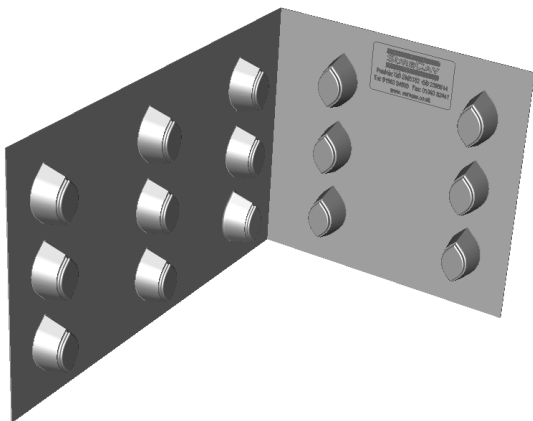




SURECAV[®]

SureCav Limited



Cavity Spacer System

Patented System



Welcome to SureCav,
from Charlie Ayers MD

Thank you for your interest in using SureCav as the superior method in constructing stone, slate, flint and brick buildings.

Architects and builders countrywide are adopting SureCav as a proven way to save time and money, as well as enhance the quality of their project.

As I always say, "It's not just because I designed SureCav that I am trying to sell the system. After all, if someone else had designed it, I would buy it.

Well I would - because it works!"

Charlie

Your guide to understanding SureCav...

- A cavity spacer system for building stone, slate, flint and brick houses..... [4](#)
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Introduction

What is SureCav?

SureCav is a polypropylene panel that sits in the cavity and allows a stone, slate, brick and flint outer skin to be built without the need of an additional block leaf.



Full BBA approval

Main features

- Environmentally friendly:
 - Made from 100% fully recycled plastic
 - Light weight easy to transport
 - 100 times lighter than 100mm concrete backing blocks
- Incorporates a new fold line that makes it easy to construct corners
- Will save you money, guarantee clean and moisture free cavities and create 5% extra internal floor space with narrower footings, when original external dimensions are used
- SureCav is a Cavity Wall Spacer System, BBA Approved 04/4154
- It significantly reduces labour and material costs
- It gives a faster cleaner build
- SureCav guarantees absolute integrity of the cavity by providing clean moisture free cavities that also stop water penetration from wind driven rain
- It is durable and remains effective for the life of the building

SureCav is now being used by forward thinking builders nationwide!



Gone are the days when builders had to use concrete blocks or even a messy system of temporary backing boards or plywood that often weakened the wall when removed, as well as allowing mortar to fill the cavity.

System characteristics

Panels

Length: 1200mm
Width: 450mm
Total thickness: 50mm
Sheet thickness: 2mm

Joining strips

Horizontal strip length: 900mm
Vertical strip length: 400mm

Construction materials

- The SureCav Cavity Wall Spacer System is designed to use in new, external cavity wall construction
- The system ensures a minimum cavity width of 50mm when using natural or reconstituted stone outer leaf in conjunction with:
 - Conventional masonry inner leaf, with or without partial fill cavity wall insulation (masonry includes clay, calcium silicate, concrete and stone units)
 - Timber frame inner leaf
- The system may also be used with conventional clay and calcium silicate brick and concrete block outer leaves
- The system can be used in any exposure zone in buildings up to 12 metres high with a 50mm cavity instead of the usual required 75mm

(see pages 10 and 11)



Testimonial

“SureCav is a fantastic product and as we said in the CPD it has very much become standard detail for stonework within the office. Perhaps now with knowledge of the further advantages of waterproofing and stability it may become more widely specified for other cavity wall types also. Many thanks for all your help and we hope that our support of your product will continue to push SureCav as a recognised standard for cavity wall construction within the industry.”

**Louisa Meek CSA architects B.A. (Hons)
Architectural Assistant**

**The system must be used
in conjunction with best
building practice.**

SURECAV 5

Numerous benefits achieved from using SureCav



Avoids building an additional block construction wall which could require up to 40 tonnes of blocks, as shown on the left.

The equivalent wall area of SureCav panels, that would require 40 tonnes of 100mm concrete blocks, will easily fit into a pick-up, as shown on the right.



SureCav can realise up to **5% extra floor space** when the original external dimensions of the building are used. This is due to the fact that 100mm concrete backing blocks are no longer required.

- Less expensive than building an extra concrete block leaf
- Much lighter, saves space and is easier to move on site
- Removes the need for backing blocks or using wood shuttering as backing for the stone etc.
- Cheaper to use than backing blocks or wood shuttering, reducing construction costs
- Ensures that the cavity remains completely clean and dry
- Ensures no water penetration from wind driven rain with a 50mm cavity, not 75mm
- Increases floor space by up to 5%, adding value to the project

SureCav has many advantages over traditional systems

- It **saves money**: It can save you up to £10 per square metre against the cost of using backing blocks
- It guarantees a completely **clean cavity**
- Injection moulded from **100% recycled polypropylene**
- SureCav is **very light** and takes up less than a quarter of the space of the concrete blocks it replaces
- It is **Environmentally** much more **friendly**, weight for weight, than concrete blocks that produce large amounts of CO₂ in manufacture.
- SureCav is **easy to transport**, thus saving fuel and, being much lighter than concrete blocks, safer to move round a building site.
- Footings are 100mm narrower meaning there is **less excavated material** to dispose of and less concrete in the foundations.
- When fixed, SureCav holds the insulation against the wall, guaranteeing it works to its **full efficiency**.



SureCav is 100% recycled polypropylene

Instead of ending up as landfill or incineration material, SureCav is manufactured by injection moulding process to produce a building material that shows we care for the environment. **SureCav** comes out on top in reducing the Embodied CO₂ (ECO₂) footprint in new buildings as well as being **100 times lighter** than concrete blocks, making site management and movement of materials much easier.

Embodied carbon dioxide (ECO₂) of concrete mixes

CONCRETE	Concrete type	ECO ₂ (kgCO ₂ /m ³)			ECO ₂ (kgCO ₂ /tonne)		
		CEM I concrete	30% fly ash concrete	50% GGBS concrete	CEM I concrete	30% fly ash concrete	50% GGBS concrete
Blinding, mass fill, strip footings, mass foundations ¹	GEN1 70 mm	173	124	98	75	54	43
Trench foundations ¹	GEN1 120 mm *	184	142	109	80	62	47
Reinforced Foundations ¹	RC30 70 mm ***	318	266	201	132	110	84
Ground floors ¹	RC35 70 mm **	315	261	187	133	110	79
Structural: in situ floors, superstructure, walls, basements ¹	RC40 70 mm ***	372	317	236	153	131	97
High strength concrete ¹	RC50 70mm ***	436	356	275	176	145	112
		ECO ₂ (kgCO ₂ /m ³)			ECO ₂ (kgCO ₂ /tonne)		
Dense concrete aggregate block ²	precast block	147			75		
Aerated concrete block ²	precast block	121			240		
Generic lightweight aggregate block ³	precast block	168			120		

* includes 25kg/m³ steel reinforcement

** includes 30kg/m³ steel reinforcement

*** includes 100kg/m³ steel reinforcement

- Manufacture of dense aggregate blocks:
Produces 75 (ECO₂) embodied kgCO₂/tonne
- Manufacture of SureCav virgin polypropylene sheet:
Produces 3900 (ECO₂) embodied kgCO₂/tonne, **but when compared, weight for weight, in a typical project, SureCav nearly halves the embodied CO₂** (See the table on the opposite page.)
- The production of the panels consumes far less energy than the production of concrete blocks, weight for weight
- Saves energy on the excavation of aggregates
- Saves on the screening and washing of aggregates, thus saving water
- Saves on transportation costs of aggregates to the manufacturer
- Saves on the manufacture of cement

SureCav helps to reduce your carbon footprint

A Carbon footprint is a measure of the impact humans have on the environment. Reducing harmful carbon dioxide emissions is of great importance to SureCav Limited and we are committed to improving the design of our product to meet the expectations of our customers with regard to the environment. Please look at the chart below to see what we have achieved so far.

Reduce Your Carbon Footprint

Calculation to compare the advantages of using SureCav in cavity construction
(Cradle to factory gate calculations)

SureCav	(Virgin Polypropylene sheet using injection moulding)	Dense Aggregate Concrete Block	
(ECO2) kgCO ₂ /kg	3.9	(ECO2) kgCO ₂ /m ³	147
(ECO2) kgCO ₂ /tonne	3900	(ECO2) kgCO ₂ /tonne	75
http://www.bath.ac.uk/mech-eng/serf/embodied/			
http://sustainableconcrete.org.uk/PDF/Table%20-%20Embodied%20CO2_version%201.1.pdf			

For a typical build:

185 sheets SureCav @ 1.12kg/sheet.

185 x 1.12 = 207.2 kg (0.2072 tonnes)

20 tonnes standard dense blocks

Tonnes x (kgCO₂/tonne)

0.2072 x 3900

Tonnes x (kgCO₂/tonne)

20 x 75

808 kgCO₂

1500 kgCO₂

SureCav nearly halves the carbon footprint in standard cavity wall construction compared to using concrete backing blocks.

SurCav is now produced using 100% recycled polypropylene which further reduces the CO₂ production compared with virgin materials.

For example, did you know...?

684,000 tonnes of CO₂ emissions were saved by recycling the UK's plastics in 2006, the equivalent of taking more than 216,000 cars off the road

A 100% recycled bin-liner uses only 1/3 of the energy to produce, from cradle to grave, of a bag of equivalent properties made from virgin materials and has a carbon footprint which is 35% lower. ('Environmental Facts',

British Polythene Industries PLC)

See the "British Plastic Federation" (www.bpf.co.uk) for interesting facts about the benefits of using recycled plastic products

Make SureCav Your Preferred Method in the Construction of Cavity Walls

SureCav - a solution to the problem of wind-driven rain

One of the greatest threats to the integrity of the building structure come from water ingress. The incidence of wind-driven rain is likely to be more prevalent in properties closer to the western coast of Britain and any increase in moisture giving rise to wall saturation will require a managed construction (see the map on the opposite page). The increased affect of wind driven rain will be particularly relevant where external walls do not have a suitable cavity or rain screen.

- **SureCav** will prevent any water ingress from wind driven rain when building external walls with any recognised material
- A moisture and mortar-free 50mm cavity will be maintained that will be easily ventilated
- Insulation, if required, is held in places at all times, enabling it to work to its full efficiency



The “wall” of plastic, formed by the SureCav panels not only provides an excellent surface for the construction of the stone wall but shields the cavity and inner leaf from water ingress. The unique shape of the SureCav pods directs any moisture to the outside leaf, thus protecting the fabric of the building.

Recommended in high exposure zones

- The SureCav system can be used in any exposure zone in buildings up to 12m high
- A 75mm cavity would normally be required in the high exposure zones, but with SureCav you can use a 50mm cavity

Rain Penetration and Cavity Walls

- The SureCav system can be used in any exposure zone in buildings up to 12 meters high
A 75mm CAVITY IS NORMALLY REQUIRED
BUT SURECAV CAN BE USED FORMING A 50mm CAVITY
- Make SureCav the wise choice giving all weather protection

Exposure zones	Approximate wind driven rain* (litres/m ² per spell)
Sheltered 1	Less than 33
Moderate 2	33 to less than 56.5
Severe 3	56.5 to less than 100
Very Severe 4	100 or more

Key to Map

Note:

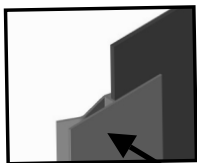
*"Approximate wind driven rain" equates to "maximum wall spell index" derived from Figure 1 in BS 8104 : 1992 (Code of practice for assessing exposure of walls to wind driven rain.)

The wall spell index can be more accurately calculated from the large scale maps and correction factors given in BS 8104, then interpreted using the values in the key to the map (above) and table above.

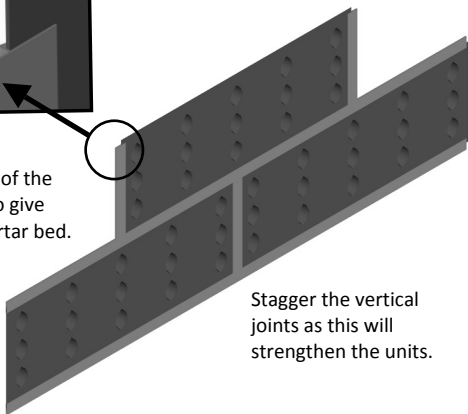
Reproduced from the joint BRE/HMSO publication "Thermal insulation - Avoiding risks", 1994.



4. Stagger the panels

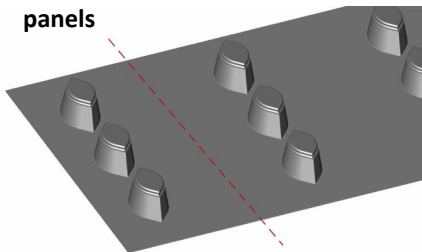


Install with the flat face of the joining strip outwards to give maximum width for mortar bed.



Stagger the vertical joints as this will strengthen the units.

5. Cutting and trimming panels



Cut the panels with tin snips or a saw, or score the panel and then bend it back on itself and the unit will snap off.

6. Important note about joining strips

The 900mm joining strips are to be used for the horizontal joints. Cut a long joining strip up to a wall tie and use the off-cut to start the next section.

The 400mm joining strips are designed to exactly fit the vertical joints of the SureCav panel.

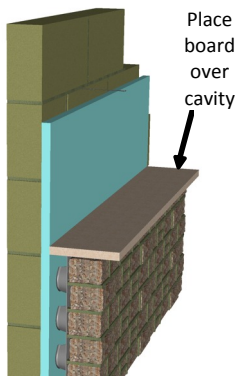
Visit www.surecav.com

Or call 01963 36640 for more information

7. Keeping the cavity space clean

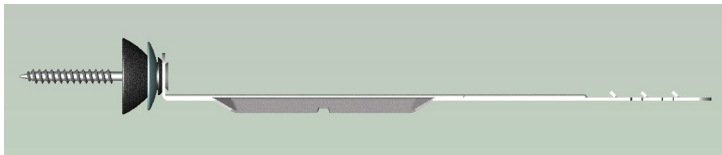
When building up the internal wall, ALWAYS ensure that a cavity board or length of timber is used to cover the cavity.

It is **essential** that the cavity is kept free from mortar during construction.



8. Fixing a timber frame tie through the back of a SureCav pod

Sealing washers can be purchased directly from SureCav Ltd. with your order
See our web site for details



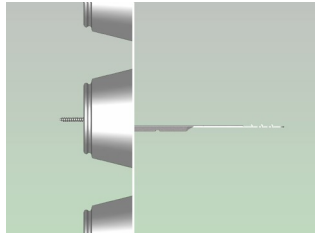
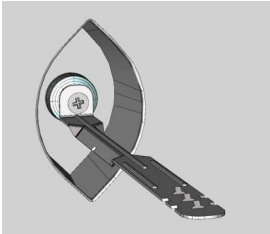
Ensure that the components are assembled in the right order.

For more instructions using SureCav visit

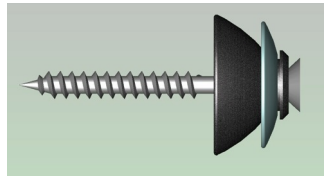
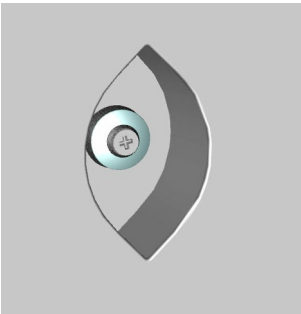
www.surecav.com

SureCav Ltd. Tel: 01963 34660

Looking into the open pod the fixings should look as shown below.



If additional fixings are required and ties are not needed then just fix the Surecav panel through the back of the pod using a screw and sealing washer.



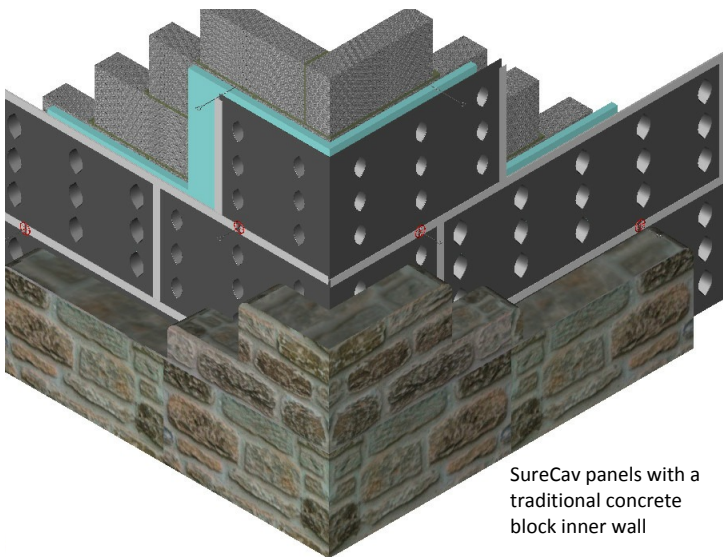
Fix the wall tie into the back of a pod using the special seal washer. Additional fixings can be added without the tie if needed.

Testimonials

"Having used SureCav on at least 6 contracts we will never use backing blocks or shutter boards again." **Richard, EMM-LEC Ltd Sidmouth, Devon**

"I am so impressed with this product I would be happy for you to bring any of your prospective customers to my site at Wool, Dorset, and I will be pleased to show them your system." **Chris Allworthy, Barratt Homes Site Agent**

Installing the SureCav panel in a conventional building



SureCav panels with a traditional concrete block inner wall

1. You first need to create the corner panel. Locate the bend line on the sheet and bend the flat sides together. Now bend the sheet the other way until the pods are touching, repeating this a couple of times until you have the angle you require. The SureCav panels are placed directly against the insulation sheet, holding the insulation in place, enabling it to work to its full efficiency.
2. Using the joining strips, continue to build the panels along in each direction, trimming the panels around air vents and cavity trays as necessary.
3. Fit a horizontal joining strip before starting the next row. The SureCav panel is fixed in place using a wall tie clip on the wall ties that are fitted as standard at 900mm centres. Note that the horizontal joining strips are cut around the wall ties and if extra ties are required for random stonework, helical ties can be fitted through the sheets of SureCav but, of course, not through the pods.

Please note: The 900mm joining strips are to be used for the horizontal joints. Cut a long joining strip up to a wall tie and use the off-cut to start the next section. The 400mm joining strips are designed to exactly fit the vertical joints of the SureCav panel.

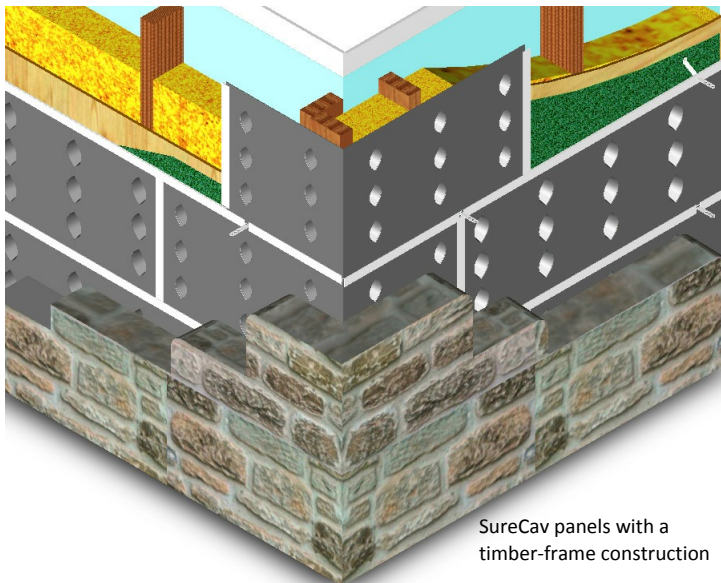
4. It is recommended to stagger the joints of the panels as this will add strength to the whole system. Then continue to fix the panels along the row, trimming the length to meet the corner panel. If the cut coincides with the pods, then cut a shorter length and insert a new SureCav section.

5. The stone wall can then be built directly against the panels. When building up the inner skin of block-work, always ensure that a board is placed over the cavity. It is essential that the cavity is kept free of mortar during construction.

6. These SureCav panels remain in the cavity for the lifetime of the building, providing an excellent air-flow system that ensures the cavity remains free from the build-up of moisture.



Installing the SureCav panel with a timber-frame building



SureCav panels with a timber-frame construction

1. First, make the corner piece. Using the bend line on the sheet, bend the flat sides together. Now bend the sheet the other way until the pods are touching, repeating this a couple of times until you have the angle you require.
2. Place this corner piece directly against the breather membrane of the timber-frame structure and, using the joining strips, continue to build the panels along in each direction.
3. If you find you need extra ties for random stonework, screw the tie into the back of the SureCav pod using a seal-washer. If you simply wish to fix the panel in place – then just use the seal-washer without the tie.

4. Now, fit the horizontal joining strips before starting the next row.

Please note: The 900mm joining strips are to be used for the horizontal joints. Cut a long joining strip up to a wall tie and use the off-cut to start the next section.

The 400mm joining strips are designed to exactly fit the vertical joints of the SureCav panel. If extra ties are required for random stonework, helical ties can be fitted through the sheets of SureCav but, of course, not through the pods.

5. It is recommended that the joints of the panels are staggered to add strength to the system. Then continue to fix the panels along the row, trimming the length to meet the corner panel.

6. If you find the cut coincides with the pods, then cut a shorter length and insert a new SureCav section.

7. The stone wall is built directly against the panels. These SureCav panels remain in the cavity for the lifetime of the building, providing an excellent air-flow system that ensures the cavity remains free from the build-up of moisture.



Improved design - now even easier to use!

- Injection moulded Polypropylene - fully recycled material
- A new fold line has been incorporated into the design to simplify corner construction
- Perfect for stone, slate, brick & flint construction
- Saves time and money compared to using concrete backing blocks

Site Examples

Working with flint



Appreciation of the importance of flint:

Flint and its effects can produce stunning results, especially when laid in alternate bands in stone or with brick quoins, as shown in these images.



Working with natural stone



Natural stone is an outstanding building material:

It is both practical and durable, and can be cut to any shape or form. The great thing about natural stone is that the older it gets, the more beautiful it becomes. Using natural stone shows that you take seriously your responsibility to care for your surroundings by actively striving to preserve, restore or improve the natural environment.



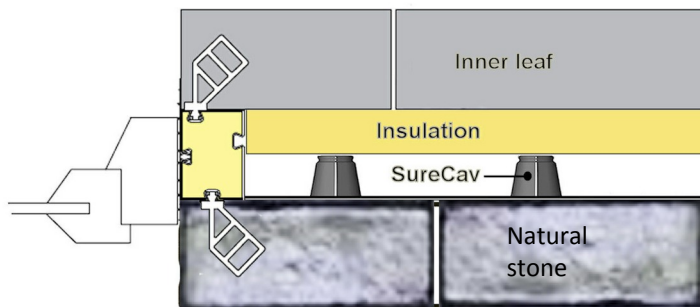
Fitting SureCav with a Cavity Closer

Cavity closers are the simplest, most effective way to seal cavities around wall openings. SureCav can be trimmed to neatly fit up to the closer or allowed to overlap the closer by 10mm or so. This will enable the sheet to be screwed to the closer for additional support, if desired, but do not allow the joining strip to overlap the closer.

Standard Reveal

SURECAV
www.surecav.com

SureCav installed up to a cavity closer



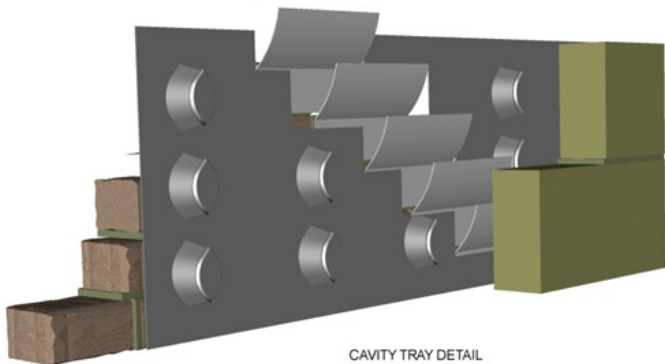
- Fit the SureCav panels to allow for the Cavity Closure
- The illustration shows a 100mm cavity with 50mm insulation
- The SureCav panels are 50mm deep

Cavity closer shown courtesy of Cavity Trays Ltd., Yeovil
Product shown: Type H Cavicloser



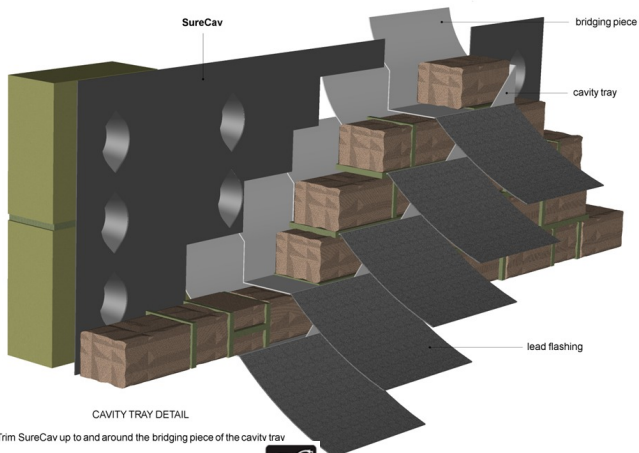
SureCav and Cavity tray details

Trim SureCav up to and around the bridging piece of the cavity tray



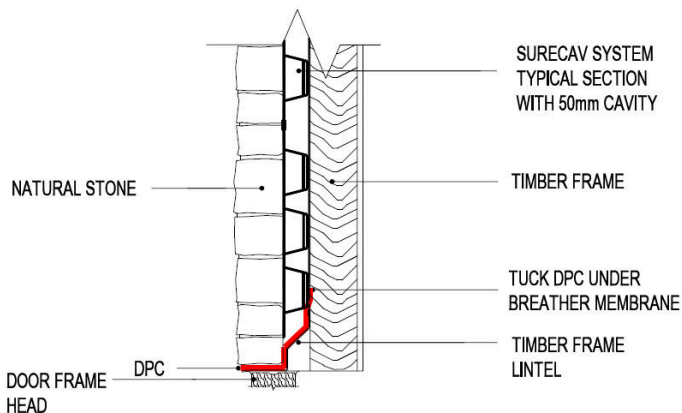
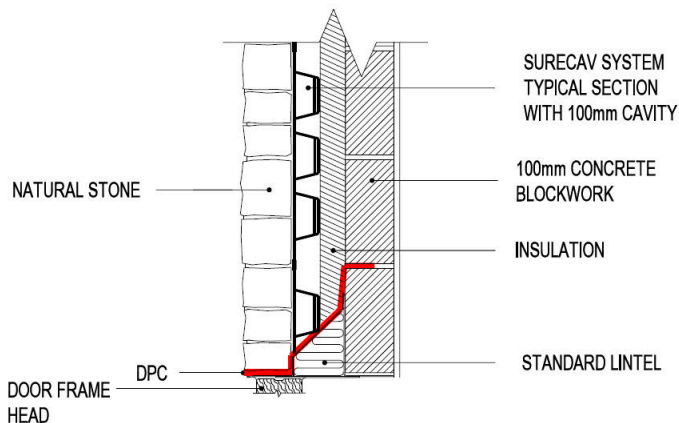
CAVITY TRAY DETAIL

Trim SureCav up to and around the bridging piece of the cavity tray



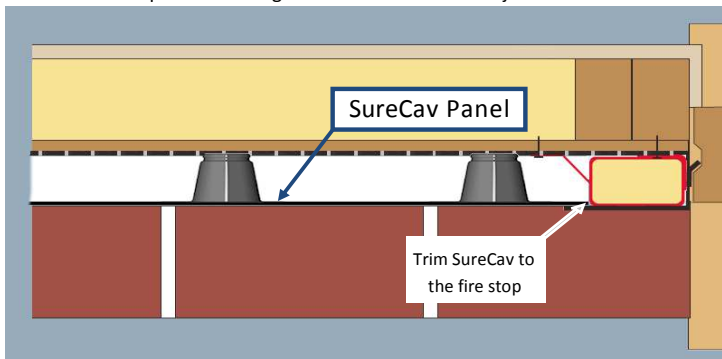
SureCav recommends Cavity Trays Ltd., Yeovil,  for all your cavity tray requirements. 01935 474769 www.cavitytrays.com

Fitting DPC with the SureCav system and Catnic lintels

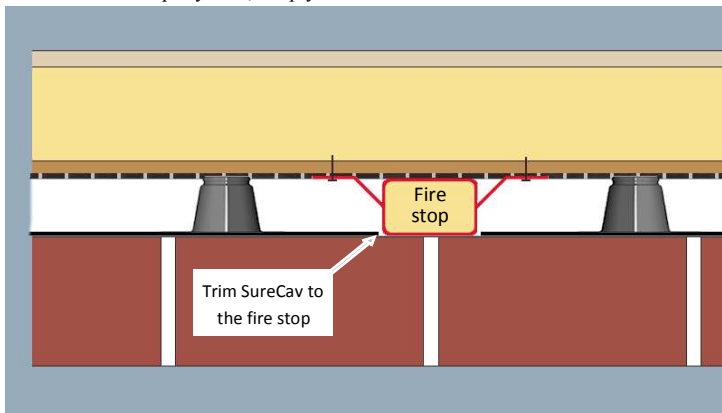


Trimming the SureCav panel to allow for the fire stop barrier

1. When Fire Stop is installed against a door or a window jamb:

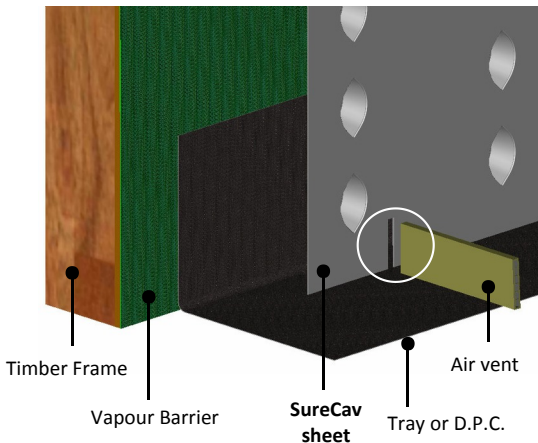


2. When Fire Stop is installed vertically at required intervals or at junction of internal wall or party wall, simply trim SureCav to the barrier:



Air vent: Timber-frame

Installing a Cavity Wall Vent in a Timber Frame Construction (As required by Timber Frame manufacturer)



Cut a slot in the SureCav sheet 10mm wide and 65mm high to match the profile of the ventilator (as shown inside the white circle above). If the intended slot does not coincide with the edge of the SureCav sheet then simply drill a 10mm dia. hole at the top and bottom and cut the material away as shown on the right.



Compliance for Venting Timber Frame Buildings

The Building (Scotland) Regulations 2004

Vent wall cavities with a masonry outer leaf by installing ventilators with at least 300mm² free opening area at 1.2m maximum centres.

NHBC Standards

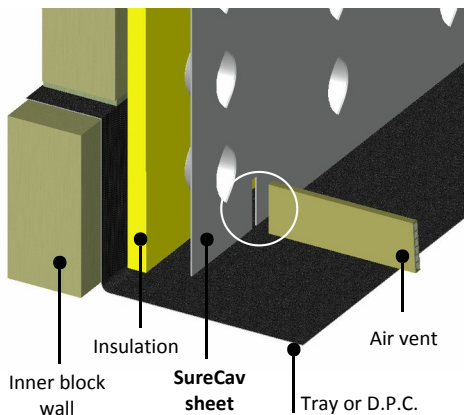
The cavity ventilation should conform to the requirements of the timber frame manufacturer.

SureCav recommends **Cavity Trays** for all your ventilation requirements. The Type W may be used to provide the balanced air conditions demanded within the cavity in timber-frame construction.

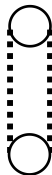
Cavity Trays Ltd., Yeovil  www.cavitytrays.com

Installing a Cavity Wall Vent In Traditional Construction

(If required by local authority)



Cut a slot in the SureCav sheet 10mm wide and 65mm high to match the profile of the ventilator (as shown inside the white circle above). If the intended slot does not coincide with the edge of the SureCav sheet then simply drill a 10mm dia. hole at the top and bottom and cut the material away as shown on the right.



Compliance

The Building (Scotland) Regulations 2004

Vent wall cavities with a masonry outer leaf by installing ventilators with at least 300mm² free opening area at 1.2m maximum centres. (If required)

NHBC Standards

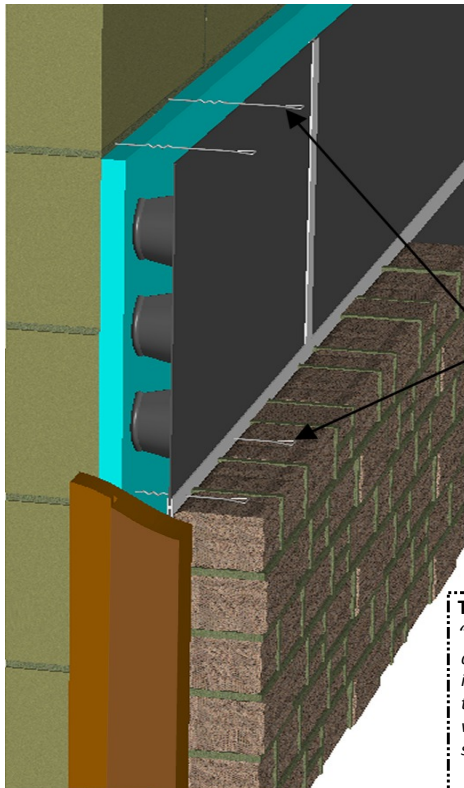
The cavity should be ventilated as detailed above if required by local authority.

SureCav recommends **Cavity Trays** for all your ventilation requirements. The Type W may be used to provide the balanced air conditions demanded within the cavity in traditional construction.

Cavity Trays Ltd., Yeovil  www.cavitytrays.com

Additional wall ties to satisfy structural requirements

This procedure will prevent slots having to be made in the SureCav sheet on each course of block work when building away from a door or window reveal. The ties should be fitted every 450mm vertically, coinciding with the joint in the SureCav sheet



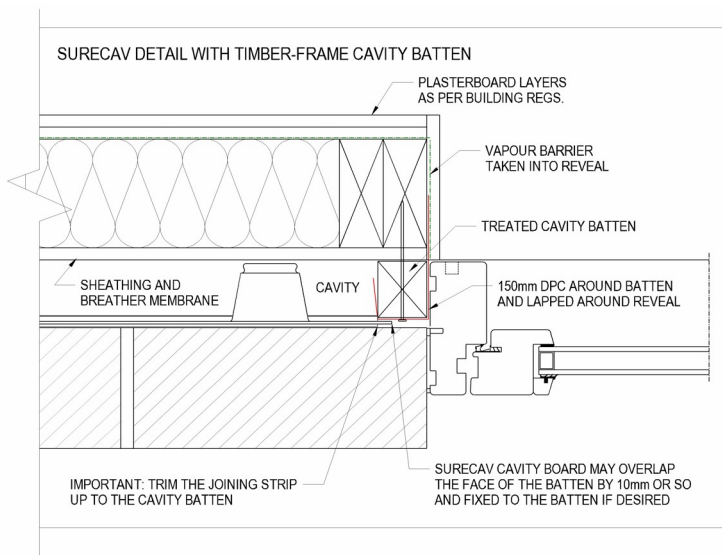
It is recommended that an additional wall tie is included within 225mm of the opening on each board course level to satisfy the structural requirements.

Testimonial

"The speed of build, easy storage and handling make SureCav an ideal system. We have found this especially to be the case where storage and working space on site is at a premium."

Ray Holmes, Site Agent, Hopkins Developments, Wincanton

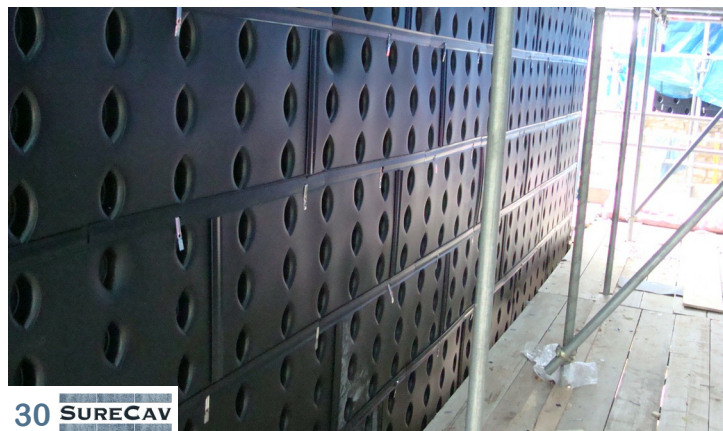
Fitting SureCav up to a timber-frame cavity batten



Notes

- Trim the SureCav sheet up to, or overlapping the cavity batten by 10mm or so, if desired. The trimmed sheet can be fixed to the cavity batten, but it is not essential
- The SureCav joining strip must be trimmed to meet the cavity batten to ensure the overlapping part of the sheet does not interfere with the external stonework

Examples





Examples





Technical specification

Extracts from the BBA Certificate

Information in this Certificate may assist the client, CDM coordinator, designer and contractors to address their obligations under these Regulations.

Description

SureCav forms a 50mm cavity to replace a concrete block backing wall when building with stone, slate, brick or flint.

Non-regulatory Information

NHBC Standards 2010. NHBC accepts the use of the SureCav Cavity Wall Spacer System, when installed and used in accordance with this Certificate, in relation to NHBC Standards, Chapter 6.1 External masonry walls or Chapter 6.2 External timber-framed walls.

Technical Specification

1.1 The SureCav Cavity Wall Spacer System is a black, 100% recycled, injection moulded polypropylene sheet, with raised spacer protrusions at 260 mm centres. The sheets interlock via plastic joining H section profile strips at all edges when installed. Corners are formed by bending the sheet along the integral fold.

1.2 The system has characteristics shown in Table I.

Table I Nominal characteristics	Panel (mm)	Joining strips
Length	1200	
Width	450	
Total thickness	50	
Corners (created using fold line)	Integral	
Horizontal strips length		900
Vertical face strips length		400

2 Delivery and site handling

2.1 The panels are delivered to site in packs of 10, wrapped in polythene with joiners enclosed. A label bears the product and manufacturers name and the BBA identification mark incorporating the number of this Certificate. (04/4154)

2.2 Panels should be stored flat, under cover and protected from sunlight and high temperatures.

2.3 The panels must not be exposed to open flame on site.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on SureCav Cavity Wall Spacer System.

Design Considerations

3 Use

3.1 The SureCav Cavity Wall Spacer System is satisfactory for use in new, external cavity wall constructions. The system ensures a minimum cavity width of 50 mm when using natural or reconstituted stone outer leaves in conjunction with:

- a) conventional masonry inner leaves, with or without partial fill cavity wall insulation (masonry includes clay, calcium silicate, concrete and stone units).
- b) timber-frame inner leaf.

3.2 The system may also be used with conventional clay and calcium silicate brick and concrete block outer leaves.

Durability

The panel is durable and will remain effective for the life of the building in which it is installed.

For additional information see www.surecav.com

Call us now! 01963 34660

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