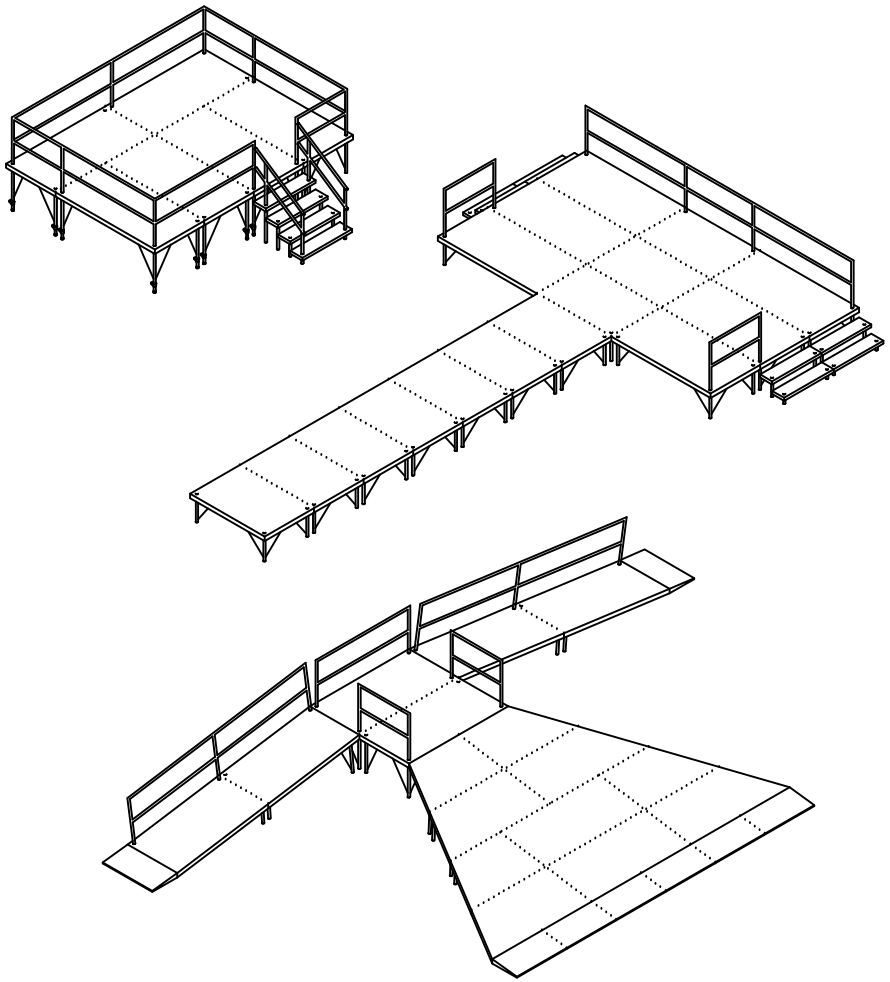
Stage Assembly Instructions



Alistage Ltd

Earls Farm, Earls Lane, South Mimms, Hertfordshire EN6 3LT

sales@alistage.co.uk 01707 653 245 www.alistage.co.uk

Page Index

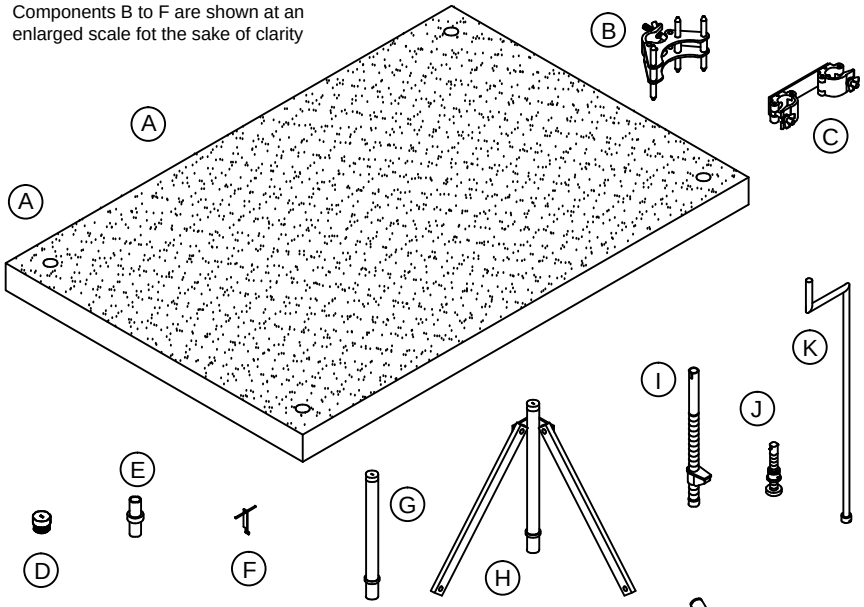
1 General Assembly Information
2 Component Identification
3 Stage Legs
4 Adjustable Legs
5 Adjacent Unit Couplers
6 Bar Couplers
Stage Guardrails
7 Steps
8 Step Guardrails
Valance
9 Tiered Stages
10 Stage deck loading Certificate
11 Stage deck load test conversion

General Assembly instructions

It is important to follow the information detailed on the equipment layout drawings, as the component quantities supplied will be based on this configuration only. Failure to follow the equipment layout drawings may well result in an apparent shortfall of some components, which will prevent the stage from being completed. This is especially important in respect of fitting of the guardrails.

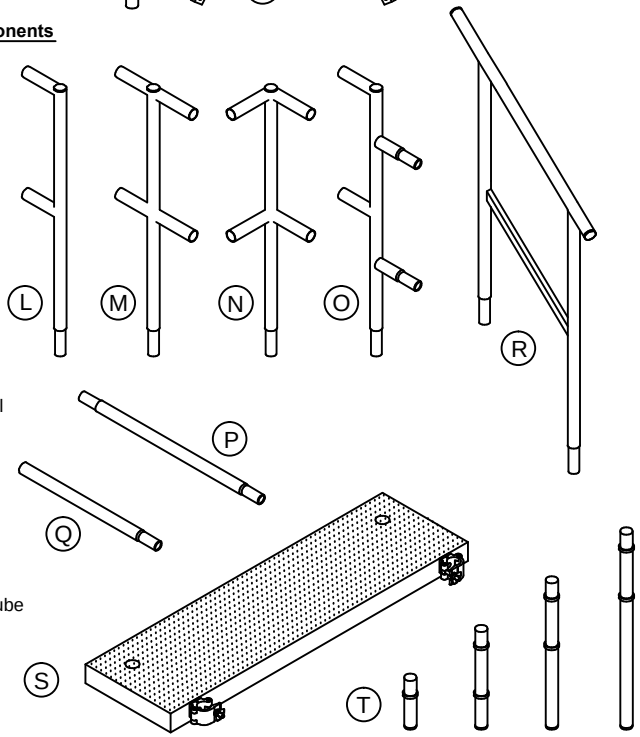
All equipment should be inspected during erection for damage. Any damaged items found should be quarantined for repair and not used.

Components B to F are shown at an enlarged scale fot the sake of clarity



Identification of main components

A Stage Deck
B Adjacent unit coupler
C Bar coupler
D Plastic stage bung
E Double spigot
F Stage bung extraction tool
G Stage leg plain
H Stage leg c/w struts
I Generic adjustable leg
J Levelling leg
K Levelling leg adjusting tool
L Guardrail end post
M Guardrail middle post
N Guardrail corner post
O Guardrail tiered post
P Horizontal guardrail tube
Q Tiered seating guardrail tube
R Step guardrail panel
S Step
T Step legs



Fitting legs to stage decks

Stage legs should be fitted to each of the couplers mounted on the underside of the stage deck with the ring on the leg abutting the coupler fitting.

Stage legs of 600mm to 1200mm are normally fitted with struts which give increased lateral stability but can only be used at positions where the stage corner is an angle of 90° and the adjacent sides are a minimum of 1.22m.

On stage heights from 600mm where strutted legs cannot be used additional lateral support for the legs may be required and the use of additional bar couplers or bracing should be considered

If the stage is to be fitted with levelling legs or guardrails any plastic stage bungs fitted to the tops of the stage legs should be removed prior to the leg being fitted to the stage.

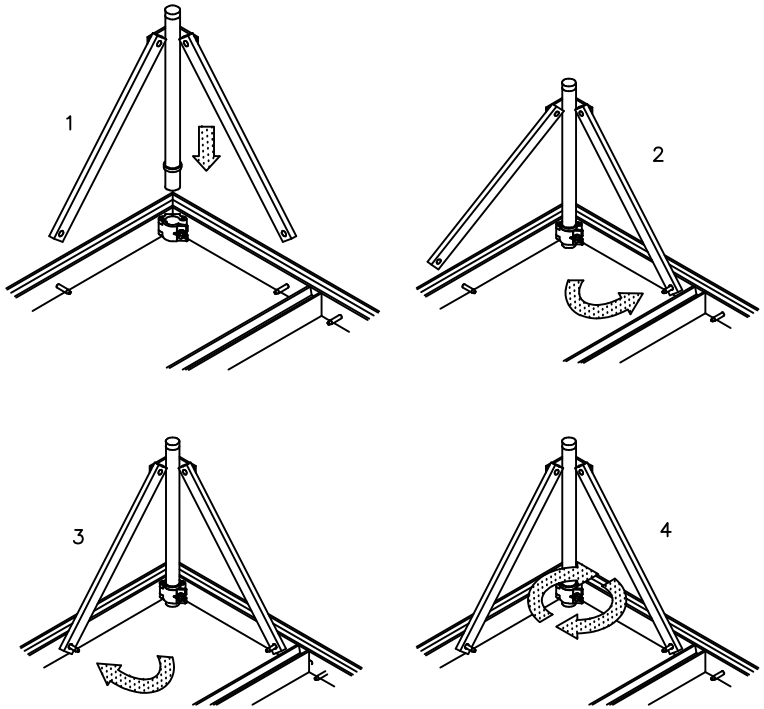
The correct sequence of mounting stage legs fitted with struts is shown below.

(1) Locate the top of the stage leg in the coupler fittings mounted in the corners of the stage deck with the ring on the stage leg abutting against the coupler.

(2) Where leg struts are fitted, the strut nearest the stage middle bearer should be located onto the pin on the inside edge of the stage deck frame first.

(3) Locate the other leg strut in a similar fashion.

(4) The wing nut on the coupler fitting can then be tightened by hand.



Adjustable Legs

Three types of adjustable legs are available to level and adjust stage heights; Stage Levelling Legs' Ramp Levelling Legs and Generic Legs.

These are fitted into the bottom of the stage leg after removing the plastic Stage Bung foot at the bottom of the stage leg tube.

Stage Leveling Legs

When fitting Levelling Legs, the pin on the side of the levelling leg should be seated inside the punched slot at the bottom of the stage leg.

Stage Levelling Legs can be fitted to stage legs of 200mm or more (minimum 300mm where a stage guardrail post is also being used). They do not initially add any height to the stage (being only 18mm deep when fully retracted, the same depth as the plastic bung) and give up to 100mm of adjustment.

Levelling Leg adjustment is made after the deck has been positioned, using an Adjusting Tool which is inserted through the hole in the plywood stage decking down the inside of the stage leg, locating onto the top of the levelling leg.

As Levelling Legs are adjusted from above the stage deck level they are ideal for use on low level stages where access beneath the stage is restricted due to the low height.

Ramp Leveling Legs

Ramp Levelling legs are similar in design to Stage Levelling legs but provide up to 200mm of adjustment.

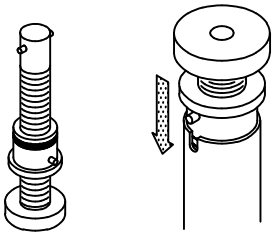
The Plastic foot articulates on the threaded leg tube allowing the decks to be inclined as when used to form a ramp.

Generic Adjustable Legs

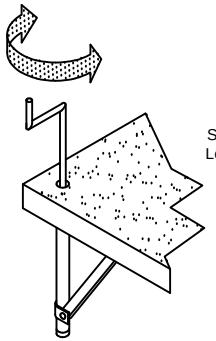
Generic Adjustable Legs can be fitted to stage legs 600mm and longer. They initially add some 75mm to the overall height of the stage due to the depth of the adjustment casting.

350mm of adjustment is available with the adjustment made from beneath the stage by operating the trigger in the adjustment casting and withdrawing or inserting the generic leg in or out of the stage leg.

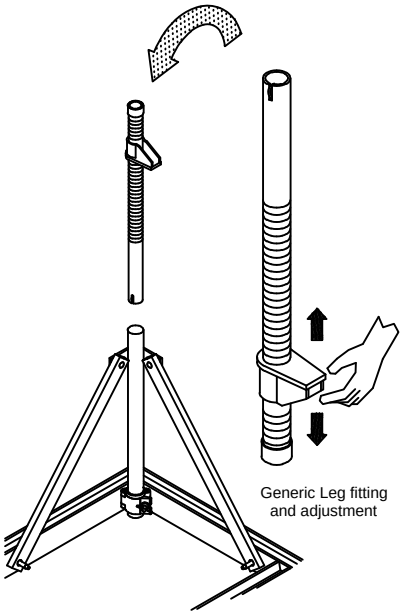
Fine adjustment can be made by turning the adjustment casting.



Stage Levelling Leg



Stage Levelling Leg Adjustment



Generic Leg fitting and adjustment

Connecting stages

Adjacent Unit Couplers

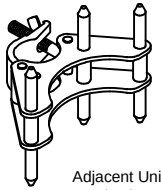
Connections between adjacent square and rectangular stage decks at the same height are normally made using Adjacent Unit Couplers (AUC).

These mount onto the stage legs, locating tight against the underside of the stage deck. The inboard pin on the AUC locates into a hole in the underside of the stage frame, which correctly aligns the fitting.

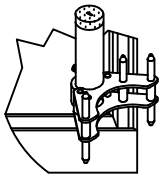
They can be orientated to allow either one or two arms of the fitting to extend beyond the edge of the stage deck.

Adjacent stages can be lifted into position, allowing the pin at the end of the AUC arm to located into the hole in the underside of the stage deck frame.

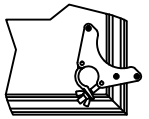
It should be noted that AUC's are only intended to maintain the horizintal position of adjacent stages, they are not intended to provide any vertical support to adjacent stages.



Adjacent Unit Coupler (AUC)

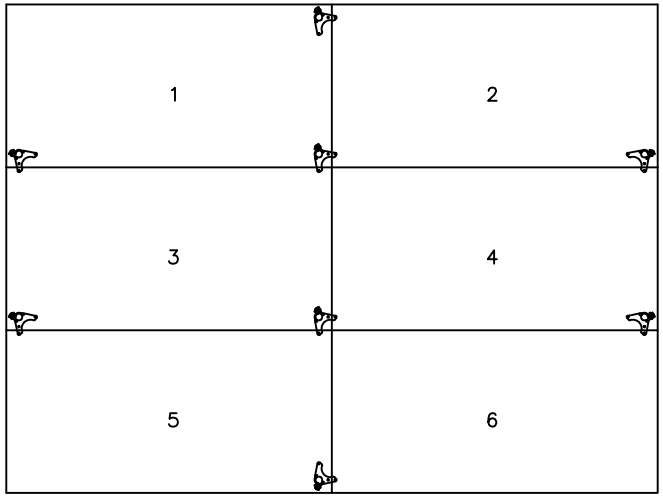


AUC fitted to Stage Deck



Using one arm

Using both arms



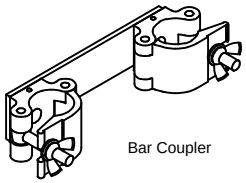
Typical stage configuration that illustrates the position and orientation of the AUC's and the sequence of erection

Bar Couplers and Adjustable Bar Couplers

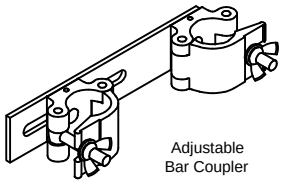
Bar Couplers and Adjustable Bar Couplers are used to connect between stage decks at dissimilar heights locating between the stage legs of adjacent decks. They can also be used to to make additional intermediate connections between the legs on tall stages.

Bar Couplers are used to connect between the adjacent legs on square and rectangular stages. In this application the distance between the stage legs is uniform and the couplers are fixed in position to suit.

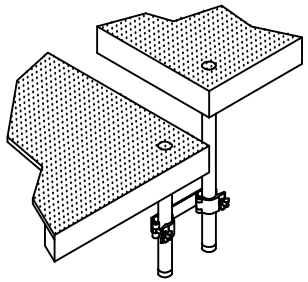
Connections between the stage legs of shaped and angular stage decks are made using Adjustable Bar Couplers where the distance between the couplers can be adjusted to suit the application



Bar Coupler



Adjustable
Bar Coupler



Stage Guardrails

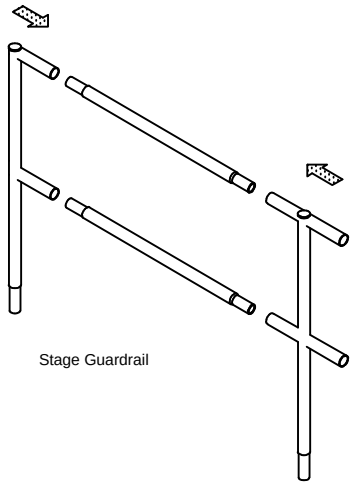
These are made up of horizontal rails and vertical posts. The horizontal rails have a swaged spigot at both ends, which locate into the vertical posts.

Once a run of guardrails have been assembled (rails to posts) the posts can then be fitted to the stage, with the swaged spigot at the bottom of the vertical post fitting through the holes in the plywood stage decking, locating into the top of the stage leg.

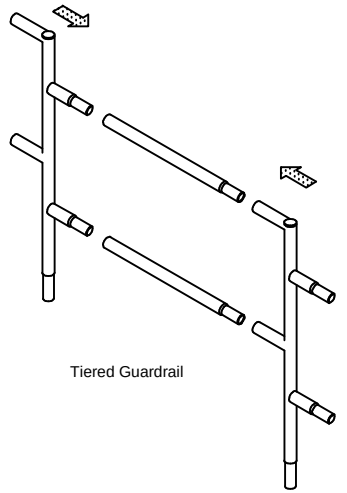
A Stage Bung Extraction Tool is required to remove any stage bungs that may be fitted in the stage deck where the guardrail posts are to be located.

To allow for various configurations of guardrail to be constructed, horizontal rails are available in a range of standard sizes, with a number of different styles of post also available.

Guardrails to the sides of tiered stages use horizontal tubes that have swaged spigots at one end only.



Stage Guardrail



Tiered Guardrail

Stage Steps

Flights of steps are built from individual step treads and step legs rather than being pre-engineered flights. The standard equipment forms a going of 299mm with a rise of 200mm. Step legs of 200mm are fitted with one ring whist larger legs are fitted with two rings.

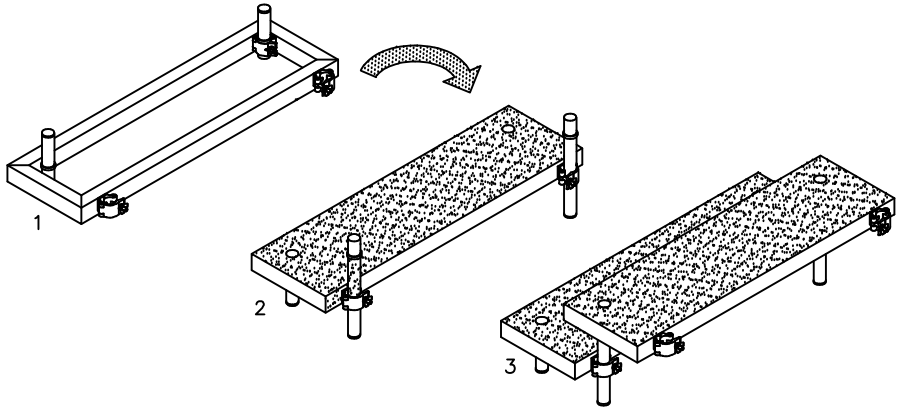
Fit two 200mm step legs to the inboard couplers on the first tread ensuring that the rings on the legs locate tight against the couplers.

Fit two 400mm legs to the outboard couplers on the same tread ensuring that the bottom rings on the legs fit tight to the underside of the couplers.

Locate the next step tread onto the top of the 400mm step legs with the legs fitting into the inboard couplers with the top rings fitting tight to the couplers.

The next size step legs can be fitted to the outboard couplers on the upper tread and the process on locating the next step repeated until the final tread has been fitted.

Once the final tread has been fitted the completed step assembly can be located to the end of a 1.22m wide stage and the outboard couplers on the top tread attaching to the stage legs.



Step Guardrail

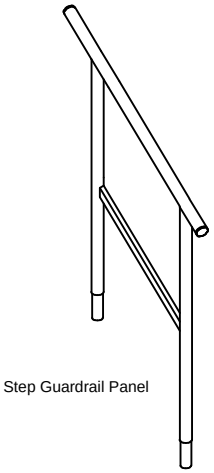
Guardrail can be fitted to either one or both sides of steps, two types of step guardrail are currently available, either one piece Step Guardrail Panels, or seperate Inclined Step Guardrail Posts used with Step Guardrail Extension Tubes.

Whilst the the one piece panels are ready for fitting the seperate Inclined step Guardrail Posts step posts and Step Guardrail Extension Tubes require assembly prior to fitting.

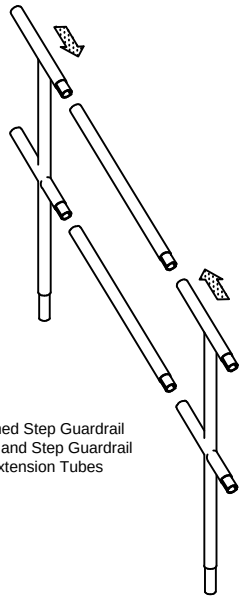
Once assembled a hexagonal (Allen) key to is used to adjust the expanding spigots fitted to the posts and tubes to fix and retain the assembled components as a panel.

To fit the guardrail to the steps - in both cases the swaged spigot at the bottom of the vertical posts locate into the top of the step legs passing through the holes in the plywood step decking.

Where a step guardrail is not being used the holes in the step are infilled with 6mm thick bungs.



Step Guardrail Panel



Inclined Step Guardrail Posts and Step Guardrail Extension Tubes

Valance

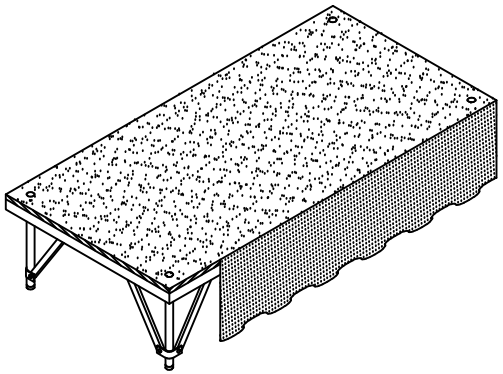
Black valance is available in 7.32m lengths which has loop Velcro along its top edge.

Self adhesive hook Velcro should be applied to the top of the stage sides where valance is required to allow fitting.

All Velcro should be removed after use.

When fitting valance any surplus material should be pinned or tucked out of the way under the stage.

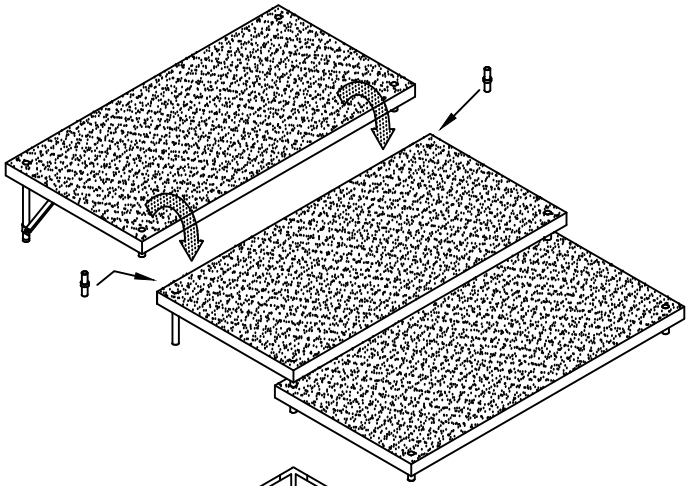
A charge will be made for any valance that is cut or damaged.

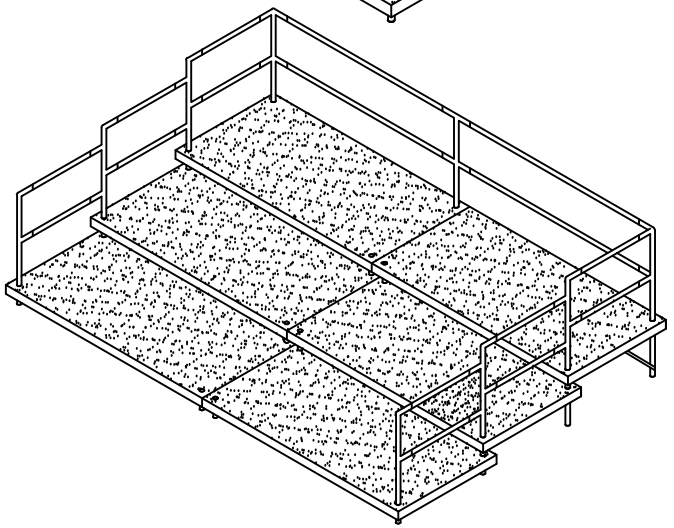


Tiered seating

Normally the legs of each stage sit at ground level, however for tiered seating double spigots can be used to allow the front legs of all upper tiers to “plug into” the back legs of the lower tiers.

This foreshortens the going on all but the top tier from 1.22m to 1.026m. It also prevents the possibility of chair legs falling off the rear of the stage tier (the stage guardrail fitted to the rear of the system prevents this on the top tier).





Lloyd's Register

Project:	STAGING UNIT LOAD TESTS	Certificate No.:	SOU520348/1/A1
Client:	ALISCAFF LTD TOTTENHAM LONDON N17 ORJ	Office:	CRAWLEY
Client's Order No.:		Date:	19.7.95
		Order Status:	COMPLETE
Inspection dates First:	4.7.95	Final:	4.7.95

This certificate is issued to **ALISCAFF LIMITED** following attendance at their **TOTTENHAM** works by the undersigned Surveyor on the date shown during which **Load Tests** on the undernoted items were witnessed and found to be satisfactory.

TEST 1 **2440mm x 1220mm Stage Deck (Part No.7460) on 1200mm legs (Part No. 7511)**
Vertical loading of 3035 Kgs simultaneous with horizontal loading of 304 Kgs in both long and short planes
Repeated with stage on 400mm legs (Part No.7465).

TEST 2 **1220mm x 1220mm Stage Deck (Part No. 7462) on 1200mm legs (Part No. 7511)**
Vertical loading of 1518 Kgs simultaneous with horizontal loading of 153 Kgs in both planes.
Repeated with stage on 400mm legs (Part No.7465).

Testing was generally in accordance with the **GUIDE TO HEALTH SAFETY AND WELFARE AT POP CONCERTS AND SIMILAR EVENTS & BS6399 Pt.1 1984.**

All items were inspected on completion of testing at each stage. No permanent set deflections were evident after the loadings' and the equipment was found to be sound and workmanship satisfactory.

I A G MORTIMER
Surveyor to Lloyd's Register

NOTICE – This certificate is subject to the terms and conditions overleaf, which form part of this certificate.

FORM 1123 (07/93) Lloyd's Register of Shipping, registered office: 71 Fenchurch Street, London EC3M 4BS

The Third Edition of Temporary Demountable Structures published by The Institution of Structural Engineers states, in section 10.3.1, that stages should be designed to accept a minimum vertical static load of 5kN/m² with a simultaneous notional horizontal load applied in any one direction at the stage surface. Table 12 in Section 9 defines three categories of use the most onerous being Category 3 which requires the notional horizontal load to be 10% of the applied vertical load.

Tests witnessed by Lloyd's Register, have been carried out on a 1.22 x 2.44m stage deck (test 1) and a 1.22 x 1.22m stage deck (test 2) at 400mm high (the longest stage leg without knee brace supports), and 1200mm (the longest stage leg with knee brace supports). In witness of these tests certificate number SOU520348/1/A1 has been issued by Lloyd's Register.

The following calculations show the conversion of the applied loads from the above tests from kg into kN/m².

Test 1

Stage Deck size 1.22 x 2.44m

Stage Deck area(1.22 x 2.44m) = 2.9768m²

Total Applied vertical load 3035kg = (3035kg x 9.81m/s²)

= 29773N

= 29.773kN

Applied vertical load per m² = $\frac{29.773\text{kN}}{2.9768\text{m}^2}$

Applied vertical load = 10kN/m²

Simultaneous to the vertical load, a horizontal load of 10% of the vertical load (304kg) was applied in both the long and short planes, this equates to 2.98kN and simulates a live load.

Test 2

Stage Deck size 1.22 x 1.22m

Stage Deck area(1.22 x 1.22m) = 1.4884m²

Total Applied vertical load 1518kg = (1518kg x 9.81m/s²)

= 14891N

= 14.891kN

Applied vertical load per m2 = $\frac{14.891\text{kN}}{1.4884\text{m}^2}$

Applied vertical load = 10kN/m²

Simultaneous to the vertical load, a horizontal load of 10% of the vertical load (153kg) was applied in both planes, this equates to 1.5kN and simulates a live load