

King Edward's Hospital Fund for London

FIRE PRECAUTIONS

MEMORANDUM

for the

GUIDANCE OF HOSPITALS

Revised April, 1946



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FIRE PRECAUTIONS

MEMORANDUM PREPARED BY THE KING'S FUND
FOR THE INFORMATION OF HOSPITALS.

Revised April, 1946.

A. INTRODUCTION

1. In 1926 the King's Fund, after consultation with Mr. A. R. Dyer, then Chief Officer of the London Fire Brigade, revised a previous Report by Sir Eyre Shaw and Sir Lionel Wells on fire precautions in Hospitals. The revised Memorandum was circulated to the Hospitals by the Fund.

2. It has now been considered desirable to revise the second Memorandum and the King's Fund has consulted the Chief Regional Fire Officer for the London Region of the National Fire Service, and with his assistance have prepared the following suggestions.

3. It is hoped that these suggestions may be of service to Hospital Committees when considering the question of fire precautions.

B. POSITION OF THE KING'S FUND

4. At the same time the position of the King's Fund in this matter should be made clear. The Fund considers that the responsibility for provision in case of fire must properly rest with Hospital Committees. The Fund, therefore, never attempts to form or to express any opinion on the adequacy of the precautions taken at any Hospital. If however its own Visitors make a comment which the Fund thinks should be brought to the notice of the Hospital Committee, it promptly draws the attention of the Hospital to the comment and asks if the Hospital Committee are satisfied. But it does not itself express any opinion or accept any responsibility.

5. The issue of this Memorandum does not mark any departure from the position thus described. The King's Fund does not attempt to say how far the following suggestions are applicable to any particular Hospital. This may depend on the size of the Hospital, the number of its staff, its plan, the kind of buildings, the way it is lighted and heated, the distance from a fire station, the urban or rural character of the immediate surroundings, and many other circumstances. But individual Hospital Committees will, it is believed, find the suggestions useful in deciding whether they themselves are justified in feeling satisfied that the fire precautions at their Hospital are such as to comply with all reasonable requirements, and therefore to be regarded as adequate.

C. PREVENTION OF FIRE

6. **Fire Risks.** Special attention should be given to the places where outbreaks occur most frequently, amongst which may be mentioned roof spaces, voids, vaults and areas, kitchens, the dispensary, the film store, cupboards, storerooms, heating chambers and furnace rooms, workshops and laundries, ashpits and accumulations of rubbish. Many such places are locked up and uninhabited at night time and arrangements should be made for them to be patrolled at regular intervals by the night watchman.

7. **Heating, Lighting, and Power.** Attention should also be paid to the need for special care in the neighbourhood of fire-places, electric stoves, gas stoves and other gas fittings, and where matches or other naked lights are likely to be used near bedding, curtains or clothing, or cotton wool used as decorations.

8. High-pressure heating pipes and boilers should never be placed within one inch of any woodwork, and, where this rule cannot be carried out, non-conducting material, e.g., compressed asbestos, should be inserted between the two.

9. It is undesirable that gas and electricity services should be carried in one pipe duct ; where this is unavoidable ample permanent ventilation should be provided. Gas and electric conduits should be separated by means of non-conducting fillets so as to ensure that the conduits are isolated from each other.

10. It is desirable that a periodical inspection of all gas and electricity services should be made by competent persons, particularly where the installation is not of a modern type. Care should be taken to see that electric motors are adequately ventilated. Main electricity intakes should be indicated by a notice painted on the door reading "**Dangerous.....Volts,**" together with the name and telephone number of the Supply Company.

11. Open fires and slow combustion stoves should be provided with suitable wire guards and kerbs of incombustible material firmly fixed in position. Hot wire electric fires should be fitted with close mesh wire guards adequately spaced from the elements.

12. All gas burners should be protected by glass or wire globes, and where any naked flame is used within three feet of a combustible ceiling the protective device known as a "ceiling protector" should be provided in order to distribute the heat. It is desirable, where practicable, for gas taps within reach (and where liable to interference) to be of a type requiring a key for operation.

13. Gas stoves or gas rings should be provided with a solid incombustible base, and rubber connections should be prohibited.

14. Disused gas fittings should be removed, and the supply sealed off by means of a screwed metal cap or plug.

15. A red pilot light should be provided for electrical appliances such as irons, and safety devices should be fitted to electric kettles, so as to indicate when the current is on. A stand of incombustible material with an air space beneath should also be provided.

16. The practice of drying clothes, etc., over fires of any description should be prohibited.

17. The general use of candles or of lamps and stoves burning mineral oil should be strictly forbidden.

18. **Inflammable Material.** The storage of inflammable material such as empty packing cases, broken furniture, toys, Christmas decorations, etc., should be reduced to the minimum, and then limited to non-vulnerable spaces. Empty packing cases or any other combustible material should not be allowed to accumulate in close proximity to the Hospital buildings, but should at once be removed to a safe distance from any buildings.

19. Decorations made of non-inflammable paper should be used as far as possible. In no circumstances should cotton wool be used for decorative purposes.

20. Spirit, paraffin, mineral oil and all other inflammable liquids should be stored in a place having no direct connection with the main buildings.

21. Special care should be taken in the storage and use of ether and other anæsthetics. Attention is drawn to the fire risk arising from the use of open flame appliances in dispensaries and, where these cannot be replaced by some means of heating in which an exposed flame is not present (e.g., totally enclosed electric heaters with all wiring in suitable conduits), the following precautions should be taken :—

(a) The number of open flame appliances should be reduced to the minimum.

(b) All such appliances should be kept as far away as possible from inflammable liquids and materials, and they should only be kept alight for the shortest possible time. At no time should they be left unattended whilst alight.

(c) When inflammable liquids are being unpacked, these appliances should be extinguished.

22. Polishing rags used with linseed oil should not be stored, as they are liable to spontaneous combustion. The practice of manufacturing floor polish or of thinning solid polishes with turpentine should not be allowed; ready-made polishes should always be used.

23. Where floor polish is in use, the polish after issue from the Hospital stores should be placed in charge of some competent person, who should be responsible for keeping it in a locked cupboard at a safe distance from all stoves or lights or other sources of heat, and also for its issue and proper use.

24. Steel filing cabinets should be used for storing X-ray films, and they should not be kept where, if they become involved in a fire, the resulting fumes would be a source of danger to persons in the same or in any adjoining building. The cabinets should be stored in chambers with adequate permanent ventilation direct to the outer air, and precautions taken to ensure that smoke and fumes from a fire cannot percolate into a general ventilating system. Discarded films should not be placed in general refuse bins or burnt in a closed vessel.

25. **Rubbish, Litter, etc.** Accumulations of dust, rubbish or other litter should be avoided, and metal receptacles with close-fitting lids should be provided in which to deposit waste paper, oily rags, cotton waste and other inflammable rubbish.

26. Attention should be drawn to the danger of putting hot ashes in wooden buckets or dust bins, or in metal buckets or bins used for refuse other than ashes, and such practices should be prohibited.

27. In rural or semi-rural districts there may be a danger of fire if long grass is allowed to grow close to buildings, and any such grass should be frequently cut and removed during the summer months.

D. RESTRICTION OF SPREAD OF FIRE

28. In order to check the spread of fire and smoke from basements, store-rooms, dispensaries, etc., fire-resisting separation should where possible be provided at these points, and between staircases, lift shafts and other parts of the building. In non-fire-resisting buildings hidden risks such as timber under hearths, and roof or floor timbers built into flues, should be sought and precautionary measures taken. Where doors occur in the separation they should be fitted with efficient springs to make them close properly after use.

E. ACCESS FOR FIRE-FIGHTING PURPOSES

29. It is desirable that access for fire-fighting purposes should be provided to all roof spaces, voids and vaults; roof spaces should not be used for storage purposes, they should be cleaned out periodically and inspected after the visits of workmen, and the entrances thereto should be kept closed.

30. It is important that adequate access for Fire Service appliances, particularly rescue ladders, should be available to all hospital buildings.

F. FIRE EXITS

31. **Marking of Exits.** The avenues of escape should be clearly marked by means of "Fire Exit" notices placed in such a way as to indicate unmistakably the route to be followed. These notices must not be allowed to get obscured through age or the imposition of other notices. It is desirable that the notices should be adequately illuminated during the hours of darkness. All staff should be acquainted with the position of emergency exits and staircases.

32. **Freedom from Obstruction.** All Emergency and Ordinary Exits and approaches thereto must always be kept clear and unobstructed.

33. **Keys.** Care should be taken that the keys of all emergency exits, as well as the keys of those places where the exit keys are kept, are periodically inspected and used so as to ensure that they do not get lost or rusted. Where it is desired that doors in possible escape routes should be kept locked it would be advantageous for the keys to be kept in suitably indicated glass-fronted boxes.

G. FIRE APPLIANCES*

34. **Hand Appliances.** Every Hospital should be well equipped with hand fire appliances, such as chemical extinguishers of two-gallons capacity (soda-acid type) and fire buckets, and these should be distributed throughout the wards, corridors, domestic offices, etc., in conspicuous positions, so as to be readily available. Fire and sand buckets in or near the wards should be of such a size that they can be handled by women. In order to avoid confusion and to facilitate easy recognition, it is desirable, as far as practicable, that all extinguishers of any one type (soda-acid, foam, etc.) should be uniform in pattern and method of operation.

35. As a general rule, every ward, and the dispensary of the Hospital, should be supplied with water buckets, sand buckets and extinguishers. Extinguishers should be placed in a prominent position on walls. Carbon tetrachloride extinguishers are not generally recommended as they are only suitable to cover certain special types of fire risk (e.g., electrical equipment) and, in any case, must not be used in confined spaces owing to the toxic nature of the fumes liberated when the contents of the extinguisher are discharged on to a fire.

36. Constant care should be taken to ensure that the water buckets are not less than two-thirds full of water, and that sand buckets are charged with sand.

37. In laboratories and other departments where oil or spirit is used, and in places where any such liquids are stored, the provision of foam type extinguishers is recommended. Provision in kitchens of asbestos blankets for smothering fires due to burning fat is recommended.

38. **Hydrants, Pumps, etc.** Where water mains and hydrants are available, hydrants should be situated generally at intervals of not more than 150 feet apart, and be clearly indicated, with the stand pipes mounted in positions over the hydrants; due regard being given to precautions to prevent freezing. Sufficient hose should be installed in a watertight box to reach any portion of the building which the particular hydrant covers. Endeavours should be made to provide sufficient pressure and flow to enable at least two $\frac{5}{8}$ -inch jets to be thrown simultaneously over the roofs of the buildings for at least one hour.

39. In buildings in which hydrants are not installed, corridor pumps of not less than ten-gallons capacity should be provided in sufficient numbers, in addition to the fire-buckets and extinguishers already mentioned.

40. **Charge of Appliances.** All fire appliances should be in charge of the official mentioned in paragraph 43, who should be responsible for their maintenance in good working order. Particular care should be taken with chemical appliances, as the chemical is liable to evaporate (see also paragraph 45).

H. FIRE ORGANIZATION, FIRE DRILLS AND PRINTED INSTRUCTIONS

41. **Fire Drills.** In order that the whole of the staff may be familiar with their duties in the event of an outbreak, including, if necessary, the evacuation of

* For "Alarm Apparatus" see paragraph 48.

patients, and with the use of the fire appliances, fire drill should be carried out at frequent intervals, say monthly. Separate plans for the movement of the staff will have to be prepared for day and night.

42. Printed Instructions. Printed instructions (which should be as concise as possible) should be posted up in conspicuous positions in all parts of the building, dealing with the methods of calling the Fire Service and of notifying the responsible Hospital officials, with the use of the fire appliances provided, and with any additional matters peculiar to the particular Hospital (see also paragraph 51).

43. Responsible "Fire Officer." The obligation of seeing that periodical inspections and fire drills are carried out and reporting possible fire risks should be placed on a competent resident person, who should be specially selected. He should be called the "Fire Officer" or have some similar title, so as to invest him with authority. He should also have charge of the appliances, and be responsible for seeing that all members of the staff know how to act in the event of a fire. (See Sections G, K, and L.)

44. The Fire Officer should have a deputy capable of taking his place in his absence.

45. Outside Experts. In order to make sure that the fire drills are effectively carried out and that the fire appliances are in good order, it is suggested that there should be periodical supervision and inspection by a competent outside expert.

K. METHOD OF GIVING THE ALARM IN CASE OF FIRE

46. General Principles. In this connection it is necessary to provide for (a) giving the alarm by the person discovering the fire; (b) rousing the sleeping patients and staff likely to be affected; (c) calling the Fire Service; and (d) taking emergency steps pending the arrival of the Fire Service. Unless all these things can be done by the same person, it is also necessary to provide for (e) summoning the help of other persons (e.g., the Fire Officer mentioned in paragraph 43) who will be responsible for some of them, and making sure that the summons has reached the persons concerned. The order in which these should be done is a matter for the consideration of the Hospital Authorities: but the Fire Service should always be summoned as soon as possible.

47. In arranging the method for alarm, it is important to bear in mind that the patients should not be unnecessarily startled. At the same time, however, the fire alarm, whatever system may be adopted, should be so arranged as to rouse the staff in all parts of the Hospital likely to be affected. Officers should be detailed whose duty it would be to proceed to the various wards, etc., in order to allay any tendency to panic.

48. Alarm Apparatus. For the purpose of rousing staff some alarm system should be provided either (a) by an electrically operated fire alarm system, of the press or release button type, with a sufficient number of call points installed in suitable positions throughout the Hospital, and alarm bells installed in circuit with the fire alarm system in positions where, without alarming the patients, they will summon the necessary staff, or (b) by a similar system of hand-operated fire

bells. In conjunction with an electrically-operated fire alarm system, an indicator board should be installed in a suitable position. This apparatus should be in charge of the "Fire Officer" mentioned in paragraph 43.

49. **Communication with Fire Service.** Immediately an alarm is given the attendant should transmit the call to the Fire Service without waiting to ascertain whether the Hospital fire appliances will be sufficient or not (see also paragraph 53).

50. The desirability of direct communication by a special telephone line with the nearest Fire Service station should be considered.

51. Printed instructions drawn up, as appropriate, in the form shown in the Appendix to this Memorandum should be displayed indicating the various means of summoning the Fire Service.

52. In any case, some person should be stationed at the entrance of the Hospital in order to direct the firemen to the scene of the outbreak with the least possible delay.

L. OTHER IMMEDIATE STEPS TO BE TAKEN IN CASE OF FIRE

53. Arrangements should be made for a responsible official to be informed at the same time as the Fire Service is summoned, in order that he may proceed to the scene of the outbreak and direct operations, pending the arrival of the Service, who will then take charge. This official may be, e.g., the resident foreman of works, engineer or plumber, or the resident medical officer, resident secretary or superintendent, or the matron or night sister, or the "Fire Officer."

54. Upon the discovery of a fire all doors and windows in the vicinity should, as far as possible, be kept closed in order to exclude draught.

55. The person discovering the fire should, after having made sure that the alarm has been given and that the Fire Service has been summoned, attack the fire by means of the appliances available.

56. If hydrants are provided, the hose should be extended from the nearest hydrant, care being taken to keep the hose free from kinks; but the water should not be turned on unless it is evident that the extinguishers and fire buckets are insufficient to extinguish the fire.

57. If the fire is of an electrical nature, sand only should be used in the first instance, and the current should be cut off.

58. In the event of oil, spirit or fat fires, foam type extinguishers should be used.

59. When a person's clothing is alight, or if the fire is small, wraps, blankets, rugs, etc., should be used.

60. Nurses on duty should move patients from the proximity of the fire, or, if necessary, evacuate the ward. Patients may be removed on bedding if this is essential, but beds or furniture should not be removed.

61. The officers who have been previously detailed for the purpose (see paragraph 47) should proceed to the various wards, etc., while the remainder of the staff should proceed to whatever stations have been allotted to them, or should leave the building.

M. CONCLUSION

62. The above suggestions do not profess to be applicable necessarily to all Hospitals, or to cover the whole of the ground at any one Hospital. It is hoped, however, that they may be useful to Hospitals in the manner described in paragraphs 4 and 5.

63. The King's Fund is greatly indebted to the Chief Regional Fire Officer of the London Region for his suggestions for the revision of the 1936 Memorandum, which have been of much assistance. The Fund also wishes to express its thanks to the several hospital officers who at various times have assisted in the preparation and revision of this Memorandum.

KING EDWARD'S HOSPITAL FUND FOR LONDON,
10 OLD JEWRY, E.C.2.

April, 1946.



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APPENDIX

Hospital.

INSTRUCTIONS FOR CALLING THE FIRE SERVICE—
GATE PORTER OR TELEPHONE OPERATOR

CALLING THE FIRE SERVICE.

On any Alarm of Fire (other than for drill or testing purposes) **call the Fire Service by means of Fire Telephone.**

(1) FIRE TELEPHONE (see also * below).

Lift the receiver and, on receiving a reply from the fire station, give the call distinctly, "**Fire at**.....(Name).....**Hospital**.....(Address).....," and do not assume that a call has been received until this wording has been clearly and correctly repeated by the fire station.

Should the fire telephone fail, call the Fire Service by exchange telephone.

(2) EXCHANGE TELEPHONE ((a), (b) or (c) according to local conditions).

(a) Lift receiver, **Dial 999**, give the operator your telephone number and ask for the Fire Service. When the Fire Service reply, give the call distinctly, "**Fire at**.....(Name).....**Hospital**.....(Address).....," and do not assume that a call has been received until this wording has been clearly and correctly repeated by the fire station.

(b) Lift the receiver, **Dial 0 or 01**, give the operator your telephone number and ask for the Fire Service. When the Fire Service reply, give the call distinctly, "**Fire at**.....(Name).....**Hospital**.....(Address).....," and do not assume that a call has been received until this wording has been clearly and correctly repeated by the fire station.

(c) Lift the receiver and ask the operator for the Fire Service. On receiving a reply from the Fire Service, give the call distinctly, "**Fire at**.....(Name).....**Hospital**.....(Address).....," and do not assume that a call has been received until this wording has been clearly and correctly repeated by the fire station.

Should the exchange telephone fail, send messenger to call the Fire Service.

(3) MESSENGER ((a), (b), (c) or (d), whichever method would save most time).

(a) Send messenger to call Fire Service by **Street Fire Alarm**. The **nearest** fire alarm is at..... To give alarm, break glass, pull handle and **wait until Fire Service arrives** and direct the officer-in-charge to the scene of the fire.

(b) Send messenger to call Fire Service at **Fire Station** at.....

(c) Send messenger to call Fire Service from **Public Telephone Call Box** at..... (Call to be made by whichever of the methods given under (2) above is appropriate).

(d) Send messenger to call Fire Service from **Police Station** at.....

* NOTE.—The fire telephone should be tested twice daily between the hospital and the fire station at.....(here insert the times arranged with the officer-in-charge of the fire station concerned). A test of a fire telephone is not complete unless the name of the hospital in which the fire telephone is installed is distinctly given and a reply received, e.g., "Test call all correct from.....(Name).....Hospital.....(Address)....."

