NBSIR 73-409 (R)

Eighth Plenary Meeting ISO/TC-92, Fire Tests on Building Materials and Structures

A. F. Robertson

Institute for Applied Technology
National Bureau of Standards
Washington, D. C. 20234

November 26, 1973

Progress Report

Prepared for

Subcommittee on International Standards
ASTM Committee E 5.92

NBSIR 73-409

EIGHTH PLENARY MEETING ISO/TC-92, FIRE TESTS ON BUILDING MATERIALS AND STRUCTURES

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Prepared for
Subcommittee on International Standards
ASTM Committee E 5.92

U. S. DEPARTMENT OF COMMERCE, Frederick B. Dent, Secretary

NATIONAL BUREAU OF STANDARDS, Richard W. Roberts, Director

EIGHTH PLENARY MEETING
ISO/TC 92
FIRE TESTS ON BUILDING MATERIALS AND STRUCTURES

A. F. Robertson

This report summarizes the discussion and decisions agreed to at the Eighth Plenary Meeting of ISO/TC 92, Fire Tests on Building Materials and Structures. Only one standard was proposed for balloting as a draft international standard for small chimneys. It was referred back to the working group for further consideration. The reports submitted of progress in development of standards for smoke control doors and reaction to fire test methods were well received. Representatives from ISO/TC 45, Rubber, and ISO/TC 61, Plastics, attended the meeting and stressed the importance of close liaison between their and other committees with TC 92. It was agreed that such liaison would be established, however, with caution that such cooperation would not be interpreted as endorsement of test methods developed by the materials' committees.

Key Words: Chimney; combustibility; fire endurance; fire tests; flame spread; heat release; ISO/TC-92; smoke; terminology.

1. INTRODUCTION

The writer, Mr. Herbert Eichner, of the Forest Products Laboratory, and Mr. Jack Bono, of Underwriters Laboratories, served as delegates and participated in meetings of the Eighth Plenary Meeting of ISO/TC 92, Fire Tests on Building Materials and Structures. Mr. S. Hacopian, of the Federal Housing Administration, and Mr. J. P. Carroll, of the Society of Plastics Industries, participated as observers for the USA. The meetings were held in Rome, Italy on October 8-11, 1973 at the Palazo de Congressi EUR. The draft agenda (DOC 360 EF), Appendix A, was used to guide the meetings. This report considers the various agenda items in the order they were considered at the meeting. Appendix B lists the delegates attending the meeting.

The delegates were welcomed by high officials of the Italian Ministry of the Interior, the organization under which fire safety work is conducted in Italy. Mrs. Bruce, in the absence of any officials from ISO Secretariat Switzerland, opened the technical session by indicating that Professor Herpol had been ill. It had previously been agreed that he would chair the

meeting, but as a result of his illness another chairman would have to be selected. It was decided that Dr. P. H. Thomas of the United Kingdom would be an excellent alternate. He agreed to serve.

Mr. Sprung of the Yugoslavian delegation asked to make a comment. He reported that this was the first meeting of ISO/TC 92 they had attended. They were very concerned with international standards, especially in connection with marine construction work. They use ISO and BSS standards and hope to help with, as well as gain from, the conference.

Agenda Item 3 - Selection of Editing Committee

Messrs Wilson - Dixon, United Kingdom; Lauren, France; Vandevelde, Belgium; de Biase, Italy and Mrs. Bruce of BSI were selected for the work of editing the resolutions developed at the meeting.

Agenda Item 4 - Approval of Draft Agenda

The draft agenda was accepted as proposed. No change of the items was suggested.

Agenda Item 5 - Progress on Standards, DOC 370

Since few of the delegates had seen this document discussion on it was postponed.

Agenda Item 6 - Report of WG-2, DOC 364

This report noted that differences still existed between DIS 1182 and the Intergovernmental Maritime Consultative Organization (IMCO) test. There was no penalty on specimens which lost more than fifty percent of their weight and the apparatus to be used is not sufficiently defined to permit its construction. However, WG-2 proposed to await comment on the balloting prior to further work on the procedure.

We pressed for the following four points in connection with this DIS.

1) We wanted detailed drawings referenced in 1182.

2) We wanted a requirement for a minimum fraction of the specimen to remain after test.

3) The method of standardizing the furnace operating condition is awkward and requires use of an optical pyrometer. This is avoided in the IMCO version 4.

The procedure requires a 20 minute furnace exposure for the specimen. It would be preferable to require either 20 minute or the time at which all measured temperatures have passed their peak values.

Many other delegates seemed to be unhappy with the procedure so we urged that it not be rejected by a negative ballot, but that comments on its deficiencies be forwarded with an affirmative ballot.

Mr. de Biase had prepared a document by which he proposed that the ballot be abandoned prior to improvement of the text. This was not accepted for two reasons:

1) The document had not been circulated prior to the meeting.

2) There was no practical way to stop a ballot which was in progress.

Mr. Van Ettern urged that we work toward a rate of heat release calorimeter. We encouraged this and there seemed to be general agreement that the non-combustibility test method was of limited value in many instances. The French delegates showed preference for their crucible test method. Resolution 92 (see Appendix C) was adopted to acknowledge the work done by WG-2.

It was agreed to differ the request that WG-2 take up work on a rate on heat release test until latter in the meeting.

Item 5 was brought up again after lunch. This involved the secretaries report on progress on standard development DOC 369. She reported as follows:

1) DIS 3008, Doors and Shutters, had received affirmative ballots from 71% of P members and 85% of ISO members. Because of this the Secretariat had asked that comments be considered by WG-3 before publications as a standard.

2) DIS 3009, Glazed Elements, had received only 58% of the P member ballot and 84% of the ISO membership. The Secretariat wants this DIS reconsidered.

3) DIS 834 and 1182 are now in process of balloting. The explanatory technical report will be issued when 834 is released.

4) The secretariat has requested that target dates be set for completion of standards.

There was considerable discussion of this last item, but it was agreed that there would be no harm in this since it was not binding. Mr. Mayer, liaison from TC-61 indicated that there was urgent need for fire standards and we should expedite work.

Agenda Item 8* - Report of WG-4, DOC 361 & 362

Dr. Thomas presented the report for this group he chairs. He reported that there were no proposals for standards nor for changes in scope of the committee. The report on their progress on tests for spread of flame, ignition, smoke, and rate of heat release and the rational on reaction to fire tests was presented in DOC 362. We congratulated the group on this document and urged that at least the introductory rational portion be published promptly. There was considerable discussion on the subject of whether the incomplete descriptions of the test methods should be included. It appeared that some wanted the limited detail presented so that they could conduct tests of their own. We urged that if they were published, in abreviated form as was finally agreed, that notes should be provided to caution the reader that the tests mentioned were still under development and subject to change.

It was agreed that some minor revisions be made to the introductory material emphasizing the fact that, in general, fire tests do not measure material properties, but assess system behavior.

We joined with others in agreeing that prompt publication was necessary and urged that if this were not available through ISO it should be published in the technical press elsewhere.

Resolution 89, Appendix C, was developed calling for continued work of the group and publication of the report with abreviated appendixes.

Agenda Item 13 - Report of Liaison With Other Committees

At this point Mr. Eagles, of ISO/TC 45 on rubber, joined the group and was invited to report on a recent meeting of that committee. He reported that TC 45 and many of the committees were concerned with fire test methods. He mentioned a resolution

*At this point a deviation was initiated in the order of considering the various agenda items. They are reported in the order considered.

recently adopted by TC 45 and TC 61 and was asked to furnish a copy for circulation to members. This DOC 373 is enclosed as Appendix D.

Mr. Becker was asked to report on work of TC 61. He emphasized the difference in purpose of standards of TC 61 and TC 92. Those of TC 61 are primarily for quality control and material identification while TC 92 was considered for fire hazard evaluation.

He summarized work on standard development as follows:

1) IS 818 relates to ignition resistance of plastics exposed to an incandescent bar at 950 C.

2) DIS 1210 measures flammable resistance of plastic bars. It is similar to ASTM D-635.

3) R 1326, flammability of plastic films, from 0.015 to 1.5 mm thickness under flame exposure.

4) R 871, evaluation of flammable gases from plastics. One gram of plastic is heated to successively higher temperature until ignition is observed.

5) A new draft standard is under development for foamed plastics. It is similar to D 1692. The ballot on it has not been completely successful.

6) An oxygen index test method is under development.

TC 61 has banned use of descriptive terms to report performance classification to material tested. They plan to set up a special working group on fire test methods. No work is currently in progress. They seek liaison with TC 92.

Mr. Laurin reported that SC 19 of TC 38 on Textiles is also concerned with the need for liaison with TC 92. A letter has been directed to ISO from TC 38 recommending that TC 92 should develop tests for fabric wall and floor covering materials to be used in buildings.

Mr. Malhotra recommended development of a document to discuss the difference between fire hazard tests and material identification fire tests. This started a general discussion on the need for small scale tests and the danger of their possible misuse. The need for liaison with the other committees was generally recognized but it was considered that such liaison might imply endorsement of the standards developed by the materials committees.

Mr. Eagles emphasized the need for liaison he mentioned that WG-14, TC 45 has developed a horizontal burning test for foamed rubber. They are working on a smoke test method.

At this point we reported on recent developments at ASTM with regard to its proposed new fire test policy.

Resolution 90 (Appendix C) was passed calling for liaison with TC 45 and 61 but stressing need to avoid implication of endorcing their tests. Resolution 91 was also accepted. This welcomes the offer of help from TC 61 for work on a smoke test method.

At our suggestion it was agreed that Dr. Thomas should serve as liaison to these committees and report back when appropriate to TC 92.

Resolution 93 was then passed thanking WG-4 and urging continued efforts to develop test methods.

At this point discussion again developed on the need for a heat release rate calorimeter. We supported the need for development of a test for this property, but emphasized that whether it is done in WG-2 or WG-4 is of no concern to us. It should be expedited. It was at this point that Resolution 92 was developed calling for cooperation between WG-2 and 4 and development of a heat release rate calorimeter.

Agenda Item 7 - Report of WG-3, DOC 363

Mr. Malhotra reported on the work of this Group he chairs. Apparently the French and some others, during balloting on DIS 3008 and 3009, had complained about the use of a canope in connection with these door and glazed element test methods. He spent some time discussing the desireability of using the canope, at least until experience is gained on its value. He reported that no real progress had developed on an impact test. It was reported that several countries including UK considered that such a test should be developed. He reported on the decision to use the term "smoke control" rather than "smoke stop" door. He also mentioned the three different conditions under which such doors could be useful and for which tests were being considered:

1) Cold smoke with uniform pressure over door surface.

2) Warm smoke with neutral pressure condition between top and bottom of door.

3) A door to serve fire endurance and smoke control pur-

poses.

It was noted that progress had been made for condition 1 and 3 which were thought to provide means for the easier solution.

In discussing this report, Mr. Wilson - Dixon of UK made the comment that we are sure there is little value for condition 2.

A vote was taken on interest in each of the conditions mentioned. The order of preference was 1, 3, 2. Both Professor Pettersson and Mr. Becker commented on the fine quality of the report. The Yugoslavian delegation reported that they had information on gas flow through window assemblies and said they would make this available.

We suggested caution on the assumption that smoke control doors would really limit smoke movement in a building and stressed the need for ventilation design to manage smoke movement during a building fire. We also emphasized the probable need to test doors over a range of pressures broader than would be implied by requiring that a neutral pressure zone be between the top and bottom of the door.

Resolution 95 was adopted at this point to encourage WG-3 to continue the work started.

Mr. Malhotra asked for information on the behavior of doors in control of smoke during actual fires. The delegates were encouraged to forward any information they became aware of on this subject.

Agenda Item 9 - Report of WG-7, DOC 365

Mr. Minne presented a summary of the report prepared by this committee on co-relation and coordination of fire tests.

It was reported that contact had been made with TC 140 in connection with fire tests of floor covering materials. They also propose to study the test methods being prepared by TC 45 and TC 61. Professor Minne summarized the report:

1) Limits of performance criteria should not be included in standards.

2) The scope of WG-7 be enlarged to include other building furnishing and occupancy items than just construction materials.

3) That WG-7 planned to recommend that ISO conditioning Standards be maintained for both 50 and 65 percent re-

lative humidity but if one had to be dropped it would be that for 50% RH.

4) That WG-7 planned to circulate all ISO member countries a questionnaire on standards adoption procedures.

5) That they should insist that other ISO committees working on fire standards should so notify TC 98.

6) To permit continued operation of WG-7.

We complained about item 3 above and pointed out that the proposal could result in encouraging adoption of a conditioning atmosphere which would, if applied to fire tests, result in a higher moisture content of the specimen and thus less flammable conditions. It was observed that the fire test methods at present called for 40-65 percent RH. We pointed out that this resulted from both the difficulty in achieving a closely specified moisture condition and reluctance of all laboratories to agree on a uniform condition. We pointed out that if only one condition was specified there would be a danger that conditioning equipment would be installed in laboratories which would not be most useful for conditioning fire test specimens.

Considerable discussion followed on this point. Resolution 96 was then prepared and among other items, authorized WG-7 to review the problem of conditioning atmosphere.

Agenda Item 10 - Report of WG-9, DOCS 366 & 367

Dr. Odeen, chairman of the group presenting this report, summarized the work and indicated that it had been decided in the early stages that the standard for small chimneys and flues should be based on a Swedish standard. DOC 367 is the result of the work done. It specifically excludes uninsulated tubes and requires one source of fuel oil to simplify the test procedure. They also decided not to consider the possibility of ignition of wood framing around the flue.

Col. Cabret complained that consideration had not been given to the French test. Mr. Bono presented our views and after apologizing for our lack of participation in the work, he made the following points:

1) In USA appliances of medium and high heat classifications involve stack gas temperatures above the 500°C specified in DOC 367 so the test would not be useful for evaluating their performance under phase 2.

2) The soot burn out or test phase starts from a low temperature whereas we would normally start it after extended normal operation. Thus the proposed test is less severe than those we use since lower exterior surface temperatures would be expected.

3) There is no requirement that simulated insulation or framing exclosures are not provided around the flue at locations such as floor or roof openings. These usually tend to increase exterior surface temperatures and may be critical locations.

There were further complaints and suggestings from UK and Germany. Items included:

1) Why do we need so complex a test for an item used so long.

2) Why do we have to limit the flue size - many chimneys require larger areas.

3) The definition of combustion conditions is not complete. Smokeless combustion should be specified.

4) It was suggested that the tightness test should be conducted on a hotter chimney than would be the case an hour after a test at 200°C.

5) The stack height should be allowed to vary.

6) This type of test has been in use of 35 years. Is it useful now if USA appliances differ so much in outlet temperature?

Dr. Odeen was not completely successful in explaining why they had made the decisions which were being criticized.

The chairman suggested a ballot to determine the extent of agreement with the test:

Negative	3	USA, France & Hungary
Positive	8	
Abstain	3	UK, Canada & one other

It was decided to refer the document back to the working group. They were authorized after review and revision to either submit it for letter ballot or for consideration at the next plenary meeting of the Committee. Resolution 97 was then adopted authorizing this further work.

Agenda Item 11 - Report of WG-10, DOC 368

Mr. Bellisson, chairman of this working group on instrumentation, presented a summary of the work to date. A very broad range of measurement problems had been proposed for consideration. These included:

1) Temperatures - in all types of tests
2) Radiation - in all types of tests
3) Photometers
4) Opacity of smoke
5) Heat Flux
6) Pressure in furnaces
7) Leakage of flames and gases through specimens
8) Gas composition in furnaces
9) Forces and pressures
10) Displacements

We encouraged preparation and publication of documents on specific instruments. Mr. Malhotra suggested limiting the work to a few topics at a time.

It was agreed to ask that emphasis be placed on measurement of temperature and radiation for the time being. Resolution 98 was prepared at this time. Mr. Bellisson indicated that he hoped to have documents ready for consideration at the next meeting.

Agenda Item 12 - Report of WG-11, DOC 369

The report of this working group on the fire endurance test was presented by Professor Kordina, the chairman. He noted that they were authorized to consider revisions to R 834 as well as develop new standards.

He reported work on heat transfer within furnaces as well as studies of integrity, failure criteria (cotton wool test). Professor Pettersson has agreed to develop a document relating to fire tests of external structural elements (usually columns). He himself is preparing a draft test for suspended ceilings. He noted that tests of beam-column assemblies require elaborate fire test equipment and noted that both UK and Germany were considering such facilities.

Col. Cabret asks that emphasis be placed on 834 and suspended ceilings. Mr. Malhotra also encouraged that emphasis be placed on work on suspended ceilings and we supported the suggestion.

Professor Kordina agreed with this, but indicated that there are many systems and standardization will be difficult.

A diversion took place in discussion of UATC (uniform international data acceptance). This as apparently similar to the laboratory accreditation work in USA. Discussion relative to it was ruled out of order by the Chairman. Resolution 100 was then adopted.

Agenda Item 13 - Consideration of New Work

Mr. Laurin reported that WG-6 has prepared an additional list of 50 terms which they proposed to consider with regard to possible future inclusion in vocabulary of fire terms. This list has been circulated to members of WG-6. The group proposes to work on these without a chairman.

We asked to be kept informed on any work undertaken. This was agreed to.

Mr. Malhotra commented that most of the terms were not limited to fire matters and he considered that most would be readily found in any good technical dictionary. In spite of these comments WG-6 was apparently authorized to proceed with work on this new list of terms.

We reminded the committee that it had previously been promised that equivalent terms would be identified in other languages. This was agreed but preference was given to delay of work on these until comments on the merit of the first list had been secured. It was agreed to circulate this list to TC 45 & 61 and other committees concerned with fire problems.

We called attention to the increasing concern in USA with more complete evaluation of the real full scale fire hazard situation. We described the new ASTM fire test policy and the distinction being drawn between fire hazard tests and those for material characterizations. Colonel Cabret reported concern for tests for roofs, facades, etc.

Agenda Item 14 - Other Business

Mr. Malhatra proposed to expedite work at the plenary meetings by circulation of proposals for DIS to member bodies for voting prior to the meeting. Comments could then be considered by the working groups and changes made prior to the meeting. It was generally agreed that the objective was a desire-

able one but the means for achieving it was quite uncertain.

Agenda Item 15 - Approval of Resolutions

The typed versions of resolutions 89 to 98 were reviewed and necessary corrections incorporated. Three additional resolutions were adopted: 99, on target dates for completion of draft standards, 100, with regard to work of WG-11, and 101 with regard to WG-6 and its work and terminology. These are all included in Appendix C.

Agenda Item 16 - Next Plenary Meeting

It was agreed that the next meeting of ISO/TC 92 would be held in Britain, probably during the week of October 6-12, 1975.

Agenda Item 17 - Brief Minutes of Meeting DOC 375

This document is included as Appendix E.

Agenda Item 18 - Closure of the Meeting

The meeting was concluded at about 1:30 p.m. on Thursday, October 11, 1973.

Appendix A

AGENDA

ISO/TC 92 (Secretariat- 175) 360 E/F
May/Mai 1973

Secretariat/Secrétariat:

British Standards Institution (BSI)

Host Member Body/Comité Membre invitant:

Ente Nazionale Italiano di Unificazione (UNI)

DRAFT AGENDA

for the eighth meeting
of ISO/TC 92 - Fire tests on building materials and structures
to be held from 8 to 12 October 1973
at the following address:

Ministero dell'Interno
Direzione Generale della Protezione Civile
e dei Servizi Antincendi
CENTRO STUDI ED ESPERIENZE
Piazza Scilla, 2
I-00178 ROMA - CAPANNELLE (Italy)

Opening time of first session: 10 h 00

PROJET D'ORDRE DU JOUR

de la huitième réunion
d'ISO/TC 92 - Essais de comportement au feu des matériaux de construction et des éléments de bâtiments
qui se tiendra du 8 au 12 octobre 1973
à l'adresse suivante :

Ministero dell'Interno
Direzione Generale della Protezione Civile
e dei Servizi Antincendi
CENTRO STUDI ED ESPERIENZE
Piazza Scilla, 2
I-00178 ROMA - CAPANNELLE (Italie)

Heure d'ouverture de la première séance : 10 h 00

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1. Opening of the meeting
2. Election of the Chairman
3. To appoint an editing committee
4. To approve the draft agenda
   Doc. 92 N 360
5. To review progress on the draft International Standards prepared by ISO/TC 92
6. To receive the report* of Working Group 2 submitted by the Chairman (Prof. G.A. Herpol) and agree action required, if any
7. To receive the report* of Working Group 3 submitted by the Chairman (Mr H. L. Malhotra) and agree action required, if any
8. To receive the report* of Working Group 4, submitted by the Chairman (Dr. P.H. Thomas) together with a draft Technical Report*, and agree action required, if any
9. To receive the report* of Working Group 7, submitted by the Chairman (Prof. G.A. Herpol) and agree action required, if any

1. Ouverture de la réunion
2. Election du Président
3. Désignation du comité de rédaction
4. Approbation du projet d'ordre du jour
   Doc. 92 N 360
5. Examen de l'état d'avancement des projets de Normes Internationales établis par ISO/TC 92
6. Présentation du rapport* du Groupe de Travail 2, soumis par le Président (Prof. G.A. Herpol) et, le cas échéant, décision quant à la suite à donner
7. Présentation du rapport* du Groupe de Travail 3, soumis par le Président (Mr H.L. Malhotra) et, le cas échéant, décision quant à la suite à donner
8. Présentation du rapport* du Groupe de Travail 4, soumis par le Président (Dr. P.H. Thomas) avec un projet de Rapport Technique et, le cas échéant, décision quant à la suite à donner
9. Présentation du rapport* du Groupe de Travail 7, soumis par le Président (Prof. G.A. Herpol) et, le cas échéant, décision quant à la suite à donner

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* Documents still to be distributed

* Documents à distribuer

10. To receive the report* of Working Group 9, submitted by the Chairman (Dr. K. Odeen) and agree action required, if any

11. To receive the report* of Working Group 10, submitted by the Chairman (Mr.G. Bellisson) and agree action required, if any

12. To receive the report* of Working Group 11 submitted by the Chairman (Prof. K. Kordina) and agree action required, if any

13. To review liaison arrangements with other ISO Technical Committees, and receive reports from liaison Members

14. To consider proposals for new work, if any, and agree action

15. Any other business

16. To approve the Resolutions

17. To arrange the date and venue for the ninth plenary meeting

18. Brief summary of the work of the meeting

19. Closure of the meeting

10. Présentation du rapport* du Groupe de Travail 9, soumis par le Président (Dr. K. Odeen) et, le cas échéant, décision quant à la suite à donner

11. Présentation du rapport* du Groupe de Travail 10, soumis par le Président (M. G. Bellisson) et, le cas échéant, décision quant à la suite à donner

12. Présentation du rapport* du Groupe de Travail 11, soumis par le Président (Prof. K. Kordina) et, le cas échéant, décision quant à la suite à donner

13. Examen des liaisons avec d'autres Comités Techniques ISO et soumission des rapports établis par les Membres en liaison

14. Examen de propositions de nouvelles études qui pourraient être présentées et, le cas échéant, décision quant à la suite à donner

15. Toutes autres questions

16. Approbation des Résolutions

17. Date et lieu de la neuvième réunion plénière

18. Bref rapport sur les travaux de la réunion

19. Clôture de la réunion

* Documents still to be distributed

* Documents à distribuer

Appendix B. List of Participants

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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION
ORGANISATION INTERNATIONALE DE NORMALISATION

I S O / T C 9 2
FIRE TESTS ON BUILDING MATERIALS AND STRUCTURES

VIII MEETING

LIST OF PARTICIPANTS

Rome, 8 -12 October 1973

Chairman - Dr. P.H. Thomas

BELGIUM	
Mr. R. Minne	Chef des Travaux, l'Université de Gent
Mr. Popelier	Sté de Coene
Mr. P. Vandevelde	Université de Gand
BULGARIA	
Mr. J. I. Bogoslovov	Research Laboratory for Fire , Sofia
CANADA	
Mr. T.T. Lie	National Research Council of Canada
CZECHOSLOVAKIA	
Mr. Reichel	Building Research Institute, Prague
DENMARK	
Mr. V. Aegidius	National Inatitute for Testing Materials
Mr. S. Nielsen	Danish Standards Association
Mr. H. Salmark	Technical High School of Denmark
FRANCE	
Mr. Arnault	Centre Technique Industriel de la Construction Métallique
Mr. Bellisson	C.S.T.B.
Mr. Cabret	Centre Scientifique et Technique du Bâtiment
Mr. Calisti	Laboratoire Central de la Prefecture de Police
Mr. Laurin	A.F.N.O.R.
Mr. Leroy	Saint Gobain

GERMANY

Mr. W. Becker	Hambach - Weinstrasse
Mr. Klingelhüfer	Staatliches Material Prufungsamt Dortmund
Mr. Teichgraeber	Institut fur Holzforschung und Holztechnik, Munich
Mr. Wesche	Technische Universitat, Braunschweig
Mr. Westhoff	Staatliches Material Prufungs-amt Dortmund

HUNGARY

Mr. J. Galosfai	Ministry for Urban Development and Building
Mr. K. Kovacs	Institute for Quality Control of Building Materials and Structures

ITALY

Mr. G. Bologna	AITEC
Mr. S. Bruschetta	Ministero dell'Interno C.S.E.
Mr. A. Cardellini	FEDERLEGNO
Mr. S. Cuomo	Expert
Mr. M. Delle Chiaie	Ministero dell'Interno C.S.E.
Mr. G. De Luca	Soc. Balzaretti Modigliani
Mr. A. Di Biase	R.I.NA.
Mr. F. Gatto	UNIMET - Ist. Sperim. Metalli Leggeri
Mr. E. Hugony	FINSIDER
Mr. A. Irace	Ministero dell'Interno C.S.E.
Mr. G. Pardini	UNIPLAST - Soc. Solvaj
Mr. I. Tiezzi	Ministero Interno C.S.E.
Mr. S. Urbani	ANIA

ISRAEL

Mr. F.E. Foa	Standards Institution of Israel

NETHERLANDS	
Mr. van Elteren	TNO (Applied Technical Research)
NORWAY	
Mr. E. Thrane	Norsk Verkstedindustris Standardiseringssentral
SOUTH AFRICA (Rep. of)	
Mr. D.B. Marais	South African Bureau of Standards-
SWEDEN	
Mr. S. Bengtson	National Institute for Materials Testing
Mr. K. Odeen	Royal Institute of Technology, Stockholm
Mr. O. Petterson	Institute of Technology, Lund
UNITED KINGDOM	
Mr. A. Eagles	British Plastics Federation
Mr. G. Hall	Timber Research and Development Association
Mr. K. Lock	Greater London Council
Mr. H.L. Malhotra	Fire Research Station
Mr. R.W. Pickard	Fire Offices Committee
Mr. A.P. Roach	Department of the Environment
Mr. P.H. Thomas	Fire Research Station
Mr. P.S. Wilson-Dickson	Home Office, Fire Service Inspectorate
USA	
Mr. J. Bono	Underwriters Laboratories
Mr. J.P. Carroll	Society of the Plastics Industry Inc.
Mr. H.W. Eickner	U.S. Forest Products Lab.
Mr. S. Hacopian	US Govt. Housing and Urban Development
Mr. A. F. Robertson	National Bureau of Standards

YUGOSLAVIA

Mr. N. Nikolic	Yugoslav Institution for Standization
Mr. D. Redzic	Federal Secretariat of Home Office
Mr. F. Sprung	Laboratory for Heat Measuring. Institute for Electrical Economy.

LIASON REPRESENTATIVES

Mr. A. Eagles	ISO/TC 45 - Rubber
Mr. J. Laurin	ISO/TC 59 - Building Construction
Mr. J. G. Meijer	ISO/TC 61 - Plastics

SECRETARIAT

United Kingdom	
Mrs. L. M. Bruce	British Standards Institution

Appendix C. Resolutions Adopted

ISO/TC 92(Rome-2) 372 E

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

EIGHTH PLENARY MEETING

Draft Resolutions of the Session of 9 October 1973

89 The plenary Session accepted in principle Document 92 N 362 and recommended its publication as a Technical Report but asked the Chairman, in consultation with members of WG4, to edit the document AND TO to concentrate the Appendices into a reduced and balanced form, to give a description of the apparatus and general guidance on procedure without the complete detail of the existing draft.

90 ISO/TC 92 has noted the Resolutions passed by ISO/TC 45 and ISO/TC 61 regarding liaison between themselves and other Technical Committees on Laboratory scale fire tests. TC 92, because of its role in developing tests relating to real fire hazards, has reservations about participating fully in the work of a liaison committee in view of the stated different objectives of their tests. It however welcomes the opportunity to co-operate with the liaison committee AND TO REPORT BACK, and will appoint an observer to attend meetings and to give guidance as may be desired, without committing TC 92 to RECOGNISE any tests which may be produced by individual committees.

91 ISO/TC 92 welcomes the offer of ISO/TC 61 to assist with the development of smoke tests within the scope of TC 92 and commends this to the appropriate Working Group.

92 Working Group 2 was thanked for its work on the non-combustibility test (DIS 1182) and was asked to examine any further technical comments which are submitted at the Member Body voting stage. The Plenary Session askes WG 2 and WG 4 to re-allocate their resources in co-operation to hasten the development of a rate of heat release test.

93 Working Group 4 was thanked for ~~its valuable contribution~~ THE PROGRESS IT HAS MADE to the development of tests for reaction to fire, and is urged, in view of the interest in this subject expressed by various national and international organizations to hasten as much as possible the finalising of its proposals for the various tests.

94 ISO/TC 92 re-states its proposals to invite other ISO Technical Committees to collaborate with it, with a view to studying the problems presented by safety from fire in their various fields and c ntends that close collaboration in the preparation of fire tests is essential if these problems are to be resolved.

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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

EIGHTH PLENARY MEETING

Resolutions of the Session of 10 October

Resolution No. 95

Working Group 3 was thanked for its work. It was asked to examine the comments received as a result of the voting on DIS 3008 and DIS 3009 and make any editorial amendments considered necessary prior to the submission of the documents to the ISO Council. Working Group was also asked to continue with its work on developing tests for assessing the smoke control properties of doors.

Resolution No. 96

IT IS CONFIRMED THAT

The plenary session thanked Working Group 7 for its work and sends best wishes for the health of its Chairman, Professor Herpol. The terms of reference of Working Group 7 allow it to pursue general questions of fire development in buildings in order that TC 92 can formulate fire tests for materials and structures within its term of reference. TC 92 wishes Working Group 7 to continue its work and in particular to examine the question of conditioning atmospheres to be specified for the fire tests. Working Group 7 is also authorized to distribute a questionnaire on the use of standards in national regulations, to the members of TC 92.

Resolution No. 97

The plenary session thanked Working Group 9 for its work and considered Doc. 92 N 357 prepared by Working Group 9. This document did not however achieve sufficient approval of members present to recommend that it be sent forward to the ISO Central Secretariat. Members are invited to send their detailed comments to the Secretariat of Working Group 9 (~~Sweden~~ DENMARK). These are to be considered by Working Group 9 and a new draft proposal is to be prepared for submission to TC 92 either in plenary session or by postal ballot.

Resolution No. 98

Working Group 10 was thanked for its work and was asked to continue with the development of specific proposals on problems concerning measuring instruments and calibration, giving priority to those which concern the measurement of radiation and the measurement of heat fluxes and temperature.

Resolution No. 99

Target dates for the completion of draft proposals by the working groups for presentation to TC 92 were agreed as shown in the minutes of the meeting. The working groups were urged to try to keep to these dates.

Resolution No. 100

Working group 11 was thanked for its work and asked to consider any comments received from the member body vote on DIS 834. Working Group 11 was also asked to pursue its study of fire resistance tests for other elements as detailed in its program with particular emphasis to suspended ceilings.

Resolution No. 101

The Plenary session took note of the progress of the draft vocabulary of terms for fire tests and asked WG-6 to consider any comments as a result of the member body vote on the DIS. It thanked the working group and in particular its Chairman, Mr. Ami, for its work on this subject. The future activities of this group will be reviewed at the next Plenary Meeting.

Appendix D. Liaison on Laboratory Scale Fire Tests

ISO/TC 92 (Rome-3) 373
ISO/TC 45 (Paris-47) 2806

ISO
ORGANISATION INTERNATIONALE DE NORMALISATION

LIAISON ON LABORATORY SCALE FIRE TESTS

After discussing the urgent need for proper recognition of the TC 45/61 Fire test liaison committee with Dr. CHOPRA and consideration by the members of the committee, TC 45 is asked to approve the following resolution:

RESOLUTION: That the Secretariat of TC 45 writes to the ISO Central Secretariat telling them of the great importance placed on the fullest use being made of consultations between Technical Committees interested in small scale laboratory fire tests and that to this end the Central Secretariat takes the necessary steps to ensure that the liaison committee is accorded an official status appropriate to the importance of its work.

It is expected that the resolution approved will be presented to TC 61 with the request that they adopt a similar resolution.

ISO/TC 92 (Rome-5) 375

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

Brief summary of the work of ISO/TC 92 at its Eighth Plenary Meeting 8-12 October, 1973

Delegates from sixteen member countries attended the Eighth Plenary Meeting of ISO/TC 92 held from 8-12 October 1973 at the Palazzo dei Congressi, Rome. In addition liaison representatives were present from ISO/TC 45 Rubber, ISO/TC 59 Building Construction and ISO/TC 61 Plastics. A welcome was extended to the delegates by Mr. Fontana on behalf of UNI, Mr. Righetti on behalf of the Ministry of the Interior and Mr. Renato, Direzione Generale della Protezione Civile e Servizi Antincendi. The Committee received reports from its eight working groups on progress made on the development of fire tests for building materials and structures. A number of Draft International Standards are at present with Member Bodies of ISO for vote. The fire tests for door and shutter assemblies and for glazed elements have received the necessary percentage of affirmative votes but require further consideration of editional comments.

A draft proposal for fire tests for small chimneys was considered but the technical comments made necessitated its reference back to the Working Group for re-drafting.

The results of the work on a series of tests for reaction to fire were presented in the form a Technical Report. This work is considered of major importance and the Working Group was urged to hasten the finalization of draft proposals for tests on surface spread of flame, ignitability, smoke production and rate of heat release.

Progress on work on measuring instruments and calibration of apparatus for fire tests was reported from another Working Group. Progress has also been made on fire resistance tests for other structural elements such as suspended ceilings and external columns. Studies are being carried out on roofs and bearing assemblies.

The plenary meeting reviewed its whole programme of work and allocated, on the advice of its Working Groups, target dates for the completion of draft proposals for submission to ISO/TC 92.

Attention was given to problems of liaison with other ISO Technical Committees dealing with fire tests for various materials and closer co-operation was proposed.

The next plenary meeting is planned for 1975.

Appendix F. List of Documents

The documents listed below were the subject of discussion at the meeting. The number used in reference to the document represents the suffix of the formal documant designation which involves the prefix ISO/TC 92 (Secretariate -) ____.

361 - Report of Chairman of ISO/TC 92 - WG-4, Reaction to Fire Tests.

362 - Draft Technical Report by Working Group 4, Reaction to Fire Tests, The Development of Tests for Measuring Reaction To Fire of Building Materials.

363 - Report of the Chairman of ISO/TC 92 - WG-4, Test Requirements for Door Assemblies.

364 - Report by the Chairman of ISO/TC 92 - WG-2, Testing Methods on Activities Since the 7th Plenary meeting.

365 - Report by the Chairman of ISO/TC 92 - WG-7, Co-ordination and Correlation of Fire Tests, on activities since the 7th plenary meeting.

366 - Report of the chairman of ISO/TC 92 - WG-9, Fire Tests for Chimneys and Flues.

367 - Draft Proposal for Fire Tests on Small Chimneys.

368 - Report of the chairman of ISO/TC 92 - WG-10, Measuring Instruments.

369 - Report by the chairman of Working Group 11, Fire Resistance Tests.

370 - Progress on reports in hand in ISO/TC 92.

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ABSTRACT (A 200-word or less factual summary of most significant information. If document includes a significant bibliography or literature survey, mention it here.)

This report summarizes the discussion and decisions agreed to at the ghth Plenary Meeting of ISO/TC 92, Fire Tests on Building Materials and ructures. Only one standard was proposed for balloting as a draft inrnational standard for small chimneys. It was referred back to the rking group for further consideration. The reports submitted of proess in development of standards for smoke control doors, and reaction fire test methods were well received. Representatives from ISO/TC 45, bber, and ISO/TC 61, Plastics, attended the meeting and stressed the portance of close liaison between their and other committees with TC 92. was agreed that such liaison would be established, however, with ution that such cooperation would not be interpreted as endorsement of st methods developed by the materials' committees.

KEY WORDS (Alphabetical order, separated by semicolons)
Chimney; Combustibility; Fire Endurance; Fire Tests; Flame Spread; eat Release; ISO/TC-92; Smoke; Terminology.

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