



P1 / ETICS NSAI SCHEME

A number of imminent changes to the NSAI ETICS scheme are introduced.



P2 / AUDIT PROCESS

Introduction of new Installer Certificates; outline of audit process changes coming (from 9th January 2017).



P3 / THERMAL BRIDGING

Ensuring thermal bridging is adequately addressed when externally insulating is critical. The use of appropriately approved details is discussed.



P4 / CAVITY INSULATION

The importance of correctly dealing with cavity walls when installing external insulation is highlighted.

Technical Update

A Periodical for Approved Installers of ETICS and CWI

IS002

DECEMBER 2016



ETICS - Administrative changes and technical issues

The second issue of this series of Technical Updates focuses on administrative and technical issues relating to the NSAI ETICS scheme for installers of external insulation.

Some of the administrative changes include the introduction of an Installer's Certificate, to be updated annually; the introduction of a limited one month provisional registration period; and a requirement stipulating an eight week response time regarding

issues raised during audits. These changes are expanded upon in this publication.

Amendments to come into force on 9th January 2017

Technical issues discussed include requirements relating to the use of certified mate-

rials (the materials used in any job must be listed on the relevant system Agrément certificate); thermal bridging and the associated condensation risks; and the importance of ensuring that the cavity in existing cavity walls is properly dealt with when applying external insulation systems to avoid thermal looping occurring.

“This update generally focuses on administrative and technical matters relating to the ETICS scheme.”

1.0 Changes to Audit Process

1.1 Installer Certificates

From 9th January 2017, all registered installers will be issued with a certificate of registration which will contain the following information:

- ◆ Registered installer number;
- ◆ Installer name and address;
- ◆ The system(s) the installer is registered to install;
- ◆ Issue date;
- ◆ Expiry date.

A sample certificate is shown here.

It is the installer's responsibility to ensure their registration does not expire, as installers will automatically be removed from the online register once their certificate lapses (i.e. when the expiry date passes). The month of first registration will generally continue to be the effective annual date for surveillance audits.

The installers will generally be contacted by the auditor 1 to 2 months prior to their expiry date to arrange a suitable date for the annual surveillance audit. If an installer has not been contacted by the auditor and arrangements have not been made, the installer should contact NSAI directly not less than 1 month prior to their expiry date to request an audit.



1.2 One month provisional registration

Since January 2012, installers have been able to be provisionally placed on the NSAI register in order for them to get onto the SEAI list to quote for grant-aided work. The procedure that was put in place was for the installer to contact NSAI when they received their first project which would then be audited to complete the registration process. While this process will remain in place, it will be amended from 9th January 2017 so that installers can only be provisionally registered for a period of one month, within which time they must obtain their first project and submit it to NSAI for audit. If an installer does not submit a job to be audited within that month, they will be removed from the register and their application fee refunded to them, minus an administration fee of €250. Should an installer wish to re-register, they will have to re-apply.

2.0 Use of uncertified materials

All products used on a project must be listed on the certificate for the system being installed on that project. Use of products that do not appear on that particular certificate (e.g. brick slips, insulated/GRC oversills, dash) is not acceptable, will void the warranty and may also result in the homeowner not receiving the full grant payment.

Customer-signed waivers will not be accepted for uncertified products. If there is a demand for a certain type of product to be used on external insulation jobs, please inform your system supplier and request they make a formal application to NSAI to get that product assessed and included on their certificate to avoid non-conformances being raised on audits and the possibility of rework notices being issued by SEAI.

NB: Please note that the use of uncertified materials will lead to an unsatisfactory audit result, normally followed by de-registration.

1.3 Eight week response to audit issues



Commencing with surveillance audits carried out on or after 9th January 2017, installers will be given an 8 week period from receipt of the audit report to close out, to the auditor's satisfaction, any non-conformances raised during the audit. The certificate holder must also demonstrate their approval and acceptance of the actions taken by the installer within that same 8 week timeframe. If the actions are not resolved to the auditor's satisfaction within 8 weeks of them issuing the audit report to the installer, the installer will be de-registered. Should they wish to re-register they will have to submit a new application.

Please note that installers will not be re-registered until all outstanding issues raised against the installer have been closed out.

NB: Please be aware that where major site defects are found on a registration or surveillance audit, the installer will be immediately de-registered until the items raised are satisfactorily addressed.

Where non-conformances are raised on an audit for the certificate holder's attention, these must also be addressed satisfactorily within the 8 week time period.

>> THE NEW ETICS SCHEME DOCUMENT WILL BE CIRCULATED TO INSTALLERS AND WILL BE MADE AVAILABLE FOR DOWNLOADING AT WWW.NSAI.IE

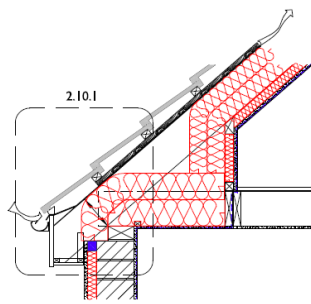
3.0 ETICS - Thermal Bridging and Condensation Risk

A thermal bridge, sometimes known as a cold bridge, is an area of a building which has a significantly higher heat transfer than the surrounding materials resulting in an overall reduction in thermal insulation of the building. Thermal bridges occur in three ways, through: materials with higher thermal conductivity than the surrounding materials, penetrations of the thermal envelope, and discontinuities or gaps in the insulation material.

Thermal bridges are to be avoided or limited as they can cause excessive heat loss and local condensation on the colder surfaces. There is also an increased risk of interstitial condensation (condensation which occurs within or between layers of a construction).

Thermal bridges are generally either repeating, as with roof/ceiling joists, or linear, where dense, structural parts of a dwelling intersect e.g. a window lintel, or the join between a floor and a wall.

By virtue of the fact that external insulation generally envelops the building from the outside some often problematical junctions, such as that at intermediate floors, are automatically addressed. However certain key junctions still require careful consideration - e.g. at ground floor

(2) WALLS- EXTERNAL INSULATION SOLID MASONRY / CAVITY BLOCK WALLS		Eaves - Insulation between and under rafters - Unventilated Rafter Void - Dormer		DETAIL 2.10.1, 2011
THERMAL PERFORMANCE CHECKLIST (TICK ALL)		Fire stopping to be provided where necessary using suitable insulant as per certification details		AIR BARRIER - CONTINUITY CHECKLIST (TICK ALL)
Ensure continuity of insulation throughout junction☐ Ensure insulation is installed tightly between rafters and is in contact with under-rafter insulation☐ Ensure full depth of insulation between and over joists abuts eaves insulation☐ Ensure gap between wall plate and proprietary eaves vent is completely filled with insulation having a min. R-value across the insulation thickness of 4.30 m² K/W☐		2.10.1 		
GENERAL NOTES Vapour permeable roof underlay to be used in strict accordance with approved third party certification Installation of the eaves insulation must not prevent free water drainage below the tiling battens If required by BS5250, use vapour control plasterboard or separate vapour control layer behind plasterboard. Use of over joist and under rafter insulation is considered best practice, as it eliminates the cold bridge caused by the joist/rafter Read this detail in conjunction with detail 2-15, Gable - Unventilated Rafter Void		AIR BARRIER - OPTIONS OPTION (TICK ONE) ☐ Wet-finish plaster coat, or ☐ Masonry wall with scratch coat, and finished with plasterboard, or ☐ Plasterboard on dabs or battens, with continuous ribbon of adhesive tape around all openings, along top and bottom of wall, and at internal and external corners, or ☐ Airtightness membrane and tapes		Complying with checklist will help achieve design air permeability
ACCEPTABLE CONSTRUCTION DETAIL		Eaves - Insulation between and under rafters - Unventilated Rafter Void - Dormer		DETAIL 2.10.1, 2011

External Insulation - Sample extract from Acceptable Construction Details

level at the junction between the wall and the external ground surface; around window and door openings, particularly at sills; and at soffit level where the roof meets the external wall.

Each individual thermal bridge has a psi (Ψ) value (W/mK) which is a measure of the linear heat loss. Psi value calculations are complex and are usually computed using thermal modelling software.

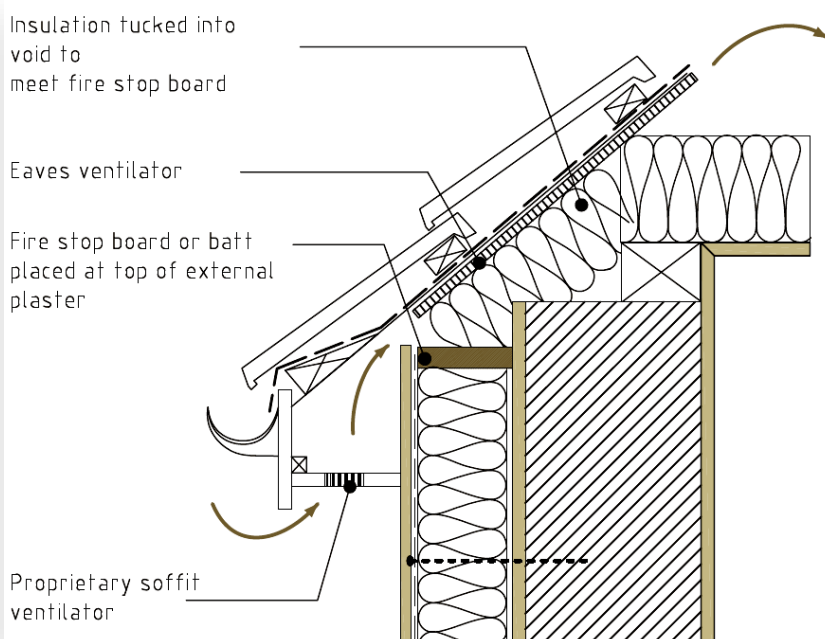
However it is possible to comply with regulations when externally insulating existing buildings without having to resort to

thermal modelling and condensation risk analysis software. Technical Guidance Document L of the Building Regulations states that for existing buildings "reasonable care should be taken to en-

Thermal bridging in existing buildings can be adequately addressed by incorporating suitably approved details

sure continuity of insulation and to limit local thermal bridging". It specifies that "at lintel, jambs and sills generally a 15 mm thickness of insulation material having λ value of 0.033 W/mK (or equivalent) will generally be adequate ". And for extensions it states that the adoption of Acceptable Construction Details (or equivalent) for typical constructions would be deemed reasonable.

The use of details from the Acceptable Construction Details (these can be downloaded free of charge on the Department of Environment website www.environ.ie) or equivalent details such as those included in S.R.54:2014 *Code of practice for the energy efficient retrofit of dwellings* (free download on NSAI website) could therefore generally be deemed appropriate when externally insulating typical existing buildings.



Junction of external insulation and roof insulation (From S.R. 54)

4.0 ETICS - Insulating Cavity Walls

Cavity wall construction presents a risk to the effectiveness of the external insulation system due to the possibility of thermal looping within the cavity. Even if the cavity is sealed, the size of the air gap of an unfilled cavity means that the external insulation must be discounted in the U-value calculation for the wall.

Most NSAI Agrément certificates for external insulation systems state a variation of the following in relation to insulating cavity walls:

“When the system is to be applied to a masonry cavity wall, consideration should be given to the treatment of the ventilated cavity. In order to maximise the impact of the ETICS system on the U-value of the wall, filling of the cavity or sealing to ensure no airflow occurs should be considered”.

This wording will be amended in the ETICS scheme document to the following, which is taken from 7.2.2.2 and 7.3.2.3.7 of S.R. 54:2014 *Code of practice for the energy efficient retrofit of dwellings* (<https://www.nsai.ie/S-R-54-2014-Code-of-Practice.aspx>):

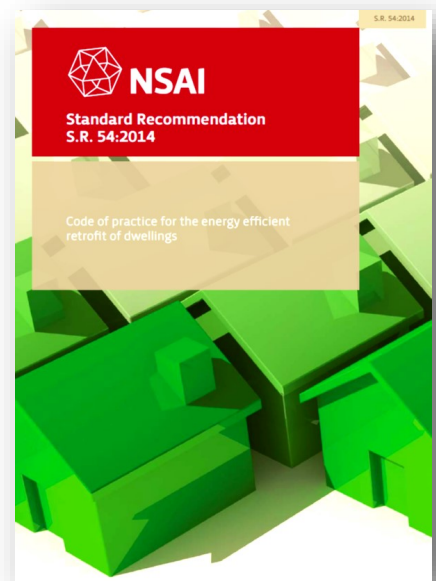
Revised CWI scheme document introduced

As Certificate Holders and Approved Installers of Cavity Wall Insulation will be aware, the revised CWI scheme document with new requirements, encompassing issues such as providing Installers' Declarations, tracking bead quantities, and im-

“External insulation should not be used with unfilled cavities due to the possibility of thermal bypass and thermal looping within the cavity, which reduces the thermal performance of the wall and leads to a poorer U-value. The cavity should be fully filled either as part of the original construction or as part of the retrofit measures where external insulation is used. For dwellings where the cavity may have been previously filled during original construction or an earlier energy retrofit, this may be established by a boroscope or an infrared survey”.

While pumping the cavity will result in an additional cost for the homeowner, it is likely that the thickness of external insulation board required to achieve a U-value of $0.27\text{W/m}^2\text{K}$ will reduce as a result of the cavity being filled, which helps to reduce the impact of this additional cost. A list of NSAI registered cavity wall insulation installers can be found on the NSAI website at <http://www.nsai.ie/Our-Services/Certification/Agreement-Certification/Agreement-Registered-Installers.aspx>.

proving survey and installation check procedures, came into force on 1st September 2016. Approved Installers should be aware that demonstrating compliance with these requirements will be part of all future annual surveillance audits.



S.R. 54:2014

Code of practice for the energy efficient retrofit of dwellings

From 9th January 2017, auditors will be requesting evidence that cavity walls have been fully filled before the installation of external insulation, and also evidence that an NSAI registered cavity wall insulation installer carried out the work.



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FUTURE ISSUES:

Some of the topics that will be covered in future issues in this series of Technical Updates will include:

- ⇒ ETICS Boarding - fitting procedures, fixing patterns
- ⇒ Ventilation
- ⇒ Development of ETICS and CWI Agrément Certificates
- ⇒ Conductivity of insulants

IMPORTANT NOTE:

This publication provides advice, guidance and updates of a general nature. It is not nor does it purport to be a regulatory document and should not be relied upon as such. For complete guidance on any technical issues discussed in this Newsletter the relevant official regulatory documents must be consulted. These would include Scheme Documents, Agrément Certificates, Technical Guidance Documents etc.