

## Petersfield Festival Hall

**Project Number: 180327**

## Structural Specification for the Stage Works

**Ref:** 180327 / GM

**Date:** 31 January 2024

**Revision:** Tender

### ● London

1–5 Offord Street  
London N1 1DH  
Telephone 020 7700 6666

### Norwich

6 Upper King Street  
Norwich NR3 1HA  
Telephone 01603 628 074

### Cambridge

16 Signet Court Swann Road  
Cambridge CB5 8LA  
Telephone 01223 656 058

### Colchester

35 Mayfly Way  
Colchester CO7 7WX  
Telephone 01206 581 950

[design@conisbee.co.uk](mailto:design@conisbee.co.uk)  
[www.conisbee.co.uk](http://www.conisbee.co.uk)

### Directors

Tom Beaven BEng (Hons) CEng MStructE  
Allan Dunsmore BEng (Hons) CEng FStructE MICE  
Richard Dobson MEng CEng MStructE  
Paul Hartree IEng MICE MCIHT FGS  
Ben Heath BEng CEng MStructE  
Kevin Clark BSc (Hons) PhD DIC CEng MICE FRSA,  
Conservation Accredited Engineer (CARE)  
Denis Kealy BEng (Hons) CEng MIEI MStructE

### Associate Directors

David Richards BEng (Hons) ACGI CEng MStructE  
Tom Lefever BEng (Hons) CEng C.WEM MICE MCIWEM  
Nigel Nicholls IEng AMIStructE

### Associates

Gary Johns  
Christina Kennedy MEng (Hons) CEng MStructE  
Joel Waugh Tech Eng MICE  
Adam Crump BSc (Hons) Civil Engineering  
Beena Doal Head of Finance & Operations  
Andrew Marshall BEng  
Robert Frostick MEng CEng MSc MStructE FRSA  
Gavin McLachlan MEng MStructE  
Jonathan Little MEng MStructE

### Consultants

Alan Conisbee BA BAI CEng MStructE  
Conservation Accredited Engineer (CARE)  
Chris Boydell BSc CEng MStructE FICE  
Bob Stagg BSc (Hons) CEng FStructE MICE  
Terry Girdler BSc (Hons) Eng MSc CEng FICE MStructE  
Conservation Accredited Engineer (CARE)  
Tim Attwood BSc CEng MStructE

Conisbee is a trading name of  
Alan Conisbee and Associates Limited  
Registered in England No. 3958459



## Table of Contents

<b>B50 General structural requirements .....</b>	<b>1</b>
<b>D20 Excavating and filling .....</b>	<b>3</b>
<b>E05 In situ concrete construction generally .....</b>	<b>6</b>
<b>G10 Structural steel framing.....</b>	<b>7</b>

## **B50**

### **General structural requirements**

#### **Tendering - Not Used**

#### **General**

##### **110 Eurocodes**

- National Annexes: Reference to a Eurocode, or to an execution or a material standard referenced therein, is deemed to include the appropriate United Kingdom National Annex, to the Eurocode or referenced standard. Nationally determined parameters shall apply. Non-contradictory complementary information: Applies when referenced in the National Annex.
- Substitution of alternative design rules for Eurocode Application Rules: Not permitted

##### **120 Structural work**

- Designated codes of practice: To the Eurocodes appropriate to the nature of the structure
- Design working life: 50 years
- Completed structure generally: To comply with the requirements of the designated codes of practice and the standards referenced therein. Deflections and other structural movements at serviceability limit state to be compatible with requirements of the building fabric, movement joints and weathertightness.
- Special requirements: None

#### **Performance - Not Used**

#### **Execution**

##### **700 Execution generally**

- Standard: Report conflict between specification and the designated codes of practice and the standards referenced therein before ordering affected materials or executing affected work.
- Inspection levels: Submit proposals
  - Special requirements: None
- Quality control: Submit proposals
- Tolerances: Notwithstanding tolerances specified elsewhere, do not exceed requirements for compliance with the designated code.

##### **705 Connections and anchorages**

- End and edge distances and spacing (minimum): Unless otherwise specified or detailed, as required by the designated code of practice for fixings/ anchorages carrying maximum load.
- Report locations where
  - Type and number of fixings cannot be accommodated.
  - Size or position of members prevents correct positioning.

##### **740 Condition survey of existing buildings and structures**

- Application: Structural walls and roof.

- Before starting work: Survey structure. Record and take photographs of damaged or defective areas.
  - Items to be recorded: Location, extent and magnitude of cracks, spalling, indications of movement, previous repairs, modifications and other irregularities of the fabric.
  - Additional investigations: None
- Information supplied: None
- Report: Submit for comment.
  - Include recommendations: None required

**Completion - Not Used**

Ω End of Section

## D20

### Excavating and filling

To be read with preliminaries/ general conditions.

#### 6 Site investigation report

- GEA Report J21196.

#### 22 Adjacent excavations

- Requirement: Where an excavation encroaches below a line drawn at an angle from the nearest formation level of another higher excavation, the lower excavation, all work within it and backfilling thereto, must be completed before the higher excavation is made.
- Angle of line below horizontal: 45°
- Backfill material: Well compacted, MOT Type 1

#### 23 Excavations adjacent to existing foundations

- Prior to commencing excavation
  - Excavate trial pits adjacent to existing foundations to determine extent and formation levels.
  - Allow for inspection of trial pits.
  - Allow time for amendment of details if required.
    - Time period: Five working days
- Backfill material to new excavation: As clause 22

#### 25 Inspecting formations

- Give Notice: Make advance arrangements for inspection of formations for foundations and filling formations.
  - Notice (minimum): Five days
- Preparation: Just before inspection remove the last 150 mm of excavation. Trim to required profiles and levels.
  - Loose material: Remove
- Seal: Within four hours of inspection, seal formations with blinding concrete.

#### 31 Unrecorded features

- Give notice: If unrecorded foundations, beds, voids, basements, filling, tanks, pipes, cables, drains, manholes, watercourses, ditches, etc. not shown on the drawings are encountered.

#### 35 Excess excavations

- Excavation taken wider than required
  - Backfill With concrete grade GEN3 .
- Excavation taken deeper than required
  - Backfill Under foundations: Concrete grade GEN 3.

#### 40 Excavated topsoil removal

- General: Remove from site.

## 50 Hazardous, aggressive or unstable materials

- Generally: Do not import or use fill materials which would, either in themselves or in combination with other materials or groundwater, give rise to a health hazard, damage to building structures or instability in the filling, including material that is:
  - Frozen or containing ice.
  - Organic.
  - Contaminated or noxious.
  - Susceptible to spontaneous combustion.
  - Likely to erode or decay and cause voids.
  - With excessive moisture content, slurry, mud or from marshes or bogs.
  - Clay of liquid limit exceeding 80 and/ or plasticity index exceeding 55.
  - Unacceptable, class U2 as defined in the 'Specification for highway works', clause 601.

## 53 Water

- Generally: Keep all excavations free from water until:
  - Formations are covered.
  - Below ground constructions are completed.
  - Basement structures and retaining walls are able to resist leakage, water pressure and flotation.
- Drainage: Form surfaces of excavations and fill to provide adequate falls.
- Removal of water: Provide temporary drains, sumps and pumping as necessary. Do not pollute watercourses with silt laden water.

## 55 Placing fill

- Surfaces of excavations and areas to be filled: Free from loose soil, topsoil, organic material, rubbish and standing water.
- Freezing conditions: Do not use frozen materials or materials containing ice. Do not place fill on frozen surfaces. Remove material affected by frost. Replace and recompact if not damaged after thawing.
- Adjacent structures, membranes and buried services
  - Do not overload, destabilise or damage.
  - Submit proposals for temporary support necessary to ensure stability during filling.
  - Allow 14 days (minimum) before backfilling against in situ concrete structures.
- Layers: Place so that only one type of material occurs in each layer.
- Earthmoving equipment: Vary route to avoid rutting.

## 75 Blinding

- Surfaces to receive sheet overlays or concrete:
- Blind with
  - Concrete where shown on drawings; or
  - Sand, fine gravel, or other approved fine material applied to fill interstices. Moisten as necessary before final rolling to provide a flat, closed, smooth surface.
- Sand for blinding: To BS EN 12620, grade 0/4 or 0/2 (MP).

180327 Petersfield Festival Hall - Stage Works

D20

- Permissible deviation on surface level: 10mm

Ω End of Section

## **E05**

### **In situ concrete construction generally**

**To be read with preliminaries/general conditions.**

#### **223 Structural drawings and schedules**

- Standards
  - Drawings: To BS EN ISO 3766.
  - Reinforcement schedules: To BS 8666.

#### **290 Accuracy of construction**

- Setting out: To BS 5964-1.
- Geometrical tolerances: To Section 10 of the 'National Structural Concrete Specification for Building Construction'
  - Conflicts: Notwithstanding tolerances specified elsewhere, do not exceed requirements for compliance with the designated code of practice.
  - Substitution of alternative requirements: None

#### **410 In situ concrete construction – supervision/ checking**

- Standard: To BS EN 13670, Execution Class 2

Ω End of Section



## G10

### Structural steel framing

#### Clauses

#### 10 Design

- Design standard: The structural steelwork has been designed to BS EN 1993-1-1.
- Completion of design: Detail steelwork and design and detail joints to BS EN 1993-1-8.
  - Loading requirements: As specified or otherwise calculable.
- Fixings to foundations/ walls: As drawings.

#### 15 Specification standard

- Standard: Comply with latest edition of National Structural Steelwork Specification.
- References to Engineer in NSSS: For the purpose of this contract, interpret such references as being to the person named as administering the Contract on behalf of the Employer.

#### 17 General steel sections

- Description: All steelwork.
- Certification: Provide European Technical Assessment (ETA) with CE marking and a Declaration of Performance (DoP)
- Standard: [BS EN 10210-1](#)– hot finished sections.
- Grade: S355JR
- Source: Obtain steel from a source accredited to a national or internationally accepted quality standard.

#### 40 Bolt assemblies

- Certification: Provide European Technical Assessment (ETA) with CE marking and a Declaration of Performance (DoP)
- Designation: Submit proposals.
  - Threading: Submit proposals.
- Nuts and washers: To suit property class of bolt, as NSSS, clause 2.4.4.
- Coating applied by manufacturer: Submit proposals

#### 45 Proprietary anchors

- Description: To existing beam.
- Manufacturer: Contractor's choice.
  - Product reference: Submit proposals.
- Anchor type: Submit proposals.
- Certification: Provide European Technical Assessment (ETA) with CE marking and a Declaration of Performance (DoP)
- Material: Carbon steel

**50 Column bases**

- Levels: Adjust using steel shims or folding wedges no larger than necessary, positioned symmetrically around perimeter of base plate. Do not use a single central pack.
- Accuracy of erection: Check, and correct errors before filling and bedding beneath bases and carrying out other adjacent work.

**55 Mortar filling/ Bedding of column bases**

- Mortar
  - Cement: Portland cement BS EN 197-1 - CEM I 42.5 or 52.5.
    - Certification: Provide European Technical Assessment (ETA) with CE marking and a Declaration of Performance (DoP)
  - Fine aggregate: To BS EN 12620, grade 0/4 or 0/2 (MP).
- Bolt pockets: Completely filled with neat cement slurry.
- Spaces beneath base plates: Completely filled with 1:1 cement: fine aggregate mortar, just fluid enough to pour, tamped well as filling proceeds. Provide temporary shuttering as necessary.

**65 Shop priming for**

- Description: Paint Systems M61/ 110.
- Use/ location: All new steelwork.
- Shop preparation: Blast cleaning to BS EN ISO 8501-1, preparation grade Sa 2½.
- Primer: Compatible with coating under general and fire conditions.
  - Manufacturer: Contractor's choice
    - Product reference: Submit proposals
  - Dry film thickness: To manufacturer's specification.
- Special requirements: Include fire test data for site application of intumescent coating to BS 476-20 and -21, or BS EN 1363-1 and BS EN 1365-2, -3, and/or -4 as appropriate.

Ω End of Section