Disclaimer

It is important that you read and understand this statement before making use of this document.

This document is a publication of the Structural Timber Association Limited (“STA”).

The information contained within this publication is provided by the STA as industry insight and/or for general information purposes only. The publication has not been prepared to meet the individual requirements of any particular construction project and it is your responsibility to ensure that the construction materials, techniques and processes are suitable for that particular use.

The information contained within this publication is not intended to amount to, nor should it be relied upon as, formal advice or guidance (including from any qualified professional). The information provided is only to be used and acted on by suitably qualified individuals.

The information in this publication is not to be used as a substitute for obtaining suitable independent, professional, qualified and/or specialist advice. If you are not a suitably qualified professional (i.e. a structural engineer and/or architect), you must obtain your own independent, specialist advice from a qualified professional for any construction project.

Where this publication contains information provided by a third-party, including any link to a third-party website, the STA is not responsible for the taking of, or the refraining from, any action on the basis of such third-party content and does not accept liability for any loss or damage arising from the use of such third-party content.

Except for death or personal injury caused by STA’s negligence, or for loss or damage caused by STA’s fraud or fraudulent misrepresentation, the STA’s total aggregate liability for any claim or series of connected claims arising in relation to this publication shall be limited to £5,000 and the STA shall not be liable for any loss of profit, loss of revenue, loss of business or loss of contract, loss of opportunity, loss of goodwill, or loss of reputation, or any indirect, special, or consequential loss arising out of, or in connection with, this publication.

© 2010 Structural Timber Association Limited. All rights reserved.
Installation of cavity barriers

This document details key points to remember when installing cavity barriers in timber frame buildings in the UK. This document does not cover the specification or required locations of cavity barriers. For information on the location and specification of cavity barriers please consult the relevant national building regulations.

Fire in cavities
When a fire occurs in a completed building, cavities can act in a similar way to chimneys, allowing smoke, hot gases and flames to travel quickly and undetected around a building. The role of a cavity barrier is, to prevent a fire from travelling unrestricted through the cavity and to stop it escaping or travelling into an adjacent cavity space. By containing a fire within a relatively small cavity section, thereby reducing the availability of oxygen for the fire, damage will be greatly reduced and time bought to allow occupants to escape safely.

Correct installation
The correct installation of cavity barriers in any building is of paramount importance to increasing the safety of its occupants. Many of the cavity barriers in timber frame buildings can only be installed as the building is erected and this guide advises on the correct approach to ensure proper performance.

The following diagrams and notes provide best practice for standard cavity barrier installation.

*NOTE:* Cavity trays - dpc and ventilation to be incorporated as appropriate to the products used as a cavity barrier - details omitted for clarity.

1. Location

**KEY**
- Cladding
- Sheathing
- Timber Frame
- Cavity Barrier

The cavity barrier must close the cavity. Cavity barriers must therefore be sized correctly to suit the designed cavity width. Due consideration should be given to the stated maximum and minimum cavity sizes for proprietary cavity barriers supplied in standardised widths off the shelf.

![Diagram of cavity barrier installation](image)

Fig 1a. Cavity barrier correctly fixed with no gaps (plan view)
Proprietary cavity barriers have a degree of tolerance to accommodate nominal variances in cavity width. Consult the cavity barrier manufacturer for the correct degree of tolerance in each product.

Key points

- Ensure that cavity barriers are tightly fitted - standard widths may not be adequate.
- Fully close cavity. Do not leave gaps.
- Ensure cavity barriers are located at the edges of cavities where there is solid timber.

Key points

- Ensure cavity barriers are positioned against solid timber. Do not fix to sheathing alone.
- Cavity barriers should be fitted without gaps which would allow a fire to pass by. Consider available cavity width when installing them before the cladding.
- Gaps in cavity barriers should be fire stopped to ensure that they fully close the cavity against fire and smoke.
- Polythene sleeved mineral wool cavity barriers must be butted or lapped to ensure a continuous line of fire resistance.
2. Laps in cavity barriers

**KEY**

- Cladding
- Sheathing
- Timber Frame
- Cavity Barrier

**Key points**
- Maintain an unbroken line of cavity barriers, with junctions tightly butted or overlapped.
- Ensure overlapping is tight with no gaps. Dimension L is to be minimum of 150mm.
- Ensure direct connection to the next cavity barrier.

**Fig 2a.** Cavity barrier correctly fixed with no gaps

**Fig 2b.** Cavity barrier incorrectly fixed with gaps
Key points

- Ensure overlapping is tight. Ensure no gaps
- Dimension L is to be minimum of 150mm
3. Party wall and floor junctions

**Key points**

- Intermediate floor / party floor junction - Cavity barrier to be a tight fit and to be located within zone noted.
- Relationship to external brickwork. If site workmanship has dictated that the external wall cavity increases or decreases in width, it is important to vary the thickness of the cavity barrier accordingly.
- All junction connections whether horizontal or vertical to be tightly butted

**NOTE:** See STA Advice Note 10 for fully filled party wall details.
**Fig 3c.** Party wall to external wall junction-plan (plan view)

**Key points**
- Cavity barrier at external wall at floor levels - compartment floors only in England, Wales, & Northern Ireland. ALL floors Scotland.
- Cavity Barrier in cavity - to be secured to timber studs at 1 and 2 in the frame and to be tight fit to the cladding material at 3 and 4.
- Fire Stop to party wall cavity at external wall junction. Ensure tight fit to timber stud work.

*NOTE:* See STA Advice Note 10 for fully filled party wall details.
Key point

- Extended width cavity barrier in cavity, secured to timber studs detailed to be tight fit to the cladding material. This detail is only appropriate if there is sufficient studwork for 30 minutes fire resistance along path “A” to prevent the development of a fire path between properties.
4. Corner details

Fig 4a. Corner connection detail - (isometric view)
Cavity barrier correctly positioned.

Fig 4b. Corner connection detail - (isometric view)
Cavity barrier incorrectly positioned.
Requirements of the follow on trades

For independent cladding systems (For example, masonry) it is important to consider the impact of tolerances on the cavity barrier performance. For example, masonry should be plumbed up to follow the line of the frame and maintain a reasonably constant cavity width. Where this is not practical the line of the masonry should be strung vertically and the ability of the pre-fixed cavity barriers to fully stop the anticipated cavity. Adjustments to cavity barrier depths can then be carried out prior to the construction of the cladding.

Alternatively cladding construction can be taken to an appropriate level and the required cavity barrier fixed in place prior to continuing. It is essential that barriers fitted “just in time” are checked by a competent person prior to being hidden by the remaining works.

When using DPC as a cavity tray above horizontal cavity barriers it is essential that the DPC is correctly tucked down the outer face of the cavity barrier, or built into the outer leaf of masonry with open perpends. By correctly fitting the DPC the cavity barrier will be protected from mortar droppings and ensure that moisture is correctly drained from the cavity.

General

Protect timber horizontal cavity barriers (except under eaves) with a DPC tray. The upstand must be at least 100mm.

When a polythene encased cavity barrier is used which provides a minimum 100mm upstand, no extra DPC tray is required.

Where possible, lap DPC tray behind breather membrane to shed moisture away from the frame.

Fix flexible cavity barriers with stainless steel staples at specified spacings.

The mineral wool in flexible cavity barriers must be tightly butted or lapped by 150mm at each junction.

Important Notice

This document is to be read as a guidance document, and as such its contents may not be applicable for all construction sites. The document is therefore to be used on a site specific risk analysis basis.

The copyright holders of this guidance, the STA, has made extensive efforts to check the accuracy of the information and advice contained in this document at the date of publication, but this document is not yet fully comprehensive and further editions may be produced. The authors do not warrant the accuracy of any information or advice contained in this document and shall not be liable for any loss, damage or expense whatsoever suffered by any person who relies on or uses information or advice.

This guidance contains the recommendations of the STA and is accurate at date of publication. It is likely that future discussions and further developments will continue to inform and improve the advice we give to the UK construction industry on this issue. To check for any updated information, please go to www.structuraltimber.co.uk or contact the Structural Timber Association on 01259 272140.

CAVITY BARRIERS
Head office

Structural Timber Association
The e-Centre
Cooperage Way
Alloa
FK10 3LP

t: 01259 272140
f: 01259 272141
e: office@structuraltimber.co.uk
w: www.structuraltimber.co.uk