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FIRE PROTECTION HISTORY-PART 137: 1906 (FIRE SAFETY REQUIREMENTS FOR THEATERS)

By Richard Schulte

On the afternoon of the December 30, 1903, a fire at the newly-opened Iroquois Theater located on Randolph Street (at State Street) in downtown Chicago took the lives of at least 605 people. Shortly after the Iroquois Theater fire, on February 7 and 8, 1904, the Great Baltimore Fire destroyed a large swath of that city. As would be expected, both the fire at the Iroquois Theater and the Great Baltimore Fire were topics addressed at the eighth Annual Meeting of the National Fire Protection Association held in late May 1904.

The following is the transcript of the Report of Committee on Theater Construction and Equipment at the tenth Annual Meeting held in Chicago in 1906. This technical committee was, of course, formed as a result of the Iroquois Theater Fire and was chaired by C. A, Hexamer, who was also the President of the National Fire Protection Association at the time.

"***REPORT OF COMMITTEE ON THEATER CONSTRUCTION AND EQUIPMENT.***

C. A. HEXAMER, Chairman.

W. A. Anderson,	J. R. Freeman,	J. B. Laidlaw,
F. E. Cabot,	H. C. Henley,	F. H. Porter,
T. Z. Franklin,	H. E. Hess,	A. P. Stradling,
W. J. Fredrick,		F. J. T. Stewart.

Mr. Hexamer. Mr. Chairman, I would like very much as Chairman of this Committee to make a similar report to that of the Chairman who has just taken his seat. The Committee on Theater Construction and Equipment has been in existence for three years I think now, and as Chairman of that Committee I would say a great deal of data has been gathered. At the beginning of this year I as Chairman succeeded in obtaining a mail vote on important questions pertaining to the standard. The question put to the members of the Committee in the letter was whether the Committee approved of the recommendations of this body that the section on theater construction in the building code of the National Board be adopted as the standard to be recommended by the Committee.

All of the letters received in reply to that were in the affirmative. The Chairman took it upon himself to rearrange the section of the Building Code of the National Board embodying such terms as are generally used in the proceedings of this body, and that is before you in print. I consider it unnecessary to read the standard, because it has been in print for some years, and it is extremely technical. At the same time, in the report the Committee has stated that subjects pertaining to the ventilation of the stage roof in case of fire and the protection of the proscenium would be given consideration and supplementary reports submitted. The present standard as submitted contains a supplementary report for steel and asbestos curtain.

I have here a mass of data, a great deal of it on curtain construction, on automatic curtain devices, on ventilation for the roof of the stage, ventilators for the theater, etc. At the present time the Committee is not prepared to submit to this Association for adoption anything but the one question of adopting the recommendations of the National Board of Fire Underwriters as promulgated throughout the country in the building code. The Committee recommends that this Association adopt that section of the report as its standard for theater construction.

Your Committee on Theater Construction and Equipment submits for your consideration portions of Section 141 of the building code recommended by the National Board of Fire Underwriters, with such amendments and additions as we desire to recommend for your adoption.

The specifications for steel and asbestos theater curtain which we include is additional matter, our thought being that steel curtains similar to those required in Chicago should be the standard of this association, relegating the asbestos curtain to second place as a substandard curtain. We intend eventually to submit for adoption by the association a separate standard for openings in roof over stage to provide for escape of smoke. With these explanations, our specifications are as follows:

Every such building shall have at least one front on the street, and in such front there shall be suitable means of entrance and exit for the audience.

In addition to the aforesaid entrances and exits on the street, there shall be reserved for service in case of an emergency, an open court or space on the side not bordering on the street, where said building is located on a corner lot; and on both sides of said building, where there is but one frontage on the street. The width of such open court or courts shall be not less than seven feet where the seating capacity does not exceed one thousand people, exceeding one thousand and not more than eighteen hundred people, eight feet in width, and exceeding eighteen hundred people, ten feet in width. Said open court or courts shall begin on a line with or near the proscenium wall and shall extend the length of the auditorium proper, to or near the wall separating the same from the entrance lobby or vestibule.

A separate and distinct corridor shall continue to the street, from each open court, through such superstructure as may be built on the street side of the auditorium, with continuous walls of brick or fireproof materials on each side the entire length of said corridor or corridors, and the ceiling and floors shall be fireproof. Said corridor or corridors shall not be reduced in width to more than three feet less than the width of the open court or courts, and there shall be no projection in the same; the outer openings to be provided with doors or gates opening toward the street. During the performance the doors or gates in the corridors shall be kept open by proper fastenings; at other times they may be closed and fastened by movable bolts or latches.

The said open courts and corridors shall not be used for storage purposes, or for any purpose whatsoever except for exit and entrance from and to the auditorium and stage, and must be kept free and clear during performances.

The level of said corridors shall be graded to the sidewalk and made flush therewith at all points at the street entrances.

The entrance of the main front of the building shall not be on a higher level from the sidewalk than four steps, but this shall not preclude the use of an additional number of steps at the street entrances to the sides or rear of the building, as may be necessary to overcome the difference in grades of sidewalks.

To overcome any difference of level in and between courts, corridors, lobbies, passages and aisles on the ground floor, gradients shall be employed of not over one foot in twelve feet with no perpendicular rises.

From the auditorium opening into the said open courts, or on the side street, there shall be not less than two exits on each side in each tier from and including the parquet and each and every gallery. Each exit shall be at least five feet in width in the clear and provided with fire-doors constructed in accordance with the National Board rules for fire-doors. All of said doors shall open outwardly, and shall be fastened with movable bolts, the bolts to be kept drawn during performances.

There shall be balconies not less than four feet in width in the said open court or courts at each level or tier above the parquet, on each side of the auditorium, of sufficient length to embrace the two exits, and from said balconies there shall be staircases extending to the ground level, with a rise of not over eight and one-half inches to a step, and not less than nine inches tread exclusive of the nosing. The staircase from the upper balcony to the next below shall be not less than thirty inches in width in the clear, and from the first balcony to the ground three feet in width in the clear, where the seating capacity of the auditorium is for one thousand people or less, three feet and six inches in the clear where exceeding one thousand and not more than eighteen hundred people, four feet in the clear where exceeding eighteen hundred people and not more than twenty-five hundred people, and four feet six inches in the clear where the seating capacity is more than twenty-five hundred people. All the beforementioned balconies and stair cases shall be constructed of wrought iron or steel throughout, except that the treads may be of cast iron, and be of ample strength to sustain the load to be carried by them, and they shall be covered with a metal hood or awning, to be constructed in such manner as shall be approved by the underwriters having jurisdiction.

Where one side of the building borders on a street, there shall be balconies and staircases of like capacity and kind, as beforementioned, carried to the ground.

When located on a corner lot that portion of the premises bordering on the side street and not required for the uses of the theater may, if such portion be of fireproof construction, and not more than twenty-five feet average width, be used for offices, stores or apartments, provided the walls separating this portion from the theater proper are carried up solidly to and through the roof, and that an exit is provided for the theater, on each tier, equal to the combined width of exits opening on opposite sides in each tier, communicating with balconies and staircases leading to the street in the manner provided elsewhere in this section.

No workshop, storage or general property room shall be allowed above the auditorium or stage, or under the same, or in any of the fly galleries, unless all of such rooms or shops are located in the rear of or at the side of the stage, and in such cases they shall be separated from the stage by a brick wall not less than twelve inches in thickness, and the openings leading into said portions shall have self-closing standard fire doors.

No portion of any building hereafter erected or altered, used or intended to be used for theatrical or other purposes as in this section specified, shall be occupied or used as a hotel, boarding or lodging house, factory, workshop or manufactory, or for storage purposes, except as may be hereafter specially provided for. Said restriction relates not only to that portion of the building which contains the auditorium and the stage, but applies also to the entire structure in conjunction therewith.

No store or room contained in the building, or the offices, stores or apartments adjoining, as aforesaid, shall be let or used for manufacturing purposes or for carrying on any business dealing in any article or material dangerous to life, except under such conditions as may be prescribed by the City Department having jurisdiction under authority of a written permit issued by said Department.

No lodging accommodations shall be allowed in any part of the building communicating with the auditorium.

Interior walls built of fireproof materials shall separate the auditorium from the entrance vestibule, and from any room or rooms over the same, also from any lobbies, corridors, refreshment or other rooms; and in all such walls the window and door frames and all sash and doors shall be fireproof; the window frames and sash shall be of metal of standard construction, and the sash made stationary and glazed with wired glass not less than one-quarter inch in thickness, and each pane or unit measuring not more than twenty-four by thirty inches; the doors shall be made to close automatically and be fireproof of standard pattern and make in every respect.

All staircases for the use of the audience shall be inclosed with walls of brick, or of fireproof materials, in the stories through which they pass, and the openings to said staircases from each tier shall be the full width of staircase. No door shall open immediately upon a flight of stairs, but a landing at least the width of the door shall be provided between such stairs and such door.

A fire-wall, built of brick, not less than twelve inches in any portion of same shall separate the auditorium from the stage, and the same shall extend at least four feet above the stage roof, or the auditorium roof, if the latter be the higher, and shall be coped.

Above the proscenium opening there shall be an iron girder of sufficient strength to safely support the load above and the same shall be covered with fireproof material not less than four inches in thickness.

Should there be constructed an orchestra over the stage, above the proscenium opening, the said orchestra shall be placed on the auditorium side of the proscenium fire-wall, and shall be entered only from the auditorium side of said wall.

The molded frame around the proscenium opening shall be formed entirely of fireproof materials; if metal be used, the metal shall be filled in solid with non-combustible material and securely anchored to the wall with iron.

The proscenium opening shall be provided with a fireproof metal curtain, or a curtain of asbestos, or other fireproof material approved by the Underwriters having jurisdiction, overlapping the brick proscenium wall at each side not less than twelve inches, and sliding vertically at each side within iron grooves or channels to a depth of not less than twelve inches, said grooves or channels to be securely bolted to the brick wall and extend to a height of not less than three feet above the top of the curtain when raised to its full limit. Said fireproof curtain shall be raised at the commencement of each performance, lowered between each act, and lowered at the close of said performance, and be operated by approved machinery for that purpose. If the proscenium curtain be of asbestos, that material shall be reinforced with wire or wire spun in the asbestos, and at the bottom of the curtain shall be placed a rigid metallic rod or bar of proper weight, securely fastened to the curtain and covered over with like material as the curtain itself, to carry down the curtain by the weight of the said rod or bar when released. The excess weight of the curtain is to be overcome by a check-rope of cotton or hemp, extending to the floor on both sides of the stage, so that the cutting or burning of which will release the curtain and the same will then descend at its normal rate of speed. The proscenium curtain shall be placed at the nearest point at least three feet distant from the footlights.

No doorway or opening through the proscenium wall, from the auditorium, shall be allowed above the level of the first floor, and such first floor openings shall have self-closing standard fire-doors at each side of the wall, and openings, if any, below the stage shall each have a self-closing standard fire-door, and all of the said doors shall be hung so as to be opened from either side of the wall at all times.

There shall be provided over the stage metal skylights, of an area or combined area of at least one-eighth of the area of said stage, fitted with rolling sash and glazed with glass not exceeding one-eighth of an inch thick, and each pane thereof measuring not less than three hundred square inches.

The rolling sash shall be fitted with brass wheels not less than two and one-half inches in diameter, and latter shall roll on brass tracks extending the entire length of the sash. The portion of the tracks extending from the edge of the curb of the skylight to the end of the incline may be made of iron.

These skylights shall be set on curbs, so that the lowest portion of the tracks upon which they slide shall be not less than twelve inches above the roof.

The whole of which skylight shall be so constructed as to open instantly on the cutting or burning of a hempen cord, which shall be arranged to hold said skylights closed, or some other equally simple approved automatic device for opening them may be provided. Immediately underneath the glass of said skylights there shall be wire netting, but wire glass shall not be used in lieu of this requirement.

The roof over the stage shall be provided with a shaft of galvanized iron or other fireproof material approved by Underwriters having jurisdiction, extending from the ceiling line up through and at least four feet above the roof and have a raised cover at the top for the escape of smoke. The least inside diameter, or the least horizontal measurement if the shaft be of other shape than circular, shall be forty-eight inches. At the bottom of this shaft, on a plane with the ceiling, shall be a galvanized sheet iron door in two parts, each part separately hinged and kept closed by fusible links, so that in case of fire the doors will instantly open downwards by their own weight.

All that portion of the stage not comprised in the working of scenery, traps and other mechanical apparatus, for the presentation of a scene, usually equal to the width of the proscenium opening, shall be built of iron or steel beams filled in between with fireproof material, and all girders for the support of said beams shall be of wrought iron or rolled steel.

The fly-galleries and the tie-galleries entire, including pin-rails, shall be constructed of iron or steel, and the floors of said galleries shall be composed of iron or steel beams, filled in with fireproof materials, and no wood boards or sleepers shall be used as covering over beams, but the said floors shall be entirely fireproof. The painters' bridge shall be constructed of iron or steel.

The gridiron or rigging loft shall have a lattice iron floor, and be readily accessible by iron stairways.

All stage scenery, curtains and decorations made of combustible material, and all woodwork on or about the stage, shall be painted or saturated with some non-combustible material, or otherwise rendered nonflamable.

And the finishing coats of paint applied to all woodwork throughout the entire building shall be of such kind as will resist fire to the satisfaction of the underwriters having jurisdiction.

The roof over the auditorium and the entire main floor of the auditorium and vestibule, also the entire superstructure over the entrance, lobby and corridors, and all galleries and supports for the same in the auditorium, shall be constructed of iron or steel and fireproof materials, not excluding the use of wood floor boards and necessary sleepers to fasten the same to, but such sleepers shall not mean timbers of support, and the space between the sleepers, excepting the portion under the stepping in the galleries, which shall be properly fire-stopped, shall be solidly filled with incombustible material up to the under side of the floor boards.

The front of each gallery shall be entirely formed of fireproof materials, except the capping, which may be made of wood.

The ceiling under each gallery shall be entirely formed of fireproof materials.

The ceiling of the auditorium shall be formed of fireproof materials.

All lathing, whenever used, shall be of wire or other metal on metal studding.

The partitions in that portion of the building which contains the auditorium, the entrance and vestibule and every room and passage devoted to the use of the audience, shall be constructed of fireproof materials, including the furring of outside or other walls.

None of the walls or ceilings shall be covered with wood sheathing, wood wainscoting, canvas, or any combustible material.

But this shall not preclude the construction of a wood sounding board over orchestra pit when the same extends back of and below the overhang of the stage, provided the said wood sheathing be properly fire-stopped by a twelve-inch brick wall back of same, and also have a proper fireproof construction directly under the overhang of the stage extending from the brick wall to the apron of the stage.

Actors' dressing rooms shall not be placed on the stage, under the stage, over the stage, on the fly-galleries, nor under the auditorium, but shall be placed in a separate section provided for that purpose.

The walls separating said section containing the actors' dressing rooms from the stage shall be not less than twelve inches in thickness, and the openings therefrom to stage shall be protected with standard self-closing fire-doors. The partitions dividing the dressing rooms, together with the partitions of every passageway from the same to the stage, and all other partitions on or about the sides of the stage, or fireproof portion thereof, shall be constructed of fireproof material not less than four inches in thickness approved by the Department of Buildings. All doors in any of said partitions shall be standard fire-doors.

All dressing rooms shall have an independent exit leading directly into a court or street, and shall be ventilated by windows in the external wall.

All shelving and cupboards in each and every dressing room, property room or other storage rooms, shall be constructed of metal, slate or some fireproof material.

All windows where acces[s]*ible, except as in this section otherwise specified, shall be arranged to open.*

None of the windows in outside walls shall have fixed sashes, fixed iron grilles or bars; these may be arranged to hinge and lock, but must be left unlocked during performances.

All seats in the auditorium excepting those contained in boxes, shall be not less than thirty-two inches from back to back, measured in a horizontal direction, and firmly secured to the floor. No seat in the auditorium shall have more than six seats intervening between it and an aisle, on either side.

No stool or seat shall be placed in any aisle.

All platforms in galleries formed to receive the seats shall be not more than twenty-four inches in height of riser, nor less than thirty-two inches in width of platform.

All aisles on the respective floors in the auditorium, having seats on both sides of same, shall be not less than three feet wide where they begin, and shall be increased in width toward the exits in the ratio of one and one-half inches to five running feet. Aisles having seats on one side only, shall be not less than two feet six inches wide at their beginning, and increased in width the same as aisles having seats on both sides.

The aggregate capacity of the foyers, lobbies, corridors, passages and rooms for the use of the audience, not including aisle space between seats, shall on each floor or gallery, be sufficient to contain the entire number to be accommodated on said floor or gallery, in the ratio of one hundred and fifty superficial feet of floor room for every one hundred persons.

Gradients or inclined planes shall be employed instead of steps where possible to overcome slight differences of level in or between aisles, corridors and passages.

Every theater accommodating three hundred persons shall have at least two exits; when accommodating five hundred persons, at least three exits shall be provided; these exits not referring to or including the exits to the open court at the side of the theater.

Doorways of exit or entrance for the use of the public shall be not less than five feet in width, not including the fire exit doorways, and for every additional one hundred persons or fraction thereof in excess of five hundred, to be accommodated, an aggregate of twenty inches additional exit width must be provided.

All doors of exit or entrance shall open outwardly and be hung to swing in such a manner as not to become an obstruction in a passage or corridor, and no such doors shall be closed and locked when the building is open to the public.

Distinct and separate places of exit and entrance shall be provided for each gallery above the first gallery.

A common place of exit and entrance may serve for the main floor of the auditorium and the first gallery, provided its capacity be equal to the aggregate capacity of the outlets from the main floor and the said gallery.

No passage leading to any stairway communicating with any entrance or exit, not including fire exits, shall be less than four feet in width in any part thereof.

All stairs within the building shall be constructed of fireproof material throughout.

Stairs from balconies and galleries shall not communicate with the basement or cellar.

All stairs shall have treads of uniform width and risers of uniform height throughout in each flight.

No stairways from galleries shall be less than four feet in width. Where accommodation is provided in a gallery for more than one hundred people there shall be at least two stairs extending to the ground arranged on opposite sides of gallery, and for every additional fifty people or fraction thereof in excess of the first one hundred to be accommodated, six inches shall be added to the width proportionately divided between the two flights.

The width of all stairs shall be measured in the clear between hand-rails.

In no case shall the risers of any stairs exceed seven and a half inches in height, nor shall the treads, exclusive of nosings, be less than ten and one-half inches wide in straight stairs.

No circular or winding stairs for the use of the public shall be permitted.

Where the seating capacity is for more than one thousand people, there shall be at least two independent staircases, with direct exterior outlets provided for each gallery in the auditorium; where there are not more than two galleries, the stairs shall be located on opposite sides of said galleries. Where there are more than two galleries, one or more additional staircases shall be provided, the outlets from which shall communicate directly with the principal exit or other exterior outlets. All said staircases shall be of width proportioned to the gallery accommodation as elsewhere herein prescribed. Where the seating capacity is for one thousand people, or less, two direct lines of staircases only shall be required, located on opposite sides of the galleries, and in both cases shall extend from the sidewalk level to the upper gallery, with outlets from each gallery to each of said staircases.

At least two independent direct exterior outlets shall be provided for the service of the stage and shall be located on the opposite sides of the same.

All inside stairways leading to the upper galleries of the auditorium shall be inclosed on both sides with walls of fireproof materials. Stairs leading to the first or lower gallery may be left open on one side, in which case they shall be constructed as herein provided for similar stairs leading from the entrance hall to the main floor of the auditorium. But in no case shall stairs leading to any gallery be left open on both sides.

When straight stairs return directly on themselves, a landing of the full width of both flights, without any steps, shall be provided. The outer line of landings shall be curved to a radius of not less than two feet, to avoid square angles. Stairs turning at an angle shall have a proper landing without winders introduced at said turn. In stairs, when two side flights connect with one main flight, no winders shall be introduced, and the width of the main flight shall be at least equal to the aggregate width of the side flights. All stairs shall have proper landings introduced at convenient distances.

All inclosed staircases shall have, on both sides, strong hand-rails firmly secured to the wall about three inches distant therefrom and about three feet above the stairs, but said hand-rails shall not run on level platform and landings where the same are of greater length than the width of the stairs.

All staircases eight feet and over in width shall be provided with a center hand-rail of metal, not less than two inches in diameter, placed at a height of about three feet above the center of the treads, and supported on wrought metal or brass standards of sufficient strength, placed not nearer than four feet nor more than six feet apart, and securely bolted to the treads or risers of stairs, or both, and at the head of each flight of stairs, on each landing, the post or standard shall be at least six feet in height, to which the rail shall be secured.

Every steam boiler which may be required for heating or other purposes shall be located outside of the building, either under the sidewalk or in an extension, but in no case under or within any portion of the building used for theatrical purposes, and the space allotted to the same shall be inclosed by walls of masonry on all sides, and the ceiling of such space shall be constructed of fireproof materials. All doorways in said walls connecting with the building shall have standard automatic sliding fire-doors.

No floor register for heating, ventilating or other purposes shall be permitted.

No coil or radiator shall be placed in any aisle or passageway used as an exit, and thereby reduce the same to less than the width required by this section; but all said coils and radiators shall be placed in recesses formed in the wall or partition to receive the same.

All supply, return or exhaust pipes shall be properly incased where passing through floors or near woodwork.

Standpipes of not less than four inches in diameter shall be provided with hose connections as follows: One on each side of the auditorium in each tier, one on each side of the stage in each tier, one within ten feet of the door of the property room, one within ten feet of the door of the carpenter's shop and scenery storage room.

All of such standpipes and hose connections shall be kept clear of obstructions.

Said standpipes shall receive their supply of water from a gravity tank located over stage roof, bottom of tank at least twelve feet above highest point of roof and of not less than five thousand gallons capacity and in addition at least one of the following sources:

(a) Approved steel pressure tank of not less than five thousand gallons total capacity, located on stage roof or not lower than gridiron floor.

(b) Automatic fire pump of not less than five hundred gallons capacity per minute.

© From city mains where pressure is not less than twenty-five pounds per square inch at level of highest hose outlet.

Pipes shall be fitted with approved straightway composition gate valves at hose outlets, and the thread of all connections shall be uniform with that in use by the local Fire Department.

One spanner to be located at each hose connection.

Pipes shall be kept constantly filled with water under pressure and be ready for immediate use at all times.

In addition to the requirements contained in this section, the standpipes shall have a Siamese steamer connection on outside of building at street fronts.

A sufficient quantity of approved cotton rubber lined hose and linen hose not less than two and one-half inches in diameter, in fifty foot lengths, but not less than fifty feet in total length, shall be kept attached to each hose connection in the stage portion and auditorium, respectively. Hose shall be fitted with washers and equipped with couplings and nozzles, the thread of which shall be uniform with that in use by the local Fire Department.

The standpipe equipment above described to be installed independently of and without connection to the automatic sprinkler system.

A system of automatic sprinklers approved by the Underwriters having jurisdiction shall be installed throughout the entire stage section of the theater located in the rear of the proscenium wall; this to include under roof, under gridiron, under galleries, under the stage, in all dressing rooms, in all workshops, property and all other rooms and passageways.

There shall be an independent water supply to the sprinklers which may consist of a gravity tank not less than ten thousand gallons capacity, and elevated not less than twenty-five feet above the highest sprinkler, and in addition at least one of the following sources:

(a) Automatic fire-pumps of at least five hundred gallons capacity.

(b) Approved steel pressure tank of not less than seven thousand five hundred gallons capacity, located not lower than the highest line of sprinklers.

© Direct supply from city water mains where the pressure is sufficient to maintain not less than twenty-five pounds at highest line of sprinklers when same are in operation.

In addition to one or more of the above-required supplies, there shall be a Siamese steamer connection placed on the outside of the building at each street front, with suitable iron plate with raised letters securely attached to the wall near steamer connection, reading–"Automatic sprinklers on stage."

The location and spacing of sprinkler heads and the schedule of pipe sizes conform to the standard recommended by the National Board of Fire Underwriters.

There shall be kept in readiness for immediate use one forty-gallon cask filled with water and six fire pails on each side of the stage, under the stage, on each fly gallery, and a supply of fire pails in property and other storerooms and in each workshop; said casks and buckets shall be painted red and lettered– "For Fire Purposes Only."

There shall also be provided on the stage six three-gallon approved chemical fire extinguishers, at least four axes, two twenty feet hooks, two fifteen feet hooks and two ten feet hooks, and such other appliances as may be required.

Every portion of the building devoted to the uses or accommodation of the public, also all outlets leading to the streets, and including the open courts and corridors, shall be well and properly lighted during every performance and the same shall remain lighted until the entire audience has left the premises.

There shall be one light within a red globe or lantern, placed over each exit opening, on the auditorium side of the wall.

Gas mains and electric light wires supplying the building shall have three independent connections as follows: One for the stage, one for the auditorium, excepting the exit lights therein, and the third for the halls, corridors, lobbies, exit lights, including the exit lights in the auditorium, and such other portions of the building used by the audience, outside of the auditorium proper.

All gas and electric lights in the halls, corridors, lobbies and other portions of the building used by the audience, with the exception of the auditorium proper, but including the exit lights therein, shall be controlled by two separate switches or valves, one to be located in the lobby and the other to be so located as to be operated from the outside of the building.

Provision shall be made for shutting off all gas at a point outside of the building.

Interior gaslights must be lighted by electricity or other suitable appliances, to be approved by the underwriters having jurisdiction.

All suspended or bracket lights surrounded by glass, in the auditorium, or in any part of the building devoted to the public, shall be provided with proper wire-netting underneath.

No gas or electric light shall be recessed in the walls, woodwork, ceilings, or in any part of the building unless protected by fireproof materials.

All lights in passages and corridors in said buildings, and wherever else deemed necessary, shall be guarded with proper wire network.

The footlights must be electric, and in addition to the wire network, shall be guarded with a strong wire guard and chain drawn taut, placed not less than two feet distant from said footlights, and the trough containing said footlights shall be formed of and surrounded by fireproof materials.

All border lights shall be electric, constructed according to the requirements of the National Electrical Code.

All ducts or shafts used for conducting heated air from the main chandelier, or from any other light or lights, shall be constructed of metal and made double, with an air space between, or some other approved fireproof material may be used.

All stage lights shall be electric, installed in accordance with the requirements of the National Electrical Code.

The bridge calcium lights at sides of proscenium shall be inclosed in front and on the side by galvanized iron, so that no drop can come in contact with the lights. Electric calciums, so-called, are included in the above requirement.

Every exit shall have over the same on the inside, the word EXIT painted in legible letters not less than eight inches high.

SPECIFICATIONS FOR STEEL AND ASBESTOS FIREPROOF THEATER CURTAIN.

Curtain:

The curtain shall consist of a heavy steel frame work faced on front side with corrugated or sheet steel firmly and neatly riveted to the frame work.

The steel frame to be constructed of sufficient strength to safely carry the steel face and fireproofing and is to be cross-braced, so the curtain will not buckle under heat or wind pressure enough to interfere with its proper operation.

The steel frame work to be constructed so that there will be a two-inch air space between the sheet steel face and the fireproof back of the curtain.

The back or stage side of the curtain to be faced with vitrified asbestos three-eights inch (3/8") thick, and proper care to be taken to keep the joints of the asbestos tight and flush and all joints to be filled and bedded in vitrified cement and afterwards covered with a strong, adhesive and fireproofed tape.

The exposed heads of all bolts used in fastening the asbestos to the frame work to be thoroughly insulated with vitrified asbestos.

Curtain Guides and Fire Break:

Steel or iron Z bar guides of sufficient length to take care of the entire travel of the curtain shall be provided and firmly fastened to the proscenium wall. These Z bars to be the proper dimensions, so that a hard maple guide strip can be bolted to the middle leg of the Z for the curtain to run on and so that the outside leg of the Z will overlap the back edge of the curtain at least three inches and form a complete fire break.

Counterweights and Guides:

The curtain to be counterweighted, but must outweigh the counterweights sufficiently to run down by gravity under all circumstances. The counterweights to be run in steel guides securely fastened to the proscenium wall and to be connected to the curtain with steel cables of the proper dimensions, and these cable connections should be so arranged that the breaking of one or more cables will not throw the curtain out of balance sufficiently to prevent it working freely in the guides.

Sheaves and Supports for Sheaves:

Sheaves of the proper diameter for the size of cables used to be provided for hanging the curtain and these sheaves to be supported by steel I beams or channels of the proper dimensions securely fastened to the brick proscenium wall. All sheaves to have steel shafts and to be run in roller bearings.

Operation:

The curtain may be raised by either hydraulic or electric power, but the hoisting mechanism must be arranged with an improved limit stop which will stop the curtain automatically at each end of its travel, and if hydraulic power is used the operating mechanism must be accessible both from the stage and the working fly gallery.

If electric hoisting apparatus is used it must be arranged with an emergency lever on the stage which can be operated to instantly and safely lower the curtain in case of failure of the electric current from any cause.

Mr. Merrill. I move you, sir, the adoption of the report and the continuance of the Committee.

The motion was seconded and carried.

Although the Committee Report above is lengthy, there are a number of points of interest.

First, it is interesting to note how remarkably similar the recommended provisions for the protection of theaters in 1906 are to the provisions for theaters contained in today's building codes. The recommended protection for theaters developed immediately following the Iroquois Theater Fire has been utilized for nearly a century now without too many major revisions.

Second, it should be noted that where the theater provisions recommend a fire resistive separation, the provisions specifically indicate that a brick wall be provided and that the thickness of the wall is specified, rather than indicating a minimum fire resistance rating to be achieved. This type of provision is referred to as a specification provision, rather than a performance provision.

Third, it should be noted that the provisions above refer to the use of both electric lighting and gas lighting. Natural gas was still utilized for lighting purposes in the early part of the 1900's.

It is clear that both the Iroquois Theater Fire and the Great Baltimore Fire, along with the San Francisco Earthquake and Fire (which occurred in April 1906), provided the impetus for the continued growth and development of the National Fire Protection Association in the early 1900's.

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Source: "*Proceedings of the Tenth Annual* [NFPA] *Meeting*", Chicago, Illinois, 1906.