R/UTI/FIR/1#9



# REPORT ON FIRE FIGHTING SERVICES IN THE FALKLAND ISLANDS

## PART 3.



## APPENDICES.

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RUSTING.

<ul> <li>2 ROUTINE TESTING OF EQUIPHENT.</li> <li>3 RESULTS OF STANDARD TESTS.</li> </ul>
3 RESULTS OF STANDARD TESTS.
4 INCIDENT REPORT FORM.
5 SPECIAL SERVICE FORM.
6 TRAINING SUMMARY.
7 TRAINING SYLLABUS.
8 SUPPLIERS AND ORGANISATIONS.
9 EQUIPMENT COSTS.
O WATER SUPPLIES WITHIN STANLEY.
1 FIRE PREVENTION GENERAL REQUIREMENT
2 FIRE PREVENTION CODES.

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#### EXISTING EQUIPHENT.

Fire Fly (Foam Unit) Landrover Appliance.
 Fire Fly Landrover Appliance.
 250 gallon Water Tank Trailer.
 Hose Laying Lorry.
 Light Portable Pumps Trailer Mounted.
 Trailer Pumps (recently purchased).
 Trailer Pumps (shortly to go out of service).

In addition to the above vehicles there is a miscellaneous amount of general equipment including 100 lengths of  $2\frac{1}{2}$  inch duraline hose, 200 gallons of foam compound, 3 compressed air breathing apparatus sets, a compressor and one close proximity suit.

#### ON ORDER AWAITING DELIVERY.

- 1 Carmichael Redwing Landrover Appliance.
- 2 250 gallon Water Tank Trailers.
- 1 Emergency Unit Trailer.
- 1 Inflatable boat with 2 inflatable life rafts mounted on a trailer.

In addition to the above vehicles there is provision for certain additional equipment for use on the Redwing Appliance and Emergency Unit. This equipment has been specifically ordered for use at the new airfield.

#### PROPOSED.

The proposed inventories are for the existing appliance. The provision of an additional major vehicle would mean the re-allocation of some of the equipment from the firefly foam unit and the possibility of converting the Redwing vehicle into a Rapid Intervention Unit carrying basic rescue and fire fighting equipment re-allocated from the Emergency Unit Trailer.

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#### BASIC TRAILER PUMP EQUIPMENT.

4 lengths 4 inch x 8 feet suction hose. 1 Suction Strainer. 1 Basket Strainer. 1 pair Suction Wrenches. 1 Collecting Head. 1 suction to 2½ inch instantaneous coupling adaptor. 1 short line general purpose. 4 lengths 2½ inch x 75 feet delivery hose. 2 Branchpipes. 1 x ½ inch nozzle. 1 x ¼ inch nozzle. 2 Hose Bandages. 1 Standpipe. 1 Standpipe key and bar.

## FIRE FLY FOAM UNIT.

1 Extension Ladder. 2 lengths 4 inch x 8 feet suction hose. 1 Suction Strainer. 1 Basket Straincr. 1 pair Suction Wrenches. 1 Collecting Head. 1 suction to 2½ inch instantaneous coupling adaptor. 1 male blank cap  $(2\frac{1}{2}$  inch instantaneous coupling). 1 female blank cap  $(2\frac{1}{2}$  inch instantaneous coupling). 1 double male adaptor (21 inch instantaneous coupling). 1 male to hermaphrodite hose reel adaptor. 2 Hose Bandages. 1 Hose Becket.  $2 \times \frac{1}{2}$  inch nozzles. 1 x 7 inch nozzle. 1 x 1 inch nozzle. 2 Branchpipes. 1 Nozzle Spanner. 1 Hand Controlled Branch. 1 Dividing Breeching. 1 Collecting Breeching. 1 Standpipe. 1 Standpipe key and bar Hydrant adaptors as required. 6 lengths 22 inch x 75 feet delivery hose. 2 Foam Making Branchpipes No 10 with pickup tubes. 4 x 5 gallon foam compound. 3 lengths 2 inch x 60 feet hose reel tubing with hermaphrolite couplings. 1 Hose Reel jet/spray nozzle with hermaphralite couplings. 1 2 gallon water extinguisher. 1 15 pound dry powder extinguisher. 1 5 pound Carbon Dioxide extinguisher. 1 3 pound ECF extinguisher. 1 spade.

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#### FIRE FLY FOAM UNIT (CONP) ...

2 Firemans' Axes. 1 Ceiling Hook. 1 Large Crowbar. 1 Small Crowbar. 2 Canvas Buckets. 2 lengths 12 inch x 75 feet delivery hose. 1 short line general purpose. 1 long line general purpose. 1 lowering line. 1 guide line. 1 guide line. 1 first aid kit. 1 vehicle tool kit and jack. 2 handlamps. 1 close proximity suit. Protective gloves and goggles.

#### FIRE FLY GERMAN CAMP.

As per above except no foam equipment, lowering line and guide line but including:-

1 Set of Chimney Rods.
1 Stirrup Pump.
1 Hearth Kit.
1 Roof Ladder
1 26 inch Saw.
Rubber gloves, glass fibre blanket and insulated gloves.

## TANK.

1 Goose neck. 1 Standpipe. 1 Standpipe key and bar. 1 short length flexible 4 inch suction. 1 pair Hose Ramps.

4 lengths 22 inch x 75 feet delivery hose.

#### HOSE LAYER.

40 x 75 feet x  $2\frac{1}{2}$  inch delivery hose (flaxed). 30 x 75 feet x  $2\frac{1}{2}$  inch delivery hose (rolled). 10 x 5 gallon form compound. 1 x 30 foot extension ladder.

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## HOSE LAYER (CONT) ...

1 long line general purpose. 2 standpipes. 2 standpipe key and bars. 1 pair Bolt Croppers. 2 Large Axes. 1 Sledge Hammer. 2 Grappling Hooks. 4 Salvage Sheets. 6 Salvage Dollies. 2 Squeegees. 2 Brushes. 2 Mops. 2 Long Crowbars. 2 Short Crowbars. 1 Steel Shod Lever. 1 Auger and bit. 3 Sets Breathing Apparatus and Control Equipment. 1 pair of portable ramps. 8 pairs Hose Ramps. 2 Dividing Breeching (Controlled). 1 Collecting Breeching. 1 Dividing Breeching. 1 BCF Extinguisher. 2 Fog Major Branches. 2 Ground Monitors.

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### STANDARD TESTS.

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WEEKLY MONTHLY QUARTERLY	B.A. Vehicl B.A. Vehiclo Salvage Shee	es. Handlam es. Handlam ts.	nps. Portab ps. Branch	le Radios. es.	-
Pumo	Ladder	Lines	Hose Reels	Stirrup Pump	Rubber Gloves
J Firefly A Trailer N	1 Rescue 1 Trailer Firefly	Rescue Trailer Firefly 1 Trailer 1	Firefly 1	Spare .	Spare
F E Firefly B Trailer	2 Firefly 2 2 Spare	2 Firefly 2 Trailer 2	Firefly 2	Firefly 2	
M Redwing A LPP (2) R	Hose Layer Redwing	Redwing LPP Hose Layer	Redwing		Firefly 1
A Firefly P Trailer L	1 <sup>.</sup> Rescue 1 Trailer Firefly 1	Rescue Trailer Firefly 1 Trailer 1	Firefly 1	Spare	Spare
M A Firefly Y Trailer	2 Firefly 2 2 Spare	Firefly 2 Trailer 2	Firefly 2	Firefly 2	
J Redwing U LPP (2) N E	Redwing Hose Layer	Redwing LPP Hose Layer	Redwing	Redwing	Firefly 1
J Firefly U Trailer L Y	1 Firefly 1 1 Rescue Trailer	Rescue Trailer Firefly 1 Trailer 1	Firefly 1	Spare	Spare
A U Firefly G Trailer	2 Firefly 2 2 Spare	Firefly 2 Trailer 2	Firefly 2	Firefly 2	
S Redwing E LPP (2) P T	Redwing Hose Layer	Redwing LPP Hose Layer	Redwing		Firefly 1
0 Firefly 1 C Trailer 1 F	Firefly 1 Rescue Trailer	Rescue Firefly 1 Trailer 1	Firefly 1	Spare	Spare
N Firefly 2 Trailer 2	Firefly 2 Spare	Firefly 2 Trailer 2	Firefly 2	Firefly 2	
Redwing LPP (2)	Redwing Hose Layer	Redwing Hose Layer LFP	Redwing		Firefly 1
IX HONTHLY	DSU Batteri	es.			

NULL DEPARTMENT & SUPPORT DEPARTMENT

SIX MONTHLY

Hose. Hydrants (Minimum). Rubber Gloves.

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RESULTS OF SOME STANDARD TESTING OF APPLIANCES AND EQUIPMENT.

EQUIPMENT.

#### REMARKS.

'FIREFLY' LANDROVER APPLIANCE. 500 GPM PUMP.

'FIREFLY' LANDROVER APPLIANCE. 500 GPM PUMP WITH ROUND THE FUMP PROPORTIONER FOR FOAM PRODUCTION.

GODIVA TRAILER PUMP. 500 GPM.

TWO COVENTRY CLIMAX TRAILER PUMPS. 250 GPM.

COVENTRY CLIMAX LIGHT PORTABLE PUMP. 250/300 GFM Failed output test only 120 GPM being obtained on a 10 ft lift. 2 lengths of suction hose found to have damaged couplings. No internal strainer.

Failed output test only 350 GPM being obtained on a 10 ft lift. Pump subsequently down rated to 350 GFM. Failed vacuum test primer being

unable to obtain more than a 10ft lift. No internal strainer, one length of suction crushed. Basket strainer available but without canvas skirt. Primer subsequently repaired but with persistent leak.

This pump developed a serious oil leak around the head gasket and the test had to be cancelled. The pump was new in 1976 and was 13 months old at the time of the test. Subsequently drained of some oil and found satisfactory. THE REAL PROPERTY OF THE PARTY OF THE PARTY

These pumps obtained in 1940 were subjected to test. One pump satisfactorily passed although its general condition was very poor. The other could not be tested due to the drain valve having broken away inside the pump casing. The rated output of the pump tested was 500 GPM.

This pump satisfactorily passed the standard test although the priming lever tended to jam and required attention. There was no internal strainer.

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AJAX 30 FT ENTENSION LADDER 1.

This ladder was found to be in good condition although it had not received any attention other than a new extending line. This line had been incorrectly fitted and had to be replaced. After a little attention the ladder was found acceptable.

AJAX 30 FT EXTENSION LADDER 2.

This ladder was found to be in poor condition due to mechanical damage. The ladder had been carried on the Hose Layer without a properly constructed gantry where there were a number of bolts protruding and striking the ladder. Six rounds and one string were found to need replacement together with the extending line which was new but fitted incorrectly so as to prevent the ladder being housed within two rounds of the heel.

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## STANLEY FIRE HRIGADE

INCIDENT REPORT

DATE AND DAY OF CALL	
ADDRESS OF INCIDENT	
NAME OF OCCUPIER	BUSINESS OR TRADE
TIME OF CALLTIME UNDER CONTROL	TIME INCIDENT COMPLETED
SUPPOSED CAUSE	
DESCRIPTION OF DAMAGE	
METHOD USED BY BRIGADE	
-	
METHOD USED BEFORE BRIGADE ARRIVED	
RESCUES, ESCAPES, CASUALTIES	
	()
PPLIANCES ATTENDING	
EMARKS	
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## STANLEY FIRE BRIGADE

### SPECIAL SERVICE CHARGE FORM.

DATE\_\_\_

ADDRESS

REQUEST FROM

SERVICE REQUIRED

SIGNATURE OF PERSON REQUESTING AND AGREEING TO SERVICE

## SCALE OF CHARGES

EXTINGUISHER RECHARGING PER EXTINGUISHER EXTINGUISHER EXAMINATION PER EXTINGUISHER PUMPING AT PER HOUR PER PUMP FIREMEN AT PER HOUR PER MAN

EQUIPMENT AND SERVICES PROVIDED

						1 ~ · P
	EXTINGUISHER	RECHARGED	No	0	each	
	11	FXAMINED	No	0	each	
•	PUMPING. Tota	al No Hours	s @	per	hour	
	FIREMEN. No M	ian Hours	0	per	hour	
		DOUTDED				(

ADDITIONAL SERVICES OR EQUIPMENT PROVIDED (STATE FULLY)

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SUMMARY	0F	TRAIN	NING	GIVEN	IN	STANLEY.
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ORGANISATION.	SUBJECTS.	PERSONNEL.
STANLEY FIRE BRIGADE	Hose, Construction Maintenince, Hose Fittinge, Branch Work, Working from Ladders and aloft. Practical Exercise 2 roof jets supplied by 2 pumps in closed Relay.	13
STANLEY FIRE BRIGADE	Aircraft Design and Fire Fighting Tactics.	4
STANLEY FIRE BRIGADE	Pumps, Construction Primers, Effect of Lift and Suction, Working from Open Water, Working from Hydrants, Relay Work, Practical Exercise, Closed Relay.	10
HOSPITAL STAFF	General Fire Precautions, Lecture and Demo.	21
STANLEY FIRE BRIGADE	Exercise, Water Relay to Davis Street from Public Jetty - 3 jets 400 gal min to work in Davis Street.	10
STANLEY FIRE BRIGADE	Exercise - No 1000 FMB to work on oil tank rear of Power Station supplied by relay from foreshore opp Street.	12
STANLEY FIRE BRIGADE	Portable extinguishers, methods of rescue, cylinder fires, search procedures, practical pump operations, foam equipment.	12
TANLEY FIRE ERIGADE	Breathing Apparatus. Construction Gare Maintenance. Control Proceduros. Practical Exercise Town Hall.	6

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#### ORGANISATION.

#### SUBJECTS.

#### PERSONNEL.

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STANLEY FIRE BRIGADE

Practical Exercise Stanley Hospital. 3 jets working from sea water relay. Evacuation of 6 patients from Wards.

STANLEY FIRE BRIGADE

Knots and lines. Methods 6 of Rescue.

PUBLIC WORKS LEPARTMENT (2 Week Course) (Including Superintendant and Assistant Superintendant of Fire Brigade.)

Day 1

Basic Combustion, Use of water jets, spray fog. Hose - construction - delivery and suction. Standard Tests - care and maintenance. Friction loss - lift. Hose Drills. Extinguishers. Methods of Rescue. Knots and lines.

Day 2

Day 3

Day 4

Day 5

Ladders - care, maintenance, standard tests. <sup>4</sup> Ladder Drills and working on ladders. Methods of rescue - carry down and picking up drill. Knots and lines.

Types of pumps and primers - construction. Cooling systems and gauges. Practical operations. Standard Tests. Pump Drills.

Aircraft construction. Aircraft Tactics. Practical foam drill. Aircraft standby duties.

Foam equipment - types of equipment and compounds. Method of application and techniques. Cylinder fires. Acetylene and liquified petroleum gas. Practical drills Youth Club and YPF. Tank Valve Tactics. Day 6

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Day 7

Day 8

Day 9

Day 10

Revision

Principles of Breathing Apparatus. Description and Construction of Spiroatom I and II Breathing Apparatus. Control Procedures. Dressing Drill. Familiarisation exercise. Use of guide line - search procedures . Exercises Town Hall and Smoke Chamber.

BA Control Procedures. Portable extinguishers. Practical exercise on oil fire using spray and dry powder. New airfield topography, access routes, water supplies, installations.

BA Smoke Chamber exercise. Pump Exercise. Foam Exercise.

Salvage methods. Breaking in methods. Use of close proximity suits. Practical foam and pump drills. Aircraft standby duties.

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## TRAINING SYLLABUS.

WEEK	l	-	Hose drills. Care and Maintennuce of Hose. Standard Tests.
WEEK	2	-	Pump drills. Principles of pumps and primers. Practical pumping and elementary fault finding.
WEEK	3	- '	Ladder drills. Knots and lines.
WEEK	4	-	Foam equipment drills. Oil fires extinguishment.
WEEK	5	-	Rescue drills. Methods of entry and searching.
WEEK	6		Use of portable extinguishers. Gas cylinder fires. Aircraft fires.
WEEK	7	-	Combined Exercise.
WEEK	8	-	Breathing Apparatus Training.

The above suggested syllabus details briefly the type of training pattern that should be established with an emphasis on practical work.

The syllabus is continuous but drill situations should be varied to provide variety and maintain interest.

APPENDIX 8

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Sector 1

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## SUPPLIERS AND ORGANISATIONS.

Manufacturers and Suppliers of Fire Fighting Equipment. Manufacturers and Suppliers of Emergency Lighting Systems. Manufacturers and Suppliers of Fire Alarm Systems. Manufacturers and Suppliers of Chair Linking Devices. Manufacturers and Suppliers of Fire Escapes. Organisations.

## CHESHIRE FIRE BRIGADE

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Staffordshire US 14 9DJ

## MANUFACTURERS AND SUPPLIERS OF FIRE FIGHTING EQUIPMENT

This list is not exhaustive and is provided solely for the convenience of those requiring information. It does not signify or imply approval of any kind.

1		
Telephone Telephone	No.	Telephone No.
Dark Hatt Ltd., 061 205 2	321 Dunford Fire Engineering Ltd.	
Park Works 001 205 2.	81 Hyde Road	061 223 4477
Hanchester	Ardwick	001 2/9 .14//
M 10 6BA	Monchester M12 (DA	
	Manchester Mrz Obst	
La Firesnow Ltd.,	Ente Halling C.C.	
Queens Avenue 0625 25/2/	Eric Walker & Go.,	35187
Hurdsfield 0025 25424	• 107 Whitchurch Road	
Nacclesfield	Chester	
	· · · · · · · · · · · · · · · · · · ·	
SKIU ZDL	L & G Fire Appliance Co. Ltd.,	
	100 Vauxhell Boad	051 207 1234
John Kerr & Co (Manchester) Lt .,	Liverpool 13 (57	001 201 1204
Head Office & Works	Elverpoor ES off	
Ashcroft Road 051 546 26		
Kirkby Industiral Estate	John Morris & Sons Ltd.,	
Liverpool 133 7TS	Salford Fire Engine Works	*
Liverpoor LSS /15	Salford	061 736 1495
	Manchester M5 4HJ	
North Staffordshire Fire		
Extinguisher Maintenance Service	Thomas Glover & Co. 1td	
Lane House Stoke-on-T	tent Fire Protection Engineers	051 624 9591
Bunts Lane 503402	Vathoreber	001 024 7371
Stockton Brook	nachersnaw ol W	
Stoke-on-Trept	Olcham	
A DEGRE ON FRONT		
We Coift International Itd	North Wales Fire Protection	
Ru Switt International Ltd.,	Services	
G Elland 0422 / 2852	Engle Star House	
Yorks HXD 9DS	9 Umpstar Pood	0492 2407
1988 - Contract - Cont	Galaxia Pag	
Fire Appliance Co.,	Colwyn Bay	
Progress Ho ks 001 480 743	North Wales	
Ardenfield Street		
Stocknarr SK1 3HU	Cottrell & Jones	
a compete star official	Fire Protection Engineers	031 330 2850
	31 Brunswick Street	002 000 2000
a & H Fire Extinguisner Co.	Duckinfield	
Lta.,	DUCKINITEIU	
M.F.P. Engineering Division		
New Eird Street 051 709 7805	Chubb Fire Security Ltd.,	
Liverpool 1	Albert Close Trading Estate	
	Whitefield	001 706 7721
Incur Dive Auroun	Nr. Hanchester	
Thame 4545	M25 AFH	
Theme Park Road Make 4949	HZJ UM	
Thome		
Oxcn.	Lister Fire Protection Co.,	
	Lister Industrial Estate	
Nerryweather & Sons Ird	Negdalo Street	061 652 5429
	Hochdale Road	
175 UXIOTG LOAD USI 273 2765	Oldham OLL 2D!	
Manchester 13.		
The Walter Kidde Co. Ltd.,		a la constante a suit
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#### CHESHIRE COUNTY FIRE BRIG.DE

## MANUFACTURERS AND SUFPLIERS OF EMERGENCY LIGHTING SYSTEMS

Telephone No. Telephone No. CENG LTD., Bardic Systems Ltd., Barnsley 0703-30611 - William Street, P.O. Box. 10, 6842/5 SOUTH APTON. Queens Road, SO1 1QH BARNSLEY, YORKSHIRE Security Lighting Ltd., 01-681-0211 S71 1/X Pegasus Road, CROYDON CD-Manchester Batterics Ltd., 061-973-2233 CROYDON CRO 4RQ Glassklad Works. Wharf Road, EGHAM 5517/8/9 Off Broad Road, Selecta Systems Ltd., SALE Kinglite Emergency Lighting, Choshire M33 2AF Systems Division, The Precinct, High Street, High Frequency Propogation Ltd., EGILM, 497 Sheffield Road, 0246- 51123 Surrey. Whittington Moor, (Northern Region 150 Heywood Street, CHESTERFIELD S41 813 (Northern Regional Office, BURY 8095 SAFT (United Kingdom) Ltd., Lancs). Cadmion Nickel Batteries Division. Castle Works, 01979-7755 Station Road, S.L.R. Electric Ltd., POTTERS BAR HAMPTON, Cranborne Industrial Estate, 58121 Middlesex. POTTERS BAR, Herts. The Synchronope Co. Ltd., Energenc, 1 1 Walker Lines, Emergency Lighting Co., 061-834-4683/4 0208-3476 86 Cross Street, MANCHEGTER. Cornwall. H.F.P. (Chesterfield) Ltd., Electronic Alarms Ltd., Staines 497 Sheffield Road, 0246-51123 Factory No. 4, 55701 Whittington Moor, Staines Central Trading Estate, STAINES, CHESTERFIELD, Middlesex. 3 Derbyshire S41 8NB

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## CHESHIRE COUNTY FIRE BRIG.DE

## MANUFACTURINS AND SUPPLIERS OF FIRE ALARY SYSTEMS

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1	ANUFACTU? RS AND SI	UPPLIERS OF FIRE ALARY SYSTEMS	*
-Lee	Telephone No.		Pelephone No.
Systems Ltd., Systems Ltd., Aulkner House, Sulkner Street, CHINTER 1.	061-228-2834	Simplex Time Recorder Co. (U.K.) Ltd., 4,5 Irwell Chambers West, Union Street, LIVERPOOL. 2.	Central 6321
Faraduy Works, MOINTER. LOS 4JF	0533 730251	Chubb Fire Security Ltd., Fire Detection Division, Pymone House, Sunbury-on-Themes Middlesex.	Sunbury-on-Thames 85588
	eers,	Sound Diffusion Ltd., Datum Works, Davigdor Road, HOVE Sussex BH3 1R2	0273 775 499
Eafety Alarm Services (Croydon) Ltd., Ecurity House, The Green, Warlingham.	Upper Warli <del>ng</del> ham 5225/6/7	AFA/MINERVA LTD., Security Centre, 29 Hope Street, LIVERPOOL	051-709-7792
Synchronome Co. Ltd.,	061-834-4683/4	and at: Fire Station Buildings, London Read,	061-236-7191
urter & Co(Nelson) Ltd. Aco Morks, Sycanore Avenue, MLEY Lancs.	0282 27911	Telephone Rentals Ltd., 197 Knightsbridge, LONDON S.W. 7. also at: T.R. House, 1 Eridle Way, BOOTLE 1.30 40A	051-525-1756
Standard Telephones & Cables Ltd., ivate Communications Di Fostscray, CUP Kent. DA14 9TA	01-300-7788 <sup>iv.</sup> ,	John Morris Detectors Ltd., Fire Engineers & Mfrs., Salford Fire Engine Works, Gross Lane, SALFORD, N5 441J	061-736-1495
L. & G. Fire Appliances Co. Ltd., Vauxhall Road, IVERPCOL. 3.	051-207-1234	Mather & Price, Electrical & Mechanical Engs Froghall Bridge, WARRINGTON.	Warrington , 32427
Esin Ltd., Earsland Road,	061-962-2137	Brun Alarno Ltd., 4 Longford Road, Stretford, <u>M.MCHESTUR</u> , N32 CHS	061-865-2470
.W. Longley Ltd., Jough Street, LIIIY Stoke-on-Trent.	Stoke-on-Trent 22578	Graviner (Colnbrook) Ltd., Poyle Mill Works, Colnbrook, SLOUGH Bucks SL3 OHB	Colnbrook 3245
257 Canterbury Road,	061-743-6676	Shorrock Developments Ltd., Shadsworth Road, Blackburn Lancs, BB1 22R	0254 63644

## CHESHIRE COUNTY FIRE BRIG.DE

SUPPLIERS AND MANUFACTURERS OF CHAIR LINKING DEVICES

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Name of Firm

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Telephone No.

Biddulph Industries, Old Chapel Works, Llys Faen, Colwyn Bay.

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049 266 346

R.W. Whittle Ltd., P.V. Works, Monton, Eccles, Lancs.

MIRCH 1973.

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#### CHESHIRE FIRE BRIGADE

### MANUFACTURERS AND SUPPLIERS OF FIRE ESCAPES

This list is not exhaustive and is provided solely for the convenience of those equiring information. It does not signify or imply approval of any kind. Telephone No. Telephone No. teelway L & G Fire Appliance Co. Ltd., 051 207 1234 lynwed lubes and Structures Ltd., 100 Vauxhall Road Queensgate Norks 0902 51733 Liverpool L3 6EZ Bilston Road olverhaspton Merryweather & Sons Ltd., 01 692 1016 Staffordshire WV2 2NJ Greenwich High Road London S.E. 10. John Hall & Sons (Oldham) Ltd., Fiross Bank Street Deeside Broadhurst Ltd., 061 624 3861 1 Oldham OLE 1HD Mile End Llar collen 860324 Llangollen Styal Engineering Co., C1wyd Quarry Bank Mill Styal Durasteel Ltd., Wellingborough 099 64 25080 Bradfield Road lilmslow 71188 Wellingborough Greater Manchester Northants NN8 4HB Thomas Glover & Co. Ltd., 061 624 9591 Amalgamated Fire Alarm Co. Ltd., Hathershaw Vickers Street 1 Oldham 061 205 1636 . Miles Platting Dunford Fire Engineering Ltd., Manchester M10 8FF 43 Bent Street Crescent of Cambridge Ltd., Manchester 061 834 5218 New Street 112 6BA Cambridge CB1 2RP Erectowed Co., 34 Baring Street South Shields 64670 South Shields Co. Durham Clark Hunt & Co. Ltd., Architectural Metalwork m318-326 Southbury Road Enfield Middlesex EN1 1TT

AUGUST 1975

#### Organisations.

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Home Office (Fire Department) 50 Queen Anne's Gate LONDON. SW1H 9AT.

Fire Service Technical College Noreton in Marsh GLOUCESTERSHIRE, GL56 ORH.

Department of the Environment Building Research Establishment Fire Research Station Borehamwood HERTFORDSHIRE.

British Standards Institution 2 Park Street LONDON. W1A 2BS.

Fire Protection Association Aldermary House Queen Street LONDON. EC4N 1TJ.

Institution of Fire Engineers 148 New Walk LEICESTER. LE1 7QB.

Commonwealth & Overseas Fire Services Association Unisal House 32-35 Dudley Road Tunbridge Wells, KENT. TN1 1HL.

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Timber Research & Development Association 26 Store Street LONDON. WC1E 1EU.

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## EQUIPAENT COSTS.

ITEM.	COST
Suction Hose	£ p 26 50
Suction Strainer Stnd	6 00
Strainer Basket	3 00
Collecting Head	20 00
Suction Wrenches	1 50
$2\frac{1}{2}$ inch Hose Lengths	48 36
1 <sup>3</sup> / <sub>2</sub> inch Hose	35 47
Hose Reel Tubing (60 ft lengths)	15 00
HC Spray Jet	30 00
Hose Reel (Complete)	15 00
Fog Major	64 59
Plastic $\frac{1}{2}$ inch Branchpipe	3 00
Plastic 1 inch Branchpipe	3 00
100 ft Lowering Line	16 22
120 ft Guy Line	9 00
B.A. Set (Normalair)	186 00
Spare Cylinders	52 00
DSU's	10 00
Handlamps (F/Proof)	5 00
Foam Compound (per gall)	2 00
31b BCF Extinguisher	10 00
Bolt Croppers	12 00
alvage Sheets (including canvas)	20 00
eiling Hooks	4 00
anvas Buckets	2 00
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Auger and Handle	4 00

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HT Gloves in	Box		5	00
Gloves			3	00
Stirrup Pump			3	50
Chimney Rod	Sets		24	00
Insulated Pla	iers		2	00
Fibreglass B	lankets		6	20
Goggles				80
Hose Repair	Vulcaniser		60	00
Hose Binding	Machine		60	00

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#### MATER SUPPLIES WITHIN STANLEY.

The following flows were obtained at the listed hydrants by timing the filling of a tank of known capacity. They are, therefore, only approximations.

Additional the static head available was too: on some hydrants and the flow levels were higher than those oblained on previous days, possibly due to factors such as reduced domestic consumption and length of time hydrants were fully open.

Location.	Flow - Callons Per Minute.
Ross Road West (Centre)	24
Race Course Road - Opp D G House	36
Government House	80
Brandon Road - Junction Reservoir Ro.	ad 40
Brandon Road	24
Davis Street - Junction Dairy Paddoch	k 28
Davis Street - Junction Hebe Street	18
Kent Road - Junction Glasgow Road	24
Hebe Place .	30
Fitzroy Road East	8
Fitzroy Road - Rear F.I.C.	14
Fitzroy Road - Junction Philomel Hill	l 25
Fitzroy Road - Junction Dean Street	35
Fitzroy Road - Junction Villiers Stre	eet 35
Villiers Street - Flag Staff Hill	70
Brisbane Road	55
Moody Street (Centre)	60
Allardyce Street (Centre)	70
Drury Street - Opp Fire Station	70
John Street - Junction Villiers Street	t 70
John Street - Opp School	58
Philcmel Hill - Opp Globe Hotel	45
Ross Road - Junction Dean Street	28
Ross Road - Junction Villiers Street	28
Secretariat Drive	60
Hospital Drive	60
Rear of Town Hall	60

#### FIRE PREVENTION - GENERAL REQUIREMENTS.

HALF HOUR FIRE RESISTANCE FOR DOONS, ENCLOSURES, PARTITIONS AND GLAZING.

The following notes give guidance on construction for the above elements. Good workmanship is essential if gaps, joints through which fire can pass etc are to be avoided.

DOORS.

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- (a) Fire check flush doors conforming to British Standard 459 or
- (b) Solid timber door  $l_{\frac{1}{2}}^{2}$  inches thick or
- (c) 1 inch thick solid timber door impregnated to make it fire resisting or
- (d) Doors conforming to British Standard 476 test for 30 minutes or
- (e) Existing doors upgraded in accordance with manufacturers instructions utilising fire resisting materials of insulation. (See attached information sheets.)

Any glazing within the above doors to comply with glazing given in glazing section below.

Doors should be provided with a continuous timber stop around the sides at head of the frame. The dimensions of the stop must be at least 1 inch parallel to and  $1\frac{3}{4}$  inches at right angles to the door face.

Doors should normally be fitted with a positive self closing device.

#### PARTITIONS AND VERTICAL OPENINGS (CHUTES).

- (a) Solid timber 12 inches thick.
- (b) Solid timber 1 inch thick and impregnated to make it fire resisting.
- (c) Solid timber 1 inch thick lined on both sides with  $^{2/}_{16}$  inch fire resisting insulation board.
- (d) Brick, concrete, hollow tiles not less than 3 inches thick.
- (e) Woodwool slabs 2 inches thick with  $\frac{1}{2}$  inch plasterboard on each side.

Hollow timber framework with :-

(f)  $\frac{5}{3}$  inch plasterboard on each side of partition with  $\frac{2}{16}$  inch plaster skim.

- g inch plasterboard on each side.
- (1) 1 inch wood wool slab on each side with 2 inch plaster on each side.
- (i) <sup>†</sup> inch fire resisting insulation board on each side in accordance with manufacturers instructions.
- (j) ½ inch plywood on each side with glass or mineral wool infilling nailed between studs.

#### GLAZING.

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#### WITHIN PARTITIONS.

Glazing to be  $\frac{1}{2}$  inch thick wired glass. The glazing should be in frames not more than 13 sq.ft. in area. All frames must be fixed shut and where glazing is not held by beads springs or clips should be used to hold the glass in position.

#### WITHIN DOORS.

Glazing can be either inch thick wired glass or unwired glass providing the area of the panel does not exceed 100 sq.ins.

Full guidance of fire resisting glazing is given in British Standard Code of Practice 153: Part 4: 1972.

#### FLOORS AND CEILINGS.

- (a)  $\frac{3}{2}$  inch Gyproc lath and plaster  $\frac{1}{2}$  inch thick.
- (b) Metal lath and plaster  $\frac{2}{5}$  inch thick.
- (c) Wood wool slab 1 inch thick with  $\frac{3}{16}$  inch plaster.
  - (d) Plasterboard  $\frac{1}{2}$  inch thick with  $\frac{1}{2}$  inch plaster.
  - (e) Fire resisting insulating board inch thick fitted in accordance with manufacturers instructions.

All the above are with plain edge floor boarding.

Joists should always have a width of at least  $l_2^{\frac{1}{2}}$  inches and a depth of 4 inches.

Additional information particularly regarding the fire resistance of timber partitioning can be obtained from the Fibre Building Board Development Organisation Limited, 6/7 Buckingham Street, London WC2N 6BZ.

#### MEANS OF ESCAPE.

Ultimate chit doors should not open directly over steps. Where necessary ramps should be provided or a platform at least as wide as the door. Exit doors not in normal use should be fastened only in such a manner that they can be easily opened from within. Where automatic fastenings are used the method of operation should be clearly indicated i.e. FUSH EAR TO OPEN. Similarly such doors should conspicuously and clearly be indicated 'FIRE EXIT'.

Doors from rooms having more than 50 occupants should open in the line of exit or swing both ways.

#### GAS INSTALLATIONS.

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Main gas controls should be clearly indicated by a conspicuous notice. They should be reasonable to get access to and in a well ventilated space.

The supply to burners should be connected by rigid metal piping and burners should be securely fixed on an incombustible metal base.

Rubber tubing where used must be regularly examined to ensure it remains in good condition.

Supply cylinders should be houses in a suitable storage building or cabinet constructed in accordance with British Standard Code of Practice CP 338. Cylinder storage should never be below ground in basements or cellars.

Cylinders should not be taken inside buildings if at all possible. Where they are taken in for maintenance uses etc. the guidance contained in Fire Prevention Guide 4 'Safe use of LP Gas in Residential Premises' should be followed.

#### ELECTRICAL INSTALLATIONS.

The door to main electrical intake rooms should be clearly indicated 'MAIN ELECTRICAL INTAKE'.

The wiring and installation of electrical circuits should be in accordance with the Institution of Electrical Engineers Regulations.

All main and sub-main circuits switchgear should be clearly marked to indicate which circuit(s) each controls.

The lining of electrical intake rooms should, so far as so practicable, be non-combustible.

There should be no combustible storage within electrical intake rooms and switchgear likely to have combustibles placed on or near to it should be suitably guarded.

Electric lamps likely to come into contact with combustible materials should be guarded either by a metal cage or by an enclosed lamp fitting.

#### HEATING.

The design of chimneys and fireplaces should be in accordance with that given in the attached information sheets.

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The storage of oil should be in accordance with British Standard Code of Practice 3002.

The storage tank should be of substantial mild steel. Galvanised metal should not be used. The tank should have a closed type and be supported on strongly constructed brick, concrete or metal cradles.

The tank should be sited in the open above ground. It's location should be such that an overflow can flow to a safe place. Where this cannot be achieved an oil tight bund or catchpit capable of holding the contents of the tank plus 10% should be provided. A surface water drain valve should be provided to remove surface water from the bund. The drain should be kept closed.

Each tank should be vented at the top and the vent pipe should terminate at a safe point in the open. The vent should be turned down and fitted with a mesh cage at the open end.

A suitable oil level indicator should be provided.

A fire value should be provided preferably within the oil bund. Where this cannot be achieved it should be placed as near as possible to the entry point of the fuel line into the tuilding.

An oil level control device should be fitted on vapourising burners designed so that under abnormal working conditions the oil flow is stopped.

Boilers should preferably be located in a separate fire resisting compartment accessible only from cutside the building. They should not be installed in garages or similar locations where there may be an accumulation of flammable vapours. When located within a building they should be enclosed.

A suitable non-combustible threshold should be placed across the doorway to prevent the outflow of oil.

A boiler should be placed on a non-combustible heath and when located within a kitchen or living room it should be adequately protected and a non-combustible curb provided around the base.

Chimneys and flues should be substantially constructed or lined with materials capable of withstanding the higher flue gas temperature to which they will be subjected. They should be free from leakage and cleaning doors should be provided to permit easy cleaning.

A suitable fire extinguisher should be provided and/or a quentity of dry sand in buckets near storage tanks and burners.

If the fill pipe is below the level of oil within the tank then a screw down fullway type oil valve should be provided. Tubular heaters and oil filled radiators present little hazard providing adequate attention is given to their installation circuit and flexible connections.

Portable electric fires should be guarded in accordance with the British Standard Approved Fireguards.

#### PARAFFIN.

Heaters should comply with the regulations of the British Standards Institute.

The chief causes of fire with this type of heater are, exposure to draughts, moving heaters whilst alight, filling while alight, knocking over, neglect, children playing with heaters, being out of level and failure to follow the manufacturers instructions.

#### FIRE EQUIPMENT.

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Portable appliances should be wall mounted so that the base of extinguishers are about 2 feet 6 inches, and open ends of blanket containers about 4 feet 6 inches, above floor level.

Water is suitable for ordinary combustible material such as wood, paper and textiles.

Foam is suitable for fires involving flammable liquids.

Dry powder is suitable for fires involving flammable liquids and in some cases ordinary combustible material and fires involving electrical equipment.

Carbon Dioxide is suitable for electrical fires and in some cases ordinary combustibles and flammable liquids.

Buckets of sand are useful where there may be a small spillage of flammable liquids.

Fire Blankets are suitable for smothering small fires of cooking fat and flammable liquids and are invaluable in dealing with clothing fires.

Hose reels provided in buildings are superior to portable extinguishers but the supply must be capable of maintaining a minimum flow at the reel of 5 gallons per minute through a 3/16 inch or  $\frac{1}{2}$  inch nozzle.

#### FIRE ALARMS.

#### MANUAL ALARM.

Manual alarms consist of simple warning devices such as hand operated gongs, triangles, klaxons, handbells etc. The striker should always be attached by a suitable length of chain if it is not an integral part of the scander.

#### ELECTRICAL ALARMS.

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Electrical alarms should normally comply with British Standard Code of Practice 1019: 1972.

A system of electrically operated bells, klaxons, sirens etc. having call points which on the operation of any one sounds all warning devices in the system without the need to maintain the action is the basic provision of an electrical alarm.

A simple electrical fire alarm may consist of a direct mains electrical supply subject to the following:-

Wiring should be MICC, PVC or similar installed in accordance with Regulations of the Institution of Electrical Engineers.

The supply is to be on a separate circuit taken direct from the mains incoming supply, through a separate fused switch which should be clearly marked 'FIKE ALANM MAIN SWITCH - DO NOT DISCONNECT'.

Wiring should be routed through areas of negligible fire risk.

An installation complying to BSCP 1019 will have a standby supply and may include the provision of fire detectors, indicator panel and direct link to a manned control point.

General provisions for both manual and electrical fire alarms should include the following:-

The alarm to be clearly audible throughout the premises.

It should be capable of being operated without exposing any person to undue risk.

The method of operating call points should be clearly displayed i.e. 'BREAK GLASS'.

Call points should be fixed at about 4 feet 6 inches above floor level. Manual alarms should be kept on permanent shelves or brakets.

#### EMERGENCY LICHTING.

Emergency lighting is lighting which in the event of failure or disconnection of the normal lighting supply will provide sufficient illumination to enable persons to leave the building

safely. The illumination must be provided in stairways, exit routes and exit and directional signs.

The system which preferably should be electrical should either come into operation automatically on failure of the main electrical supply or be maintained operating at all times when natural lighting is insufficient for escape purposes.

The supply must be capable of maintaining illumination for at least one hour and should not be used to supply other equipment.

#### FIRE ROUTINE.

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Fire drill routine is an established action taken to ensure that staff and residents within a building know what action they should take in the event of fire.

Notices indicating the action to be taken should be prominently displayed and once in every period of 6 months a practice should be held.

A fire routine should follow the sequence of, raising the alarm, evacuating the building, calling the fire brigade, assembling at a pre-arranged point and taking a roll call.

Specific actions may be given to selected individuals to ensure for example that the Fire Brigade is called or certain essential records are removed or locked away.

#### HOUSEKEEPING.

Good housekeeping is essential to safeguard means of escape and other prime fire safety measures. In particular exits must be kept clear and unobstructed and fire equipment, fire alarm call points and notices must be kept clearly visible and unobstructed.

Waste material should be collected and removed daily and if possible removed to outside the building away from sources of ignition. Metal bins should be provided for normal waste and the contents of ashtrays should not be placed with rubbish and floor sweepings.

Cleaners' equipment and materials should be kept in cleaners' stores and rags should not be allowed to accumulate.

Flammable liquids within work rooms should be kept to the minimum required for immediate use.

Stores of combustible materials should be 'NO SMOKING' areas.

Temporary electrical wiring should be replaced by permanent wiring.

All important records should be kept in secure fire resisting safes or cabinets or strong rooms.

Temporary displays must not obstruct means of escape or introduce high fire risk materials.

#### TREATMENT OF FLARMARLE MATERIALS FOR STAGE USE.

On stage productions materials used should be inherently flame retardant or treated to reduce the risk of ignition and flame spread.

Materials inherently flame retardant such as heavy wool, silk, glass fibre, should be used for drapes and curtains whilst materials used for scenery may be cotton and other cellulosic material provided they are suitable and treated. A suitable treatment is to throughly impregnate the materials with a solution of Borax, Boracic Acid and Water to the formula of 10 oz, 8 oz, and one gallon respectively. The material should then be allowed to dry.

The treatment should be given once a year or on each occasion the material is washed or cleaned.

#### FLAMPABLE LIQUIDS.

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Flammable liquids having a flashpoint of up to 150°F require special consideration regarding their use and storage.

In general the amount kept within a workroom should be only that necessary for immediate use and should be contained with a suitable cupboard or metal bin. A suitable cupboard should be of solid timber construction 1 inch thick with a tray positioned at the lowest level to act as a catchpit. The cupboard should normally be kept locked and should only contain flammable liquids. A metal bin with a suitable lid which could similarly be secured would also be a satisfactory method of storage. The bin or cupboard should be clearly marked 'HIGHLY FLAMABLE LIQUIDS - NO SMOKING'.

For larger storage a suitable building should be provided. The building should be sited well away from occupied buildings in a safe position 20 feet should be the minimum. The building should be wholly non-combustible and single storey. The floor should be concrete and designed to have a well which would prevent outflow. Suitable shelving should be provided and adequate high and low ventilation. The ventilation openings should be protected only by wire gauze mesh. There must be no openings in the well.

Exit doors from the store should open outwards and in a large store there should be at least two well sited exits as far as possible from each other.

Any door not in normal use should have automatic fastenings.

There should be no heating and electrical lighting equipment should be either flameproof, intrinsically sale or of approved enclosed design.

Smoking and naked lights should be prohibited, within 20 feet of

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the store and suitable cautionary notices she ld be displayed e.g. 'HIGHLY FLAMMAELE STORE - NO SMOKING OR PAKED LIGHTS'.

Where necessary provision should be made for effective bonding electrically of containers pumps etc used to transfer highly flammable liquids.

Adequate fire fighting equipment should be provided close to stores and within workrooms. There should be at least one bucket of dry sand in each workroom with either one x 4.4bs dry powder extinguisher or one x 2 gallon form extinguisher. At larger stores there should be ample dry sand and one 1510 dry powder extinguisher or two x 2 gallon form extinguishers for every 100 gallons of liquid stored.

#### PETROLEUM SPIRIT.

Premises storing and dispensing petroleum spirit or flammable liquids with a flashpoint up to 73°F should comply with the Model Code of Principles of Construction issued by the Home Office under the Petroleum (Consolidation) Act 1928.Part 1 refers to Can, Drum and Filling Stations and Part II to Distributing Depots and Major Installations.

#### BULK STORAGE OF LIQUIFIED PETROLEUE CAS CYLINDERS.

Premises storing large quantities of LP Gas for distribution should comply with the provisions of Health & Safety Executive Code of Practice - The Keeping Of Liquified Petroleum Gas In Cylinders And Similar Containers.

#### EXPLOSIVES.

Major storage of explosives as defined under the Explosives Act 1875 should remain as at present under direct control of the Police and Public Works Department.

For small private storage of ammunition i.e. shotgun and small round ammunition it is suggested that the type of ammunition boxes used by HM Marines be utilised. These heavy metal boxes can be easily secured and are, it is understood, being dumped at sea.

#### COMPRESSED GASES.

Compressed gases such as oxygen and acetylene present a serious risk of explosion if involved in fire.

The storage of large quantities of cylinders such as seen at the rear of the Falkland Islands Company in Fitzroy Road should not be permitted.

Cylinders should be stored under cover to protect them from corrosion and direct sunlight.

The store should be removed from surrounding risks e.g. timber storage.

The store should be adequately fenced to prevent unauthorised interference.

There should be adequate ventilation and access to enable rapid removal of cylinders in case of fire.

Suitable warning notices should be provided.

Cylinders with flat bases should be stored upright and those with rounded bases may be stored horizontally.

Every fourth row between vertical cylinders there should be an adequate gangway.

Horizontal cylinders should not be stored more than four high with adequate stops placed to prevent rolling.

Empty and full cylinders should be stored separately and protective caps should be placed on the cylinder valves when they are not in use.

#### BUILDING CONTROL.

The two following sections detail tables for roof coverings and building location. They are intended only as a guide to the type of standard necessary to achieve a reduction in spread of fire from one building to another.

The Building Regulations 1972 detail the controls at present in force at the United Kingdom and whilst not wholly applicable to the Colony should be used as a reference work for new buildings.

The existing procedure for the examination of building proposals for the new buildings should be extended to include consideration of the structural fire precautions and means of escape in case of fire. \_ 144 -

### BUILDING LOCATION.

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The distance between a building's external wall and the nearest site boundary to be not less than that shown in the table according to the percentage of window opening and wall dimensions.

External walls within 1.2 m of the site boundary to have a minimum fire resistance of 1 hour and be imperforate.

Where the site adjoins a roadway the distance to be measured from the centre line of the road.

If the external cladding is combustible then the area of that part to be added to the area of window opening for the purpose of deciding the minimum distance from the site boundary.

Height of wall not exceeding	Length of wall not exceeding	Minimum distance (m) from external face of wall to boundary when proportion of openings in wall is:-				
(m)	(m)	Less then 20%	20%-30%	30%-50%	50% or more	
7.5	12	1.5	2.7	4.3	6.4	
	24	1.8	3.4	5.2	8.5	
	36	1.8	3.4	5.8	9.8	
	48	1.8	3.4	6.1	10.7	
÷	Exceeding) this. )	1.8	3.4	6.1	11.3	
15	12	2.1	4.0	6.1	9.1	
	24	2.7	5.2	8.2	12.6	
	36	3.4	5.8	9.5	15.2	
2	48	3.4	6.4	10.4	17.1	
	Exceeding) this. )	3.4	6.4	11.0	18.3	

BUILDING LOCATION TABLE.

NOTES.	A house in a continuous terrace of more than two houses should not have wood shingles or be designated BD CA CB CC CD DA DB DC or DD. Areas of roof covering which ennot be designated	Smould be regarded as within carefory ). Small areas of roof covering of glass or polyvinyl	from the boundary or are part of or the roof over a garage, conservatory or output lding having a floor area not exceeding 40m or are the roof or	canopy over a verandah, balcony, open carport or covered way. COMMINOF COVERINGS.	Covering. Corrugated Asbestos Cement Sheeting AA Robertson Protected Metal Sheeting AA	RPM sheeting used with ½ inch fibre insulation board faced on both sides with asbestos tapes. AB Tiles on timber bettens with reinforged	vitumen felt underlay. AA 2 inch concrete slab with one layer of self furnished organic based vitumen felt. AB 1 inch SE boarding with 2 layers of organic based felt, underlayer 251b seturated, top layer 401b self finished. CC	Further information regarding building materials and fire is available from The Building Research Establishment Advisory Service, Fire Research Station, Boreharwood, Hertfordshire. WD6 2BC.
*	Ag should be designated to retard penetration of Ag from outside. The following table details use and restrictions on their use. Conditions governing use.	No restrictions.	Any part of a rouf so designated should be not less than 6 m from any point on a boundary.	Any part of a roof so designated should be not less than 12 m from any point on a boundary. unless such a part is:-	<ul> <li>(a) of an area not exceeding 3m<sup>-</sup></li> <li>(b) separated from any part of the same roof, so designated by an area of roof at least 1.5 m wide covered by a non-combustible material</li> </ul>	In which case such designated part should be not less than 6 m from any such point.	<ul> <li>Any part of a roof so designated should be:-</li> <li>(a) not less than 22 m from any point on a boundary.</li> <li>(b) of an area not exceeding 5m<sup>2</sup> and</li> </ul>	<ul> <li>(c) separated from any part of the same roof so designated by an area of roof at least l.5 m wide and covered with non-combustible material.</li> </ul>
ROOF COVERINGS.	The roof of a build fire into the build for into the build for the build	. 1. AA AB AC	2. BA BB BC	3. AD BD CA C3 CC CD	1/6		4. DA DB DC DD CC	

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November 1972 **Technical Bulletin** TB 11/72

#### Fibre Building Board FIDOR

## -Fire-Check Doors

## FIRE PRECAUTIONS ACT

The Fire Precautions Act 1971 is concerned with the protection of life in the event of fire and the guide to the Act 'for Hotels and Boarding Houses'(1) recognises that one contribution to safety is to have fire resisting doors. The cuide states that bedroom doors which open on to escape corridors are to have a modified half-hour's fire resistance. This is assumed to mean a half-hour fire-check door as defined in the Fire Research Station letter quoted below.) The order applying the Act to hotels and boarding houses came into operation on 1st June 1972 and FIDOR recommends, either up-grading the many existing panel doors in these premises, or replacing them with a new door with an insulating board core. In both cases the finished door has a flush, smooth, paintable surface.

CONVERSION OF AN EXISTING PANEL DOOR INTO A FIRE-CHECK DOOR

**Requirements and Materials** 

The finished door must have an overall thickness of not less then 44mm (1%") and this can usually be achieved by using:

12mm Panelboard (HM Medium Board to BS 1142, Part 2) from one sheet 2440 x 1220mm, and two door size sheets of 3.2mm Standard hardboard. In addition, the door must fit closely in its frame and re-positioning of the door stops may be necessary. These should be at least 25mm deep and fit close to the face of the door (see Fig. 5).

#### Procedure

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1. Condition hardboard and panelboard. (To adjust moisture content - see FIDOR Sitework Recommendation SR/2.)

2. Remove the door from its frame.

3. Remove all handles, hooks and surface-mounted locks. (mortice locks need not be removed).

The second second 4. Measure each panel, including any moulding, and check its depth. (Within the finished 44mm thickness, there could be an air gap between the penelboard and the hardboard; but the panelboard must not stand proud of the existing door surface.)

5. Cut panelboard (HM Medium Board) to fit exactly the panels on both sides of the door. If the panels have mouldings, bevel all edges of the board to suit - See Fig. 1.



Sign hail each cut (and bevelled) board to the stiles and re's of the door using 25mm lath or round head wire nails. Ens Fig 2.



7. Screw the board panels to each other from both sides using 25mm wood screws at 225mm intervals. See Fig. 3.



8. Cut two 3.2mm standard hardboard sheets to fit the door over-all and nail to both sides. See Fig. 4. Nail all edges at 75mm intervals, and at middle rail and muntin(s) at 150mm intervals, using lost-head hardboard nails.



0. Reheng the door using 3 No. steel butts and fit mortice lock and door furniture. (Plastic and low molting alloys such as aluminium must not be used for those components.) Fig. 5 shows the full treatment in diagrammatic form, and Fig. 6 shows the parts of a typical 6-panel door.

to the Fire Precautions Act 1971: Hotels and Boarding



#### Assessment Following Test

Fire resistance tests of two door assemblies up-graded as described were carried out at the Fire Research Station and the following letter outlining the results was received:

We are writing following the recent fire test that we have conducted for you, and further to your letter, on the question of dealing with existing panel door assemblies to improve them to ½-hour fire-check or ½-hour fire resistance.

As you are aware, there is a significant difference both in terms of performance and construction, to an assembly which can give ½-hour fire-check performance (20 min, integrity and 30 min, stability) and a ½-hour fire resistance door assembly which is required to maintain its integrity for the full 30 minute test period as defined in BS 476 : Part 1 : 1953.

Loss of integrity invariably occurs at the closing edges and is somewhat dependent upon the stability of the door panel when one side is being subjected to fire. As the matter of remedial treatment in the regions of the infill panels is intended to be applicable to doors on site of varying design and detail, the door panel stability cannot be predicted. ..... Your field of interest concerns the penelled region and the prevention of carly fire penetration in these regions and this is quite separate from dealing with the closing edge detail, The result of the test that we have conducted has shown that where in, thick plywood infill panels already exist a suitable treatment would be to fit chamfered 1/2 in, thick panels of HM medium board (panelboard) by skew nailing to the styles and rails and screwing through the existing plywood panel into the panelboard on the other side of the door. Screw fixings should be from both sides and staggered hetween faces. The entire door panel should then be overlaid on both sides with hardboard of such a thickness that the overall thickness of the door panel is not less than 1% inches. This will ensure that fire penetration in the panel regions does not occur within 30 minutes, the overall performance of the modified assembly being now dependent on closing edge detail and stability as before mentioned.

#### In the test the fixings were as follows:

Panelboard: 1 in. x No. 10 screws at nominal 9 in. centres - perimeter nailing with 1 in. lath nails at 3 in. centres.

Hardboard facings: Nails at 3 in, centres at the perimeter and at 6 in, centres at the intermediate rail.

In addition, FIDOR has been given to understand that favourable consideration is likely to be given by the Greater London Council to doors up-graded in the manner described.

#### A NEW FIRE-CHECK DOOR

In situations where a new door is required to be a fire-check door, a suitable flush door is one with hardboard faces and a solid core of fibre insulating board. Doors of this type have been used as fire-check doors for many years in Sweden and France and this form of door construction has now been tested and assessed by the Fire Research Station. 2 FIDOR TR 11/22 The fire-resistance test of BS 476 requires a door and its frame to be tested as an assembly and, as the following letter of assessment shows, it was only the failure at the frame which prevented the two doors tested from achieving the half-hour fire-check standard.

#### Letter of Assessment

Following the test, the Fire Research Station wrote as follows:

The door assemblies, reference 'A' and 'B' were the subject of a fire resistance test reference FROS! No, 5331. The door panels were 2 ft. 6 in. wide x 6 ft. 6 in. high x 1% in. thick and comprised 4 in. wide styles and rails fabricated from 1 in. wide dense hardwood (obeche) strips. The strips forming the rails were stapled together and those forming the styles were glued together. The styles and rails were butted together and stapled. No adhesive was used. The core comprised strips of wood fibre insulating board ½ in. wide tightly packed together without adhesive. The panels were supplied with 1/10 in. thick hardboard facings bonded to the styles, tails and core by adhesive.

Each door penel was hung by one and a half pairs of steel butt hinges, in a timber frame having a 1 in, step worked from solid. A mortice latch was provided at mid-height,

The fire resistance test which was carried out in accordance with BS 476: Part 1: 1953, was of 30 minutes duration. Door 'A' opened away from the furnace and door 'B' opened towards the furnace. At 18 minutes the timber within the lock closing edge of door 'A' had been destroyed sufficiently to constitute loss of integrity. Door 'B' was satisfying the integrity requirements of the standard at 20 minutes.

It is our opinion, based on the result of the fire test, that if an intumescent strip was fitted at the head and vertical edges of the assemblies they would be capable of achieving the half-hour fire-check standard of performance.

Thus the test conducted shows that it is feasible to construct a door assembly using a wood fibre insulating board core covered by hardboard skins to give a half-hour fire-check standard of performance.

#### FURTHER INFORMATION

FIDOR is an impartial, non-trading organisation, and can provide a great deal of further information on the fire properties of fibre building boards. Its literature gives full details of brands available and recommendations for their use.



While every core is taken to ensure accuracy and completeness of information graces by FIDOR, no responsibility can be accepted in respect thereof. FIRE PROTECTION ASSOCIATION

15 Queen Street . London, E.C.4

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Technical Information Sheet

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Fire Hazards of Chimneys and Flues

Care should be taken to ensure that statutory requirements and contractual obligations to insurers or others are complied with.

CHIMNEY fires may be the cause of serious structural damage. A temperature far higher than the chimney was designed to withstand may develop, with the result that much damage may be done to the flue lining and brickwork, even where the fire is confined to the chimney. This may not be apparent until later when another chimney fire or even hot soot or sparks may spread fire to the rest of the building through defects in the brickwork and flue lining.

Chimney fires also often result in lumps of burning soot falling into rooms or being blown out of the chimney.

### Construction

Chimneys should be constructed of bricks or solid blocks of concrete not less than four inches thick or stone not less than six inches thick.

The inner surfaces of chimneys should be suitably lined and the outer surfaces within a building should be adequately rendered.

Fires are sometimes caused by structural timber protruding into the chimney, especially in older houses. No timber or other combustible material should be within nine inches of the inside of a chimney.

Care should be taken in constructing or modifying fireplaces that no cavities remain in which soot can accumulate.

### Cleaning

Regular sweeping of the chimney should prevent chimney fires; twice a year should be adequate where normal solid fuels are burned. The use of chemical cleaners to remove soot is not recommended. Their action is normally to encourage the combustion of the carbon by the use of exidising agents. Although other chemicals such as common salt or copper salts may be used to lower the ignition temperature of the carbon and moderate the violence of the reaction the process is essentially a chimney fire over which there is little, if any, control. There is no guarantee of the even distribution of the reagents in the chimney and ash and tarry deposits are not removed.

#### Wood Fuel

Where wood is used as fuel there is greater difficulty in keeping the chimney clean, because the deposit left by wood is tougher and harder to remove. Green wood, i.e. wood with sap in it, should be dried before burning as it produces less deposit when dry. The wood can be dried by cutting it into logs and stacking for a few months in such a way that air can circulate through the stack freely. The logs should be stacked in an open shed, but they may also be stacked in the open if necessary. The logs should be brought indoors a few days before they are required so that any moisture may dry out before use.

The bulk of the deposit usually forms at the top of the chimney where condensation occurs owing to cooling. No chemical means of removing the tarry deposit is known and scraping is the only method. With this, however, there is the risk that damage to the chimney lining may result.

The risk of chimney fires, where wood is used as a fuel, can be reduced :

(a) if the chimney opening up to a few feet above the grate is brushed and scraped by hand daily to remove the deposit;

(b) If the chimney is swept three times a year;

(c) If the fuel in the grate is kept burning as brightly as possible, taking care that the wood is not heaped too high causing flames to reach up into the chimney. Smouldering fires increase the deposit of tar and soot.

#### In the Event of Fire

If a chimney fire occurs, the fire brigade should be called Immediately, and the following action taken while waiting for its arrival:

(a) keep the doors and windows of the room closed to limit the amount of air which can enter the flue;

(b) remove all readily combustible material, such as rugs and furniture, from in front of the fireplace ; (c) block the opening into the flue with a wet sack or similar material or close the fireplace opening with a metal sheet such as is sometimes used for drawing t e fire. This further restricts the entry of air into the flue, and prevents burning soot from falling into the room;

(d) feel the chimney breast in the rooms and attic, if any, through which the chimney passes and remove combustible materials in contact with it where it is getting hot.

#### Sparks from Chimneys

Sparks from chimney fires are dangerous, especially where there are thatched roofs, and chimneys on thatched buildings should be extended at least six feet above the highest point of the roof. Spark arresters may be fitted, but these will not entirely eliminate the discharge of sparks from the chimney. Arrester screens which are sufficiently fine to stop all sparks soon clog up, and screens which are coarse enough not to clog will pass some sparks. Screens corrode rapidly, particularly where fuels containing sulphur are burnt, unless they are constructed of special alloy metals having a high resistance to corrosion. It will be apparent from this that a mesh spark arrester cannot be regarded as an acceptable alternative to having the chimney carried up to the recommended height.

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FIRE PROTECTION ASSOCIATION

FOUNDED IN 1946 BY THE FIRE OFFICES' COMMITTEE

31/45 Gresham Street · London, E.C.2

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4008

Technical Information Sheet

## Fireplaces

Care should be taken to ensure that statutory requirements and contractual obligations to insurers and others are complied with.

STATISTICS show that in recent years fire brigades in the United Kingdom have attended annually about 1,600 fires concerned with the ignition of structural timber under the hearth. The majority of these fires can be attributed to faulty construction or bad state of repair of the hearth and fireplace and, especially in the older type of building, to the conversion of fireplaces from the raised bar grate to the well and semi-well types.

Since building byelaws have for many years contained requirements relating to the thickness and type of material to be used in fireplace construction and to the proximity of timber to the hearth and flue, it may well be thought that in new construction the hazard associated with timber being in proximity to a fireplace opening would be non-existent. A case has, however, been reported to this Association where in a newly-built house a fire resulted from the placing of the timber joists and floor boarding close up to the face of the fireplace opening and jambs, with the tiled hearth, curb and surround superimposed over the floor boarding.

Serious damage may be caused by chimney fires. It is possible for a fire to spread beyond the chimney through faulty construction or maintenance. Even when a fire is confined to the chimney, damage may be done to the pargeting and brickwork so that any subsequent fire may spread beyond the chimney.

In view of the foregoing, the Association feels It would be useful to draw attention to the relevant Model Building Byelaws and London County Council Provisions and the Importance of careful examination of existing structures before alterations and repairs are carried out.

#### Construction

The requirements of the Model Building Byelaws, 1953, in so far as they relate to the construction of fireplace openings, hearths and flues where they adjoin fireplace openings and to the installation of appliances, are reproduced as an Appendix to this Sheet. These requirements constitute a statutory minimum.

The London Building (Constructional) By-laws are similar to the above, but there is an additional provision that where a new appliance is to be installed in an existing fireplace opening the hearth shall extend 12 ins. in front of the appliance. There is a further provision that the appliance shall not project more than two inches in front of the brick lambs unless :

- (i) the district surveyor is satisfied that the existing hearth is of solid non-combustible materials at least six inches thick; or
- (ii) a superimposed hearth of non-combustible

material, not less than three inches thick, is laid on and bedded down solidly on the existing constructional hearth and covers it completely including with n the fireplace recess; the appliance may project not more than six inches in front of the brick jambs.

In the case of closed stoves placed upon existing hearths, the London County Countil will, in cases where a receptacle for ash is provided and supported above the construction hearth, allow any necessary extension of the hearth in front of but not directly underneath the appliance to be :

- a fixed iron or steel plate not less than ½ in.
   in thickness bedded upon a layer of asbestos board not less then 1% in. in thickness; or
- (ii) of other non-combustible material to the satisfaction of the district surveyor.

In the opinion of this Association, the London County Council requirement that no appliance should be installed in an existing fireplace opening so as to come within 12 ins, from the outer edge of the hearth is worthy of general adoption. Furthermore, since certain modern appliances project a considerable distance in front of the jambs, a hearth projection of 16 ins., although legally satisfactory, will often prove Inadequate in practice and a projection of 20 ins. minimum in all new work would, therefore, be a wise precaution. In addition, the Association recommends that, in the case of open fires, the hearth should be surrounded by a non-combustible curb at least two inches deep and that screwed bushes should be provided in all surrounds so that fireguards complying with British Standard 2708, 1956, can be fitted. When constructing or altering fireplaces, care should be taken to ensure that no cavities remain in which soot can accumulate.

#### Alterations

#### and Repairs

Hasty and ill-conceived alterations and repairs to fireplace openings or the surrounding structure may perpetuate, if not aggravate, latent fire risks.

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For example :

- (a) It was once common practice for floor joists not to be trimmed but to be extended under the hearth and in some cases built into the jambs, with a thin hearthstone placed on top. In some instances where the span is such as to necessitate the joists being run parallel to the fireplace opening, boarding is placed over the joists as a means of supporting the thin hearthstone. - With this type of construction risk of fire may arise from the hearthstone being of insufficient thickness to provide adequate insulation against the transmission of heat to the woodwork. Exposure of the ends of floor joists into the chimney breast due to the breaking away of the pargeting may also lead to a fire.
- (b) Timber beens were often used as lintels over fireplace openings. The lintels If retained may be exposed to heat from the fire and, as has happened frequently in the past, this may cause them to ignite.
- (c) Timber plugs used as fixings for skirting boards may have been driven in too far thus damaging the pargeting which in time falls away and exposes the end of the plug. This could lead to an outbreak of fire behind
  - the skirting board, the effect being aggravated if further combustible material (e.g., a panelled wood dado) is present.

It cannot therefore be too strongly emphasized that, before any alterations or repairs are carried out on existing fireplace openings, a thorough examination should be made to ensure that no timber or other combustible material is situated in a position which could lead to an outbreak of fire, and that the chimney structure is in a good condition.

In general, structural alterations to chimneys, fireplaces or hearths are subject to local authority approval. Plans of any proposed alteration should be submitted to show that new work complies with the relevant byelaws.

# Appendix

## EXTRACTS FROM

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## MODEL BUILDING BYELAWS

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-	A	dive			
	Appen	IOIX	1.20		
1.	EXTRACTS	FROM			1
1 Star	HODEL BU	ILDING BY	ELAWS		
Ĩ	The material in	t. e Appendix i	s reproduced from the i	Model Byelaws, Series IV B	wildings (1953 Edition) by kind
TY	permission of the	e Controller of	H.M. Stationery Office.		
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17	Materials	52. Eve shal arra	ry chimney, the back as I be constructed of sui nged as to prevent the	nd jambs of every fireplac table non-combustible m ignition of any part of th	te opening, and every hearth aterials so put together and e building.
	Exceptions	53. Bye	aws 54 to 66 shall not a	abbla	
		(a)	to any chimney for th or manufactory ;	e furnace of a steam boile	r, engine, brewery, distillery
13		(b)	to any chimney which connection with a fire	is so constructed as not t or stove which burns ga	o be capable of use except in s only; or
-		(c)	to any chimney which	does not form part of th	e structure of a building.
L	Hearths	54. (1)	Every fireplace opening	shall have a hearth whic	h shall
19.20			<ul> <li>(a) extend under and</li> <li>(b) project at least six</li> <li>each side at least s</li> </ul>	the front of the opening ; steen inches from the ch	imney breast and extend at nine
1			(c) be not less than six	<pre>/ Inches thick ; and</pre>	
			(d) where the hearth I laid that the upper is not lower than t	s in contact with a floor o surface of the portion in f he floor.	of combustible material be so ront of the fireplace opening
		(2)	No timber or other con a concrete hearth shall with a fireplace opening from any point on the s	nbustible material other t be placed under any hear g within a distance of ter surface of the hearth.	han timber fillets supporting th constructed in connection in inches, measured vertically
	•	(3)	Nothing in this byelaw, ainer for a fire, if the wo inches thick, rests material nearer to the i	shall prevent the constru pit is constructed of bric solidly upon the group nner surface of any of its	action of a pit as an ash con- ik or concrete not less than and and has no combustible - sides than
			a) three inches where (measured horizon	e that surface is distant in tally in any direction) fr	not less than twelve inches om the fire ; or
,		(	b) ten inches where the	hat surface is less distant	than as aforesaid.
	jambs	55. The ja inches	amb on each side of a fi s wide.	eplace opening shall be n	ot less than eight-and-a-half
	Lintels, etc.	56. A suff tible r metal,	icient arch or lintel of naterial, or a sufficient shall be built over the	brick, stone or other har har of steel, wrought iro fireplace opening to supp	d and suitable non-combus- n or other not less suitable port the chimney breast.
	Thickness of back of openings	57. (I) W be	here a fireplace openin not less than four incl	g is in an external wall, t nes thick.	he back of the opening shall
	1	(2) W tha op	here two fireplace ope an a wall separating bi enings shall be not less	nings are built on the op uildings, any part of the than four inches thick.	posite sides of a wall, other back common to the two
	· ·	(3) The hal	e back of every other i finches thick.	ireplace opening shall be	e not less than eight-and-a-
	. 4	(4) The two stru that	thickness required by feet six inches above acted to receive an op twelve inches above	r this byelaw shall extend the level of the hearth en fire, and in any other the fireplace opening.	d to a height not less than where the opening is con- r case to a height not less
			·		

Thickness of chimneys	59. (1) A chimney shall have a minimum thickness of solid material of four inche constructed of bricks, blocks or concrete cast <i>in situ</i> and of six inches if constructed of stone :
	Provided that where the chimney passes through a roof which is cover with thatch or other combustible material, the thickness shall be increas to not less than eight-and-a-half inches for a distance of not less than fo inches above and below that material.
	(2) Where a chimney is in a wall separating buildings and is not Sack-to-ba with another chimney, the material at the back of that part of the chimn which is below the roof shall be not less than eight-and-a-half inches thic
	(3) Where the course of a flue makes with the horizontal an angle of less th forty-five degrees, the upper side of that part of the chimney shall be not lo than eight-and-a-half inches thick.
Openings in chimneys	59A. Subject to the provisions of byelaw 67, there shall be no opening into a flue in chimney other than
	<ul> <li>(a) an opening made for the purpose of receiving the products of combustion from the appliance;</li> </ul>
	<ul> <li>(b) an opening made for the purpose of inspection or cleaning and fitted with non-combustible close-fitting cover;</li> </ul>
	(c) an air inlet made in that part of the chimney which is in the room where the appliance to which it is connected is situated or which is in the open zir;
	<ul> <li>(d) an opening litted with a combined draught stabiliser and explosion door; (e) an opening made for the purpose of discharging the products of combustic into the open air.</li> </ul>
Lining of chimneys	60. Every chimney shall be properly lined, pargeted or otherwise suitably protecte
Rendering of out- side of chimneys, etc.	61. Where part of a chimney constructed of bricks, stone or blocks, other than flublocks having no vertical joints, is less than eight-and-a-half inches thick, the surface of that part if within a building shall be readered or otherwise suitab protected.
Timber, etc. in or near chimneys	62. (1) No timber or other combustible material shall be placed in a wall or chimne breast within a distance of nine inches of a flue or fireplace opening or of an opening into a flue or fireplace opening : Provided that a wooden plug ma be placed not less than six inches from the flue or opening.
	(2) No timber or other combustible material, being part of the structure, sha be nearer to the face of any rendering required by the last preceding byelay than one-and-a-half inches.
	(3) In this byelaw references to a flue do not include a flue in a flue pipe.
Metal fastenings	63. No metal fastening which is in contact with any combustible material shall b placed within two inches of any fireplace opening or flue.
Fireplaces, etc.	103. No fireplace, firegrate, range or similar apparatus in which solid fuel is to b burned shall be fitted, whether anew or by way of replacement, in a fireplac opening unless that opening has a hearth which complies with byelaw 54 (Hearths)
loors under stores, tc.	104. Where a stove, oven, copper, steam boiler or other similar apparatus (not being apparatus in which the heat is supplied by gas, electricity or oil) is fitted in a build ing elsewhere than on a hearth constructed in connection with a fireplace opening in accordance with byelaw 51 (Hearths), the floor under the apparatus and for distance of not less than sixteen inches beyond its front and not less than size inches beyond its back and sides shall be constructed of non-combustible materia of sufficient thickness or protected by a sufficient slab or plate of non-combustible material:
	appliance, the distance for which the floor in front of the stove is required to be so constructed or protected shall be not less than nine inches.

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BS	835:1954 Asbestos Cement Flue Pipes and Fittings of Heavy
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BS	1945:1971 Fire Guards for Heating Appliances.
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CP	131.101:1951 Flues for Domestic Appliances Burning Solid Fuel.
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