

Dunbrik A1 Concrete Flue Liners

systems for domestic chimneys

System Guide



Firebelly stove FB2
woodburner in pewter

dunbrik flues
domestic flue & chimney systems



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SYSTEM DETAILS AND DESIGN GUIDANCE

Benefits of a Chimney

- A chimney adds appeal to a house
- A real fire turns a house into a home
- A natural draught flue promotes a healthier atmosphere

Benefits of Dunbrik liner systems

- Full system from the specialist maker
- Detailed flue estimates prepared
- Systems designed for better flue flow
- Designed for easier installation
- Liners meet latest, highest standards
- Expert technical backup

Key System Features

- For domestic fires and stoves
- Can use all domestic fuel: coal, wood, oil and gas
- Round liners and full unrestricted bends for better flue flow
- Tested by BSRIA to European Standard
- Passed highest standard type A1 T600
- Sootfire resistant to 1,000°C

Liner Sizes

Sizes for firebacks, open grate fires, canopy hoods, inglenooks and stoves

- 200mm round for fireplace openings up to 500mm by 550mm and stoves
- 300mm round for fireplaces openings up to typically 800mm by 585mm
- 250mm square for fireplaces openings up to typically 700mm by 595mm
- 300mm square for fireplaces openings up to typically 800mm by 750mm
- 450mm round for fireplaces openings up to typically 1,100mm by 960mm

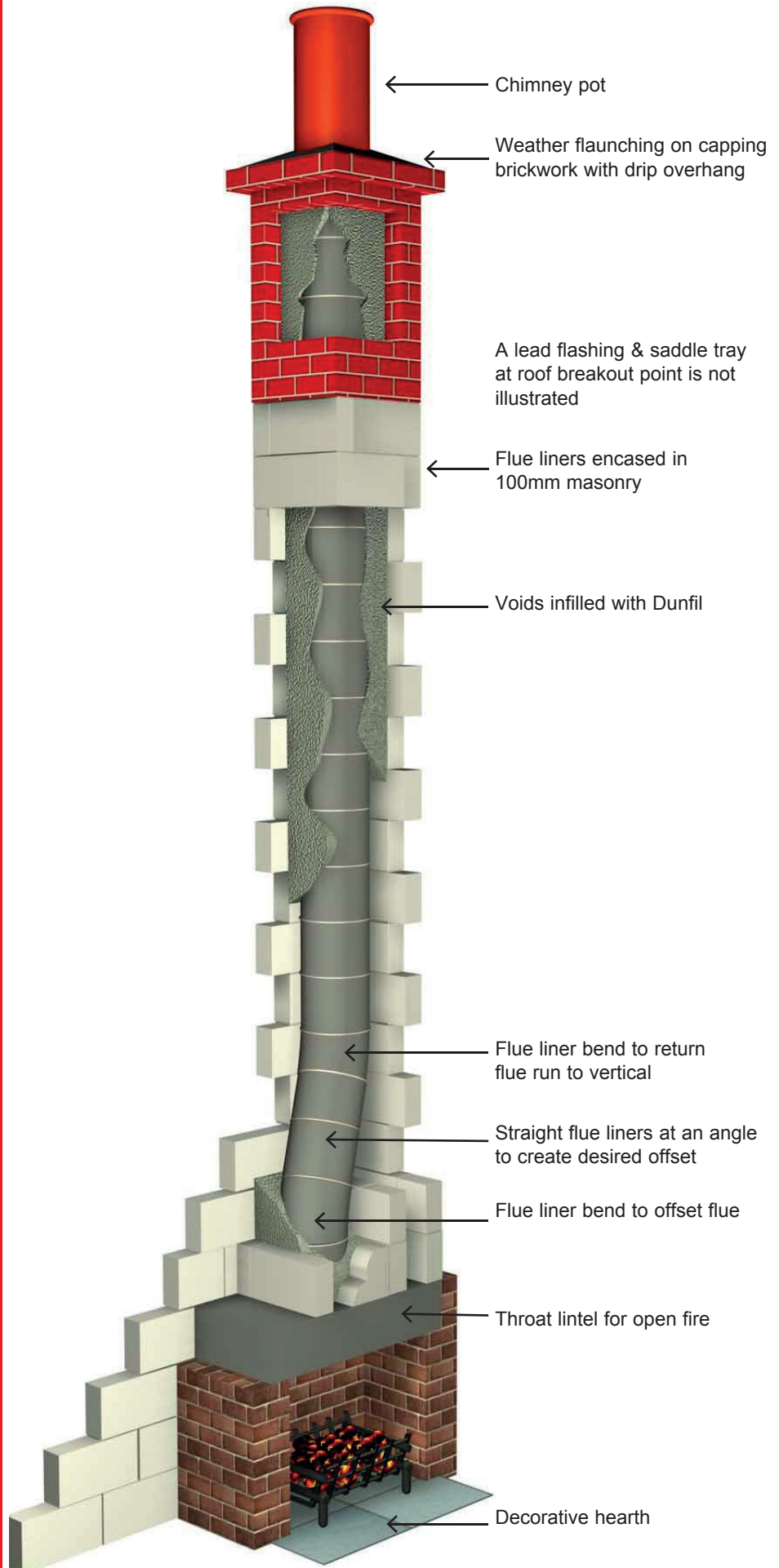
Services

- Flue estimating service
- Installation guides on web or by email
- Products available in the UK

Dunbrik (Yorks) Ltd
172 Ferry Lane,
Stanley,
Wakefield,
West Yorkshire
WF3 4LT

Telephone: 01924 373694
Fax: 01924 383459
email: tech@dunbrik.co.uk
web: www.dunbrik.co.uk

November 2012



Example of 300mm round flue with open grate fire

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Traditional Fireplace



Firebelly FB2 stove with pipe connection



Inglenook with canopy hood
Courtesy of Potton

SYSTEM DETAILS AND DESIGN GUIDANCE

The Dunbrik A1 Concrete Flue Liner Systems are used in the construction of domestic chimneys suitable for all types of domestic fires. A domestic chimney is a structure made with a minimum of 100mm thick masonry lined with purpose made flue liners. Householders can burn any domestic fuel including coal and properly seasoned wood or install any domestic gas fire including flame effect fires.

Flue Liner Ranges

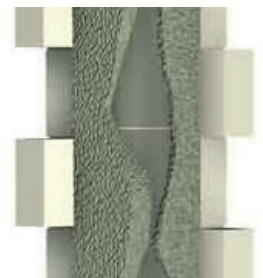
Dunbrik flue liners are available in round sizes – 200mm, 300mm and 450mm internal diameter and square sizes - 250mm and 300mm internal square. These allow for the following fireplace opening sizes for burning all domestic fuels.

Internal flue size mm	Flue cross section 1,000 sq mm	Maximum lintel span mm	Recess depth mm	Maximum recess area 1,000 sq mm	Typical recess width & height mm
200 id	31	600	375	265	500 by 550
300 id	71	800	475	471	800 by 585
450 id	159	1,100	625	1,060	1,100 by 960
250 sq	62	800	425	417	700 by 595
300 sq	90	800	475	600	800 by 750

Flue Liners

Dunbrik concrete liners are made with tongue and socket joints for accurate location and tight jointing. They are manufactured from kiln burnt aggregate and Portland cement and are designed to withstand repeated temperature fluctuations.

Flue liners should be joined with Dunseal fire proof mortar paste. Allow approximately 3 joints per cartridge for 200mm liners, 2 joints for 250mm & 300mm liners and 1 joint for 450mm liners. Any void between flue liners and masonry surround should be filled with Dunfil insulating infill.



Cutout view of liners encased in masonry and infill

Liner Standards

British Standard BS EN 1857 established performance standards for concrete flue liners for domestic chimneys. Dunbrik liners have been tested by BSRIA and achieved the highest categories in each class as follows:

Dunbrik Type A1 - T600 N1 G D 3

Performance data

T600	Temperature	nominal operating temperature 600°C
N1	Gas tightness	negative pressure test at 40 Pascal
G	Sootfire resistance	heat shock tested to 1,000°C for 30 minutes
D	Condensate resistance	for dry flue conditions
3	Corrosion resistance	for all domestic fuels (scrub test for durability)

UK Building Regulations ADJ

Dunbrik A1 Concrete Flue Liners meet the minimum standards set in approved document J (ADJ) and exceed the requirements for temperature and gas tightness.

dunbrik flues
domestic flue & chimney systems

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SYSTEM DETAILS AND DESIGN GUIDANCE

Bends in Flues

A flue liner bend is used to create an offset to align the flue with house walling or to reach a chimney pot position. Bends must not exceed an angle of 45 degrees.

For round flues, the bends can be rotated to offset the flue in any direction, avoiding the need for additional sets of bends and further sweeping access.

The following table sets out the offset achieved with each pair of liner bends and the additional offset with each straight liner inserted between the bends.

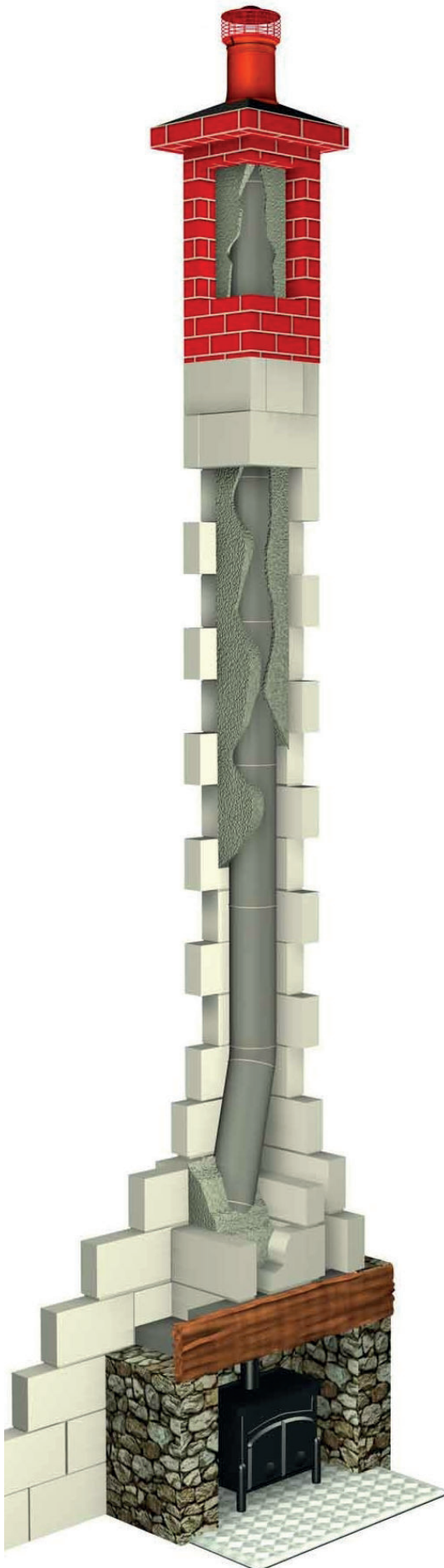
System liner size mm	Angle of Bend	Component	Horizontal flue offset mm	Vertical flue height mm
200 id	22.5 deg	200B pair	55	304
		with 200L600	add 240	add 554
		with 200L230	add 85	add 210
		with 200L150	add 60	add 139
300 id	30 deg	300B pair	125	425
		with 300L230	add 120	add 200
		with 300L150	add 70	add 120
450 id	22.5 deg	450B pair	65	330
		with 450L230	add 85	add 215
		with 450L150	add 55	add 145
250 sq	30 deg	10B pair	90	330
		with 10L	add 115	add 200
		with 10LS	add 70	add 120
300 sq	30 deg	12B pair	110	350
		with 12L	add 115	add 200
		with 12LS	add 70	add 120

Flue Estimates

We can provide you with a flue estimate to suit most configurations of dwelling and flue size. Please complete our estimate request form or telephone our technical staff with your details for an estimate.

Components and installation

Components are available in the UK. Please call 01924 373694 for your nearest supplier. An installation guide for Dunbrik products is available on our website www.dunbrik.co.uk, by fax or by post.



Example of 200mm round flue with a stove

Dunbrik A1 Concrete Flue Liners

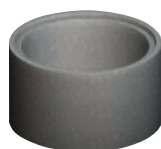
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COMPONENTS FOR ROUND FLUES



Straight flue liner
600mm tall

200L600



Straight flue liners
230mm tall

200L230
300L230
450L230



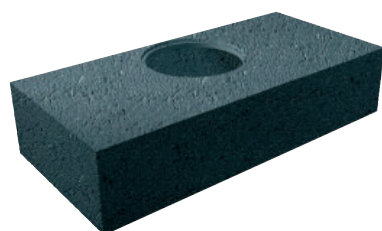
Short flue liners
150mm tall

200L150
300L150
450L150



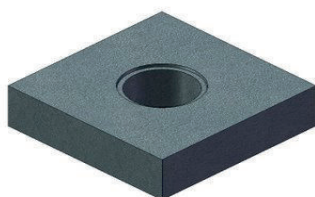
Flue liner bends

200B
300B
450B



Throat lintel/Gather unit

200TL800
300TL1000
450TL1300



Stove connection block

200SCB
300SCB

200mm round liner system For fireplace openings up to 500mm by 550mm and stoves with up to 200mm ext. diameter pipe connection						
	Product Code	Weight kg	Internal Diameter mm	External Diameter mm	Width x Depth mm	Height mm
Straight flue liner - 600mm tall	200L600	20.4	200	260	-	600
Straight flue liner - 230mm tall	200L230	8.0	200	260	-	230
Straight flue liner - 150mm tall	200L150	5.6	200	260	-	150
Liner bend 22.5 degree	200B	4.9	200	260	-	200
Throat lintel 800mm wide	200TL800	74	-	-	800 x 375	220
Stove connection block	200SCB	68	-	-	552 x 552	150
Milner fireback - 450mm	450FB	38	-	-	450 x 175	570
Cannon head chimney pot	Cann450	14	210	280	-	450
Topguard steel cowl 260mm tall	TG260	1.6	220	290	-	260

Taller cannon pots and other designs of chimney pot are also available

300mm round liner system For fireplace openings up to 471,000 sq mm						
	Product Code	Weight kg	Internal Diameter mm	External Diameter mm	Width x Depth mm	Height mm
Straight flue liner - 230mm tall	300L230	10.5	300	360	-	230
Straight flue liner - 150mm tall	300L150	6.4	300	360	-	150
Liner bend 30 degree	300B	10	300	360	-	189
Throat lintel 1000mm wide	300TL1000	114	-	-	1000 x 475	220
Stove connection block	300SCB	59	-	-	552 x 552	150
300mm round straight pot	300RST750	51	300	360	-	750
Topguard steel cowl 350 wide	TG350	3	360	-	-	245

450mm round liner system For fireplace openings up to 1,060,000 sq mm						
	Product Code	Weight kg	Internal Diameter mm	External Diameter mm	Width x Depth mm	Height mm
Straight flue liner - 230mm tall	450L230	15.6	450	510	-	230
Straight flue liner - 150mm tall	450L150	11.0	450	510	-	150
Liner bend 22.5 degree	450B	11.1	450	510	-	247
Throat lintel 1300mm wide	450TL1300	194	-	-	1300 x 625	220
450mm round straight pot	450RST900	105	450	510	-	900
Topguard steel cowl 500mm wide	TG500	3.7	505	-	-	395

Ancillary items		
	Product Code	Weight kg
Liner sealant 310ml cartridge	Dunseal	0.6
Chimney infill aggregate	Dunfil	22
Smoke pellets	Smoke	-
Flue notice plate	Plates	-

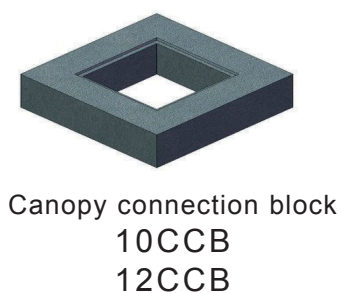
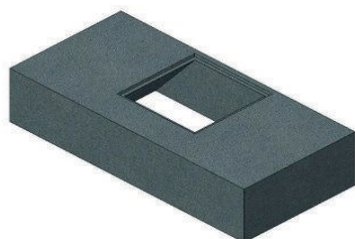
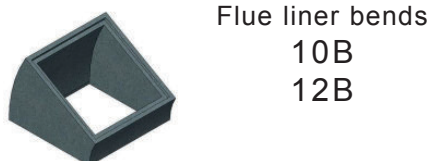
Shapes vary for the different flue sizes and bend angles.

All dimensions are nominal. Specifications may be altered without prior notice.

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COMPONENTS FOR SQUARE FLUES



Shapes vary for the different flue sizes and bend angles.

250mm square liner system For fireplace openings up to 417,000 sq mm

	Product Code	Weight kg	Internal Square mm	External Square mm	Width x Depth mm	Height mm
Straight flue liner - 230mm tall	10L	10.5	250	310	-	230
Straight flue liner - 140mm tall	10LS	6.8	250	310	-	140
Liner bend 30 degree	10B	9.3	250	310	-	245
Throat lintel 1,000mm wide	AF250/1000S	91	-	-	1,000 x 425	225
Canopy connection block	10CCB	61	-	-	552 x 552	150
Square based round pot	SBRP685	29	280	330	-	685
Topguard steel cowl 260mm tall	TG260	1.6	220	290	-	260

300mm square liner system For fireplace openings up to 600,000 sq mm

	Product Code	Weight kg	Internal Square mm	External Square mm	Width x Depth mm	Height mm
Straight flue liner - 230mm tall	12L	14.3	300	360	-	230
Straight flue liner - 140mm tall	12LS	9.2	300	360	-	140
Liner bend 30 degree	12B	15.1	300	360	-	275
Throat lintel 1000mm wide	AF300/1000S	83	-	-	1000 x 475	220
Stove connection block	12CCB	54	-	-	552 x 552	150
300mm round straight pot	300RST750	51	300	360	-	750
Topguard steel cowl 350 wide	TG350	3	360	-	-	245

Ancillary items

	Product Code	Weight kg
Liner sealant 310ml cartridge	Dunseal	0.6
Chimney infill aggregate	Dunfil	22
Smoke pellets	Smoke	-
Flue notice plate	Plates	-

All dimensions are nominal. Specifications may be altered without prior notice.

General Chimney Design and Regulation Guidance

The following may be of assistance in your chimney design and includes references to information sources.

Regulations

A chimney should be designed and built by a competent person with knowledge of regulations and building practices. The detailed requirements are set out for England and Wales in Approved Document J (ADJ); there are similar regulations, with some variation, in Scotland and Northern Ireland. Guidance is also given in NHBC guide, chapter 6.8 and the Lead Sheet Association guide.

Chimney Dimensions and Clearances

A chimney height of 4.5m or over is normally sufficient for flue draught. The depth of the chimney foundations should be the same as any adjacent wall foundation. In order to provide stability, masonry chimneys should be bonded to, or supported by, adjoining walls of the building. The masonry should be suitable brick, medium weight blocks or stone and mortar jointed.

The minimum required wall thickness for a masonry chimney is 100mm and 200mm in the wall adjacent to another compartment or dwelling - see ADJ diagram 2.4. Combustibles must be at least 200mm away from the inside face of the flue liner or have a 40mm air gap from the outside face of the chimney - see ADJ diagram 2.5.

Chimney Lining

The chimney should be lined with suitable liners and purpose made bends. Joints should be kept to a minimum and sealed with fire cement. Liner joints should be installed with the tongue pointing downward into the socket to contain moisture and condensate in the flue. Any voids between liners and masonry should be filled in accordance with manufacturer's instructions.

Bends in Flues

A flue liner bend is used to create an offset to align the flue with house walling or to reach a chimney pot position. The number of bends should be kept to a minimum for better draw efficiency and to enable sweeping access. They are also used to prevent vertical rain ingress, but this can also be achieved with a suitable cowl.

Where more than two bends at 45 degrees are used in a flue, additional sweeping access is required by ADJ 1.48. Bends must not exceed an angle of 45 degrees.

Hearths

A constructional hearth should be made of solid, non-combustible material such as concrete or masonry at least 125mm thick. No combustible material should be placed underneath a constructional hearth unless there is an air space of 50mm or more or the combustible material is at least 250mm below the top of the hearth. A finished / decorative hearth should be at least 12mm thick and made of non-combustible board/sheet material or tiles. For further information refer to ADJ sections 2.22 to 2.29 and 3.40 to 3.42.

Fireplace Recess

The fireplace recess should be constructed of solid non-combustible material. Internal solid walls and jambs should be at least 200mm thick and cavity walls should have at least 100mm thick leaves and 50mm cavity.

Material in the cavity behind the fireplace should be non-combustible. For an open fire the fireplace recess should be at least 350mm deep. For solid fuel, ADJ suggests a minimum recess size of 500mm by 550mm using 200mm diameter liners and for larger openings, a flue cross sectional area of 15% of the face area of the fireplace.

Chimney Stack and Outlets

The height of an unrestrained chimney stack should not exceed 4.5 times the smallest plan dimension of the chimney stack. For heights of chimney stacks in Scotland consult the Scottish Regulations part F 4-10. Please refer to ADJ section 2.10 and diagram 2.1 for recommended positions of the flue outlet above the roof. Details of clearances above easily ignitable roof coverings such as thatched roof are set out in ADJ 2.12 diagram 2.2.

Weather Proofing

A chimney needs to be made weather proof with mortar flaunching around the chimney pot on a brick or concrete capping with drip overhang. Mortar used for the chimney and flaunching should be resistant to rain and frost. Lead flashings are needed at the junction with roof tiles and brickwork to prevent water penetration. A saddle tray damp proof course should be installed across the full span of the stack at the intersection with the roof to prevent water seeping down the chimney. Details of lead saddle trays and flashings are available from the Lead Sheet Association, telephone 01622 872432.

Air Supply For Combustion

An appliance needs an air supply for combustion so the flue can operate properly. ADJ sets out the air supply requirements; general in section 1, solid fuel in section 2, gas appliances in section 3, and oil burning appliances in section 4. Typical examples are available from the Dunbrik website or by post or fax. Some variations occur in the Regulations for Scotland, Ireland and Northern Ireland.

Dunbrik Technical Advice

For further guidance or advice on Dunbrik products contact us, by telephone on 01924 373694, by fax on 01924 383459 or email us at tech@dunbrik.co.uk. See our website at www.dunbrik.co.uk.