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FIRE PROTECTION HISTORY-PART 271: 1918 (REPORT OF THE COMMITTEE ON SAFETY TO LIFE-DISCUSSION)

By Richard Schulte

The twenty-second Annual Meeting of the National Fire Protection Association was held in Chicago in May 1918. Among the topics discussed at this meeting was the Report of Committee on Safety to Life. The following is a transcript of the discussion of the Committee's Report:

> "***Mr. Forster:*** *Those who were present in Washington last year or read the Proceedings recollect that the report of the Committee on Safety to Life produced considerable animated, interesting and valuable discussion. The committee at the time felt that it had practically completed this work, but the matter was referred back to it, and the committee wishes here publicly to acknowledge that having the subject referred back for another year was an advisable step, since it gave the committee a chance to re-study and put in what I hope the Association will consider a final form, one of the most important problems we have ever had before us. Those persons who, in Washington, differed quite vigorously with the committee's report accepted the invitation extended to them to serve upon the committee, and at least one of the new members concurs with the report we here present.*
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> *We have made no change, in the three years, of our original plan, but various modifications of detail have been made after full discussion by the committee, which has on its roster representatives of a number of the more progressive states–men actually identified with the state authorities–and also an assortment of fire-prevention engineers who have brought to bear on this proposition a very considerable variety of experience.*
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> *I think the best way for me to present this report would be to adjourn to the side wall and show you some lantern slides (two of which you will remember from last year, because they are rather peculiar architectural drawings of people), and after that the committee will be glad to stand any kind of gun fire you may have for them.*
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> *(Mr. Forster here presented in the form of lantern slides the diagrams reproduced with explanatory notes on pages 149-155.)*

Mr. Forster (Continuing): *The committee asks the Association to accept the report as a working plan and to urge its adoption by progressive communities. Experience will doubtless suggest readjustments, but as far as we know, no other plans have ever been made which come as near as this report does to taking into account all the factors and to using sound engineering judgment upon every single one. Certain states, notably New York and Wisconsin, have taken these principles into account. They have not done a complete job, and your committee has taken everything the market afforded in the way of ideas, ordinances and rules and added to that everything that a representative committee made possible.*

I have been asked by many men how long it would take to learn to work this thing. We have a definite set of rules. First you do this, then that, then this; and any man or woman of intelligence who knows the dimensions of a building can, after an hour or two of study of the report, handle the proposition like a veteran.

In conclusion, I have been asked by Mr. Heller to bring out the point that the schedule applies to factory buildings only. So far the committee has not considered the special variation of conditions which apply to department stores, hotels, etc. It may be that the report could be applied without change to school building occupancy, regarding this as belonging to the moderate hazard class. We are not prepared, however, to commit ourselves definitely to this view without further consideration.

I shall now be glad to answer questions and objections which I am quite sure will be put. (Applause.)

The President: *You have heard this elaborate and comprehensive report presented so effectively by the Chairman, and he has stated his desire that any or all of these features be freely discussed. The Secretary very aptly remarked during the presentation of the lantern slides that he questioned whether anybody would have the temerity to question the figures that were presented. That is the way the Chair feels, but if there is anybody on the floor who desires to do it, we have the time and inclination to listen.*

Mr. Miller: *The Chairman of the committee has said that so far these schedules apply only to factory buildings. Why can't they be applied to all buildings, the question being merely to decide just in what class, high hazard, moderate or low hazard, the buildings shall be placed, whether an apartment house or a theatre or anything else?*

Mr. Forster: *That is a very pertinent question, Mr. Miller. The reason is this: the department store, which is the big thing the committee wants to tackle next, does not have, as the factory does, control of the number of people who may be in the building. The factory can limit its number of people in accordance with the number determined for that building's safety; a department store cannot. With the department store we shall have to work upon the area basis; we shall have to assume that a department store per thousand square feet can have 225 people, or whatever the calculations may be, but with a hotel, school, or any other structure in which the capacity is determined by the number of seats, benches or beds, the capacity can be controlled. We have not thought that over sufficiently to feel warranted at this time in extending the report to cover other than factory buildings.*

Mr. Miller: *The Chairman of the committee made reference to the area basis. Does this report make any allowance for the distance of travel to the exits? If it does, I think it covers the area basis also.*

Mr. Forster: *Yes, sir, it makes that proviso. The proviso is that the distance from any point where a person may work to the nearest available exit shall not exceed, in high hazard, 75 feet, in moderate hazard 100 feet, and in low hazard occupancy 150 feet. I call attention to the fact that after mature deliberation we indicated the distance from any point at which a person may work to the nearest available exit, but did not say according to the line of travel, because it is difficult to work that out.*

Mr. Peter C. Spence (Non-Member), Department of Labor, N. Y.: *Might I ask how the committee arrived at the limits of discrimination between low, moderate, and high hazards?*

Mr. Forster: *Purely by judgment, and because such a thing is debatable, the committee presented as specific cases only those about which it felt very certain that the judgment of an organization such as this would be unanimous. There is not much difficulty when you come right down to it. As stated in the report, the factors to be considered are rapidity of burning, density of smoke, poisonous fumes, and explosion hazards, and with those four factors in mind I might say there is practically no difference of opinion. You may take any ten men in this group, select an industry, and nine out of ten would agree as to the class in which that industry belongs. Our committee is large and varied and full of difference of opinion when there is good ground, and we had no difficulty in agreeing on these.*

Mr. Williams: *I would like to raise a point Mr. Forster mentioned in his report which I feel ought to be modified, and that is the percentage given for horizontal exits. This is more or less of an old story, but just let me remind you of the danger of going too far in allowing credit for horizontal exits. If we allow an increase of 200 per cent. on each side of the fire wall, and if we assume that all the people are going from one side of the fire wall to the other side and then down the stairs on that other side, we*

are passing down that one flight or group of stairways six times as many people as they are normally considered safe to carry. I think that is too much. Let us remember that the efficiency of a fire wall depends entirely on all the doors in that wall being closed when the fire occurs. Any of us who have been in factories know how easy it is for a fire door to be stuck or have a truck-load of material or some other obstruction left standing in it temporarily, or for it to be blocked in some other way which will prevent its closing automatically in case of fire. If a fire occurs on the first floor of a building and one of the fire doors is blocked open, the fire immediately will go through that door, and the entire effect of the fire wall will be nullified, not only in the first story, but in all the other stories of the building. I am speaking now of the allowance of 200 per cent. where the same tenant occupies both sides of the fire wall. In case there are different tenants on the two sides, I quite agree that the percentage should be less, but I think in that case 100 per cent. is too great, because the probabilities of the fire door being blocked are much greater. The fire door between two occupancies will almost never be used in practice, and we know that a thing which is not used in practice is almost sure to be out of commission in an emergency, unless there is much more rigid supervision than anything I am acquainted with in this part of the country. The tenant, if he does not actually lock the door to prevent people coming in from the other side, may at least put a set of shelves against it or pile material against it–supposedly as a temporary measure, but liable to remain there some time and to be there when fire occurs, and to block the door. I would suggest that the credit for a fire wall be not more than 100 per cent. in the case of the same tenancy on both sides, and not more than 50 per cent. in the case of different tenancies on the two sides.

The President: *Mr. Chairman, you have heard the suggestion?*

Mr. Forster: *I would like to have more expression of opinion. Mr. Williams and I discussed this matter just before the meeting. I am very much inclined to agree with him that our figures are too high, and I think his figures are very acceptable.*

Mr. Weaver: *I had three questions, of which that put by Mr. Williams was one. The second relates to allowances for fire drills. It seems to me that is highly important, and that exit drills, properly conducted, in such a case as that instanced by Mr. Williams, would greatly increase the effectiveness of horizontal exits between the different occupancies. If you have your exit drills every week and on alternate drills pass through this communicating door from one tenancy to the other, you would go a long way toward maintaining that exit. I would like to hear a word on the credit to be given for exit drills.*

The third question is whether this problem does not have a distinct bearing upon liability insurance and whether, after all, the financial motive is not the dominant one. For instance, I know there are people who have devised very excellent elevator safety locks and have not made any progress because as yet the office building

manager cannot get any credit in his insurance rates for the installation of an elevator safety lock. If we can get the liability people to support this specification, I think it would aid in putting it forward. Probably that also has been given consideration.

Mr. Forster: *The provision of a fire alarm system and exit drill is something in which your committee believes very earnestly, and has so gone on record. We have not introduced in the set of variables by which we arrived at the final occupancy of the building a credit or debit for an alarm or exit drill system, first, because that is eminently a human equation, while our report is an engineering proposition; and second, because practically all states today require alarm systems and drills in factories. We have here an engineering yard stick– that was the term used so much in Washington last year– and we put people into a building assuming they are not going to be lame, halt and blind, and that they are going to be of average diameter. We assume that the fire doors are not going to be blocked and that the operating features are going to be taken care of. As regards liability, we have no less than four men who are in the liability insurance business, and all in important positions, and it is certainly to be hoped that the work of this committee, if approved by the Association, will appeal to the liability insurance fraternity and have their backing.*

Mr. Libman: *Is there any prohibition against windows of wood construction or very close together at the ends of a fire wall on both sides of the wall?*

Mr. Forster: *I do not think so, unless the National Board rules for horizontal exits cover that, and I see no reason for it, because we are considering getting people out of the building in three or four or five minutes, and not with the question of a fire getting around the end of a wall.*

Mr. Libman: *Suppose as is customary in a great many establishments that the fire wall is put directly at right angles to the wall in which the windows occur, wouldn't that be equivalent to permitting the fire to travel around the end of the wall from window to window in a hurry?*

Mr. Forster: *Not quite. It is true the fire may spread around such a, wall, but I think it would complicate the report unduly to make too many provisions of that kind.*

Mr. Libman: *Suppose the fire door were located immediately at the point where the wood windows are, then you would get an alarming condition, wouldn't you?*

Mr. Forster: *No, that might be the best way to have it, because the fire probably would not start there; it probably would start nearer the middle of the floor and would take some time to get over there. There are a tremendous number of factors of that kind; you could introduce a hundred variables if you choose. We tried to hold to the fundamental ones: construction, sprinklers, vertical openings, height, occupancy.*

Mr. Hardy: *Mr. Williams' motion has not been seconded. I second it for the purpose of bringing it to a vote, but I want to state that so, far as a horizontal exit is concerned, I doubt whether it has much value unless the same person is a tenant on both sides of the wall. I am quite sure that, merely as a matter of protection, it is going to be very rare for two parties to agree to maintain an open communication between their respective properties. The danger of having property stolen on one side or the other, and the inability to fix responsibility for the theft, I think will act as a very strong deterrent. In my experience, it is a very rare thing to have a communication available on both sides of the wall where there are different tenants, and in my opinion the allowance for it ought to be very low.*

Mr. John H. Derby (New York): *Mr. Hardy has voiced just what I was going to say. It is a fact that where there are different tenants on each side of the wall the doors are usually locked, especially in large cities, and I agree with Mr. Williams' remarks regarding percentage of allowance for horizontal exits.*

Col. Young: *It seems to me that the percentage would be based on the fact that you would require these horizontal openings not to be blocked.*

Mr. Forster: *A man has a factory and he says, "I have a horizontal exit and it is open, and I want more people." It is found open, and the authorities think it will stay open. The allowance is made and then the door is closed. The New York law does not discriminate between a single tenant and different tenants on each side of the wall; I think that is one of its weaknesses.*

Mr. Spence: *Might I ask this question in relation to the chart of occupancy? What occupancy would be allowed in a six-story building in which celluloid novelties may be manufactured?*

Mr. Forster: *You are not permitted to conduct such operations in a six-story building of joisted construction unless it is fully sprinklered and has every vertical opening enclosed, and even there you would be allowed to have only 135 per cent. of the measured capacity; in a better building you might be allowed to go as high as 165 per cent.; in an open-stair building you simply could not conduct such a business. I might say that we have checked up against this tabulation every factory disaster of which we have known, and none of them have occurred in buildings which this rule would have permitted. This rule will stop, and stop with a dull, sickening thud, the existence of the fire-trap factory.*

Mr. J. F. Ancona (Rochester Chamber of Commerce): *In regard to fire walls, take a concrete case; assume that someone desired to erect a building a thousand feet long. Could that building be divided by a series of fire walls which would become horizontal exits? Is there anything in your rules that will prevent that condition of interior sections between fire walls which have no stairways or fire escapes.*

Mr. Forster: *No, sir; the situation that you describe is entirely permissible, but the total number of people that may be placed in all those sections which ultimately lead to stairs at one end or the other is limited to the capacity of the stairs.*

Mr. Ancona: *The stair is the determining feature, so it would automatically penalize the occupancy?*

Mr. Forster: *That is absolutely covered.*

Mr. Miller: *While I would support the motion made on this question of horizontal exits, I do not think it is the right principle. After all, the Chairman says, the number of people permitted would be determined by the capacity of the stairs. I think the same basis that is now the working basis in New York should be adopted, namely, the available area in that portion of the building which is not to be emptied. What difference does it make what the stair capacity is in that part of the building as long as there is no fire in the area of refuge? We are assuming, as the Chairman says, that the horizontal exits are in good working order, and we must assume that, because otherwise we have no basis to work on. The same difficulty applies to any other exits. I know from my experience in New York that people will block ordinary exits. I have known them to build shelving across the doorways so that stairways could not be used. We have to start with the assumption that if we get the people to the other side of the fire wall we have sufficient room to take care of them there, and the doors are closed after them. They can then take an indefinite time to get out of the building.*

Prof. Woolson: *I agree with Mr. Miller on that point. Mr. Ancona brings up the question, supposing there were several dividing walls and areas between them from which there was no stairway; certainly the people who get into the second area are much safer than those in the area next to the fire. They could stay there for an hour or two and still have time to save their lives.*

Mr. Forster: *In the first place, a horizontal exit for which we give an allowance of 100 per cent. (assuming Mr. Williams' motion carries) gives us 400 per cent. of the capacity of the stairs if the stairs are enclosed. We have the National Board rule that the area into which the people go must be large enough to hold them on the basis of one for every four square feet of open space. Several horizontal exits in walls enclosing sections without stairs is a very unusual condition. You might strike it once in a while in a warehouse, but in industrial plants I do not recall ever seeing any such divisions, except local, partitions on one floor of a fire-resistive building.*

What Mr. Miller says is true: we have to assume that our exits are available, but we have depreciated our stair capacity because the exit may be blocked. While the horizontal exit may be in good condition, one door open in an open stair building may invalidate the whole proposition; and I do feel that taking that risk into account and also taking into account the fact that people will not stay indefinitely in a building, even if it is safe to do so, we ought to have some capacity percentage based ultimately on the capacity of the stairs. Although it is true one can undoubtedly lie down and take a nap after passing through a good fire wall, a miscellaneous occupancy of foreign girls who know there is a fire must be viewed differently.

Mr. Spence: *I want to say that I am emphatically in favor of allowing only the 50 and 100 per cent. You have now only minimum requirements, and men will erect fire walls for other reasons than safety to life; they will do it from the insurance premium standpoint. They are going to do it in a great number of cases because a fire wall can be used for supporting timbers and girders, and the greater number of stairways is going to be the greatest safety factor, after all.*

Mr. Miller: *I think the committee is taking too much chance. I think the figures are too high and that the proposition of a series of fire walls and no stairways in certain sections ought not to be countenanced in the committee report.*

Mr. Forster: *It is only countenanced on the same basis that one fire wall would be.*

Mr. C. Heller (San Francisco): *There seems to be some misunderstanding about the number of exits in the sections. Mr. Ancona brings out the point that you might have several sections in a building and fire towers at either end and nothing but horizontal exits in between. That is not the case. See paragraph No. 24. One of these required exits must be an inside stairway or smoke-proof tower, and the other may be a stairway or smoke-proof tower or horizontal exit. In other words, there must be a stairway in every section.*

Mr. Forster: *"Except that where a building or section has horizontal exits to two or more buildings or sections in or through each of which access may be had to an inside stairway or a smoke-proof tower, no inside stair, smoke-proof tower, or outside stairway need be provided." That means that you can go through several, so that Mr. Ancona's point is covered. We accept more horizontal exits, which are an advantage, without giving them any credit, because we limit the people to the stairs, ultimately.*

Mr. Heller: *Then you might have a section like this room we are in, and if, for some reason, the exits were blocked by different occupancies upon either side, you could not get out at all.*

Mr. Forster: *That is a very excellent point; we'd better modify that to cover tenant occupancy.*

The President: *Mr. Williams, will you state the motion again?*

Mr. Williams: *My motion is that in paragraph 32 (I) the percentage of credit for horizontal exits be decreased from 200 per cent. to 100 per cent. in the case of the same tenancy, and from 100 per cent. to 50 per cent. in the case of different tenancies.*

The motion was adopted.

The President: *Are there any other features in this report you wish to discuss?*

Mr. Richards: *Might I inquire from the Chairman what is meant in the chart by the words, "Buildings may not be used for these purposes"?*

Mr. Forster: *Take, for instance, Section (g), in the middle of the page; an open stair building, even if it is mill construction, cannot be used for a high hazard occupancy.*

Mr. Richards: *In column 1 joisted building, no sprinklers, open stairs, you can use it for moderate hazard?*

Mr. Forster: *For three stories.*

Mr. Richards: *And in mill construction building?*

Mr. Forster: *You can go a story higher.*

Mr. Richards: *If no sprinklers and open stairs, you cannot use it?*

Mr. Forster: *That rule is supposed to apply only to this area below the horizontal stop lines.*

Mr. Richards: *My point is that you can use a joisted building with open stairs, but you cannot use a plank and timber building.*

Mr. Forster: *Your point is very well taken. The committee did not write this same language into every section of the chart because there was not room. I think it would be better, in reprinting this, to leave that wording out.*

Mr. Ancona: *May I inquire if the committee has checked an assumed average concrete case of factory building in New York State against the exit requirements in your Safety to Life Code, and against the New York State building laws, assuming a medium or average occupancy in a four or five-story building? Does the New York State labor law permit more occupants or less occupants than your average condition?*

Mr. Forster: *I think I can answer that in a general way. I had the pleasure of checking over, with one of the supervising factory inspectors in New York, a considerable number of representative buildings coming under the New York law against this rule. We penalized the poor buildings harder by far, but were more generous to the good ones. I think it is substantially impossible for any good factory building not to get generous treatment with our method of establishing allowable occupancy.*

Mr. Ancona: *In other words, you would say offhand that an average good-constructed building, equipped with sprinkler protection and properly designed, under modern practice, would probably have more occupants permitted in it by this code than under the New York code?*

Mr. Forster: *I think that is a safe general statement to make. I will be glad to figure on any buildings you have in mind; I think I can do it in five minutes or less.*

Mr. Ancona: *Did you check, with low hazard, the building of fire-resisting construction and equipped with sprinklers, to see if the large number of people permitted by your curves could be gotten into the building? In other words, with an ordinary layout of manufacturing operation, can you get as many people into a given floor space, assuming fair aisle and exit facilities, as would be permitted by the constants of your report?*

Mr. Forster: *The area of the section under consideration does not enter into this exit problem except so far as the horizontal exit feature is concerned, but I think I can safely say that you ought to be able, with factory buildings as we know them, to get in under the most favorable conditions approximately this number of people.*

Mr. Derby: *I was going to move that the report be accepted and printed in the Proceedings. We cannot ever get a report that everybody agrees with, any more than the constitution of this country could be agreed with. Ben Franklin says it is as good as human beings could draw up, and I think Mr. Forster's report is in the same category. (Applause.)*

Col. Young: *I heard this report last year in Washington. I want to get a little more information on it. It seems to me that the work has been admirably done. I understood from the reading that it was not intended to cover school buildings, and then afterwards it seemed that there was a probability of its being applied to them.*

In my work I have been placed in a very hard position, it being my duty under the laws of my state to say whether a school building is safe, and I have tried to work that problem out. We use the double tower stairway, and couple with it the elimination of all inside stairways and openings between floors. I am satisfied that this method is practical and efficient for school buildings and for dormitory buildings. Over 100 school buildings have been erected on this plan and a number of dormitories. We are applying it to every dormitory building; we are applying it to our state hospitals and insane asylums; and while I was met at first with the statement from the architects that it destroyed architectural beauty and cost too much, and the statement from the school teachers and superintendents that it was inconvenient to use, it is now admitted by the architects that it costs less money than the inside stairway. It is now admitted by the teachers that it is more convenient.

We must do something, and must do it quickly, for the safety of the children in our schools. If you will go over this country from one end to the other, even into the splendid schools in our cities, and look at the schools from the safety standpoint (especially considering the danger from smoke which causes over 80 per cent. of all the casualties in school buildings) you will be horrified. It might well be written upon most of our school buildings in this country that they were built to burn. In Asheville, N. C., we had a school called the Catholic Hill School, occupied by negro children. We put on every outside fire escape we could; we had sufficient exits for

them, and yet one morning a fire started in that school and burned seven little negroes. Why? Because of the smoke panic. One inside stairway nullified the whole value of the fire escapes. The teachers have this matter weighing upon their minds; the responsibility is placed upon them of taking care of children in case of a fire, and I want to get the assistance of the Association, either through this committee or directly, upon the question of the adoption of the principle of the double tower Philadelphia fire escape as a stairway, with the elimination of all inside stairways and other openings between the floors.

Mr. Hexamer: *I would like to call attention to one other provision of our Philadelphia building code which may help Col. Young, and that is to this effect: no hospital or asylum can be erected in Philadelphia over two stories, unless it is of fire-resistive construction throughout, and no school over three stories unless it is of fire-resistive construction throughout. For hotels and apartment houses the limit is four stories. That is a part of our building code, enacted in 1903 by a body of which I had the honor to be a member.*

Col. Young: *You may make your building fire-resistive, but you cannot even with your fire-resistive building meet the smoke hazard.*

The President: *It is the Chair's thought that this report should be referred back to the committee to consider the suggestions that have been made, and then to the Executive Committee with power to publish or promulgate it in the interval between this and the next meeting, if possible.*

A motion to this effect was made and seconded.

Mr. Williams: *I would like to get one little bit of information from Col. Young. If, as I assume, there are no inside stairways, these smoke-proof towers are intended for daily use?*

Col. Young: *Yes, sir.*

Mr. Williams: *Then I would like to ask if the entrance to the smoke-proof tower is open to the air?*

Col. Young: *It is proper that it should be. We make a rule of giving full ventilation, or else a little ventilation at the top.*

Mr. Williams: *How can an open vestibule be used in a northern climate for the daily passage of school children? Can that principle be advocated for general use?*

Col. Young: *When we first brought up the matter that question was raised, and the architects are working it out in this way: they take a small part of the upper part of the opening and use that for ventilation, so that no snow can come in and no damage be done even in our very worst weather. I do not say that this principle can be applied everywhere; I do not ask that this Association should go on record as requiring its application everywhere or with full exposure in every case, but if we can get it over half or two-thirds of this country we shall have accomplished something in eliminating smoke panic. That, as far as I have been able to find out, cannot be done in any other way.*

Mr. Forster: *To give encouragement to Col. Young, I might say that we make no deduction of one-third for the possible blocking of the exit by smoke in the shaft in the case of such a tower as we do for the inside stair, even if it is in a shaft; in other words, we allow 50 per cent. more capacity for that sort of a stair than the other type, which should certainly encourage its use.*

Col. Young: *The principle I urge is the use of the smoke-proof tower as a stairway and the elimination of the others; I want the combination.*

Mr. Spence: *I do not understand how you can have, in a Philadelphia fire tower, the scissors or double flight stair, and have the vestibule for both stairs open to the upper air. That was one question that came up.*

Mr. Forster: *I do not recall any such connection. We simply have a scissors stair and vestibule open to the outside air.*

Mr. Spence: *How could you have it upon the intermediate landing?*

Mr. Forster: *The intermediate landing is in the shaft.*

Mr. Spence: *You would not have the outside air opening on the intermediate landing?*

Mr. Forster: *Not for a moment!*

Mr. Albert Cone (American Lumberman): *I notice you have wood workers without dipping or varnishing in the moderate hazard, and in the high hazard those operations are included. Those processes are not going on all over the place in a well-built wood-working factory. (I am sorry to say there are quite a number yet not well built.) The finishing room is a separate department, and I wanted to inquire whether the principle of each occupancy should be applied in a case like that.*

Mr. Forster: *I should say if you have a separate section on the other side of a fire wall it would be treated as a separate building; if you had it on the same side, it would become necessary for somebody with authority to determine the classification.*

Mr. Libman: *As I understand it, you are going to put signs on each floor of the building showing the permissible number that may occupy the various floors?*

Mr. Forster: *Yes, sir.*

Mr. Libman: *Would it not be a good suggestion also to state on a bulletin board at the entrance to the building the total permitted occupancy of that building, so that when a man comes to rent he can know the limit and arrange accordingly with the landlord or the real estate agent?*

Mr. Forster: *That suggestion has a value, particularly in connection with a whole building rental proposition, but if a man is coming into a 12-story loft building to take half a floor, he has no say about it.*

Mr. Libman: *He won't rent it if he cannot occupy it?*

Mr. Forster: *He cannot come in at all if he has a high hazard business, but if it is a moderate hazard one, he can have, say, 82 people.*

Mr. Libman: *I am thinking about educating the people in the building. If a man goes into an elevator he knows it will carry so many people.*

Mr. Forster: *We have that suggestion in mind and will be glad to consider it.*

Mr. Richards: *Could the committee define their position on basements? We do not know whether a basement is a story or not.*

Mr. Forster: *The committee has that in mind. I did not want to complicate this report by that point. The committee is going to take up the question of basements and sub-basements and treat it is in the same way and cover the exits from the first floor, and the same principle will apply.*

Fire Marshal James Crapo (Chicago): *Schoolhouses, as usually constructed, have stairways which open on each floor. The fires usually start in the basement, and no cut-off is provided in which the smoke can be kept down from the upper floors. If the building is occupied, it is usually the case that there are quite a number of children suffocated. My idea in reference to the protection of a schoolhouse and also of a building in which there is a high hazard is that the stairways shall be absolutely fireproof, no wooden stairways whatever. There should be ventilation at the*

top. The method that Col. Young speaks of is that which was followed some years ago in Philadelphia, and which is probably the best method for providing for the safety of children,–that is, to provide an outside fire escape, not an iron stairway, but an outside vestibule, by which means you cut off each floor, keeping the floors separate, and provide a separate exit on each floor to the outside air. This, in my judgment, would suffice to carry off the occupancy of each building. In reference to buildings with high hazard, in a great many cases where exits are provided, the exits are blocked or the doors are locked so that the people cannot get out. Last week I inspected a building in which they were manufacturing government munitions, and I found all the doors locked, and told them they would have to open those doors immediately. They said they kept the doors locked to keep people on the outside from coming in to steal goods. If a stairway is of wood, the fire always attacks it and the stairs commence to tremble. The fireman naturally wonders how he is going to get out of there. For fire-fighting purposes the stairway should be absolutely fireproof. Inside the area itself the aisles should be parallel. I doubt whether any of you have been in one of these occupancies when they were filled with smoke. You go in and have to turn different kinds of angles, and the first thing you know you get lost, and if you cannot get a line of hose to follow back you are likely to be suffocated. I wish I could show some of you gentlemen the conditions that do exist.

The President: *The remarks of Chief Crapo are very interesting, coming from a practical fireman. If there are no further remarks, we will put the motion.*

The motion was carried.

The President: *I think there is not one of us but has some conception, even if inadequate, of the amount of thought and labor that has been accorded this subject, and the Chair believes that the thanks of the Association are especially due to Mr. Forster and his committee. Assuming that a resolution in this sense has been offered and passed, I take pleasure in so extending our thanks to you, Mr. Forster.*

(Mr. Rudolph P. Miller presiding.)

Chairman Miller: *The next report is that of the Committee on Fire-Resistive Construction, Ira H. Woolson, Chairman.*

Mr. Woolson: *The work of this committee this year is covered under three headings: first, Specifications for a Standard Fire Test and Classification of Buildings resulting from such test, which is a continuation or revision of the tentative specification presented last year; following that, some suggestions in regard to better fire protection in emergency housing and warehouse construction, and then a larger publication, which is a Consolidated and Revised Report of previous reports of this committee from the year 1913 to date. With your permission I will take this first.*"

While the discussion is lengthy, there is little in the way of a discussion of the technical basis for many of the proposed egress requirements. Much of the discussion focused on the value of horizontal exits. In other words, the Committee's work, for the most part, was accepted without a rigorous basis or justification of the proposed provisions.

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