

floors burned out quite completely before water was applied. In a non-fireproof building a blaze of that dimension and start would have resulted in a very serious if not total loss. The same thing has happened in at least two different hotels in this city, the last case being the new Vanderbilt, when a lot of new furniture burned up in a hallway a few weeks ago.

IMPORTANCE OF CERTAIN INTERIOR ARRANGEMENTS.

Now, considering these two sorts of cases as typical of the *severe* and *light* losses, what is the difference in conditions which really governed the result? Was it the difference between tile and concrete? Was it a question of insulation of steel work or dimension of beams or thickness of floors? Not primarily any of these things; it was a question of arrangement of building, except in the Calvert and other Baltimore buildings assailed by conflagration.

I make this statement advisedly and without any intention of minimizing the importance of proper insulation of steel frame in the Equitable and Parker buildings. The defects in this insulation were undoubtedly a very important factor, but I still maintain that the primary cause of the trouble, in these as well as other cases, was that the building was so arranged as to allow a rapid spread of fire in inflammable contents throughout the building, and that, if there had been the proper cut-offs from floor to floor, the fire would in all probability have been controlled in each case before it reached a point to break down even such insulation as was provided. Does not this condition furnish the answer to the question—What fireproof construction should be?

COMBUSTIBLE CONTENTS.

The purpose of buildings of that type, of course, is, primarily, to house valuable goods as well as people in a way so that they shall be safe from fire. It is perfectly plain that, no matter how non-combustible the walls, floor, roof and smaller details of a building may be, if it is all one room the contents may be burned out just about as easily as though they were in a wooden building. The building itself is a minor consideration, usually. The values usually represent less than half, sometimes not more than one-tenth of the total value of the plant, and the chief consideration should be given to the safety of the contents.

A warehouseman advertising for patrons in his fireproof building calls attention to the fireproof quality, not for the purpose of showing his safe investment, but to convince prospective customers that their goods will be safe in his hands. Likewise, a hotelkeeper, appealing to the public for patronage on the ground that his hotel is fireproof, does so on the basis that the lives of his guests will be safe. The only way of accomplishing this end is by so dividing the house, both horizontally and vertically, that no large proportion of its contents can be burned out at one time either by internal or external fire. The methods of this division are already familiar to you. The stairs and elevators should be enclosed in fireproof shafts with standard fire doors at each story. The use of wired glass for this purpose, nowadays rather common in some types of building and perhaps in hotels and other places not containing a large quantity of inflammable merchandise, is reasonably safe, but it should not be permitted in large mercantile buildings.

UNPROTECTED VERTICAL OPENINGS.

Interior vertical openings are not the only means of spreading fire from floor to floor. There have been many cases in New York and elsewhere of fire traveling from one story to another by means of outside windows, therefore, good shutters or wired glass in metal frame windows is quite essential whether the building be exposed or not, but if exposed at all seriously the windows must be thoroughly protected throughout by wired glass or shutters if the contents of the rooms most directly exposed are to be considered in any sense fireproof.

AUTOMATIC SPRINKLERS.

There is one other requirement not along structural lines which is as absolutely essential for the safety of the contents of a fireproof building as any other, and should, in fact, be considered part of any fireproof mercantile or manufacturing house, namely, the automatic sprinkler equipment. I say again that no building is fireproof unless it is so arranged and equipped as to make its contents safe, and that cannot be done in cases of mercantile or manufacturing buildings of the areas and heights now required in any other way as surely and successfully as by automatic sprinkler protection.

Let us give full credit to the buildings of so-called fireproof construction which we now have. Such buildings as they are contribute very greatly to the safety of our cities from conflagration. With all their faults they are very much less likely to start and spread serious fires than any sort of wooden construction, and I hope these remarks will not be misunderstood as deprecating the value of our present buildings and the rapid improvement made in them during the last ten years; but in order to properly show what fireproof construction ought to be it is necessary to point out its present weaknesses.

FALSE SENSE OF SECURITY.

Has it not occurred to you that the loss of the steamship Titanic suggests several parallels with our own line of business? The owners of that ship were as confident that it was unsinkable as many of our fireproof building owners are that their houses are fireproof. A false sense of security many times prevents the adoption of precautions which should be taken. The owners of the Iroquois Theatre in Chicago thought they had a fireproof building, and they did have practically that so far as the building was concerned. It was only damaged to the extent of some 13 or 14 per cent., but almost 600 lives were lost in a few minutes, nevertheless, all for the lack of a few comparatively inexpensive fire-extinguishing devices which might and, in fact, should under the law have been provided. They thought it could not catch fire. The owners of the ship thought it could not sink, hence there was no need of enough boats to carry away the passengers. Both learned afterward that certain auxiliary appliances are necessary to supplement the structural features of the building or ship, and both the shipper and building owner now know that, so far as structural features go, division into small compartments is one of the first essentials. The unsinkable ship, if ever devised, will probably be one in which the compartments are sufficiently numerous and substantially separated from one another that the failure of a few of them will not endanger the whole ship. Likewise the really