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Loss of Life

THROUGH

Carelessness and Panic

BEING

A REPORT

ON THE

ASCH BUILDING FIRE NEW YORK

OF

March 25th, 1911

Involving

One hundred and forty-five deaths.

By F. J. T. STEWART

*Superintendent, Bureau of Surveys, New York Board
of Fire Underwriters*

FOUR ILLUSTRATIONS

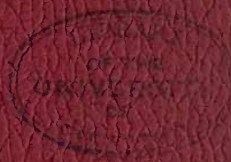
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OBJECTS OF THE COMMITTEE.

The main objects of the Committee are:

To direct attention to the urgent need for increased protection of life and property from fire by the adoption of preventive measures.

To use its influence in every direction towards minimizing the possibilities and dangers of fire.

To bring together those scientifically interested in the subject of Fire Prevention.

To arrange periodical meetings for the discussion of practical questions bearing on the same.

To establish a reading-room, library and collections for purposes of research, and for supplying recent and authentic information on the subject of Fire Prevention.

To publish from time to time papers specially prepared for the Committee, together with records, extracts, and translations.

To undertake such independent investigations and tests of materials, methods, and appliances as may be considered advisable.

The Committee's Reports on Tests with Materials, Methods of Construction, or Appliances are intended solely to state bare facts and occurrences, with tables, diagrams, or illustrations, and they are on no account to be read as expressions of opinion, criticisms, or comparisons.

The Committee is not responsible for the views of individual authors as expressed in Papers or Notes, but only for such observations as are formally issued on behalf of the Executive.



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Doors on to Fire Escape

9th

8th

7th

6th

5th

4th

3rd

2nd

1st

G.Fl.

Sub.
Bsmt.

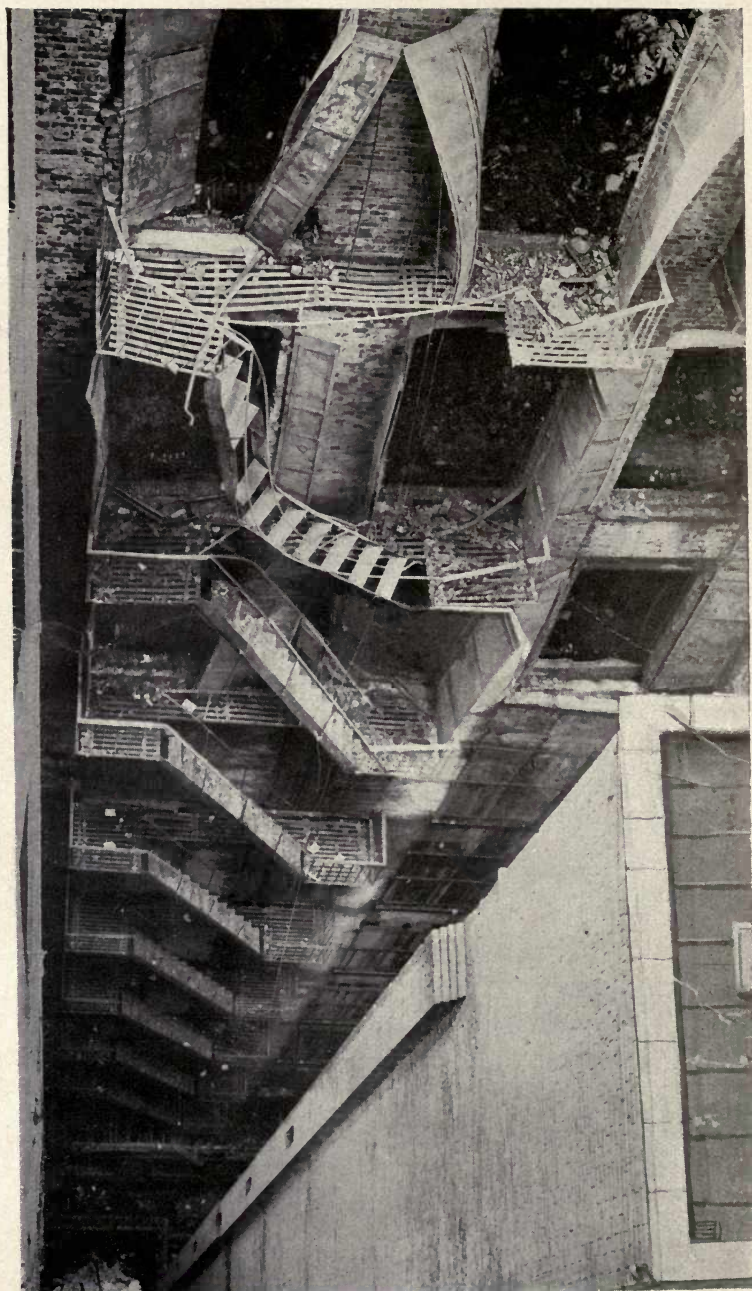


Photo: Campbell, lent by Ill. Lond. News

THE ASCH BUILDING, NEW YORK, U.S.A.
View of Fire Escape, looking down from adjoining roof



NOTE.

The terrible fire at the Asch Building, New York, has, on account of the great sacrifice of life, attracted considerable general interest in the frequent neglect of the fundamental features of fire protection which, as a rule, only impress the public officials controlling structures of this kind, those technically or professionally concerned, and a few managers of our larger industrial enterprises, who are broad-minded enough to realize the ever-present risk of fire on their premises, instead of closing their eyes to obvious dangers.

In our own metropolis, thanks largely to the London Building Act and its Amendments during the past decade, several features of the New York catastrophe are unlikely to occur in new structures erected as recently as 1901, but in quite a number of the older buildings where the Act and its Amendments have not yet been fully applied, the same state of affairs is quite conceivable; as also in many of our provincial centres where building legislation is not yet as comprehensive or as thoroughly administered as in the metropolis. We are apt to point to the special risks of the American "sky scraper," but the building here under review, with but nine floors,—beyond its two basements and ground floor,—can scarcely rank as such, and the occurrence would have been equally possible in the three upper stories of a building of say seven stories above the ground floor,—often met with in Great Britain,—as in one where there were nine.

Having regard to the nature of the catastrophe, as also to the ill-advised self-contentment evinced in certain industrial establishments that no such calamity could occur in our Isles, for the reason that the fatal building was described as a sky-scraper, the Executive deem it advisable to promptly put the particulars of the occurrence before the Committee's members and subscribers.

Having had no executive officer of the Committee actually on the spot, they have, through the kindness of their Hon. Foreign Member, Professor Ira Woolson of New York, pro-

cured a reliable report, originally prepared for the New York Board of Underwriters by their able Superintendent, Mr F. J. T. Stewart. His particulars are presented in full, the only omissions being his summary and recommendations, which have special bearing on the interests of his employers.

Mr Stewart's report—the Executive hold—makes instructive reading, and a feature they think that should not be lost sight of is, that this terrible loss of life occurred where the structural damage was relatively small and practically only affected the fitments and equipment of the three top stories of the building as distinct from its general construction. Bad planning and exit facilities, neglect of the ordinary precautions to prevent an outbreak of fire, and the absence of any pre-arranged system for utilizing the existing appliances, etc., in such an eventuality, and to have all routes of exits clear for immediate and easy use are obviously the primary causes of the catastrophe. The precise height of the building may have had some bearing on the exact total number of lives lost, but scarcely on the general extent and character of the calamity as a whole.

It is to be hoped that the sad lesson of this terrible fire, with its loss of some 145 lives and the heavy roll of those seriously injured, will be learnt both at home and abroad.

For the Executive

EDWIN O. SACHS.

Chairman.

ELLIS MARSLAND,

Gen. Hon. Secretary.

London, S.W.

3rd May, 1911.

A REPORT ON THE FIRE

OF

MARCH 25, 1911

AT THE

Asch Building, New York, U.S.A.

BY

F. J. T. STEWART,

*Superintendent, Bureau of Surveys, New York Board of Underwriters.***THE BUILDING.**

The building, which was known as No. 23-29, Washington Place (corner of Greene Street), New York, U.S.A., comprised a sub-basement, basement, ground floor, and nine floor levels, which were occupied as follows:

Sub-basement.—Heating plant.

The Hatters' Fur Exchange; very large stock of hatters' furs in cases and bales.

Martin Bates, Jr., & Co., large stock of sheep skin, open and in cases; hatters' furs in cases.

Basement.—Martin Bates, Jr., & Co., large stock of hatters' furs in cases and bales.

The Hatters' Fur Exchange, large stock of hatters' furs in bales.

The Stern-Katzenstein Co., large stock of piece goods in cases.

Ground Floor.—Martin Bates, Jr., & Co., offices; small stock of furs and sheep skin.

The Hatters' Fur Exchange, large stock of furs, open and in cases.

The Stern-Katzenstein Co., clothiers' supplies; stock of piece cotton goods.

1st Floor.—Bernstein & Meyers, manufacturing cloaks and suits; office, showroom and cutting department; large open stock of finished cloaks and suits; 2 electric cutters; cutting by shears; 15-20 hands.

2nd Floor.—Same tenant, manufacturing cloaks and suits; work room, 30 gas irons, 1 gas-heated strapping machine; 50 sewing machines by 2 electric motors; 1 quart safety can of benzine; 75 hands.

3rd Floor.—Harris Bros., manufacturing clothing; cutting only; 2 electric cutters, also cutting by shears; 1 treadle sewing machine, large open stock of piece goods; 15 hands.

Triangle Waist Co.

9th

8th

7th

6th

5th

4th

3rd

2nd

1st

G.Fl.

Washington St.



Green St.

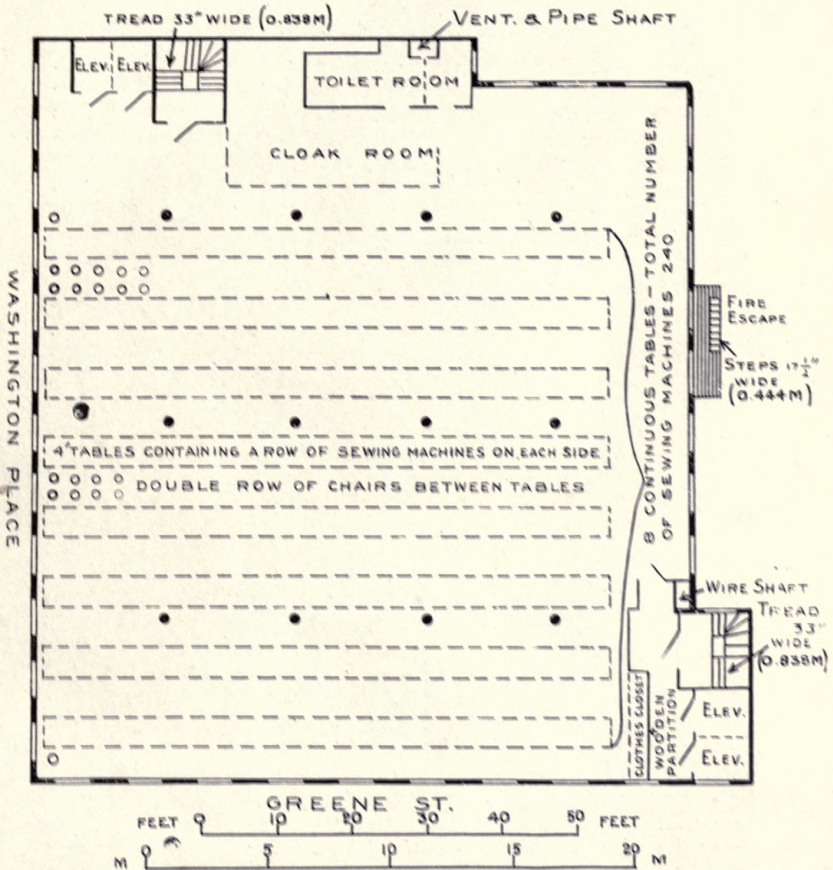
Photo: Campbell, lent by Ill. Lond. News

THE ASCH BUILDING, NEW YORK, U.S.A.
View after the Fire

4th Floor.—Maurice Blum, manufacturing clothing; office and show room; cutting; large open stock of piece goods; 15–20 hands.

5th Floor.—Vacant.

6th Floor.—Meyers, Crown & Wallach, manufacturing men's clothing; very large open stock of finished clothing; cutting and



PLAN OF 8TH FLOOR

pressing; 2 gas irons; 2 electric cutters; 1 quart safety can of benzine; 12 hands.

7th Floor.—The Triangle Waist Co. (Harris & Blanck, proprs.); work room; cutting and sewing; 176 sewing machines by 2 electric motors; 1 barrel of lubricating oil in metal tank; 230 hands.

8th Floor.—*The Triangle Waist Co.*, manufacturing waists, etc.; work room; 240 sewing machines by 4 electric motors; 1 barrel of lubricating oil in metal tank; 225 hands.

9th Floor.—*The Triangle Waist Co.*, office, show room and factory; stock room; pressing and shipping department; large open stock in boxes; 30 gas irons; 50 hands.

ITS CONSTRUCTION.

The Asch Building was designed to be used as a loft building. It was built in 1900-1901 and at the time of the fire was in excellent repair. It comprises a ground floor and nine stories with an iron and glass ground floor extension in the rear and has a basement and sub-basement. It is of the steel and cast iron skeleton construction. The building has an area on the ground floor of about ten thousand square feet, while the upper floors are about nine thousand square feet. The walls are brick and carried on the steel work at the floor levels. The walls range in thickness from 16in. (0.406m.) at the 1st story to 12in. (0.305m.) at the 9th.

The street fronts are brick, stone trimmed, except the Washington Place front which is stone for the ground floor and first story. The walls and ceilings were plastered directly without use of furring. The north and west walls are parapeted about 4ft. (1.219m.), while the walls facing streets are without parapets. On three floors—the 4th, 6th, and 9th—there were partitions of wood and glass forming offices and show rooms. On the 8th floor there were two wooden partitions, one forming the cloak room, the other being at the north side enclosing the entrance to the freight elevators and stair shaft. The cornice is of metal. There were two large skylights on the roof of wired glass in hollow metal frames. The floors are double ($\frac{7}{8}$ in. on 1in.) (0.022m. \times 0.025m.) on wooden sleepers with a cinder concrete fill, on flat floor arches of 10in. (0.254m.) terra cotta blocks, side construction, carried between steel I beams (12in., 31 $\frac{1}{2}$ lbs. to the foot) about five feet on centres. These I beams are carried on steel I girders (24in., 80 lbs. to the foot) reinforced by two plates 10 \times $\frac{3}{8}$ in. (0.254m. \times 0.009m.), 17ft. 6in. (5.334m.) long, riveted to the girders one to each flange. These girders are 17ft. 6in. (5.334m.) on centres and have a span of 26ft. 3in. (8.001m.). The columns on the seven first floors are cast iron, ranging from 15in. in diameter and 2 $\frac{3}{4}$ in. (0.070m.) thick to 7in. in diameter and $\frac{3}{4}$ in. thick on the eighth. In the 8th story the columns consist of four 4 \times 4 \times $\frac{1}{2}$ in. (0.102m. \times 0.102m. \times 0.012m.) steel angles, while those supporting the roof are composed of only two such angles. The roof is tar and gravel on terra cotta arches similar in construction to the floor arches.

"*Fireproofing.*"—The beams are protected on the top flange and web by the floor arches, the lower flanges being protected by skewbacks having lips 1in. (0.025m.) to 1 $\frac{1}{4}$ in. (0.031m.) in thickness. The girders are protected on the upper flanges and upper portion of the webs by the floor arches, the lower portion of the

webs and lower flanges are protected by cement plaster on wire lath.

The columns are protected by sectional circular three-cell zin. (0.051m.) tile with $\frac{3}{4}$ in. (0.019m.) webs, leaving no air space at the cast iron columns, the steel columns being left hollow.

Floor Openings.—There are two elevator shafts, one for freight and one for passengers, each containing two cars; the freight shaft being at the north-east corner and the passenger elevator shaft at the south-west corner. The freight elevator shaft opens to the lofts by "kalamein" panelled doors hung by butt hinges to metal straps built into shaft. The passenger elevator shaft opens to lofts by "kalamein" doors with wired glass panels and is hung similar to the freight elevator doors. There are two stair shafts, each having one wall in common with an elevator shaft. Both the elevator and stair shafts are constructed of $\frac{1}{2}$ in. (0.102m.) hollow terra cotta blocks and are covered by skylights of wired glass in metal frames. The stairs are of iron frame with slate treads with metal web plates, the treads being 33in. (0.038m.) long, with winders between each floor. The stairs in the north-east shaft were carried to the roof, while those at the south-west corner ended at the 9th floor. Both stair shafts open to lofts by wood sash doors with wired glass panels, the panels being 33 × 36in. (0.038m. × 0.914m.). There are two inside stair flights from basement to ground floor enclosed in 3in. (0.076m.) terra cotta blocks with wood sash doors and thin glass panels; one open stairs sub-basement to basement not trapped; these stairs are of the same construction as the main stairs. There are also a pipe and vent shaft and a wire shaft, each constructed of $\frac{1}{2}$ in. (0.102m.) hollow terra cotta blocks, the vent shaft being carried through the roof and covered by a louvered skylight. The wire shaft is blocked at the roof. The vent shaft opens to the toilets by iron registers and "kalamein" doors about 18 × 24in. (0.457m. × 0.610m.). The wire shaft has wood metal-lined panel boxes to the floors. There are also two sidewalk elevators from sub-basement to street, enclosed in shafts of corrugated iron and $\frac{1}{2}$ in. (0.102m.) hollow terra cotta blocks with flat framed iron doors to basement and sub-basement.

Fig. 1 shows an exterior view of the building after the fire.

Fire Appliances.—The building was equipped with an automatic fire alarm system using "Western Electric" thermostats. There were 24 fire pails in sub-basement, 19 in basement, 10 on ground floor, 14 on 1st, 12 on 2nd, 16 on 3rd, 8 on 4th, none on 5th, 18 on 6th, 26 on 7th, 37 on 8th, 18 on 9th. There is a $\frac{1}{2}$ in. (0.102m.) standpipe in each stair shaft with 50ft. (15.240m.) of 2 $\frac{1}{2}$ in. (0.063m.) linen hose at each floor, supplied by a 2,000-gallon (9086.916l.) tank elevated 5ft. (1.524m.) above roof, and an outside Siamese connection for Fire Department. There are perforated pipes in sub-basement and basement, supplied by outside Siamese connection for Fire Department.

On the rear of the building in the court is an iron fire escape,

the steps being 17½ in. (0.444m.) wide. The platform between steps and wall is 18 in. (0.457m.) wide. The fire escape did not extend to the bottom of the court and the latter had no exit to the street. Page 4 shows a view of the fire escape, looking down after the fire. The wrecking of the top flight of the fire escape was probably due to the heat.

THE CONDITIONS IN THE SHIRT WAIST FACTORY.

On the 7th floor there were five unbroken rows of 4ft. (1.219m.) tables each containing a double row of sewing machines and shirt waists in process of manufacture. These tables extended from the Washington Place front (south wall) to within 18ft. (5.486m.) of the north side of the building. This latter space was partially filled with stock, principally on tables. A gangway space was also left running east and west along the north side. The space along the east wall contained the cutting tables. Approximately 275 operators were on this floor.

On the 8th floor there were eight unbroken rows of 4ft. (5.486m.) tables each containing double rows of sewing machines and shirt waists in process of manufacture. These tables extended from the Washington Place front (south wall) to within 10ft. (3.048m.) of the north side of the building. (See plan, Page 9.) This latter space at the north side was partially filled with stock, and also contained a gangway extending east and west along the north side. Approximately 300 operators were on this floor.

There were no gangways running east and west at the south side of the 7th and 8th floors, the sewing machine tables extending close up to the wall. The space between the tables was approximately four feet wide and contained two rows of chairs back to back for the operators. This space also contained baskets and other receptacles for the goods in process of manufacture. The only convenient way for the operators next to the south wall to reach the stairs and elevators at the south-west corner, was to walk the entire length of the crowded space between the tables to the north side and then use the gangways which extended along the north and west sides of the building.

On the 9th floor very little work was done, it being used principally for the office, show and stock rooms, and shipping department. About 30 hands were employed on this floor pressing shirt waists by gas-heated irons. Approximately 60 employés were on this, the top, floor.

LOCATION AND PROGRESS OF FIRE.

The fire started about 4.42 p.m., on the 7th floor in the vicinity of the north-east corner of the building, almost simultaneously with the signal to stop work for the day. It is generally believed to have originated from a match or cigarette igniting scrap material on the floor in the vicinity of the cutting tables. Futile

efforts were made to extinguish the fire with pails of water. It spread rapidly, however, due to the large quantity of inflammable material consisting chiefly of thin cotton, lace and other trimmings for fancy shirt waists in process of manufacture. In a very short time the fire had spread over the entire floor and communicated, principally out and in the windows, to the floors above. In addition to the windows, the fire may have communicated from floor to floor by way of the stair and elevator shafts, as the doors were undoubtedly open in part at least. All information indicates that there was a large accumulation of inflammable stock in process of manufacture, and this undoubtedly accounts for the exceptionally quick spread of the fire over the 7th, 8th, and 9th floors. The plant was working overtime when the fire occurred. Some fire brands started a fire on the ground floor near the north windows.

LOSS OF LIFE.

According to the information obtainable the operators, crowded among the machines, chairs and goods on the 7th and 8th floors, were badly panic stricken immediately after the start of the fire, and as a consequence made slow progress towards the exits. Considerable delay is said to have been experienced in opening the doors leading to the stairs at the south-west corner of the building as they opened *inwardly* and the women became jammed against them. Practically all the employés on the 7th floor eventually escaped by way of the stairways and elevators. The comparatively small number of employés on the 9th floor escaped chiefly by way of the stairway at the north-east corner to the roof, and thence to the roofs of adjoining buildings. Some also escaped by way of the elevators from the 9th floor to the street. Practically the entire loss of life was confined to those employed on the 8th floor. More than half of the number said to have been on this floor escaped. It seems apparent, however, that by the time this number had got out, the elevators had stopped running and the flames around the two inside stairways and outside fire escape, both on this floor and those adjoining, would not permit any further egress in these directions. The result was that all who remained on the floor until this condition prevailed were overcome by the smoke and fire or jumped out of the windows. It is said that a few—probably 20—from the upper floors descended by way of the outside fire escape. These re-entered one of the lower stories and passed down the stairways.

Approximately 25 bodies were found closely jammed in the cloak room next to the stair shaft at the west end of the building. About 50 were found near the north-east corner back of a partition and clothes locker located 30 in. (0.762m.) from the north end of the two tables nearest the east wall. Twenty were found near the machines where they worked, apparently having been overcome before they could extricate themselves from the crowded aisles.

Most of them were near the east side. About ten bodies are said to have been taken from the bottom of the court on the north. The

*Lift
Doors*



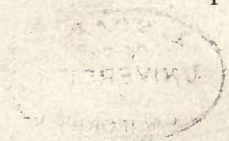
*Stair-
case
Door
(closed)*

Photo: Campbell

ASCH BUILDING, NEW YORK, U.S.A.
An Interior View after Fire

balance of those killed—approximately 40—jumped from the windows to the street.

The total number of lives lost as recorded up to April 4th is 145.



LOSS OF PROPERTY.

Damage to Building.—The upper three floors, *i.e.*, 7th, 8th, and 9th floors, were completely burned over and practically all trim and finish destroyed. The damage to the structural part of the building on these floors was relatively small. The lower face of about one-fifth of the tile roof arches was broken off and the covering on one column supporting the roof was slightly broken. The parapet wall at the north court is out of plumb from 4 to 5 in. (0.102m. to 0.127m.) at top owing to the sagging, under heat, of the unprotected channel iron window lintels which support it. The floor arches and column covering in the 7th and 8th stories was very little damaged. The lower flange of the girder supporting the curtain wall at the north side on the upper three floors was exposed. It was fireproofed by two inches of cement above the wooden window frames. The wired glass panels in the passenger elevator shafts on the upper floors had softened and rolled out of the framing in most cases, demonstrating again the unreliability of wired glass for inside stair and elevator protection. There was also some small damage to trim and finish by fire on the ground floor. The water seemed to find its way through the fireproof floor arches with comparative freedom, and the finish on practically all floors was water soaked.

Damage to Contents.—The contents of the upper three floors were mostly destroyed. There was also some damage by fire to the contents on ground floor. The contents on other floors were damaged by water.

Damage to Adjoining Property.—The Asch Building was exposed to the north across a court, by "fireproof" buildings having windows 15 and 30ft. (4.572m. and 9.144m.) distant, protected by wired glass windows or flat framed iron shutters. The wired glass in some windows 15ft. (4.572m.) distant was softened but remained in place. The flat framed iron shutters warped badly, permitting the fire to damage the wood window casings back of them. Otherwise there was practically no damage to these buildings or their contents.

The eleven story "fireproof" building of the New York University had windows exposed 22ft. (6.705m.) west of the Asch Building across a court. These were protected by an inferior type of metal clad shutters which poorly resisted the fire. The window frames on the top floor were destroyed and some others damaged. The books and furniture in one room on the top floor also sustained slight damage.



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