal plate below the L-foot increases the FlashFoot's structural strength and prevents any deformation of the flashing during installation.

Water Shedding Design
A wide flashing layer combined with an elevated sealing platform maximizes the **FlashFoot's water shedding ability.**

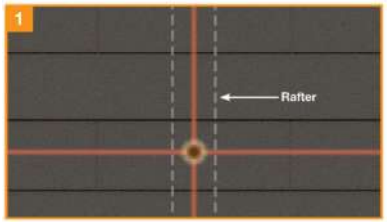
Certified compliant with IBC and IRC.

Tech Brief

Installation Overview

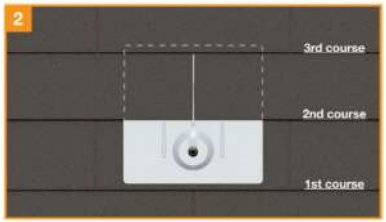
Tools Required: tape measure, chalk line, stud finder, roofing bar, caulking gun with an approved sealant, drill with 1/4" bit and 1/2" socket.

1



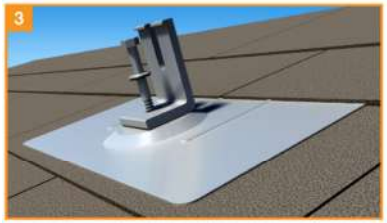
Locate rafters and snap vertical and horizontal lines to mark locations of flashings. Drill 1/4" pilot holes, then backfill with an approved sealant.

2



Slide flashing, between 1st and 2nd course, so the top is at least 3/4" above the edge of the 3rd course and the bottom is above the edge of the 1st course.

3



Line up pilot hole with flashing hole and insert lag bolt through bonded washer, L-Foot, and flashing. Tighten lag bolt until fully seated.

4

The FlashFoot is now installed and ready for IronRidge Rails. With provided L-foot fasteners pre-loaded into rails, drop rails into open L-foot slots.

Testing & Certification

FlashFoot is certified for compliance with the International Building Codes (IBC) & International Residential Codes (IRC) by IAPMO-ES. Mechanical testing conformed to the standard for Testing and Analysis of Joist Hangers and Miscellaneous Connectors (EC002-2011), and rain testing conformed to the Underwriters Laboratory Standard for Gas Vents (UL 441-96 Section 25).

Lag bolt pull-out (withdrawal) capacities (lbs) in typical roof lumber (ASD)	Specific Gravity	5/16" Shaft, 3" Thread Depth
Douglas Fir, Larch	.50	798
Douglas Fir, South	.46	705
Engelmann Spruce, Lodgepole Pine (MSR 1650 f & higher)	.46	705
Hem, Fir	.43	636
Hem, Fir (North)	.46	705
Southern Pine	.55	921
Spruce, Pine, Fir	.42	615
Spruce, Pine, Fir (E of 2 million psi and higher grades of MSR and MEL)	.50	798

MANUFACTURER SPEC SHEET – ATTACHMENT

CONTRACT

[redacted]
6944 Lena Ave
West Hills, CA
[redacted]

DLS Development Inc

21243 Ventura Blvd #135
Woodland Hills, CA 91364
Phone: (818) 857-2124
Email: developmentdls@gmail.com
Web: DLS-Development.com

Estimate #	2649
Date	11/19/2021
Business / Tax #	#1041608

Description	**Total**
Roof Estimate	$18,500.00

Scope of Work:

-Tear off approximately 3,000 square feet of roof.

-Clean up and haul away all debris.

-Replace necessary damaged plywood at no additional cost.

-Install Pro Armor synthetic underlayment.

-Install new drip edge Metal.

-All flashings and vents included.
(Seal all flashings and vents).

-Install starter shingles.

-Install 30 year cool roof shingles, homeowner to select color.

-Install rapid ridge cap.

-Install low profile O'Hagen vents.

-Install 1 solar tube.

All materials and labor included.

Permit and inspection included.
Estimated time to completion: 5-7 days.

30 year manufacturers warranty.
10 year labor warranty.

Solar Proposal	$20,500.00

Solar proposal:

Install a 6.8 Kilowatt system consisting of Q-Cell solar panels rated at 340 watts per panel.

Install Enphase Micro-inverters with monitoring.

Permits and inspection included.

25 year manufacturers warranty.

Battery Backup	$13,500.00

Install Enphase Lithium iron battery.

Includes: Battery, smart switch, communication kit, plans, permit, and labor.

Subtotal	$52,500.00
Total	**$52,500.00**

By signing this document, the customer agrees to the services and conditions outlined in this document.

[redacted]

Signed on: 11/19/2021

LIMITED WARRANTY:

Limited warranty on installation and Use of Solar System: We warrant for 30 years that the Solar System is of good quality, is new when installed, and is constructed and installed in a good and workmanlike manner according to Prudent Solar Practices. We also warrant the Solar System, under normal use and service conditions, against any defect or deficiency in workmanship.

This limited warranty is transferable. To the maximum extent permissible by law, there is no implied warranty of merchantability or any implied warranty of fitness for any particular purpose. There are no warranties either expressed or implied which extend beyond the description section of this agreement.

Contractor's warranty excludes remedy for damage or defect caused by abuse, improper, or insufficient maintenance, improper operation, or normal wear and tear under normal usage.

Contractor's warranty will be voided if any contractor other than DLS Development Inc or our approved sub-contractors move, uninstall, perform maintenance, molest or disturb DLS Development original work and installation.

Possible Solar Panel Replacement: Due to shortages from the supply chain from the global pandemic, panels that are offered on this contract might not be available by the time permits have been issued for this project. If so, DLS Development Inc will replace these panels with equivalent or higher rated panels to continue and complete this project.

LIMITED ROOFING PENETRATIONS FROM INSTALLATION: We warrant that each roofing penetration made in connection with installing the Solar System, and the surrounding area within a five (5) inch radius of each penetration, against damage to the roof and against water infiltration through the roof caused from the penetration. DLS Development Inc will not be responsible for any wear and tear caused by the age of the roof or nature elements.

MANUFACTURES: Note that equipment, assemblies, or units purchased by the Contractor, included in our contract are sold and installed subject to the manufacturer's or processor's guarantee or warranties, and not the Contractor's. To the maximum extent permitted by law, all warranties given by the manufacturers pertaining to equipment, assemblies, or units installed by the Contractor in connection with the project will be passed through and insure to the benefit of the Customer.

Customer Name: [redacted] _____

Customer Signatu [redacted] _____

Date Signed 4/1/2022

EXHIBIT D

LIMITED WARRANTY

Subject to the following terms, conditions and limitations, Contractor will, for a period commencing on the day the System is completely installed and ending ten (10) years thereafter ("Warranty Period"), warrant the Work to be free from defects under normal use. For the term of the Limited Warranty, Contractor shall, within a reasonable time and without charge, honor all manufacturers' warranty claims and provide customer system support, problem diagnosis, on-site repair and preventative maintenance. Upon expiration of the Warranty Period Contractor shall have no further obligation to make repairs at Contractor's expense under any provision of this Limited Warranty and Owner shall not make any further demand or claim against Contractor concerning Contractor's workmanship, or the equipment to be installed. For the Solar Energy System, if applicable, if installing the Solar Energy System requires penetrations to your roof during installation, we will warrant water damage caused by such roof penetrations. This roof warranty will run the longer of (A) one (1) year following the completion of the Solar Energy System installation; and (B) the length of any existing installation warranty or new home builder performance standard for your roof. This does not constitute a warranty for your existing roof and addresses only rooftop penetrations we make to install the Solar Energy System.

Warranty Exclusions:

Contractor does not provide any warranty to Owner for any component of the System. Any manufacturer's warranty is in addition to, not in lieu of, the limited warranties described above. The System's solar modules carry a minimum manufacturer's warranty that: (i) during the first 10 years of use, the modules' electrical output will not degrade by more than 10 percent (90%) from the originally rated output; and (ii) during the first 20 years of use, the modules' electrical output will not degrade by more than 20 percent (80%) from the originally rated output. The System's inverters carry a minimum manufacturer's workmanship warranty of at least 10 years. The energy storage components carry a minimum warranty of 10 years covering defects as well as maintaining an energy capacity of at least 70% from the rated capacity of the system at year 10 under standard operating conditions and/or Swell managed system performance if applicable.

This warranty does not apply to installation defects and/or failures caused by:

● Unauthorized maintenance, operation or modification, regardless of whether such is willful misconduct or negligence;

● Inspection, repair, relocation and/or modification except as performed by Contractor or Contractor's authorized agent;

● Natural forces, act of God, force majeure events and other unforeseen circumstances or causes beyond Contractor's reasonable control including, but not limited to, earthquakes, typhoons, hurricanes, tornadoes, floods, tsunami, lightning, or snow damage; or

● Rat, insect, or other animal or living creature of any kind.

No Other Warranties: NO OTHER EXPRESS WARRANTY IS GIVEN BY CONTRACTOR TO OWNER. THE CORRECTION OF THE INSTALLATION OF THE SYSTEM IS THE SOLE AND EXCLUSIVE REMEDY. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THIS LIMITED WARRANTY. TO THE EXTENT PERMITTED BY APPLICABLE LAW, ALL IMPLIED WARRANTIES, AND SPECIFICALLY THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED AND DISCLAIMED. This warranty is separate and apart from any warranty that may be issued to Owner by the System manufacturer. CONTRACTOR EXPRESSLY EXCLUDES AND DISCLAIMS ANY RESPONSIBILITY TO OWNER IN CONNECTION WITH OR ATTRIBUTABLE TO THE COMPONENTS OF THE SYSTEM AND THE APPLICABLE MANUFACTURERS' WARRANTY. Incidental or Consequential Damages: UNDER NO CIRCUMSTANCES SHALL CONTRACTOR BE LIABLE TO OWNER OR ANY OTHER PERSON FOR ANY INCIDENTAL, SPECIAL, CONSEQUENTIAL OR OTHER DAMAGES INCLUDING, BUT NOT LIMITED TO, LOSS OF SAVINGS, EXPENSES OR DAMAGES INCURRED AS A RESULT OF NONPERFORMANCE OF THE SYSTEM OR DAMAGE TO OR LOSS OF USE OF THE HOME OR ITS CONTENTS, WHETHER ARISING OUT OF BREACH OF WARRANTY, BREACH OF AGREEMENT OR UNDER ANY OTHER THEORY OF LAW.

Some states do not allow limitations on how long an implied warranty lasts and/or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from State to State. Payment to Contractor. This Limited Warranty shall not be or become effective unless and until Contractor has been paid in full in accordance with the Agreement.

DLS DEVELOPMENT INC.

DANIEL SFADIA

powered by Q.ANTUM DUO

Q.PEAK DUO BLK-G6+

330-345

ENDURING HIGH PERFORMANCE

VDE Quality Tested ID. 40032887 | EUPD RESEARCH TOP BRAND PV MODULES EUROPE 2019 | Q CELLS YIELD SECURITY | 25 YEAR Product and Performance Warranty Q CELLS

Q.ANTUM TECHNOLOGY: LOW LEVELIZED COST OF ELECTRICITY
Higher yield per surface area, lower BOS costs, higher power classes, and an efficiency rate of up to 19.5 %.

INNOVATIVE ALL-WEATHER TECHNOLOGY
Optimal yields, whatever the weather with excellent low-light and temperature behavior.

ENDURING HIGH PERFORMANCE
Long-term yield security with Anti LID and Anti PID Technology[1], Hot-Spot Protect and Traceable Quality Tra.Q™.

EXTREME WEATHER RATING
High-tech aluminum alloy frame, certified for high snow (5400 Pa) and wind loads (4000 Pa).

A RELIABLE INVESTMENT
Inclusive 25-year product warranty and 25-year linear performance warranty[2].

STATE OF THE ART MODULE TECHNOLOGY
Q.ANTUM DUO combines cutting edge cell separation and innovative wiring with Q.ANTUM Technology.

[1] APT test conditions according to IEC/TS 62804-1:2015, method B (−1500 V, 168 h)
[2] See data sheet on rear for further information

THE IDEAL SOLUTION FOR:

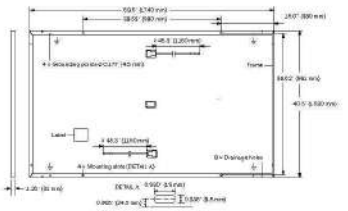
Rooftop arrays on residential buildings

Engineered in Germany

Q CELLS

MECHANICAL SPECIFICATION

Format	68.5 × 40.6 × 1.26 in (including frame) (1740 × 1030 × 32 mm)
Weight	43.9 lbs (19.9 kg)
Front Cover	0.13 in (3.2 mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodized aluminum
Cell	6 × 20 monocrystalline Q.ANTUM solar half cells
Junction Box	2.09–3.98 × 1.26–2.36 × 0.59–0.71 in (53–101 × 32–60 × 15–18 mm), Protection class IP67, with bypass diodes
Cable	4 mm² Solar cable; (+) ≥ 45.3 in (1150 mm), (−) ≥ 45.3 in (1150 mm)
Connector	Stäubli MC4; IP68

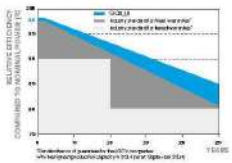


ELECTRICAL CHARACTERISTICS

POWER CLASS			330	335	340	345
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC[2] (POWER TOLERANCE +5 W / −0 W)						
Minimum	Power at MPP[3]	P_{MPP} [W]	330	335	340	345
	Short Circuit Current[3]	I_{SC} [A]	10.41	10.47	10.52	10.58
	Open Circuit Voltage[3]	V_{OC} [V]	40.15	40.41	40.66	40.92
	Current at MPP	I_{MPP} [A]	9.91	9.97	10.02	10.07
	Voltage at MPP	V_{MPP} [V]	33.29	33.62	33.94	34.25
	Efficiency[4]	η [%]	≥ 18.4	≥ 18.7	≥ 19.0	≥ 19.3
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT[2]						
Minimum	Power at MPP	P_{MPP} [W]	247.0	250.7	254.5	258.2
	Short Circuit Current	I_{SC} [A]	8.39	8.43	8.48	8.52
	Open Circuit Voltage	V_{OC} [V]	37.86	38.10	38.34	38.59
	Current at MPP	I_{MPP} [A]	7.80	7.84	7.89	7.93
	Voltage at MPP	V_{MPP} [V]	31.66	31.97	32.27	32.57

[1] Measurement tolerances P_{MPP} ±3%; I_{SC}; V_{OC} ±5% at STC: 1000 W/m², 25 ± 2 °C, AM 1.5 according to IEC 60904-3 • [2] 800 W/m², NMOT, spectrum AM 1.5

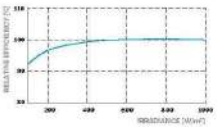
Q CELLS PERFORMANCE WARRANTY



At least 98 % of nominal power during first year. Thereafter max. 0.54 % degradation per year. At least 93.1 % of nominal power up to 10 years. At least 85 % of nominal power up to 25 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Q CELLS sales organization of your respective country.

PERFORMANCE AT LOW IRRADIANCE



Typical module performance under low irradiance conditions in comparison to STC conditions (25 °C, 1000 W/m²)

TEMPERATURE COEFFICIENTS

Temperature Coefficient of I_{SC}	α	[%/K]	+0.04	Temperature Coefficient of V_{OC}	β	[%/K]	−0.27
Temperature Coefficient of P_{MPP}	γ	[%/K]	−0.36	Nominal Module Operating Temperature	NMOT	[°F]	109 ± 5.4 (43 ± 3 °C)

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage V_{SYS}	[V]	1000 (IEC) / 1000 (UL)	Safety Class	II
Maximum Series Fuse Rating	[A DC]	20	Fire Rating based on ANSI / UL 1703	C (IEC) / TYPE 2 (UL)
Max. Design Load, Push / Pull[3]	[lbs/ft²]	75 (3600 Pa) / 55 (2667 Pa)	Permitted Module Temperature on Continuous Duty	−40 °F up to +185 °F (−40 °C up to +85 °C)
Max. Test Load, Push / Pull[3]	[lbs/ft²]	113 (5400 Pa) / 84 (4000 Pa)		

[3] See Installation Manual

QUALIFICATIONS AND CERTIFICATES

UL 1703, VDE Quality Tested, CE-compliant, IEC 61215:2016, IEC 61730:2016, Application Class II, U.S. Patent No. 9,893,215 (solar cells)

PACKAGING INFORMATION

Number of Modules per Pallet	32
Number of Pallets per 53' Trailer	28
Number of Pallets per 40' HC-Container	24
Pallet Dimensions (L × W × H)	71.5 × 45.3 × 48.0 in (1815 × 1150 × 1220 mm)
Pallet Weight	1565 lbs (683 kg)

Note: Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product.

Hanwha Q CELLS America Inc.
400 Spectrum Center Drive, Suite 1400, Irvine, CA 92618, USA | **TEL** +1 949 748 59 96 | **EMAIL** inquiry@us.q-cells.com | **WEB** www.q-cells.us

City of Los Angeles, Department of Building & Safety
APPROVED PLANS

- This set of plans are not approval for construction until the required permit fees are paid and the permit is issued.
- No inspection can be scheduled until the permit fees have been paid.

By: **DANG, ANTHONY** Date: **02/23/2022**

Application No./Permit No.: **21141-10002-20579**

- This set of plans **MUST** be at the job site during construction.
- It is unlawful to alter, change, or deviate from these plans.
- The stamping of this plan **SHALL NOT** constitute approval of violation of any provisions of any Ordinance or Law.
- **SEPARATE** permits are required for BUILDING, ELECTRICAL, PLUMBING, FIRE SPRINKLERS, ELEVATOR, HVAC, unless this permit was issued as a combination permit for a One or Two Family Dwelling pursuant to LAMC Section 91.0107.2.2 and the work by that trade does not require Plan Check. This approval is only for the items indicated on the permit work description. Other items shown on the plans are NOT included in this approval.

powered smart grid-ready
Q 7 Micro™ and Enphase IQ 7+ Micro™
lly simplify the installation process while
the highest system efficiency.

Enphase IQ System, the IQ 7 and IQ 7+ Microinverters integrate with the Enphase IQ Envoy™, Enphase IQ Battery™, and the Enphase Enlighten™ monitoring and analysis software.

IQ Series Microinverters extend the reliability standards set forth by previous generations and undergo over a million hours of power-on testing, enabling Enphase to provide an industry-leading warranty of up to 25 years.

Easy to Install

- Lightweight and simple
- Faster installation with improved, lighter two-wire cabling
- Built-in rapid shutdown compliant (NEC 2014 & 2017)

Productive and Reliable

- Optimized for high powered 60-cell and 72-cell* modules
- More than a million hours of testing
- Class II double-insulated enclosure
- UL listed

Smart Grid Ready

- Complies with advanced grid support, voltage and frequency ride-through requirements
- Remotely updates to respond to changing grid requirements
- Configurable for varying grid profiles
- Meets CA Rule 21 (UL 1741-SA)

* The IQ 7+ Micro is required to support 72-cell modules.

UL CERTIFIED

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE.

Enphase IQ 7 and IQ 7+ Microinverters

INPUT DATA (DC)	IQ7-60-2-US / IQ7-60-B-US		IQ7PLUS-72-2-US / IQ7PLUS-72-B-US	
Commonly used module pairings[1]	235 W - 350 W +		235 W - 440 W +	
Module compatibility	60-cell PV modules only		60-cell and 72-cell PV modules	
Maximum input DC voltage	48 V		60 V	
Peak power tracking voltage	27 V - 37 V		27 V - 45 V	
Operating range	16 V - 48 V		16 V - 60 V	
Min/Max start voltage	22 V / 48 V		22 V / 60 V	
Max DC short circuit current (module Isc)	15 A		15 A	
Overvoltage class DC port	II		II	
DC port backfeed current	0 A		0 A	
PV array configuration	1 x 1 ungrounded array; No additional DC side protection required; AC side protection requires max 20A per branch circuit			
OUTPUT DATA (AC)	**IQ 7 Microinverter**		**IQ 7+ Microinverter**	
Peak output power	250 VA		295 VA	
Maximum continuous output power	240 VA		290 VA	
Nominal (L-L) voltage/range[2]	240 V / 211-264 V	208 V / 183-229 V	240 V / 211-264 V	208 V / 183-229 V
Maximum continuous output current	1.0 A (240 V)	1.15 A (208 V)	1.21 A (240 V)	1.39 A (208 V)
Nominal frequency	60 Hz		60 Hz	
Extended frequency range	47 - 68 Hz		47 - 68 Hz	
AC short circuit fault current over 3 cycles	5.8 Arms		5.8 Arms	
Maximum units per 20 A (L-L) branch circuit[3]	16 (240 VAC)	13 (208 VAC)	13 (240 VAC)	11 (208 VAC)
Overvoltage class AC port	III		III	
AC port backfeed current	0 A		0 A	
Power factor setting	1.0		1.0	
Power factor (adjustable)	0.7 leading ... 0.7 lagging		0.7 leading ... 0.7 lagging	
EFFICIENCY	**@240 V**	**@208 V**	**@240 V**	**@208 V**
Peak CEC efficiency	97.6 %	97.6 %	97.5 %	97.3 %
CEC weighted efficiency	97.0 %	97.0 %	97.0 %	97.0 %
MECHANICAL DATA				
Ambient temperature range	-40°C to +65°C			
Relative humidity range	4% to 100% (condensing)			
Connector type (IQ7-60-2-US & IQ7PLUS-72-2-US)	MC4 (or Amphenol H4 UTX with additional Q-DCC-5 adapter)			
Connector type (IQ7-60-B-US & IQ7PLUS-72-B-US)	Friends PV2 (MC4 intermateable). Adaptors for modules with MC4 or UTX connectors: - PV2 to MC4: order ECA-S20-S22 - PV2 to UTX: order ECA-S20-S25			
Dimensions (WxHxD)	212 mm x 175 mm x 30.2 mm (without bracket)			
Weight	1.08 kg (2.38 lbs)			
Cooling	Natural convection - No fans			
Approved for wet locations	Yes			
Pollution degree	PD3			
Enclosure	Class II double-insulated, corrosion resistant polymeric enclosure			
Environmental category / UV exposure rating	NEMA Type 6 / outdoor			
FEATURES				
Communication	Power Line Communication (PLC)			
Monitoring	Enlighten Manager and MyEnlighten monitoring options. Both options require installation of an Enphase IQ Envoy.			
Disconnecting means	The AC and DC connectors have been evaluated and approved by UL for use as the load-break disconnect required by NEC 690.			
Compliance	CA Rule 21 (UL 1741-SA) UL 62109-1, UL1741/IEEE1547, 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 Shut Down Equipment and conforms with NEC-2014 and NEC-2017 section 690.12 and C22.1-2015 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according manufacturer's instructions.			

1. No enforced DC/AC ratio. See the compatibility calculator at https://enphase.com/en-us/support/module-compatibility.
2. Nominal voltage range can be extended beyond nominal if required by the utility.
3. Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE.

2018-05-24

CERTIFICATE OF COMPLIANCE

Certificate Number	20170112-E486080
Report Reference	E486080-20160830
Issue Date	2017-JANUARY-12
Issued to:	ENPHASE ENERGY INC 1420 N McDowell Blvd Petaluma CA 94954-6515
This is to certify that representative samples of	DISTRIBUTED GENERATION WIRING SYSTEMS AND HARNESSES Photovoltaic Wiring Harness. Models 840-00387 or Q-12-10-240, 840-00388 or Q-12-17-240, 840-00389 or Q-12-20-200, 840-00800 or Q-DCC-7, 840-00386 or Q-DCC-5, 840-00385 or Q-DCC-2. Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.
Standard(s) for Safety:	UL Subject 9703 - Outline of Investigation for Distributed Generation Wiring Harnesses
Additional Information:	See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

Look for the UL Certification Mark on the product.

Bruce Mahrenholz, Director North American Certification Program

UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at http://ul.com/aboutul/locations/

Tech Brief

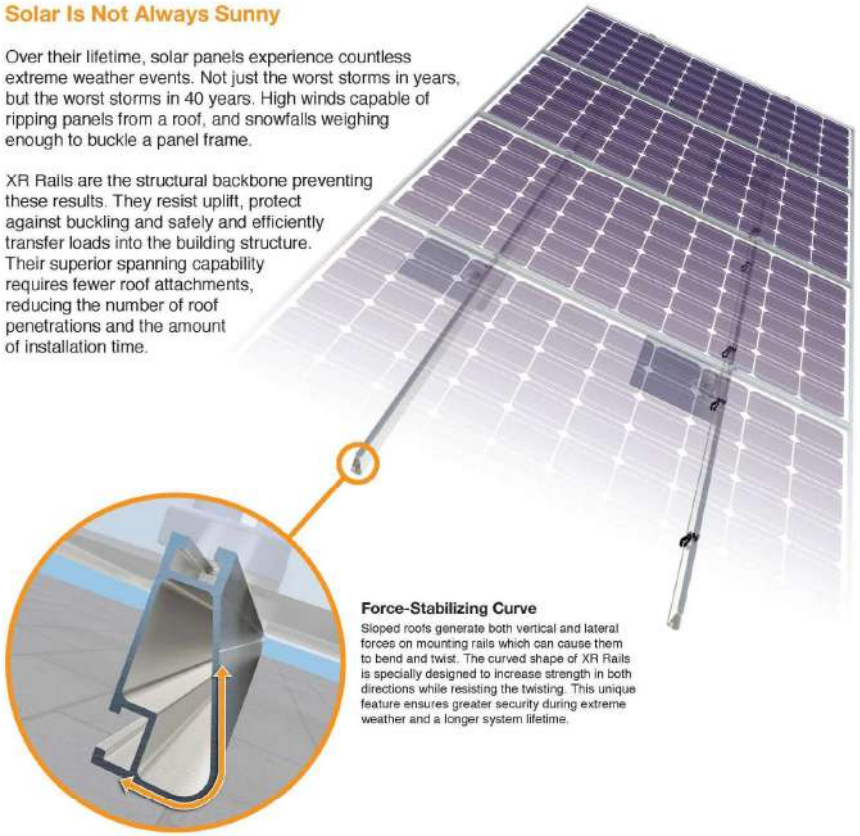
IRONRIDGE

XR Rail Family

Solar Is Not Always Sunny

Over their lifetime, solar panels experience countless extreme weather events. Not just the worst storms in years, but the worst storms in 40 years. High winds capable of ripping panels from a roof, and snowfalls weighing enough to buckle a panel frame.

XR Rails are the structural backbone preventing these results. They resist uplift, protect against buckling and safely and efficiently transfer loads into the building structure. Their superior spanning capability requires fewer roof attachments, reducing the number of roof penetrations and the amount of installation time.



Force-Stabilizing Curve

Sloped roofs generate both vertical and lateral forces on mounting rails which can cause them to bend and twist. The curved shape of XR Rails is specially designed to increase strength in both directions while resisting the twisting. This unique feature ensures greater security during extreme weather and a longer system lifetime.

Compatible with Flat & Pitched Roofs

XR Rails are compatible with FlashFoot and other pitched roof attachments.

IronRidge offers a range of tilt leg options for flat roof mounting applications.

Corrosion-Resistant Materials

All XR Rails are made of marine-grade aluminum alloy, then protected with an anodized finish. Anodizing prevents surface and structural corrosion, while also providing a more attractive appearance.

Tech Brief

XR Rail Family

The XR Rail Family offers the strength of a curved rail in three targeted sizes. Each size supports specific design loads, while minimizing material costs. Depending on your location, there is an XR Rail to match.

XR10

XR10 is a sleek, low-profile mounting rail, perfectly matched to regions without snow. It achieves 6 foot spans, while also staying light and economical.

- 6' spanning capability
- Moderate load capability
- Clear anodized finish
- Internal splices available

XR100

XR100 is the ultimate residential mounting rail. It supports a range of wind and snow conditions, while also maximizing spans.

- 8' spanning capability
- Heavy load capability
- Clear & black anodized finish
- Internal splices available

XR1000

XR1000 is a heavyweight among solar mounting rails. It's built to handle extreme climates and spans 12 feet or more for commercial applications.

- 12' spanning capability
- Extreme load capability
- Clear anodized finish
- Internal splices available

Rail Selection

The following table was prepared in compliance with applicable engineering codes and standards. Values are based on the following criteria: ASCE 7-10, Roof Zone 1, Exposure B, Roof Slope of 7 to 27 degrees and Mean Building Height of 30 ft. Visit IronRidge.com for detailed span tables and certifications.

Load		Rail Span					
Snow (PSF)	Wind (MPH)	4'	5' 4"	6'	8'	10'	12'
None	100	XR10		XR100		XR1000	
	120						
	140						
	160						
10-20	100						
	120						
	140						
	160						
30	100						
	160						
40	100						
	160						
50-70	160						
80-90	160						

25800 Commercentre Drive
Lake Forest, CA 92630 USA

Telephone: 949.448.4100
Facsimile: 949.448.4111
www.intertek.com

Test Verification of Conformity

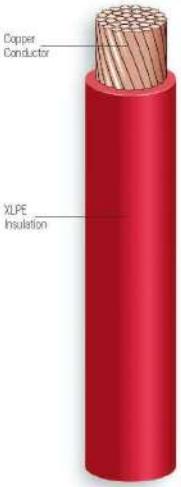
In the basis of the tests undertaken, the sample(s) of the below product have been found to comply with the requirements of the referenced specifications at the time the tests were carried out.

Applicant Name & Address:	IronRidge, Inc. 1495 Zephyr Ave. Hayward, CA 94544
Product Description:	XR Rails with Integrated Grounding.
Ratings & Principle Characteristics:	Fire Class Resistance Rating: - Class A for Steep Slope Flush-Mount (symmetrical) Applications when using Type 1 and Type 2, Listed Photovoltaic Module. - Class A for Low Slope Flush-Mount and Tilt-Mount (symmetrical and asymmetrical) Applications when using Type 1, Listed Photovoltaic Module.
Models:	51-61GD-005, 51-61GD-005B, 51-5000-001, and 51-65-001
Brand Name:	N/A
Relevant Standards:	UL Subject 2703 Outline of Investigation for Rack Mounting Systems and Clamping Devices for Flat-Plate Photovoltaic Modules and Panels, Issue Number: 1, October 4, 2010
Verification Issuing Office:	Intertek Testing Services NA, Inc. 25800 Commercentre Dr. Lake Forest, CA 92630
Date of Tests:	08/27/2014 to 01/07/2015
Test Report Number(s):	101541132LAX-002

This verification is part of the full test report(s) and should be read in conjunction with them. This report does not automatically imply product certification.

Completed by:	Amar Kacel	**Reviewed by:**	Andrew Koretoff
Title:	PV Engineer	**Title:**	Reviewer
Signature:		**Signature:**	
Date:	01/16/2015	**Date:**	01/16/2015

TYPE PHOTOVOLTAIC/RHH/RHW-2 COPPER CONDUCTOR 600V AND 1000V/2000V



ENGINEERING SPECIFICATIONS:

Listed E-326525

RoHS COMPLIANT

Standards:

Underwriters Laboratories Standards UL-4703, UL-854, UL-44
UL 1685-FT4/IEEE 1202 (70,000 Btu/hr) Flame Test (1/0 AWG and larger)
ICEA T-29-520 (210,000 Btu/hr) Flame Test
NEMA WC70/ICEA S-95-658
NFPA 70: National Electrical Code (NEC)
ARRA 2009; Section 1605 "Buy American" Compliant

CONSTRUCTION:

Conductors:

Stranded conductors, uncoated copper per ASTM-B787 and ASTM-B8

Insulation:

Cross-linked polyethylene (XLPE) insulation per UL-854, UL-4703 and UL-44

Applications:

Type Photovoltaic copper conductors are suitable for outdoor rooftop applications without conduit and for use in conduits and raceways installed underground in conduit in wet locations, and where condensation and moisture accumulations within the conduit do not exceed 90°C. Applications requiring direct burial is permitted for Type Photovoltaic per UL-854. Applications requiring type Photovoltaic conductor, temperatures shall not exceed 90°C in wet or dry locations.

Features:

Available in 600V and 1000V/2000V. All cables comply with UL's VW-1 (Vertical Wire) Flame Test. Insulation compounds are rated for flame and sunlight-resistance in all sizes and colors. Photovoltaic conductors of 1/0 through 1000 KCMIL are rated for CT use. Sequential foot markings located every foot on master reels only for 1 AWG through 1000 KCMIL unless otherwise specified. RoHS compliant. Flexibility at Low Temperature Test. Carries -40°C rating.

Type Photovoltaic/RHH/RHW-2 Copper Conductor 600V and 1000V/2000V

Size AWG	Number of Strands		Insulation Thickness XLPE (in)		Outside Diameter				Allowable Ampacity (Amps)**		Approximate Net Weight (lbs/1000 ft)		Standard Packaging (ft)	
					600V		1000V / 2000V							
	600V	1000V 2000V	600V	1000V 2000V	(mm)	(in)	(mm)	(in)	600V	1000V 2000V	600V	1000V 2000V	600V	1000V / 2000V
14	19	19	0.060	0.075	4.89	0.193	5.61	0.221	25†	25†	24	28	500' 1000' 2500' reels	500' 1000' 2500' reels
12	19	19	0.060	0.075	5.37	0.212	6.05	0.238	30†	30†	33	38	500' 1000' 2500' reels	500' 1000' 2500' reels
10	19	19	0.060	0.075	5.99	0.236	6.60	0.260	40†	40†	47	52	500' 2500' reels	500' 2500 reels
8	7*	7*	0.075	0.085	7.52	0.296	7.95	0.313	55	55	74	78	500' 1000' 2500' 5000' reels	500' 1000' 2500' 5000' reels
6	7*	7*	0.075	0.085	8.48	0.334	8.86	0.349	75	75	108	113	500' 1000' 2500' 5000' reels	500' 1000' 2500' 5000' reels
4	7*	7*	0.075	0.085	9.70	0.382	10.06	0.396	95	95	161	166	500' 1000' 2500' 5000' reels	500' 1000' 2500' 5000' reels
3	7*	7*	0.075	0.085	10.41	0.410	10.77	0.424	110	110	197	203	500' 1000' 2500' 5000' reels	500' 1000' 2500' 5000' reels
2	7*	7*	0.075	0.085	11.23	0.442	11.58	0.456	130	130	243	249	500' 1000' 2500' 5000' reels	500' 1000' 2500' 5000' reels
1	19	19	0.095	0.105	13.16	0.518	13.49	0.531	150	150	313	320	500' 1000' 2500' 5000' reels	500' 1000' 2500' 5000' reels
1/0	19	19	0.095	0.105	13.97	0.550	14.48	0.570	170	170	380	389	500' 1000' 2500' 5000' reels	500' 1000' 2500' 5000' reels
2/0	19	19	0.095	0.105	15.09	0.594	15.60	0.614	195	195	476	484	500' 1000' 2500' 5000' reels	500' 1000' 2500' 5000' reels
3/0	19	19	0.095	0.105	16.36	0.644	16.87	0.664	225	225	590	599	500' 1000' 2500' 5000' reels	500' 1000' 2500' 5000' reels
4/0	19	19	0.095	0.105	17.78	0.700	18.29	0.720	260	260	732	742	500' 1000' 2500' 5000' reels	500' 1000' 2500' 5000' reels
250	37	37	0.110	0.120	19.35	0.762	19.86	0.782	290	290	873	884	500' 1000' 2500' 4000' Reels	500' 1000' 2500' 4000' Reels
300	37	37	0.110	0.120	20.67	0.814	21.18	0.834	320	320	1035	1047	500' 1000' 3500' Reels	500' 1000' 3500' Reels
350	37	37	0.110	0.120	21.87	0.861	22.38	0.881	350	350	1198	1216	500' 1000' 3000' Reels	500' 1000' 3000' Reels
400	37	37	0.110	0.120	22.99	0.905	23.50	0.925	380	380	1358	1371	500' 1000' 3000' Reels	500' 1000' 3000' Reels
500	37	37	0.110	0.120	25.04	0.986	25.55	1.006	430	430	1680	1694	500' 1000' 2500' Reels	500' 1000' 2500' Reels
600	61	61	0.125	0.135	29.03	1.143	29.54	1.163	475	475	2057	2073	500' 1000' 2000' Reels	500' 1000' 2000' Reels
750	61	61	0.125	0.135	31.70	1.248	32.21	1.268	535	535	2508	2525	500' 1000' 1500' Reels	500' 1000' 1500' Reels
1000	61	61	0.125	0.135	35.61	1.402	36.12	1.422	615	615	3303	3322	500' 1000' Reels	500' 1000' Reels

* 8 AWG - 2 AWG: 19/w is available upon request.
**Allowable ampacities per NEC 310.15(B)(16) for 90°C. †For overcurrent protection amperages, consult NEC 240.4(D).

PRINT LEGEND: 600V
14 AWG THROUGH 1 AWG: ENCORE WIRE CORPORATION"(SIZE)"TYPE"PHOTOVOLTAIC OR RHH OR RHW-2" 90C"WET"OR"DRY"SUN"RES"-40C"600V"XLPE"(UL)"DATE"TIME"OPERATOR"QC
1/0 AWG THROUGH 1000 KCMIL: ENCORE WIRE CORPORATION"(SIZE)"TYPE"PHOTOVOLTAIC OR RHH OR RHW-2" 90C"WET"OR"DRY"SUN"RES"-40C"600V"XLPE"(UL)"FOR"CT"USE"DATE"TIME"OPERATOR"QC

PRINT LEGEND: 1000V/2000V
14 AWG THROUGH 1 AWG: ENCORE WIRE CORPORATION"(SIZE)"TYPE"PHOTOVOLTAIC OR RHH OR RHW-2" 90C"WET"OR"DRY"SUN"RES"-40C"2000V"XLPE"(UL)"DATE"TIME"OPERATOR"QC
1/0 AWG THROUGH 1000 KCMIL: ENCORE WIRE CORPORATION"(SIZE)"TYPE"PHOTOVOLTAIC OR RHH OR RHW-2" 90C"WET"OR"DRY"SUN"RES"-40C"2000V"XLPE"(UL)"FOR"CT"USE"DATE"TIME"OPERATOR"QC

Copper Lay-In Ground Lug
Direct Burial

RoHS Compliant

TYPE
CGBL

Features
- Lay-in feature
- Manufactured from high strength copper
- Stainless steel hardware

Benefits
- Provides ease of installation of continuous loop grounding conductor
- Suitable for direct burial and for use with copper conductors
- Resists oxidation and corrosion in earth or concrete

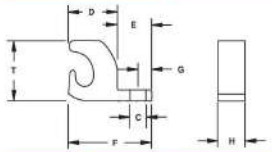


Fig. 1

Fig. 2

Catalog Number	Figure Number	Ground Wire Range	Bolt Size	Dimensions							Screw Type
				C	D	E	F	G	H	T	
GBL-4DB	1	4-14	10	.218	.680	.470	1.150	.190	.375	.825	Slot
GBL-4DB-14	1	4-14	1/4	.265	.680	.470	1.150	.210	.472	.825	Slot
*+ GBL-4DBT	1	4-14	10	.218	.680	.470	1.150	.190	.375	.825	Slot
* GBL-4DBT-14	1	4-14	1/4	.265	.680	.470	1.150	.210	.472	.825	Slot
*+ GBL-4DBTH	2	4-14	10	.218	.680	.470	1.150	.190	.375	.825	Hex
* GBL-4DBTH-14	2	4-14	1/4	.265	.680	.470	1.150	.210	.472	.825	Hex

All wire sizes, unless noted otherwise, are American Wire Gauge (AWG)
Tested to UL 467, UL File E34440
* T indicates tin plating
+ GBL-4DBT and GBL-4DBTH are UL2703 Listed UL E354420 Vol. 2
Optional MH Series mounting hardware kits available, consult ILSCO

TIGHTENING TORQUE VALUES FOR ILSCO MECHANICAL SCREW CONNECTORS

AWG. OR CIRCULAR MILL SIZE	TIGHTENING TORQUE IN INCH POUNDS	
	SCREW DRIVER	EXTERNAL DRIVE WRENCH
14	35	75
12	35	75
10	35	75
8	40	75
6	45	110
4	45	110
2	50	150
1	50	150
1/0	50	180
2/0	50	180
3/0		250
4/0		250
250		325
350		325
500		375
600		375
700		375
750		375
800		500
1000		500

TIGHTENING TORQUE VALUES FOR ILSCO SOCKETHEAD SCREW CONNECTORS

INTERNAL SOCKET SIZE ACROSS FLATS INCHES	TIGHTENING TORQUE IN INCH POUNDS
1/8	45
5/32	100
3/16	120
7/32	150
1/4	200
5/16	275
3/8	375
1/2	500
9/16	600

Please reference the instruction sheet included with your connector for specific torque values.

N

Table I shows the recommended tightening torques for silicon bronze, stainless steel, galvanized steel and aluminum alloy hardware. The shaded portion represents torques presently recommended by NEMA-CC1-1984 specification.

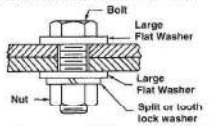
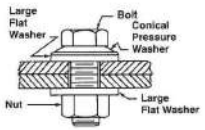
TABLE I
TIGHTENING TORQUES

Bolt Diameter	Nominal Torque Values			
	Silicon Bronze, Galvanized or Stainless Steel		Aluminum Alloy (Lubricated)	
	Ft.-Lbs.	Inch-Lbs.	Ft.-Lbs.	Inch-Lbs
1/4-18	15	180	–	–
5/16-16	20	240	14	168
3/8-13	40	480	25	300
7/16-11	55	660	40	480
1/2-10	80	960	70	840

For optimum efficiency, it is necessary that the correct bolt, nut and washer combination be used with the correct combination of conductor materials. Table II shows acceptable methods of joining different combinations of bus bar. Where different combinations of metals are being joined, a follow-up device such as a conical pressure washer is usually recommended if one, or both, bus materials are soft drawn aluminum. If both bars are hard drawn, large flat washers will suffice regardless of the bolt materials.

Other considerations which should be taken into account when selecting hardware are corrosion and vibration. For example, if severe corrosion is anticipated, non-corrosive materials such as stainless steel or silicon bronze, should be selected in preference to galvanized steel. If vibration is anticipated, the use of locking washers should be considered.

TABLE II
METHODS OF JOINING BUS BARS

If "A" Bar is and If "B" Bar is	Copper / Copper	Aluminum / Copper	Steel / Copper	Aluminum / Aluminum	Steel / Aluminum
Hard Drawn Bus such as aluminum alloy. 	(1) Silicon Bronze (2) Stainless Steel	(1) Silicon Bronze (2) Aluminum (3) Stainless Steel	(1) Silicon Bronze (2) Stainless Steel	(1) Aluminum (2) Stainless Steel (3) Silicon Bronze, Plated	(1) Aluminum (2) Stainless Steel
Soft Drawn Bus such as EC-H13 Aluminum. 	(1) Silicon Bronze (2) Stainless Steel	(1) Silicon Bronze (2) Aluminum (3) Stainless Steel (4) Conical Pressure Washer Plated or Stainless Steel	(1) Silicon Bronze (2) Stainless Steel	(1) Aluminum (2) Stainless Steel (3) Silicon Bronze Plated (4) Conical Pressure Washer Plated or Stainless Steel	(1) Aluminum (2) Stainless Steel (3) Conical Pressure Washer Plated or Stainless Steel

(1) Denotes preferred hardware usage
Note: Contact sealant recommended between aluminum to aluminum and aluminum to copper connections, unless other protective measures are taken.

Bar Connections

The tang of a compression or a mechanical connector is a bus bar, which connects to another bus bar. If you remember the rule about wire brushing and using joint compound with bare (unplated) aluminum, you cannot go wrong. Plated parts should be cleaned with a solvent if they are dirty, but never abrade or otherwise disturb the plating! Fig. 3 shows a typical bar connection and the type of hardware used.

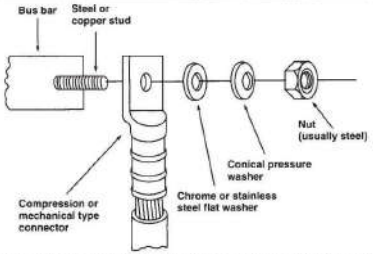


Figure 3. Contact surfaces must be clean. Use a joint compound with bare aluminum. Conical pressure washer is usually recommended if one, or both, bus materials are soft drawn aluminum.

Data Sheet
Enphase Storage System

Enphase Encharge 10

The **Enphase Encharge 10™** all-in-one AC-coupled storage system is **reliable, smart, simple,** and **safe**. It is comprised of three base Encharge 3™ storage units, has a total usable energy capacity of 10.08 kWh and twelve embedded grid-forming microinverters with 3.84 kW power rating. It provides backup capability and installers can quickly design the right system size to meet the needs of both new and retrofit solar customers.

Reliable

- Proven high reliability IQ Series Microinverters
- Ten-year limited warranty
- Three independent Encharge storage base units
- Twelve embedded IQ 8X-BAT Microinverters
- Passive cooling (no moving parts/fans)

Smart

- Grid-forming capability for backup operation
- Remote software and firmware upgrade
- Mobile app-based monitoring and control
- Support for self consumption
- Utility time of use (TOU) optimization

Simple

- Fully integrated AC battery system
- Quick and easy plug-and-play installation
- Interconnects with standard household AC wiring

Safe

- Cells safety tested
- Lithium iron phosphate (LFP) chemistry for maximum safety and longevity

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE.

Enphase Encharge 10

MODEL NUMBER	
ENCHARGE-10-1P-NA	Encharge 10 battery storage system with integrated Enphase Microinverters and battery management unit (BMU). Includes: - Three Encharge 3.36 kWh base units (B3-A01-US001-1-3) - One Encharge 10 cover kit with cover, wall mounting bracket, watertight conduit hubs, and interconnect kit for wiring between batteries (B10-C-1050-0)
ACCESSORIES	
ENCHARGE-HNDL-R1	One set of Encharge base unit installation handles
OUTPUT (AC)	**@ 240 VAC[1]**
Rated (continuous) output power[2]	3.84 kVA
Peak output power	5.7 kVA (10 seconds)
Nominal voltage / range	240 / 211 – 264 VAC
Nominal frequency / range	60 / 57 – 61 Hz
Rated output current	16 A
Peak output current	24.6A (10 seconds)
Power factor (adjustable)	0.85 leading ... 0.85 lagging
Maximum units per 20 A branch circuit	1 unit (single phase)
Interconnection	Single-phase
Maximum AC short circuit fault current over 3 cycles	69.6 Arms
Round trip efficiency[2]	89%
BATTERY	
Total capacity	10.5 kWh
Usable capacity	10.08 kWh
Round trip efficiency	96%
Nominal DC voltage	67.2 V
Maximum DC voltage	73.5 V
Ambient operating temperature range	-15° C to 55° C (5° F to 131° F) non-condensing
Optimum operating temperature range	0° C to 30° C (32° F to 86° F)
Chemistry	Lithium iron phosphate (LFP)
MECHANICAL DATA	
Dimensions (WxHxD)	1070 mm x 664 mm x 319 mm (42.13 in x 26.14 in x 12.56 in)
Weight	Three individual 44.2 kg (97.4 lbs) base units plus 21.1 kg (48.7 lbs) cover and mounting bracket; total 154.7 kg (341 lbs)
Enclosure	Outdoor – NEMA type 3R
IQ 8X-BAT microinverter enclosure	NEMA type 6
Cooling	Natural convection – No fans
Altitude	Up to 2500 meters (8200 feet)
Mounting	Wall mount
FEATURES AND COMPLIANCE	
Compatibility	Compatible with grid-tied PV systems. Compatible with Enphase IQ Series Micros, Enphase Enpower, and Enphase IQ Envoy for backup operation.
Communication	Wireless 2.4 GHz
Services	Backup, self-consumption, TOU, Demand Charge, NEM Integrity
Monitoring	Enlighten Manager and MyEnlighten monitoring options; API integration
Compliance	UL 9540, UN 38.3, UL 9540A, UL 1998, UL 991, NEMA Type 3R, AC156 EMI: 47 CFR, Part 15, Class B, ICES 003 Cell Module: UL 1973, UN 38.3 Inverters: UL 62109-1, IEC 62109-2, UL 1741SA, CAN/CSA C22.2 No. 107.1-16
LIMITED WARRANTY	
Limited Warranty[3]	>70% capacity, up to 10 years or 4000 cycles

1. Supported in backup/off grid operations
2. AC to Battery to AC at 50% power rating.
3. Whichever occurs first. Restrictions apply.

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE.

Enphase Enpower

The **Enphase Enpower**™ smart switch connects the home to grid power, the Encharge storage system, and solar PV. It provides microgrid interconnection device (MID) functionality by automatically detecting and seamlessly transitioning the home energy system from grid power to backup power in the event of a grid failure. It consolidates interconnection equipment into a single enclosure and streamlines grid independent capabilities of PV and storage installations by providing a consistent, pre-wired solution for residential applications.

Reliable

- Durable NEMA type 3R enclosure
- Ten-year limited warranty

Smart

- Controls safe connectivity to the grid
- Automatically detects grid outages
- Provides seamless transition to backup

Simple

- Connects to the load or service equipment[1] side of the main load panel
- Centered mounting brackets support single stud mounting
- Supports conduit entry from the bottom, bottom left side, and bottom right side
- Supports whole home and partial home backup and subpanel backup
- Up to 200A main breaker support
- Includes neutral-forming transformer for split phase 120/240V backup operation

1. Enpower is not suitable for use as service equipment in Canada.

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE.

Enphase Enpower

MODEL NUMBER		
EP200G101-M240US00	Enphase Enpower smart switch with neutral-forming transformer (NFT), Microgrid Interconnect Device (MID), breakers, and screws. Streamlines grid-independent capabilities of PV and storage installations.	
ACCESSORIES and REPLACEMENT PARTS		
XA-E3-PCBA-ENS	Replacement Enpower controller printed circuit board	
Circuit breakers (as needed)[2,3] BRK-100A-2P-240V BRK-125A-2P-240V BRK-150A-2P-240V BRK-175A-2P-240V BRK-200A-2P-240V BRK-20A-2P-240V-B BRK-30A-2P-240V BRK-40A-2P-240V BRK-60A-2P-240V BRK-80A-2P-240V	Not included, must order separately: • Main breaker, 2 pole, 100A, 25kAIC, CSR2100N or CSR2100 • Main breaker, 2 pole, 125A, 25kAIC, CSR2125N • Main breaker, 2 pole, 150A, 25kAIC, CSR2150N • Main breaker, 2 pole, 175A, 25kAIC, CSR2175N • Main breaker, 2 pole, 200A, 25kAIC, CSR2200N • Circuit breaker, 2 pole, 20A, 10kAIC, BR220B • Circuit breaker, 2 pole, 30A, 10kAIC, BR230B • Circuit breaker, 2 pole, 40A, 10kAIC, BR240B • Circuit breaker, 2 pole, 60A, 10kAIC, BR260 • Circuit breaker, 2 pole, 80A, 10kAIC, BR280	
EP200G-HNDL-R1	Enpower installation handle kit (order separately)	
ELECTRICAL SPECIFICATIONS		
Assembly rating	Continuous operation at 100% of its rating	
Nominal voltage / range (L-L)	240 VAC / 100 - 310 VAC	
Voltage measurement accuracy	±1% V nominal (±1.2V L-N and ±2.4V L-L)	
Nominal frequency / range	60 Hz / 56 - 63 Hz	
Frequency measurement accuracy	±0.1 Hz	
Maximum continuous current rating	160A	
Maximum output overcurrent protection device	200A	
Maximum input overcurrent protection device	200A	
Maximum overcurrent protection device rating for storage branch circuit[4]	80A	
Maximum overcurrent protection device rating for PV combiner branch circuit[4]	80A	
Neutral Forming Transformer (NFT)	• Breaker rating (pre-installed): 40A between L1 and Neutral; 40A between L2 and Neutral • Continuous rated power: 3600VA • Maximum continuous unbalance current: 30A @ 120V • Peak rated power: 8800VA for 30 seconds • Peak unbalanced current: 80A @ 120V for 30 seconds	
MECHANICAL DATA		
Dimensions (WxHxD)	50cm x 91.6cm x 24.6cm (19.7 in x 36 in x 9.7 in)	
Weight	38.5 kg (85 lbs)	
Ambient temperature range	-40° C to +50° C (-40° F to 122° F)	
Cooling	Natural convection, plus heat shield	
Enclosure environmental rating	Outdoor, NEMA type 3R, polycarbonate construction	
Altitude	To 2500 meters (8200 feet)	
WIRE SIZES		
Connections	• Main lugs, backup load lugs, and CSR breakers • BR breakers (wire provided) • AC combiner lugs, Encharge lugs, and generator (reserved for future use) lugs • Neutral (large lugs)	Cu/AL: 2 AWG - 300 KCMIL 6 AWG 14 AWG – 2 AWG Cu/AL: 6 AWG - 300 KCMIL
Neutral and ground bars	Large holes (5/16-24 UNF) Small holes (10-32 UNF)	14 AWG – 1/0 AWG 14 AWG – 6 AWG
COMPLIANCE		
Compliance	UL 1741, UL 1741 SA, UL1998, UL869A[5], UL67[5], UL508[5], UL50E[5] CSA 22.2 No. 107.1, 47 CFR, Part 15, Class B, ICES 003, AC156.	

2. Compatible with BRHDK125 Hold-Down Kit to comply with 2017 NEC 710.15E for back-fed circuit breakers.
3. The kAIC of Enpower is the same as the kAIC of the main breaker being installed as listed.
4. Not included. Installer must provide properly rated breaker per circuit breaker list above.
5. Sections from these standards were used during the safety evaluation and included in the UL 1741 listing.

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE.

Enphase
IQ Combiner 3-ES/3C-ES

X-IQ-AM1-240-3-ES
X-IQ-AM1-240-3C-ES

The **Enphase IQ Combiner 3-ES/3C-ES™** with Enphase IQ Envoy™ and integrated LTE-M1 cell modem (included only with IQ Combiner 3C-ES) consolidates interconnection equipment into a single enclosure and streamlines PV and storage installations by providing a consistent, pre-wired solution for residential applications. It offers up to four 2-pole input circuits and Eaton BR series busbar assembly.

X-IQ-AM1-240-3C-ES

X-IQ-AM1-240-3-ES

Smart

- Includes IQ Envoy for communication and control
- Includes LTE-M1 cell modem (included only with IQ Combiner 3C-ES)
- Includes solar shield to match Ensemble esthetics and deflect heat
- Flexible networking supports Wi-Fi, Ethernet, or cellular
- Optional AC receptacle available for PLC bridge
- Provides production metering and consumption monitoring

Simple

- Reduced size from IQ Combiner+ (X-IQ-AM1-240-2)
- Centered mounting brackets support single stud mounting
- Supports back and side conduit entry
- Up to four 2-pole branch circuits for 240 VAC plug-in breakers (not included)
- 80 A total PV or storage branch circuits

Reliable

- Durable NRTL-certified NEMA type 3R enclosure
- Five-year limited warranty
- Two years labor reimbursement program coverage included
- UL listed

UL LISTED

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE.

Enphase IQ Combiner 3-ES / 3C-ES

MODEL NUMBER	
IQ Combiner 3-ES (X-IQ-AM1-240-3-ES)	IQ Combiner 3-ES with Enphase IQ Envoy printed circuit board for integrated revenue grade PV production metering (ANSI C12.20 +/- 0.5%) and consumption monitoring (+/- 2.5%). Includes a silver solar shield to match the Encharge storage system and Enpower smart switch and to deflect heat.
IQ Combiner 3C-ES (X-IQ-AM1-240-3C-ES)	IQ Combiner 3C-ES with Enphase IQ Envoy printed circuit board for integrated revenue grade PV production metering (ANSI C12.20 +/- 0.5%) and consumption monitoring (+/- 2.5%). Includes Enphase Mobile Connect LTE-M1 (CELLMODEM-M1), a plug-and-play industrial-grade cell modem for systems up to 60 microinverters. (Available in the US, Canada, Mexico, Puerto Rico, and the US Virgin Islands, where there is adequate cellular service in the installation area.) Includes a silver solar shield to match the Encharge storage system and Enpower smart switch and to deflect heat.
ACCESSORIES and REPLACEMENT PARTS	(not included, order seperately)
Ensemble Communications Kit (COMMS-CELLMODEM-M1)	Includes COMMS-KIT-01 and CELLMODEM-M1 with 5-year data plan for Ensemble sites
Circuit Breakers BRK-10A-2-240 BRK-15A-2-240 BRK-20A-2P-240	Supports Eaton BR210, BR215, BR220, BR230, BR240, BR250, and BR260 circuit breakers. Circuit breaker, 2 pole, 10A, Eaton BR210 Circuit breaker, 2 pole, 15A, Eaton BR215 Circuit breaker, 2 pole, 20A, Eaton BR220
EPLC-01	Power line carrier (communication bridge pair), quantity - one pair
XA-SOLARSHIELD-ES	Replacement solar shield for Combiner 3-ES / 3C-ES
XA-PLUG-120-3	Accessory receptacle for Power Line Carrier in IQ Combiner 3-ES / 3C-ES (required for EPLC-01)
XA-ENV-PCBA-3	Replacement IQ Envoy printed circuit board (PCB) for Combiner 3-ES / 3C-ES
ELECTRICAL SPECIFICATIONS	
Rating	Continuous duty
System voltage	120/240 VAC, 60 Hz
Eaton BR series busbar rating	125 A
Max. continuous current rating	65 A
Max. continuous current rating (input from PV/storage)	64 A
Max. fuse/circuit rating (output)	90 A
Branch circuits (solar and/or storage)	Up to four 2-pole Eaton BR series Distributed Generation (DG) breakers only (not included)
Max. total branch circuit breaker rating (input)	80A of distributed generation / 90A with IQ Envoy breaker included
Production metering CT	200 A solid core pre-installed and wired to IQ Envoy
Consumption monitoring CT (CT-200-SPLIT)	A pair of 200 A split core current transformers
MECHANICAL DATA	
Dimensions (WxHxD)	37.5 x 49.5 x 16.8 cm (14.75" x 19.5" x 6.63"). Height is 21.06" (53.5 cm) with mounting brackets.
Weight	7.5 kg (16.5 lbs)
Ambient temperature range	-40° C to +46° C (-40° to 115° F)
Cooling	Natural convection, plus heat shield
Enclosure environmental rating	Outdoor, NRTL-certified, NEMA type 3R, polycarbonate construction
Wire sizes	• 20 A to 50 A breaker inputs: 14 to 4 AWG copper conductors • 60 A breaker branch input: 4 to 1/0 AWG copper conductors • Main lug combined output: 10 to 2/0 AWG copper conductors • Neutral and ground: 14 to 1/0 copper conductors Always follow local code requirements for conductor sizing.
Altitude	To 2000 meters (6,560 feet)
INTERNET CONNECTION OPTIONS	
Integrated Wi-Fi	802.11b/g/n
Cellular	CELLMODEM-M1 4G based LTE-M1 cellular modem (included only with IQ Combiner 3C-ES). Note that an Enphase Mobile Connect cellular modem is required for all Ensemble installations.
Ethernet	Optional, 802.3, Cat5E (or Cat 6) UTP Ethernet cable (not included)
COMPLIANCE	
Compliance, Combiner	UL 1741, CAN/CSA C22.2 No. 107.1, 47 CFR, Part 15, Class B, ICES 003 Production metering: ANSI C12.20 accuracy class 0.5 (PV production) Consumption metering: accuracy class 2.5
Compliance, IQ Envoy	UL 60601-1/CANCSA 22.2 No. 61010-1

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE.

Tech Brief

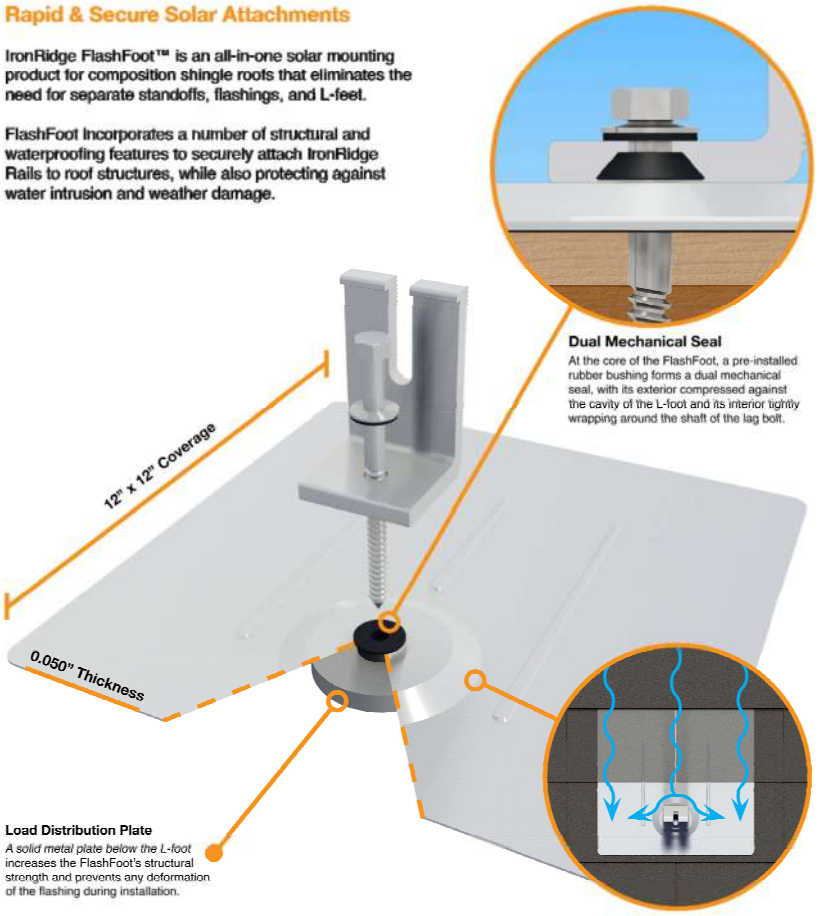
IRONRIDGE

FlashFoot™

Rapid & Secure Solar Attachments

IronRidge FlashFoot™ is an all-in-one solar mounting product for composition shingle roofs that eliminates the need for separate standoffs, flashings, and L-feet.

FlashFoot incorporates a number of structural and waterproofing features to securely attach IronRidge Rails to roof structures, while also protecting against water intrusion and weather damage.



Dual Mechanical Seal
At the core of the FlashFoot, a pre-installed rubber bushing forms a dual mechanical seal, with its exterior compressed against the cavity of the L-foot and its interior tightly wrapping around the shaft of the lag bolt.

Load Distribution Plate
A solid metal plate below the L-foot increases the FlashFoot's structural strength and prevents any deformation of the flashing during installation.

Water Shedding Design
A wide flashing layer combined with an elevated sealing platform maximizes the **FlashFoot's water shedding ability.**

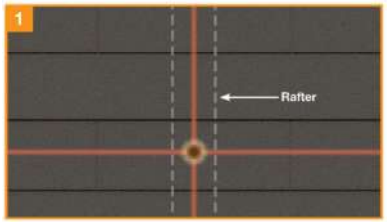
Certified compliant with IBC and IRC.

Tech Brief

Installation Overview

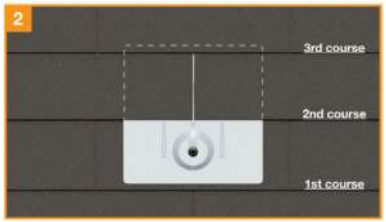
Tools Required: tape measure, chalk line, stud finder, roofing bar, caulking gun with an approved sealant, drill with 1/4" bit and 1/2" socket.

1



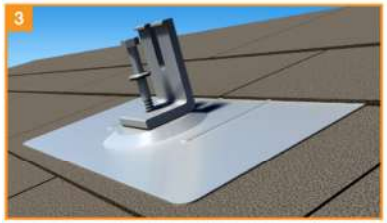
Locate rafters and snap vertical and horizontal lines to mark locations of flashings. Drill 1/4" pilot holes, then backfill with an approved sealant.

2



Slide flashing, between 1st and 2nd course, so the top is at least 3/4" above the edge of the 3rd course and the bottom is above the edge of the 1st course.

3



Line up pilot hole with flashing hole and insert lag bolt through bonded washer, L-Foot, and flashing. Tighten lag bolt until fully seated.

4

The FlashFoot is now installed and ready for IronRidge Rails. With provided L-foot fasteners pre-loaded into rails, drop rails into open L-foot slots.

Testing & Certification

FlashFoot is certified for compliance with the International Building Codes (IBC) & International Residential Codes (IRC) by IAPMO-ES. Mechanical testing conformed to the standard for Testing and Analysis of Joist Hangers and Miscellaneous Connectors (EC002-2011), and rain testing conformed to the Underwriters Laboratory Standard for Gas Vents (UL 441-96 Section 25).

Lag bolt pull-out (withdrawal) capacities (lbs) in typical roof lumber (ASD)	Specific Gravity	5/16" Shaft, 3" Thread Depth
Douglas Fir, Larch	.50	798
Douglas Fir, South	.46	705
Engelmann Spruce, Lodgepole Pine (MSR 1650 f & higher)	.46	705
Hem, Fir	.43	636
Hem, Fir (North)	.46	705
Southern Pine	.55	921
Spruce, Pine, Fir	.42	615
Spruce, Pine, Fir (E of 2 million psi and higher grades of MSR and MEL)	.50	798

MANUFACTURER SPEC SHEET – ATTACHMENT

DLS Development Inc.

2314 Castle Heights Ave.
Los Angeles, CA 90034 US
developmentdls@gmail.com

INVOICE

BILL TO

[redacted]
6944 Lena Ave.
West Hills, CA
USA

INVOICE	1027
DATE	11/19/2021
TERMS	Net 30
DUE DATE	12/19/2021

SERVICE	DESCRIPTION	QTY	RATE	AMOUNT
Roofing			18,500.00	18,500.00
Solar	6.8kw solar system		20,500.00	20,500.00
Battery	Battery Backup		13,500.00	13,500.00
Services	Project discount	1	-2,500.00	-2,500.00
Services	Credit Processing Fee	1	52.50	52.50

PAYMENT	48,500.00
BALANCE DUE	**$1,552.50**

Payment receipt

You paid $1,552.50

to DLS Development Inc. on May 31, 2022

Invoice no.	1027
Invoice amount	$50,052.50
Total	$1,552.50

Payment method	[redacted]
Authorization ID	MQ0095637997

Thank you

DLS DEVELOPMENT INC.

DLS Development Inc.

1 8188572124

developmentdls@gmail.com
2314 Castle Heights Ave., Los Angeles, CA 90034

Payment services brought to you by:
Intuit Payments Inc.
2700 Coast Avenue, Mountain View, CA 94043
Phone number 1-888-536-4801
NMLS

For more information about Intuit Payments' money transmission licenses, please visit https://www.intuit.com/legal/licenses/payment-licenses/.