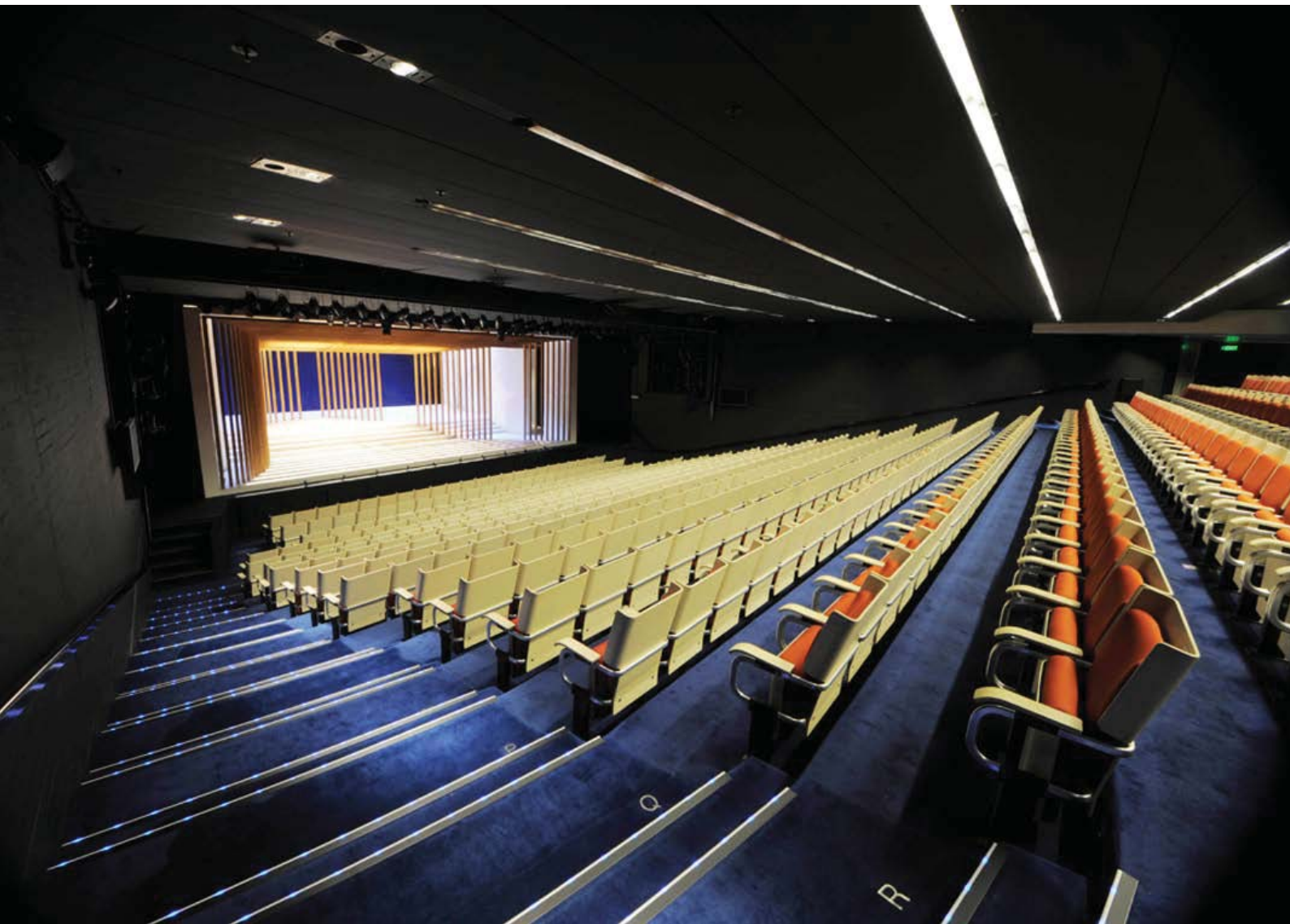


Sydney Opera House

Drama Theatre

Technical and Production Information



March 2016



sydney opera house

Drama Theatre Technical and Production Information

March 2016

sydneyoperahouse.com

Street Address:
Sydney Opera House
Bennelong Point
2 Macquarie Street
Sydney NSW 2000
Australia

Mailing Address:
Sydney Opera House
GPO Box 4274
Sydney NSW 2001
Australia

Venue Bookings:
Venue & Event Sales
T +61 2 9250 7393
venues@sydneyoperahouse.com

Architectural photographs by Jack Atley

The information contained in this document is given in good faith and is believed to be correct. All measurements are approximate and should be checked on site. While every effort is made to fulfil production requirements from in-house stock, no guarantee is made that the equipment listed will be available for a particular event. Availability is subject to the requirements of the other Opera House venues.

© Sydney Opera House

Contents

Introduction	5
Drama Theatre	6
Seating	7
Access & Loading	8
Accessibility	8
Public Transport	9
Complimentary Shuttle Bus	9
Parking	10
Vehicle Access	10
Load-in Area	11
Height Restrictions	13
Maximum Loads	13
Compressed Air	13
Storage Space	13
Emergency Exits	14
Smoke Management System	14
Risk Management	15
Venue specifications	16
Stage Dimensions	16
Stage Floor	17
Care of Building Surfaces	17
Stage Plans	17
Staging	22
Stage Machinery	22
Flying System	24
Staging Equipment	26
Keyboard Instruments	27
Pianos	27

Stage Lighting	28
Control	28
Non-Dimmed Units	29
House Lights	29
Overhead Lighting Battens	29
Lighting Positions	29
Lighting Equipment	30
Effects	30
Sound & Audio Visual	31
Acoustics	31
Speakers	31
Mixing Console	31
Control	32
Video Replay	34
Projection	34
Recording & Broadcast	35
Commercial Audio Recording	35
Video Recording	35
Outside Broadcast	36
Signal Transport	36
Communications	37
Stage Manager's Desk	37
Show Relay	37
Headset Communications	37
Backstage Facilities	38
Dressing Rooms	38
Rehearsal Rooms	38
Wardrobe, Laundry and Kitchen Facilities	38
Wi-Fi	38
Staff & Artists	39
Sydney Opera House Staff	39
Green Room	39
Access and Other Conditions	39

Introduction

Welcome to Sydney Opera House.

Sydney Opera House is a major performing arts venue, staging over 2,400 events a year. There are seven performance venues, ranging in capacity from 200 to 6000. We offer daily guided tours and our catered functions, bars, restaurants and retail outlets offer some of Sydney's best experiences and spectacular harbour views.

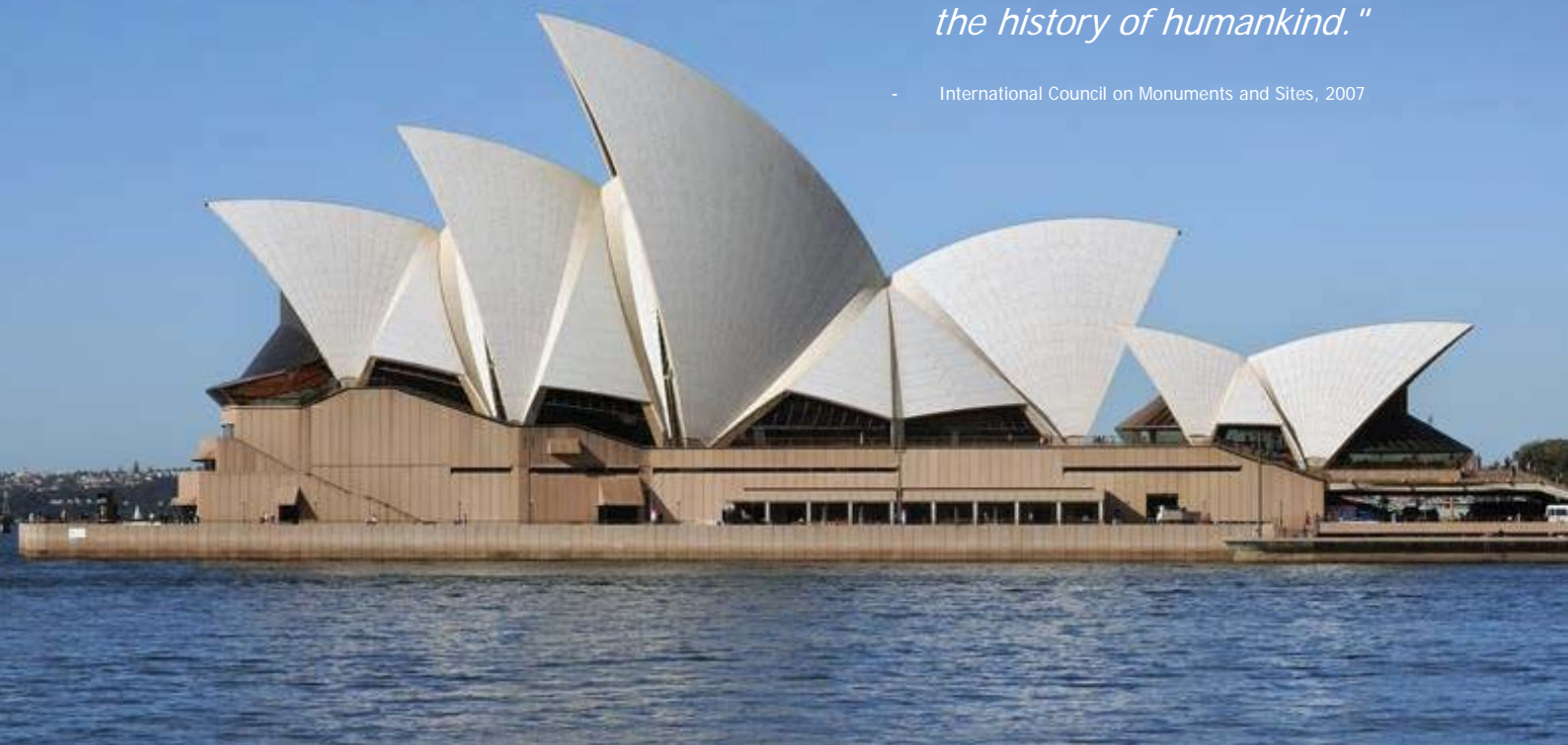
One of Australia's premier tourist destinations, and a treasured local and global landmark, we welcome more than 8 million visitors a year to our site. Millions more connect with the Opera House from all over the world through our live-streamed events and social media.

A State, National and World Heritage listed *masterpiece of human creative genius*, the Opera House is unlike any other performing arts centre in the world. As the custodians of Jørn Utzon's extraordinary masterpiece, we carry legal obligations to protect the site. These affect how we plan and stage events, and place high expectations on how we perform.

Every event is carefully managed so that it is integrated with other performances and presented to the highest standards. Our experienced Event Operations team will work with you to plan every aspect of your event and ensure its success. We look forward to helping you create an unforgettable event, and trust you will enjoy your experience with us at the House.

"Sydney Opera House stands by itself as one of the indisputable masterpieces of human creativity, not only in the 20th century but in the history of humankind."

- International Council on Monuments and Sites, 2007



Drama Theatre

The Drama Theatre is the smaller of our two proscenium arch theatres, offering an intimate theatrical experience to an audience of up to 544. Primarily used for plays, contemporary dance and musical theatre, the theatre regularly features productions by the internationally acclaimed Sydney Theatre Company, Bangarra Dance Theatre and Bell Shakespeare Company. It is also ideal for spoken word performances.

With its black walls and deep blue carpet, all eyes are drawn to centre stage. The seats are made of a white birch timber veneer shell, upholstered in orange wool and the auditorium is designed to create impeccable sightlines from all seats. An automated flying system and twin concentric stage revolves provide staging flexibility to suit the needs of most dramatic performances and our staff will assist you with options for fitting your production to the venue's specifications.

The Drama Theatre is located on the Ground floor in the north-western corner of the Opera House, below the Concert Hall. The theatre is served by the Western Foyer, which is shared by the Drama Theatre, The Studio and Playhouse and offers unmatched views across the harbour to the Sydney Harbour Bridge. The northern end of the shared foyer space is dedicated to the Drama Theatre.

The Western Foyer's food and beverage outlets open approximately two hours pre-theatre. The ticketing outlet and cloak room open 30 minutes prior to the first performance in the Playhouse, Drama Theatre, or The Studio, whichever is first. Outside these hours, the main ticketing outlet in the Box Office Foyer provides a point of sale for performances in all venues.

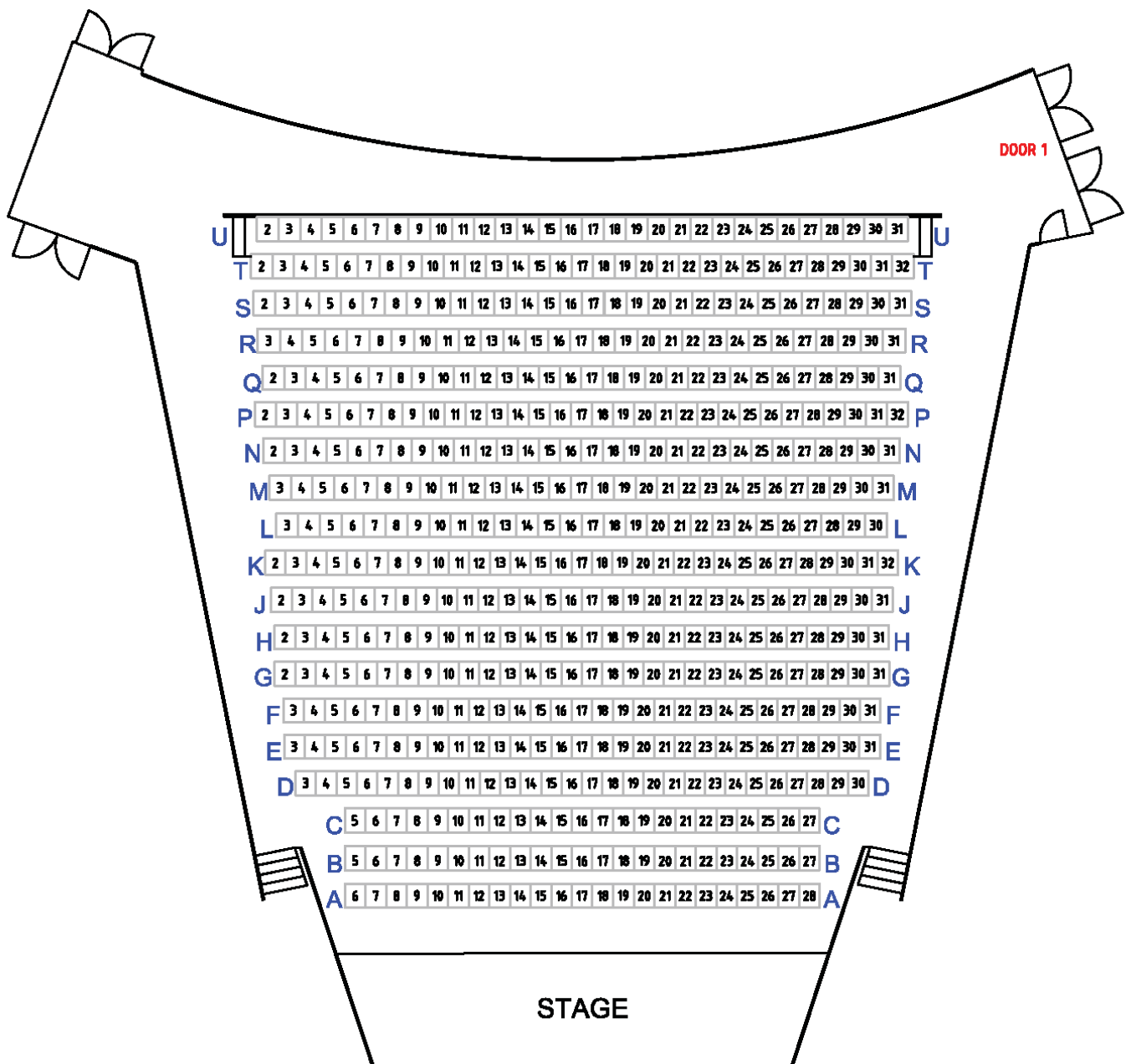


Seating

The maximum seating capacity in the Drama Theatre is 544, continental style. There are 4 wheelchair positions, two each side at the rear of the auditorium, with an associated companion seat for each. If these positions are required, seats must be removed from rows T and U and the theatre's capacity is reduced by up to 14 seats (if all four wheelchair positions are used).

If the optional stage extension / orchestra pit is required for your production, rows A, B and C are removed and the seating capacity is reduced to 475.

Entrance to the auditorium is via one main door from the Western Foyer.



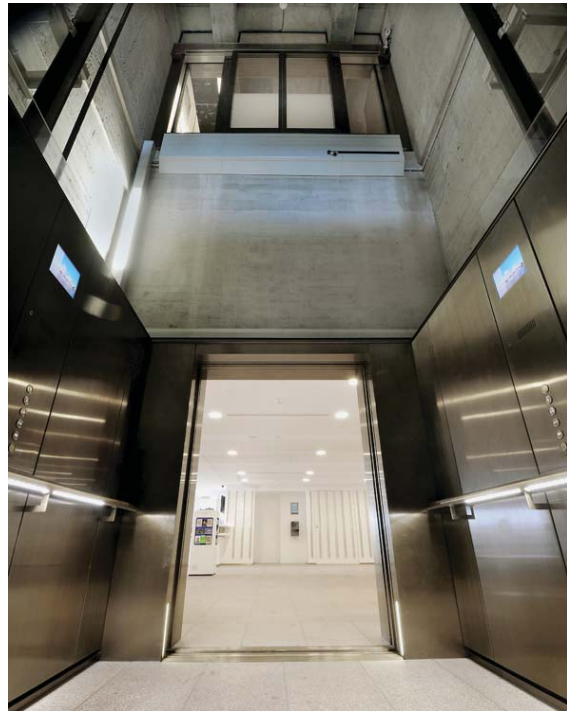
Access & Loading

Accessibility

The Drama Theatre is wheelchair accessible as far as the rear of the auditorium. There is space for up to four wheelchairs, two each side of the house. We ask that these be pre-booked if required to enable time for theatre seats to be removed.

There is a public elevator from the Lower Concourse to the Western Foyer, providing access to and from the car park and Lower Concourse restaurants and bars. The same elevator provides access to the Box Office Foyer on Level 1, where tickets can be purchased or collected when the Western Foyer ticketing outlet is closed.

Stage access is extremely limited. The stage is one floor below the dressing rooms. Please discuss any wheelchair access requirements to the stage with the Venue Hire Manager prior to confirming your booking in the theatre.



Assisted Hearing System

An FM radio transmitter operates within the Drama Theatre on a dedicated frequency. Please see our Front of House staff in the foyers for assistance and to arrange a receiver. A loop system also operates in selected seats in the Drama Theatre. Patrons are advised to turn their hearing aid to the **T** switch to pick up the program.

Please discuss any other accessibility needs with your Account Manager in advance so that the appropriate arrangements can be made for your event.

Public Transport

Circular Quay is a five to ten minute walk from the Opera House. Buses, trains and ferries are all available at Circular Quay. To ensure your event's public transport needs can be met and for further information please contact:

Transport Info line: 131 500

TTY: 1800 637 500

<http://www.transportnsw.info>

Sydney Buses

<http://www.sydneybuses.info>

Sydney Trains

<http://www.sydneytrains.info>

Sydney Ferries

www.sydneyferries.info

Complimentary Shuttle Bus

Intended primarily for elderly and less mobile customers, a complimentary shuttle service operates between Circular Quay and the Opera House at certain times. The service is linked to performances in the Concert Hall and Joan Sutherland Theatre. Please check with your Account Manager to confirm the operating times during your event.

Seating is limited and available on a first come, first served basis. The bus runs between Circular Quay near bus Stand E (under the Cahill Expressway overpass) and the Opera House Vehicle Concourse.

There is no bus service for any theatres on Sunday evenings.



Indicative Shuttle Bus Schedule

Before performances:

Bus starts 75 minutes before matinee and evening performances in the Concert Hall or Joan Sutherland Theatre and runs continuously for 1 hour. Where there is no performance in the main halls, the bus service commences 45 minutes before matinee and evening performances in the Drama Theatre, The Studio or Playhouse, and runs continuously for 30 minutes.

After performances:

Bus starts 10 minutes after the performance finishes and runs continuously for 30 minutes.

Parking

The Sydney Opera House Car Park adjacent to the Opera House is operated by Wilson Parking, phone 1800-PARKING. It is not owned or managed by the Opera House. However we do have a special arrangement for a reduced daily rate for performers and staff. Parking ticket validation can be done at a machine located just inside Stage Door. There is normally no provision for parking on the Opera House site.

Accessible Parking

There are 11 accessible parking spaces on Level 1 and 12 spaces on Level 6 of the Wilson's Sydney Opera House Car Park for holders of RMS Mobility Parking Scheme permits. Car spaces on Level 6 also have direct wheelchair access to lifts.

Vehicle Access

Loading Dock

Vehicle access for scenery, equipment and other deliveries to the Opera House is via the Loading Dock, and is by arrangement only. The loading dock is a mixed work zone; including vehicles, pedestrians, plant and machinery used by all the theatres and other Opera House site operations.

Deliveries must be booked in advance. It is vital that they arrive on schedule to assist us in managing the requirements of all the Opera House's logistical needs.

The Loading Dock has a height restriction of 4.3m and cannot accommodate B-double articulated vehicles. Other access will need to be arranged for these larger vehicles. Bicycles are not permitted in the Loading Dock.

All staff and drivers requiring access to the Loading Dock will need to complete a safety induction. Opera House procedures and the directions of our staff must be followed.

Vehicles are not to be left unattended in the dock and no parking is available. For security reasons, vehicles that have not been pre-booked will be denied access to the site.

For more information please refer to the *Loading Dock Operations Booklet* (available on request). Please discuss all of your vehicle access needs with the Production Manager for your event.

Transport Schedule

In order for us to manage deliveries across all the Opera House venues, we require that a Transport Schedule for deliveries to and from your event is provided at least one week in advance. The Transport Schedule should include the type and height of each vehicle, registration number and contact details of the driver.

All vehicles requesting access to the Opera House must stop at the security checkpoint at the main gate house.

Load-in Area

From Loading Dock to Drama Theatre Scenery Dock

There are two goods lifts from the Loading Dock to Central Passage, which connects to the Drama Theatre backstage area. The lift specifications are:

Internal car dimensions	Lift 22	Lift 12
Height	2.40m	2.40m
Width	2.00m	1.70m
Depth	3.35m	3.35m
Clear door opening		
Height	2.20m	2.20m
Width	1.80m	1.60m
Load capacity		
Maximum capacity	1800kg	1800kg
Point load	1080kg	1080kg
Other		
Speed	1.0m/s	1.0m/s
Doors	3 panel side opening	3 panel side opening

Where scenery and equipment is too large for Lifts 12 and 22, our production staff can assist with unloading from the Loading Dock via the Joan Sutherland Theatre Scenery Lift (Lift 21). The Scenery Lift has been designed to cater for all scenery loading purposes – lifting scenery and large items to Central Passage and the Joan Sutherland Theatre Scenery Dock.

Internal car dimensions	Lift 21
Height	3.80m
Width	3.35m
Depth	9.20m
Load capacity	
Maximum capacity	10,000kg

As Lift 21 rises into the Joan Sutherland Theatre Scenery Dock, lift use is to be coordinated with Joan Sutherland Theatre performance schedules in mind. During show-critical times, the Staging Supervisor or Stage Manager in the Joan Sutherland Theatre may request that use of Lift 21 be restricted.

Our theatre production staff will assist by coordinating the loading and access requirements across all of our theatres and operating the lift machinery to ensure your scenery and equipment is delivered to the required locations.

From Drama Theatre Scenery Dock to the Stage

The Drama Theatre has a small scenery dock in Central Passage. The stage is located one level (-2.75m) below Central Passage. Scenery is carried down a narrow, carpeted corridor from Central Passage to the theatre. There is a 90° turn through a double door (2.25m wide x 2.80m high) onto an electrically operated platform elevator down to stage level. The travel limit of the scenery hoist is approximately 200mm above the stage floor. A portable ramp is used to roll off to stage level. Please discuss your scenery dimensions as early as possible.

The scenery hoist specifications are:

Width	2.80m
Depth	2.50m
Speed	101mm/s <i>constant</i>
Load capacity	1520kg <i>in motion</i>

Safety is of the highest priority. In order to ensure the safety of all people using Central Passage, we require that pedestrians remain within the marked paths. Anyone working in the Central Passage or Scenery Dock area are required to wear high visibility vests and protective footwear.

Safety exclusion zones are enforced in the Drama Theatre Corridor during loading times. This may restrict access to the dressing rooms at these times.



Height Restrictions

Transport contractors must check to ensure that load heights do not exceed the maximums.

Height of Loading Dock	4.3m <i>safe clearance</i>
Height of Concourse	3.6m <i>safe clearance</i>
Central Passage South Door	3.5m high x 4.5m wide <i>safe clearance</i>
Central Passage North Door	4.4m high x 4.5m wide <i>safe clearance</i>

Maximum Loads

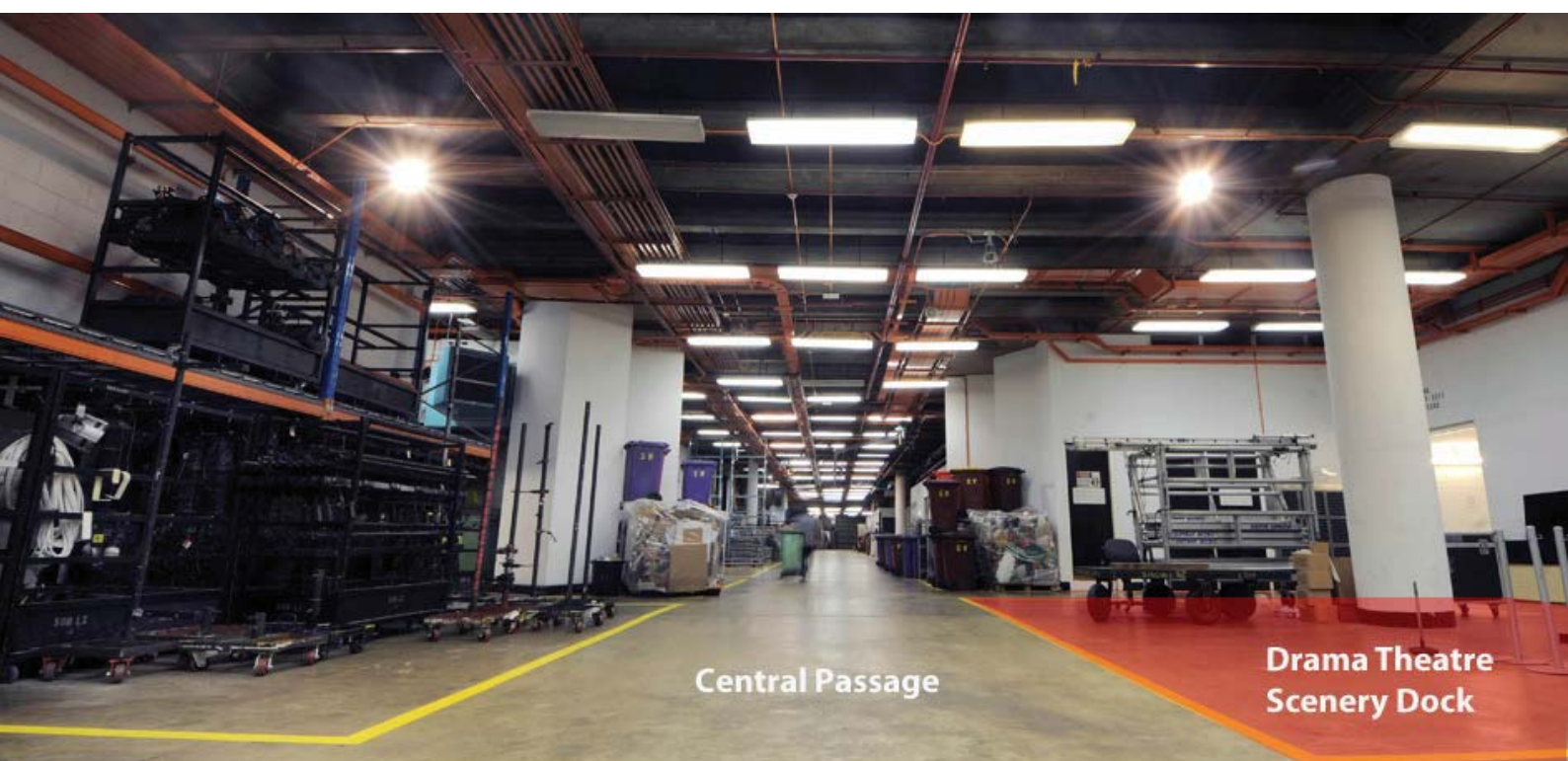
Central Passage Floor	9 tonne axle load <i>no overtaking or passing</i> 6 tonne axle load <i>passing allowed</i>
Western Broadwalk	27.5 tonne over 3 axles <i>limited areas only</i> 23.5 tonne on 2 axles
Northern Broadwalk	27.5 tonne over 3 axles <i>limited areas only</i> 23.5 tonne on 2 axles
Scenery Platform Lift	1520kg <i>in motion</i>

Compressed Air

Compressed air is available from a central plant at 690 KPA (100 P.S.I.) with outlets located on each side of the stage.

Storage Space

Storage space is very limited. If short term storage is required, it may be possible for lighting and other equipment to be left stacked neatly on the stage. Please discuss your needs with your Production Manager.



Emergency Exits

In addition to the doors located on each side at the rear of the Drama Theatre auditorium, emergency exits are located at each side of the stage, immediately downstage of the proscenium. Although these lead to backstage areas, they are available for use by members of the audience as well as performers in the event of an emergency situation. In order to keep these emergency exits clear, no technical equipment or scenic element may be set on the extreme sides of the forestage or in the stairwells. A clear exit path must be maintained at all times.

Smoke Management System

The Drama Theatre smoke management system consists of a smoke curtain located above the seats in row E of the auditorium. In the event of the fire alarm system being triggered, this curtain will automatically drop from the ceiling, stopping 2.1m above the floor. The smoke curtain is designed to contain any smoke and allow patrons to leave the theatre without undue delay.

At the same time, the emergency panic lighting will automatically switch on, the smoke exhaust fans located at the top of the stage tower will start to extract smoke from the theatre. Make-up air (sourced from outside the building) will be delivered via a duct, which is located on the Prompt Side (Stage Left) of the stage floor, immediately downstage of the proscenium.

Special conditions associated with the Smoke Management system:

- No technical equipment or scenic elements may be set in front of the air supply duct on the Prompt Side (Stage Left) of the stage
- To ensure that the make-up air can replace the air that is extracted from the stage tower, there must always be at least 15 m² of open space between the auditorium and the stage at the proscenium
- If full size wrapping drapes or cycloramas are to be used they must be free to move upstage to allow for the movement of air
- Before a scaffold is installed for access to the FOH lighting bar that is adjacent to the smoke curtain, arrangements must be made with the Emergency Planning & Response Group to isolate the smoke curtain to avoid situations where the curtain could drop onto the scaffold and be damaged
- No cables may be installed that will interfere with the travel path of the smoke curtain. Any cables installed along the side of the auditorium must either use the special conduit paths above the curtain on the side walls or cross the path of the curtain below the guides that are mounted on the side walls

Your Production Manager or Event Safety Officer can assist with meeting all of these requirements.

Risk Management

In accordance with NSW OH&S legislation, a comprehensive risk assessment is required during pre-production for all shows and events. The Risk Assessment needs to consider the risks associated with your specific event. It should be delivered to your Opera House Production Manager at least seven days before the event. Our staff can assist you with this process.

General considerations:

- Equipment may be subject to safety checks by Opera House staff
- All mains-connected electrical equipment requires a current compliance test tag from a suitably licensed person
- Overhead equipment (including lighting and scenery) must be rigged by a qualified rigger, using appropriately certified equipment
- Lighting equipment rigged overhead must be secured with a safety chain or similar
- Scenery and large props must be of a fire retardant fabric or treated with a fire retardant. A certificate of such treatment must be produced on request
- Polystyrene, plastic and other such materials that cannot be treated with fire retardant are not permitted
- Approved drapes must be of a fire retardant fabric or treated with an approved fire retardant and with an appropriate label attached to the drape
- Compressed air may only be used by suitably trained operators



Venue specifications

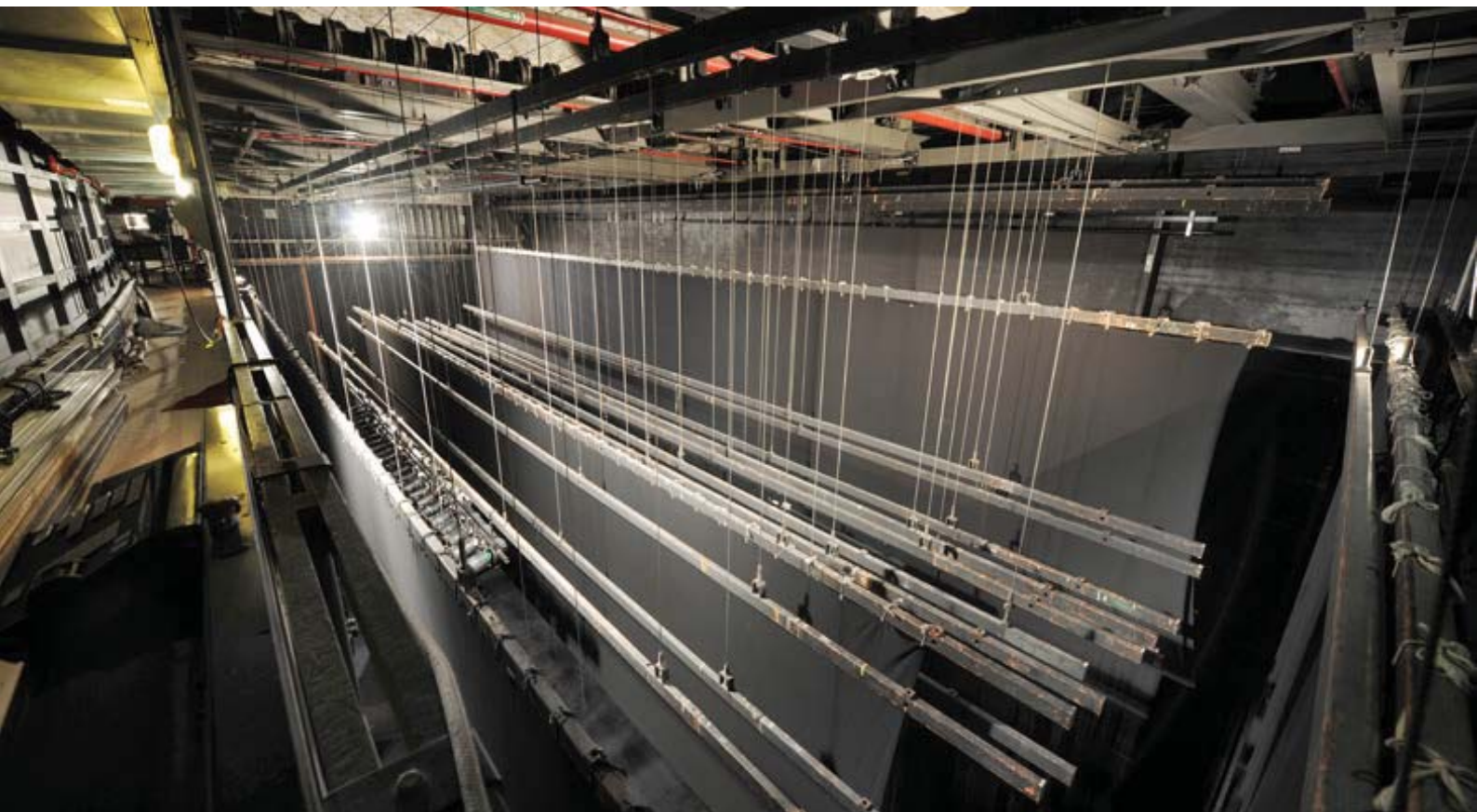
Stage Dimensions

The tormentors (side walls) of the proscenium arch are adjustable, giving an adjustable opening width from 12.20m to 13.74m. A 250mm-thick load bearing concrete wall divides the main stage from the rear stage.

The Drama Theatre stage dimensions are:

Width	Stage extension / pit	14.6m <i>downstage</i>
	Apron	12.8m <i>upstage</i>
	Rear stage opening	12.4m
	Proscenium	12.2m to 13.7m
	<i>tormentors are adjustable by prior arrangement</i>	
Depth	Apron to last fly set	11.3m <i>DSC to Line #26</i>
	Rear stage	4.4m <i>centre line</i>
	Stage extension / pit	2.7m
Height	Proscenium	4.7m
	Maximum drift *	10.2m
	Stage	+1.0m <i>above auditorium floor</i>

* *There is no grid in the fly tower. A solid concrete ceiling sits approximately 400mm above the maximum drift. There are no penetration points and this space includes concrete beams and steel support structures. Dimensions are approximate and critical measurements must be confirmed on site.*



Stage Floor

Surface	50mm oregon timber, overlaid with a 9mm weathertex sheeting, painted black
Stage Rake	0 degrees (flat)
Maximum Loading	7.5kPa (500 kg/m ²) – distributed 4.5kN (450kg) - concentrated

Care of Building Surfaces

The Opera House is a world heritage listed property of exceptional significance and the building surfaces, including the rare white birch laminate timber used in the seats must be protected from damage.

No holes or permanent marks of any kind may be made on any surface in the Drama Theatre without the written approval of Opera House management. Please discuss any requirements with your Production Manager.

The auditorium ceiling forms part of the theatre's cooling system. It is made of a construction that prohibits any penetrations or attachments other than existing points. There can be no exceptions to this rule.

Stage Plans

A basic stage plan is available at sydneyoperahouse.com

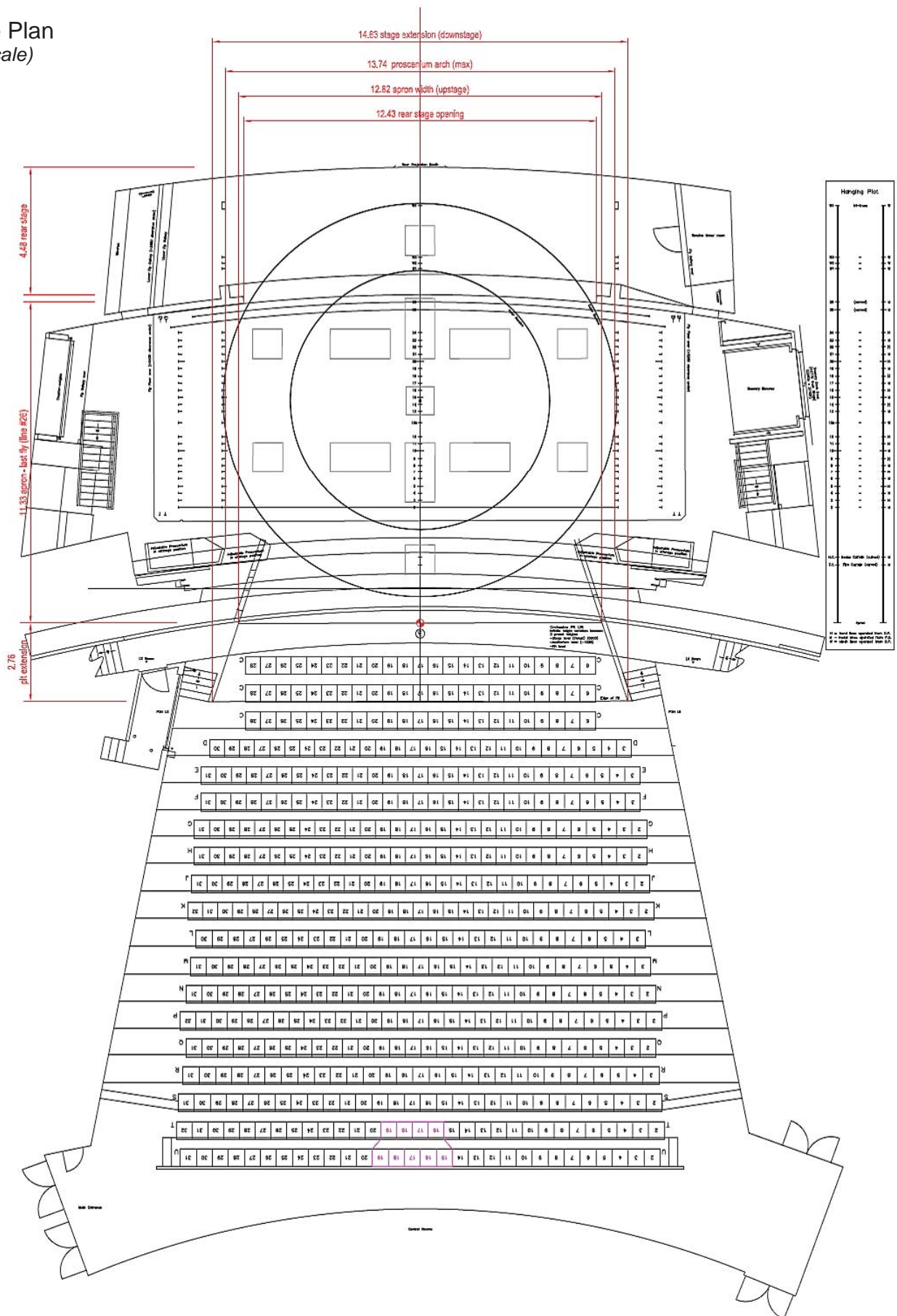
CAD plans to scale can be requested through Event Operations, please email techspec@sydneyoperahouse.com or through your Production Manager.

Michael Cera and Kieran Culkin in This is Our Youth, 2012



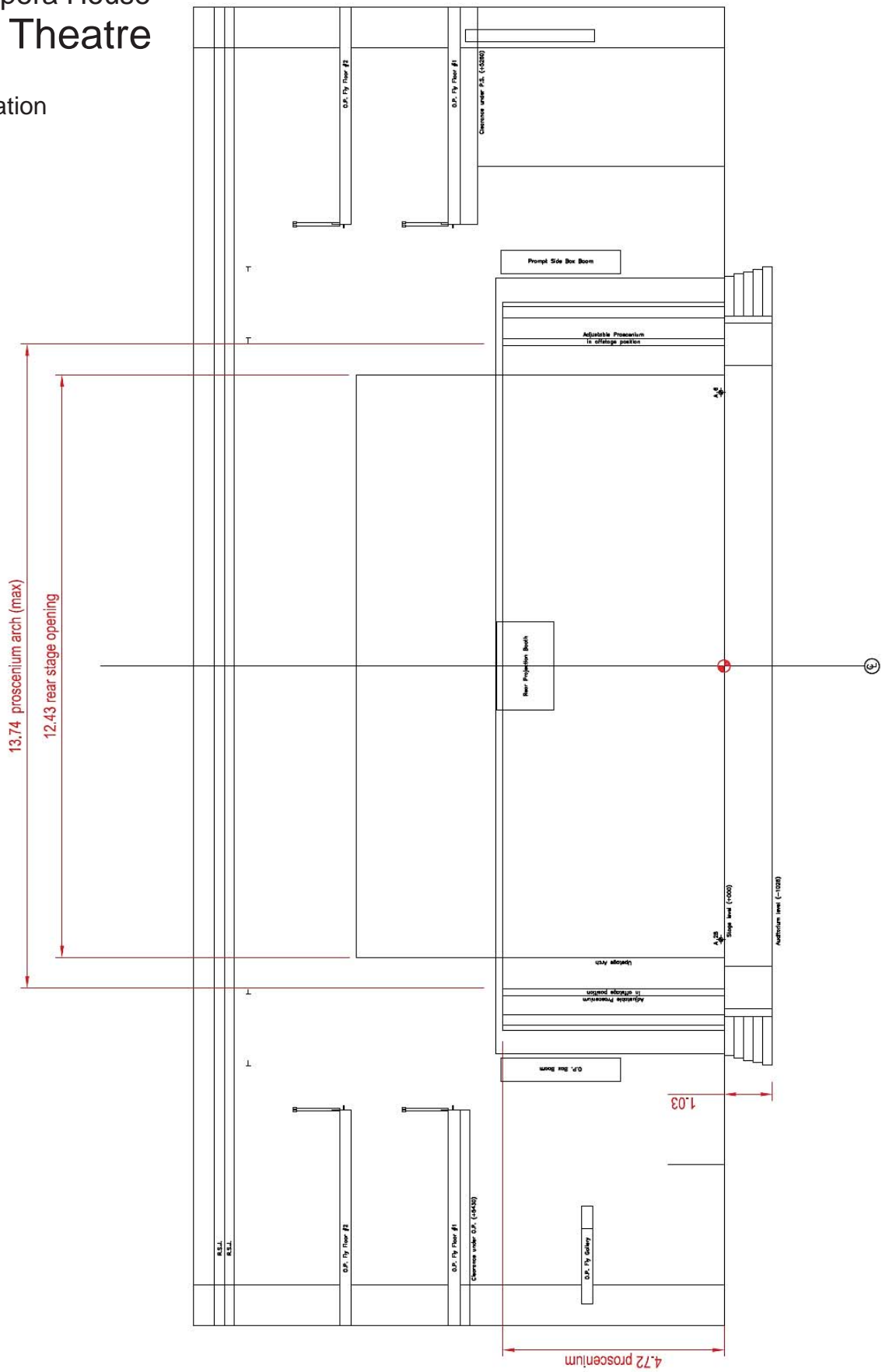
Sydney Opera House Drama Theatre

Theatre Plan (not to scale)



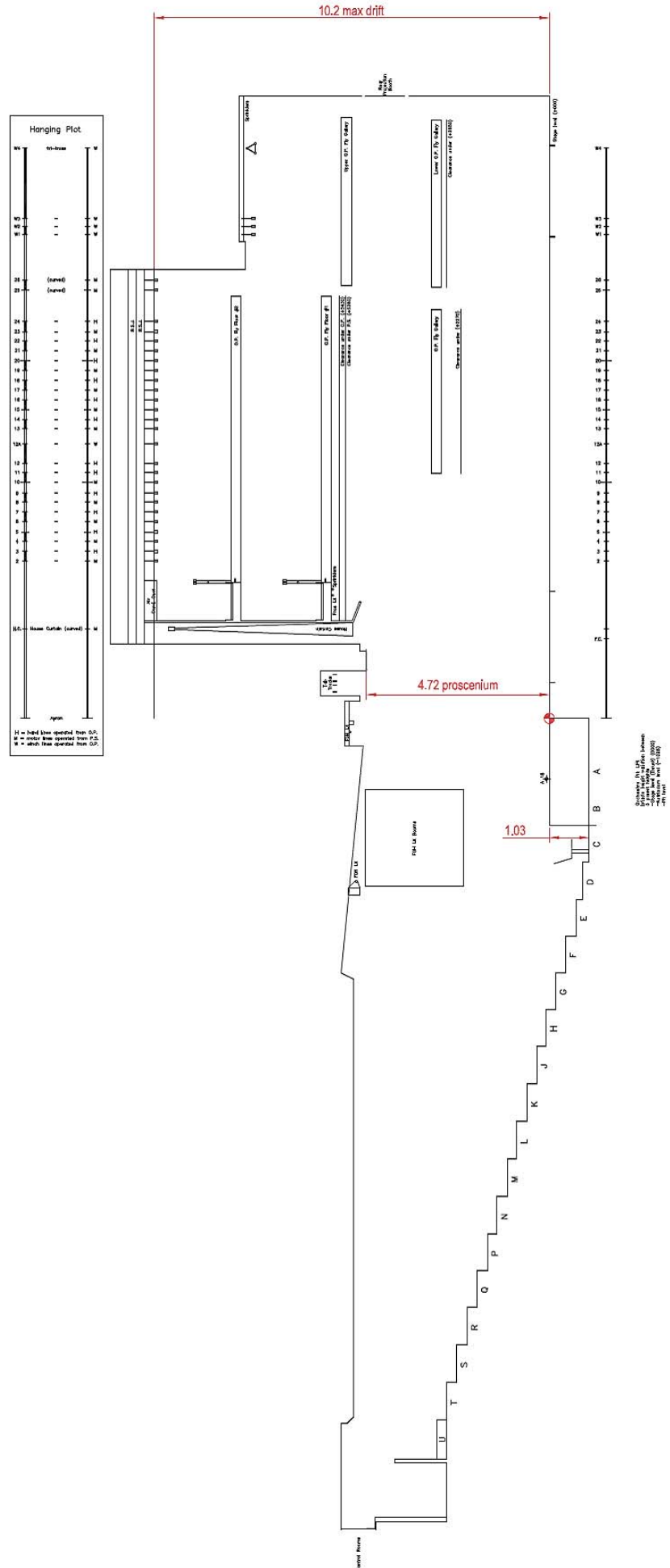
Sydney Opera House Drama Theatre

Stage Elevation
(not to scale)



Sydney Opera House Drama Theatre

Section at Centre Line (not to scale)



Staging

Stage Machinery

The stage machinery and flying system in the Drama Theatre is complex and may only be operated by authorised Opera House staff. At the commencement of each long term hire the grid will be totally clear. It must be cleared again at the end of each hire period. If your event is scheduled during another producer's long term hire, there may be limitations on the availability of certain lines or lighting positions. Our Production Manager will discuss specific details with you during pre-production.

Revolve

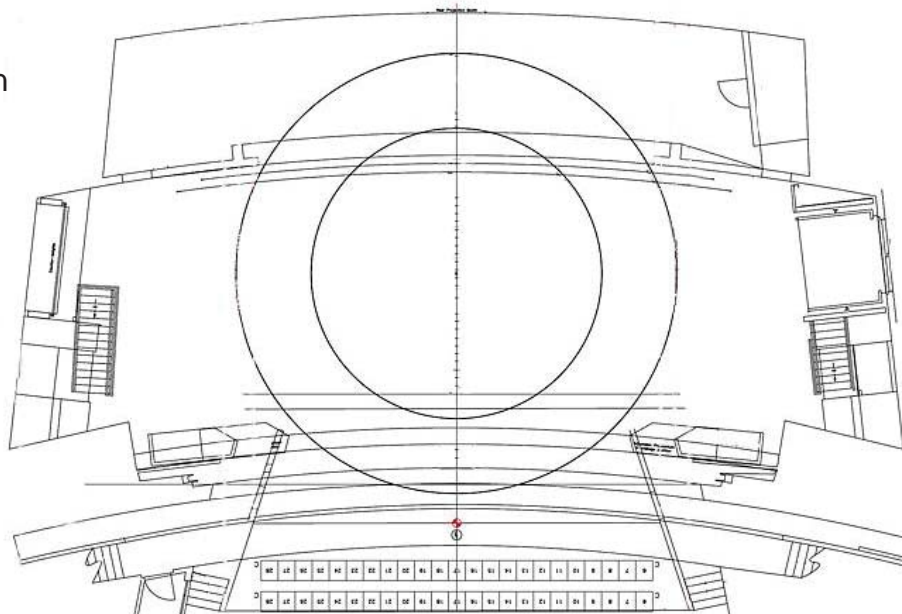
The revolve is comprised of 2 mechanical units – a disc and ring, which may be operated independently or locked together as one unit. As separate units, they may be operated in the same or opposite directions, at the same or different speed.

The maximum speed is 600mm/sec for either unit, or both machines coupled together. This speed is measured at the outer edge of the disc and the inner edge of the ring. Minimum times for one full rotation will depend on the scenery load, as this affects maximum acceleration and deceleration speeds.

It will be necessary to allocate time in your production schedule for the revolve to be tested and serviced before each production, where it is required.

Radius of inner revolve (disc)	4.5m
Radius of outer revolve (ring)	6.93m
Payload of inner revolve	10 tonnes <i>in motion</i>
Payload of outer revolve	10 tonnes <i>in motion</i>

Revolve Plan
(not to scale)



Traps

There are seven stage traps across the revolve area, and another trap downstage centre. Actor's carriages are not supplied, and you will need to bring these as part of your stage set if required. Use of the traps & any carriages or stage machinery you may bring into the theatre requires a detailed and targeted risk assessment, in line with current legislation. Your Production Manager can assist you in preparing this during pre-production.

Access to the traps is via a 1.78m wide crossover tunnel, which extends under the stage from Prompt Side (Stage Left) to Opposite Prompt (Stage Right), and branches downstage to the orchestra pit.

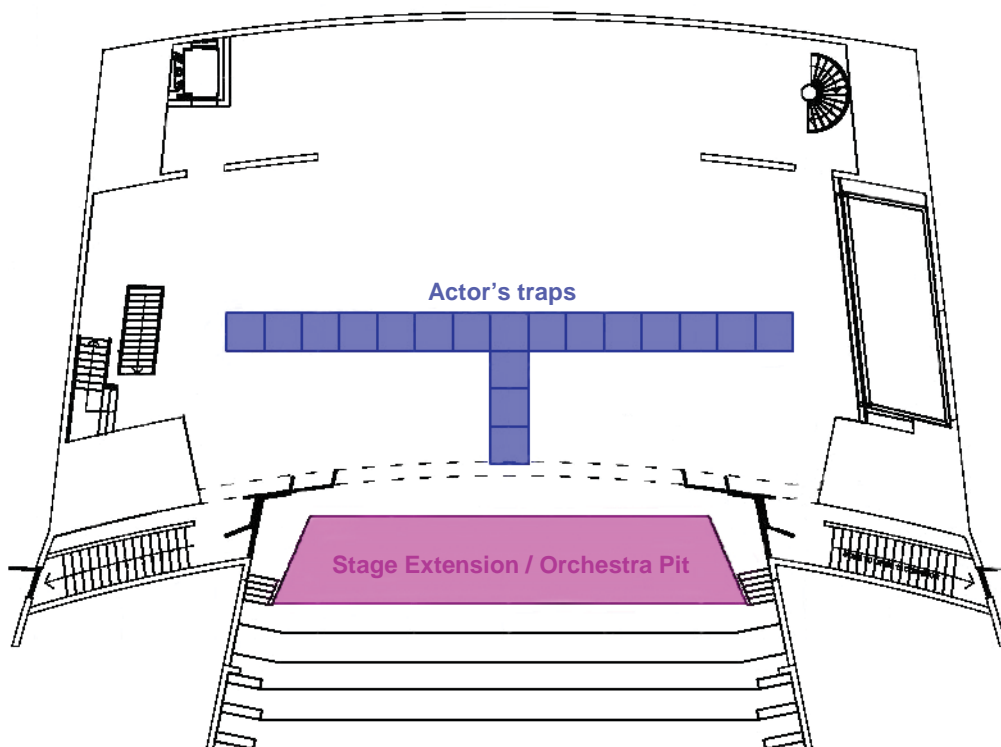
It is not possible to use stage traps and the revolve in the same scene. It is not recommended that they be used in the same production.

Stage Extension or Orchestra Pit

Three separate platforms can be moved as one or as individual units. Movement is by means of self-locking screw jacks that can be locked at any position between stage level (+1.00m) as a stage extension and storage level (-1.20m) as an orchestra pit. At 0m, which is the default setting for the theatre, the platforms form part of the auditorium floor on which rows A and B sit. The platforms are covered in dark blue carpeted floor panels to match the auditorium floor. These can be removed by arrangement.

The use of the platforms in either the stage extension position, or the orchestra pit position, requires the removal of rows A, B and C from the stalls. These seats must be removed from sale at the Box Office, and so this decision should be made before tickets go on sale.

Downstage width	14.60m <i>total across 3 platforms</i>
Upstage width	12.80m <i>total across 3 platforms</i>
Depth	2.75m
Load capacity	500 kg/m ² <i>each</i>



Flying System

The Drama Theatre has a combination of electric winch sets and manual double-purchase counterweight sets. The electric sets are operated by the State Automation *State Vi* flying system, which also operates the pin spot winches, the revolves and the wind machine. The stage extension / orchestra pit and the scenery hoist are operated from separate control panels. There are limitations in the height of pieces to be flown due to the low stage drift.

If your production requires any temporary or specialised rigging, such as the use of pin spots, or flying performers, an application for installing temporary rigging must be completed. Please discuss your needs with us as early as possible so that your Production Manager can assist with these arrangements.

Height of fly tower from stage floor	10.50m
Main stage drift	10.10m
Rear stage drift	8.00m
Height under 1 st fly gallery	5.50m
Width between fly galleries	18.80m

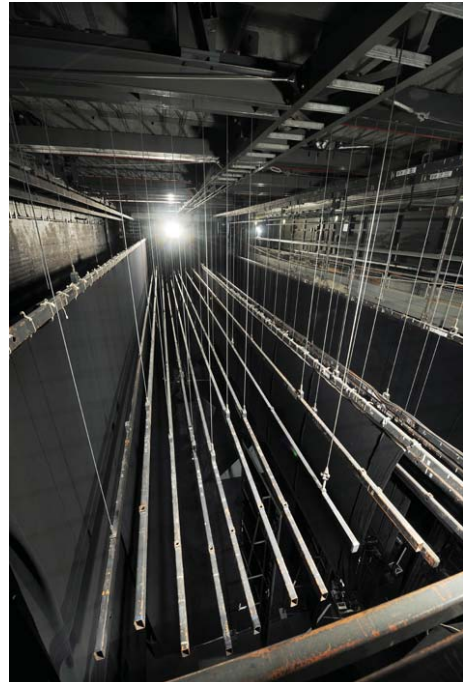
Head Battens

All head battens are straight steel, 17m long. A 1.5m length can be removed from each end of Lines 2-24. The batten profile is rectangular in section, measuring 100mm x 50mm. Lines 25 and 26 have a parabolic curve and are 17.6m long. A tri-truss is permanently rigged upstage of line R3, which may be used for lighting, upstage backcloths and masking.

Spacing

The line spacing is not uniform (check critical measurements on site):

- Lines 2-12 are at 200mm centres
- Between 12 and 12A the spacing is 500mm (12A is not suitable for fly cues)
- Between 12A and 13 the spacing is 400mm
- Lines 13-24 are at 250mm centres
- Between 24 and 25 the spacing at the ends is 250mm and the spacing at centre is 800mm (caused by the parabolic curve of bars 25 and 26)
- Between R1, R2 and R3 the spacing is 200mm (winch up bars, not suitable for fly cues)



Control

- The 13 power operated lines are 2, 4, 6, 8, 10, 13, 15, 17, 19, 21, 23, 25, and 26, plus two power operated panorama bars on each side of the stage, orientated upstage / downstage
- The 12 manual rope-operated double-purchase counterweight lines are 3, 5, 7, 9, 11, 12, 14, 16, 18, 20, 22, and 24
- Up to 10 power operated portable pin-spot winches can be rigged on one of the top galleries, with the line run along a head batten secured at the top dead (that fly bar will be out of commission if a pin-spot line is rigged on it)
- In the rear stage area, there is one hand-winch counterweight line – Line 12A and three manually winched rear lines - R1, R2, and R3

Speed and Loading

- All power operated lines are capable of varying speeds up to 1100mm/sec and have a maximum load capacity of 350kg each
- The pin spot lines have variable speeds up to 400mm/s and can carry a load of up to 100kg each
- The counterweight operated lines have a maximum load capacity of 250kg each
- The three rear lines are manually winched, with a maximum load capacity of 500kg each

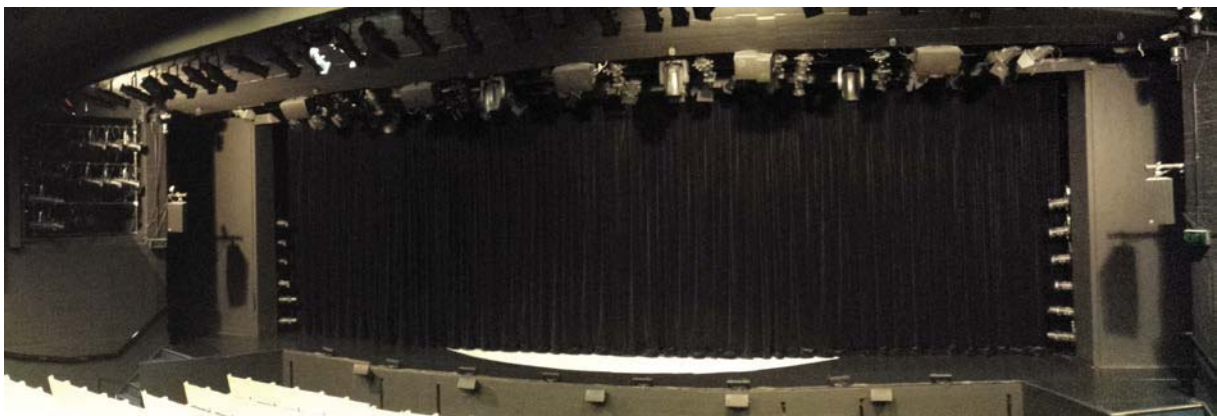
Upstage Truss and Rigging Points

The most upstage rigging position in the Drama Theatre is a 17m run of Global A34 box truss that is suspended from 3 chain motors, located 2 metres upstage of the R3 winch line. The truss has a 500kg WLL of evenly distributed load. The truss has a top trim of 7100mm to its bottom cord and a centre- to-centre measurement of 300mm. It is suspended from the centre and outboard positions on a set of 5 collard eyebolts fixed to the ceiling of the Drama Theatre. Each eyebolt has a 250kg WLL.

House Curtain

The black velour house curtain hangs inside the proscenium on a slight parabolic curve. The flown curtain is operated from various remote positions by the State Automation flying system. The speed is variable up to 1100mm/s.

The House Curtain is an inherent component of the venue. Any production that wishes to move the House Curtain from its natural position must allow for this in the production schedule, and submit a hanging plot that provides an alternate powered line for the curtain to be stored within the Drama Theatre grid.



Wind Machine

There is an electrically operated wind machine on the top gallery on Opposite Prompt (Stage Right). The machine is operated by the State Automation system.

Staging Equipment

A range of equipment is available, including a full set of black wool masking, tab tracks, gauzes, white fill backcloth and Tarkett vinyl dance floor.

Adjustable Megadeck rostra and orchestral furniture can be supplied if required. The rostra have a non-slip, timber top measuring 1m x 2m. The minimum height is 200mm, then adjustable in 200mm increments from 400mm to 1000mm. The load capacity per rostrum is 500kg/m².

Please discuss your needs with your Production Manager.

Sydney Theatre Company, Noises Off, 2014



Keyboard Instruments

Pianos

There is a choice of Steinway 9' D series concert grand pianos, Yamaha CFX 9' concert grand piano, Yamaha baby grands and Yamaha upright pianos (subject to availability). Our production staff will normally select the most suitable piano for your event. However, provided time is set aside in your production schedule, it is possible for your pianist to play and select from the available options. Please advise your Account Manager if you require a piano selection session at the time of confirming your production schedule. Venue hire fees do not include piano hire or tuning costs.

Pitch

Our pianos are tuned just above the A440 standard concert pitch to A441 (A = 441 Hz). Tunings for Opera House pianos are arranged through our contracted piano tuner. Only slight variations to the tuning pitch will be considered. Please discuss any special requirements with your Account Manager as early as possible so they may be discussed with our tuner.

Care

Mechanisms of instruments may not be tampered with (or "prepared") in any way without our express permission. Requests will be discussed with our piano tuner and any agreed preparation will be done by our tuner. No food, liquid or heavy props are to be placed on the instruments.

BalletBoyz, 2014



Stage Lighting

Control

The Drama Theatre stage lighting system is controlled by an ETC EOS computerised control system with an EOS Remote Processor Unit tracking backup system. Both systems have 8000 channels and use the ELC DMX over Ethernet system for DMX distribution.

An EOS Net3 Remote Video Interface is installed on stage in Prompt Corner (Stage Left) and an EOS Net3 Remote Video Interface is available for use with designer's monitors at the Production Desk in the auditorium.

Various remote control units are available for rigging and focussing on stage.

Data

The Opera House has an ELC DMX over Ethernet system. It utilises sACN to distribute an almost infinite number of DMX universes. In the Drama Theatre it appears in the Control Room, the Dimmer Room, in the stage area and in the auditorium. Some points have permanently installed Ethernet to DMX nodes, and extra nodes can be installed on request. External network devices must be approved by the Opera House prior to installation onto the network. Please discuss your needs with your Production Manager.

Power

All general and dimmed electrical power supplies are 240V AC @ 50 Hz.

Additional 3-phase supplies (415V AC) are available with Wilco pattern 5-pin connectors, or with a distribution board, by prior arrangement.

Dimmers

The 348 dimmers are Bytecraft IDS Ultra Quad dimmers rated at 5kW and fitted with 25A circuit breakers.

Dimmers are allocated as follows:

FOH patch panel	96 dimmers
Stage area patch panel	180 dimmers
Houselights	7 dimmers
Orchestra music stands	1 dimmer
Rehearsal and work lights	3 dimmers
Perches	24 dimmers
Stage floor	48 dimmers

Non-Dimmed Units

Special 5 kW rated switched units are available to supply "clean" power to the theatre. These are controlled by DMX from the Drama Theatre lighting control room.

Non-dimmed units are allocated as follows:

FOH patch panel	6 units, duplicated backstage
Stage area	12 units, including 6 duplicated from FOH

House Lights

The main house lights are custom warm white LED fixtures. There are incandescent lights over the aisles and rear crossover. The house lights can be controlled by the lighting desk or a manual system on a highest-takes-precedence basis.

Overhead Lighting Battens

All scenery battens are capable of being used as lighting bars. 2m long sections of pre-wired bars are available and can be clamped to the head batten. Multicore cables run off to the Opposite Prompt (Stage Right) side gallery to connect with dimmers via the stage area patch panel.

Refer to the section on Stage Machinery for details on battens and load capacities.

Lighting Positions

Front of House

FOH Audience Bar	over row D (requires the installation of a mobile scaffold tower to access the position for rigging and focusing)
FOH Orchestra Bar	over forestage
FOH Niches	each side FOH
FOH Booms	each side in forestage entrances

Stage Area

Portal Bridge	fixed double-deck lighting bridge with spot bar fixed underneath the crossover has a handrail suitable for rigging pipe and lanterns circuits here connect with dimmers at the stage area patch panel
Stage Galleries	double galleries at the same level as the bridges
Perch lighting positions	suitable for onstage booms and followspots

Lighting Equipment

A comprehensive range of luminaires is allocated to the venue. This includes 1.2kW & 2kW Fresnels, 1kW PC'S, 650w & 750w Profiles, and Cyc lighting. Suppliers include Strand Lighting, ETC & Selecon. As this list is regularly modified and updated please contact your Production Manager for the latest version.

Followspots

Followspots can be installed in the Interpreters' Booths at the rear of the auditorium, or in the niches each side of the auditorium closer to the stage.

Music Stand Lights

24V LED sconce lights are available to fit music stands. A dedicated dimmer is duplicated FOH and backstage for use with music stands. This dimmer can be controlled by the lighting desk or by a manual fader on a highest-takes-precedence basis.

Rehearsal and Work Lights

The lamps connected to the 3 rehearsal and work light dimmers can also be controlled from push buttons located in the control room and backstage. This facility is used when the lighting control room is unattended.

Effects

Colour

A full range of LEE Filters are available.

Smoke and fog machines

A number of haze machines are available, subject to requirements in other theatres. Any smoke / haze, dry ice machines that are brought into the Opera House must be approved prior to use. A 'material safety data sheet' will be required for any machine that has not been previously approved for use within the Opera House. The Production Manager must be consulted whenever any smoke, fog or haze effects are used. The Stage Manager must also be informed prior to each use of an effect, as arrangements must be made to isolate the automatic fire alarm system.

Strobes

For audience comfort and safety, the use of strobes may require warning notices to be displayed in the foyer. Please discuss this with your Production Manager.

Pyrotechnics, naked flame and lasers

Pyrotechnics, naked flames and lasers may only be used with prior written approval. Your Production Manager can assist with submitting an application.

Sound & Audio Visual

Acoustics

The speaker system gives good coverage throughout the theatre, being able to deliver anything from subtle and natural sounding reinforcement to high SPL across the audio spectrum.

The width of the stage dictates that a simple L&R arrangement is not a realistic option – as the imaging shifts markedly with peripheral seating positions.

This is compensated by using 5x speakers across the orchestra bar (roughly in line with the bigger L&R side speakers), with another 5x delay speakers as reinforcement.

Supplementing this Front of House arrangement are three pairs of side Surround speakers and two pairs of Back Of House speakers. These can collectively be used as a surround sound system for a 5.1 playback.

Speakers

The sound system consists of:

Main Left - Right FOH

- 2 x D&B Audiotechnik Q7

Subs Left - Right

- 2 x D&B Audiotechnik J-INFRA

Orchestra Bar and Orchestra Delay Bar

- 10 x D&B Audiotechnik E12

Front Fill

- 5 x D&B Audiotechnik E6

Surrounds

- 12 x D&B Audiotechnik E8

Mixing Console

Midas Pro9 Console

The Drama Theatre Control Room has a Midas Pro9 audio console. It can be repositioned in the rear of auditorium, by prior arrangement, and with the removal of 9 seats in the centre of rows T and U.

Control

Stagetec Nexus

The Drama Theatre PA is driven by a new Nexus distribution and control network. This is a state-of-the-art system with references in a lot of the major theatres and concert halls in Europe. The system gives us a 256 x 256 matrix, with every input accessible from every output. This also includes signal processing.

Apple Mac Pro

1 x 3.2GHz Quad-Core Intel Xeon, 8GB RAM, 2 x ATI Radeon HD5770 video cards running and Qlab Pro Bundle. The Apple Mac Pro is connected to the Euphonix via a MAD1 56ch in/out card and is capable of running two independent vision screens plus the work surface monitor. Apple Remote Desktop is installed on this computer so that another computer can control it from the production desk.

Additional Equipment

The following equipment belongs to a house-wide inventory and can be allocated to your production, subject to the demands of the other theatres. Please discuss your needs with your Production Manager.

Mixing Consoles

- Midas Pro2
- Midas Pro1
- Yamaha PM5D RH V2

Additional Outboard

- Lexicon PCM 91
- Lexicon PCM 80
- Lexicon MPX1
- DBX 160SL Stereo compressors
- DBX 1066 Stereo compressors
- Drawmer 501 Stereo gates
- Klark Teknik DN360 GEQ
- Yamaha SPX990
- TC Electronics M5000
- TC Electronics M3000
- TC Electronics M2000
- TC Electronics D2

Stage Monitors

- D&B Audiotechnik M4
- D&B Audiotechnik E15X SUB
- EAW SM200ih
- Martin WTM0.5

Microphone Selection

The Opera House has a wide range of microphones from brands such as Sennheiser, Shure, AKG, DPA, Beyer and Neumann. Please discuss your desired microphones with your Production Manager.

Radio Microphones

Shure Axient Wireless System

- Shure AXT 100 Belt packs
- Shure AXT 200 Handhelds with Neumann KK105 head
- DPA 4066 Head mic
- DPA 4061 Miniature Lapel mic

Sennheiser In-Ear-Monitors

- Stereo Sennheiser EK2000 in-ear-monitors
- Stereo channels hard-wired Shure P6HW in-ear-monitors
- Shure SE425 Earpieces

Additional Speakers

- D&B Audiotechnik Q10
- D&B Audiotechnik JSUB
- D&B Audiotechnik E12
- D&B Audiotechnik E8
- D&B Audiotechnik E6
- D&B Audiotechnik E15X SUB
- Fostex 6301BX Powered Monitor

Additional Playback

- MacBook Pro running QLab
- SFX Laptop

Other

- 240V to 110V drop down transformers

Sun, 2014



Video Replay

The Sound & Audio Visual department has a range of playback options and switchers. Opera House vision equipment is shared between all theatres. Please consult your Production Manager as early as possible in regard to booking this equipment.

Switchers

- Barco Screen Pro II
- Folsom Image Pro HD
- Blackmagic Design ATEM 2 M/E Production Studio 4K

Vision Playback

- Doremi NUGGET Pro
- MacBook Pro
- DVD – Pioneer DVD-V8000

Projection

- Barco HDX14 projector
- Stumpfl 7.3m x 4.1m (24ft x 13.5ft) 16:9 ratio fastfold screen
- Stumpfl 6.1m x 3.4m (20ft x 11.3ft) 16:9 ratio fastfold screen
- Stumpfl 2.4m x 1.8m (8ft x 6ft) 4:3 ratio fastfold screen

Video Monitors

There is a long view and low-light camera for backstage video monitoring, and conductor view or short view monitors can be arranged. Samsung 75" and Samsung 55" display monitors can be supplied, or other equipment hired in as required, for presentations to the audience or monitoring back to the stage. Please discuss your needs with your Production Manager.



Recording & Broadcast

Recording, broadcast or photography of an event may require a separate Recording Agreement to be made with the Opera House and may incur a recording fee. A Recording / Broadcast Allowance (RBA) may also be payable to technical staff working on the event. Please discuss recording plans as early as possible. Written permission must be sought before recording an event for any purpose.

Commercial Audio Recording

A commercial recording can be made from the Drama Theatre or in the Sydney Opera House Recording Studio via an advanced optical fibre based network. Multi-track digital recording is available on Pyramix Genex or Pro Tools.

The Recording Studio is located 2 levels below the Concert Hall and is equipped with a Euphonix System 5 Digital Console.

A Recording Agreement must be negotiated with the House and a recording fee is usually payable.

In addition, a Recording / Broadcast Allowance (RBA) is usually payable to technical crew working on the event.

Archival audio recording (where no part of the recording is to be used for commercial purposes) is available as a digital file.



Video Recording

A 'Commercial Recording' is any recording made for the purpose of sale, broadcast, exhibition or any activity resulting in financial gain for the owner of the recording. A Recording Agreement must be negotiated with the House and a recording fee is usually payable. In addition a Recording / Broadcast Allowance (RBA) is usually payable to technical crew working on the event.

An 'Archival Recording' is a recording made for the sole purpose of documenting technical and performance aspects of a production. Archival Recordings are exclusively for the use of creative and management employees directly associated with a Company, Artist or the House. Archival Recordings are not intended to create a direct commercial benefit for the owner of the recording, and are not to be used for broadcast, exhibition, distribution or sale in any form. For all Archival Recordings, application should be made to the House for waiver of any recording fee or RBA payments.

The standard archival recording format is digital file via download or hard drive. Broadcast standard recordings can be arranged. Any special requirements should be discussed with your Production Manager.



Sydney Opera House Recording Studio

Photo: Geoff Ambler, courtesy of Scott Carver Architects

Outside Broadcast

There are two outside broadcast interconnect points at the northern end of Central Passage: OB East and OB West. Vehicles up to 4.2m high and 8m long can normally be accommodated via the north door.

Both OB points are equipped with three 40A 3-phase Wilco outlets and six single-phase 10A GPOs, with a total available power supply of 100A across all outlets. Both OB points contain video, audio, and camera (triaux) patch panels linking them to each other, to the Concert Hall and the Joan Sutherland Theatre, and further afield via the Central Control Room (CCR).

Outside links can also be arranged using Telstra's Digital Video Network (DVN) or the AARNet IP network. Presenters are encouraged to discuss their requirements with our Technical Support department before committing to an OB design.

Communications system integration between OB trucks and the Concert Hall stage intercoms and two-way radios is also possible. Please consult your Production Manager while scoping your broadcast.

Signal Transport

A comprehensive optical fibre network interconnects all venues, the OB positions, and the Recording Studio. This allows broadcast-quality audio and video to be transported using Riedel MediorNet, network bridges from Klark Teknik, or the Stagetec Nexus network. The Opera House also broadcasts using video conferencing and web streaming equipment.

Communications

Stage Manager's Desk

A state-of-the-art Stagetec Stage Manager's Desk (SMD) is located in Prompt Corner (Stage Left). The desk is fully programmable, includes four broadcast-quality show relay screens, two integrated Riedel Artist communications panels and dynamically assignable tactile LED buttons.

The SMD controls audio and video relay to both front-of-house and back-of-house spaces, and can be used to broadcast live or pre-recorded announcements to backstage or foyer spaces. There is an automatic message stacking facility to prevent conflict with other venues when announcements are simultaneously sent from other theatres to common areas of the building, such as the Green Room. Features include dynamic allocation of paging, program audio relay, cue lights, and foyer bells. Front-of-house functions are generally managed by the theatre manager from a touch screen in the foyer, however these functions are also accessible at the SMD.

Show Relay

Long View

A colour image of the Drama Theatre stage is distributed to the Stage Manager's Desk (SMD), lighting control, sound control, Green Room, some dressing rooms, and venue foyers. The Stage Manager has pan, tilt, and zoom control of the long view camera. A low-light camera is also permanently installed and sends vision to the SMD.

Longview and low-light feeds can be sent to most parts of the building by arrangement and can be sent to the Recording Studio for archival recordings.

Headset Communications

The Opera House provides a Riedel Artist wired intercom system that operates across all venues. Permanent talkback stations are available in lighting and sound control locations. Wired headset tie lines are installed at all regular operating positions. Additional headsets and desktop stations can be supplied. Please consult your Production Manager for details.

A Riedel Acrobat CC-120 wireless beltpack system is dedicated to the Drama Theatre. This integrates seamlessly with the Riedel Artist wired intercom system. 12 WB-2 wireless beltpacks are reserved for the venue, with additional units available by arrangement with your Production Manager.

Backstage Facilities

Dressing Rooms

The Drama Theatre has 10 dressing rooms. Five rooms, located one level above the stage, accommodate up to six artists each and include ensuite bathrooms.

The other five dressing rooms are located on a mezzanine two levels above the stage and are suitable for 2 to 4 artists each. The mezzanine level has separate shower and toilet facilities for ladies and gentlemen, which are shared by artists using the five dressing rooms.

Lockers in the dressing rooms are fitted with a staple and hasp. In order to lock a locker, a performer or presenter should bring their own padlocks. Lockers must be cleared at the conclusion of the hiring period, or at the end of each day if other hirers will be using the Drama Theatre between your sessions. Your Stage Manager will inform you if this is required.

Rehearsal Rooms

There is no rehearsal space dedicated to the Drama Theatre. Rehearsal space is very limited across the Opera House. Requests should be discussed as early as possible to determine availability.

Wardrobe, Laundry and Kitchen Facilities

The Drama Theatre is equipped with a kitchen/office space and laundry facilities including a dishwasher, hot water urn, filtered water tap, fridge/freezer, washing machine, tumble dryer and stand-up dryer. Wardrobe racks are available on request. Please discuss any additional requirements with your Production Manager.

Wi-Fi

Complimentary Wi-Fi is available back-of-house in the Green Room and the Drama Theatre dressing rooms, and front-of-house in the Western Foyer and Lower Concourse. Log in as **SOH_Guest**.

Staff & Artists

Sydney Opera House Staff

Our staff are covered by the Sydney Opera House Enterprise Agreement (2013), and remain under the direction of Sydney Opera House management at all times.

The Agreement is designed to ensure a safe working environment and staff wellbeing. For this reason, certain restrictions apply to hours of work, the allocation of specially qualified staff to specific tasks, minimum crew numbers on certain tasks, and mandatory rest breaks.

Sydney Opera House management reserves the right for our staff to access our venues at any time for any reasonable purpose.

In order to ensure safety, the correct operation of specialist equipment and/or the protection of the Opera House from damage, certain tasks may only be performed by Opera House staff using our equipment. The Account Manager and/or Production Manager assigned to your event will advise you of the staffing arrangements suitable to your event.

Green Room

The Green Room is located two levels above the Drama Theatre stage, one level above the dressing rooms. Offering a Harbour view to the north, the Green Room includes a cafeteria, a licensed bar, complimentary Wi-Fi, a lounge area and a small games area with a pool table. The Green Room is common to all theatres in the Opera House and is for the exclusive use of artists, crew, staff and their guests. It is intended to be a private environment for performers and crew to rest, enjoy a meal, prepare and socialise before and after the performance.

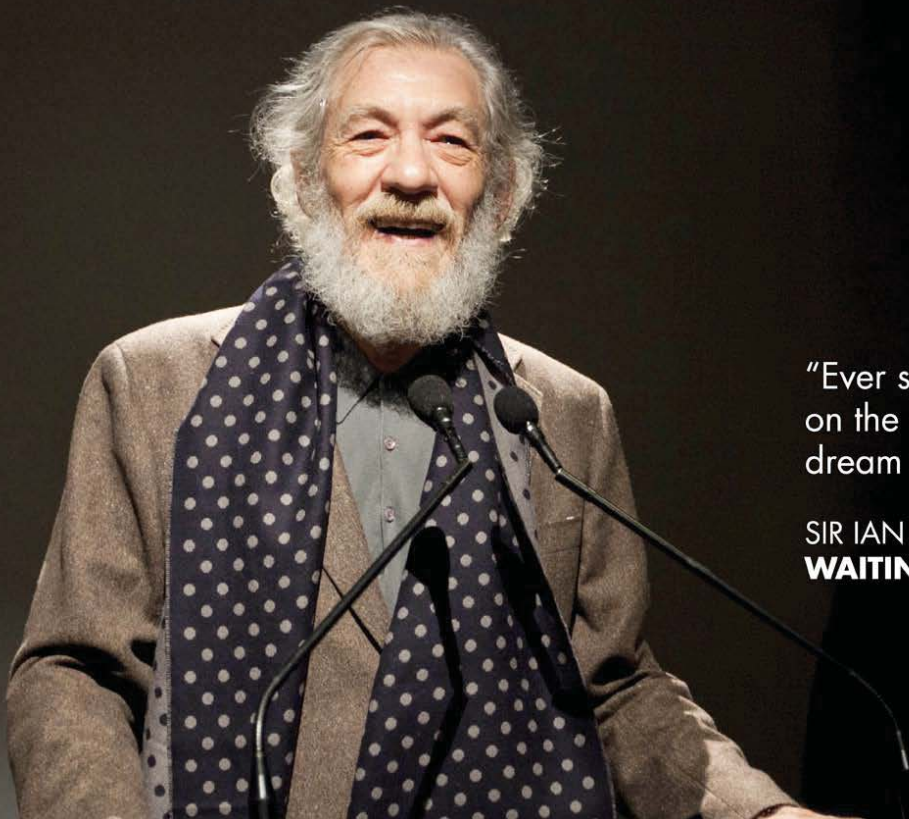
Any visitors must be signed in at Stage Door and escorted to the Green Room by the host artist or staff member and remain with their host at all times. Access to the Green Room is not available to the general public or patrons. For the privacy of artists and staff, photography is not permitted in the area.

Access and Other Conditions

- All Opera House staff, members of performing companies, other authorised personnel and all back-of-house visitors must enter or exit the building via the Stage Door, located on the ground floor level off the Vehicle Concourse, at the southern end of Central Passage
- Identification cards must be worn at all times, except by artists when on stage
- Access will only be granted to contractors and production staff after attending an Opera House safety induction



- All visitors must be signed in at the Stage Door, be issued with and wear a Visitor's pass and be accompanied by their host at all times. It is the responsibility of the host to escort the visitor to Stage Door when leaving and return the Visitor's pass
- Smoking is not permitted in any of the interior areas, or any of the designated exterior areas of the Opera House
- Smoking, matches, pyrotechnics and other naked flames are prohibited on stage unless written permission is granted – please discuss your needs with your Production Manager
- Artists and management should keep their particular areas clean, tidy and secure
- Access for visiting staff and artists is restricted to only those areas connected to the hired venue, common back-of-house areas and public spaces
- The use of Central Passage and the Green Room is common to all theatres
- The Green Room is for the exclusive use of artists, presenters, Opera House management and staff and their visitors. Members of the public or media are not permitted to use these facilities
- No food is to be prepared in dressing rooms, locker rooms or other back-of-house areas
- No crockery or eating utensils may be left in any area other than the Green Room
- No filming, recording or photography, is allowed on-site unless formal permission has been obtained from the Opera House
- Pets, including animals to appear on stage are not permitted in the building without special permission in accordance with the relevant regulations
- Artists, staff and management must comply with the regulations in the Sydney Opera House Trust By-Law (2010) made under the Sydney Opera House Trust Act 1961



"Ever since this great building docked on the harbour it has been every artist's dream to perform here."

SIR IAN MCKELLEN
WAITING FOR GODOT