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Lord Hailsham opens New Laboratories at the Fire Research Station

INTRODUCTION

Lord Hailsham, the Minister for Science, will open new laboratories at the Fire Research Station, Boreham Wood, on Friday afternoon, November 4. The new buildings include chemical engineering, hydraulic and radiation laboratories as well as administrative offices and have been built at a cost of about £300,000, making the Fire Research Station the largest and best equipped organisation of its kind in the world.

The Station is controlled by the Joint Fire Research Organization - an organization of the Department of Scientific and Industrial Research and the Fire Offices' Committee - in which government and the Fire Insurance Companies are equal partners.

The research is aimed at improving methods of preventing and fighting fire. The urgency of this work is illustrated by the annual loss of some 700 lives and material losses which last year reached a peak of £44 million. One of the most serious features of the problem is the growing number of very large fires in factories which lack adequate fire breaks. Teams of scientists at Boreham Wood are working on completely new techniques to improve fire protection in industry and the home, and some of these will be demonstrated on the opening day. One of these is the possible application of a jet engine as an inert gas generator for fire fighting in enclosed spaces.

THE JOINT FIRE RESEARCH ORGANIZATION

Its growth and its work to-day

In recent years, fire has caused an annual loss of about 700 lives and £24 million (£44 million in 1959) in material resources. This emphasises the urgency and importance of research into fire; its causes, methods of extinguishing it and its prevention.

This is a vital task which is being tackled in Britain jointly by the government and the insurance industry as equal partners in a unique venture which started just after the last war. The Joint Fire Research Organization was set up in 1946 by the Department of Scientific and Industrial Research and the Fire Offices' Committee, with which are associated for this purpose fire insurance companies not members of that Committee. Today, their Fire Research Station at Borehamwood is the largest and best equipped organization of its kind in the world, employing a total staff of 136, under the leadership of Mr. D. I. Lawson, the Director.

The nucleus of this organisation began even earlier when, in 1935, the Fire Offices' Committee built the Fire Testing Station on part of the present site. The original "Furnace Building", for testing elements of structure, still fulfils its original function but today this is only a part of a comprehensive research station where the many problems associated with fire are studied. An extensive building programme has been going on steadily over the past three or four years and the new facilities include laboratories for hydraulics, radiation, chemical engineering and for model investigations.

The research programme covers many different aspects of fire including the mechanism of initiation and growth, methods of suppression and extinction, the behaviour of structures in fire, and fire-fighting equipment and techniques. The problems tackled arise in several different ways. They may be brought to notice by a study of fire statistics, by industrial developments, by the discussions of British Standards or Codes of Practice Committees, Fire Insurance Companies, or by the needs of other Government departments.

A Fire Research Board, to which members are appointed jointly by the

Department of Scientific and Industrial Research and Fire Offices' Committee, advises the organization on its research programme. The members do not represent any particular body or organization but serve in a personal capacity. They are chosen from among scientists, industrialists and professional men of standing, whose special knowledge and experience are invaluable in dealing with many of the problems of fire research. They have the assistance of a number of assessors who represent Government departments with special responsibilities for fire prevention and fire protection.

The work of the Station is organized in five sections and the brief description of each that follows gives an indication of the exacting nature of this exciting research.

The Operational Research and Intelligence Section deals with the details of about 120,000 fires a year, all of which have been attended by Local Authority Fire Brigades. After coding and analysing them, the Section produces annual statistical tables and notes trends in the incidence of fire, casualties and damage. Detailed studies are made of specific hazards - for example, fires caused by oil-burning appliances or by electricity. Investigations are also made into the effectiveness of equipment, such as sprinklers and fire detectors. The work of this section provides an essential background for planning the research programme as a whole and for the administration of fire protection.

The Ignition and Growth of Fire Section studies the physical aspects of ignition, combustion and heat transfer. Techniques involving the use of models are being developed to determine the factors - particularly wind, ventilation, fuel and shape and size of compartment - which control the growth of fire and its spread within and between buildings. The work is aimed at providing a scientific basis for the fire grading and adequate separation of buildings. Laboratories in ten other countries are also co-operating in an international programme of model experiments and it is hoped that this will lead to a better understanding of the progress of fires in buildings.

Work is also being carried out on the development of fires in the open, and this will have application both to forest fires and fires in built-up areas.

The Building Materials and Structures Section studies building materials under fire conditions to obtain basic data for the design and protection of structures. This knowledge will help to control the development and spread of fire. The Section also carries out, at the request of manufacturers, many tests on structural elements, and spread-of-flame tests on building materials. Its work is being used in the revision of building bye-laws, and in the advice given to architects, builders, structural engineers and Local Authorities on appropriate types of structure and materials.

The Chemistry and Chemical Engineering Section is concerned with industrial fires and explosions involving gases, vapours, dusts, and unstable materials not classified as explosives. Working in close co-operation with the Factory Inspectorate of the Ministry of Labour, its aim is to assess hazards and devise precautionary measures. In collaboration with the Extinguishing Materials and Equipment Section, studies are made of the means of extinguishing fires in flammable liquids, the use of vapour phase inhibiting agents and the possibility of extinguishing fires in buildings by filling the interior with inert gas. Experiments with inert atmospheres are now going on with a specially adapted jet engine.

The Extinguishing Materials and Equipment Section concentrates on studying the properties of, and methods of applying, extinguishing agents such as water, foam and dry powder. Models of rooms and buildings are used to learn more about the various mechanisms by which water puts out fires. It also studies the automatic detection of fires and the performance of detection systems; and it carries out tests - many of them for the Fire Offices' Committee - on equipment including automatic sprinkler systems, portable fire-extinguishing appliances and automatic fire alarms. In co-operation with official bodies and manufacturers the Section assists in drawing up standards and specifications for such equipment.

In addition, of course, the Fire Research Station has an extensive library which provides the very necessary information, literature and intelligence services.

THE INSURANCE CONTRIBUTION TO FIRE RESEARCH AND PREVENTION

Insurance Companies have taken a prominent part in the development of the Fire Research Station. The Fire Testing Station was built at Borehamwood in 1935 by the fire insurance companies forming the Fire Offices' Committee to meet the needs of Government and other authorities. This had its antecedents in Manchester some years previously where the Fire Offices' Committee provided facilities for testing automatic sprinklers and fireproof doors.

From 1935 to 1946 the Station was financed entirely by the fire insurance companies who were members of the Fire Offices' Committee. It was the only laboratory in Britain in which it was possible to carry out fire-resistance tests on walls, floors and columns.

In 1946 the Fire Offices' Committee joined with the Department of Scientific and Industrial Research to form the present Joint Fire Research Organization. The Fire Offices' Committee placed their buildings at Borehamwood at the disposal of the newly formed Organization as part of their contribution to the capital cost of the new establishment. Since then the Joint Fire Research Organization has been financed equally by the Department of Scientific and Industrial Research and by the fire insurance companies generally.

Working in the closest co-operation with the Fire Research Station is the Fire Protection Association, which was established in 1946 by the Fire Offices' Committee as a national advisory centre to industry and the general public on protection of both life and property against fire. The Association formulates and publishes recommendations relating to the prevention of fire and protection against its effects in factories, commercial premises and in the home. Among its 3,700 members are some of the largest industrial and commercial concerns in Britain, as well as many from overseas.

The fire insurance companies also contribute to the reduction of the national bill for fire wastage through their method of fixing fire insurance premiums which give a financial incentive to property owners to make their buildings as safe as possible. The use of fire-resisting construction, the installation of fire extinguishing appliances, automatic sprinklers and automatic fire alarms are factors which may reduce the premiums which are charged, while higher premiums are applied to premises which present undue hazards. To help property owners with the best advice, insurance companies maintain staffs of experienced surveyors whose task it is to inspect factories, shops and other insured premises and to advise on fire protection measures. Insurance Companies also recommend firms and architects to consult them before embarking on new building projects or manufacturing processes in order that suggestions can be made for reducing the risk of fire.

If, despite all these precautions, fire still breaks out there is a further service offered by the insurance companies in London, Liverpool and Glasgow through their Salvage Corps. The Corps attend fires in those cities to salvage property if practicable and to minimise water and other damage, thus giving considerable help to those who have the misfortune to have a fire. The Corps make no distinction between insured and uninsured property and require no payment from owners or occupiers for their work at fires. The insurance companies formed the Salvage Corps in the nineteenth century after the municipal authorities had taken over the responsibility of fire fighting from fire brigades which had previously been maintained by a number of insurance companies.

PRACTICAL DEMONSTRATIONS OF FIRE RESEARCH

To mark the official opening on November 4, the Joint Fire Research Organisation will be holding a series of "Open Days" during the following week. On the day of the opening and all the following days there will be a number of practical demonstrations effectively - and, in some cases, quite graphically - showing the many valuable lessons to be learned as a result of fire research. These "lessons" are now being applied in industry and government departments to fire-fighting techniques and fire protection. The major demonstrations include:

FIRE SPREAD AND MEANS OF ESCAPE

Demonstration in four-storey building

This demonstration illustrates the work which has been carried out to determine the effect of the design and nature of exterior walls and windows on the spread of fire from storey to storey.

In order to limit the spread of fire internally in multi-storey buildings such as flats, shops and offices, building bye-laws require that floors should have a fire resistance of one hour, and hitherto similar criteria have been used for external wall panels between windows and other openings in external walls. These latter requirements impose severe limitations on the development of new materials and types of wall panels, which have marked advantages in other respects over the more conventional structures. Tests have been carried out to see whether such wall panels would provide effective protection against the exterior spread of fire from storey to storey, although their fire resistance as measured by standard tests was considerably lower than that of the traditional brick wall.

In this demonstration a fire will be lit in the lowest room of an experimental four-storey tower. The room will contain combustible material, representing the maximum amount likely to be found in a furnished room. The underwindow panels of all storeys will consist of an outer cladding of asbestos/cement sheeting and an inner lining of plasterboard on a timber frame with an infill of foamed plastics. Similar experiments have shown that under these conditions the window panels exposed only to attack by fire from outside could prevent its penetration into the upper room. The results of the experiment can be appreciated by visual observation.

Temperature measurements are made in the upper room.

Normally, in carrying out this experiment, a period of calm weather is chosen so as to ensure that the flames from the fire in the lower room are not blown away from the face of the building. (If, on November 4, the only day on which this demonstration can be given, the weather is windy the results may not be entirely conclusive.)

JET ENGINE INERT GAS GENERATOR

Sometimes fires in buildings are difficult to extinguish because smoke and flames hamper access to the seat of the fire: An example of this was the Smithfield fire in December 1957. The inert gas generator has been designed for use in situations of this kind and its object is to fill the building rapidly with a transparent inert gas which will reduce the intensity of the fire or extinguish it. It should be emphasised that this technique is still in the very early stages of development. Experiments are not sufficiently advanced to make any claims - although the initial results are promising.

The experimental generator was assembled for the Joint Fire Research Organisation by the National Gas Turbine Establishment. It is a "Viper" turbojet engine with a reheat section added, mounted with its fuel tank and control equipment on a 3 ton lorry. Water is injected into the exhaust gas, fulfilling the double purpose of reducing the temperature of the gas by vaporizing the water, and reducing the oxygen concentration of the gas by dilution with the water vapour. The gas ejector thus contains 45 per cent water vapour, 45 per cent nitrogen, and about 7 per cent oxygen, the remainder being carbon dioxide. (Atmospheric air contains 21 per cent oxygen).

In the demonstrations, the generator will be run up and the exhaust gases ejected to the open air, illustrating the large volume capacity of the engine - 40 - 50,000 cubic feet per minute. The gas, although initially transparent at the outlet, changes to a white plume as the water vapour condenses on contact with the cold air; this would not happen inside a building on fire, where the temperature would be sufficiently high to prevent condensation.

EXTINCTION OF FIRES BY FOAMS

Water, the traditional fire extinguishing agent, is not suitable for putting out fires involving flammable liquids. Foam is effective against liquid fires because it has the ability to form a layer over the liquid surface, which both extinguishes the fire and affords protection against reignition.

However, as the amount of foam available for fighting a fire is often limited, and because there may be a vital urgency to subdue the fire rapidly (such as in an aircraft crash in order to save life) it is imperative to cover the burning liquid with the thinnest layer of foam necessary. It is therefore vitally important to know the so-called "critical thickness", of foam.

Special equipment for measuring the critical thickness of foams of varying physical properties has been developed at the Fire Research Station and will be demonstrated. It will show that the stiffer foams seal a flammable liquid surface with a thinner layer than do the more fluid foams. They also break down less readily. In practical fire-fighting, however, it is more difficult to get them to spread over the surface as readily as the more fluid foams. This suggests, therefore, that in order to obtain the most efficient use of foam, improved methods of application of stiffer foams - such as spray application - are required and work is continuing.

EFFECT OF WIND ON FIRES

Wind has two main effects on fire - to increase the air supply and deflect the flames. This may affect the rate of burning and the spread of fire. Therefore, it is important to calculate the safe separation distance between buildings. Similarly wind can exert an important influence on the spread of fire through forests, heath and grassland.

The Fire Research Station, which has unique facilities for studying the influence of wind on fire under controlled conditions, is investigating the spread of fire through a long wooden crib subjected to winds ranging from 5 to 15 m.p.h. One of these experiments will be demonstrated.

Measurements are made on the size of the flames, flame deflection, the rate of fire spread and the temperatures at various points within the crib. The object is to establish a basic understanding of the process of heat transfer and spread of flame in this simple system. The work is still in its early stages and it is hoped to be able to extend its application to more complex systems, such as built-up areas and forests. The results will assist in calculating the safe separation distances of buildings, the size and the position of fire-breaks, and improved methods of fighting conflagrations.

RELIEF OF EXPLOSIONS IN DUCT SYSTEMS

Ducts are frequently used in industry to carry flammable gases and vapours from one part of a plant to another, and there is always a possibility that an explosive atmosphere may be formed and become ignited. This research is aimed at designing duct systems in which, in the event of an explosion, relief vents open in a controlled manner, release the pressure and prevent damage to the plant.

A demonstration will show a number of ducts in which relief vents have been installed, including a duct made entirely of polythene in which the whole surface of the duct can act as a vent.

Experiments with some of the ducts will show that the violence of an explosion is considerably increased by the presence of an obstacle in the duct. In these circumstances the effectiveness of the relief is increased by distributing the venting area along the whole length of the duct.

THE DANGER OF DUST EXPLOSIONS

Combustible dusts are produced or transported in many industrial processes, and if dispersed as a cloud in air may ignite and cause a serious explosion. Dusts which can be explosive under these conditions include flour, sawdust, cork dust, plastic dusts and aluminium powder.

It is therefore important to have some standard method of assessing the risk of explosion so that safety precautions may be applied. The standard apparatus for these tests will be demonstrated - in which the dust is blown into a tube and dispersed in the presence of a source of ignition. On the basis of these tests, dusts are classified according to their liability to explode.

Dust samples are submitted to the Fire Research Station for testing by the Factory Inspectorate of the Ministry of Labour, who publish a list of dusts which have been tested in this way (Factory Form 830). From the results they are able to specify what precautions must be taken to render the manufacturing process safe.

M.O.W. 1300

MINISTRY OF WORKS PRESS NOTICE

Press Office: Reliance 7611

Ref. EG 6226/1 MOW 63/60

Laboratories and Administrative Offices for Fire Research Station, Boreham Wood

Notes on Architectural Design and Construction

General

The Group of buildings now completed forms the hub of the new Fire Research Station which has up till now been housed in a number of overcrowded and outdated buildings on the site at Boreham Wood.

The new buildings were designed in the Chief Architect's Division of the Ministry of Works by Mr. O.P. Carver, A.R.I.B.A., Senior Architect and Mr. M.D. Mitchell, A.A.Dipl., Architect.

The scheme comprises a three storey block of offices and laboratories, two separate blocks housing 30 ft. high workshop type laboratories for hydraulics, radiation and chemical engineering research, a freestanding store for hazardous materials and access roads etc.

Three storey block

The three storey block is constructed of 33 ft. high precast concrete columns on a 12 ft. grid with in situ hollow tile floors and roof spanning 18 ft. with a flush soffit. The edge beams to the floor and roof slabs have a precast external facing which forms part of the structure of the beams.

The facade is divided into a 4 ft. module by non structural precast concrete mullions to facilitate the subdivision of space internally.

Metal windows with vitreous enamelled steel infill panels (backed with asbestos fibreboard insulation) are fixed directly to the concrete mullions or columns and facing beams.

The sill walls internally and also partition walls are of 4½ inch brickwork as this is found most suitable for the multitude of fixings that are required in walls of this type of laboratory.

Workshop type laboratories

The workshop type laboratories are constructed of precast concrete 3-pin frames, one single and one double forming the "butterfly" roof.

Infill is of cavity brickwork (reinforced in the large panels) and patent glazing. The roofs are of timber joists covered with woodwool slabs and asbestos based mineral covered bituminous felt. They are lined with an asbestos fibreboard ceiling, using aluminium foil as an insulating backing.

A 7,500 gallon concrete storage tank is built in the floor of the hydraulics laboratory to conserve water returned from hydraulic experiments.

This tank and the basement lift motor room are both constructed of 4,000 lb. guaranteed strength concrete without a damp proof membrane as also are all the site service ducts.

Finishes and equipment

The finishes generally conform to normal Ministry of Works standards. 4.5 mm lino is used on the floors of laboratories and offices with in situ grano flooring to the workshop type laboratories.

The walls of offices are plastered; in the general laboratories the walls are of painted brickwork and in the workshop type laboratories there is a 10 ft. 3 inch high dado of cement glaze with facing brickwork above.

Laboratory benches, fume cupboards and service shelves are as ordered by the Ministry of Works Supplies Division, their standard units being used as far as possible.

ENGINEERING SERVICES

General Description

The Engineering services on this site provide the Research Staff with comprehensive facilities for their research work, including such special plant as the wind producing apparatus, hydraulic equipment, pumps etc., as well as an exceptionally large gas supply and distribution system and a high voltage electrical sub-station. Other services include a centralised hot water heating installation to serve all the new and some of the existing buildings and compressed air supply from a new compressor plant.

Incoming Services

The provision of 11,000/415 volt sub-station of the outdoor type was an essential requirement at the commencement of the development scheme. Capacity of the supply is 500 kVA and this provides a 415/240 volt, 3-phase, 50 cycles supply for all the buildings on the site. The sub-station forms a ring main unit on the Eastern Electricity Board's distribution system, so giving ample safeguard for a reliable electricity supply.

The gas supply is from the Eastern Gas Board's storage holders on the perimeter of the site. Consumption on this site is unusually heavy because gas heated radiant panels are used to simulate the effect of buildings in flames; consumption when at a maximum is equal to the demand of a small town.

The water supply is from the Colne Valley Water Co.'s main in Boreham Wood and provides water for research as well as domestic purposes. To avoid the danger of pollution in the feed-back a 6,000 gallon circulation water tank was installed for storage purposes and this is located as part of the Models Laboratory.

This tank serves not only the Models Laboratory but the Hydraulics Laboratory and Alarm Valve Room in the new Laboratory buildings recently completed. Interconnecting underground hydraulic pipework connects the two buildings in the interests of efficiency and water economy; for example, a large sump is built in the floor of the Hydraulics Laboratory and used water collected here can be pumped back again to the storage tank. The incoming water main supplies the fire hydrants about the site as a direct service.

Boiler House

In place of the small and rather old sectional type cast iron boiler used for heating adjacent buildings, a high efficiency compact design radiant boiler was installed in the same boiler house. This saved the expense of a new and larger boiler house, whilst at the same time providing sufficient heating capacity and hot water service for the same existing buildings as well as all the new ones. This boiler is oil-fired using 200 seconds Redwood No. 1 oil stored in two tanks and sufficient to give three or four weeks' fuel supply. The boiler is a fully modulating rotary cup burner, completely automatic and requiring no attendance apart from routine cleaning. The operation of the boiler plant is controlled, according to weather conditions, by thermostats so giving maximum fuel economy. In the event of severe frost during the night or at weekends a safety device would automatically start up the boiler plant to provide just sufficient heat to keep the building warm.

Heating Installations

The methods used for heating were selected according to individual requirements of particular buildings, for example, in the tall Radiation and Hydraulics Laboratories warm air heaters are used with the addition of radiant heating strips underneath the large expanse of high glazing to offset the "cold radiation". The warm air heaters are supplied from the hot water system which is thermostatically controlled at the boiler house as a differential of the building temperature and the outside temperature. In the tall laboratory buildings 75 per cent of the air heaters have individual thermostats controlled in groups of three heaters. This ensures fuel economy and comfort of the occupants when sunshine through the glazing provides a large amount of additional heat.

In the Main Laboratory Buildings radiators are also used and where laboratory benches are fitted, the heating units have been built into the furniture to prevent waste of space and of benching.

Electrical Installation

Electrical distribution is made from a Lucy distribution pillar at the sub-station with smaller feeder pillars at the centres of the loads. 415 volt cables are then taken into the various buildings to distribution, switch and fuseboards. Wiring is in screwed conduit and also in trunking. Telephone installations are in underfloor trunking with outlets at skirting level, provided on a modular basis to avoid unsightly surface wiring when additional telephones are required.

Lighting is by metal filament lamps in general, but in certain cases fluorescent lighting has been provided, usually where high illumination intensity is required. Electrical service to the benches has been provided by 13 amp ring mains on the perimeter of the building and 13 amp sockets in the benches themselves.

Compressed Air

Compressed air is a service required for research purposes as well as for normal laboratory work and workshop use. Accordingly a compressor equipment of 50 cubic foot per minute capacity is installed in the Main Laboratory Building and provides a supply to various points of either high or low pressure as required.

Gas

The main gas outlets are for the radiant panels referred to earlier but in addition gas outlets for laboratory use are provided by means of needle valves.

Water

Cold water is supplied from storage tanks on the roof of the Main Laboratory Building.

Calculations showed that it would be more costly, both in capital and operating costs, to have central hot water storage system with primary and secondary flow and return pipes about the buildings; local electric water heaters were installed which permit a degree of flexibility, since sinks and water heaters can be moved about the building in the event of any replanning.

Identification of Services

Different shapes and colours in accordance with the British Standards Specification have been used for the hand wheels of the various service outlets; a chemist using a fume cupboard can thus be sure what service he is turning on from the shape of the hand wheel, whilst his attention is focussed on work inside the fume cupboard.

Hydraulics

In addition to the head tank and storage sump referred to above, the hydraulic system includes two high pressure pumps, one 1,000 g.p.m. at 280 ft. head and the other 250 g.p.m. at 360 ft. head. These are used for testing equipment submitted by manufacturers, including alarm valves and sprinkler systems. They provide water supply under such conditions that they accurately simulate public water mains in various towns. These pumps are driven by 415 volt induction motors with hand operated starters. In addition there is 400 g.p.m. 276 ft. head in the Models Laboratory with automatic pushbutton starter, providing water supply for experiments in that building including fire hydrants. Water used in the Models Laboratory is nearly always polluted with burnt materials and, therefore, drainage is to an interception pit.

Lift

A lift, mainly for goods, is installed in the Main Laboratory Building.

Cranes

Hand operated cranes are installed in the Hydraulics and Radiation Laboratories.

Air Conditioning Equipment

In order to ensure that building materials used for certain experiments are at the required temperature and humidity a self-contained air conditioning unit has been installed to provide controlled conditions of temperature and humidity at minimum cost.

MINISTRY OF WORKS CONTRACTORS, SUB-CONTRACTORS AND SUPPLIERS

Main Contractor

J.M. Hill & Sons Ltd.

Sub-Contractors

Stewart & Grey Ltd.	- Vitreous Enamel Panels
St. Mary Contractors Ltd.	- Landscape and Grass Seeding
Quickset Watersealers Ltd.	- Cement Glaze
Engineering Services Installations Ltd.	- Engineering Services
General Electrical Maintenance Co.	- Electrical Installations
Vaughan Crane Co. Ltd.	- Gantry Cranes and Monorail
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Ewhurst Brick Co. Ltd.	- External Facing Bricks
Vauxhall Boiler Co.	- Central Heating Boiler
Hamworthy Engineering Co.	- Oil Burner

MINISTRY OF WORKS PERSONNEL RESPONSIBLE

Chief Architect's Division

Superintending Architect - H.A. Snow, A.R.I.B.A.

Senior Architect - O.P. Carver, A.R.I.B.A.

Architect - M.D. Mitchell, A.A. Diploma

Structural Engineering Branch

Senior Structural Engineer - J.F. Greinig, A.M.I.C.E.

Public Health Engineering Branch

Senior Public Health Engineer - C.H. Stevens, A.M.I.Mun.E.

Chief Engineer's Division (Mechanical and Electrical)

Superintending Engineer - M. Woolfson, A.M.I.E.E.

Senior Engineer - D.H.W. Channon, M.Sc.(Eng.), A.M.I.C.E., A.M.I.Mech.E., A.M.I.E.E.

Engineer - A.E. Haseler, A.M.I.E.E., A.M.I.H.V.E.

Supplies Division

Technical Officer - E.C. Britton

Assistant Technical Officer - F.E. Dodd

Chief Quantity Surveyor's Division

Superintending Quantity Surveyor (pre-contract) - K.R. Moore, F.R.I.C.S.

Senior Quantity Surveyor (post contract) - G. Murray

Quantity Surveyor - E.S. Brimble, A.R.I.C.S.

Bills of Quantities prepared by - A.J. Willis and Thompson,
Chartered Quantity Surveyors

Programme for Opening Day at the Fire Research Station on Friday, November 4th.

1.50 p.m. approx.	Press arrive
2.20 p.m.	All guests seated in Radiation Laboratory (for opening ceremony)
2.30 p.m.	Opening Ceremony
3 p.m. approx.	Opening Ceremony ends: Press guided to 1st demonstration.
3.10 p.m.	Fire demonstration - Burning in four-storey building to demonstrate fire spread and means of escape.
3.35 p.m.	Demonstration of jet engine inert gas generator.
4 p.m.	Effect of wind on fire demonstration.
4.25 p.m.	Relief venting of explosions.
4.40 p.m.	Critical thickness of foam

Please Note. If Lord Hailsham is able to meet you before the ceremony you will be advised on arrival at the Press Office.

Tea will be served from 4.30 - 5.15 p.m. and telephones will be available. The Director (Mr. D. I. Lawson) will meet you at tea - if not earlier.

The Duty Press Officer will be Mr. Ian Arnison and any advance enquiries about this event should be made to him (telephone WHItehall 9788 Ext. 20).

There is a frequent fast train service from St. Pancras to Elstree and Boreham Wood Station which is less than 5 minutes walk from the Research Laboratory.

DEPARTMENT OF
SCIENTIFIC AND INDUSTRIAL RESEARCH
Charles House, 5-11 Regent Street, London S.W.1
Telephone: Whitehall 9788 Telegrams: Resciendus, Piccy, London

On behalf of the Joint Fire Research Organisation of the Department of Scientific and Industrial Research and the Fire Offices Committee.

October 27th, 1960

Dear

Official opening of new laboratories at the Fire Research Station on Friday, November 4th.

The Minister for Science, Lord Hailsham, will officially open new buildings and laboratories at the Fire Research Station, Borehamwood, at 2.30 p.m. on Friday November 4. These will provide the most extensive and best equipped research facilities of their kind in the world and we hope that you will be able to attend the opening ceremony and afterwards see some of the research work for yourself (a programme is attached).

It is hoped that there will be an opportunity for Press representatives to meet the Minister immediately before the ceremony and you are therefore advised to be at the Fire Research Station just before 2 p.m.

So that you may be fully aware of the work of the Fire Research Station beforehand, I am enclosing a copy of the Press Notes - under embargo until 2.30 p.m. on November 4th - which have been specially prepared for this occasion.

Perhaps you will be kind enough to return the tear-off reply slip below.

Yours sincerely,

Norman Manners

Norman Manners
Chief Press Officer.

Please return to: Chief Press Officer, D.S.I.R., Charles House, 5-11 Regent Street, S.W.1.

INVITATION TO OFFICIAL OPENING AT THE FIRE RESEARCH STATION ON NOVEMBER 4.

Name of Newspaper/Agency..................

YES/NO

DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH AND FIRE OFFICES' COMMITTEE
JOINT FIRE RESEARCH ORGANIZATION

<u>Additional Press Note</u>

ROOF VENTING

Modern manufacturing processes often demand large uncompartmented factory spaces to accommodate long production lines. A fire starting at some point in such a building can spread with great rapidity, and may involve a very large area in the fire. Since the use of fire walls is precluded other means of confining fire must be sought.

The Joint Fire Research Organization in co-operation with Messrs. Colt Ventilation Limited has carried out experiments to find out whether the spread of fire can be restricted by opening vents in the roof in the vicinity of the fire, through which heat and smoke may escape.

These experiments, conducted with models, show that although a fire may burn more fiercely as a result of venting the following benefits may be secured:-

Viz. the region of clear air extends higher when the building is vented enabling the fire to be more easily seen thus facilitating fire-fighting; and the lateral spread of hot gases, flames and smoke under the ceiling may be reduced. These beneficial effects are substantially greater if there is some ceiling compartmentation.

It should be remembered that fire venting is not a means of fire prevention but an aid to firefighting and as such its value depends on the speed with which the Fire Brigade may arrive on the scene. Design data for roof vents are shortly to be published.

The effect of venting on the depth of a smoke layer and its spread from one part of a building to another will be demonstrated.