

Quick guide to the heat pump system requirements for registered contractors

The following quick guide will help you to fulfil the Quality Assurance requirements for the Heat Pump System measures. Please note that all the DHW requirements do not apply to Ait-to-air heat pump systems:

1. Please read and be familiar with the **technical specifications, standards and guidelines** in the relevant sections of the [Code of Practice](#) document:
 - **Sections 1-6** contain general contractor, product and installation requirements, code of conduct, H&S, ventilation and planning requirements
 - **Section 7.9** specifies the requirements for heat pump systems’ installers, products and installations

The draft HPAI Installation guidelines, developed by the Heat Pump Association of Ireland, contain important technical guidance for the installation of heat pump systems and are now available on the Contractor support page of the SEAI website.

2. **Product requirements:** we are not currently requiring the heat pump units to be listed on HARP or Triple E, as we are in the process of updating these lists. From January 2019 there will be a requirement for the heat pump units to be listed. In the meantime, product requirements are as described in section 7.9 of the Code of Practice:
 - Be electrically driven (gas-driven heat pumps are excluded)
 - Fully comply with the EU Energy Label and Ecodesign regulations
 - Provide the data required for the purpose of the Domestic BER assessment (Ecodesign datasheets). These must be based on EN14825 and EN16147 testing standards
 - Be CE marked and have the EC declaration of conformity
 - Satisfy the following minimum Ecodesign efficiency requirements **and** minimum Seasonal Performance Factor as per DEAP methodology as specified in the table:

Heat Pump type	Space Heating			DHW	
	Ecodesign η_s (55°C)[%]	SCOP/A	DEAP Main Space Heating	Ecodesign η_{wh} [%]	DEAP Main Water Heating Efficiency [%]
Air to Water	125	N/A	350	72	180
Ground to water	125	N/A	350	72	180
Exhaust Air to Water	125	N/A	350	72	180
Water to Water	125	N/A	350	72	180
Air to Air	N/A	3.5	350	N/A	N/A

- Minimum requirements apply to the hot water production and storage, and to heating controls. See below and in relevant sections of the [Code of Practice](#) document.

3. **Design and installation requirements:** The registered contractor is responsible for the design of the whole heat pump system, including the heat emitters, pipework, and hot water part, as applicable. The

heat loss and heat output calculations must be carried out to ensure that the pipework and heat emitters can deliver the heat demand. The “Heating Design” tab in the [Heat Pump Designer Installer Sign Off Sheet](#) must be completed and must demonstrate that the “Total Output” is greater than the “Total Heat Loss”. If existing pipework and heat emitters are re-used, the contractor must equally demonstrate this. Guidance on how to estimate the heat output for existing radiators is included in the “Guidance” tab of this spreadsheet.

Contractors must read and be familiar with the 18 points (letters “a” to “r”) in section 7.9.3 “Product and installation requirements” in the [Code of Practice](#) document. Some of the main points are reported here:

- List of relevant Standards and Guidance documents (see section 7.9.4 in the [Code of Practice](#))
- Contractors shall make their customers aware of all potential permissions and approvals required, as well as the suitability of the site/home before proceeding with works.
- Design, sizing and installation should be such that the heat pump system is capable to provide at least 100% of the designed space heating requirements, and most of the DHW demand (80% as indicative figure).
- Oversizing of the heat pump system or any components should be avoided.
- The design and sizing details of the heat distribution system, as installed, must be included in the Designer/Installer spreadsheet.
- Heat pump systems may include a combination of heat pump units. In cases where a heat pump system includes more than one type of heat pump, this needs to be explained in the Comment box provided in the Declaration of Works form. More information on this are available in the [Code of Practice](#) document.
- Where existing heat sources are maintained (e.g. boilers), they shall be only used as backup. If a boiler and a heat pump are connected to the same distribution system, the pipework and controls must be configured so that the systems operate safely and efficiently.
- Heat pump installations must not be used for cooling purposes. The cooling function must be locked and not available from the user controls.
- Heating Controls must include the items listed in the table at point “g” in section 7.9.3 “Product and installation requirements” in the [Code of Practice](#) document.
- The Hot Water Cylinder must meet the heat pump manufacturer’s requirements and the HPAI installation guidelines, with particular attention to the size of the heat exchanger and insulation. The minimum insulation requirement is 50mm of factory-applied insulation. The Hot Water Cylinder must be located within the thermal envelope of the dwelling.
- The system must be capable to operate at temperatures preventing growth of legionella and must be set up to do so at commissioning.
- The location must follow the manufacturer’s instructions and guidance, be agreed with the homeowner, avoid nuisance to sleeping areas and neighbours, be in accordance with applicable regulations and planning requirements, allow the system to be safely maintained.
- Full detailed documentation of Ground and Water collector design and installation must be provided to the homeowner.
- Minimum length of guarantee apply for the whole heat pump system.
- Cleansing and pressure testing of the heat distribution system should be carried out as required and in accordance with the draft NSAI SR 50 and BS 7593 “Code of practice for treatment of water in domestic hot water central heating systems”.

- Commissioning must be based on both the manufacturer’s instructions and on the design specifications. All performance and design parameters must be achieved in accordance to these specifications. The commissioning report shall contain all the relevant parameters and checklists required to confirm that the heat pump system has been installed and set up to function according to the design objectives and Better Energy Homes specifications. A list of the installer settings shall be provided to the homeowner for future reference.
- F-Gas regulations must be complied with.
- The homeowner shall be instructed on how to correctly use the controls and operate the heat pump system. Maintenance requirements and schedules shall also be explained to the homeowner. r. Where applicable, homeowner must be made aware of obligations under the F-Gas regulations.

4. Electrical works requirements: It is a requirement that all the grant works comply with the ETCI National Wiring Rules for Electrical Installations (ET101). In particular, we would like to remind you of the following points:

- A Registered Electrical Contractor (REC) must sign-off the installation and complete the RECI certificate, which must be left with the homeowner.
- Installation of heat pump units may require upgrade of the connection to the electricity network. Please check this before starting works and make the homeowner aware of the requirement. [See information from ESB Networks.](#)
- Earthing and Bonding must be in accordance with ETCI 101:2008 Chapter 54 (544 Equipotential bonding conductors).
- Annex 63B (Guidelines for certification for alterations to existing installations) must be followed as required.

5. Customer care and information to homeowners: Making sure that the homeowners are informed on how to operate the system in an efficient and effective manner is critical for the success of heat pump installations. In particular, we would like to remind you that when engaging to carry out grant installations you will need to inform the homeowner on the following:

Before works are started:

- Fully inform the homeowner on the features of the heat pump system you propose to install and on the extent of works required, including any additional works required to satisfy the grant requirements (e.g. electrical works, replacement of pipework and/or heat emitters)
- Provide the homeowner with a written quotation for the heat pump systems including details of the system design specifications and terms and conditions.
- The prior agreement with the homeowner must include: cost of any additional works (e.g. upgrade of electrical connection, other electrical works, earthing, wiring necessary to satisfy ETCI rules and to obtain RECI certification), costs for required maintenance schedules, service agreements & spares, particularly when the guarantees are dependent on these, cost of obligations under the F-Gas regulations for the equipment to be installed.

At work completion (after commissioning):

- Explain to the homeowner how to best use the heat pump system and controls so that it will operate efficiently and be effective at heating the home and provide the hot water required.
 - Leave the homeowner a User manual for the system that they can refer to as needed.
6. In order to proceed with grant payment, and pass any inspection, there are **documentation requirements** to be met. We recommend that contractors leave all the documents required with the homeowner after work completion. A suggestion is that all the paperwork should be given to the homeowner in a folder. This is a summary of the documentation required after works are completed, and we would suggest to use this as a checklist:
- Declaration of Works form completed and signed in all relevant parts
 - Printed Ecodesign datasheet (max 5 pages), in 2 copies: one copy to be sent with the DOW, one copy to be kept by the homeowner and available at inspection
 - Completed and printed Designer/Installer spreadsheet as per template available from the [SEAI Contractor Supports Web page](#), including the DHW and Heat distribution design and specifications (radiator, underfloor sizing, air-to-air) in 2 copies: one copy to be sent with the DOW, one copy to be kept by the homeowner and available at inspection
 - Commissioning certificate completed in all relevant parts
 - RECI certificate, completed in all relevant parts, as required by RECI
 - Details of F-Gas Certified engineer and sign-off or log where required
 - Where applicable, documentation of Ground and Water collector design and installation
 - User and Installation Manuals
7. Installation of Heat Pump measures is subject to inspection. Our “Quality Assurance and Disciplinary Procedures”(QADP) document contains the **checklist used by our inspectors**. Please use this list to ensure all requirements are met at work completion (before signing the Declaration of Works form). Inspectors also check that the relevant documentation has been left with the homeowner.