SUSTAINABLE ENERGY AUTHORITY OF IRELAND

Better Energy Homes

Quality Assurance and Disciplinary Procedures for Contractors

Version 5.4 2019

INTRODUCTION

By carrying out energy efficient upgrades in Irish homes, you are playing a vital role in helping Ireland to reduce its greenhouse gas emissions.

Ireland and the European Union are working towards a set of goals for 2020, 2030 and 2050. The aim is to make the energy usage in the EU largely carbon free by 2050.To achieve this, a number of goals have been agreed such as the reduction in greenhouse gases by 20% in 2020, compared with 1990 levels and to improve energy efficiency by 20%.

The quality of service delivery by Contractors registered on the Better Energy Homes Contractor Register is central to the reputation and effectiveness of the delivery of all domestic energy efficient works carried out under SEAI's Programmes. This is for the purpose of achieving energy savings for home owners and value for public monies. That quality of service has two key dimensions: competence and compliance.

A primary element of the Quality Assurance and Disciplinary Procedures is the performance monitoring and evaluation procedure which is applicable to findings of administrative and/or technical non-compliance with the Better Energy Homes Terms and Conditions, SEAI's Domestic Technical Standards and Specifications and the Better Energy Homes Contractor's Code of Practice.

Summary of Quality Assurance and Disciplinary Procedures (QADP) revisions

Version	Date	Changes to previous version
5.4	**February 2019**	• Aligns QADP with the new Domestic Technical Standards and Specifications Version 1 and the Better Energy Homes Contractor's Code of Practice Version 1.
5.3	**January 2019**	• Addition of a summary of revisions; • Update of links no longer relevant; • Changes to some items on the checklists (Appendix 2); and • Update to the requirement for contractor to complete a minimum number of grant related works to remain registered;
5.2	**April 2018**	• Some revisions to the text ; • Inclusion of text and checklist for heat pump installations; • Revision of the non-compliances checklist contained in Appendix 2- Checklists for Energy Efficient Upgrade works and of the list of non-compliances in Appendix 1 – Corrective Action for Non Compliance; and • Change to the time period allowed to appeal reworks after notification.
5.1 (draft only)		N/A
5.0	**2017**	• Some revisions to the text; • Revisions to the non-compliances checklist contained in appendices 2 and 3; and • Aligns the QADP with the Better Energy Code of Practice and the Technical Specification Version 7.2

Note: SEAI no longer accepts applications for grants for the installation of High Efficiency Boilers (both gas and oil) as of the 15th January 2018. Any applications received before this date are processed according to the current Programme rules.

Important points for Contractors operating under SEAI Programmes

- This document outlines the key elements and processes of the Quality Assurance and Disciplinary Procedures (QADP) for Better Energy Homes Contractors. All registered Contractors must ensure that they and their operators are fully familiar with the Quality Assurance and Disciplinary Procedures set out therein.
- Contractors operating under the Better Energy Warmer Homes Programme, Better Energy Finance Programme, Better Energy Communities Programme and Better Energy Partners must be registered on the Better Energy Homes Contractors register. This entails signing up to the SEAI's Domestic Technical Standards and Specifications, the Better Energy Homes Contractor's Code of Practice and the Better Energy Homes Quality Assurance and Disciplinary Procedures for Contractors.
- The Better Energy Warmer Homes Programme has a different Contractor Scorecard system. Contractors on the Better Energy Warmer Homes panel should refer to their contracts for further details.
- Contractors deregistered as a result of works carried out under a specific Better Energy Programme are prohibited from carrying out works under other Better Energy Programmes. It is the registered contractor's responsibility to inform their clients of any such disciplinary measures. Where a contractor is de-registered as a result of inspection on a particular measure(s), they are automatically prohibited and de-registered from all other programmes and measures.

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1. Quality Assurance System

1.1 System Overview

Within the Better Energy Programmes, the overall approach by SEAI to the Quality Assurance of Better Energy Registered Contractors consists of a combination of:

- Enforcement of the SEAI's Domestic Technical Standards and Specifications (DTSS) and the Better Energy Homes Contractor's Code of Practice through frequent audits (inspections),
- Enforcement of the terms and conditions of the programme via desk audits and administration checks.
- Promoting best practice and professional development of Quality Assurance of Better Energy Homes Contractor

In order for a contractor to properly operate within the Better Energy Programmes it is essential that they have read, understood, signed up to and strictly adhere to their obligations contained within:

- The Better Energy Homes Contractor Registration Form;
- The SEAI's Domestic Technical Standards and Specifications;
- The Better Energy Homes Contractor's Code of Practice;
- The Better Energy Quality Assurance and Disciplinary Procedure (this document);
- All technical documentation as published on the Contractor Supports page on the SEAI Website; and
- All relevant technical documentation and notifications as SEAI may issue from time to time.

Note: It is the version published on the web which is deemed to be currently applicable.

In addition to the above, Standard Recommendation S.R.54:2014: "Code of practice for the energy efficient retrofit of dwellings" has been developed by State Agencies and National Standards Authority of Ireland in conjunction with the Building Research Establishment to provide guidance on the energy efficient retrofit of dwellings. Better Energy Contractors are asked to familiarise themselves with this standard and put its recommendations into practice. A link to this document can be found here: http://www.standards.ie/cgi-bin/news/ie/NEW276

Works completed must be commissioned by "nominated personnel" and the Declaration of Works must be signed by that person to ensure that the work meets the required standard.

The QADP document sets out the approach to detecting and scaling non compliances and the disciplinary action arising out of failure to meet the requirements of the Better Energy Homes programme and / or to adhere to the terms and conditions.

SEAI shall use all means at its disposal to ensure quality and compliance issues are identified and remedied. This includes, but is not restricted to, property audits, Contractor and homeowner phone audits, complaints investigation etc.

1.2 Audit Process and Technical Non Compliances

Audits, inspections and on-going continuous improvement are the main tools through which the Quality Assurance of the works and competency/compliance of Better Energy Homes registered Contractors is achieved. The aim of the Better Energy Homes Audit Process is to identify technical faults in a timely manner so that:

- Any technical errors identified can be corrected via reworks by the responsible Contractor;
- Such errors are avoided in future through feedback directly to the Better Energy Contractor concerned as appropriate through the relevant communication channels to continuously improve the service ; and
- Such errors are avoided in future through disciplinary sanctions as appropriate.

The audit process involves planning, co-ordinating, conducting of audits, reporting and acting on the findings. The selection of Better Energy Contractor/homes for an audit is carried out on both a random and a targeted basis. Selection of a Better Energy Contractor for audit should not be interpreted as there being any prior presumption by SEAI of there being error / non-compliance on the part of the Better Energy Contractor concerned. Each and every active Contractor can expect to be audited regularly.

1.3 Administrative Non Compliances

The continued efficient administration of the scheme requires contractors to fulfil their obligations in respect of registration and installation documentation. In the course of routine grant administration and auditing SEAI may become aware of cases where installers are not fully compliant with the scheme Terms and Conditions or aspects of SEAI's Domestic Technical Standards and Specifications (DTSS) and the Better Energy Homes Contractor's Code of Practice, other than specific technical issues previously referenced in Section 1.2.

In instances where these Administrative Non Compliances are deemed serious, they may result in sanctions being applied under the scheme Quality Assurance and Disciplinary Procedures, emphasising the importance of maintaining professional administration and customer service at all times.

Where insurance or eTax expires, the CO shall be automatically deregistered. The CO is obliged to update their records in order to be reregistered. No penalty points are applied for this.

Administrative Non Compliances are set out in Appendix 1 – Corrective Action for Non Compliance to this document. (SEAI retains the right to add to / amend this appendix as required to maintain the integrity of the scheme).

1.4 Classification System for Audit Findings of Technical Non Compliances

An audit finding of non-compliance may arise from a technical error or non-compliance with the SEAI's Domestic Technical Standards and Specifications, the Better Energy Homes Contractor's Code of Practice or the Contractor Registration terms and conditions.

Each non-compliance is assigned a severity rating and penalty points are assigned to each severity rating for the purpose of evaluating a contractor's performance in accordance with SEAI's evaluation method.

The severity ratings of Non Compliances are defined as follows:

Severity Rating	Severity 1	Severity 2	Severity 3
Classification	Possible health and safety risk or highly non-compliant, potential to impede payment.	Potential to compromise the effectiveness of the installation, potential to delay payment. Not to standard.	Not best practice
Rework Requirement	Reworks required	Reworks required	Reworks required
Penalty Points Applicable	3 penalty points	2 penalty points	1 penalty point

Technical Non Compliances are contained in Appendix 2- Checklists for Energy Efficient Upgrade works. SEAI retains the right to add to/amend these appendices as required to maintain the integrity of the Programme.

1.5 Response Time to Rework Requirement Notifications

The allowable period for Contractor reworks to take place is determined by the severity level discovered at the time of audit. All reworks instructions must be responded to within the timeframe indicated (varies depending on severity).

- ***Severity 1:*** Contractor is notified within 1 week of audit and he / she must undertake reworks and submit confirmation of same to SEAI within 28 days of dated notification. Three penalty points are awarded.

- In certain instances a Severity 1 merits immediate action to ensure the issue is made safe and in such circumstances SEAI notifies the Contractor that immediate remedial action is required. This rework must be completed as a matter of urgency and confirmation of completion of same submitted to SEAI within 48 hours of notification of rework requirement.

- ***Severity 2 and 3:*** Contractor is notified within 1 week of audit and he/she must undertake reworks and submit confirmation of same to SEAI within 28 days of dated notification. Two or one penalty points respectively are awarded.

The contractor receives a Reworks Notification from SEAI with a deadline of four weeks to complete reworks and return the attached Reworks Form to the stated SEAI address.

A reworks notification may be appealed within 2 weeks, in writing only, by using the Reworks Appeal form (available at https://www.seai.ie/energy-in-business/contractor-supports).

Failure to comply with a direction to undertake reworks will result in deregistration from the SEAI Better Energy Homes Contractor register.

See Section 2.6 for Deregistration and Section 2.8 Contractor Appeals for more details.

2. Risk Based Evaluation of Contractor Performance and Disciplinary Procedures.

SEAI assess Contractor performance by way of risk-based analysis of a Contractor's performance over a particular time period which takes account of:

- The proportion of houses inspected which have reworks (Sev 1, Sev 2 or Sev 3)
- The severity of these reworks (gross penalty point average for all homes that did not pass).

This approach takes account of the volume of activity being undertaken; level of inspections and the severity of instances of Non Compliance identified in particular properties.

Based on this evaluation, SEAI may issue guidance to Contractors on actions necessary to reach the required standard. The intention of any corrective actions is to assist Contractors in improving their work standards, reputation and competitiveness in accordance with the requirements of the Better Energy Programmes.

Should a Contractor fail to reach the required standard when following direction on corrective action, then, in accordance with warnings issued, disciplinary action will follow, up to and including deregistration from the SEAI Better Energy Homes Contractor register.

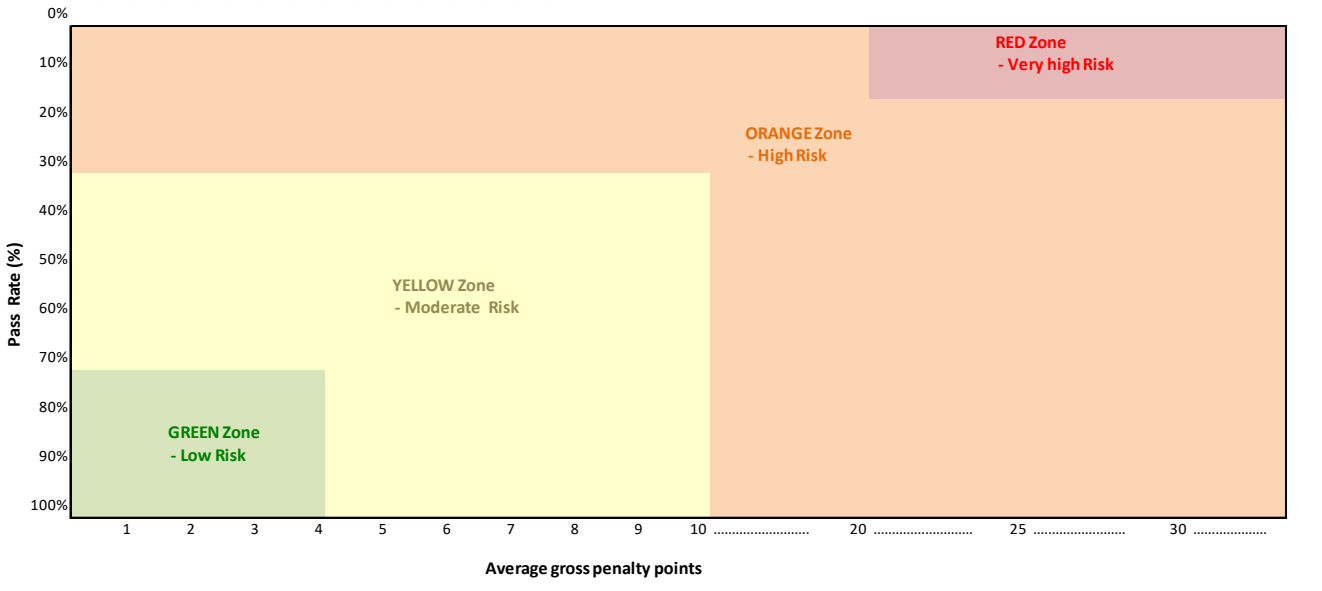
2.1 Evaluation of Contractor Performance

- All Contractors will be audited on a regular basis with respect to technical and administrative compliance with the codes and standards of the Better Energy Programmes.
- Each Contractor's audit results for the previous six months will be evaluated on a regular basis to determine the:
    - **% of properties as a proportion of inspected** which pass inspection (no issues on the Sev 1 to Sev 3 scale) with a target pass rate of ≥70%.
    - **Average gross penalty points, across** all issues identified, for failed properties (Sev 1, 2 & 3 issues identified) with a target of ≤4 points.
- Contractors will be advised of their evaluation results.
- SEAI may review quality records more frequently and reserve the right to communicate same more frequently, particularly where signs of risk of non-compliance are emerging.
- Where a contractor's performance falls outside of the required performance levels then appropriate guidance and / or sanctions will be notified to the contractor.
- Where a contractor works in conjunction with an Energy Partner, and carries out works under other Home Energy Programmes, SEAI will share performance results with that Energy Partner.
- SEAI reserves the right to publish the names of top performing Contractors.
- SEAI may publish and make public information concerning any deregistration from the Registered Contractors list.

2.2 Performance Categories, Corrective Actions and Sanctions.

The evaluation of Contractor performance will place individual Contractors in the following four performance categories (identified diagrammatically below):

- GREEN: good performance / low risk
- YELLOW: medium performance / moderate risk
- ORANGE: poor performance / high risk
- RED: very poor performance / very high risk.



Performance evaluation will take place on a half-yearly basis. The performance categories are divided into separate bands and a Contractor's placement in a band shall determine the requirement for particular actions or sanctions as defined by SEAI. Placement in the green zone means the Contractors' performance is acceptable and no corrective actions are required.

Once contractors are identified as in a zone other than Green, they must take demonstrable action to improve performance including eliminating repeat issues.

- If in the orange zone, they must have moved to the green zone within the next three evaluations, i.e. within 18 months.

- If in the yellow zone, they must have moved to the green zone within the next two evaluations, i.e. within the next 12 months.

- If there is no demonstrable improvement, contractors may receive a letter of deregistration pending appeal and shall have 14 days to appeal the decision of deregistration.

The table below sets out the specific actions applying to each zone.

ZONE	SEAI ACTION	SANCTION
GREEN Good Performance Low risk	Congratulations! You are doing well. Written notification of contractor scorecard. Inspection regime maintained	None
YELLOW Moderate Performance Medium Risk	Written notification of contractor scorecard.	**May be deregistered for a TWO (2) month period** if no demonstrable improvement following 3 consecutive SEAI performance evaluations, i.e. after 18 months. Performance evaluations carried out every 6 months.
ORANGE Poor Performance High risk	Written notification of contractor scorecard.	**May be deregistered for a SIX (6) month period** if no demonstrable improvement following 2 consecutive SEAI performance evaluations, i.e. after 12 months. Performance evaluations carried every 6 months.
RED Very Poor Performance Very High Risk	Written notification of contractor scorecard. A deregistration letter pending appeal within 14 days is issued. Contractor cannot be selected for new works, but may complete on-going works.	Deregistered for a six (6) month period if a) no appeal is received or b) appeal is rejected.

Any contractor identified in the Red Zone shall receive a deregistration letter pending appeal within 14 days. The Contractor cannot be selected for new works, but may complete ongoing works.

The deregistration period begins 14 days after the date of issue of deregistration letter or email, unless an appeal is received within this time period.

Appendix 3 – Better Energy Homes QADP Zone Examples sets out examples of various contractors to demonstrate how the assessment scheme operates. Please take time to consider the scenarios set out therein.

2.3 Record of Non-Compliances

The recording of Non-Compliances in the form of Severity Ratings is one element of the evaluation process described above. Contractors shall be formally notified of Non-Compliances and Severity Ratings applied by post as part of the Reworks Notification. It is important to note that:

- A Better Energy Contractor's inspection results are recorded against their profile. Where a contractor works in conjunction with an Energy Partner, SEAI will share performance results with that Energy Partner.

- All Non-Compliances / severity ratings associated with individual properties will be recorded on the contractor profile.
    - Each company's profile is treated as a single entity and the Non-Compliances / severity ratings accrued by individual nominated personnel listed on their Better Energy profile are assigned cumulatively.

- Each Contractor's audit results for the previous six months will be evaluated. Note this is a rolling evaluation system, so for example if an evaluation takes place on 20th December of any given year only Non-Compliances / severity ratings applied in the previous 6 months will be considered in the evaluation.
- Significant poor performance will require corrective actions by Contractors to improve performance as directed by SEAI. Failure by a Contractor to improve performance following direction by SEAI may lead to deregistration.

2.4 Immediate Deregistration

The table below lists some of the triggers which will result in deregistration:

Deregistration Period	Triggers
2 Months	• Failure to attend targeted workshops / training when directed by SEAI. • Undertaking work without appropriate insurance cover • Contractor is not registered for the measure or undertaking works while deregistered. • Contractor applying on behalf of the homeowner or letting the homeowner use their email address (or any nominated personnel). Exception: where an Energy Partner is applying on behalf of homeowner.
6 Months	Inappropriate or fraudulent behaviour, including but not limited to: (a) attempt to defraud SEAI / state (b) attempt to defraud homeowner (c) any attempt to support the homeowner in their endeavours to defraud SEAI / state (d) Inappropriate, unsafe or highly non-compliant behaviour such as: • Failure to do reworks within the appointed time. • Tampering with/moving gas network equipment. • Natural gas works done by a non-RGII registered person. • Failure to use products that are fit for purpose, or improve the energy efficiency of the building or have a detrimental impact on the structure, viability, quality or safety of the property or not installed to applicable standards. • Subcontracting work to a Contractor not on the Better Energy Homes list of registered Contractors. • Very high Risk Category after a single SEAI performance evaluation. See Appendix 1.

2.5 Summary Deregistration

Notwithstanding the above, SEAI reserves the right to summarily deregister a Better Energy Contractor in specific circumstances involving a technical non-compliance with SEAI's Domestic Technical Standards and Specifications and the Better Energy Homes Contractor's Code of Practice or technical failure that risks compromising homeowner health and safety (such as a non-compliant gas installation); repeated seriously

non-compliant works; failure or a verification audit or inspection; or activities that could bring the programme into serious disrepute. In this case, deregistration will not be deferred for two weeks although the Contractor will still be entitled to appeal the decision. No grant related works may be conducted until the appeal has been heard.

In order to remain registered Contractors must remain active. If they do not carry out a sufficient number of SEAI supported (grant-related or other) jobs, contractors may be removed from the register. The minimum required to be considered active is three jobs per year, with at least one job completed every six months. When a Contractor is removed from the register for being inactive, they must remain deregistered for a minimum of six months.

2.6 Deregistration Process

When a Contractor has been identified for deregistration, e.g. for seriously non-compliant works, the contractor may appeal this decision according to the deregistration appeal process set out in section "2.8 Contractor Appeals".

When the deregistration is due to failure to complete reworks, the contractor is given the opportunity to appeal the reworks and there is no additional deregistration appeal process after the reworks appeal decision is made or the time allowed for appeal of reworks has passed. See section "2.8 Contractor Appeals".

During the deregistration period the following restrictions apply:

- A Contractor must not commence any Better Energy Homes or other Better Energy Programmes works not already started prior to de-registration
- A Contractor must not accept any new works through the Better Energy Homes Scheme or other Better Energy Programmes
- A Contractor is strictly forbidden to accept works as a change of Contractor as and from the effective date of deregistration
- The completion of any Better Energy Homes works already started by a Contractor prior to this notice, must be completed within 14 days and shall be subject to the Terms and Conditions of the scheme including audit and rework requirements.
- The contractor must notify SEAI immediately of works intended to be carried out by him/her under other SEAI Better Energy Programmes.

2. 7 Re-registration

Re-registration on the Better Energy Contractor list is NOT automatic. Once a Contractor's period of deregistration is completed, it is the responsibility of the Contractor to contact SEAI to request re-registration. The following information should be provided with the Contractor's re-registration request:

- Evidence that the basis for your deregistration has been rectified and that the Contractor's company has incorporated the necessary steps in its processes to ensure that it does not occur again.
- Up to date Insurance and Tax Clearance Certificates.

SEAI reserves the right to impose particular conditions on the Contractor before re-registration. Such conditions may include, but are not limited to, the following requirements: to provide proof of competency, to study the terms and conditions of registration, to study SEAI's Domestic Technical Standards and Specifications, the Better Energy Homes Contractor's Code of Practice and QADP document (this document), to complete a training course, to pass a specified examination, or to provide an updated quality assurance statement. This list may be amended by SEAI from time to time. The number of penalty points applied and the details of the deregistration shall be kept on record.

2.8 Contractor Appeals

If an inspection returns a finding that works are seriously non-compliant, i.e. a significant portion of the work is not complete, the contractor will receive a letter of "Deregistration Pending Appeal" together with a Deregistration Appeal form. The Contractor has two weeks to appeal the deregistration in writing, and using the Deregistration Appeal form. Appeals for deregistration due to significant non-compliance are heard by the SEAI Appeals Board. The decision of the Appeals Board is final and may not be re-appealed.

If an inspection returns a finding of Sev 1, Sev 2 or Sev 3 reworks, the contractor receives a Reworks Notification from SEAI with a deadline of four weeks to complete reworks and return the attached Reworks Form to the stated SEAI address. The Contractor may appeal the reworks decision in writing, within 2 weeks, using the Reworks Appeal form. The reworks appeal is reviewed by the SEAI Inspections Unit. The reworks decision may be re-appealed but only under provision of new information. The re-appeal is reviewed by the Head of the Inspections Unit and the decision is final.

A contractor who fails to complete reworks by the given deadline, and does not appeal the reworks decision, is deregistered for six months.

Once a rework has been applied and not successfully appealed, penalty points are automatically awarded. Penalty points may not be appealed.

Once an appeal is received, no sanctions are imposed pending consideration of the appeal by SEAI (except in the case of summary deregistration as set out in Section 2.5 Summary Deregistration such as serious breach of Health and Safety standards). All appeals must be submitted in writing using the forms provided for that purpose. SEAI endeavours to respond with a decision to all appeals as quickly as possible.

Appeals on Reworks should be sent to:

Technical Helpdesk
Better Energy Programmes
SEAI
KSN House
Clonskeagh Square
Dublin D14 FH90
Email: inspections@betterenergyhomes.ie

Deregistration appeals (and insurance updates) should be sent to:

Administration Helpdesk
Better Energy Homes Programme
SEAI
PO Box 119
Cahirciveen
Co Kerry
Email: info@betterenergyhomes.ie

3. Amendments to the Quality Assurance and Disciplinary Procedure

SEAI has the right to periodically update its procedures and practices. As a result, SEAI reserves the right to review and amend the systems and procedures outlined in this document and may also issue other directions to Better Energy Homes Contractors.

Contractors shall be made aware of any such proposed amendments by email or by way of an update displayed on the Better Energy Homes Contractors section of SEAI's website. SEAI may invite Better Energy Homes registered Contractors to submit comments on, or provide a response to, the proposed amendments. For the most up to date version of this document, that is binding on all Better Energy Homes Contractors, visit and download from SEAI's website at: https://www.seai.ie/energy-in-business/register-with-seai/contractor

4. Classification of Non-Compliances

The lists are separated into administrative and technical as appropriate. As noted previously these lists may be updated from time to time and are provided here for clarity and information.

5. Technical Helpdesk

Please use our technical helpdesk for your queries:
Phone: (01) 2776977
Email: inspections@betterenergyhomes.ie

Appendix 1 – Corrective Action for Non Compliance

Reference	Doc Ref	Description	Immediate Sanction
1	T&C 4	Engaging in inappropriate or fraudulent behaviour	6 months
2	T&C 13	Failure to carry out remedial works as required and within the appointed deadline.	6 months
3	CoP 7.8	Natural gas works done by a non-RGII registered person	6 months
4	T&C 9, 21 COP 2.2	Failure to use products that, are fit for purpose, or improve the energy efficiency of the building or have a detrimental impact on the structure, viability, quality or safety of the property, or not installed to applicable standards	6 months
5	T&C 27	Sub-contracting to a contractor not on the Better Energy Homes scheme list of registered contractors for said measures	6 months
6	T&C 21	Failure to attend targeted workshops / training when directed by SEAI	2 months
7	T&C 7	Undertaking works without appropriate Insurance cover	2 months
8	CoP 2.1 T&C 8	Contractor is not registered for the measure or undertaking works while deregistered (where applicable this sanction runs subsequent to the earlier term of deregistration)	2 months
9	T&C 6 & 7 CoP 2.1	Undertaking works while unregistered due to failure to provide valid eTax details and/or valid Declaration of Insurance)	Dereg until received
11	T&C 18 CoP 3	Failure to provide optimal solution to homeowner where physically and economically possible (e.g. less than minimum required wall / roof insulation / heat pump efficiencies lower than required)	2 months
12	CoP 3	Contractors should behave professionally at all times and maintain the high standards expected of the scheme from the quality of the physical works carried out to the level of professionalism with which they are completed, as per the Better Energy Homes Contractor's Code of Practice	2 months
13	CoP 2.1	Failure to respond to SEAI email requests within the required timeframe thereby impeding the effective and efficient administration of the Scheme	Dereg until received
14	CoP 2.1	Failure to provide the correct data and date of works on the declaration of works (DoW) form or in a verification email, thereby impeding the effective and efficient administration of the Scheme	2 months
15	Reg Email	Unauthorised use of the SEAI logo for marketing or other purposes	2 months
16	CoP 3	Contractor applying on behalf of the homeowner or letting the homeowner use their email address (or any nominated personnel), except for counterparty applications	2 months
17	T&C 9-10	Failure to ensure that nominated personnel meet the technical competency requirements for the Scheme as specified by SEAI, and are competent, qualified and have the necessary training and experience to complete the works according to the Scheme's specifications	2 months or until personnel meets requirement; whichever date is later
18	T&C 9	DoW signed by a non-nominated person (not on the nominated personnel list for the company)	2 months

The list of corrective actions in the table above is not exhaustive, and sanctions may also apply to other instances of non-compliance with the T&C, the SEAI's Domestic Technical Standards and Specifications, the Better Energy Homes Contractor's Code of Practice and other directions from SEAI.

Appendix 2- Checklists for Energy Efficient Upgrade works

2.1 Attic Insulation

Code	2.1 Attic Insulation	Detail	Severity		
			One	Two	Three
Page 1 of 1					
B2, B3, B4	INSULATION AREA INSTALLED	☐ Whole house solution not installed	☐		
C3, C4	INSULATION DEPTH INSTALLED AS SPEC	☐ Insulation depth does not provide required U-Value	☐		
G	DOCUMENTATION	☐ Insulation Guarantee Not visible / Not available ☐ Warning Signs Not visible / Not available*			☐
HA2	PIPE INSULATION	☐ No insulation	☐		
HA3	PIPE INSULATION	☐ Not all pipes insulated ☐ Not to Scheme Standard		☐	
J1	WALKBOARDS	☐ Not fitted (but required) ☐ Not supported safely	☐		
J2	WALKBOARDS	☐ Not fitted to Scheme Standard		☐	
K6	HATCH	☐ Insulation not to Scheme Standard ☐ Draught Proofing not to Scheme Standard		☐	
L1	WATER STORAGE TANK INSULATION	☐ No Insulation fitted	☐		
L2	WATER STORAGE TANK INSULATION	☐ Not fitted to Scheme Standard ☐ No ties/tape used ☐ Insulated lid not fitted		☐	
N4	VENTILATION	☐ Insufficient Ventilation ☐ Vents blocked	☐		
N7	VENTILATION	☐ Excessive Ventilation		☐	
O2	ELECTRICAL	☐ Recessed Ceiling lights not protected to scheme standard ☐ High Powered Cables covered ☐ Ancillary Electrical Items covered by Insulation ☐ Work carried out by Contractor may be detrimental to electrical installation.	☐		
Z1	INSULATION AS PER SPECIFICATION	☐ Not as per Scheme Standard		☐	
Z2	INSULATION AS PER SPECIFICATION	☐ Not as per Scheme Standard ☐ No NSAI Certificate for spray foam insulation	☐		

2.2 Cavity Wall Insulation

Code	2.2 Cavity Wall Insulation	Detail	Severity		
			One	Two	Three
Page 1 of 1					
B2, B3, B4	WALL AREA INSULATED	☐ Whole house solution not installed	☐		
C1	DRILL PATTERN	☐ Drill Pattern ☐ Sealing of drill holes not as per NSAI Agréments Certificate required by Scheme standard		☐	
G1	CAVITY BRUSHES	☐ Not as per NSAI Agréments Certificate required by Scheme standard ☐ Required but not installed as per NSAI Agréments Certificate required by Scheme standard		☐	
H1	TOP OF CAVITIES CAPPED	☐ Not closed as per Scheme standard		☐	
I1	NSAI AGREMENT	☐ Not provided			☐
J1	VENTILATION	☐ Wall vents blocked ☐ Insufficient Ventilation	☐		
J5	VENTILATION	☐ Mechanical vent not fitted but required ☐ Background vent not fitted but required ☐ Permanent vent not fitted but required	☐		
J6	VENTILATION	☐ Mechanical vent present but not installed to standard ☐ Background vent present not installed to standard ☐ Permanent vent present but not installed to standard ☐ Mechanical extract ventilation installed in the same room as an open flued appliance		☐	
J11	VENTILATION	☐ Mechanical extract ventilation advisory note not available			☐
L1	WALL PENETRATIONS	☐ Not sealed and not water tight		☐	
M1	BEAD ADHESIVE	☐ Insufficient adhesive	☐		
N1,	BEAD SPILLAGE	☐ ESB meter box ☐ Gas meter box ☐ Boiler flue compromised by works	☐		
N4	BEAD SPILLAGE	☐ Bead spillage into attic area		☐	
	MIXED MATERIALS	☐ Mixed materials in cavity			
O1	ELECTRICAL	☐ Work carried out by Contractor may be detrimental to electrical installation.	☐		
Z1	INSULATION AS PER SPECIFICATION	☐ Not as per scheme standards		☐	
Z2	INSULATION AS PER SPECIFICATION	☐ Not as per scheme standard	☐		

2.3 Internal Wall Insulation

Code	2.3 Internal Wall Insulation	Detail	Severity		
			One	Two	Three
		Page 1 of 1			
B1	SEALING OF DRY LINING	☐ Incomplete sealing of joints		☐	
C2	IRREGULARITES	☐ Poor surface finish ☐ Dry Lining not fixed securely ☐ Uneven contours on walls and/or ceiling		☐	
D1	SUPPLIER GUARANTEE	Not supplied to client			☐
E1	ELECTRICAL FIXTURES	☐ Not extended to front of dry lining ☐ Not adequately sealed ☐ Fixing screws missing		☐	
E4	ELECTRICAL WORKS & FIXTURES	☐ Faulty wiring observed ☐ Electrical Cabling not in conduit or trunking ☐ Work carried out by Contractor may be detrimental to electrical installation.	☐		
NA1	PLUMBING / HEATING GENERAL FIXTURES	☐ Not re-fitted correctly		☐	
F1	VAPOUR BARRIER	☐ None observed	☐		
G1	VENTILATION	☐ Insufficient ventilation ☐ Vents blocked ☐ Permanent vent not fitted but required ☐ Background vent not fitted but required ☐ Mechanical vent not fitted but required ☐ Mechanical extract ventilation installed in the same room as an open flued appliance	☐		
G4	VENTILATION	☐ Permanent vent not installed to standard ☐ Background vent not installed to standard ☐ Mechanical vent not installed to standard ☐ Vents not sleeved		☐	
K1, K2, K3	INSULATION AREA INSTALLED	☐ Whole house solution not installed	☐		
M1	GAS/OIL SUPPLY SERVICES	☐ Gas pipe covered by insulation ☐ Gas pipe not sleeved through wall insulation and wall ☐ Incorrect sealing of sleeve through wall ☐ Oil pipe not sleeved through wall insulation and wall ☐ Oil pipe covered by wall insulation	☐		
P3	OIL SUPPLY SERVICES	☐ Incorrect sealing of sleeve through wall		☐	
Z1	INSULATION AS PER SPECIFICATION	☐ Not as per Scheme Standard		☐	
Z2	INSULATION AS PER SPECIFICATION	☐ Not as per Scheme Standard	☐		

2.4 External Wall Insulation

Code	2.4 External Wall Insulation	Detail	Severity		
			One	Two	Three
Page 1 of 2					
A1	NSAI AGREMENT CERTIFICATE	☐ Not provided			☐
C1	DETAILING AROUND WINDOWS/DOORS	☐ Not as per Scheme Standard ☐ Incomplete ☐ Using non approved fixtures/fittings/sills		☐	
B1	IRREGULARITES	☐ Not fixed securely ☐ Uneven contours on walls		☐	
F1	JOINTS &SEALS	☐ Not as per Scheme Standard ☐ Partially complete ☐ Open		☐	
H2	VENTILATION	☐ Wall vents blocked ☐ Insufficient Ventilation	☐		
H4	VENTILATION	☐ Mechanical vent not fitted but required ☐ Background vent not fitted but required ☐ Permanent vent not fitted but required ☐ Mechanical extract ventilation installed in the same room as an open flued appliance	☐		
H5	VENTILATION	☐ Mechanical vent present but not installed to standard ☐ Background vent present not installed to standard ☐ Permanent vent present but not installed to standard		☐	
H6	VENTILATION	☐ Roof ventilation compromised by External Insulation ☐ Vents not sleeved ☐ Background vent not installed to standard ☐ Mechanical vent not installed to standard		☐	
H12	VENTILATION	Mechanical extract ventilation advisory note not available			☐
HA2	ESB SUPPLY CABLES	☐ ESB cable buried under insulation not in accordance with ESB Job Aid Note ☐ ESB cable not clipped or in trunking not in accordance with ESB Job Aid Note ☐ Meter box has not been extended in accordance with ESB Job Aid Note ☐ ESB supply cable anchors not in accordance with ESB Job Aid note	☐		
J1	EXTERNAL PLUMBING FIXING	☐ Not as per Scheme Standard ☐ Partially complete ☐ Not securely fixed ☐ Not correctly reinstated		☐	
L1, L2, L3	INSULATION AREA INSTALLED	☐ Whole house solution not installed	☐		
M1	ELECTRICAL	☐ Work carried out by Contractor may be detrimental to electrical installation.	☐		
P1	GAS SUPPLY SERVICES	☐ Gas meter box not in accordance with Bord Gais Job Aid Note ☐ Gas pipe covered by insulation /not in accordance with Bord Gais Job Aid Note ☐ Gas pipe not sleeved through insulation and wall in accordance with Bord Gais Job Aid Note	☐		
Q1	EXTERNAL FITTINGS	☐ Electrical fittings not re-instated (e.g. lights, sensors) ☐ Hardware not re-instated (e.g. gates, clothes lines, house numbers, etc.)		☐	
R1	Flue Installation (if applicable)	☐ Boiler flue compromised by works	☐		

Code	2.4 External Wall Insulation	Detail	Severity		
			One	Two	Three
R2	Flue Installation (if applicable)	☐ Flue graded incorrectly		☐	
Page 2 of 2					
S1	OIL SUPPLY SERVICES	☐ Oil pipe not sleeved through wall insulation and wall ☐ Oil pipe covered by wall insulation	☐		
S3	OIL SUPPLY SERVICES	☐ Incorrect sealing of sleeve through wall		☐	
Z1	INSULATION AS PER SPECIFICATION	☐ Not as per Scheme Standard		☐	
Z2	INSULATION AS PER SPECIFICATION	☐ Not as per Scheme Standard	☐		

2.5 Oil & Gas Boiler Upgrade

Note: SEAI no longer accepts applications for grants for the installation of High Efficiency Boilers (both gas and oil) as of the 15th January 2018. Any applications received before this date are processed according to the current Programme rules.

Code	2.5 Oil & Gas Boiler Upgrade	Detail	Severity		
			One	Two	Three
Page 1 of 2					
A3	HEATING STANDARD	☐ No expansion vessel, no pressure relief valve, no facility for expansion on a heating system	☐		
B1	BOILER 90%+	☐ Boiler less than 90% efficient		☐	
C1	BOILER CONDITION	☐ Boiler damaged	☐		
D1	BOILER LOCATION	☐ Not to regulation	☐		
D2	BOILER LOCATION	☐ Difficult to access		☐	
E1	PIPE WORK NOT ACCEPTABLE	☐ Under sized ☐ Damaged		☐	
F1	CONDENSATE PIPE WORK	☐ Not lagged externally or not in larger diameter pipe ☐ Not to gulley/drain (internal /external) ☐ Not to soak away ☐ Incomplete ☐ Incorrect materials used		☐	
G7	SAFETY VALVE/ DISCHARGE	☐ Pipework not installed ☐ Pipework installed incorrectly		☐	
G9	SAFETY VALVE/ DISCHARGE	☐ Not installed	☐		
H1	OIL\GAS SUPPLY	☐ In poor condition ☐ Not adequately supported ☐ Gas not ventilated in casing ☐ Remote fire valve not fitted on oil line/ not to standard	☐		
H3	OIL\GAS SUPPLY	☐ Under sized		☐	
HA1	FLUE INSTALLATION	☐ Not to regulation ☐ Slope not graded properly ☐ Not sealed properly ☐ Not adequately supported ☐ Flue incorrectly sealed through wall (risk of fumes re-entering building)	☐		
HA6	FLUE INSTALLATION	☐ Flue incorrectly sealed through wall (poor finish around flue)		☐	
HC2	VENTILATION	☐ Permanent ventilation not as per Building Regulations Part J ☐ Permanent vent blocked	☐		
HC4	VENTILATION	☐ Permanent vent not installed to standard		☐	
K1	BOILER LOG BOOK/PASSPORT/BENCMARK	☐ Not available ☐ Not filled in properly		☐	
Q1/ ZB3	GAS SUPPLY SERVICES	☐ Gas pipe work not sleeved through wall insulation and wall	☐		
Q2/ ZB1	GAS SUPPLY SERVICES	☐ Not as per scheme standard		☐	
Q3/ ZB4	GAS SUPPLY SERVICES	☐ Incorrect sealing of sleeve through wall	☐		
X1	INSTRUCTION GIVEN	☐ None given ☐ Inadequate instruction given		☐	

Code	2.5 Oil & Gas Boiler Upgrade	Detail	Severity		
		Page 2 of 2			
Y1	USER DOCUMENTATION	☐ User Manuals not left with homeowner		☐	
** The following is for Oil Installations Only					
ZA1	OIL TANK LOCATION/INSTALLATION	☐ **Location of new oil tank not satisfactory ☐ **Location of old oil tank in imminent danger ☐ **Base not satisfactory ☐ **Oil line not satisfactory ☐ **Fire barriers required	☐		
ZA2	OIL TANK LOCATION/INSTALLATION	☐ **Location old oil tank not in imminent danger, not satisfactory		☐	
*** The following is for gas installations only					
ZA1	GAS COMPLIANCE CERTIFICATE	☐ ***No Gas Compliance certificate provided			☐

2.6 Heating Controls Upgrade

Code	Heating Controls Upgrade	Detail	Severity		
			One	Two	Three
Page 1 of 2					
A1	HEATING STANDARD	☐ Controls not working correctly ☐ Heating not working correctly		☐	
A3	HEATING STANDARD	☐ No expansion vessel, no pressure relief valve, no facility for expansion on a heating system	☐		
E3	PIPE WORK NOT ACCEPTABLE	☐ Badly graded			☐
E4	PIPE WORK NOT ACCEPTABLE	☐ Not adequately supported ☐ Leaking		☐	
HB1	CARBON MONOXIDE ALARM	☐ *Not installed when required	☐		
J3	THERMOSTATIC RADIATOR VALVE (TRV)	☐ Minimum required number of TRV's not installed ☐ TRV installed in room with room stat		☐	
L1	AUTO BYPASS	☐ None installed ☐ Manual bypass fitted ☐ Incorrectly sited		☐	
M1	BOILER INTERLOCK	☐ Not installed ☐ Not working ☐ Pump over-run not installed correctly (where applicable)		☐	
N1	CYLINDER STAT	☐ Poor location ☐ Not fitted ☐ Not working		☐	
O1	SPACE AND WATER HEATING ZONES	☐ Motorised valve not working ☐ Lever valve fitted		☐	
O4	SPACE AND WATER HEATING ZONES	☐ Not fitted	☐		
P1	EXTRA ZONE	☐Not fitted correctly ☐ Neither 3rd zone nor TRVs fitted		☐	
R1	7 DAY (2/3 CHANNEL) PROGRAMMER	☐ Not fitted correctly ☐ Poor location (inaccessible) ☐ Not fitted ☐ Incorrect programmer fitted		☐	
S1	HOT WATER/HEATING	☐ No separate hot water only ☐ No separate heating only ☐ Heating and/or hot water not working correctly ☐ Radiators Heating on Hot Water only		☐	
T1	ROOM STAT	☐ Poor location ☐ Wrong height (1.5m) ☐ In direct sunlight ☐ Subject to draughts		☐	
T5	ROOM STAT	☐ Not fitted ☐ Not working	☐		
U1	IMMERSION HEATER TIMER	☐Not fitted but required ☐ Not working ☐ No immersion switch fitted with timer		☐	
U4	IMMERSION HEATER TIMER	Unsuitable immersion timer fitted	☐		

Code	Heating Controls Upgrade	Detail	Severity		
Page 2 of 2					
V1	ELECTRICAL WORK	☐ Incorrectly fused ☐ No spur switch visible/ poorly located ☐ Bonding not present on pipework to ETCI rules (at boiler and hot press) ☐ Earthing not to ETCI rules ☐ Cross bonding in Hot Press incomplete & not to ETCI rules ☐ Earthing/bonding fitted to gas supply is not to ETCI rules ☐ Home owner not issued with 'Electrical Safety notice to home owner' if required		☐	
V13	ELECTRICAL	☐ Work carried out by Contractor may be detrimental to electrical installation.	☐		
W1	CONTRACTOR MAKING GOOD	☐ Property not returned to manner in which it was found		☐	
X1	INSTRUCTION GIVEN	☐ Inadequate instruction given ☐ No instruction given		☐	
Y1	USER DOCUMENTATION	☐ User Manuals not left with homeowner		☐	
ZB1&2	CONTROLS AS PER SPECIFICATION	☐ Not as per Scheme Standard		☐	

2.7 Heat Pump Systems

The following checklist items apply to the different heat pump types according to the codes indicated:

AW - Air to Water
GW – Ground to Water (horizontal and vertical)
WW – Water to Water
EAW – Exhaust Air to Water
AA – Air to Air

Heat Pump Type Codes	Category	Detail	Severity		
			One	Two	Three
Page 1 of 3					
AW, GW, WW, EAW, AA	SYSTEM DETAILS	☐ Does not have ability to provide 100% space heating ☐ Unit not to scheme requirements (High Risk) ☐ Heat Pump cooling function not disabled ☐ Unit less than required unit efficiencies ☐ No data plate/CE mark (outdoor and indoor unit)	☐		
AW, GW, WW, EAW, AA	SYSTEM DETAILS	☐ Unit not to scheme requirements ☐ System not working correctly ☐ System not interlocked		☐	
AW, GW, WW, EAW, AA	HP – OUTDOOR UNIT Outdoor unit sited incorrectly	☐ Not as per manufacturer's instructions (High Risk) ☐ Unit mounted on an unstable structure, ☐ Obstructing access to services e.g. manhole	☐		
AW, GW, WW, EAW, AA	HP – OUTDOOR UNIT Outdoor unit sited incorrectly	☐ Not as per manufacturer's instructions		☐	
AW, GW, WW, EAW, AA	HP – OUTDOOR UNIT Fixing	☐ Poorly fixed to wall ☐ Unstable, poorly fixed to ground	☐		
AW, GW, WW, EAW, AA	HP – OUTDOOR UNIT Fixing	☐ Poorly fixed to ground ☐ Unit not level		☐	
AW, GW, WW, EAW, AA	HP – OUTDOOR UNIT Noise	☐ Excessive vibration	☐		
AW, GW, WW, EAW, AA	HP – OUTDOOR UNIT Noise	☐ Excessive noise ☐ No anti-vibration mountings		☐	
AW, GW, WW, EAW, AA	HP – OUTDOOR UNIT Condition	☐ Condition of appliance detrimentally affecting performance / longevity (high risk)	☐		
AW, GW, WW, EAW, AA	HP – OUTDOOR UNIT Condition	☐ Condition of appliance negatively affecting performance		☐	
AW, GW, WW, EAW, AA	HP – Condensate pipework	☐ Condensate discharge potential safety issue posing safety risk	☐		
AW, GW, WW, EAW, AA	HP – Condensate pipework	☐ Condensate not discharging to a drain or soakaway		☐	
	HP - Refrigerant Pipework	☐ Not as per manufacturer's specification (High Risk) ☐ No pipe lagging present	☐		
	HP - Refrigerant Pipework	☐ Not as per manufacturer's specification ☐ Pipework untidy / not secured ☐ Not as per manufacturer's specification ☐ Incorrect pipe lagging / poorly insulated ☐ Pipework vibration causing unwanted noise ☐ Sealing of penetration through walls		☐	
Page 2 of 3					

Heat Pump Type Codes	Category	Detail	Severity		
			One	Two	Three
AW, GW, WW, EAW,AA	HP – Split Indoor Model	☐ Model unserviceable ☐ Model inaccessible (obstructed by pipes etc)	☐		
AA	HP - Air to Air systems indoor unit	☐ Not as per manufacturer's instructions (High Risk) ☐ Indoor unit insecurely fixed ☐ Indoor units not working	☐		
AA	HP - Air to Air systems indoor unit	☐ Not as per manufacturer's instructions		☐	
AW, GW, WW, EAW	HP - Water Pipework	☐ No pipe lagging present in unheated space or outdoors ☐ Leaks present on pipework ☐ Pressure relief valve not piped to safe and visible area	☐		
AW, GW, WW, EAW	HP - Water Pipework	☐ Pipework untidy / not secured ☐ Incorrect pipe lagging / poorly insulated ☐ Sealing of penetration through walls ☐ Pressure relief valve pipework not working correctly		☐	
AW, GW, WW, EAW	HP - Auto Bypass/Buffer	☐ None installed where required ☐ Manual bypass fitted ☐ Incorrectly sited		☐	
AW, GW, WW, EAW	HP - Space and Hot Water Zones	☐ No separate hot water ☐ No separate space heating	☐		
AW, GW, WW, EAW	HP - Space and Hot Water Zones	☐ Motorised valve not working ☐ Lever valve fitted in lieu of motorised valve ☐ No load and weather compensation		☐	
AW, GW, WW, EAW, AA	HP – Programmer/Inbuilt Controller	☐ None fitted (Programmer/weather compensation with at least 1 room stat/sensor) ☐ Programmer/inbuilt controller not working/ scheduling	☐		
AW, GW, WW, EAW, AA	HP – Programmer/Inbuilt Controller	☐ Not fitted correctly ☐ Poor location (inaccessible)		☐	
AW, GW, WW, EAW	HP - Cylinder Stat/Sensor	☐ Poor location ☐ Not fitted ☐ Not working		☐	
AW, GW, WW, EAW, AA	HP - Room Stat/Sensor(s)	☐ No room stat fitted where applicable	☐		
AW, GW, WW, EAW, AA	HP - Room Stat/Sensor(s)	☐ Poor location ☐ Wrong height (1.5m) ☐ In direct sunlight ☐ Subject to draughts ☐ Room stat not working		☐	
AW, GW, WW, EAW	HP - Immersion Heater Timer (only applicable if the immersion is "stand-alone")	☐ Unsuitable immersion timer fitted	☐		
AW, GW, WW, EAW	HP - Immersion Heater Timer (only applicable if the immersion is "stand-alone")	☐ Not fitted but required ☐ Not working ☐ No immersion switch fitted		☐	

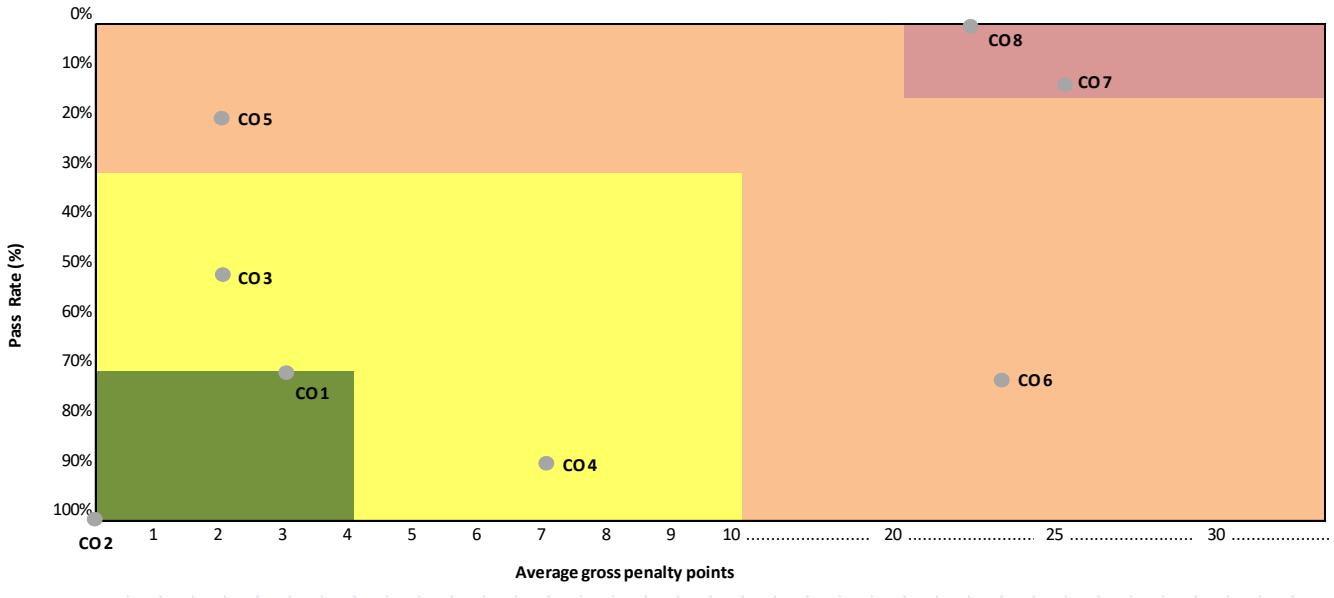
Heat Pump Type Codes	Category	Detail	Severity		
			One	Two	Three
AW, GW, WW, EAW	HP - Hot Water Tank Insulation	☐ Cylinder insulation not in place	☐		
AW, GW, WW, EAW	HP - Hot Water Tank Insulation	☐ Cylinder insulation condition is poor ☐ Cylinder insulation not correct thickness		☐	
EAW	HP – Exhaust Air Heat Pump Ductwork	☐ Not fitted but required ☐ No duct lagging present in unheated space	☐		
EAW	HP – Exhaust Air Heat Pump Ductwork	☐ Not terminating correctly		☐	
AW, GW, WW, EAW, AA	HP - Electrical	☐ Mains not isolated by Rotary Switch	☐		
AW, GW, WW, EAW	HP - Electrical	☐ Earthing / bonding not to required standard	☐		
AW, GW, WW, EAW, AA	HP - Electrical	☐ Cables poorly secured ☐ Sealing of penetration through walls ☐ No outside sensor on north facing outside wall where applicable ☐ Incorrect isolator switch		☐	
GW	HP - Collector	☐ Collector field connected to water mains	☐		
AW, GW, WW, EAW, AA	HP - Commissioning and Handover	☐ Commissioning documents not available/correct ☐ RECI cert not present/correct ☐ Technician not F-gas registered where required ☐ No F-Gas cert present where required	☐		
AW, GW, WW, EAW	HP - Commissioning and Handover	☐ 2 systems not integrated safely and efficiently ☐ Unit not setup for legionella prevention ☐ No facility to support legionella prevention	☐		
AW, GW, WW, EAW, AA	HP - Commissioning and Handover	☐ No User Manual left with homeowner		☐	
GW	HP - Commissioning and Handover	☐ GSHP documentation missing (see list in the COP)		☐	
AW, GW, WW, EAW, AA	HP – Space heating	☐ Installed heat emitters not as designed (High Risk)	☐		
AW, GW, WW, EAW, AA	HP – Space heating	☐ Heating system not heating/not properly vented ☐ Installed heat emitters not as designed		☐	

2.7 Solar Installation

Code	Solar Installation	Detail	Severity		
			One	Two	Three
Page 1 of 2					
A1	SYSTEM DETAILS	☐ System not designed as per SEAI Spec and COP ☐ Cylinder not sized correctly		☐	
A4	SYSTEM DETAILS	☐ Aperture Area of panels/tubes not correctly sized by house area	☐		
B1	INSTALLATION OF COLLECTORS	☐ Collectors not adequately fastened to the roof ☐ Panel/tubes are visibly damaged	☐		
B2	INSTALLATION OF COLLECTORS	☐Collectors not properly oriented and angled ☐ Potential for shading of collectors (trees, buildings, etc.)			☐
D2	SOLAR CONTROLLER/ PUMPING STATION	☐The electrical controls, including immersion and temperature sensors are not operating correctly. ☐ Circulation indicator for the solar loop not present/visible ☐ The circulating pump not operating correctly ☐ Temperature and controller settings incorrect ☐ Solar controller fitted at wrong height		☐	
E1	DOMESTIC HOT WATER INSTALLATION	☐ Anti-water boiling controls not in place ☐ Auxiliary heating not set-up to allow raising water temperature above 60 deg. C regularly to avoid legionella risks	☐		
E2	DOMESTIC HOT WATER INSTALLATION	☐ Hot water cylinder not insulated properly ☐ No mechanism in place for unwanted circulation ☐ No temperature interlock present between solar heated storage and auxiliary heating ☐ Safety Notice not provided to homeowner where TMV was not installed		☐	
F1	INTEGRATION WITH SPACE HEATING	☐ Sensor for space heating control incorrectly placed		☐	
G1	COMMISSIONING AND HANDOVER	☐ Maintenance instructions and schedules not provided to customer/end user ☐ All safety and information labels not in place. ☐ Customer/end user has not been instructed in correct operation of system ☐ System documentation and operating manual have not been supplied to end user			☐
G3	COMMISSIONING AND HANDOVER	☐ Antifreeze concentration does not comply with manufacturers requirements ☐ Home owner not issued with 'Electrical Safety notice to home owner' where required		☐	
H1	COMMISSIONING	☐ Commissioning report not available for inspection ☐ Commissioning report not completed		☐	
J1	SOLAR LOOP ANCILLARY/VALVES	☐ Expansion and pressure release valve not installed	☐		

Code	Solar Installation	Detail	Severity		
			One	Two	Three
Page 2 of 2					
J2	SOLAR LOOP ANCILLARY/VALVES	☐ Pressure release valves are caught open or closed ☐ Connection of solar loop to storage tank heat exchanger is incorrect ☐ Expansion vessel not sized correctly/suitably rated as per solar manufactures recommendations ☐ Unsuitable collector or no collector from pressure relief valve in place ☐ Anti-reverse-circulation measure not in place (e.g. non-return valves in solar station as per manufactures details)		☐	
K11	SOLAR LOOP SYSTEM DETAILS	☐ Pressure in the solar loop incorrect as per manufacturer's instructions		☐	
L1	SOLAR LOOP PIPEWORK	☐ Solar loop pipe or components leaking ☐ Pipe penetrations of building fabric not sealed ☐ Pipes not securely fixed		☐	
M2	SOLAR LOOP INSULATION	☐ Pipe work in the solar loop (internal & external) has not been thoroughly insulated ☐ High temperature insulation not fitted ☐ Solar loop external pipe and fittings not insulated with UV resistant insulation		☐	
N1	SOLAR WATER HEATING SYSTEM AS PER SPECIFICATION	☐ Not as per Scheme Standard			☐
P1	ELECTRICAL	☐ Permanent Electrical wiring not installed/ not to ETCI rules and untidy (not temporary extension lead) ☐ Cables not clipped/untidy ☐ Home owner not issued with 'Electrical Safety notice to home owner' if required		☐	
P3	ELECTRICAL	☐ Probes/sensors not securely fixed ☐ Non switchable spur not visible/ poorly located ☐ Bonding not present on pipework to ETCI rules (on solar loop and hot press) ☐ Earthing not to ETCI rules ☐ Work carried out by Contractor may be detrimental to electrical installation.	☐		

Appendix 3 – Better Energy Homes QADP Zone Examples



	Green		Yellow		Orange		Red	
CO	**Contractor 1**	**Contractor 2**	**Contractor 3**	**Contractor 4**	**Contractor 5**	**Contractor 6**	**Contractor 7**	**Contractor 8**
# Installations	600	10	75	850	350	100	210	5
# Inspections	55 (9%)	2 (20%)	8 (10.6%)	80 (9%)	30 (8.5%)	7 (7%)	24 (11%)	1 (20%)
# Pass (i.e. No reworks)	**39 (71%)**	**2 (100%)**	**4 (50%)**	**72 (90%)**	**6 (20%)**	**5 (71%)**	**3 (12.5%)**	**0 (0%)**
# Fail (Sev 1 and/or sev 2)	16 (29%)	0 (0%)	4 (50%)	8 (10%)	24 (80%)	2 (29%)	21 (87.5%)	1 (100%)
Gross penalty points	48	0	8	56	48	46	525	22
Average gross penalty points	**3**	**0**	**2**	**7**	**2**	**23**	**25**	**22**