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A photograph of Ben Stiller and Owen Wilson dressed as the characters Starsky and Hutch from the TV show 'Starsky & Hutch'. Ben Stiller is on the left, wearing a green trench coat over a blue shirt and jeans, holding a handgun. Owen Wilson is on the right, wearing a brown leather jacket over a plaid shirt and jeans, also holding a handgun. The background is a plain, light-colored wall.

Stadium Seating Systems Criteria & Options

By: Stadium Seating Enterprises

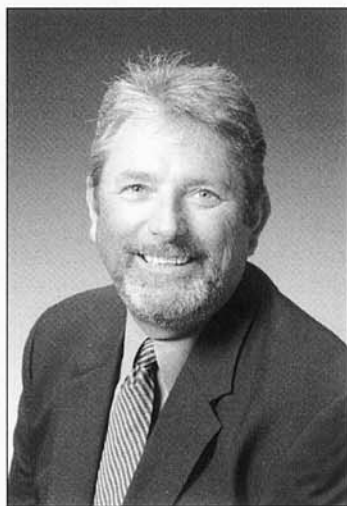
CRIME TIME

*Ben Stiller and Owen Wilson Update the Famed '70s
Detective Duo in Warner Bros.' New "Starsky & Hutch"*

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STADIUM SEATING SYSTEMS: CRITERIA AND OPTIONS

by Frank B. Moson



The value that stadium seating brings to an exhibitor is no longer a point of debate.

The presence of stadium seating in movie theatres has become as predictable and commonplace as having mustard for your hotdog. Today, there are virtually no new theatres being constructed without this essential amenity. Moreover, 90 percent of all retrofits to existing theatres include the conversion of at least a portion of the auditoriums to stadium seating. The value that stadium seating brings to an exhibitor is no longer a point of debate.

However, to determine the most efficient and economical stadium seating system for your particular installation, you must have a good understanding of the basic criteria and guidelines affecting the layout of your auditorium and the variety of methods for incorporating stadium seating into your facility. The following is intended to answer many of your questions relating to the design and construction of stadium seating systems.

Generally, are there "rules of thumb" that relate to stadium seating design?

Yes. But, like all things, not every rule is absolute. The following is intended to highlight some of the basic criteria for your consideration. The author realizes it will not comply with every building department jurisdiction in the country but, for the most part, these are the guidelines that most exhibitors follow.

The simple diagrams on these pages are included to provide a reference to the information provided.

- A comfortable distance from the screen to the first row of lower platform or floor seating is 10 feet.
- In retrofits, many

exhibitors do not provide any platforms in front of the handicap cross aisle. They rely on the existing slope of the floor to achieve satisfactory viewing angles.

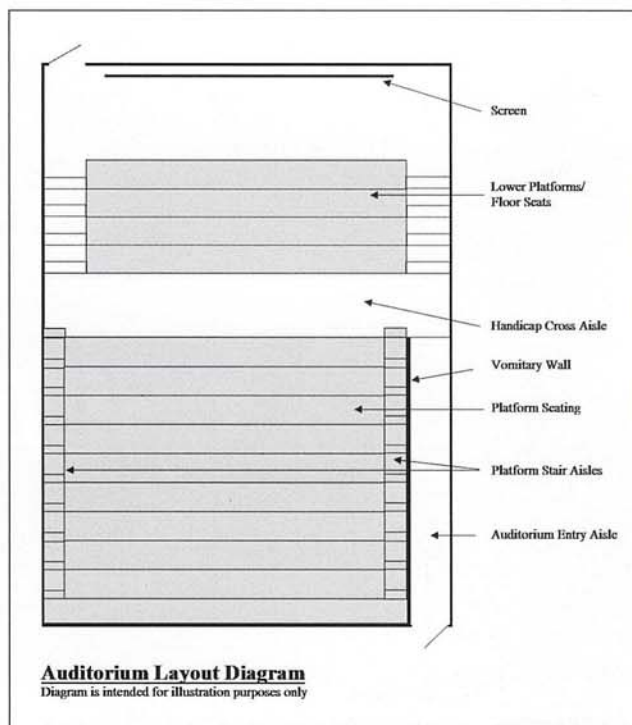
- Unless the auditorium has significant height from the auditorium finish floor to the projection mezzanine or the exhibitor chooses to excavate below grade in front of the handicap cross aisle, platforms in front of the cross aisle typically have a seven-foot rise and are poured-in-place concrete.

- Typically, to achieve a 30-degree viewing angle to the top of the screen, the handicap cross aisle is located back about half the length of the auditorium. This is a general guideline and subject to the screen dimensions and height from the finish floor; the exact location of the cross aisle should be determined in conjunction with your architect.

- The recommended depth of the handicap cross aisle is seven feet, six inches.

- Every handicap space requires one adjacent companion seat.

- Typically, the depth of the stadium



seating platform varies from 42 to 48 inches. The platform depth is, for the most part, subject to the criteria of the individual exhibitor. But code requires a minimum distance from the front of the seat to the back of the chair of the row in front, which is based on the number of seats in the row.

- Typical platform riser heights vary from 12 to 21 inches. Many exhibitors employ a medium riser height of 14 inches because it requires only one intermediate step.

- The maximum height for an intermediate step is seven inches.

- The platform stairs must be a minimum of 36 inches wide.

- Typically, the elevation of the last row on the platform is seven foot, six inches below the mid-point of the projection portal.

- Usually, the last row of the platform is deeper than the lower rows.

- The auditorium entrance aisles are typically no less than 5 feet. However, exhibitors may choose to make them narrower depending upon local code and individual preference.

- Auditoriums of less than 200 seats typically require only one entry aisle. Eliminating the second and back entry aisles can add seats and also reduce cost.

- Auditoriums of more than 300 seats typically require an exit from the top of the platform.

What systems are available for constructing stadium seating platforms?

Essentially, there are five potential methods for constructing stadium seating platforms. Although I am sure there are other "systems" utilized by some designers and builders in the industry, the following information summarizes the most common methods in use today.

(1) Stringers. This system uses heavy steel formed in the shape of a stair-step cascading from the back wall of the auditorium forward. The steel stringers combined with horizontal steel and bracing form the skeleton of the stadium seating platform.

Typically, this system is practical only in new construction, as the one-piece steel stringers must be craned into the

auditorium prior to installing the roof.

(2) Concrete. This system is one of the oldest and most traditional methods of forming stadium platforms. It involves the use of poured-in-place concrete as a structural and fill material to form the stadium seating platforms.

This approach requires extensive forming for the concrete to form the stadium platforms. Use of this system can compromise the exhibitor's ability to use "under-platform" space for restrooms, concessions, etc. And, once in place, the system cannot be removed or modified.

(3) Steel Stud. This system is a traditional method for retrofitting existing auditoriums to stadium seating because the pieces can be brought into the auditorium through a pedestrian door. Some exhibitors also use the steel-stud system

floor of the auditorium altogether. Eliminating the need for slope floors has been known to positively influence lenders due to potential reuse of the building for another purpose.

(5) EPS Geofoam. This system is relatively new as a base material for stadium seating platforms but has been used with great success in many parts of the country. The product consists of blocks of EPS foam, steel failure plates and connecting hardware. The blocks of EPS are literally stacked-up in each auditorium to form the platform system. Gauge steel is then attached to the EPS to hold it in place; concrete is poured on the horizontal (and sometimes vertical) surfaces of the platforms to accommodate the seating.

Like the modular steel system, the EPS system is delivered to the site completely prefabricated and ready for installation. It's one of the most economical and time-efficient systems on the market.

The EPS system is very lightweight (EPS weighs one pound per cubic foot) and is ideal for second-level installations. Like the modular steel system, the EPS system is installed independent of the building structure and can be removed if a change of use is required.

The system is installed very late in the construction sequence, allowing for the completion of virtually all the "high-work" in the auditorium without the need to scaffold over the platforms.

Each of the systems has its own advantages and disadvantages.

for new construction. The steel-stud system is fabricated on-site of gauge metal steel and pans to accommodate the concrete platform surface.

This system is typically installed by the drywall subcontractor and takes longer to install than the prefabricated systems. It can cost more to install than prefabricated systems because of labor cost and time for installation.

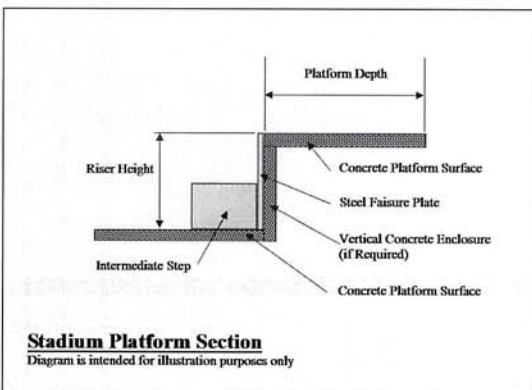
(4) Prefabricated Modular Steel. This modular steel system is like an "erector set" in terms of its assembly. It is completely prefabricated and delivered to the site ready for installation.

Like the steel-stud system, it is an assembly of steel components and it is brought into the auditorium through a pedestrian door. This system is installed independent of the building structure, bolting directly to the floor slab and isolating any vibration from the demising walls of the building.

Because the system is bolted only to the exiting floor, it is considered removable and may be classified as a piece of equipment. The system works equally well on a flat or sloped floor; the trend in some new construction is to eliminate the slope in the

As you can see, there is more than meets the eye when considering stadium seating. Regardless of whether you are embarking on a new construction project or a retrofit, the specific "program criteria" will have to be determined early in the project life, and then you must decide on one of the variety of methods for achieving stadium seating. Each of the systems has its own advantages and disadvantages, and some are clearly better suited for certain applications than others. To ensure you are making the right decision as you move forward with your stadium seating project, consult a professional and evaluate each of the systems to determine which best suits your criteria.

Frank B. Moson is the president of Costa Mesa, Calif.-based Stadium Seating Enterprises, where he leads the design, sales, management and estimating activities. He has a 25-year background in the architectural and construction professions, having participated as an architectural principal and/or construction executive for more than \$900 million in projects throughout the nation. His experience includes more than 5 million square feet of entertainment/retail projects and associated building types. He has also participated in the construction management of more than 3 million square feet of multi-plex projects throughout North America.



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- Made up of modular components able to be carried into the auditorium through an existing pedestrian door;
- Sized to easily be carried by two workman;
- Installed late in the construction sequence enhancing general contractor productivity and schedule efficiency;
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For a no obligation consultation or estimate, contact:

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