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We are delighted to announce the publication of the updated edition of Rolv Gjestland's book, available in its digital version on the UNIC website. How to design a cinema auditorium - Practical guidelines for architects, cinema owners and others involved in planning and building cinemas. First released in October 2019, this new edition is the result of an in-depth review from the author, taking into account numerous feedback from industry experts since its original publication. A new strategy, more, additional sections and improved illustrations are amongst the many changes Rolv has made. In addition to an enhanced, modern design to ensure readable and workable reading. For more details about this work, we encourage you to read this article published on Celluloid Junkie. UNIC interviewed Rolv for the 14th edition of Big Screen Feature - providing a behind-the-scenes look at the world of cinema exhibition through the eyes of professionals themselves - to learn more about his job and the value of the Big Screen. Physical copies will be made available in the near future. Please send an email to communications@unic-cinemas.org if you are interested in ordering one. You can download the book here. Since humanity started gathering to tell stories and represent scenes from everyday life in front of an audience, the need for a space to perform such activities began to increase. Theater design developed from the open-air amphitheaters of the Greeks and Romans to the incredible array of forms we see today; this is especially observed in the Extraordinary Concert Halls Designs around the world. Though some forms work better for particular types of performance, there is no ideal shape or size of a theater. The choice of the best form and scale depends on the functional purpose (movies, lectures, stage performances, musical presentations), the size of the staging required and the number of the audience to be accommodated. Let's see which are the basic parts that comprise a theater and the most common types of today's theater design. 7 Basic Rules for Designing a Good Theater 1. Design a functioning Auditorium according to the type of performance and the number of the audience It is the part of the theater accommodating the audience during the performance, sometimes known as the "house". The house can also refer to an area that is not considered a playing space or backstage area. This includes the lobby, coat check, ticket counters, and restroom. The amount of space required for each auditorium depends on a number of factors but the following guides, based on modern seating design can give you an idea of the area needed: 200 seats: 270m² | 2,900 ft² 150 seats: 190m² | 2,000 ft² 75 seats: 125 m² | 1,350 ft² 2. Keep the standard distance for a comfortable audience seating The aisle is the space for walking with rows of seats on both sides or with rows of seats on one side and a wall on the other. In order to improve safety when the theaters are darkened during the performance, the edges of the aisles are marked with a row of small lights. There are usually two types of aisle arrangements: It consists of 14-16 chairs per row with access to an aisle way at both ends. If the aisle can only be reached from one end of a row, the seat count may then be limited to 7 or 8. The multiple-aisle arrangement If planned carefully, the continental aisle arrangement can accommodate more seating within the same space. Usually, it requires an average of 7.5 square feet (2.3 square meters) per person including the seating area and the space for aisle-ways. The continental seating plan 3. The stage is important: choose wisely The stage is the designated space where actors and other artists perform and the focal point for the audience. As an architectural feature, the stage may consist of a platform (often raised) or series of platforms. In some cases, these may be temporary or adjustable but in theaters and other buildings devoted to such productions, the stage is often a permanent feature. There are several types of stages that vary as to the usage and the relation of the audience to them: A Stage surrounded by an audience on three sides. The Fourth side serves as the background. In a typical modern arrangement: the stage is often a square or rectangular playing area, usually raised, surrounded by raked seating. Other shapes are possible; Shakespeare's Globe Theatre was a five-sided thrust stage. A Thrust stage extended wall to wall, like a thrust stage with audience on just one side, i.e. the front. "Backstage" is behind the background wall. There is no real wing space to the sides, although there may be entrances located there. An example of a modern end-stage is a music hall, where the background walls surround the playing space on three sides. Like a thrust stage, scenery serves primarily as background, rather than surrounding the acting space. A central stage surrounded by the audience on all sides. The stage area is often raised to improve sightlines. It is the most common type of stage and it is also called a picture frame stage. Its primary feature is a large opening, the proscenium arch through which the audience views the performance. The audience directly faces the stage and views only one side of the scene. Often, a stage may extend in front of the proscenium arch which offers an additional playing area to the actors. This area is referred to as the apron. Underneath and in front of the apron is sometimes an orchestra pit which is used by musicians during musicals and operas. The proscenium stage Sometimes called a "Black Box" theater, these stages are often big empty boxes painted black inside. Stage and seating not fixed. Instead, each can be altered to suit the needs of the play or the whim of the director. Often used in "found space" theaters, i.e. theaters made by converted from other spaces. The Audience is often placed on risers to either side of the playing space, with little or no audience on either end of the "stage". Actors are staged in profile to the audience. It is often the most workable option for long, narrow spaces like "storefronts". Scenically, a profile theater is most like an arena stage, some staging as the background is possible at ends, which are essentially sides. A non-theatrical form of the profile stage is a basketball arena if no one is seated behind the hoops. Sports arenas often serve as venues for Music Concerts. In form they resemble a very large arena stage (more accurately the arena stage resembles a sports arena), but with a rectangular floorplan. When used for concert, a temporary stage area often is set up as an end-stage at one end of the floor, and the rest of the floor and the stands become the audience. Arenas have their own terminology. 4. Keep the scenery low for better visibility In the Theater in the round or the Arena Stage Theater, the stage is located in the center of the audience, with the audience members facing it from all sides. The audience is placed close to the action, which provides a feeling of intimacy and involvement. However, this type puts major restrictions on the amount and kind of visual spectacle that can be provided for a performance, because scenery more than a few feet tall will block the audience's view of the action taking place onstage. Theater in the round. The Victoria Theater. Stoke-on-Trent. Courtesy of Studio Theatre Ltd. 5. For greater intimacy with the audience, go with the Thrust Stage A thrust stage is one that extends into the audience on three sides and is connected to the backstage area by its upstage end. A thrust has the benefit of greater intimacy between the audience and performers than a proscenium while retaining the utility of a backstage area. The audience in a thrust stage theater may view the stage from three or more sides. 6. Keep your theater flexible Flexible stage theaters are those that not establish a fixed relationship between the stage and the house. They can be put into any of the standard theater forms or any of the variations of those. Usually, there is no physical distinction between the stage and the auditorium and the audience is either standing, intermingling with the performance, or sitting on the main floor. The Flexible Theater | Black Box Theater 7. Sound quality is as important as visibility Although theater performances are a visual medium, poor sound quality will ruin even the better plays. The sound is an area often overlooked but, just as you need good sightlines, you also need good sound lines. Apart from the obvious comfort and size considerations, it is imperative that the auditoria are designed with the following in mind: Sound Reflectors in Basic Theater Design External sound insulation (how many times have you heard traffic noise, trains, or building works over the soundtrack of the film you are watching?) Internal sound insulation - this is particularly important with multiple screens where a loud soundtrack can leak into the adjoining auditorium Services and equipment noise control - noises such as air conditioning, lifts, toilets, and projection equipment need to be controlled Acoustics - acoustic design in theaters should be considered from feasibility stage - location, auditorium planning, etc. through to final commissioning 0 ratings%0 found this document useful (0 votes)2K viewsThis document provides guidelines for designing movie theater seating arrangements and auditoriums. It discusses two basic types of seating - multiple aisle and continental - and factors lik. At-enhanced title and descriptionSaveSave Design Guidelines for movie Theaters For Later%0 found this document useful, undefined If you want to know about the auditorium design or proportion in architecture or general exit requirements please click the link. Cinemas design involves creating an environment that is tailored to the movie-going experience. This includes considerations such as acoustics, lighting, seating arrangement, aesthetics, accessibility, and technology. Types of film and method of projection Four standard types of film are described by their width: 8 mm, 16 mm, 35 mm and 70 mm. Each has its appropriate type of employment, screen size and auditorium conditions. These types of film are described in Table below. There are three methods of film projection: Direct projection from the rear of the auditorium onto the screen. The most common method by far. Indirect projection, where the film projection requires one or more mirrors. This method is used where lack of space or structural difficulties make direct projection difficult to achieve. Mirror projection requires a powerful light source and the screen cannot be wider than 9 m. Rear projection. Not possible with curved screen, but may be applicable for the smaller auditorium. For this method the picture needs to be reversed, for which mirrors are an economic solution. Functional requirements include Every member of the audience requires an unobstructed view of the whole picture area on the screen, without visual and physical discomfort and picture distortion Picture sharpness and luminance need to be uniform and satisfactory, and An auditorium giving distortion-free sound reproduction. Film widths of 16mm, 35mm and 70mm. The centre of the projected beam should not deviate more than 5° horizontally or vertically from the centre of the screen, or it should be deflected via a deflection mirror. As shown in the figure below. Projection screen: Minimum distance of projection screen from wall in the case of THX is 120cm, according to theatre size and system reducible to 50cm with respect to the sound system configuration. The projection screen is perforated (sound-permeable). Movable blinds or curtains limit the projection screen to the side for the same picture height. Large projection screens are curved with a radius centred on the last row of seats. The lower edge of the projection screen should be at least 1.20m above the floor. As shown in figure above. Viewing criteria are shown in plan and section. Projection criteria for various formats: (a) 16 mm film. (b) 35 mm film. (c) 70 mm film Vertical sightlines: (a) 16 mm and 35 mm film. (b) 70 mm film The size and shape of the screen must be related to the shape and rake of the auditorium floor. Seating rake is less critical than for concert halls and theatres as the screen can be elevated and sound comes from overhead speakers. Nevertheless, a rake of 5° (or less) is recommended. Seating can be well upholstered with a tradition in new commercial cinemas towards comfort, including pullman seats. Short row lengths tend to encourage auditorium roving sales of popcorn, ice-cream and confectionery. The auditorium should have no outside light other than emergency lighting. Walls and ceiling are made from nonreflective materials and in not too bright colours. Spectators should sit within the outside edge of the screen. The viewing angle from the first row of seats to the centre of the picture should not exceed 30°. The floor gradient is achieved by an inclination of up to 10% or by the use of steps with a maximum step height of 16 cm and with aisle widths of 1.20m. The sound track is an integral part of the audience experience and the quality of sound reproduction has vastly improved. Cinemas are now equipped with stereophonic sound systems which require acoustically dead auditoria; the ideal is a zero reverberation time. Hence all finishes - floor, walls, ceiling and seats - need to be sound absorbent. Side walls should not be parallel, and a fan shape is preferred. The auditorium should be structurally and enclosurewise insulated from external noise. A suitable ambient noise standard for cinemas is NR30 to NR35. The volume per occupant should be at least 1.25 m³ for large cinemas and 5 m³ per person for small auditoria. Picture sizes depend on the distance of the projector from the screen; height/size ratio is 1:2.34 (Cinemascope) or 1:1.66 (wide screen) for smaller room widths. The angle from the middle of the last row of seats to the outer edge of the picture should be at most 38° for Cinemascope. The ratio of the spacing of the last row of seats to the projection screen should be 3:2 i) Shape 8 mm and 16 mm film is projected with a screen ratio of 1:1.375 and 1:1.135 respectively. With 35 mm the screen ratio is also 1:1.375 but may vary between 1:1.65 and 1:1.65; the international standard is 1:1.75. The volume per occupant should be at least 1.25 m³ for large cinemas and 5 m³ per person for small auditoria. 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The maximum widths of 0.9 m for 8 mm film, 4 m for 16 mm and 6 m for 35 mm are accepted. iii) Curvature For uniform focus a large screen should be curved to keep its surface equidistant from the centre of the lens. iv) Size Size is simply the relationship of the area occupied by one shape to that of another. v) Luminance As a matt-white surface of a large screen cannot achieve an adequate picture luminance, screen surfaces have been developed with a partial specular reflection to increase luminance. vi) Position The centre of the screen should be on the central axis of the auditorium seating, but it may be tilted from the vertical plane and set forward from the structural wall to provide a clear space of at least 3.4 m the loudspeakers. vii) Masking Mechanically adjustable black masking to the sides and top of the screen is normally provided to contain the picture surface and obtain maximum apparent brightness. The masking is usually wool serge on metal rails, and the gear should be fixed at floor level for ease of maintenance. Movement is remotely controlled from the projection room. viii) Construction Screen material is either PVC or metallised fabric, held by cord lacing to hooks on a metal lattice frame 460 to 920 mm larger than the maximum picture surface. The material needs to be flame-resistant and is replaced at intervals. Sufficient space for manoeuvring a rolled replacement which could be 1 m in diameter will be necessary. ix) Temporary screens In some multi-use auditoria screens may require to be easily and conveniently removed. A flat screen up to 6 m wide can be incorporated into a proscenium stage of a theatre form either housed, when rolled, in the stage or flown in the flytower. Curved screens could be flown, but take up much valuable space in the flytower; or they could be stored at the rear of the stage if fitted with rollers or castors for ease of movement. x) Speaker installation The speakers need to be located behind the screen, firmly fixed to the platform or screen frame. One speaker is needed for monophonic sound; for multi-channel and stereophonic sound from 35 mm film, three speaker units are necessary: one centrally placed and the others equidistant from it. 70mm film 6-channel magnetic sound, the additional speaker combination is behind the screen. In the case of BTX, there is a sound absorption wall behind the screen according to the Lucas Film System into which the loudspeaker combination is built. Ticket offices are now superseded by electronic booking and reservation systems. xi) Platform The back of the screen frame, including the speaker, needs to be covered with heavy felt to absorb sound. The screen is set over a platform with a forestage, carpeted with black carpet to prevent reflection of sound and light. The forestage edge can be vertical, splayed or stepped. xii) Curtains Screen curtains usually move horizontally on rails supported by steel tubes. Curtains overlap at centre when closed, and space is required either side of the screen when open. Alternatively they can be vertical festoon curtains. A suite may include the following spaces. Manual operation has been mainly replaced by automatic or remote control in commercial cinemas. New developments will require changes in the layout of equipment and this needs to be considered in the design. Film projection: Fire separation materials are no longer required for the projection room with safety film. Projectionists operate several projectors; the projection room is no longer a continuously used workplace for staff. 1 m of space behind the projector and at the operating side, 2.80m high, ventilation, noise insulation to the auditorium side. Projection rooms may be combined for several auditoriums. A projection room is not required for 8 mm film but is a statutory requirement for 16 mm, 35 mm and 70 mm film. The projectionist: Controls the film timing, focusing and direction Regulates the volume and tone of sound reproduction Adjusts the masking Plays music from records or tapes during intervals Controls house lights and screen curtains Repairs, replaces and rewinds film, and Takes charge of all technical equipment. The minimum sizes of projection rooms are: Minimum equipment: 3.9 × 4 m. With effects lantern and spotlight: 3.9 × 7.5 m. Typical commercial cinema: 6.6 × 7.3 m. Floor-to-ceiling height should be not less than 6.4 m. Equipment for commercial cinemas includes: Either two projectors or one projector with long-running equipment. Long-running projectors are common in multiauditorium complexes, with projecting covered by one projectionist moving from one cinema to another Effects lantern which may double as a spotlight Spotlights Music table: non-synchronous music desk with tape-deck, storage and possible record player Rewind bench for the rewinding and storage of film having been shown: 600 × 1200 mm minimum and 914 mm high. If inflammable film, then a separate room for re-winding and storing films is necessary Switchboard Amplifier. Unless there is a remote control system, controls and change-over switches are fitted between projection ports. Racks may be located against side or rear walls with rear access requiring a 500 mm space for maintenance. Three amplifiers may be necessary for stereophonic sound reproduction, with monophonic sound only requiring one amplifier and a power pack Spares cabinet; and Fire extinguishers. Each projector, effects lantern and follow spot, needs a separate port with optical quality glass through the wall between projection room and auditorium, as shown in the figure. Each projectionist also requires an observation port with plate glass. In cinemas with flammable films all ports require fire shutters releasable from either the projection room or the auditorium. A layout is shown in the figure below. Twin projectors are usually at 1.5 m centres with a 1 m workspace between. Other pieces of equipment are shown in figure below. Power supplies for projectors. 8 mm and 16 mm portable equipment require a domestic 13 A power socket outlet. For 35 mm equipment with arcs up to 45 A, a single-phase supply is required. Above this, a three-phase supply is necessary. Lighting: no light should be directed towards the screen through ports. Task lighting at equipment during performances, general lighting for cleaning and maintenance. Ventilation: the projection room, rewinding room and associated lobbies need ventilation systems separate from the auditorium, with steady volumes of air at low velocity. Staff room: a separate room for projectionist adjacent to projection room, with sink and tea - and coffee making provision Toilet with convenient access for projectionist Workroom and store: a separate room for repair and maintenance of films and equipment adjacent to projection room Lobby: sound and light lock between projection suite and access corridor If the dissipated power from dimming lights does not exceed 5 kW the dimmers may be in the projection room. If greater, then a separate room will be necessary for the dimmers associated with the switchroom. Automatic control allows controls to be remote from the projection room, with a separate room located in the auditorium such that the operator has a clear view of the screen: 2 × 2 m minimum size. Normally one per 5-10 spectators. Overall, a successful cinema design requires a thoughtful approach that considers the needs of the movie-goers, the latest technologies, and the aesthetics of the space. Audience sightlines, accessibility and acoustics all make theater seating a hugely precise art. As part of their set of online resources for architects and designers, the team at Theatre Solutions Inc (TSI) has put together a catalog of 21 examples of theater seating layouts. Each layout is well detailed, with information on the number of seats, the floor seating area and row spacing. These layouts fall under three general forms; to supplement this information, alongside TSI's diagrams we've included the pros and cons of each type, as well as examples of projects which use each form. Read on for more. + 27 1. End StageCourtesy of Theatre Solutions Inc.In the End Stage form, the entire audience faces the stage in the same direction. Sightlines are kept simple, making these layouts perfect for lectures, films and slide-based presentations. They also fit well into conventional rectangular plans.Courtesy of Theatre Solutions Inc.However, End Stage is not overly successful at creating a close relationship between performer and spectator. Theatres in this form also can't be too large due to acoustic limits.+ 27 Examples: The Blyth Performing Arts Centre / Stevens Lawson Architects/The Blyth Performing Arts Centre / Stevens Lawson Architects. Image © Mark SmithTheatre Agora / UNStudioTheatre Agora / UNStudio. Image © Ivan BaanMunicipal Theatre of Guarda / AVA ArchitectsMunicipal Theater of Guarda / AVA Architects. Image2. Wide FanCourtesy of Theatre Solutions Inc.In this form, theatre seats are placed within a 130-degree angle of inclusion. This brings in the audience closer to the performer, establishing a more intimate experience.Courtesy of Theatre Solutions Inc.This angling also means that the form is better geared towards speech-related performances. Film presentations would be trickier in these spaces, with screens requiring proper placement - perhaps further back from the stage, to compensate for seats that find their sightlines distorted. Courtesy of Theatre Solutions Inc.+ 27 Examples: National Grand Theatre of China / Paul AndreuNational Grand Theatre of China / Paul Andreu/Umbra Theatre / Y2 Architecture/Umbra Theatre / Y2 Architecture. Image © Peter ClarkeLimoges Concert Hall / Bernard Tschumi ArchitectsLimoges Concert Hall. Image Courtesy of Bernard Tschumi Architect3. ¼ ArenaCourtesy of Theatre Solutions Inc.¼ arenas see a 180-270-degree angle of inclusion. Hearing and visual contact between spectator and performer is improved, and as audience members can see each other when facing ahead, the sense of inclusion is increased even more.Courtesy of Theatre Solutions Inc.However, conventional film presentations are almost impossible and would require an alternative screen layout, such as a number of smaller screens arranged throughout the space.Courtesy of Theatre Solutions Inc.Examples:Han Show Theatre / Stufish Entertainment Architects/Han Show Theatre / Stufish Entertainment Architects.Dee and Charles Wily Theatre / REX + OMADee and Charles Wily Theatre / REX + OMA. Image © Ivan BaanHardenot Theatre / Studio Andrew ToddHardenot Theatre / Studio Andrew Todd. Image © Martin Argyroglo4. Other Layout OptionsWhile the above three tend to be the most common forms of seating layout, they are by no means the only ones. Further options include Arena seating where the audience wraps around the stage a full 360 degrees, common for extra-large theaters like the Royal Albert Hall, and the Vineyard style where seats are arranged in cascades of mini-blinds of varying levels, including the rear of the stage, as seen in the Hamburg Elfbilharmonie.Hamburg Elfbilharmonie / Herzog & de Meuron. Image © Ivan BaanOr even more differently, Bijlmer Park Theatre is a hybrid between End Stage and ¼ Arena, with flexible pull-out seating turning it from one to another, while The Wave's seating takes after its namesake. For more detail on designing auditoriums, including info such as seat spacing and the slope of the auditorium, check out TSI's comprehensive article here.Originally published on November 16th, 2016; updated on November 4th, 2019. About this author: Sharon Lam. "How to Design Theater Seating, Shows Through 21 Detailed Example Layouts" 27 Nov 2019. ArchDaily. Accessed < ISSN 0719-9884 If you want to know about the auditorium design or proportion in architecture or general exit requirements please click the link. Cinemas design involves creating an environment that is tailored to the movie-going experience. This includes conditional speakers to the side and rear. For 70mm film 6-channel magnetic sound, the additional speaker combination is behind the screen. In the case of BTX, there is a sound absorption wall behind the screen according to the Lucas Film System into which the loudspeaker combination is built. Ticket offices are now superseded by electronic booking and reservation systems. xi) Platform The back of the screen frame, including the speaker, needs to be covered with heavy felt to absorb sound. The screen is set over a platform with a forestage, carpeted with black carpet to prevent reflection of sound and light. 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We are delighted to announce the publication of the updated edition of Rolv Gjestland's book, available in its digital version on the UNIC website. How to design a cinema auditorium - Practical guidelines for architects, cinema owners and others involved in planning and building cinemas. First released in October 2019, this new edition is the result of an in-depth review from the author, taking into account numerous feedback from industry experts since its original publication. A new strategy, more, additional sections and improved illustrations are amongst the many changes Rolv has made. In addition to an enhanced, modern design to ensure readable and workable reading. For more details about this work, we encourage you to read this article published on Celluloid Junkie. UNIC interviewed Rolv for the 14th edition of Big Screen Feature - providing a behind-the-scenes look at the world of cinema exhibition through the eyes of professionals themselves - to learn more about his job and the value of the Big Screen. Physical copies will be made available in the near future. Please send an email to communications@unic-cinemas.org if you are interested in ordering one. You can download the book here. Since humanity started gathering to tell stories and represent scenes from everyday life in front of an audience, the need for a space to perform such activities began to increase. Theater design developed from the open-air amphitheaters of the Greeks and Romans to the incredible array of forms we see today; this is especially observed in the Extraordinary Concert Halls Designs around the world. Though some forms work better for particular types of performance, there is no ideal shape or size of a theater. The choice of the best form and scale depends on the functional purpose (movies, lectures, stage performances, musical presentations), the size of the staging required and the number of the audience to be accommodated. Let's see which are the basic parts that comprise a theater and the most common types of today's theater design. 7 Basic Rules for Designing a Good Theater 1. Design a functioning Auditorium according to the type of performance and the number of the audience It is the part of the theater accommodating the audience during the performance, sometimes known as the "house". The house can also refer to an area that is not considered a playing space or backstage area. This includes the lobby, coat check, ticket counters, and restroom. The amount of space required for each auditorium depends on a number of factors but the following guides, based on modern seating design can give you an idea of the area needed: 200 seats: 270m² | 2,900 ft² 150 seats: 190m² | 2,000 ft² 75 seats: 125 m² | 1,350 ft² 2. Keep the standard distance for a comfortable audience seating The aisle is the space for walking with rows of seats on both sides or with rows of seats on one side and a wall on the other. In order to improve safety when the theaters are darkened during the performance, the edges of the aisles are marked with a row of small lights. There are usually two types of aisle arrangements: It consists of 14-16 chairs per row with access to an aisle way at both ends. If the aisle can only be reached from one end of a row, the seat count may then be limited to 7 or 8. The multiple-aisle arrangement If planned carefully, the continental aisle arrangement can accommodate more seating within the same space. Usually, it requires an average of 7.5 square feet (2.3 square meters) per person including the seating area and the space for aisle-ways. The continental seating plan 3. The stage is important: choose wisely The stage is the designated space where actors and other artists perform and the focal point for the audience. As an architectural feature, the stage may consist of a platform (often raised) or series of platforms. In some cases, these may be temporary or adjustable but in theaters and other buildings devoted to such productions, the stage is often a permanent feature. There are several types of stages that vary as to the usage and the relation of the audience to them: A Stage surrounded by an audience on three sides. The Fourth side serves as the background. In a typical modern arrangement: the stage is often a square or rectangular playing area, usually raised, surrounded by raked seating. Other shapes are possible; Shakespeare's Globe Theatre was a five-sided thrust stage. A Thrust stage extended wall to wall, like a thrust stage with audience on just one side, i.e. the front. "Backstage" is behind the background wall. There is no real wing space to the sides, although there may be entrances located there. An example of a modern end-stage is a music hall, where the background walls surround the playing space on three sides. Like a thrust stage, scenery serves primarily as background, rather than surrounding the acting space. A central stage surrounded by the audience on all sides. The stage area is often raised to improve sightlines. It is the most common type of stage and it is also called a picture frame stage. Its primary feature is a large opening, the proscenium arch through which the audience views the performance. The audience directly faces the stage and views only one side of the scene. Often, a stage may extend in front of the proscenium arch which offers an additional playing area to the actors. This area is referred to as the apron. Underneath and in front of the apron is sometimes an orchestra pit which is used by musicians during musicals and operas. The proscenium stage Sometimes called a "Black Box" theater, these stages are often big empty boxes painted black inside. Stage and seating not fixed. Instead, each can be altered to suit the needs of the play or the whim of the director. Often used in "found space" theaters, i.e. theaters made by converted from other spaces. The Audience is often placed on risers to either side of the playing space, with little or no audience on either end of the "stage". Actors are staged in profile to the audience. It is often the most workable option for long, narrow spaces like "storefronts". Scenically, a profile theater is most like an arena stage, some staging as the background is possible at ends, which are essentially sides. A non-theatrical form of the profile stage is a basketball arena if no one is seated behind the hoops. Sports arenas often serve as venues for Music Concerts. In form they resemble a very large arena stage (more accurately the arena stage resembles a sports arena), but with a rectangular floorplan. When used for concert, a temporary stage area often is set up as an end-stage at one end of the floor, and the rest of the floor and the stands become the audience. Arenas have their own terminology. 4. Keep the scenery low for better visibility In the Theater in the round or the Arena Stage Theater, the stage is located in the center of the audience, with the audience members facing it from all sides. The audience is placed close to the action, which provides a feeling of intimacy and involvement. However, this type puts major restrictions on the amount and kind of visual spectacle that can be provided for a performance, because scenery more than a few feet tall will block the audience's view of the action taking place onstage. Theater in the round. The Victoria Theater. Stoke-on-Trent. Courtesy of Studio Theatre Ltd. 5. For greater intimacy with the audience, go with the Thrust Stage A thrust stage is one that extends into the audience on three sides and is connected to the backstage area by its upstage end. A thrust has the benefit of greater intimacy between the audience and performers than a proscenium while retaining the utility of a backstage area. The audience in a thrust stage theater may view the stage from three or more sides. 6. Keep your theater flexible Flexible stage theaters are those that not establish a fixed relationship between the stage and the house. They can be put into any of the standard theater forms or any of the variations of those. Usually, there is no physical distinction between the stage and the auditorium and the audience is either standing, intermingling with the performance, or sitting on the main floor. The Flexible Theater | Black Box Theater 7. Sound quality is as important as visibility Although theater performances are a visual medium, poor sound quality will ruin even the better plays. The sound is an area often overlooked but, just as you need good sightlines, you also need good sound lines. Apart from the obvious comfort and size considerations, it is imperative that the auditoria are designed with the following in mind: Sound Reflectors in Basic Theater Design External sound insulation (how many times have you heard traffic noise, trains, or building works over the soundtrack of the film you are watching?) Internal sound insulation - this is particularly important with multiple screens where a loud soundtrack can leak into the adjoining auditorium Services and equipment noise control - noises such as air conditioning, lifts, toilets, and projection equipment need to be controlled Acoustics - acoustic design in theaters should be considered from feasibility stage - location, auditorium planning, etc. through to final commissioning 0 ratings%0 found this document useful (0 votes)2K viewsThis document provides guidelines for designing movie theater seating arrangements and auditoriums. It discusses two basic types of seating - multiple aisle and continental - and factors lik. At-enhanced title and descriptionSaveSave Design Guidelines for movie Theaters For Later%0 found this document useful, undefined If you want to know about the auditorium design or proportion in architecture or general exit requirements please click the link. Cinemas design involves creating an environment that is tailored to the movie-going experience. This includes considerations such as acoustics, lighting, seating arrangement, aesthetics, accessibility, and technology. Types of film and method of projection Four standard types of film are described by their width: 8 mm, 16 mm, 35 mm and 70 mm. Each has its appropriate type of employment, screen size and auditorium conditions. These types of film are described in Table below. There are three methods of film projection: Direct projection from the rear of the auditorium onto the screen. The most common method by far. Indirect projection, where the film projection requires one or more mirrors. This method is used where lack of space or structural difficulties make direct projection difficult to achieve. Mirror projection requires a powerful light source and the screen cannot be wider than 9 m. Rear projection. Not possible with curved screen, but may be applicable for the smaller auditorium. For this method the picture needs to be reversed, for which mirrors are an economic solution. Functional requirements include Every member of the audience requires an unobstructed view of the whole picture area on the screen, without visual and physical discomfort and picture distortion Picture sharpness and luminance need to be uniform and satisfactory, and An auditorium giving distortion-free sound reproduction. Film widths of 16mm, 35mm and 70mm. The centre of the projected beam should not deviate more than 5° horizontally or vertically from the centre of the screen, or it should be deflected via a deflection mirror. As shown in the figure below. Projection screen: Minimum distance of projection screen from wall in the case of THX is 120cm, according to theatre size and system reducible to 50cm with respect to the sound system configuration. The projection screen is perforated (sound-permeable). Movable blinds or curtains limit the projection screen to the side for the same picture height. Large projection screens are curved with a radius centred on the last row of seats. The lower edge of the projection screen should be at least 1.20m above the floor. As shown in figure above. Viewing criteria are shown in plan and section. Projection criteria for various formats: (a) 16 mm film. (b) 35 mm film. (c) 70 mm film Vertical sightlines: (a) 16 mm and 35 mm film. (b) 70 mm film The size and shape of the screen must be related to the shape and rake of the auditorium floor. Seating rake is less critical than for concert halls and theatres as the screen can be elevated and sound comes from overhead speakers. Nevertheless, a rake of 5° (or less) is recommended. Seating can be well upholstered with a tradition in new commercial cinemas towards comfort, including pullman seats. Short row lengths tend to encourage auditorium roving sales of popcorn, ice-cream and confectionery. The auditorium should have no outside light other than emergency lighting. Walls and ceiling are made from nonreflective materials and in not too bright colours. Spectators should sit within the outside edge of the screen. The viewing angle from the first row of seats to the centre of the picture should not exceed 30°. The floor gradient is achieved by an inclination of up to 10% or by the use of steps with a maximum step height of 16 cm and with aisle widths of 1.20m. The sound track is an integral part of the audience experience and the quality of sound reproduction has vastly improved. Cinemas are now equipped with stereophonic sound systems which require acoustically dead auditoria; the ideal is a zero reverberation time. Hence all finishes - floor, walls, ceiling and seats - need to be sound absorbent. Side walls should not be parallel, and a fan shape is preferred. The auditorium should be structurally and enclosurewise insulated from external noise. A suitable ambient noise standard for cinemas is NR30 to NR35. The volume per occupant should be at least 1.25 m³ for large cinemas and 5 m³ per person for small auditoria. Picture sizes depend on the distance of the projector from the screen; height/size ratio is 1:2.34 (Cinemascope) or 1:1.66 (wide screen) for smaller room widths. The angle from the middle of the last row of seats to the outer edge of the picture should be at most 38° for Cinemascope. The ratio of the spacing of the last row of seats to the projection screen should be 3:2 i) Shape 8 mm and 16 mm film is projected with a screen ratio of 1:1.375 and 1:1.135 respectively. With 35 mm the screen ratio is also 1:1.375 but may vary between 1:1.65 and 1:1.65; the international standard is 1:1.75. The volume per occupant should be at least 1.25 m³ for large cinemas and 5 m³ per person for small auditoria. Picture sizes depend on the distance of the projector from the screen; height/size ratio is 1:2.34 (Cinemascope) or 1:1.66 (wide screen) for smaller room widths. The angle from the middle of the last row of seats to the outer edge of the picture should be at most 38° for Cinemascope. The ratio of the spacing of the last row of seats to the projection screen should be 3:2 ii) Size Screen size is dependent on light source, screen luminance picture quality, method of projection, viewing conditions and seating capacity. The maximum widths of 0.9 m for 8 mm film, 4 m for 16 mm and 6 m for 35 mm are accepted. iii) Curvature For uniform focus a large screen should be curved to keep its surface equidistant from the centre of the lens. iv) Size Size is simply the relationship of the area occupied by one shape to that of another. v) Luminance As a matt-white surface of a large screen cannot achieve an adequate picture luminance, screen surfaces have been developed with a partial specular reflection to increase luminance. vi) Position The centre of the screen should be on the central axis of the auditorium seating, but it may be tilted from the vertical plane and set forward from the structural wall to provide a clear space of at least 3.4 m the loudspeakers. vii) Masking Mechanically adjustable black masking to the sides and top of the screen is normally provided to contain the picture surface and obtain maximum apparent brightness. The masking is usually wool serge on metal rails, and the gear should be fixed at floor level for ease of maintenance. Movement is remotely controlled from the projection room. viii) Construction Screen material is either PVC or metallised fabric, held by cord lacing to hooks on a metal lattice frame 460 to 920 mm larger than the maximum picture surface. The material needs to be flame-resistant and is replaced at intervals. Sufficient space for manoeuvring a rolled replacement which could be 1 m in diameter will be necessary. ix) Temporary screens In some multi-use auditoria screens may require to be easily and conveniently removed. A flat screen up to 6 m wide can be incorporated into a proscenium stage of a theatre form either housed, when rolled, in the stage or flown in the flytower. Curved screens could be flown, but take up much valuable space in the flytower; or they could be stored at the rear of the stage if fitted with rollers or castors for ease of movement. x) Speaker installation The speakers need to be located behind the screen, firmly fixed to the platform or screen frame. One speaker is needed for monophonic sound; for multi-channel and stereophonic sound from 35 mm film, three speaker units are necessary: one centrally placed and the others equidistant from it. 70mm film 6-channel magnetic sound, the additional speaker combination is behind the screen. In the case of BTX, there is a sound absorption wall behind the screen according to the Lucas Film System into which the loudspeaker combination is built. Ticket offices are now superseded by electronic booking and reservation systems. xi) Platform The back of the screen frame, including the speaker, needs to be covered with heavy felt to absorb sound. The screen is set over a platform with a forestage, carpeted with black carpet to prevent reflection of sound and light. The forestage edge can be vertical, splayed or stepped. xii) Curtains Screen curtains usually move horizontally on rails supported by steel tubes. Curtains overlap at centre when closed, and space is required either side of the screen when open. Alternatively they can be vertical festoon curtains. A suite may include the following spaces. Manual operation has been mainly replaced by automatic or remote control in commercial cinemas. New developments will require changes in the layout of equipment and this needs to be considered in the design. Film projection: Fire separation materials are no longer required for the projection room with safety film. Projectionists operate several projectors; the projection room is no longer a continuously used workplace for staff. 1 m of space behind the projector and at the operating side, 2.80m high, ventilation, noise insulation to the auditorium side. Projection rooms may be combined for several auditoriums. A projection room is not required for 8 mm film but is a statutory requirement for 16 mm, 35 mm and 70 mm film. The projectionist: Controls the film timing, focusing and direction Regulates the volume and tone of sound reproduction Adjusts the masking Plays music from records or tapes during intervals Controls house lights and screen curtains Repairs, replaces and rewinds film, and Takes charge of all technical equipment. The minimum sizes of projection rooms are: Minimum equipment: 3.9 × 4 m. With effects