

# Operation & Maintenance Manual

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## Roller Banner

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Project Code : 4334

**J&C Joel** ™

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# 1. Document Control

## 1.1. Identification

Client: Laing O'Rourke

Project Name: Oxford Humanities

J&C Joel Project Reference: 4334

Document Name : Roller Banner - Operation & Maintenance Manual

Document Reference : 4334-03-OM-0001

## 1.2. Document History

Rev	Date	Description	Author	Checked
A	13/08/2025	First Issue	JC	SS
B	28/10/2025	Updated as per consultant comments	JC	SS

Document based upon JCJ-RB-OM-0001-A - Roller Banner O&M.

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Email: [InternationalProjects@jcjoel.com](mailto:InternationalProjects@jcjoel.com)

## 1.4. Warranty

Limited warranty is valid for twelve (12) months from the date of practical completion and handover to the client or clients representative (whichever occurs first.)

1. The warranty shall be limited to the free supply of replacement materials and workmanship for the faulty materials or workmanship and shall not cover other damage or defects how so ever caused.
2. It shall be the client's responsibility to notify J&C Joel Ltd for any defects in the machinery and the warranty shall be void if repairs or other works were carried out by third parties.
3. This warranty shall only apply to the areas where J&C Joel Ltd have been applied and completed the works.
4. The supply of replacement materials and workmanship under this warranty shall in no event exceed the quantity specified and supplied and shall only be applied to proven defective areas by checking and tests conducted under the control of the owner, the consultant or its representative and J&C Joel Ltd or its representatives.
5. This warrantee shall be interpreted according to the laws of the United Kingdom.

## 1.5. Copyright

This document contains material that is proprietary to J&C Joel Ltd. This information is provided on the understanding that it is used solely for the purpose of information, installing and maintaining the equipment described, and that it will not be revealed to third parties or otherwise disposed of without the prior written consent of J&C Joel Ltd.

Copyright for all design, software, electronic circuits, drawings and the text of this manual remains with J&C Joel Ltd. This publication or parts thereof may not be reproduced in any form, by any method, for any purpose. Further copies may be obtained from J&C Joel Ltd. on request.

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## 2. How To Use This Manual

Read the instructions carefully before use and follow them accordingly. Keep this document safe for future reference. Non-observance of these instructions may lead to hazardous situations and / or malfunctions or to failure of the equipment, resulting in damage or injury.

The user is advised not to operate or undertake any work on the systems without first reading and understanding the contents of this manual.

All maintenance should be carried out strictly in accordance with the instructions contained in this and the manufacturer's reference manuals attached and undertaken by suitably trained and qualified personnel.

This manual describes the J&C Joel Roller Banner mechanisms, this includes the Cadenza, Legato and Duet type banners. It sets out the different banner types, outlines maintenance procedures, and gives a technical description of the various components. Servicing of main fault conditions is not covered; in such cases please contact J&C Joel immediately.

This document is intended to provide the user with sufficient information to allow maintenance of the equipment described. It is intended to clearly instruct the user in the follow areas:

- System philosophy and overview
- Description of systems
- Maintenance of systems
- Equipment lists
- Supplier's documentation

If in doubt about anything contained in this manual please contact the Projects Department at J&C Joel Ltd. T: +44 (0)1422 833835 – E: [Projects@jcjoel.com](mailto:Projects@jcjoel.com)

## 3. Health and Safety

### 3.1. General

The machinery is intended for use in theatres and places of public entertainment locations and must be operated strictly for its designated purpose. All applicable local laws, regulations, and machinery directives concerning operation and accident prevention must be adhered to without exception. Routine inspections and maintenance are crucial for ensuring the proper functioning of the equipment. Operations, inspections, and maintenance must only be carried out by fully trained and competent personnel.

Personnel must be thoroughly familiar with the equipment, including its operating and maintenance instructions. The client's staff are responsible for ensuring safe operation and must promptly address any defects or damages. Minor issues may be rectified by the Clients operating company; otherwise, contact J&C Joel Ltd to ensure safety.

In cases of uncertainty regarding the equipment's condition, the operation should only be done under the guidance of a trained superior. Remove or secure loads before inspecting or maintaining movable installations.

It is the responsibility of the supervisor to ensure adherence to all applicable safety laws and deactivate maintenance switches when working on drive units.

Authorized personnel must regularly inspect, maintain, and lubricate parts. Always correctly install safety devices such as protective covers. Utilize equipment and installations solely for their intended purposes and comply with all operating instructions and technical specifications.

It is the responsibility of the supervisor of any operator or technician working on live equipment to ensure that the operator or technician is suitably trained and qualified to be allowed to work on equipment containing voltages up to 400 VAC.

The electrical equipment must be connected to a suitable power supply, meeting technical specifications and tolerances. The client must provide proper equipotential bonding.

- Nominal Voltage = 230 V AC (in accordance with EN 60204-1).
- Nominal frequency: = 50 Hz, (in accordance with EN 60204-1).
- Control voltage: Consult Control System Operation Manual

The supervisor must ensure that a current copy of the local health and safety regulations is available within the venue. The supervisor must ensure that all personnel who will be required to work on the equipment and systems included in this manual, are fully aware of the health and safety regulations, and that they are issued with, and use, the required personal protection equipment, before carrying out any work on the equipment. They must also have the required tools and equipment as may be listed herein.

## 3.2. Electrical Maintenance Safety



**CAUTION**



In many racks, multiple supplies are present (i.e. mains supplies, clean supply, auto-transformer supply etc.) Each supply has a warning indicator on the front panel. Within the equipment racks and contactor racks there are exposed live terminals. **Ensure that all supplies are isolated and locked off before attempting to carry out any work.**

Once all supplies have been isolated a warning notice must be displayed at the isolation point to indicate that the downstream equipment is being worked on and re-energizing is prohibited.

Should it be necessary to work on live equipment it is essential that the person working is suitably trained and that work is carried out in compliance with the “Health and Safety at Work Act”.

By their very nature microprocessor systems are complicated and it is essential that any person attempting to service this equipment, as specialist knowledge is required to perform detailed fault finding of the systems, has obtained a suitable level of knowledge.

This manual consequently does not therefore attempt to provide tutorial on electronic circuits and microprocessor systems, it is assumed that the person or persons are fully competent in this field.

## 4. General Usage

The roller banners as indicated on the drawings have been strategically installed at various positions on the auditorium walls as were selected by the Theatre Acoustic Consultant during the design phase. These acoustic Roller Banners are utilized to adjust the acoustic properties of the performance space by modifying the reverberation times of the auditorium, tailored to the specific requirements of the presentation being staged. Please refer to the specific control system documentation for operational procedures pertaining to the Roller Banners.

Please note that the banner is designed to be used for set-up of a venue. The banner is not designed to be used during a performance.

No persons should be within the hazard zone of the banner when the banner is in motion.

The operator must have full view of all machines throughout their full range of motion whilst they are in operation.

The machine must be operated as intended and maintained in optimal technical condition. Compliance with regulations is essential to ensure the operational safety of the equipment.

Should a fault or issue be identified with the banner, it should not be further used until a full inspection by qualified personnel can be carried out, and the issue rectified.

### 4.1. Misuse

Any use other than that defined under "intended use" or which goes beyond that use is considered inappropriate use.

The banner is designed to operate with the supplied J&C Joel fabric only. Do not attempt to replace or fit alternative fabrics from other suppliers.

The banner is designed to **only** lift the supplied fabric and is designed to carry that load. Do not attempt to lift other loads with the machine.

The manufacturer is not liable for damages arising from use that is not as intended. This may cause hazardous situations and/or material damage and will render the warranty invalid.

### 4.2. Modification and Changes

Do not modify or change the equipment and/or the electrical installations.

This may cause hazardous situations and/or material damage and will render the warranty and any CE marking invalid.

### 4.3. Spare Parts

Using parts or adjuvants from other manufacturers can be risky. Only use original manufacturers approved parts.

The manufacturer is not liable for any damage caused by unapproved parts, which may create hazards and void the warranty and any CE marking.

## 4.4. Equipment Risks

When using the equipment risks and injuries may arise to:

- The life and limbs of the operator or third parties
- For the equipment itself,
- other property.

The basis for the safe handling and trouble-free operation of this equipment is the knowledge of safety and user instructions in this manual.

Always keep this manual with the equipment so it will be freely accessible to the operator and maintenance personnel.

In addition to the instructions, also ensure observance to the general and local safety and accident prevention regulations.

## 4.5. Residual Risks

The equipment and the electrical installations have been manufactured and installed according to the current certified safety regulations and standards.



**WARNING**



Operating theatre equipment involves inherent risks and hazards for all participants it is therefore essential to conduct a thorough risk assessment for each phase of the intended operation to identify all risks and hazards that must be mitigated through appropriate countermeasures to achieve an acceptable level of safety. Additionally, the sequence of events should be reviewed with all involved personnel to ensure preparedness.

Risks and hazards occurring during normal operation of the equipment are the responsibility of the Client's operating company. They must always comply with health and safety regulations.

## 4.6. Operational Crew

The Client's operating crew must ensure that only authorized personnel operate the equipment who are;

- Are familiar with the basic regulations on work safety and accident prevention
- Are trained in the operation of the equipment
- Have read and understood these operating and maintenance instructions
- Are 18 years old and over
- Are physically and mentally suitable
- Have been trained and instructed about the relevant work
- Carry out all the required work in a safety-conscious and reliable way

The requirements of BS EN 17206:2020 together with the EC Directive 2007/30/EC on the use of work equipment are to be always fully complied with.

## 4.7. Installation Personnel

Installation personnel should have experience in installation or dismantling of stage mechanical & electrical equipment. In addition, they need to have experience in commissioning, maintaining and troubleshooting of mechanical & electrical equipment for stages, trained in operating relevant control systems.

## 5. Standard Abbreviations

The following items are commonly referred to in the text in abbreviated form:

kg	-	Kilogram
N	-	Newton
kN	-	Kilo Newton's
Nm	-	Newton Meter
m	-	Metre
mm	-	Millimetre
/	-	Nominal length
min	-	Minute
sec	-	Second
m/sec	-	Metre per second
W	-	Watts
V	-	Volts
VAC	-	Volts Alternating Current
amp	-	Ampere
RPM	-	Revolutions per Minute
PCD	-	Pitch circle diameter
SWR	-	Steel wire rope
WLL	-	Working Load Limit
ELL	-	Entertainment Load Limit (same as WLL)
OD	-	Outside diameter
ID	-	Inner diameter
Ø	-	Diameter
Tonne	-	Tonne (metric)
PSU	-	Power Supply Unit
MCB	-	Miniature Circuit Breaker
PLC	-	Programmable logic controller

## 6. Roller Banner Details

### 6.1. List of Drawings

DRAWING NO.	TITLE
UOONHB-JCJ-CH-BM-DR-OT-030001	Concert Hall - Variable Acoustic Banner - Bottom Roller Plan
UOONHB-JCJ-CH-01-DR-OT-030002	Concert Hall - Variable Acoustic Banners - Mechanism Plan
UOONHB-JCJ-CH-ZZ-DR-OT-030003	Concert Hall - Variable Acoustic Banner - Long Section
UOONHB-JCJ-CH-ZZ-DR-OT-030004	Concert Hall - Variable Acoustic Banner - Short Section
UOONHB-JCJ-BB-BM-DR-OT-180001	Black Box - Variable Acoustic Banner - Mechanism Plan View
UOONHB-JCJ-BB-BM-DR-OT-180002	Black Box - Variable Acoustic Banner - Bottom Roller Plan View
UOONHB-JCJ-BB-ZZ-DR-OT-180003	Black Box - Variable Acoustic Banner - Section Elevation View
UOONHB-JCJ-BB-BM-DR-OT-180004	Black Box - Variable Acoustic Banners - Wall Brackets

### 6.2. List of Banners – Concert Hall

CUST. REF.	TYPE	SERIAL No.	FABRIC WIDTH	FABRIC DROP
A1	Duet	JCJ-DUET-SN-0001	1251	5221
A2	Duet	JCJ-DUET-SN-0002	1251 x2	5221
A3	Duet	JCJ-DUET-SN-0003	1251 x2	5221
A4	Duet	JCJ-DUET-SN-0004	1251 x2	5221
A5	Duet	JCJ-DUET-SN-0005	1251 x2	5221
A6	Duet	JCJ-DUET-SN-0006	1251 x2	5221
A7	Duet	JCJ-DUET-SN-0007	1251 x2	5221
A8	Duet	JCJ-DUET-SN-0008	1251 x2	5221
A9	Duet	JCJ-DUET-SN-0009	1251 x2	5221
A10	Duet	JCJ-DUET-SN-0010	1251	5221
A11	Duet	JCJ-DUET-SN-0011	1093 x2	5221
A12	Duet	JCJ-DUET-SN-0012	1093 x2	5221
A13	Duet	JCJ-DUET-SN-0013	1085	5221
A14	Duet	JCJ-DUET-SN-0014	1093 x2	5221
A15	Duet	JCJ-DUET-SN-0015	1093 x2	5221
A16	Duet	JCJ-DUET-SN-0016	1251	5221
A17	Duet	JCJ-DUET-SN-0017	1251 x2	5221
A18	Duet	JCJ-DUET-SN-0018	1251 x2	5221
A19	Duet	JCJ-DUET-SN-0019	1251 x2	5221
A20	Duet	JCJ-DUET-SN-0020	1251 x2	5221
A21	Duet	JCJ-DUET-SN-0021	1251 x2	5221
A22	Duet	JCJ-DUET-SN-0022	1251 x2	5221
A23	Duet	JCJ-DUET-SN-0023	1251 x2	5221
A24	Duet	JCJ-DUET-SN-0024	1251 x2	5221
A25	Duet	JCJ-DUET-SN-0025	1251	5221
A26	Legato	JCJ-LGT-SN-0026	1093 x2	4219
A27	Legato	JCJ-LGT-SN-0027	1085 x2	4219
A28	Legato	JCJ-LGT-SN-0028	1085 x2	4219
A29	Legato	JCJ-LGT-SN-0029	1093	4219
A30	Legato	JCJ-LGT-SN-0030	1085 x2	4219
A31	Legato	JCJ-LGT-SN-0031	1093 x2	4219

### 6.3. List of Banners – Black Box

CUST. REF.	TYPE	SERIAL No.	FABRIC WIDTH	FABRIC DROP
B1	Legato	JCJ-LGT-SN-0032	1796	4970
B2	Legato	JCJ-LGT-SN-0033	1523 x2	4970
B3	Legato	JCJ-LGT-SN-0034	1512 x2	4970
B4	Legato	JCJ-LGT-SN-0035	1525	4970
B5	Legato	JCJ-LGT-SN-0036	1804	4970
B6	Legato	JCJ-LGT-SN-0037	1520	3500
B7	Legato	JCJ-LGT-SN-0038	1517 x2	3500
B8	Legato	JCJ-LGT-SN-0039	1524 x2	3500
B9	Legato	JCJ-LGT-SN-0040	1798	4970
B10	Legato	JCJ-LGT-SN-0041	1522	4970
B11	Legato	JCJ-LGT-SN-0042	1520 x2	4970
B12	Legato	JCJ-LGT-SN-0043	1521 x2	4970
B13	Legato	JCJ-LGT-SN-0044	1791	4970
B14	Legato	JCJ-LGT-SN-0045	1519	4970
B15	Legato	JCJ-LGT-SN-0046	1514 x2	4970
B16	Legato	JCJ-LGT-SN-0047	1516 x2	4970
B17	Legato	JCJ-LGT-SN-0048	1512	4970

All measurements in millimetres.

“x2” denotes where two individual drops of fabric are attached to a single banner mechanism at the top.

### 6.4. Types of Roller Banner

Two types of roller banner have been installed at Oxford Humanities; Legato & Duet.

For information on the acoustic properties of the banner, please consult the J&C Joel Acoustic Catalogue; [J&C Joel Acoustic Brochure](#)

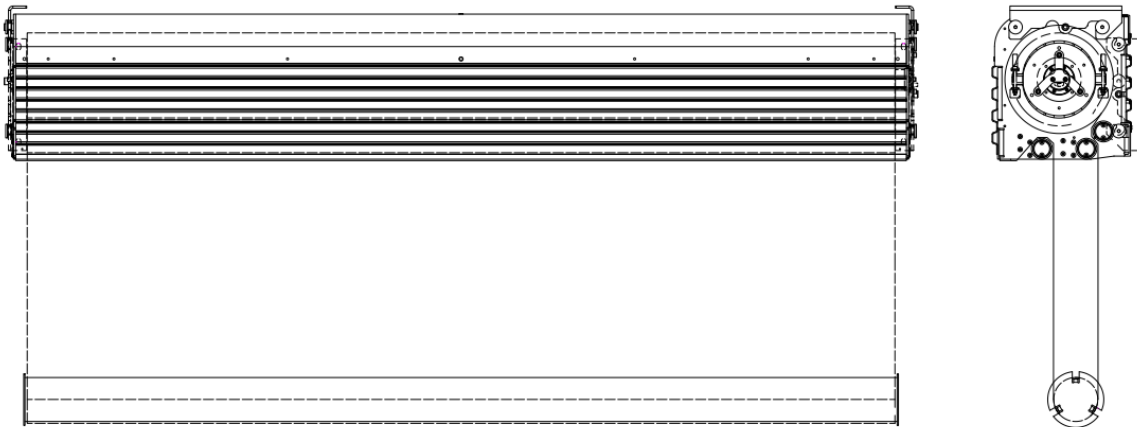
#### 6.4.1. Legato

The Legato Acoustic Banner deploys two layers of Bonded Wool Serge, positioned at a predefined distance from a wall, to reduce reverberation time and achieve acoustic absorption.

Features include:

- 1 Tubular motor
- End of travel & ultimate limit switches

Power requirements: 230v, 13A power supply per banner.



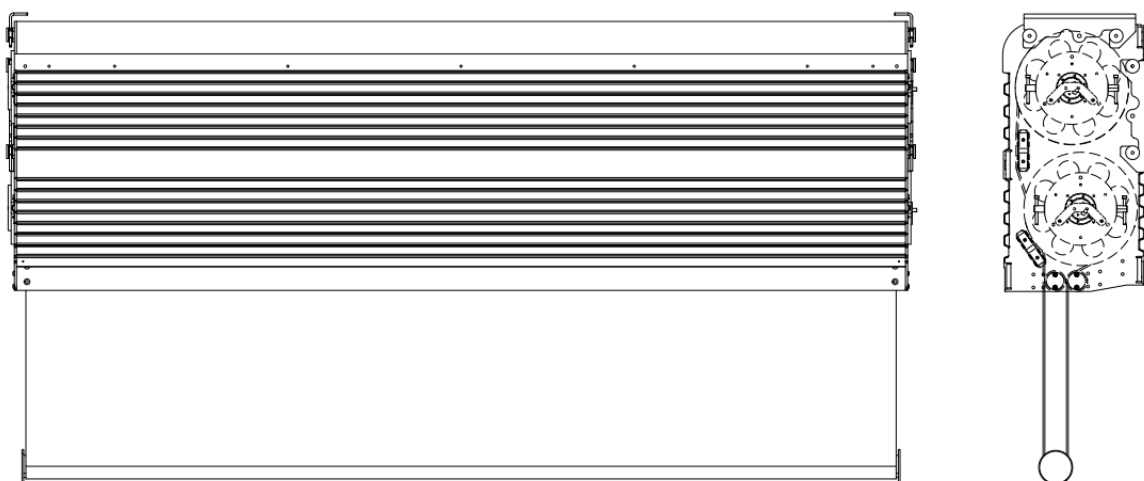
#### 6.4.2. Duet

The Duet Acoustic Banner deploys two layers of Bonded Wool Serge, with each layer deployed by its own motor. The layers are positioned at a predefined distance from a wall to reduce reverberation time, achieving acoustic absorption.

Features include:

- 2 Tubular motors
- End of travel & ultimate limit switches

Power requirements: 230v 13A power supply per banner.



#### 6.5. Technical Description

The Roller Banner functions as an efficient and fully adjustable acoustic baffle for performance spaces. Specifically designed to meet the width and height specifications of the setting, the Roller Banner is a critical component of the venue's variable acoustic package.

These Acoustic Banners are strategically positioned at various locations around the auditorium as directed by the acoustic consultant. They can be raised and lowered using internal motor power and serve as a sound-absorbing barrier that covers designated areas of the performance space, as specified by the acoustic consultant.

For instructions on operating the Roller Banners, please refer to the operation manual provided by the stage machinery control system supplier. Maintenance and service instructions are included in this manual.

## 6.6. Components

Primary components Included in the banners is as the following.

### 6.6.1. Motor technical specifications

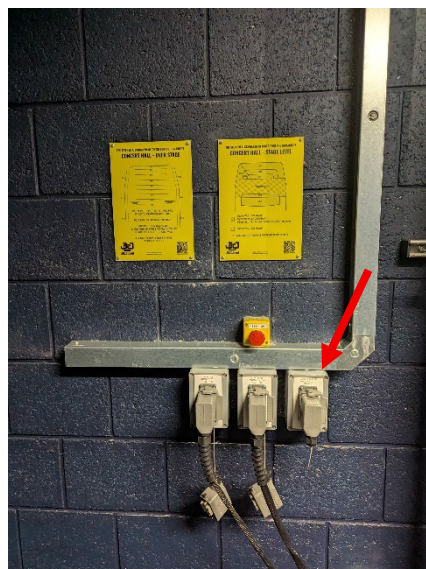
- Supplier: Becker
- Model: R40-17-E12
- Drive diameter: Ø 45mm
- Duty cycle: S2 4 min
- IP degree of protection: 44
- Mains frequency: 50 Hz
- Speed: 17 RPM
- Power supply: 230 V AC
- Power: 260 W
- Rated current: 1.15 A
- Drive torque: 40 Nm

Note on duty cycle: At room temperature a duty cycle of 4 minutes is reached. At higher ambient temperatures the duty cycle is reduced. This will allow a minimum of two full travel cycles before an approx. 15min break is required.

### 6.6.2. Control and Operating Instructions:

For details on the control the operator should refer to 4334-99-OM-0001 – Control Manual

Control pendent plug in points can be found in the Concert Hall stage left corridor;



Within both control rooms, there are wall mounted panels that can be used to control the banners. Should the operator need to be in the room whilst the banners are being operated, the wall mounted panels can be un-plugged and a mobile pendant can be plugged in.

#### Concert Hall – Sound Control Booth



#### Black Box – Control Booth



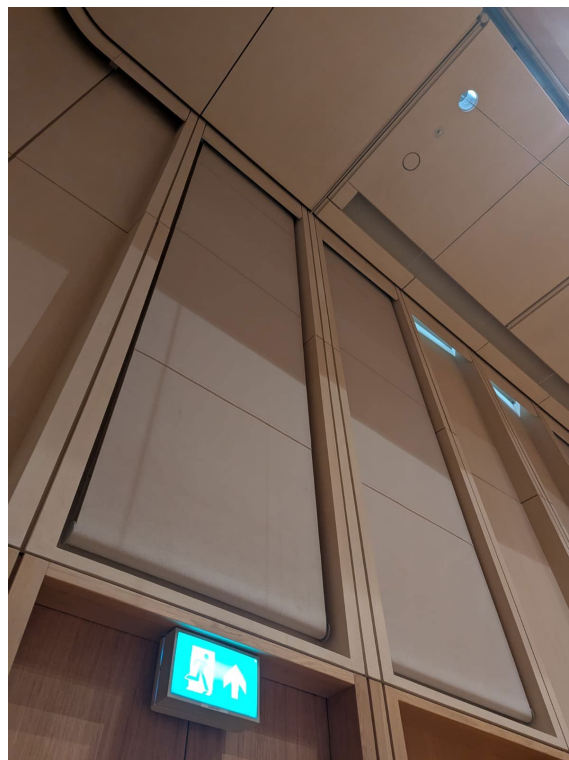
The banner relevant control cabinets must be turned on to operate the systems. The Concert Hall banner MCC is in the technical loft and the Black Box MCC is in the area directly outside the gantry door.

The banners in each room can be moved individually, grouped by wall or all simultaneously.

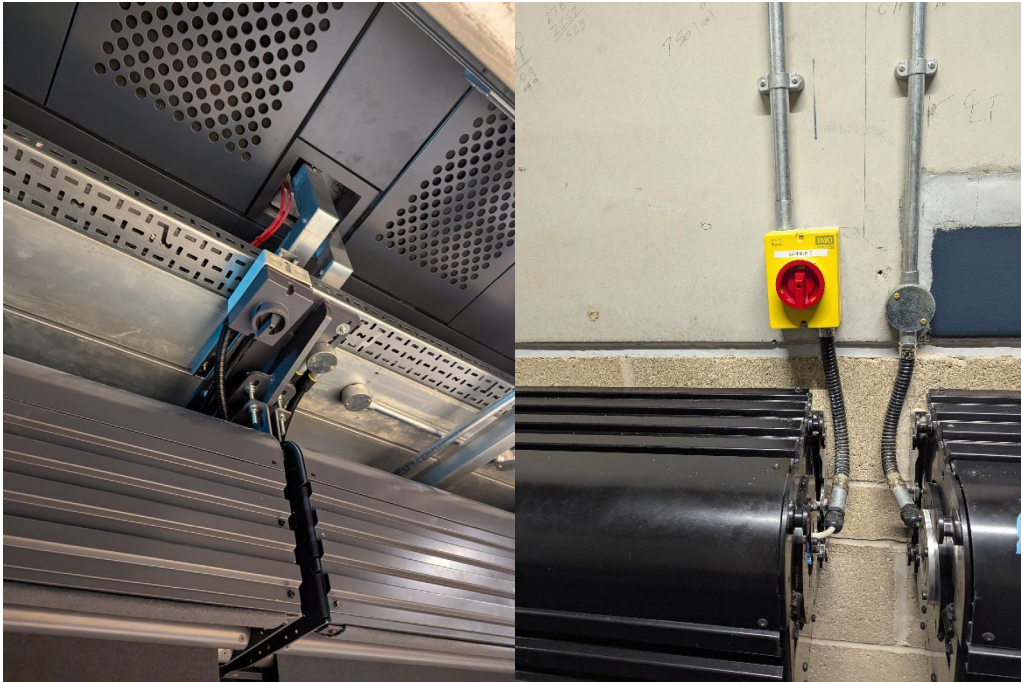
The operator should have full view of the banners during motion. Special care should be taken when passing through the gantry apertures in the Concert Hall and near the gantry supports in the Black Box. These are tight openings, and the most likely areas for clashes to occur. Should any unexpected sound be heard, movement should be stopped and investigation carried out.



The banners should be continually monitored over time to identify if any of the fabrics are not running straight and may need remedial works. This would be most obvious should the bottom tubes rub on the GRC paneling or if the gap on one side gets significantly smaller.



Isolators are located local to each banner and labeled to identify each banner.



### 6.6.3. Acoustic Fabric

The fabric used for the acoustic banners is Bonded Coloured Wool Serge (1000 gsm).

The following pages show instructions for care of the fabric and independent fire test certificates for to the following standards:






- BS 5867: Part 2: 2008 (2015): Type B Curtains, Drapes and Blinds.








AS 1530.2-1993 Methods for fire tests on building materials, components and structures, Part 2: Test for flammability of materials

**Datasheet - Fabrics & Flooring**  
**Bonded Wool Serge**

**J&C Joel**  
 the inspiration behind the performance

To ensure you get the best from the product supplied to you, we advise you follow the care instructions within this datasheet.

Fabric	<b>Flame Retardancy</b>	IFR
	<b>Fire Certification</b>	BS5867, IMO
	<b>Brand Name (and Manufacturer)</b>	J&C Joel Ltd.
	<b>Material (Blending Ratio)</b>	100% Wool
	<b>Construction of Fabric</b>	Plain Weave
Chemicals	<b>Surface Treatments</b>	Dyed
	<b>Brand Name of Flame Retardant Chemicals</b>	N/A
	<b>Chemical name of Flame Retardant Chemicals</b>	N/A
	<b>Process of Flame Retardant Chemicals</b>	N/A
Care	<b>Information</b>	Inherently Flame Retardant to BS5867 Part 2 Type B and IMO. This means that the man-made fibres are flame retardant for life and if wet, would not need to be re-flameproofed. Therefore, the cloth will withstand wet cleaning but we would advise and suggest professional dry cleaning only, using the correct chemical process.  Notwithstanding the aforementioned, it would be our advice to only dry clean this material periodically. We would suggest that the curtain be soft-brushed on a regular basis and periodically cleaned using a vacuum and drapery attachment.  This fabric is not pre-shrunk.
	<b>Laundering Treatment</b>	     Do Not Dry Clean    Do Not Wash    Do Not Bleach    Do Not Iron    Do Not Tumble Dry
<b>Notes</b>		

						
Fire Rating: IFR	Approx Roll Length: 57m / 187ft	Width: 150cm / 59"	Weight: 1130 g/m <sup>2</sup>	Fire Certification: BS5867, IMO	Colours Available 17	Fabric Thickness: 4.20mm

For further information please contact our sales team [sales@jcjoel.com](mailto:sales@jcjoel.com)

UK   Europe   Middle East   Vietnam   Macau   Hong Kong

## Fire Test Certificate – Specimen

Fabric: Bonded Wool Serge  
Type: BS5867 Part 2 Type B

Inspiration in every performance



Wira House, West Park Ring Road, Leeds, LS16 6QL, UK.  
Telephone: +44 (0) 113 259 1999  
Email: [onestopshop@bttg.co.uk](mailto:onestopshop@bttg.co.uk)  
Website: [www.bttg.co.uk](http://www.bttg.co.uk)

Date: 27 June 2022

Our Ref: 23/59842A/06/22

Your Ref: ---

Page: 1 of 4

Client: **J&C Joel Ltd**  
  
Corporation Mill  
Corporation Street  
Sowerby Bridge  
Halifax  
HX6 2QQ

Job Title: Fire Test on One Fabric Sample

Clients Order Ref: 67711

Date of Receipt: 16 June 2022

Date Test Started: 24 June 2022

Description of Sample: One sample of fabric, which was referenced by the client as;  
  
WS090 Premier Wool Serge

Work Requested: We were asked to make the following fire test:  
  
BS 5867:Part 2:Type B:2008 (2015)

- \* subcontracted test, UKAS accredited
- \*\* subcontracted test, EN ISO/IEC 17025 accredited
- \*\*\* not UKAS accredited



Note: This report relates only to the items tested.

Shirley® Technologies Limited. Registered Office: Wira House, West Park Ring Road, Leeds, LS16 6QL.  
A company registered in England & Wales with company number 04669651. VAT Number GB 816764800.  
BTTG™ and Shirley® are trade names of Shirley Technologies Ltd.  
The supply of all goods and services is subject to our standard terms of business, copies of which are available on request.  
Our laboratories are accredited to EN ISO/IEC 17025.

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[www.jcjoel.com](http://www.jcjoel.com)

## Fire Test Certificate – Specimen

**Fabric:** Bonded Wool Serge  
**Type:** BS5867 Part 2 Type B

**J&C Joel**   
Inspiration in every performance



Wira House, West Park Ring Road, Leeds, LS16 6QL, UK.  
Telephone: +44 (0) 113 259 1999  
Email: [onestopshop@bttg.co.uk](mailto:onestopshop@bttg.co.uk)  
Website: [www.bttg.co.uk](http://www.bttg.co.uk)

Date: 27 June 2022

Our Ref: 23/59842A/06/22  
Your Ref: ---

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Client: J&C Joel Ltd

**BS 5867: Part 2: 2008 (2015): Type B Curtains, Drapes and Blinds**

### Conditioning

The test specimens were conditioned for at least 24 hours in the standard atmosphere of  $65 \pm 5\%$  relative humidity and  $20 \pm 2^\circ\text{C}$ .

### Testing as received

Three specimens from both length and width were tested in accordance with BS EN ISO 15025:Procedure A (surface ignition):2002. The sample was tested at  $20^\circ\text{C}$  and 55% relative humidity.

Each specimen was subjected to an applied flame using propane and a 15 second flame application time. The results obtained (shown in the table below) were assessed according to the requirements of BS 5867:Part 2:Type B:2008 (2015).

### Pre-treatment

If the fabric is a pass in the 'as received' condition then the fabric is subjected a water soak and drying procedure as specified in BS EN 1021-1 & 2:Annex D:2006.

### Testing after pre-treatment

Three specimens, after pre-treatment, from both length and width were tested following the procedure described above.



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[www.jcjoel.com](http://www.jcjoel.com)

### Fire Test Certificate – Specimen

Fabric: Bonded Wool Serge  
 Type: BS5867 Part 2 Type B

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Wira House, West Park Ring Road, Leeds, LS16 6QL, UK.  
 Telephone: +44 (0) 113 259 1999  
 Email: [onestopshop@bttg.co.uk](mailto:onestopshop@bttg.co.uk)  
 Website: [www.bttg.co.uk](http://www.bttg.co.uk)

Date: 27 June 2022

Our Ref: 23/59842A/06/22  
 Your Ref: ---

Page: 3 of 4

Client: J&C Joel Ltd

#### Results - Testing as Received:

Specimen No.	Length			Width		
	1	2	3	4	5	6
Flame reached an edge	No	No	No	No	No	No
Hole reached an edge	No	No	No	No	No	No
Flaming debris separated	No	No	No	No	No	No
Afterflame (s)	0	0	0	10	0	1
Afterglow (s)	0	0	0	0	0	0

Requirements - Any "Yes" means fail except if only one specimen fails a further 6 specimens are tested, if the second 6 specimens all pass the result is a pass.

Result in 'as received': Pass

#### Results - Testing after pre-treatment:

Specimen No.	Length			Width		
	1	2	3	4	5	6
Flame reached an edge	No	No	No	No	No	No
Hole reached an edge	No	No	No	No	No	No
Flaming debris separated	No	No	No	No	No	No
Afterflame (s)	0	0	0	0	0	0
Afterglow (s)	0	0	0	0	0	0

Requirements - Any "Yes" means fail except if only one specimen fails a further 6 specimens are tested, if the second 6 specimens all pass the result is a pass.

Result in 'after pre-treatment': Pass



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### Fire Test Certificate – Specimen

Fabric: Bonded Wool Serge  
Type: BS5867 Part 2 Type B

Inspiration in every performance



Wira House, West Park Ring Road, Leeds, LS16 6QL, UK.  
Telephone: +44 (0) 113 259 1999  
Email: [onestopshop@bttg.co.uk](mailto:onestopshop@bttg.co.uk)  
Website: [www.bttg.co.uk](http://www.bttg.co.uk)

Date: 27 June 2022

Our Ref: 23/59842A/06/22  
Your Ref: ---

Page: 4 of 4

Client: J&C Joel Ltd

#### Comment

The fabric meets the Type B performance requirements of BS 5867: Part 2: Type B:2008 (2015).

This material should be identified with the manufacturers name, trademark or other identifying mark, the statement 'Flammability complies with the requirements of BS 5867: Part 2:Type B and instructions of any special precautions to be taken concerning care (including cleansing) of the curtain, drape or window blind to be manufactured from the fabric, preferably using an appropriate care labelling symbol in accordance with BS EN 23758 and taking account of the pre-treatment using in this test and the requirements of Clause 4 of BS 5867:Part 2:2008 (2015). If the fabric is unsuitable for cleansing, this shall be stated.


Where required to make a judgement to any pass/fail criteria an estimation of uncertainty of measurement has been taken into account. Under our Policy we have used a non-binary decision rule.

See our decision rules Policy (<http://www.bttg.co.uk/decision-rules-policy>) for further information.

#### Uncertainty Budget

Measurements are not taken and pass/fail is related to flame extremities and flaming debris, as such any risk of false acceptance/false rejection is inherent with this standard and would be outside of 95% probability in any case. As such UoM is Zero providing all input parameters are correct.

There is no uncertainty budget associated with BS 5867:Part 2:Type B as no measurements are determined, the pass/fail criteria is assessed visually.

Reported by:  B Bland, Technical Customer Service Officer

Countersigned by:  P Doherty, Manager

Enquiries concerning this report should be addressed to Customer Services.



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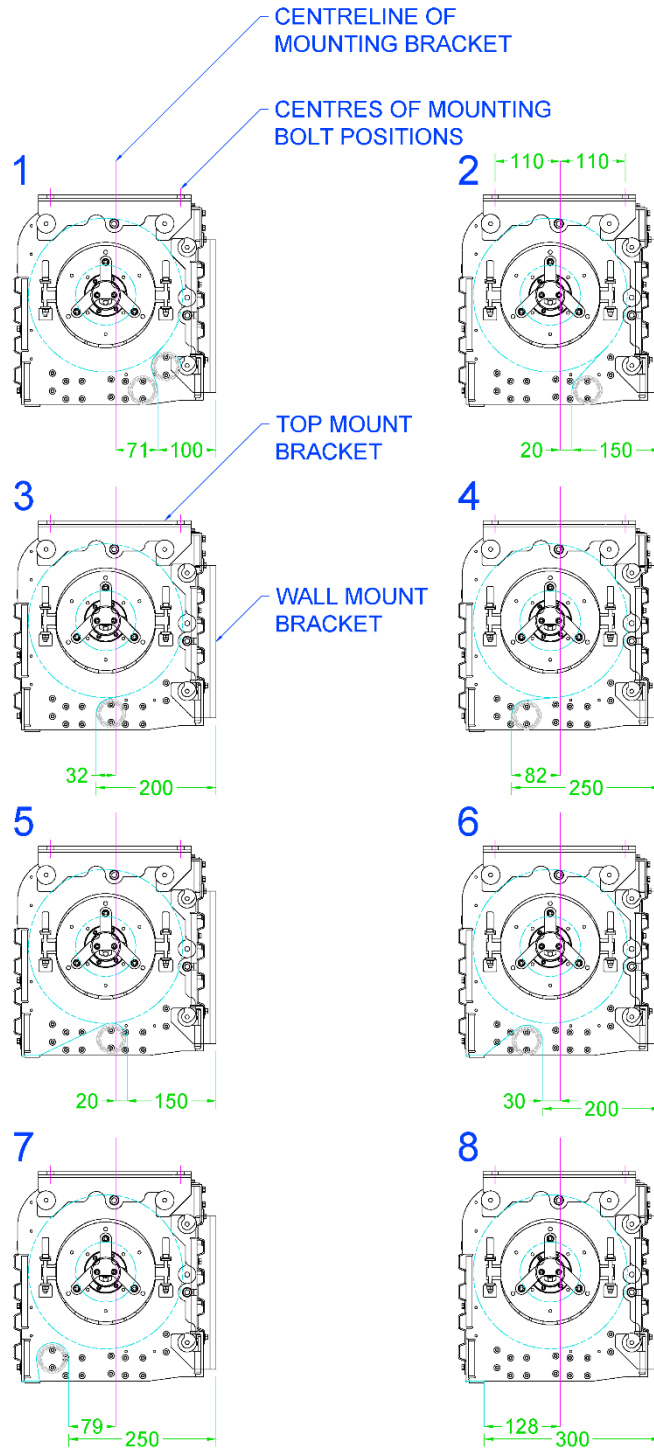
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### 6.7. Fabric Positions

The banners can be supplied with fabric in the eight positions as illustrated in the drawing below. The distance from the centre line of the mounting bracket is also indicated.

For this project the positions are set to 1 & 2 in the Black Box, and a special position has been used in the Concert Hall to ensure that the fabric drops through the penetrations in the top hat.



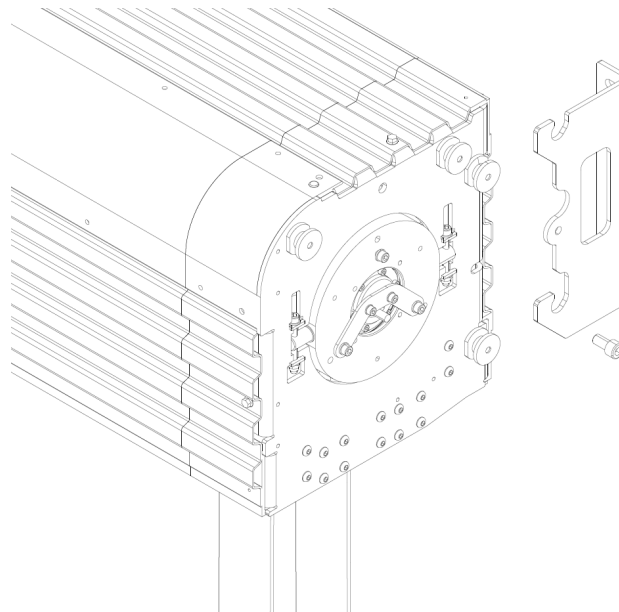
## 7. Installation details

### 7.1. Mounting

Ensure the banner wall or ceiling fixing brackets are mounted correctly in the required position as shown on the J&C Joel's as built drawings.

Position the Banner left and right-hand end bobbins into the slotted wall fixing brackets. Lower the banner down and forward into the slots until they are secure.

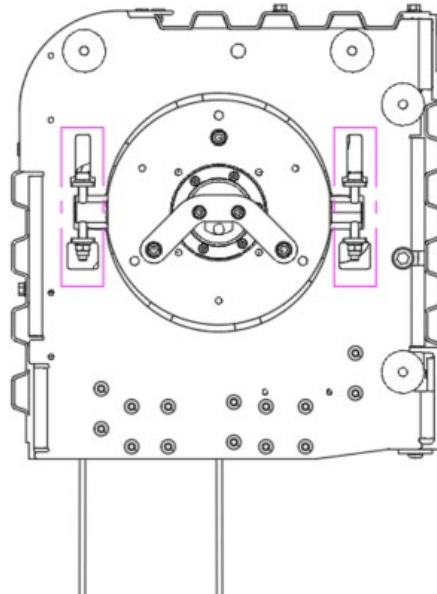
Tighten the M10x20 central locking bolt at each end so that the bolt head fits snugly against the bracket and the threaded end protrudes fully through the corresponding clearance hole in the end plate.



### 7.2. Levelling

Ensuring that the Roller Banner is in a level position is essential for the proper operation of the banner fabric during raising and lowering. This will prevent the acoustic fabric from riding up on the edge of the bottom roller assembly, which could cause damage to the acoustic fabric. Therefore prior to operating the roller banners carry out the following checks:

- Check each banner wall fixing bolt is secure and tight
- Check the fixing bracket locking bolts are secure and tight
- Ensure all Banner cover fixing bolts are tight
- Check that the banner is perfectly level



If the banner fabric bottom roller is not completely level, there are two levelling adjusters at each end of the banner as indicated above that allow for +/-5mm vertical adjustment. Wall brackets should be installed within 5mm of level. Use a 5mm ball end hex key to raise or lower the drum, alternating turns between the front and back adjusters to prevent binding. Ensure that the nyloc nut retaining the adjuster bolt remains secure.

### 7.3. Banner Internals

Internal components of Roller Banners are not user serviceable. Please contact J&C Joel Limited for advice or service. Any attempt to disassemble the banners may cause damage to the Banner operating mechanism and will void the warranty and any CE marking.

### 7.4. Setting Limit Switches

The roller banner limit switches will be preset by J&C Joel Ltd during factory testing and site commissioning. Should they need to be fine tuned to suit site conditions this can be carried out by following the below instructions.

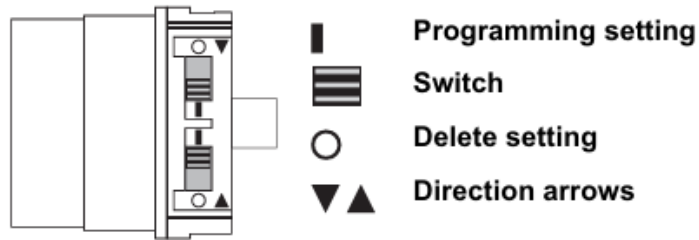
It should be noted that the open and closed “drops” will vary over time due to the unavoidable stretch of the fabric.

The upper limit should be set so that no part of the bottom tube/tray is within 25mm of any part of the top mechanism.

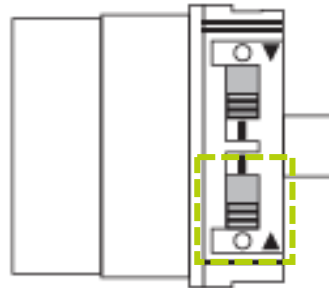
The lower limit should be set so that the distance between the base of the mechanism and the bottom roller does not exceed that marked on the label of the banner. A minimum of two safety turns must be kept on the drum for safety.

To set the limits the following procedure should be used:

1. The setting switches are found on the end of the tubular motor, on the right end of the banner.

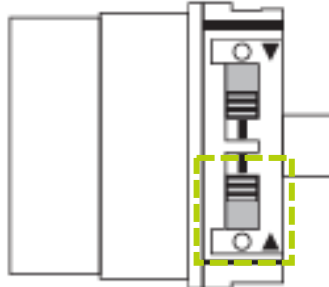


2. See the direction arrows to identify the direction of travel and the associated limit switch. Push the desired switch outwards to enter “programming mode”. (see bottom switch on illustration)



*Switch pushed outward to enter programming mode*

3. Execute a short drive command. You will notice that the motor pauses momentarily, after around one second, this indicates that no limit is set in this direction of travel.
4. Run the banner to the desired limit position.
5. Return the switch to the centre position. The limit switch is now in operation.



*Switch pushed inward to set the desired limit position*

6. Run the banner to its upper and lower limit to validate the operation of the limit switches.

Note: The Black Box and Concert Hall banners both include encoders. End of Travel limits will be based on the encoder. The mechanical limits will act as ultimate limits

## 8. Maintenance

Prior to performing any maintenance on the Roller Banners, please thoroughly review and understand the sections on Safety and Intended Use outlined in this manual.

It is recommended that all stage equipment is inspected and maintained on a regular basis, this will insure long life and trouble-free running. The frequency of the maintenance should be established depending upon temperature, humidity, time and both the frequency and severity of operation. It may be necessary to adjust the frequency of maintenance, as recommended in this manual, due to the particular localised conditions.

Once established this should be regularly followed and records kept for future reference. This will provide information on length of service and upon any changes that might indicate wearing parts.

In addition to the "In House Inspection and Maintenance" a periodic safety inspection by a professional theatre rigging firm is highly recommended.

Before any maintenance is carried out the following points must be followed;

1. Power to the equipment must be turned off at the relevant isolator switch and the switch locked in the off position.
2. Only suitably qualified personnel must carry out all maintenance.
3. When maintenance work is being carried out, no unauthorized personnel should be present in the immediate vicinity.
4. Suitable personal protective equipment must be worn by all carrying out the work and within the vicinity.
5. Loose clothing should not be worn when servicing the equipment.
6. All safety guards and covers must be replaced prior to power being turned back on.

### 8.1. Preparation

First clean the area then the Roller Banner should be gently brushed with a soft-bristled brush or cleaned with a vacuum cleaner to eliminate all surface dust from the equipment. Special care must be taken when cleaning the banner fabric to avoid causing any damage to the edges of the fabric, as this could result in operational issues. Full care instructions for the relevant Banner fabric fitted to the Roller Banners can be found on the relevant fabrics Data sheet included in this manual.

### 8.2. Check Sheets

The purpose of the check sheets is for the Maintenance Manager to preserve an up-to-date report on the service history and condition of the Roller Banners equipment for Insert Project details. These reports and check sheets should be kept together with the operation and maintenance manuals for inspection as and when may be required by J&C Joels engineers in the event of any requested service visit.

### 8.3. Inspection Requirements

The Maintenance Manager should check off each item on the following Inspection sheets as soon as the Roller Banners have been inspected, checked and passed. The boxes shall all have been

checked off as “Pass, or Fail, if any of the items are checked as “Fail”, the Maintenance Manager should compile a full report sheet with full details of the malfunction and arrange for service of the faults by J&C Joel Limited. Once these faults have all been corrected the “Rectified” box should be checked off and the document signed and dated by the Inspector and Maintenance Manager.

The section “Inspection Notes” of the document is intended for recording any observations, or individual component characteristics that may not have been included in the inspection check sheets.

#### **8.4. Inspection Intervals**

**Each Roller Banner should be inspected on a 6 monthly basis or sooner if any operational problems may occur.**

## 9. Maintenance Log Check Sheets

### 9.1. ML02 Inspection sheet

**Inspection Notes:**

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**Inspector:**

Name: \_\_\_\_\_ Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Maintenance Manager:**

Name: \_\_\_\_\_ Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Maintenance Inspection**

The Maintenance Manager or Inspection Engineer should check off each item on the **ML01 Inspection Check Sheet** as “Pass, Fail, or N/A” (not applicable to this item).

If any of the items are checked as “Fail”, the Maintenance Manager or Inspection Engineer must compile a separate Snagging Sheet and arrange for immediate rectification of the faults. Once these have all been corrected the relevant “Rectified” box on the ML01 document must be checked off and this page ML02 must be signed and dated by the Inspector or Maintenance Manager.

The section “**Inspection Notes**” above is intended for recording any snag that is found during the inspection that may have not been included in the tick sheets for the item of equipment, these snags must be included on the Snagging Sheet.

As soon as this document has been signed, the relevant section of the Maintenance Inspection Report must be checked off, initialled and dated.

## ML01 Check Sheet

Banner Designation : \_\_\_\_\_

		Pass	Fail	Rectified	N/A
<b>1</b>	<b>Appearance</b>				
1.1	Check equipment is neat and tidy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.2	Check equipment is clean	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>2</b>	<b>General</b>				
2.1	Check equipment for signs of water damage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.2	Check equipment for signs of any other damage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>3</b>	<b>Mechanical</b>				
3.1	Inspect all Banners for any sign of damage or misuse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.2	Check that fabric winds smoothly onto the roller drum	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.3	Check the entire length of the fabric for sign of wear or damage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.4	Check fabric is held securely onto the roller drum	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.5	Check for correct operation of the electric motor or any abnormal operating noise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.6	Check that all fixings are secure and tight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.7	Check all bolts fixing banner to wall or ceiling are secure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.8	Check that all fixing screws are secure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.9	Check that no fixing screws are missing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>4</b>	<b>Electrical</b>				
4.1	Check all electrical connections for security	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.2	Check all cable glands are secure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3	Run banner full travel to check limit switch function is correct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.4	Check all cables to control and MCC are undamaged	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.5	Check all cables are fixed away from snag risks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.6	Check the isolators operate freely	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.7	Check all lids or covers are fitted and all screws are present	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.8	Check for signs of arcing or overheating on panel contactors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## **10. Referenced Drawings**

Drawings are shown overleaf

# Concert Hall - Variable Acoustic Banner - Bottom Roller Plan

This drawing is the property of J&C Joel Limited and associated companies. It must not be copied or the contents divulged to any third party without prior written consent.

## REVISIONS

REV.	BY	DESCRIPTION	DATE
P01	PT	FIRST ISSUE	19/12/2023
C01	PT	For Construction	25/03/2024
C02	SH	For Record	16/04/2025

## Notes:

- All dimensions are in mm.
- To be read in conjunction with drawings:  
 UOONHB-JCJ-CH-01-DR-OT-030002  
 UOONHB-JCJ-CH-ZZ-DR-OT-030003  
 UOONHB-JCJ-CH-ZZ-DR-OT-030004

## Status:

A -  B -  C -

All dimensions in mm unless otherwise stated. Do not scale.

DRAWN:	SH	DATE:	16/04/2025
CHECKED:	JC	DATE:	16/04/2025
APPROVED:	OS	DATE:	16/04/2025
SCALE:	ON SHEET	PAPER SIZE:	A1

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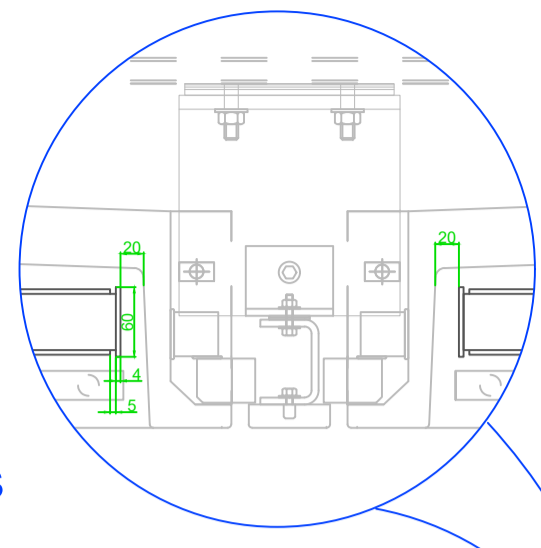
PROJECT	4334 - Oxford Humanities
JCJ NO.	4334-GA-03-0001
DRG NO.	UOONHB-JCJ-CH-BM-DR-OT-030001

TITLE	Concert Hall Variable Acoustic Banners Bottom Roller Plan
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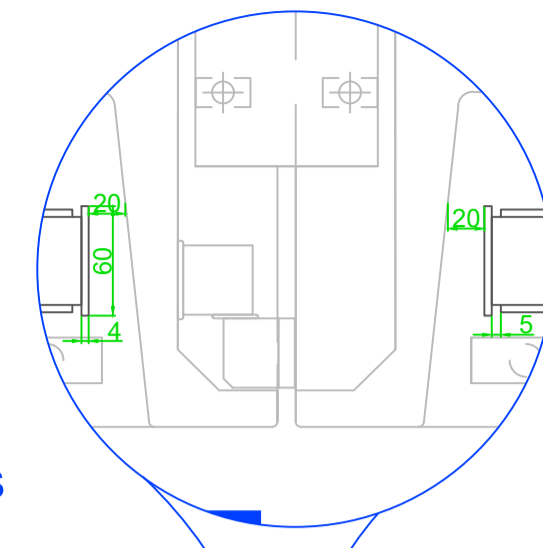
PURPOSE	A5 - Accepted as Suitable for Record
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REV C02

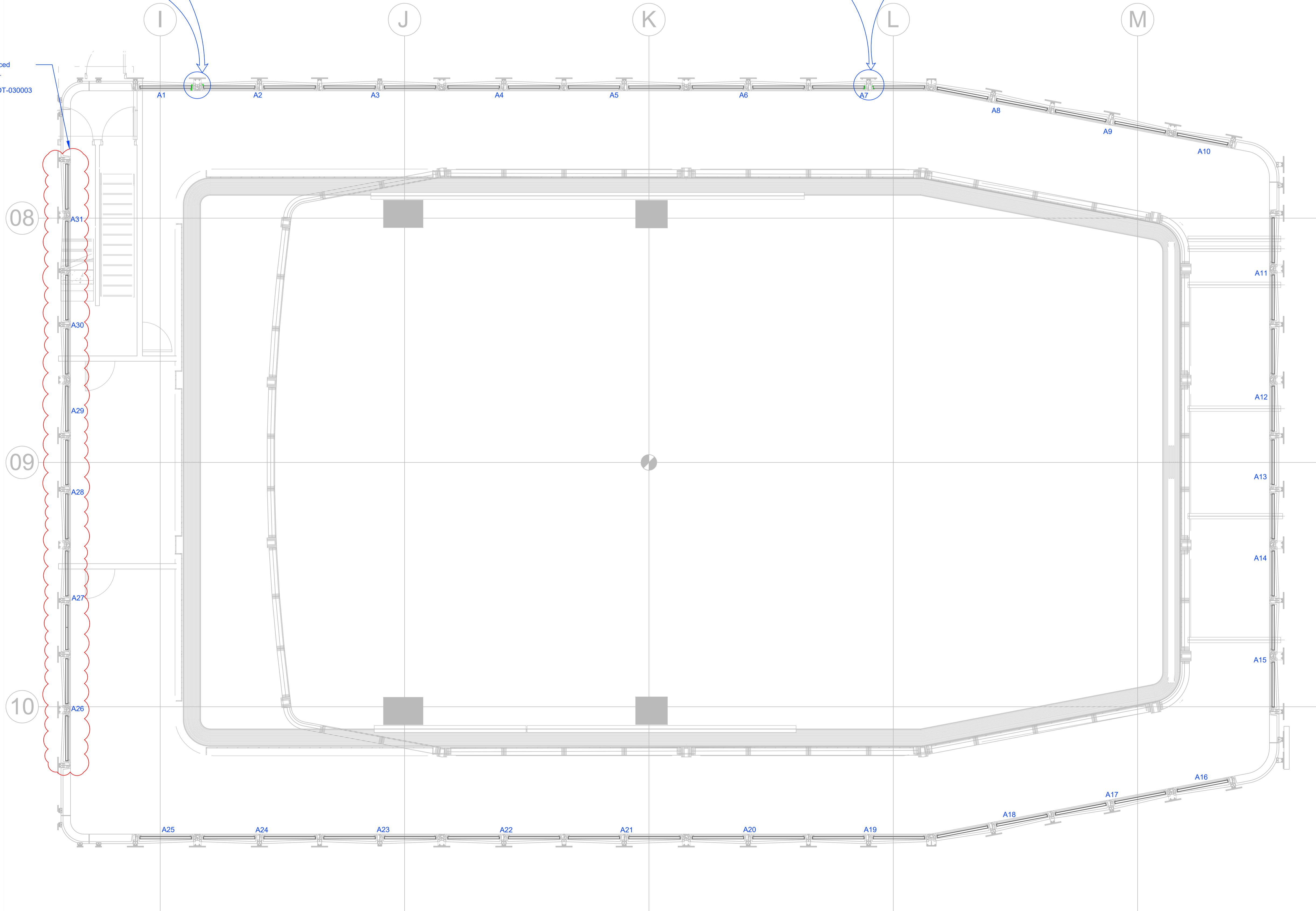
Typical spacing of banner drop rollers



Typical spacing of banner drop rollers



Note: Banners have a reduced drop than the other banners. Refer to Drawing UOONHB-JCJ-CH-ZZ-DR-OT-030003



Scale 1:50

# Concert Hall - Variable Acoustic Banners - Mechanism Plan

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### REVISIONS

REV.	BY	DESCRIPTION	DATE
P01	PT	FIRST ISSUE	19/12/2023
C01	PT	For Construction	26/03/2024
C02	SH	For Record	16/04/2025

Notes:  
 1. All dimensions are in mm.  
 2. To be read in conjunction with drawings:  
 U00NHB-JCJ-CH-BM-DR-OT-030001  
 U00NHB-JCJ-CH-ZZ-DR-OT-030003  
 U00NHB-JCJ-CH-ZZ-DR-OT-030004

Status:  
 A -  B -  C -

All dimensions in mm unless otherwise stated. Do not scale.

DRAWN: SH DATE: 16/04/2025

CHECKED: JC DATE: 16/04/2025

APPROVED: OS DATE: 16/04/2025

SCALE: ON SHEET PAPER SIZE: A1



PROJECT 4334 - Oxford Humanities

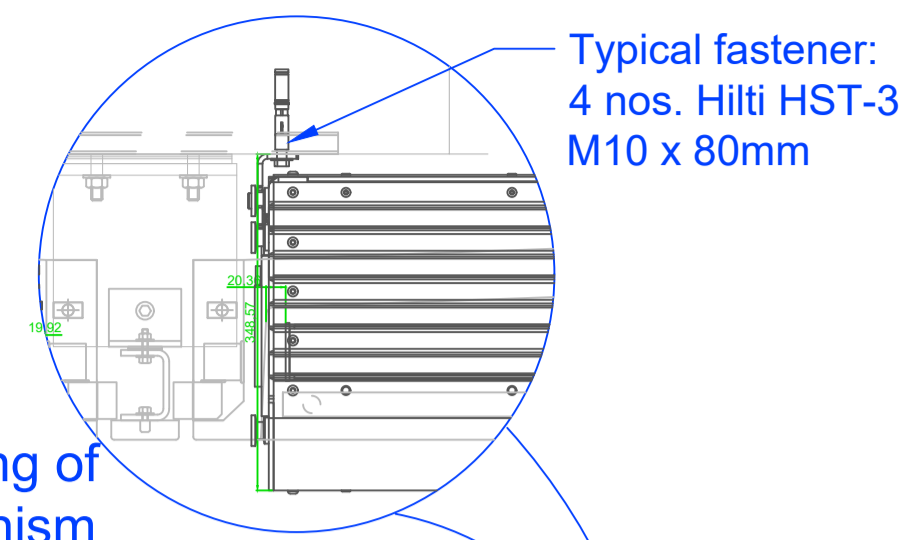
JCJ NO. 4334-GA-03-0002

DRG NO. U00NHB-JCJ-CH-01-DR-OT-030002

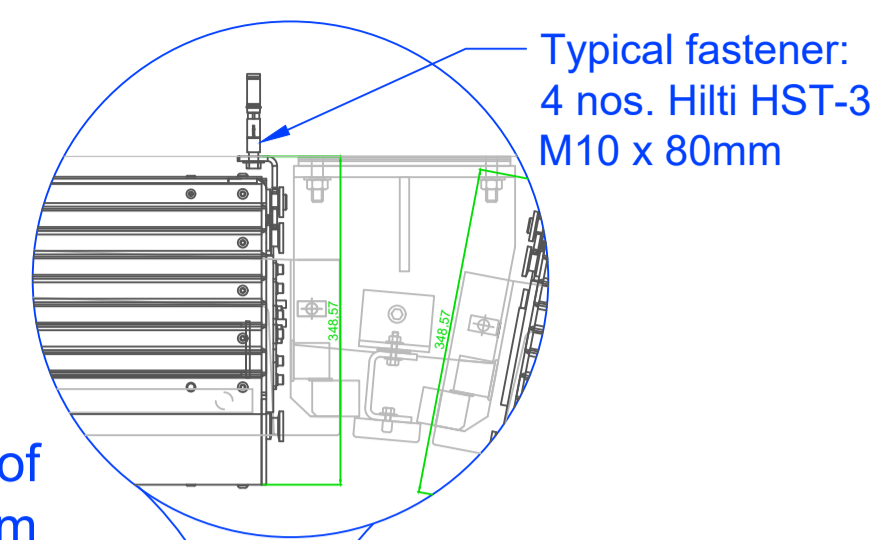
TITLE Concert Hall  
Variable Acoustic Banners  
Mechanism Plan

PURPOSE A5 - Accepted as Suitable for Record

REV C02



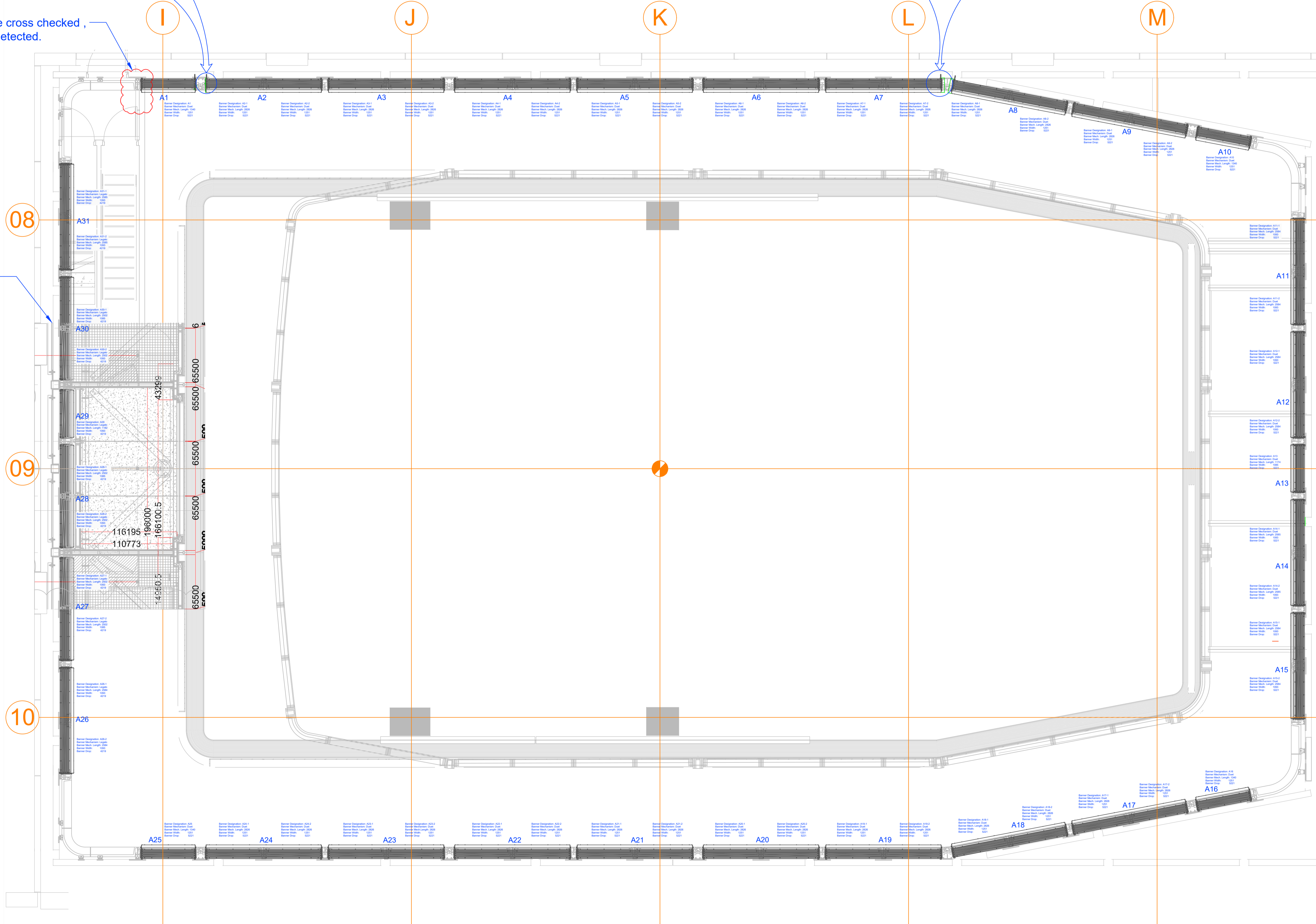
Typical fastening of Banner Mechanism



Typical fastening of Banner Mechanism

Interferences were cross checked, no clashes were detected.

Partial Xref binned to show no clashes with GRC.



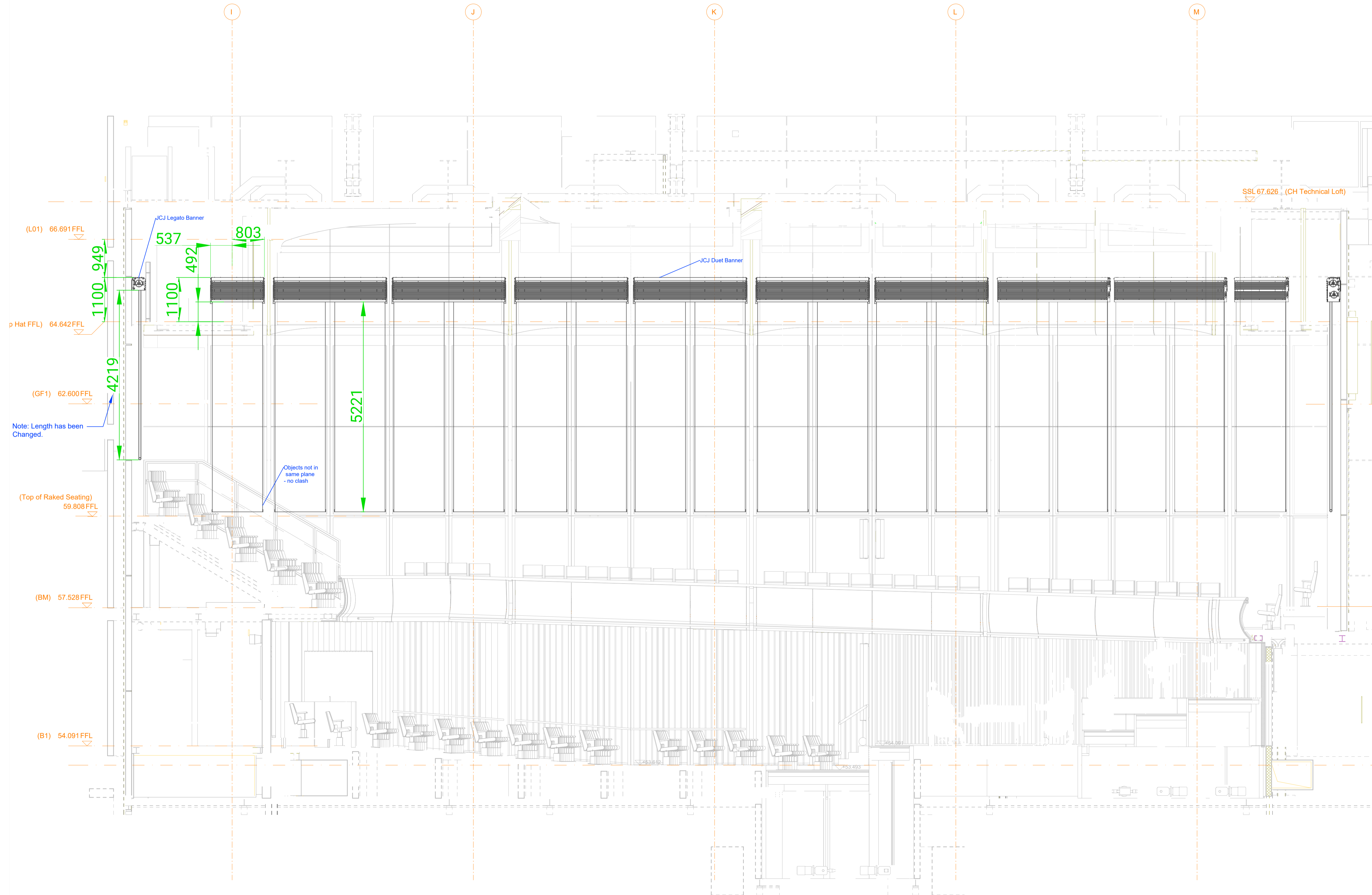
Scale 1:50

# Concert Hall - Variable Acoustic Banners - Section View

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REVISIONS			
REV.	BY	DESCRIPTION	DATE
P01	PT	FIRST ISSUE	19/12/2023
C01	PT	For Construction	25/03/2024
C02	SH	For Record	16/04/2025

Notes:  
 1. All dimensions are in mm.  
 2. To be read in conjunction with drawings:  
 U00NHB-JCJ-CH-BM-DR-OT-030001  
 U00NHB-JCJ-CH-01-DR-OT-030002  
 U00NHB-JCJ-CH-ZZ-DR-OT-030004



Status:  
 A -     B -     C -

All dimensions in mm unless otherwise stated. Do not scale.  
 DRAWN: SH    DATE: 16/04/2025  
 CHECKED: JC    DATE: 16/04/2025  
 APPROVED: OS    DATE: 16/04/2025  
 SCALE: ON SHEET    PAPER SIZE: A1

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PROJECT: 4334 - Oxford Humanities  
 JCJ NO.: 4334-GA-03-0003  
 DRG NO.: U00NHB-JCJ-CH-ZZ-DR-OT-030003

TITLE: Concert Hall  
 Variable Acoustic Banners  
 Long Section

PURPOSE: A5 - Accepted as Suitable for Record

Scale 1:50

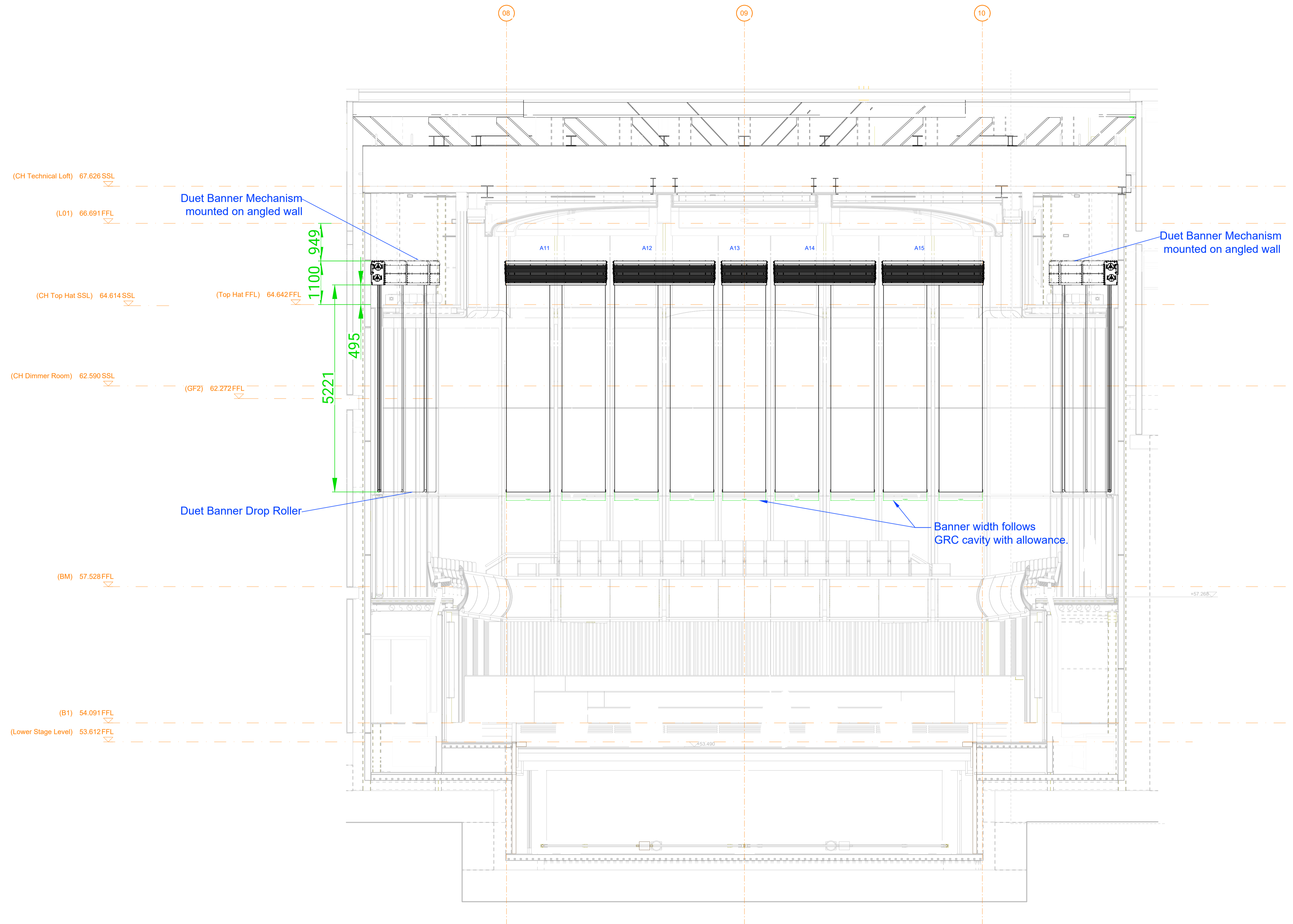
REV C02

# Concert Hall - Variable Acoustic Banners - Short Section

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REVISIONS			
REV.	BY	DESCRIPTION	DATE
P01	PT	FIRST ISSUE	19/12/2023
C01	PT	For Construction	25/03/2024
C02	SH	For Record	16/04/2025

Notes:  
 1. All dimensions are in mm.  
 2. To be read in conjunction with drawings:  
 U00NHB-JCJ-CH-BM-DR-OT-030001  
 U00NHB-JCJ-CH-01-DR-OT-030002  
 U00NHB-JCJ-CH-ZZ-DR-OT-030003



Status:  
 A -  B -  C -

All dimensions in mm unless otherwise stated. Do not scale.  
 DRAWN: SH DATE: 16/04/2025  
 CHECKED: JC DATE: 16/04/2025  
 APPROVED: OS DATE: 16/04/2025  
 SCALE: ON SHEET PAPER SIZE: A1

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PROJECT: 4334 - Oxford Humanities  
 JCJ NO.: 4334-GA-03-0004  
 DRG NO.: U00NHB-JCJ-CH-ZZ-DR-OT-030004

TITLE: Concert Hall  
 Variable Acoustic Banners  
 Short Section

PURPOSE: A5 - Accepted as Suitable for Record

Scale 1:50

REV C02

# Black Box Variable Acoustic Banner Mechanism Plan

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REVISIONS			
REV.	BY	DESCRIPTION	DATE
P01	PT	FIRST ISSUE	26/10/2023
P02	PT	SECOND ISSUE	05/01/2024
C01	PT	SECOND ISSUE	11/03/2024
C02	SH	For Record	28/04/2025

- Notes:
- Banner schedule listed in the material submission.
  - Should be read in conjunction with the following drawings:
    - UOONHB-JCJ-BB-BM-DR-OT-180002
    - UOONHB-JCJ-BB-ZZ-DR-OT-180003
    - UOONHB-JCJ-BB-BM-DR-OT-180004
  - Roller Banner mechanism and drop rollers are to be of RAL 7024 (Graphite Grey) in Blackbox space.
  - Bracket and Fixing method to wall shown on drawing UOONHB-JCJ-BB-BM-DR-OT-180004.

Status:  
 A -     B -     C -

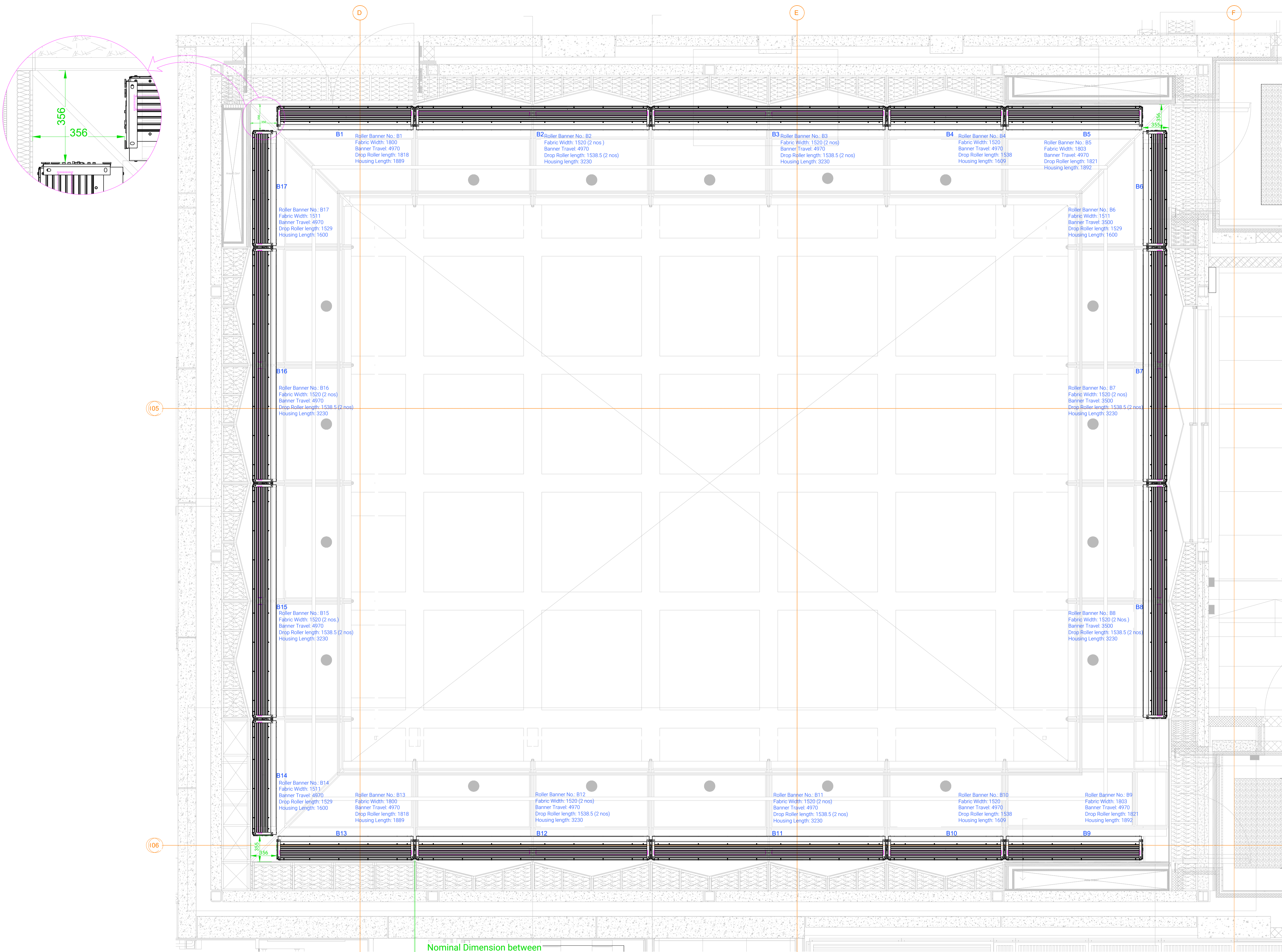
All dimensions in mm unless otherwise stated. Do not scale.

DRAWN:	SH	DATE:	28/04/2025
CHECKED:	JC	DATE:	28/04/2025
APPROVED:	OS	DATE:	28/04/2025
SCALE:	ON SHEET	PAPER SIZE:	A1

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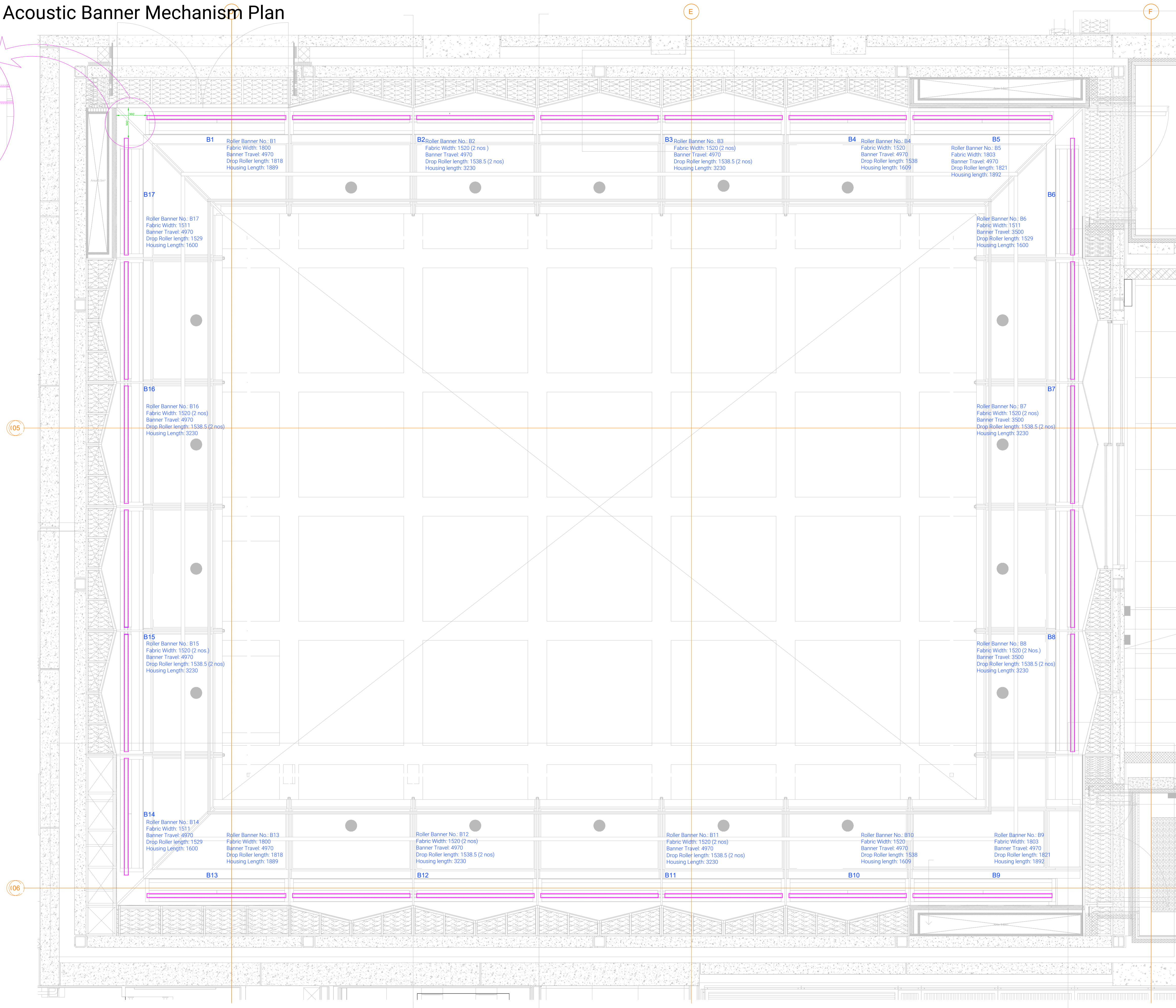
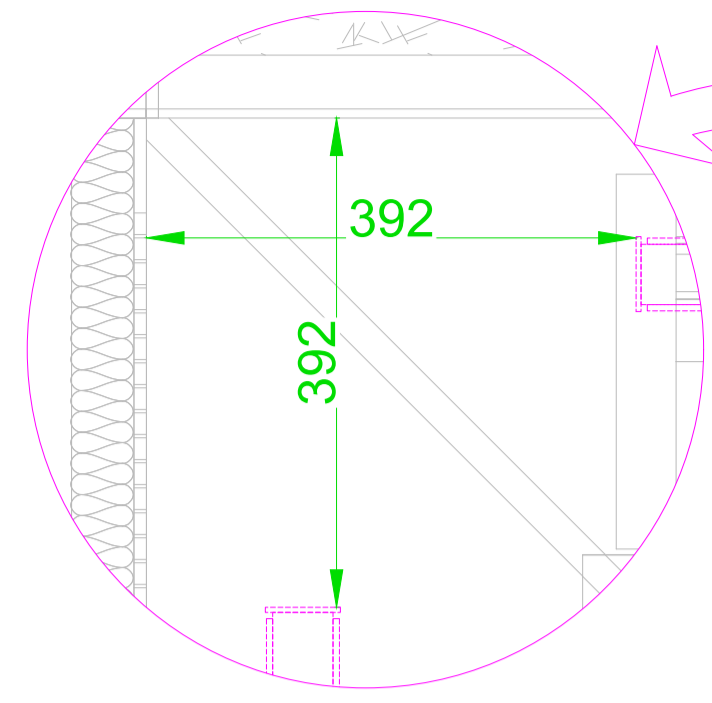
PROJECT	4334 - Oxford Humanities
JCJ NO.	4334-GA-18-0001
PROJECT	UOONHB-JCJ-BB-BM-DR-OT-180001
TITLE	Black Box Variable Acoustic Banner Mechanism Plan View
PURPOSE	A5 - Accepted as Suitable for Record
REV	C02

Scale 1:25



Nominal Dimension between  
banner mechanism is 10 mm

# Black Box Variable Acoustic Banner Mechanism Plan



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REVISIONS			
REV.	BY	DESCRIPTION	DATE
P01	PT	FIRST ISSUE	26/10/2023
P02	PT	Second Issue	05/01/2024
C01	PT	For Construction & Reply to Consultant's Comments	12/03/2024
C02	SH	For Record	28/04/2025

- Notes:
1. Banner schedule listed in the material submission.
  2. Should be read in conjunction with the following drawings:
    - a. UOONHB-JCJ-BB-BM-DR-OT-180001
    - b. UOONHB-JCJ-BB-ZZ-DR-OT-180003
    - c. UOONHB-JCJ-BB-BM-DR-OT-180004
  3. Roller Banner mechanism and drop rollers are to be of RAL 7024 (Graphite Grey) in Blackbox space.
  4. Bracket and Fixing method to wall shown on drawing UOONHB-JCJ-BB-BM-DR-OT-180004.

Status:

A -  B -  C -

All dimensions in mm unless otherwise stated. Do not scale.

DRAWN:	SH	DATE:	28/04/2025
CHECKED:	JC	DATE:	28/04/2025
APPROVED:	OS	DATE:	28/04/2025
SCALE:	ON SHEET	PAPER SIZE:	A1



PROJECT	4334 - Oxford Humanities
JCJ NO.	4334-GA-18-0002
PROJECT	UOONHB-JCJ-BB-BM-DR-OT-180002
TITLE	Black Box Variable Acoustic Banner Drop Roller Plan View
PURPOSE	A5 - Accepted as Suitable for Record
REV	C02

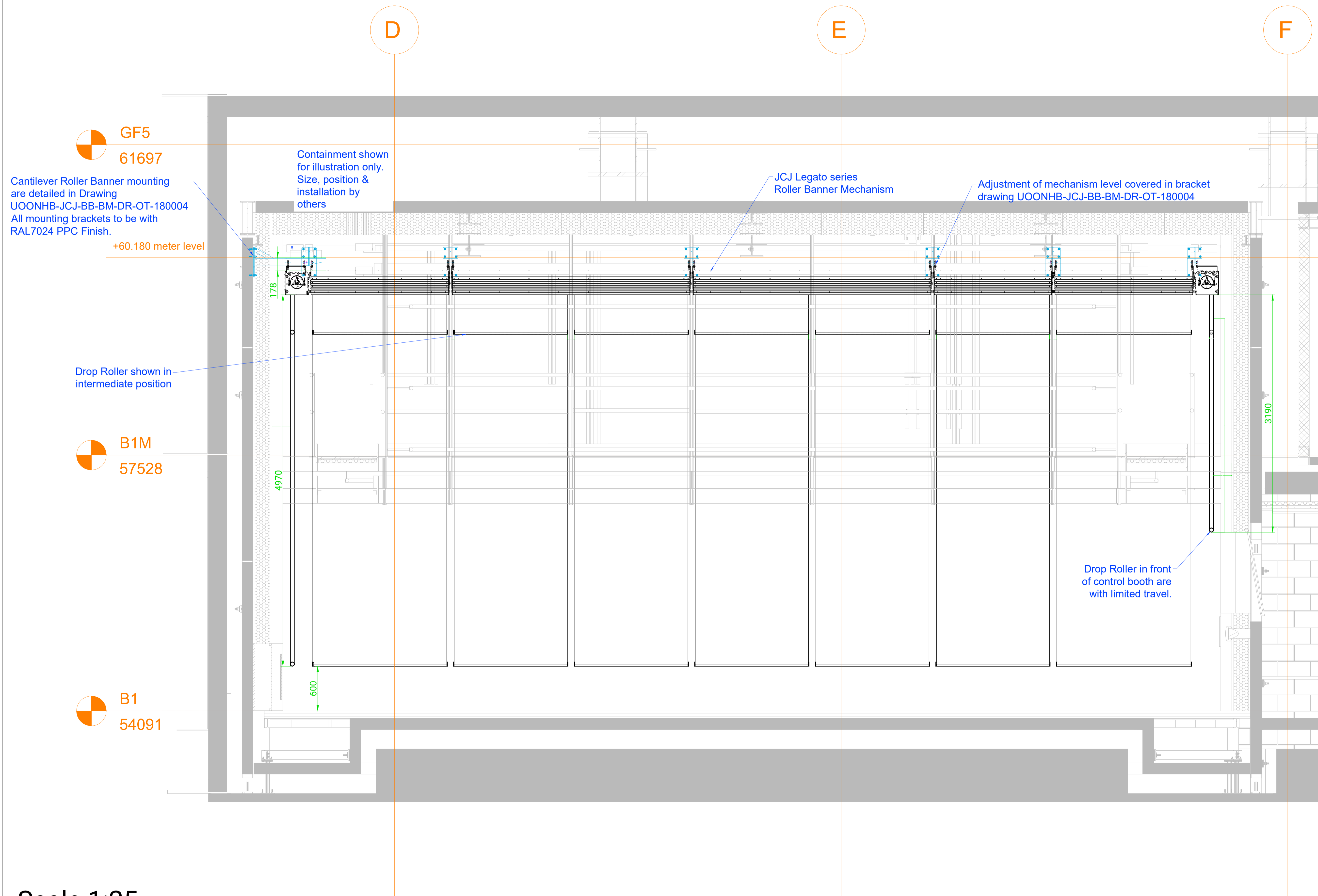
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# Black Box Variable Acoustic Banners Section View

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REVISIONS			
REV.	BY	DESCRIPTION	DATE
P01	PT	FIRST ISSUE	06/12/2023
P02	PT	Second Issue	12/03/2024
C01	JC	Construction Issue	28/05/2024
C02	SH	For Record	28/04/2025

- Notes:
- Banner schedule listed in the material submission.
  - Should be read in conjunction with the following drawings:
    - UOONHB-JCJ-BB-BM-DR-OT-180001
    - UOONHB-JCJ-BB-BM-DR-OT-180002
    - UOONHB-JCJ-BB-BM-DR-OT-180004
  - Roller Banner mechanism and drop rollers are to be of RAL 7024 (Graphite Grey) in Black box space.
  - Bracket and Fixing method to wall shown on drawing UOONHB-JCJ-BB-BM-DR-OT-180004



Status:  
 A -  B -  C -

All dimensions in mm unless otherwise stated. Do not scale.

DRAWN:	SH	DATE:	28/04/2025
CHECKED:	JC	DATE:	28/04/2025
APPROVED:	OS	DATE:	28/04/2025
SCALE:	ON SHEET	PAPER SIZE:	A1

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PROJECT	4334 - Oxford Humanities
JCJ NO.	4334-GA-18-0003
PROJECT	UOONHB-JCJ-BB-ZZ-DR-OT-180003
TITLE	Black Box Variable Acoustic Banner Section Elevation View
PURPOSE	A5 - Accepted as Suitable for Record

Scale 1:25

REV C02

# Black Box - Variable Acoustic Banners - Wall Brackets

Steel Flat Bar - 350x15mm thick to be attached to JAJ air plenum.  
 Structure as shown in drawing ;  
 UOONHB-JAJ-BB-ZZ-DR-O-000518  
 6 Nos of Holes Ø20mm to be provided in SFB for HB12-2,73mmL  
 Hollow Bolt M12

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REVISIONS			
REV.	BY	DESCRIPTION	DATE
P01	JC	FIRST ISSUE	27/02/2024
P02	JC	BRACKET SIZE, LOADS & ADDITIONAL 9 BRACKETS	01/03/2024
P03	JC	DESIGN CHANGE	04/03/2024
P04	JC	DESIGN CHANGE	28/03/2024
C01	SH	DESIGN CHANGE	04/06/2024
C02	SH	For Record	28/04/2025

**Notes:**

Drawings to be read in conjunction with;  
 UOONHB-JCJ-BB-BM-DR-OT-180001  
 UOONHB-JCJ-BB-BM-DR-OT-180002  
 UOONHB-JCJ-BB-ZZ-DR-OT-180003

This drawing is explicitly for the supporting wall brackets. For information on the banners themselves see drawings listed above.

Brackets to be powder coated RAL 7024.

Brackets to carry weight of banners + 70kg/m of containment between each bracket.

For structural calculations see document; UOONHB-JCJ-BB-BM-CA-OT-180004

**Codes:**

- B - denotes banners
- WB - denotes wall brackets

**Status:**

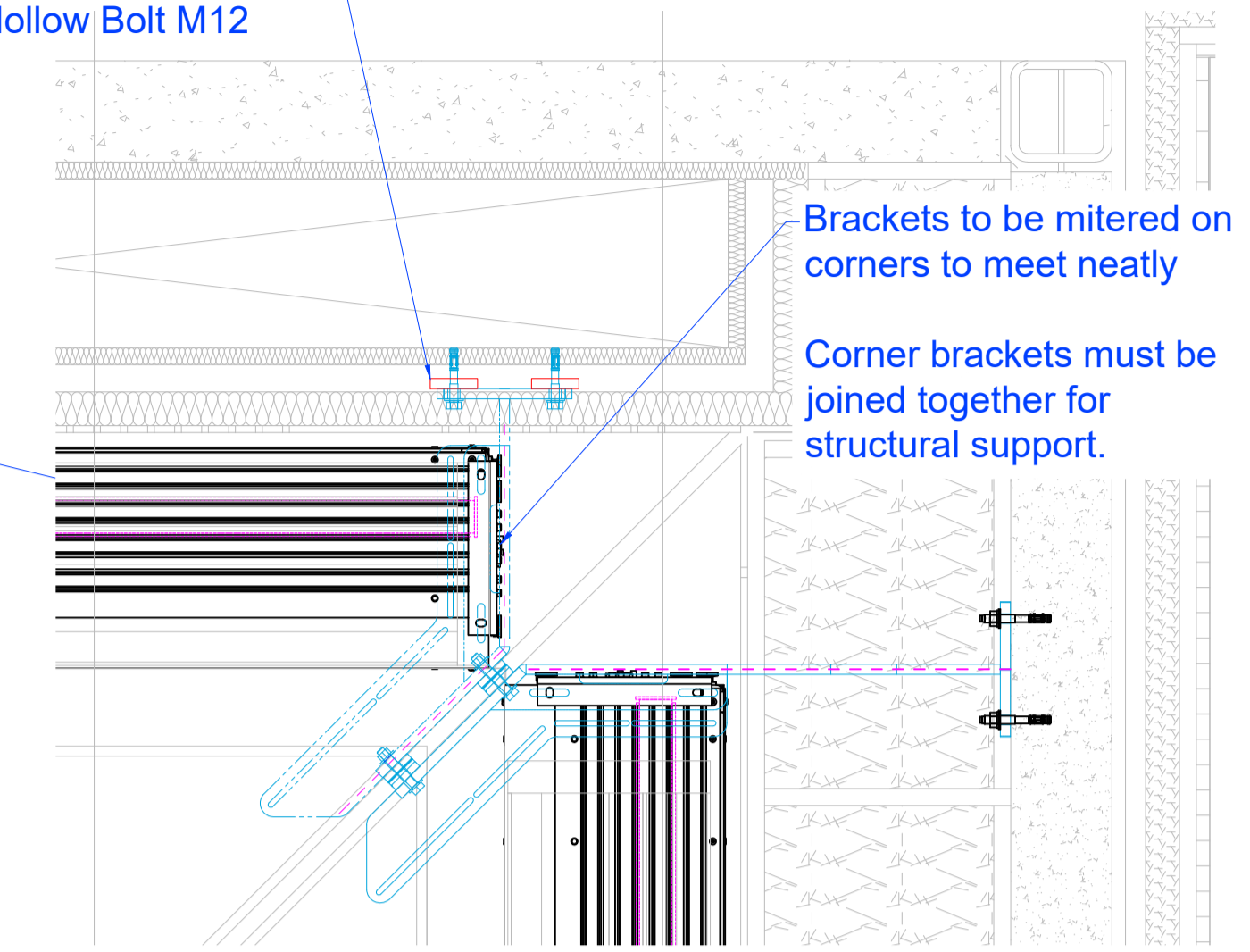
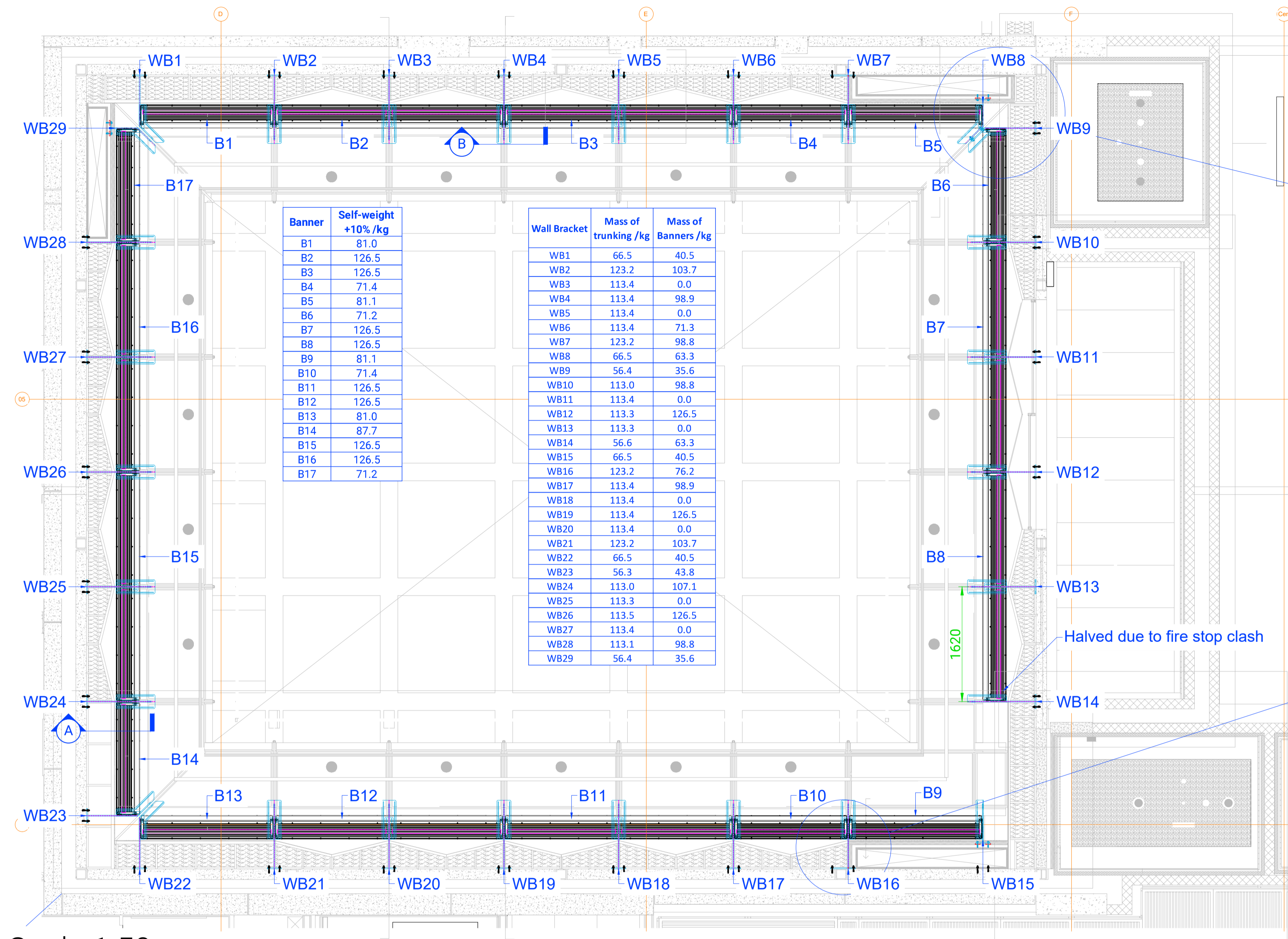
A -  B -  C -

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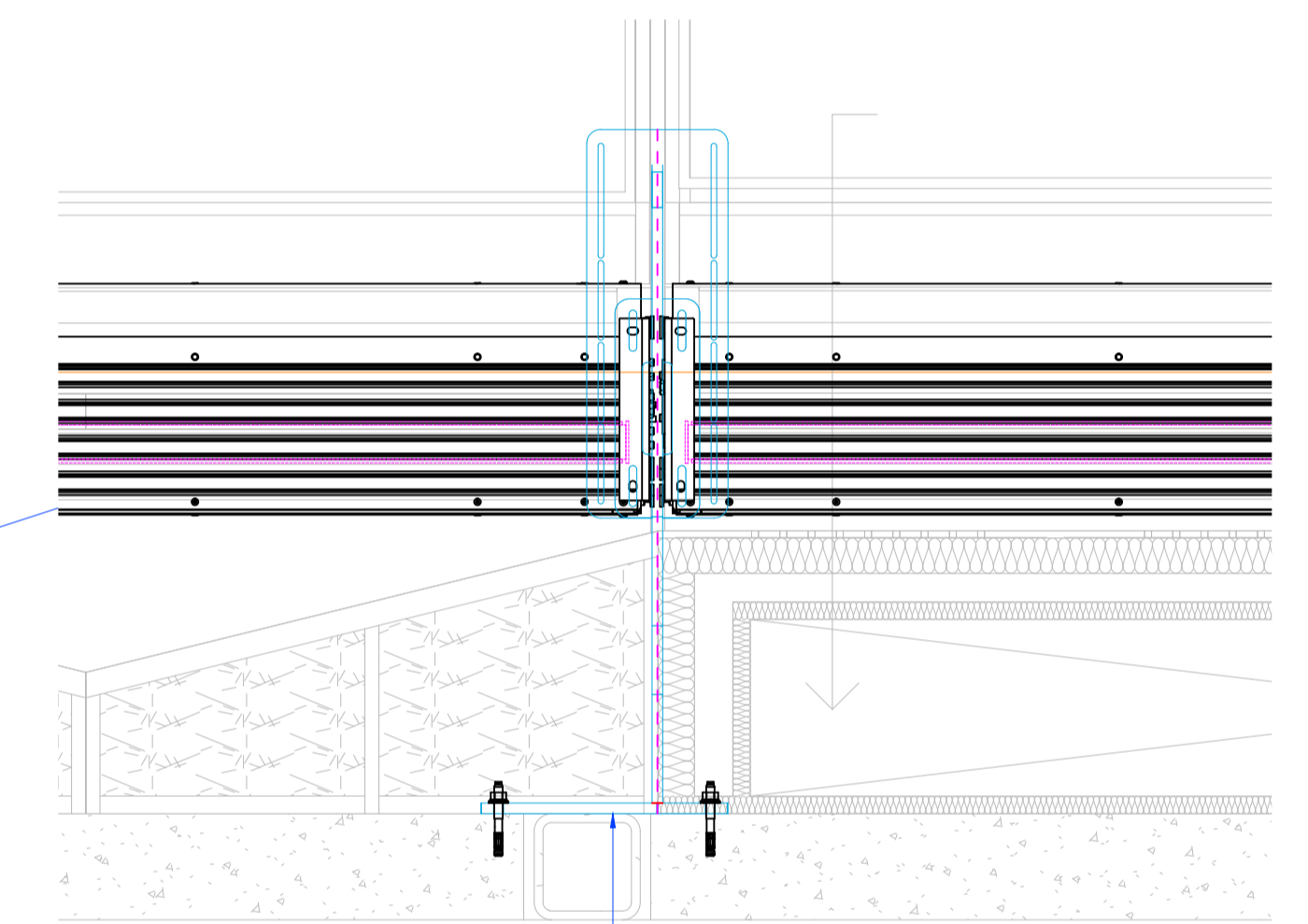
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CHECKED:	JC	DATE:	28/04/2025
APPROVED:	OS	DATE:	28/04/2025
SCALE:	ON SHEET	PAPER SIZE:	A1

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PROJECT	4334 - Oxford Humanities
JCJ NO.	4334-GA-18-0004
DRG NO.	UOONHB-JCJ-BB-BM-DR-OT-180004
TITLE	Black Box Variable Acoustic Banners Wall Brackets
PURPOSE	A5 - Accepted as Suitable for Record
REV	C02



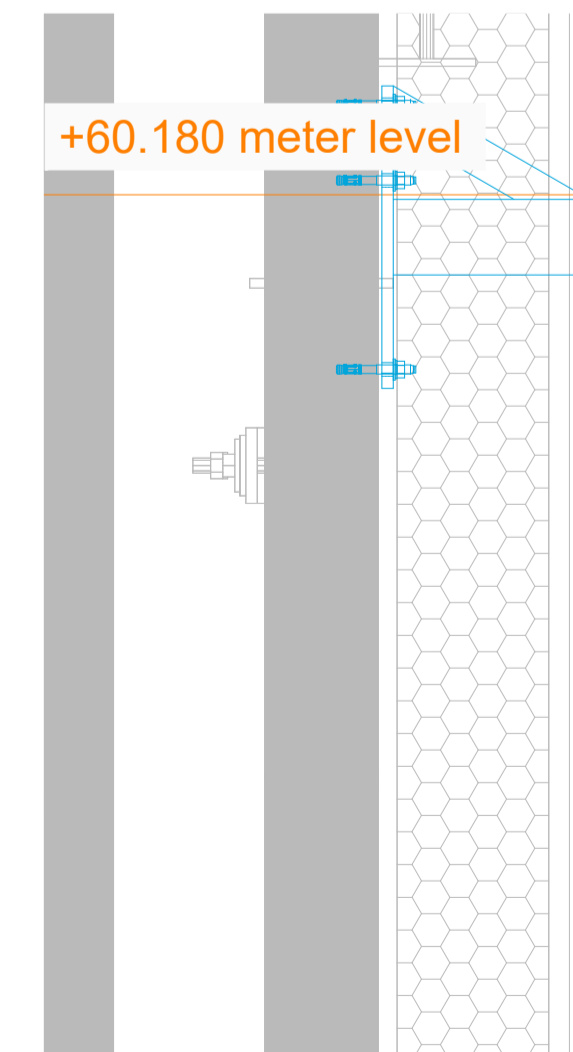
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Scale 1:10

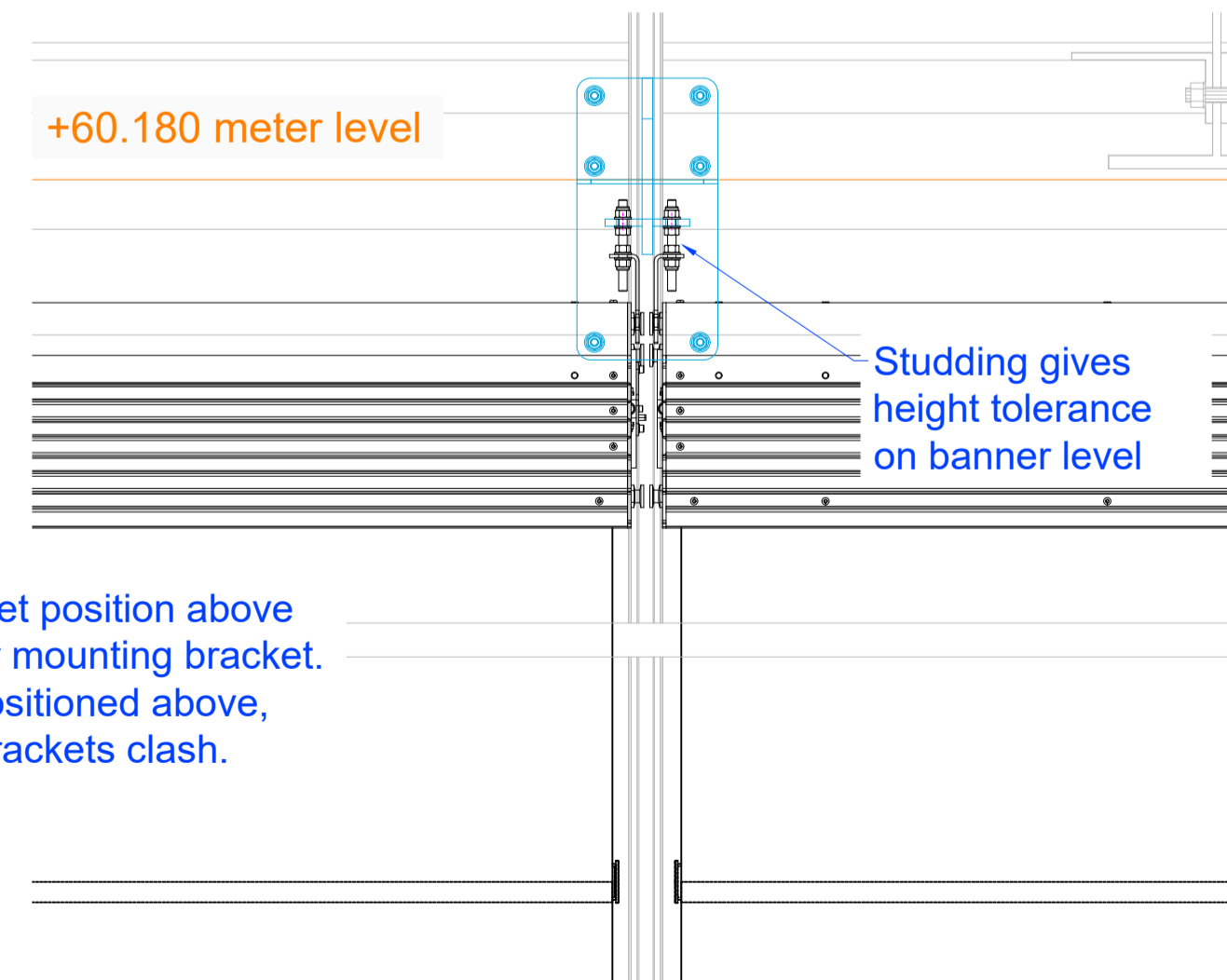
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**Section A**

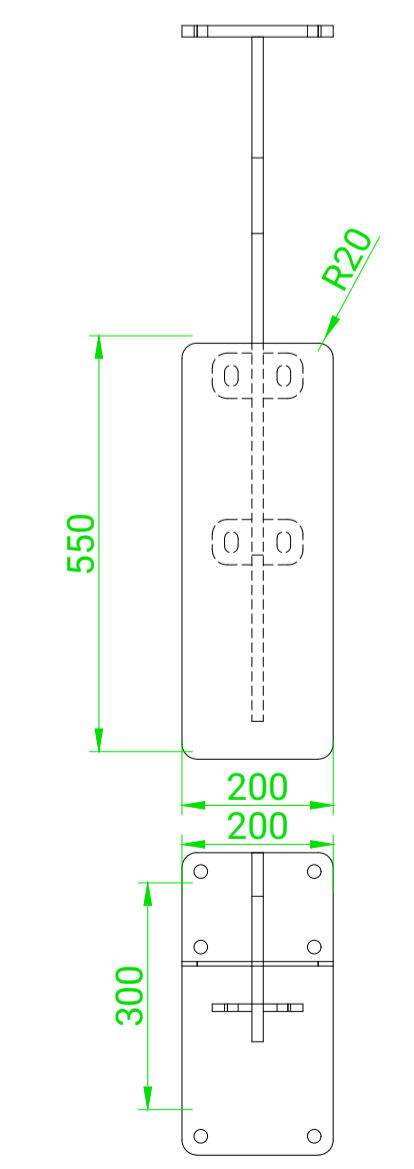


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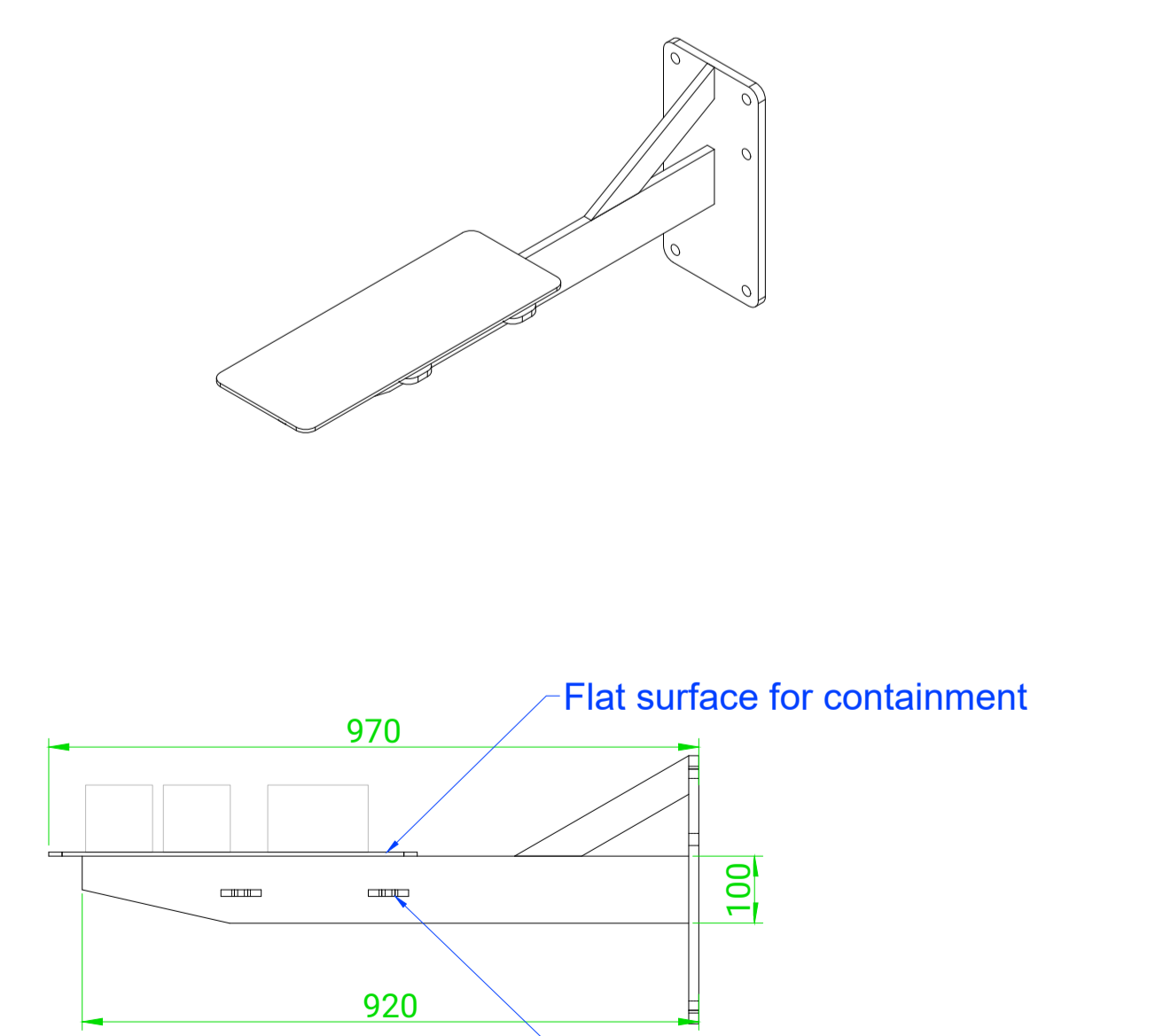
**Section B**



Scale 1:10



Scale 1:10



Scale 1:10