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FIRE PROTECTION HISTORY-PART 69: 1909 (THE 13TH ANNUAL NFPA MEETING/COMMITTEE ON DEVICES AND MATERIALS)

By Richard Schulte

The 13th annual meeting of the National Fire Protection Association was held at the offices of the New York Board of Fire Underwriters in late May, 1909. Among the various technical committees reporting at the meeting was the Committee on Devices and Materials. The following is the text of the committee's report:

"***REPORT OF COMMITTEE ON DEVICES AND MATERIALS.***

Your Committee on Devices and Materials has held regular quarterly meetings during the year. Two of these have been held in New York, one in Chicago, and one in Boston. The attendance at these meetings has been very gratifying, sixteen members being present at the first meeting, seventeen at the second, sixteen at the third, and twenty-five at the fourth. In addition to members of the committee, we have invited form time to time members of the association and others particularly interested or well informed in the especial problems needing consideration. Among these have been the consulting engineer, the associate engineer, and various of the assistant engineers of the Underwriters' laboratories.

At each quarterly meeting we have taken up, discussed, and disposed of the usual number of reports from the laboratories covering the result of its investigation on automatic sprinklers, dry pipe valves, fire doors and shutters, metallic window frames and sash for wired glass, chemical extinguishers, thermostats, watchman's call and fire alarm boxes, fusible links, roof covering, partition blocks, cotton rubber lined hose, unlined linen hose, hose racks, automatic fire alarm systems, and appliances of a similar character.

The correspondence system for recording opinions by mail vote at intervals between meetings has also been continued as heretofore and proved itself successful for reaching early decisions on current matters in which our standards are well established. The status of all approved appliances has been published in the Quarterly, this list being revised four times a year following the quarterly meeting. The criticisms on appliances which have been examined but not approved have been given in the general summaries on the cards which are furnished such members as desire to subscribe for them at the rate of $15.00 per year. These include statements in reference to the approved devices as well as the unapproved, and cover not only the work of this committee, but the work of the Electrical Committee of the Underwriters' National Electric Association, and the work of the consulting engineers of the National Board of Fire Underwriters. At the present time approximately fifteen hundred (1500) cards are issued annually, thus making the expense in the neighborhood of one cent per report.

In addition to the list published in the Quarterly and the cards issued by the laboratories, our recommendation on appliances coming under our observation have as heretofore been favorably received by the National Board of Fire Underwriters, which has from time to time printed lists of the more common of these which it has caused to be distributed pretty generally throughout the United States and Canada. These lists the National Board has furnished without charge in quantities as desired by our active members, and these members, especially those having need for lists of this kind in the conduct of their current business, have been urged to order the lists with an imprint evidencing their recognition of the approved articles, with cautionary matter in respect to proper installation reading as follows:

> *"Prospective users in _____ should first ascertain from the undersigned which type, if any, of wired glass windows will be accepted in the location desired, and should make contracts subject to the approval by us of the installation, glazing, and automatic attachments. The label is accepted as evidence of proper construction of the frame at the factory."*

A generous response has been made to this suggestion by the following organizations, which now regularly use the lists with the red ink foot notes:

Association of Fire Underwriters of Baltimore City.
Board of Fire Underwriters of the Pacific.
Boston Board of Fire Underwriters.
Buffalo Association of Fire Underwriters.
Chicago Board of Fire Underwriters.
Cleveland Inspection Bureau.
Factory Insurance Association.
Indiana Inspection Bureau.
Indianapolis Inspection Bureau.
Insurance Association of Providence.
Mainland Fire Underwriters' Assn. of British Columbia.
Michigan Inspection Bureau.
Mississippi Inspection and Advisory Rating Company.
Missouri Inspection and Survey Bureau.
Nebraska Inspection Bureau.
Newark Fire Insurance Exchange.
New England Bureau of United Inspection.
New Hampshire Board of Fire Underwriters.
Ohio Inspection Bureau.
Philadelphia Suburban Underwriters' Association.
Rocky Mountain Fire Underwriters' Association.
St. Louis Fire Prevention Bureau.
Southeastern Underwriters' Association.
Tennessee Inspection Bureau.
Texas Fire Prevention Association.
Underwrites' Bureau of Middle and Southern States.
Western Factory Insurance Association.
West Virginia Inspection Bureau.

The label service which we have commended to you in previous annual reports shows a marked increase in popularity during the year. This service, which carries the statement of the laboratories as a manifest on the goods themselves, and which is safeguarded by competent inspectors at the factories where the goods are turned out; by special agents going from one inspection office to another; by reports carefully scanned by examiners and engineers at the head office; by frequent examinations by Underwriters' inspectors in the localities where they are installed, and by the rival manufacturers noting closely the quality of the competitors' wares when labeled, is providing itself as the best solution yet devised of the many perplexing problems incident to bring to the consumer the opinion of someone in authority on the merits of devices and materials in respect to the fire hazard. The consumer's interest in obtaining these expressions thru this channel is becoming more and more apparent – manufactures reporting orders for labeled goods even industries to which the system has not been extended.

The Laboratories state that during the twleve [twelve] *months ending March 31, 1909, a total of 14,378,475 labels were supplied inspectors. This total, of course, covers electrical and other appliances as well as those coming under our jurisdiction.*

Quoting further from the Laboratories' report, the statement is made that the cost to manufacturer of the inspection service and the label averages less than one half of one per cent. of the cost of the articles labeled, and thus generally becomes a negligible factor in determining the selling price of the labeled article.

In addition to the detailed work on the various appliances the committee has given consideration to the need for research work on general subjects, particularly with reference to extending and elaborating our specifications to include new types of apparatus which are constantly being brought forward. An important factor of this branch of the work, as well as an encouraging sign of the success of our general endeavor, is evidenced by the largely increased facilities provided by the new building of the Laboratories at Chicago, which we had the privilege of seeing in partially completed form during our meeting there is February. The new building with its equipment when completed will bring the total value of the plant to about $70,000, and the importance of the work which the increased facilities makes possible will, we believe, be generally recognized. It will cover principally work in structural methods and materials.

Thirty-six persons are employed in the Laboratories' offices and station at Chicago and its agencies are established in twenty-five cities in the United States and Canada.

In the development of this branch of the work careful consideration is being given to testing apparatus and methods in order that the test conditions may be such that ultimate fire resisting values may be determined, and the various structural methods and materials more accurately classified. Probably the most important factor receiving attention in connection with this work relates to the effect of expansion and methods of restraining the sample tested in order to approximate the conditions of actual service.

In summing up the results of our tests and comparing them with observations in the field, we have found a decided difference as to the effect of fire on materials, and we believe it is the difference of restraint under the two conditions. A small sample, perhaps supported on four walls, expands and contracts without throwing much damage, so to speak, into the system inspected. In a building that does not occur to the same extent, and it is thought by providing proper restraint to these test samples we can get more nearly the effect on the material in actual service.

Preliminary tests to determine the value of various types of fire proof floors are being conducted, and several types of fire proof partitions have been reported on.

Continued and increasing interest on the part of manufacturers of the various devices and materials is shown, and a decided general improvement is noted in the products submitted and being turned out commercially.

Two years ago, only two fire doors had been submitted. At the present time eighty-five have been reported on and applications are being received from all parts of the county. Thee examination show that while the methods specified in the standard are generally understood, improvement is most always necessary in details.

Metallic window frames for wired glass are still being received and tested, two hundred and ten windows of different types made for fifty-three manufacturers having already been examined, tested and approved. In addition, preliminary reports from drawings have been rendered on twenty-seven windows; six having minor defects have been reported but not approved; ten have been condemned or have been withdrawn on account of unsatisfactory results in tests; and two have been tested and not yet reported.

It is notable that manufactures from districts where the requirements have been rather lax are now making application for the approval of their product. As might be expected, the devices made by those manufactures are somewhat behind the state of the art and it is often found necessary to require a complete change both in design and construction.

In work on signaling systems of various classes, several types of thermostats for automatic fire alarm systems have been tested and reported, and a long set of tests has been conducted on a new pneumatic automatic fire alarm system in which the alarm is transmitted by means of expansion of air contained in a small copper tube installed throughout the protected areas. The factory inspection and label service has been continued on watchman's time detectors and on the combination watchman's call and fire alarm boxes of approved types, and improved methods of handling this work, with consequent improvements in efficiency, have been devised.

The Laboratories now have a small room set apart especially for signaling devices which may require long continued operating tests. Within the last year this department has also been equipped with an ingenious and very satisfactory device for more delicately recording the exact time and condition of operation of thermostats, and we believe that by its use a much greater uniformity of test conditions has been secured than was hitherto possible, since with this apparatus it is now possible to determine the voltage impressed upon the thermostat circuit and the current flowing in this circuit. The instant at which the thermostat operates is indicated by a device quite as sensitive as the thermostat itself, thereby eliminating the necessity of using recording devices which might be open to question because of their relative lack of sensitiveness. (Applause.)

The Chair: Gentlemen, the report of the Committee on Devices and Materials is before you; what is your pleasure?

Mr. Phillips: Mr. President, I move the report be accepted and printed in the proceedings. I think there are no recommendations in the report, Mr. Robinson?

Mr. Robinson: No, sir.

Motion seconded and unanimously adopted.

The report presented by the Committee on Devices and Materials contains a number of interesting points. One is that the testing and listing of building construction and fire protection products was rapidly expanding in 1909 and another is that engineers at Underwriters' Laboratories realized that the restraint (against expansion) had a marked effect on the structural fire resistance of floor construction in buildings.

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