

# Home Energy Grants: Technical Bulletin

Installation Guidance for Heat Pump Systems Series 2021-11-001 HP

# Guidance on Designer/Installer Sign-Off Form v5.3.1

One of the salient provisions of the new version of the Designer/Installer Sign-off Form (v5.3.1) is the additional calculation tab, 'Radiator Output Conversion'. This must be completed where the designer has used a non-default flow temperature (°C) in the heating design i.e. where the  $\Delta T_{design}$  is not taken directly from the manufacturer's specifications (brochure). The designer must demonstrate how they calculated the specified heat output data and provide documentary evidence.

### Document overview

The new version of the Designer/Installer Sign-off Form v5.3.1 has five (5) tabs, namely:

1. Tab 1 Designer/Installer Sign-off

Information must represent the dwelling as constructed for new Heat pump installation.

- 1.1 General information Address must clearly identify the dwelling.
- 1.2 Purpose of installation Indicate if the Heat Pump system is providing space and/or water heating.
- 1.3 Heat pump selection Manufacturer, model, and type of Heat Pump (up to 3 Heat pumps). Specify the Temperature (°C ) leaving the Heat Pump for water and space heating. Specify if space heating is provided by a low temperature and/or gas-fired Heat Pump.
- 1.4 Heat emitter design Emitter type, i.e., radiator, fan coil units, underfloor, and warm air. Temperature (°C) of water leaving the Heat Pump system.
- 1.5 Hot water system Maximum flow temperature (°C ) of Heat Pump. Manufacturer, model, and type of domestic hot water (DHW) storage. Indicate if immersion is present.
- 1.6 Confirmation If the Heat Pump installation is being grant aided, this section needs to be completed by the SEAI registered contractor who installed the Heat Pump system. Complete with Name, Company, Email, Job Title, Signature, and Date.
- 2. Tab 2 <u>Heating Design</u>

Indicate the room heat loss (Watts), emitter details including emitter output at  $\Delta T_{design}$  and total heat emitter output (Watts), the design room temperature (°C), area of dwelling (m<sup>2</sup>), and the Heat Pump output (kW) at design conditions.

- 3. Tab 3 <u>Radiator Output Conversion</u> Required where a non-default flow temperature is used in the design and the radiator outputs specified in the Heating Design Sheet are not taken directly from the manufacturer's brochure.
- 4. Tab 4 <u>BER Checklist</u> Checklist for BER assessors.
- 5. Tab 5 BER + Heat pump Grant Checklist

If the Heat Pump installation is being grant aided, this section needs to be completed by the SEAI registered contractor who installed the Heat Pump system.

|  |   | se  | al SUSTAINABLE<br>ENERGY AUTHOR IRELAND | IORITY       |
|--|---|---|---|--------------|
| nformation must represent the dwelling as constructed for new final an<br>Jpdated Q3 2020 to facilitate new heat pump types (DX, GAHP, Low terr<br>Jways complete "Heat pump#1" column below. Please complete Heat | d existing BERs and the dwelling design plans<br>perature etc as well as group and multiple he<br>Pump#2 and Heat Pump #3 as required whe | for new-provisional BERs.<br>at pump scenarios)<br>re multiple heat pumps serve the dwelling. |   |              |
| 1. General information   |   |   |   |              |
| Address of installation:   |   |   |   |              |
| MPRN Number:   |   |   |   |              |
| Eircode:   |   |   |   |              |
| BER Number:  |   |   |   |              |
|  |   |   |   |              |
| 2. Purpose of installation   |   | Heat pump #1  | Heat pump #2                            | Heat pump #3 |
| Does the installation provide space heating?   | Tick applicable boxes   |   | •                                       | •            |
| Does the installation provide water heating?   | Tick applicable boxes   |   |   | D            |
| If heat pump(s) provide space and water heating, are they 2  | Tot and facility haven  | 0   |   |              |

Figure 1: Designer/Installer Sign-Off Form v5.3.1

# Other important guidance for Heat Pump installation

# 1. SEAI Heat pump documentation Requirements

The absence of heat pump documentation is responsible for a significant number of inspection failures and reworks. This can result in unnecessary long delays to grant payments and contractor reworks.

Contractors must ensure homeowners are supplied with all required signed heat pump documents. These should be shared with the homeowner on completion of works.

Homeowner Documentation :

- 1. The homeowner must be provided with the following design documents for submission with the Declaration of Works (DOW):
  - Ecodesign datasheets;
  - Designer/Installer form.
- 2. The homeowner must also be provided with the following documentation:
  - Register of Electrical Contractors Ireland (RECI) Certificate
  - Heat Pump Commissioning Certificate
  - User Manual
  - F-Gas Certificate (if applicable)
  - Ground and water collector design (if applicable)

The contractor can provide these documents to the Homeowner by email.

| SAFE Nat<br>Completion   | ional Rules for Electri<br>etion Certificate for Es<br>common as used to certain A common  | cal Installations<br>isting Installation   |   |  |
|--|--|--|---|--|
| This certificate must  | be returned to your \$558 and accomp   | anied by a completed Test Reco   | rd Sheet  |  |
| MPRN No:<br>(f'applicable)<br>CUSTOMER NAME (Block Capitale)   |  | Serial   | Number: 0000000   |  |
| ADDRESS OF INSTALLATION (Block Capitals)   |  |  |   |  |
| Installation Type: Controlled W<br>Nesse tick () as appropriate, see Chapter   | orks Minor Works<br>63 & Annex 638   | Test (only) of th  | e existing installation   |  |
| Premises Description (e.g. Commercial, D   | omestic, Agricultural, etc.)   |  |   |  |
| Details of what this cert covers:  | Date of Installation   |  |   |  |
| Number of : Lighting Points  | Socket Outlets   | Fixed Applianc   | e Outlets   |  |
| TEST RESULTS<br>POLARITY AND EAF<br>OUTLETS VERHED (3 1  | RTHING OF ALL OUTLETS  | MAIN EQUIPOTENTIA<br>BONDING VERIFIED FOR  | Tick of 3 bases YES N/A<br>GAS<br>WATER   |  |
| Ancord the solve<br>datalend in<br>rober 2 or 2<br>MINIMUM INSULATION RESISTANCE OF<br>MINIMUM INSULATION RESISTANCE   | PHASE AND PROFECTIVE CONDUCTOR (No<br>MOTECTIVE CONDUCTOR No<br>MO   |  | OTHER (Specify)   |  |
| MAX FAULT LOOP<br>IMPEDANCE 0<br>OPENATION OF ALL<br>INCES VERIFIED (bok) 0f th  | RATING & THE OF<br>PROFECTIVE DEVIC<br>Of to value<br>ERCD (mA) Max Tri<br>mA Max Tri  | p Time of RCD 1 x lan  | mS<br>mS  |  |
| DETAILS OF TESTS ARE OWEN IN TEST  | PECOND SHEET NO  | _  |   |  |
| CERTIFICATION  |  |  |   |  |
| I certify that the installation work detailed at the<br>in accordance with the National Roles for Electric<br>been found to be patisfactory. Additional circuit<br>alkel be submitted to the \$558.  | above address has been contracted, and<br>cal leatalizations (current insee at date of or<br>s do not impair the safety of the existing in<br>the contract of the safety of the existing in<br>the contract of the safety of the existing in<br>the contract of the safety of the existing in<br>the safety of the safety of the safety of the existing in<br>the safety of the safety of the safety of the existing in<br>the safety of the safety of the safety of the existing in<br>the safety of the safety of the safety of the existing in<br>the safety of the safety of the safety of the safety of the existing in<br>the safety of the safety | for pre-energization and post-energi<br>stract) published by the Electro-Teo<br>statistice, the certificate and the te | partices backs have been corried out,<br>braical Council of Instand, and has<br>at record sheets associated with it |  |
| INE & POST-ENEROISATION TESTS  | 100  | REDISTORED ELECTRICAL CONTRACTOR (Block Capitals)  |   |  |
| Signed   | Tester Add   | *C10   |   |  |
| Qualification  | tiller's for   | gistration Number  |   |  |
| NOTE: This constitute is issued and signed by the<br>This Document is a conflicted for the propose of the Ex-<br>CER, the Electric Technical Cauncel of Aviend on the Page<br>conflicted. Interduction instantions chosed is in imparted p | person responsible for the new/additional<br>rays (Mouthmens Previoord Act 2006,<br>altern Budy are not responsible for the electrics<br>electrics   | inselfication of electrical work or<br>Installation or for the accuracy of the h                                       | a person dely authorised.<br>durmative piwe an this   |  |

<form>

Figure 3: Commission Certificate

Figure 2: RECI Certificate

#### 2. Heat pump unit installation

Heat Pump must be installed vertically onto a level concrete pad of sufficient load bearing capacity.



Figure 4: Heat Pump Unit not level

The heat pump shown in Figure 4 above is not level. The distance at the bottom of the unit (with respect to the dwelling's wall) must be equal to the distance at the top to ensure vertical installation - see figures 5 and 6 below.



Figure 5: Top of unit measured 43cm from wall



Figure 6: Bottom of unit measured 40cm from wall

#### 3. Heat pump fittings

All fixings of Heat Pump cover must be in-place and properly tightened. Loose fittings may cause excessive noise due to vibration and result in inspection failure.



Figure 7: Loose side cover



Figure 8: Screw missing from top cover

## 4. Pipework

Refrigerant circuit copper pipelines must be fully insulated including the union on top of the unit. All major metal pipes must be bonded together via 10mm<sup>2</sup> ground wire (yellow with green stripe insulation) and be connected to a common ground rod or to the nearest metal water pipeline or utility's ground line.



Pipe insulation (white) partially covered the refrigerant copper pipe works.

Figure 9: Incomplete pipe insulation and bonding

Figure 9 above shows incomplete refrigerant pipe insulation and incomplete ground wire bonding to all major metal pipelines. No common ground wire connected to earth via ground rod of metal water pipe.



Figure 10: Correct installation

Figure 10 above shows pipe insulation (white) covering all refrigerant circuit pipe works and all major metal pipelines fully grounded.

Completed pipe insulation (white) covers the entire refrigerant copper pipe works including union on top of the unit.

Completed ground wire connection with proper metal connectors.

w: www.seai.ie e: info@seai.ie t: 01 8082100







**Rialtas na hÉireann** Government of Ireland