

Contractor Technical Bulletin

Solar PV, April 2021



DOMESTIC SOLAR PV

Contractor Technical Bulletin

April 2021

Summary

Welcome to the April 2021 Solar PV Technical Bulletin. This document describes the common issues and reworks found during audit and inspection of installations by SEAI. SEAI recommends that registered companies and installers read the document and consider this with regard to their installations. If you have any specific question about this or another matter regarding your Solar PV Scheme installation, please contact us at solarpv@seai.ie.

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1. General Information

1.1 Grid Settings

All inverters and batteries must comply with EN50549 with Irish Protection Settings as per ESB Document DTIS-230206-BRL (Conditions Governing the Connection and Operation of Microgeneration). An update to this document is expected later this year.

1.2 Letter of Offer

The Letter of Offer must match the works completed. If the Letter of Offer does not match the works completed it is no longer possible to add a battery or solar PV system at a later date. The solar PV team can be contacted regarding changes BEFORE install.

1.3 Reworks - Homeowner Documentation.

As well as the documents submitted with the online application, the following documents should be provided to the homeowner and be available for a BER Assessor and an inspector if selected for an inspection;

Hardcopy, available at the PV system:

- Start-up/ Shut down (refer to Appendix 1 of the Company Guide for sample Shutdown/Startup document)
- Safety information for the PV system
- Safety Information for the Homeowner

Hard or soft copy:

- Datasheets for Solar PV Modules, Inverters, Mounting System and Battery Energy Storage System
- Warranties for Solar PV Modules, Inverters, Mounting System and Battery Energy Storage System
- O&M Manual for Homeowner
- Estimation of system performance calculated using common estimator tools
- Manufacturer/product details and datasheets

To reduce instances where paperwork is not available on site to our inspectors, a SharePoint has been set up for companies to upload a copy of the homeowner email with the required documentation attached. Our inspectors will have access to this on site and will accept it as evidence that the documents have been provided to the applicant. Please note the copy of the email uploaded must be the original email sent to the email address on the application dated prior to the date that the DOW was submitted. Failure to comply with the above instruction may lead to the inspector being unable to access the email and reworks being issued.

Please note this does not negate the need for a hardcopy of Start-up/ Shut down and safety information for the PV system to be provided to the Homeowner.

If you are interested in availing of this, please reply to solarpv@seaiauditing.ie with a list of email addresses which you want to have access to your own individual SharePoint subsite. All copies of homeowner emails must be saved as the application SPV number with no spaces e.g. SPV01212. This is an optional service and there will be no penalty for Contractor who choose to not engage however it is highly recommended.

For more information on documentation, please refer to the Solar PV Scheme Claims Portal Guide

1.4 Labels

All Safety and Information labels must be in place. The required safety labels are as follows:

- In ESB meter cabinet. Add locations of emergency switches.
- In/on consumer unit and all distribution boards. Add locations of emergency switches.
- At breakers in consumer unit and sub-boards
- At/on inverter AC Isolator

- At/on PV System DC Isolator
- At/on battery AC or DC Isolator
- On string inverters
- On automatic Isolator
- On all off-grid AC supplied boards and equipment
- At check meter
- At breakers in consumer unit and sub-boards

The image displays a comprehensive set of safety labels for solar photovoltaic (PV) systems. The labels are organized into several groups:

- Large Labels:**
 - Label No 1:** 'WARNING - DUAL SUPPLY' for Mains & Solar PV/Battery. It includes instructions: 'Do not work on AC supplied electrical equipment until isolated from both mains and inverter AC supplies' and 'Do not work on DC supplied electrical equipment until isolated from both AC and DC supplies'. It also lists 'Locations of emergency switches' for Mains AC, Inverter AC, Solar PV DC, and Battery DC supply.
 - Label No 2:** 'WARNING - DUAL SUPPLY' for Mains & Solar PV/Battery, similar to Label No 1 but for consumer unit and distribution boards.
 - Label No 3:** 'WARNING Off-Grid AC Supply' for off-grid AC supplied boards and equipment.
- Emergency Switch Labels:**
 - Label No 4:** 'Emergency switch AC supply to/from inverter'.
 - Label No 5:** 'Emergency switch Solar PV DC supply'.
 - Label No 6:** 'Emergency switch Supply to/from battery'.
 - Label No 7:** 'Emergency switch Supply to/from battery'.
 - Label No 8:** 'Emergency switch Inverter'.
 - Label No 9:** 'Emergency switch Automatic Switch'.
- Warning Labels:**
 - Label No 10:** 'WARNING High Voltage DC' for Grid AC Supply.
 - Label No 11:** 'WARNING High Voltage DC' for Inverter AC Supply.
 - Label No 12:** 'WARNING High Voltage DC' for PV System DC Isolator.
 - Label No 13:** 'WARNING High Voltage DC' for Battery AC Supply.
 - Label No 14:** 'WARNING High Voltage DC' for On string inverters.
 - Label No 15:** 'WARNING High Voltage DC' for On automatic isolator.
 - Label No 16:** 'WARNING High Voltage DC' for At check meter.
 - Label No 17:** 'WARNING High Voltage DC' for At breakers in consumer unit and sub-boards.
- Other Labels:**
 - Label No 18:** 'Solar PV Check Meter'.
 - Label No 19:** 'Battery AC Supply'.

Each label features a yellow triangular warning symbol with a lightning bolt and a red lightning bolt icon. The text is in black and red. A version number 'Version 1.2 - 12/12/2018' is printed at the bottom of the label set.

A template of the above labels can be obtained on the Domestic Solar Photovoltaic Code of Practice for Installers V1.3 at:

[SEI Report Template \(seai.ie\)](http://seai.ie)

1.5 Automatic Isolation

Automatic isolation of the circuit (shunt) must be within 1.5m of entry to the Building or 1.5m from Ground Mounted Array



2. FAQ's

Below are the most common questions from contractors and installers

2.1 Setback distance - what is the minimum set back distances for panels from the roof edge?

The PV modules must not overhang the edge of the roof at any point, must not extend within 500mm of the roof edge/perimeter. In addition, the panels must not extend within 200mm of the top of the ridge or be fixed at the ridge tile.

Wind load calculation must be provided to demonstrate the setback distance is sufficient to meet manufacturer's guidelines on roof mounting.

The above and below guidance does not supersede planning requirements, there can be specific requirements locally for example, such as near airports or architectural conservation areas, please consult with the local authority before proceeding with installation.

The following diagrams fig 1, and fig2 is indicative of the above guidance

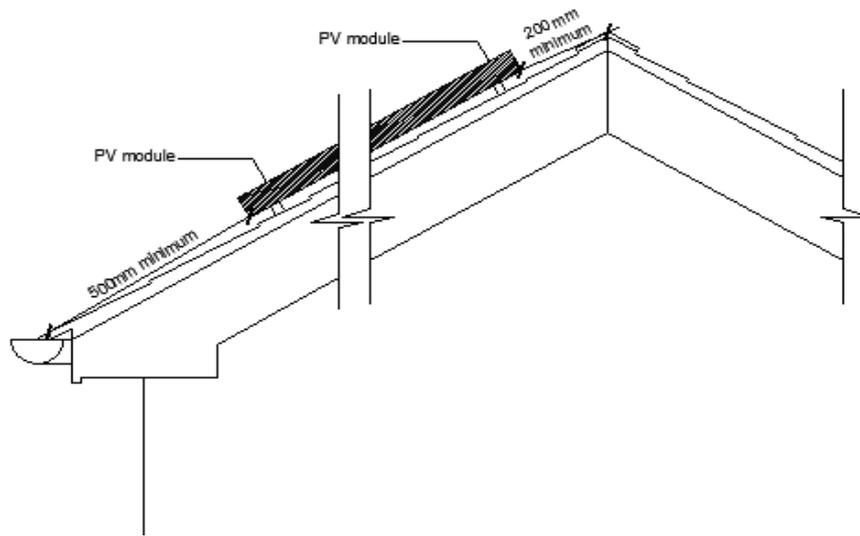


Fig. 1

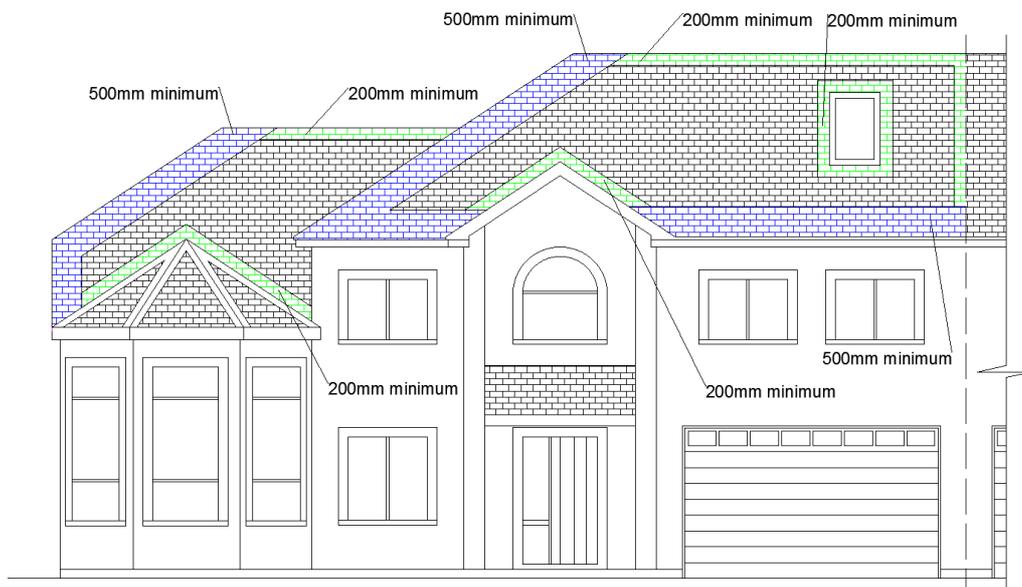


Fig.2

2.2 How long do I have to return reworks?

The Reworks Declaration form that is sent to both the Contractor and Homeowner states:

'Within four weeks of the date of this email, you must return the Re-work Declaration Form (below) with photographs, signed by you and the Homeowner, confirming that the non-compliance(s) have been rectified.'

Any contractor who has not sent back all required evidence of a rework within this period runs the risk of De Registration from the Solar PV Contractors list. If you have a query related to reworks, please email solarpv@seaiauditing.ie or ring 012776977

All Rework Declaration forms must be signed by the Registered Installer who completed the reworks.

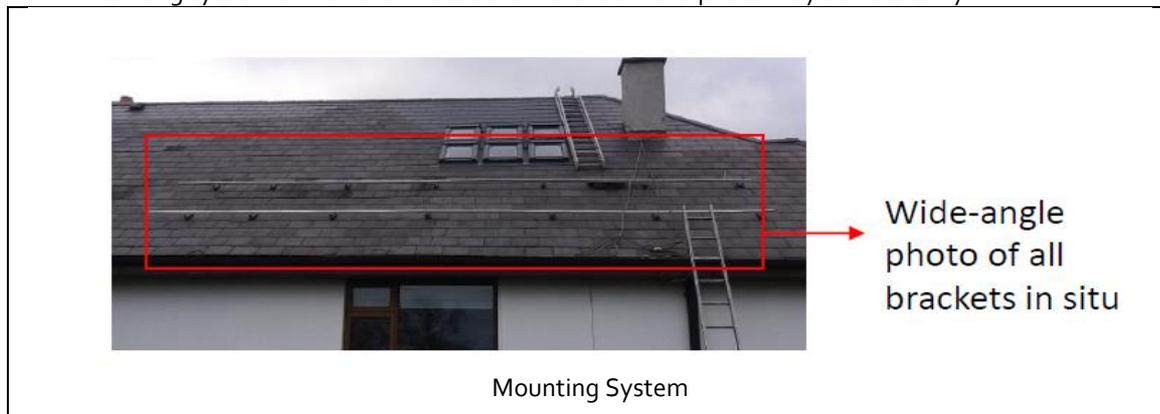
2.3 What is a Desktop Audit and what photos will I need to provide?

As part of SEAI's ongoing Quality Assurance programme desktop audits have been introduced to complement site inspections. Desktop Audits will be assigned on a risk-based system where companies with high level of compliant site inspections may have some of their applications audited through a desktop audit reducing the number of site inspections. Desktop audits will reduce waiting times for grant payments. If issues are found in a desktop audit this may trigger a site inspection.

To facilitate the desktop audit process, additional photos are required to allow confidence in the installation in lieu of a site inspection. The additional photos that are required are:

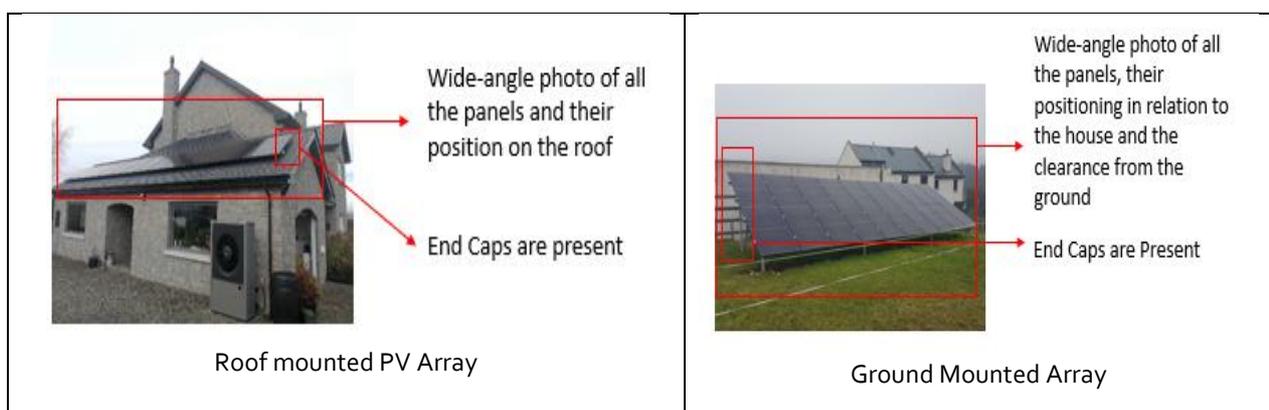
a) Mounting system as installed

If mounting system is in different locations more than one photo may be necessary

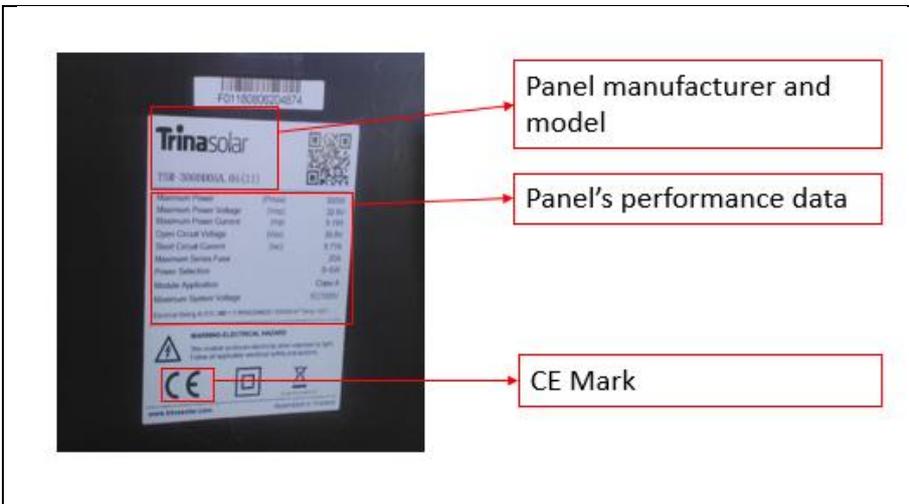


b) PV Module Array as installed

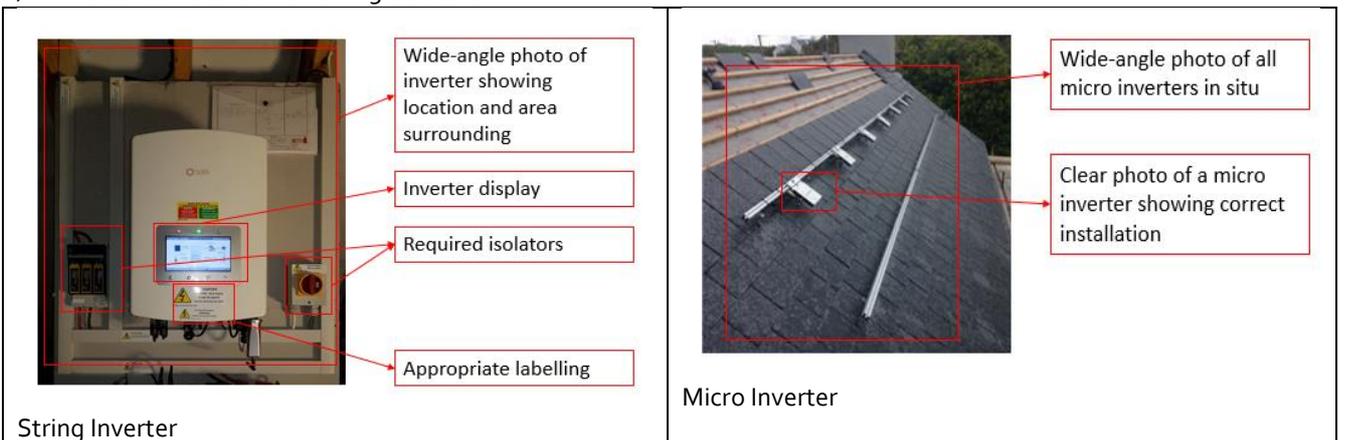
If panels are in different locations more than one photo may be necessary



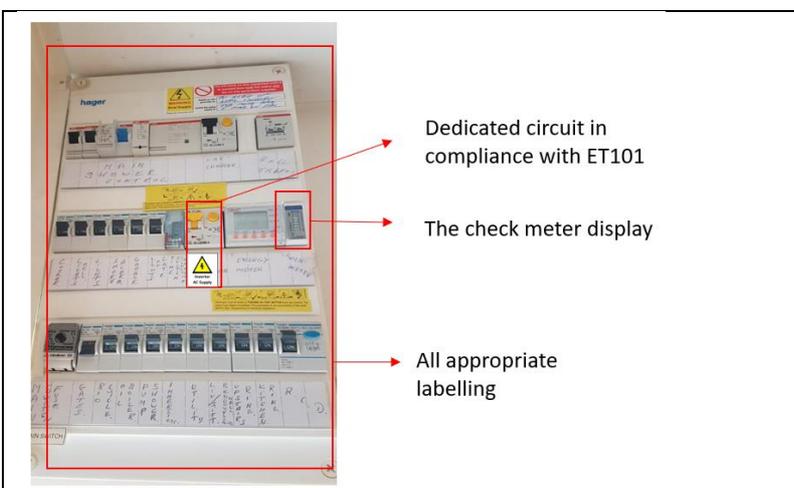
c) PV Module Nameplate



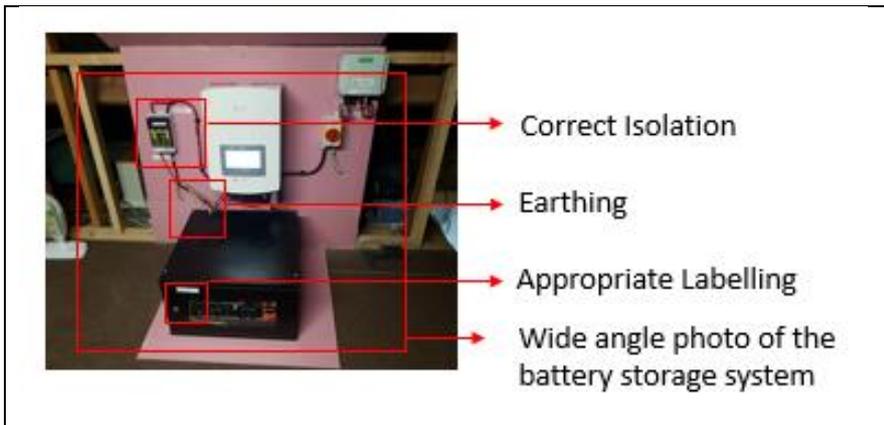
d) Inverter as installed – showing isolators



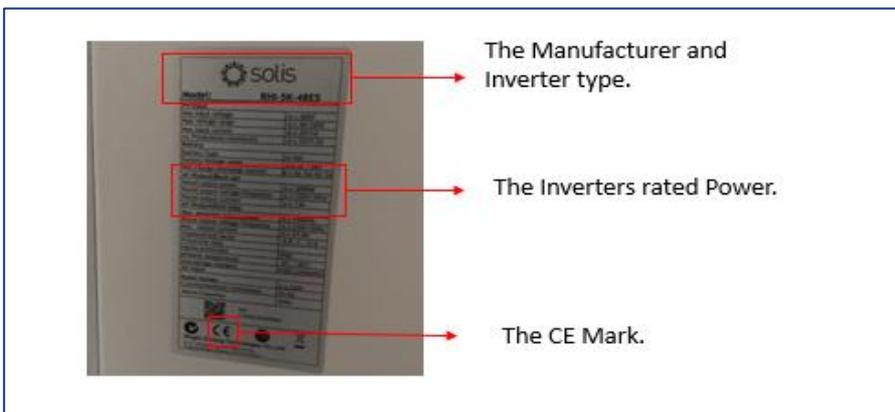
e) Consumer unit with Solar PV MCB/RCD and Solar PV Meter



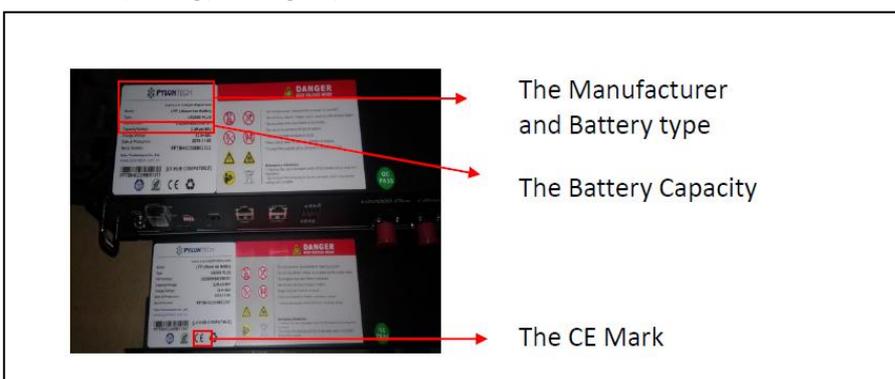
f) Battery Energy Storage System as installed (IF APPLICABLE)



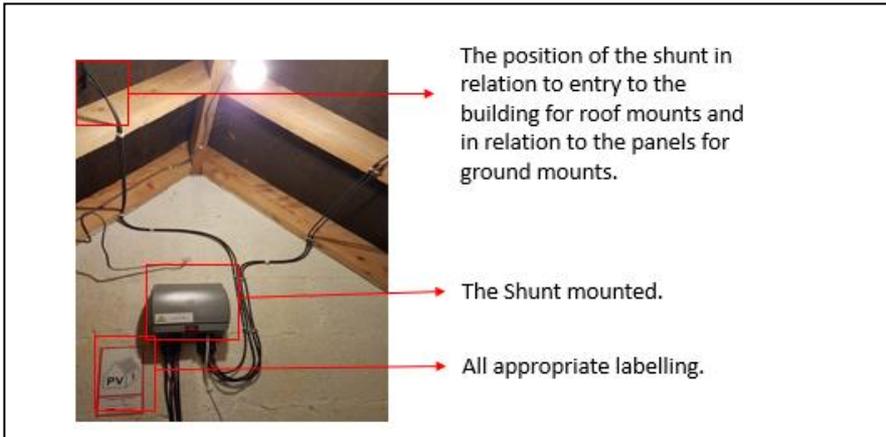
g) Inverter data label



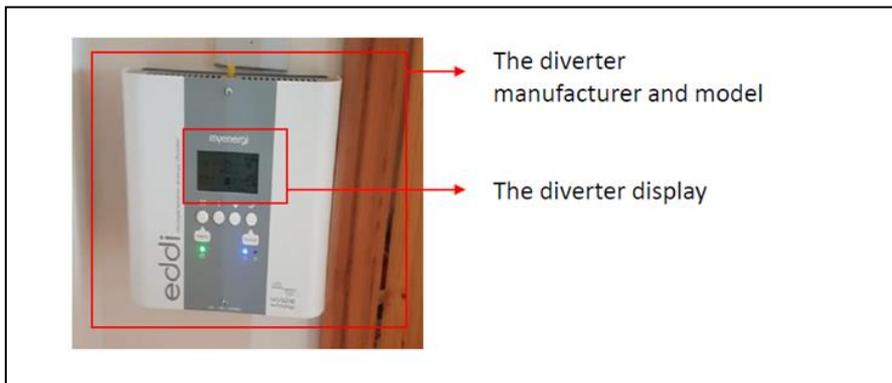
h) Battery Energy Storage System data label (IF APPLICABLE)



i) Shunt Switch as Installed - Showing cable entry



j) Power Diverter as installed (IF APPLICABLE)



3. What Good Looks Like

3.1 Be Switched on to installing batteries.

All Battery systems should be installed in a suitable enclosure fixed in place on a fire-resistant surface or substrate (Class o) which extends 150mm beyond the edge of the system. Battery systems should be 150mm from all combustible materials.



Battery is installed in a suitable enclosure fixed in place on a fire-resistant surface or substrate (Class o) which extends 150mm beyond the edge of the system.

Battery is installed on a combustible material and is not fixed in place.

3.2 Be Switched On to installing Safety labels:

A dual supply warning and emergency switches label is required in/on consumer unit and all distribution boards. Add locations of emergency switches. A template and list of all required labels can be obtained on the Domestic Solar Photovoltaic Code of Practice for Installers V1.3 (<https://www.seai.ie/publications/Code-of-Practice-Solar-PV-Grant.pdf>)



Fuseboard has dual supply warning label with emergency switches clearly labelled. Dual supply and emergency switches label must be present on all distribution boards.



No Dual supply warning label on fuseboard. Inadequate labelling may create a safety issue for the homeowner or future installers.

3.3 What Grid Protection Settings should be set on Inverters?

All Inverters and batteries must comply with EN50549 with Irish Protection Settings as per ESB Document DTIS-230206-BRL (Conditions Governing the Connection and Operation of Microgeneration). An update to this document is expected later this year.



Grid Protection settings on Inverter set per DTIS-230206-BRL.



Grid settings set to IEC61727 rather than Irish Grid Protection settings.

3.4 Hot Water Diverter Most Common Reworks:



Diverter is commissioned. The time and date have been set on the unit.



Diverter is not commissioned as the time and date has not been set.

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