BBC Studioworks

Audience Seating Arrangements

TVC Health & Safety Arrangements

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BBC STUDIOWORKS

TABLE OF CONTENTS

AUDIENCE SEATING CONFIGURATIONS

1 Guidance

BBC Studioworks have an obligation under relevant legislation to ensure the safety of audiences on their premises. Where required, studios will submit copies of configurations to the Local Authority in good time.

2 MEANS OF ESCAPE

2.1 Escape Routes

The planning of means of escape for areas of public assembly involves consideration of the travel distance, the number of persons and the size and placement of exits. The number of escape routes from any tier of seating should be in accordance with table 1 below.

Table 1: Minimum number of escape routes	
Number of persons accommodated	**Minimum number of escape routes**
1 to 600	2
more than 600	3

The capacities of exits and escape routes should also be calculated as shown in table 2 below:

Table 2: Capacities of exits and escape routes	
Width (mm)/	Maximum number of persons
900	50
1000	110
1100	220
1200	240
1300	260
1400	280
1500	300
1600	320
1700	340
1800	360

If fixtures, such as handrails, protrude more than 100mm into an escape route then, for the purpose of calculation, the capacity of the route must be reduced by the amount by which the intrusion exceeds 100mm.

Escape routes should not narrow in the direction of escape.

An overhead clearance of 2.0m should be maintained, measured from the floor level or pitch line of step nosings.

2.2 Distance to Exits

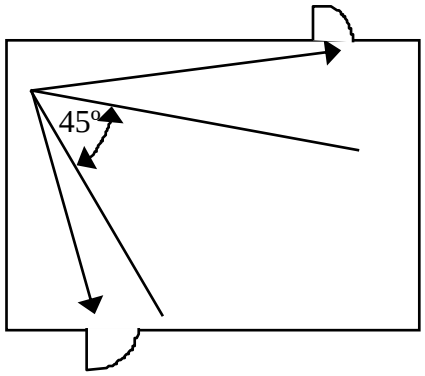
Travel distances need to be limited as persons escaping may continue to be exposed to a fire risk until they have reached a final exit. It is desirable that the direction of travel should be away from a stage or performance area. Maximum travel distances are given in table 3 below:

Table 3: Maximum Travel Distance		
Available direction of escape	Areas with seating in rows (m)	Open floor areas (m)
(a) In one direction only	15	18
(b) In more than one direction	32[1]	45[2]
1 This may include up to 15m in one direction only. 2 This may include up to 18m in one direction only.		

2.3 Siting of Exits and Alternative Means of Escape

Where escape is possible in two directions, these have to be significantly different directions. If the two directions diverge by less than 45° and are not separated by fire-resisting construction, they are considered to provide escape in one direction only.

A single escape route is acceptable where no more than a total of 50 persons (staff and audience) are accommodated and the travel distance does not exceed that given in item (a) of table 3 above.



Example of siting of exits to show 45° rule

2.4 Signs

All exit and directional signs indicating the exits must be displayed when the public are on the premises.

Exits signs are not normally allowed to be obscured or removed, however if they interfere with the process of programme production, the production may alter the siting but this must be reflective of the fire risk assessment and alternative arrangements put in place.

2.5 Gangways

Gangways should provide an unhindered flow towards the exits. They should be no less than 1100mm wide, unless in an assembly area with a capacity not exceeding 50 persons, in which case they should be not less than 900mm wide.

There should be no projections which would diminish the clear width of the gangway, other than any handrails each intruding no more than 100mm. The ends of all rows of seats should be aligned to maintain a uniform width throughout the length of a gangway.

In stepped tiers, the height of each step in a gangway should be not less than 125mm and should not exceed 190mm. Where there are two or more rises to each row of seats, each step should be of equal height.

Where exits are approached from a stepped gangway, there should be a landing the width of the exit and at least 1100mm deep immediately in front of the exit doors. Stepped side gangways should be provided with a handrail fixed at a height of 840mm. In stepped tiers there should not be a change of level between the seatway and the nearest step.

3 SEATING DESIGN

3.1 Maximum Seats in a Row

The number of seats in a row should be in accordance with Table 4 below.

Table 4:	**Number of seats in a row**	
Seatway width	Maximum number of seats in a row	
mm	Gangway on one side	Gangway on two sides
300 to 324	7	14
325 to 349	8	16
350 to 374	9	18
375 to 399	10	20
400 to 424	11	22
425 to 449	12	24
450 to 474	12	26
475 to 499	12	28
500 or more	12	Limited by travel distance (see Distance to exits)

3.2 Seatway Widths and Seat Measurements

Seatway widths should be not less than 300mm and should be constant throughout the length of the row. Where seats tip up automatically, the seatway width should be measured between the back of one seat unit and the maximum projection of the seat unit behind when the seat is raised.

The slope of a tier of seating should not exceed 35° above the horizontal.

Where dining facilities are provided, such as in a café scenario, for a closely seated audience the travel distance in table 4 should be complied with. Tables should be arranged so that there is no encroachment on the seatway width. There should be no more than 12 seats in a row.

Seating assigned to each person should not be less than:

(a) 760mm deep where backs are provided to the seats, or 600mm deep when backs are not provided
(b) 500mm wide where arms are provided to the seats, or 450mm wide where arms are not provided.

3.3 Continental Seating

Continental seating refers to rows in which there are more than 22 seats. This arrangement of seating may be permitted subject to additional requirements, in that no seat should be more than 15m from an exit measured along the line of travel. Also, gangways or exits should be provided at each end of a row of seats. Where gangways are provided, the position of the exits and seating should be arranged so that the streams of persons leaving the seatway move in the gangways in a direction away from the stage or performance area.

3.4 Fixing

Seating needs to be securely located in position to avoid gangways and exits being obstructed by displaced and overturned seats, especially in a hurried evacuation.

Seating may be permanent or temporary dependent on the use of the area but the rules governing the layout and gangways apply in either case.

Temporary seating consists of three types.

- Retractable or telescopic seating may be a fixed installation drawn out from the surrounding enclosure or the whole unit may be moveable to form a number of seating layouts.
- Demountable seating comprises tiered seating assembled from kits of parts, and disassembled after use.
- Rows of portable seating may be provided in the venue area or be provided on a structure to provide satisfactory sight lines etc.

Where the seating layout is permanent, all seating (except for chairs in boxes and similar small enclosures) should be firmly fixed to the floor.

Retractable or telescopic seating, when in the extended position, should be provided with locking devices to prevent movement.

Seating, for temporary layouts, for more than 50 persons laid out on the floor area should be secured together in lengths of not fewer than four seats. If seating for more than 250 persons is required, provision should be made for fixing to the floor the rows of seating flanking the front, the back and the cross gangways and the seats near exits, although only the end seats of the rows need to be fixed to the floor if all the seats are secured together.

Where seats are secured together, it should not be possible to separate them, nor for a row to 'snake', by pushing one or more seats in a row. In cases where the fixing of seating to the floor is impracticable or undesirable (e.g. polished dance floors or TV studios), floor bars instead of screws may be used. Floor bars should have a cambered top surface so as to avoid the risk of tripping by persons using the seating. This form of securing seating is not recommended where a very lively audience is anticipated. All seats on telescopic or retractable units and tiered platforms of any type should be securely fixed. Access should be available beneath all temporary tiered seating to clear away accumulated rubbish.

3.5 Fire Rating of Seating and Other Materials

Materials used in seating units, including the seats and any cladding, must comply with the relevant British Standards in regard to fire rating. The underside surfaces of all plywood decks to temporary seating should be class 0. All surfaces of side panels, back panels and fascias to temporary tiered seating should be class 0.

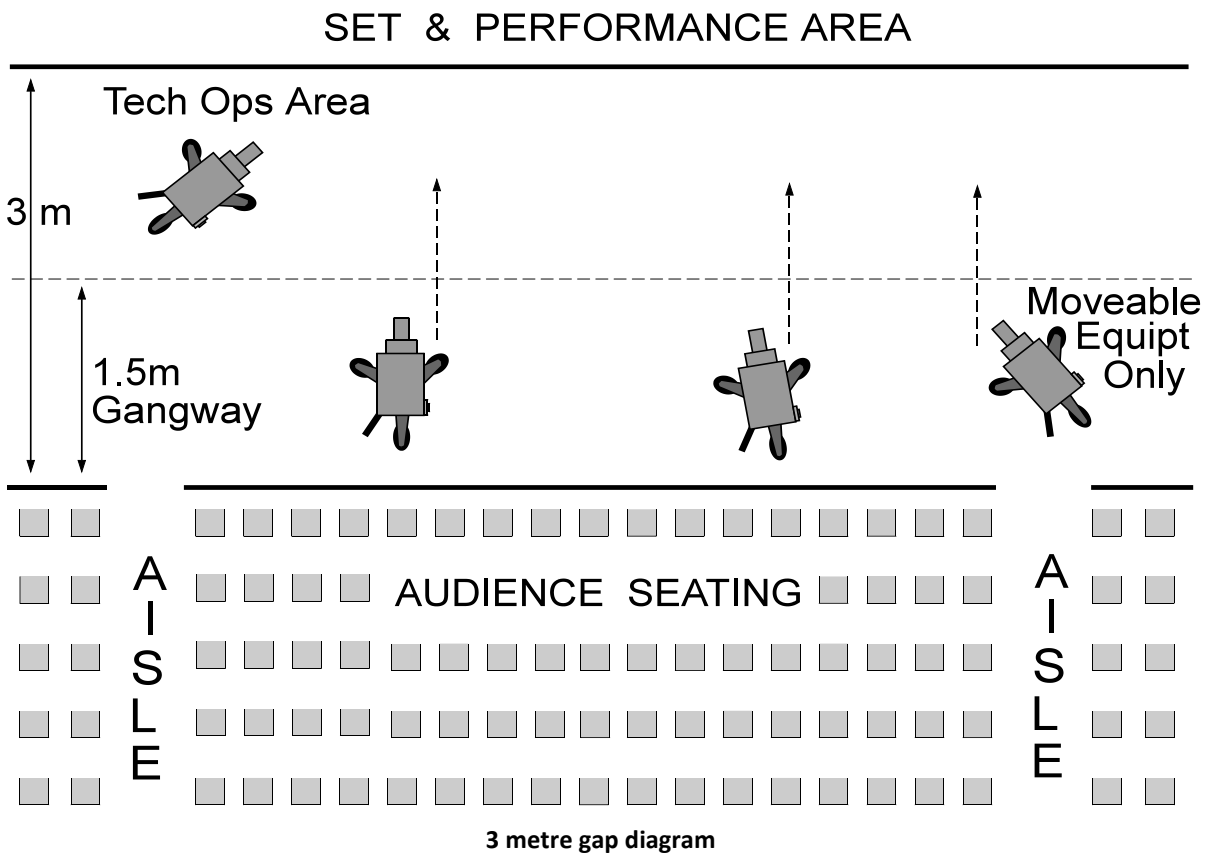
Seats provided for a closely seated audience should satisfy the pass criteria for smouldering ignition, flaming ignition and crib ignition when tested in accordance with BS 5852: 1990.

Furnishings, fabrics and decorative features should be non-combustible or should comply with the required criteria laid down in the relevant British Standards — BS5867 and BS5651. Furnishings, fabrics and decorative features should not be provided within enclosed escape routes (other than foyers) unless made from non-combustible materials.

Drapes should not be provided in front of exit doors or across escape routes.

3.6 The 3 metre Gap

A gap between a studio audience rostrum and the setting and performance area within a studio is required to provide a gangway as a means of escape for the audience. The gap also serves as a camera operating area and as such is double the required width. The 3 metre gap is made up of 1.5 metres access and egress gangway, and a 1.5 metre technical operation area. The requirement of non encroachment upon gangways in relaxed in that moveable operational equipment, such as camera pedestals, can be cleared in an emergency towards the performance area thus maintaining the integrity of the gangway.



3 metre gap diagram

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4 Risk Assessment: Audience Seating

Hazard	Control
• **Collapse of seating** • **Blocked/impeded access/egress to exits** • **Slips/Trips/Falls** • **Lack of space/Uncomfortable positions/movement for audience – leading to injuries**	• Competent Designers and seating contractors employed – adequate planning time built into schedule to ensure design plans are submitted to local authority for approval (if required) • Maximum loading of seating rostrum to be precisely calculated. Designer to incorporate into calculations if audience will remain seated or will be asked to move (e.g. Mexican wave). Maximum weight loadings to be communicated to production and Studio Management. • Design requirements for audience seating, as set out in BS6399 complied with • Adequate access/egress routes and exits provided. Seating and gangways arranged to allow free and ready access direct to exits. • Ease of evacuation – seating secured so it cannot be easily overturned • Comfort – there must be adequate seating space for each individual including adequate leg room and individual seats or where benches are used 0.4m2 allowed for each person • Handrails, barriers, steps with edges adequately marked to be installed as necessary