

Curtain Theatre Archaeology

at The Stage, Shoreditch

Conservation Works

Prepared by Sally Strachey Historic Conservation Ltd.

September 2021
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1. Summary

Sally Strachey Historic Conservation Ltd. was appointed to undertake a programme of remedial conservation works to the archaeology remains of the Curtain Theatre playhouse: Scheduled Monument No. 1463328.

The conservation works were undertaken following the direction of Historic England and with the co-operation of MOLA.

The present document is an illustrated report on the work that took place, prepared by Sally Strachey Historic Conservation Ltd.

2. Historical Context

The site comprises buried deposits and structural remains relating to the Curtain Playhouse, of about 1577-1625 excavated by MOLA in 2016.

The archaeological remains relate to the construction of the playhouse stage, the North and South galleries, internal and external yard surfaces, a corridor and gully along with later C17th and C18th structures built over and incorporating the playhouse.

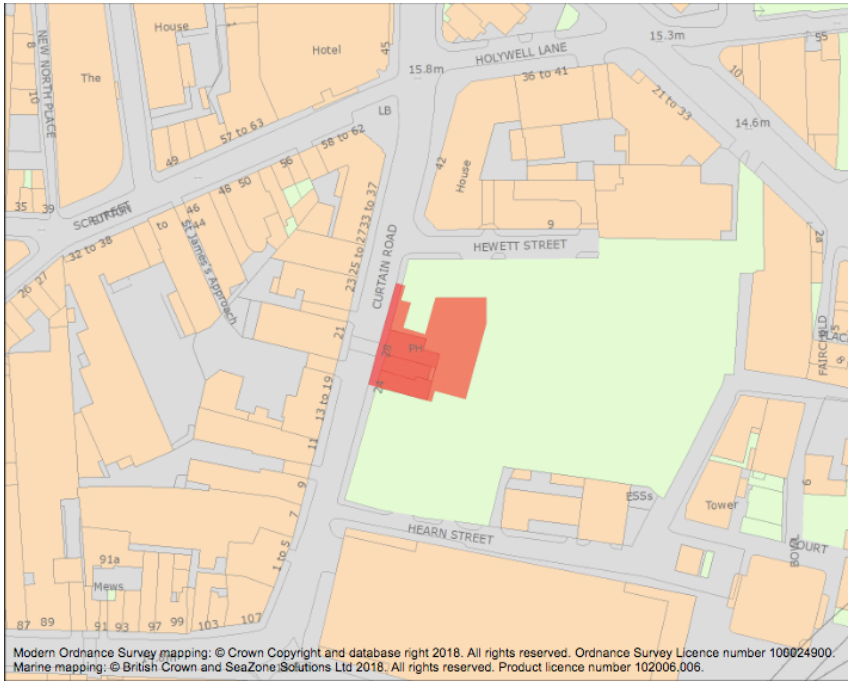
The Curtain Theatre was one of a handful of sole-purpose Elizabethan playhouses clearly identified as archaeological monuments in London and one of the earliest surviving examples of a non-polygonal theatre.

The Curtain theatre became a Scheduled Monument in 2019.

3. Contract Brief

Specialist remedial repair of a scheduled monument.

3.1 Project Brief



Drawing 1 – The OS location of the site.

The general location of the scheduled monument, within the Borough of Hackney, London.

The site is bounded by Hearn Street, Curtain Road and Hewett Street.

The location of all the archaeological remains on the site.



Drawing 2 – MOLA archaeological drawing of site.

The repairs to the archaeological remains of the Curtain Theatre included the following works;

- Re-bedding loose bricks.
- Re-pointing brickwork.
- Re-building a collapsed section of brick wall.
- Insertion of Helifix bars in brick wall.
- Insertion of Spiro ties in brick wall.
- Introduction of stainless steel bars and props under overhanging brick work.

- insertion of stainless steel mesh within bed joints.
- introduction of a stainless steel right angle bar and mesh support.

All as per the Schedule of Works, Materials and Workmanship.

Scheduled Monument Consent was obtained for the conservation works.

3.2 Contract Particulars

Location	The Stage 2-4 Fairchild Place London. EC2A 3EN
Project Manager	Adam Pleeth Gardiner & Theobald LLP 10 South Crescent London. WC1E 7BD
Structural Engineer	Richard Swift SFK Consulting Unit 26, Basepoint Enterprise Centre Andersons Road Southampton Hants. SO14 5FE

Conservation Consultant Jane Sidell
Historic England
4th floor, Cannon Bridge House
25 Dowgate Hill
London. EC4R 2YA

Archaeologist Heather Knight
MOLA
Mortimer Wheeler House
46 Eagle Wharf Road
London N1 7ED

4 Samples and Trials

Samples of original mortar taken from the Curtain Theatre Wall were sent to Sandberg for analysis.
From the samples Sandberg provided a mortar analysis report.

From the mortar samples and analysis dry mortar samples were made up by Sally Strachey Historic Conservation.

At a site visit the samples were assessed by Jane Sidell (Inspector of Ancient Monuments – Historic England).
It was noted that the repair mortar needed to be visually very similar to the original mortar to ensure the minimal conservation approach towards the archaeological remains was maintained.

4.1 Approved Mortar Sample

Further mortar samples were made up and by email on 24th May 2021 a mortar sample was approved by Jane Sidell for bedding and pointing the brickwork.



Photograph 1 – approved dry mortar sample.



Photograph 2 – approved dry mortar sample next to original mortar.

Material	Quantity
Lime Putty	1
Coarse Brown sand	2
Fuel Ash	1.5
Horton Brown stone dust	0.5

4.2 Sources and Suppliers

The following sources/suppliers have been used:-

Material	Supplier
Lime Putty	Chalk Down Lime The Lime Yard Robertsbridge TN32 5RP www.chalkdownlime.com
Coarse Brown sand	Specialist Aggregates Ltd Rydal House Colton Road Rugeley, WS15 3HF www.specialistaggregates.com
Fuel Ash & Hornton Brown stonedust	Limebase Walrond's Park Taunton TA3 6QP www.limebase.co.uk
SS Spiro ties	Structural Supplies 85 Great Portland St London W1W 7LT www.structuralsupplies.co.uk
SS Helifix bar	Buildersmetalwork 331 South Coast Road Peacehaven BN10 7HP www.buildersmetalwork.com

SS mesh	Fastbuild Supplies The Old Brick Yard Kiln Lane Swindon SN2 2NP www.fastbuildsupplies.co.uk
SS threaded bar & resin mortar	Screwfix Trade House Mead Avenue Yeovil, BA22 8RT www.screwfix.com
SS bar props and SS right angle bar and mesh support	Ben Prothero Artist Blacksmith Unit 20, Wayside Farm, The Camp Stroud Gloucestershire. GL6 7EW Benprothero1@icloud.com
Ballast sand	Salvaged on site from archaelogical protection
Bricks	Salvaged on site from archaeological works

5 Repair Programme for the Curtain Theatre Archaeology

5.1 Conservation Works to brickwork – Room B

5.1.1 Specified Works

- Re-set loose bricks along the wall top in the same location and consolidate top surface using approved lime mortar mix. (see photographs 3 & 4)
- Introduce 3 no. stainless steel Helifix bars (6mm diameter) in raked out bed joints, every fourth course, on outside of north-west corner. Up to 2.0m length of right angle bent bar fixed with approved lime mortar. (see photographs 5, 6)
- Rake out and re-point inner face of north-west corner with approved lime mortar. (see photographs 7 & 8)

5.1.2 Variations Instructed

- 1 no. salvaged brick insertion. (see photograph 9)
- Re-point missing areas of pointing (0.5m²) on both sides of East wall.
- No Spiro ties were installed in the East wall.

5.1.3 Commentary on works carried out and variations undertaken

- The East wall was found to be in a stable condition with only small areas requiring re-pointing.
- The salvaged brick was inserted into the base of the wall in the exterior NW corner of Rm B to ensure the stability of the wall.

5.2 Conservation Works to brickwork – Room C

5.2.1 Specified Works

- Re-set loose bricks along the wall top in the same location and consolidate top surface using approved lime mortar mix. (see photographs 10 & 11)
- Re-build collapsed exterior section of East wall (North) using the original bricks, with bonding into West face, to match existing coursing and disposition. Use approved lime mortar for bedding and pointing. (see photographs 12, 13 & 14)
- Re-bed and consolidate top 8 courses of brickwork of East wall (South). (see photographs 15 & 16)
- Install 25mm x 5mm stainless steel bar support (fixed with 4 no. 25mm x 5mm stainless steel bars and resin) under overhanging brickwork on East wall (South). (see photographs 17 & 18)

- Consolidate the brickwork where the East and South walls join with 2 no. Spiro ties. (see photograph 19)

5.2.2 Variations Instructed

- No stainless steel mesh or ties were used in the re-building of the collapsed wall.
- Re-bedding of brick doorway step in North wall, included the insertion of stainless steel mesh in the bed joint. (see photograph (see photographs 20 & 21)

5.2.3 Commentary on works carried out and variations undertaken

- Original bricks were able to be used to ties the faces of the re-built collapsed wall together.

5.3 Conservation Works to brickwork – Room D

5.3.1 Specified Works

- Re-set loose bricks along the wall top in the same location and consolidate top surface using approved lime mortar mix. (see photographs 22 & 23)
- Consolidate East wall with 10 no. Spiro ties. (see photograph 24)
- Install 25mm x 5mm stainless steel bar support (fixed with 2 no. 25mm x 5mm stainless steel bars and resin & 2 no. 25mm x 5mm stainless steel props) under overhanging brickwork on East wall (North). (see photograph 25 & drawing 3)

5.3.2 Variations Instructed

- Insertion of 2 no. salvaged bricks in gap in East wall (North). (see photographs 25 & 26)
- Installation of stainless steel mesh backing and lime mortar render over area of mud/rubble infill in the East wall (North). (see photograph 26)
- Pinning of crack in concrete block, West wall with 4 no. 8mm threaded stainless steel bars and resin mortar and filling of crack with suitable mortar. (see photograph 27)
- Re-building brickwork in South West corner, including the insertion of stainless steel mesh in bed joint. (see photographs 28 & 29)
- Re-pointing loose pointing on the inside of the East wall (1.0 m²) with the approved lime mortar. (see photographs 30 & 31)

- Insertion of a 50 x 50 x 5mm stainless steel right angle bar and mesh support to knuckle bone floor, North side. (see photograph 32 & Drawing 4)
- Cut out and replace 2 no. bricks in inside East wall, with salvaged bricks and approved lime mortar.(see photograph 33)

5.3.3 Commentary on works carried out and variations undertaken

- Soil salvaged from the archaeological works was packed between the knuckle bones and the stainless steel support to keep them in position.

5.4 Conservation Works to brickwork – Room E

5.4.1 Specified Works

- Re-set loose bricks along the wall top in the same location and consolidate top surface using approved lime mortar mix.

5.4.2 Variations Instructed

- Fill hole left by archaeology next to knuckle bone floor with lime putty and ballast (1:3) and brick pieces. (see photographs 34 & 35)
- Insertion of stainless steel mesh roll and mortar support on East side of knuckle bone floor, using approved lime mortar. (see photographs 34 & 35)

5.4.3 Commentary on works carried out and variations undertaken

- The stainless steel mesh roll and mortar support was packed tight to the knuckle bones to keep them in position but below the exhibition floor level so it would not be visible.



Photograph 3 – Rm B before conservation.



Photograph 4 – Rm B after conservation.



Photograph 5 – exterior of NW corner, Rm B before conservation.



Photograph 6 – exterior NW corner, Rm B after conservation & insertion of Helifix bars.



Photograph 7 – interior of NW corner, Rm B before re-pointing.



Photograph 8 – interior of NW corner, Rm B after re-pointing.



Photograph 9 – location of 1 no. brick replacement in the exterior NW corner, Rm B.



Photograph 10 – Rm C before conservation.



Photograph 11 – Rm C after conservation.



Photograph 12 – collapsed East wall (North) Rm C before rebuilding.



Photograph 13 – collapsed East wall (North) Rm C before rebuilding.



Photograph 14 – collapsed East wall (North) Rm C after re-building, using the original bricks and approved lime mortar.



Photograph 15 – loose 8 courses of brickwork, East wall (South) Rm C before re-bedding.



Photograph 16 – loose 8 courses of brickwork, East wall (South) Rm C after re-bedding with approved lime mortar.



Photograph 17 – supported overhanging brickwork East wall (South) Rm C before installation of stainless steel bar supports.



Photograph 18 – stainless steel bar supports, after installation, East wall (South) Rm C.



Photograph 19 – the location of Spiro ties consolidating the join of the East and South walls Rm C.
The wall joints have also been re-pointed with the approve lime mortar.



Photograph 20 – stainless steel mesh being inserted into bed joint during re-bedding of the doorway step North wall Rm C.



Photograph 21 – Doorway step North wall Rm C after re-bedding with approved lime mortar and insertion of stainless steel mesh in bed joint.



Photograph 22 – Rm D before conservation.



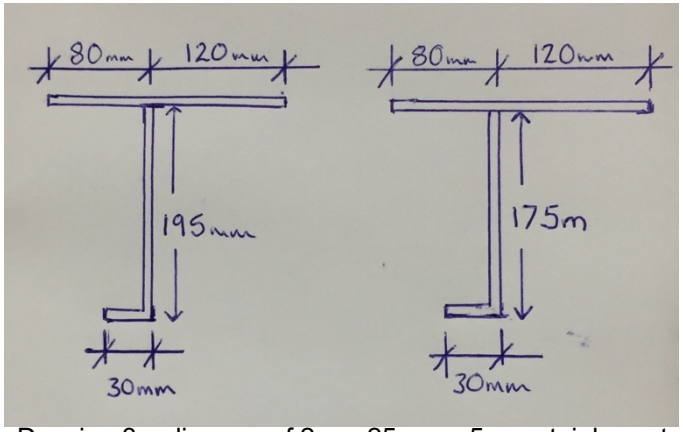
Photograph 23 – Rm D after conservation.



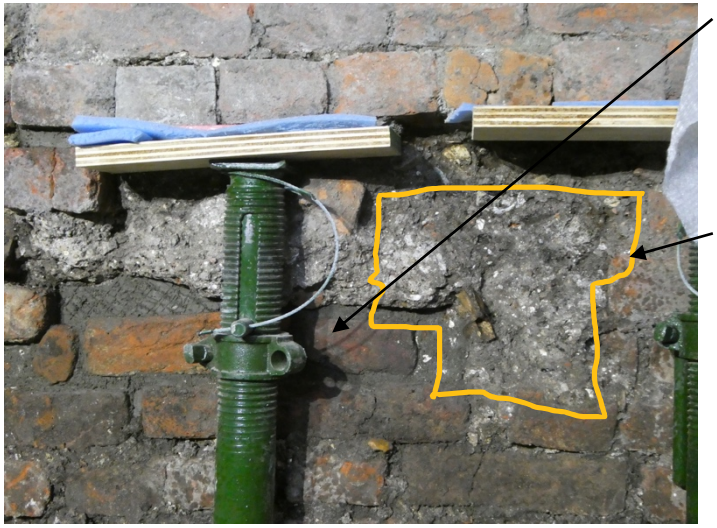
Photograph 24 – location of 10 no. Spiro ties consolidating around window infill East wall Rm D.



Photograph 25 - supported overhanging brickwork and gap in brick work East wall (North) Rm D before installation of 2 no. salvaged bricks and stainless steel bar support.



Drawing 3 – diagram of 2 no. 25mm x 5mm stainless steel props used to support stainless steel bar.



Photograph 26 – location of 2 no. bricks bedded with approved lime mortar in East wall (North) Rm D.

Location of area of mud/rubble infill to be covered with stainless steel mesh backing and render using approved lime mortar.



Photograph 27 – Location of 4 no. 8mm threaded stainless steel bars and resin mortar pinning concrete block West wall Rm D.



Photograph 28 – Loose brick work before re-building SW corner Rm D.



Photograph 29 – Loose brick work after re-building with stainless steel mesh in bed joint and approved lime mortar SW corner Rm D.



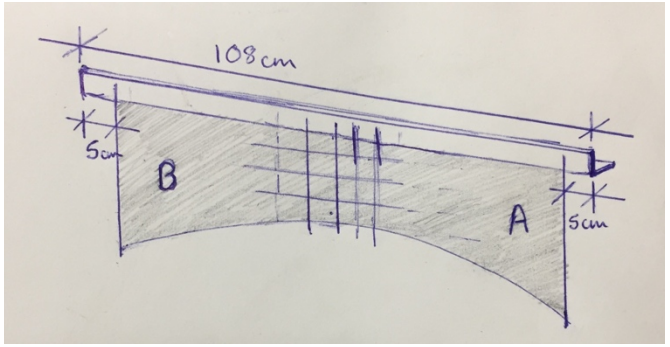
Photograph 30 – Defective pointing on interior East wall (South) Rm D before re-pointing.



Photograph 31 - Interior East wall (South) Rm D after re-pointing with approved lime mortar.



Photograph 32 – North side of knuckle bone flooring Rm D before installation of stainless steel right angle bar and stainless steel mesh support.



Drawing 4 – diagram of 50 x 50 x 5mm stainless steel right angle bar and stainless steel mesh bedded in front of North side of knuckle bone flooring Rm D to provide support.



Photograph 33 – Area under window infill East wall (South) Rm D before 2 no. bricks were cut out and replaced with salvaged bricks.



Photograph 34 – hole left by archaeology and East side of knuckle bone flooring before conservation Rm E.



Photograph 35 – Infilled hole and mesh and stainless steel mesh roll and approved lime mortar support East side of knuckle bone flooring Rm E.

6 Observations

After the removal of the geotextile protection a fine layer of salt efflorescence appeared on the surface of the brickwork. This was brushed off with a soft bristle brush in areas where conservation works were undertaken.

The archaeological remains were covered with geotextile, whilst the concrete blocks were cut, to protect them from concrete dust.

7 Future Maintenance and Recommendations

The archaeological remains should be monitored for further salt efflorescence.

Although the archaeological remains will be in a controlled environment the mortar, especially areas in the brickwork that are predominately mud/mortar fills, should be monitored for any further deterioration.

The North side of the West doorway in Room C should be monitored for any further subsidence.



Photograph 36 - North side of the West doorway Rm C, after conservation.