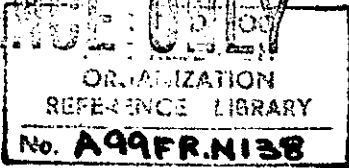


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REPORT ON A VISIT TO THE GENERAL POST OFFICE, MOUNT
PLEASANT, LONDON, E.C.1.

by

L. A. Ashton and D. Hird

November, 1954.

Fire Research Station,
Boreham Wood,
Herts.

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A visit was paid to the scene of the fire on the 7th October in the company of Divisional Officer Mott of the London Fire Brigade.

Description of occurrence

The fire occurred on the top floor of a three storey building, in a large undivided room (Figure 1) used as a stationery store. It was discovered soon after 10 a.m. on the 5th October at the point shown in Figure 1, and the cause will probably be returned as unknown. There was a delay in calling the Fire Brigade, and they did not arrive until about half-an-hour after the discovery of the fire. By this time it was not possible to approach the seat of the fire because of very dense smoke. Once the whole contents were involved the fire burnt for 2-3 hours before it was extinguished.

Description of building

The building was of steel frame construction having columns and beams encased in gravel aggregate concrete which had a reinforcement of longitudinal rods bound with stirrups at about 12 in. spacing. The walls were brick and the floors reinforced concrete with a finish of wood blocks. The concrete roof which spanned over the beams appeared to be made from the same type of aggregate as the steel protection. A covering of asphalt had been laid on its upper surface.

Since the volume of the compartment in which the fire occurred was in excess of 250,000 ft³, the fire resistance required under the London County Council Byelaws for certain of the elements of construction was 4 hours.

Damage to contents

The room had contained stationery in racks which almost reached the ceiling. Apart from a few metal racks these had been of wood. Once the wood was burnt the contents of the racks had collapsed on the floor, and at the time of the visit the floor was covered to an average depth of about two feet with papers, forms and books with burnt edges.

Damage to structure

Although severe spalling had occurred on large areas of the soffit of the concrete roof, exposing the reinforcement, at no point was the roof penetrated. A large crack had formed in the roof over the region where the fire originated and the slab had lifted along the crack.

The column and beam encasements withstood the effect of heat and hose jets with comparatively little damage. It can be said that the concrete protection to the steel had fulfilled its function since no deformation of columns or beams was observable.

Expansion of the roof had caused diagonal cracks in the walls outside the store but these cracks did not appear to be serious.

The wood block flooring had not been completely burnt and had protected the underlying concrete from damage.

General

A rough estimate of the fire load of the room gives a figure of about 700,000 B.Th.U./ft². The Fire Grading of Buildings Committee (1) classified buildings in which the fire load exceeds 400,000 B.Th.U./ft² as special occupancies, and with such a high fire load a complete burn out of the store would have taken more than 10 hours (2). The damage would have been less and the fire fighting more effective if the store had been divided. It can be seen from the plan that the two "logs" of the store could easily be separated from the main room, although this would still leave a large undivided area.

Although about 25 per cent of the total wall area of the store was taken up by window openings, it was evident from the damage that the fire had been starved of air and that most of the flaming had occurred near the windows. One part of the wall which was a long way from any window still had the plaster intact.

It was interesting to note that where the stationery had been stored in steel shelving, the destruction of the contents was much more severe, probably due to the fact that the shelves had not collapsed. The collapse of the wooden racks had obviously greatly reduced the surface area of combustible material. The only roof slab which had lifted during the fire was that above the steel shelving. This was one of the parts of the store which was inaccessible to fire fighters and this may also have affected the severity of the fire.

Conclusions

Even a small fire in a stationery store is likely to damage all the contents sufficiently to make them useless, and some compartmentation would seem desirable. This fire occurred during working hours in a building about 50 yards from a Fire Station, but attempts to fight the fire were made before the brigade was called, and the fire was in an advanced state when they arrived. This shows again the importance of calling the brigade immediately a fire is discovered.

References

- (1) Fire Grading of Buildings. Part 1. General Principles and Structural Precautions. Post War Building Studies No. 20.
- (2) S. H. Ingberg. Tests of the Severity of Building Fires. National Fire Protection Association Quarterly. July, 1928.

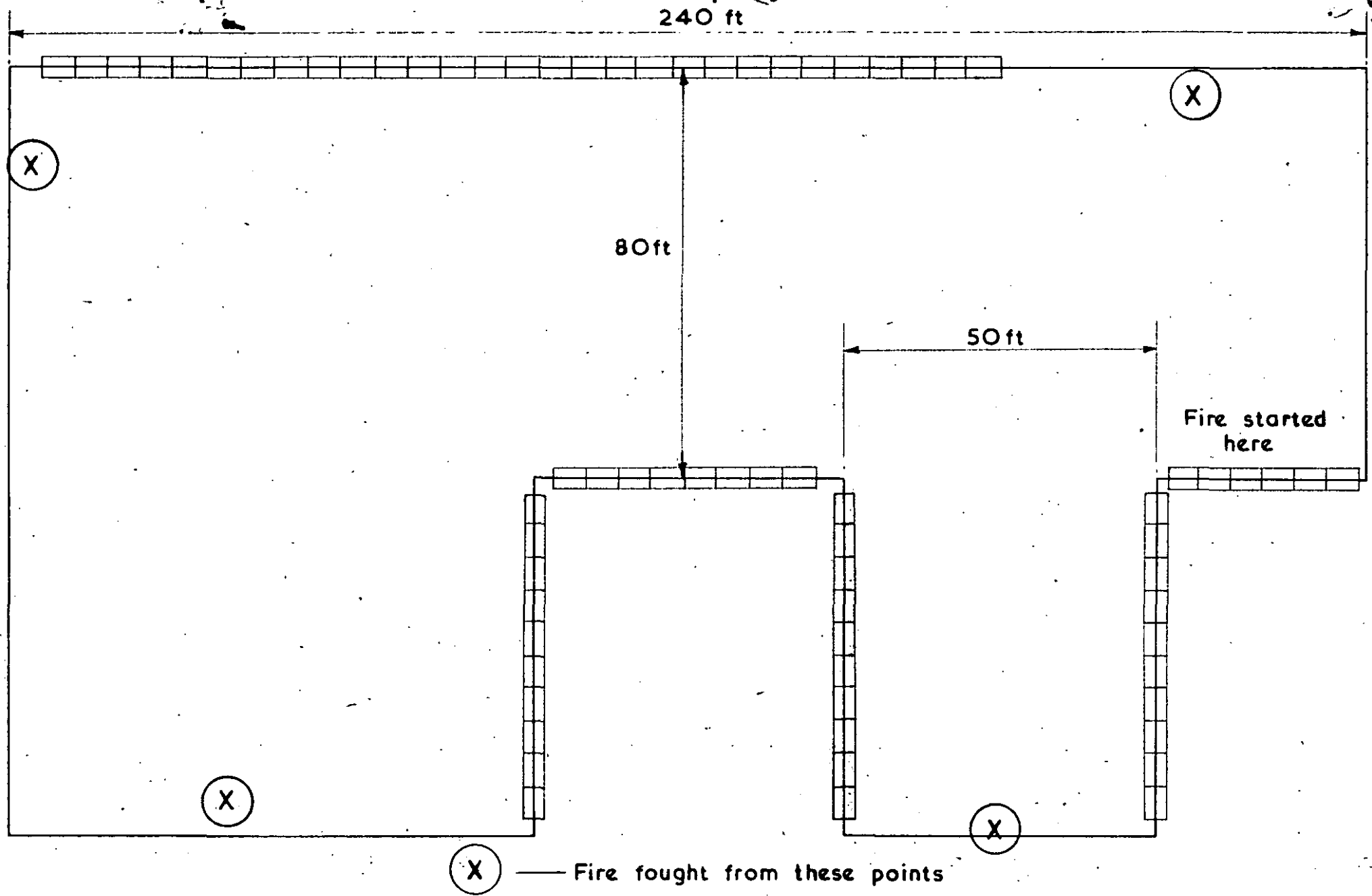


FIG. I. PLAN OF STORE WITH APPROXIMATE DIMENSIONS