FIRE PREVENTION.

There recently closed at Berlin an exhibition of materials and appliances designed to prevent destruction by fire. The exhibition was housed in temporary buildings erected for the purpose on a site in the suburbs of Berlin having an area of 80,000 square meters. Some of the exhibits were shown in the grounds surrounding the buildings. The exhibition was divided into six sections, as follows :

1, Fire Extinction ; 2, Assistance in case of Need and Danger ; 3, Street Cleansing, Street Paving and Cognate Works ; 4, Fire Prevention ; 5, the well-being of the personell of Fire Brigades ; 6, Art, Literature and Education.

From the Builder it is learned that " Section 4 was one of the most extensive sections in the Exhibition. A great deal of ingenuity was devoted to the production of novel forms of fire-resisting construction, some undoubtedly valuable from a scientific point of view, others valuable only from a commercial point of view, being merely excuses fot building up trade. The use of iron in fire-resisting construction is very generally adopted, and its adequate protection not always sufficiently carried out. There are numerous examples of so-called fire-proof floors, for example, in which the lower flange of rolled iron joists are left exposed, but there are on the other hand, many others in which the protection of the iron is rightly regarded as an imperative necessity.

" One material which is largely employed for the protection of iron, especially in columns and stanchions, but also in girders and joists, in cork-stone, a material made of cork dust and various kinds of cement and plaster. As a non-conductor of heat and a slow burning material, this uudoubtedly is not without value. Asbestos, in combination with lime, cement, and plaster, is also largely employed in various forms. Kiesel-Guhr or fossail meal, on account of its valuable non-conductive property, is also used in various forms for the protection of iron, in bricks, sheets, and slabs, formed by a combination of Kiesel-Guhr with some cementing compound. Several firms show iron protected by rope made of asbestos, cork, or Kiesel-Guhr and jute, the chief advantage being apparently the ready application of the material, which is then usually finished with a plastered surface.

" Besides these slow-conductive materials, brick and concrete in various forms and arrangements are also employed. Very considerable use is made by many patentees of porous brick, that is, brick which has been made of clay mixed with sawdust which is consumed in the process of burning the brick, thus rendering it lighter and almost as easily ruceptive of nails as coke-breeze concrete. Hollow bricks, either of ordinary brick earth or of the porous manufacture, are not uncommon. Dovetailed and keyed bricks or blocks are in bewildering variety, and very considerable spans are shown constructed in this way. Examples of floors of 6 ft. and even 8 ft. span and only 4 in. thick are frequent. In some cases light iron rods or bars, one might almost say laths, for their thickness scarcely exceeds that of hoop iron, are used in the joints of the brickwork to give increased tensile strength to the lower part of the floor's section. An interesting development of this brick construction is seen in self-supported or hanging partition walls, some of which are quite startling, as, for example, the exhibit of Pruss & Koch, of Berlin, who show a structure of two self-supporting parallel walls 13 ft. span and 18 ft. high, with a cross wall 21 ft. span and 18 ft. high between them, with a doorway cut out in the middle of t. One of the side walls is 2½ in. thick, the other of the two thicknesses each 2½ in. thick with a space between of 6 in. The cross wall is 1½ in. thick. These walls depend largely upon hoop-iron vertical ties ; but in another instance, shown by Lorene, of Berlin, we see walls 12 in. thick and close on 15 ft. span, with a height of 7 ft. 6 in., built of keyed brick alone, without iron. These walls, moreover, carry a brick roof 6 in. thick. Thus the whole structure in this case forms a hut 15 ft. square internally, carried only on four angle piers.

Combinations of iron and concrete are numerous, and in many the construction has but a small amount of iron which is embedded in the lower part of the concrete. As an example of this, we may instance the flooring shown by Paul Zollner & Co., of conerete 4½ in. thick, 14 ft. span, with ⅜ in. iron rods 4½ in. apart. Another example is that by M. Czarnikow & Co., a floor nearly 20 ft. span of concrete, 9 in. thick, with iron bars 1½ in. by 1-16 in., 2 in. apart. As a tour de force showing what can be done with glass, the Aktien Gesellschaft for Glasindustrie, of Dresden, have erected a considerable sized pavilion wholly of glass—walls, roof and floor. Glass bricks, hollow and solid, and wired glass of various thicknesses and patterns, are the chief components of this remarkable structure."

A SULPHUR AND SAND CEMENT.

Professor Brown, a St. Louis man, is said to have invented or re-discovered a combination of sand, cement, and sulphur, which he claims possesses qualities far superior to concrete, and which can be produced at less cost than that material.

Professor Brown claims for his new discovery that it is acid-proof, a non-conductor of electricity, waterproof, a non-conductor of heat and cold, and that it is indestructible, being impervious to all attacks of fire, temperature, climate variations, time and decay. The compound can be mixed and moulded upon the spot where it is to be used, and when dried it becomes as hard as granite, and will take a high polish.

Besides being valuable for house construction, the material is available for use in the construction of sewer pipes, electric wire conduits, and water-mains. In art and decorative work it is also expected to be of use.

Professor Brown owns a piece of material which he says is known to have been taken out of a building erected 1,500 years ago, and he declares it to be the same as this new compound.

PERSONAL.

Mr. Edward Harrison, Jr., of Topeka, Kansas, chief of the engineering staff of the Santa Fe Railway, has been visiting Hamilton, Ont., his old home, after an absence of thirteen years. He was once a student in the office of Mr. James Balfour, architect.

Mr. D. Ewart, chief architect of the Public Works Department at Ottawa, has recently returned from Europe, whither he went for the purpose of investigating fire proofing materials and methods. He is reported to have expressed the opinion that none of the systems which he examined while abroad are in any respect superior, but are rather behind the methods in use in Canada.