Maffeis Engineering SPA

# Euston Travelodge SPECIFICATION EWS-002

MHBC-008-SD-SP102\_REV02

04-11-2022

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# B50 General structural requirements

# Tendering

# 10 Information to be provided with tender

- 1. Description: For building modules
- 2. Submit the following
  - 2.1. Drawings: Typical plans, section and elevations
  - 2.2. Calculations: Schedule and location of loads to be transmitted to the supporting structure
  - 2.3. Technical information: The Contractor shall submit all relevant reports (e.g. Structural, thermal, test results) to demonstrate full compliance with the Specifications requirements established in this Specification document.
  - 2.4. Proposals: The Contractor shall justify any proposed modification of the facade systems shown in the drawings and demonstrate full compliance with the technical requirements established in this Specification document. Describe and give reasons for any proposals for:
    - 2.4.1.Additional support or other changes to the supporting structure.
    - 2.4.2. Changes to the specification.
    - 2.4.3. Changes to the adjacent building fabric.
  - 2.5. Builders work, special provisions and special attendance by others: Confirm that full provision has been made in the tender price

## General

## 110 Eurocodes

1. 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.

## 120 Structural work

- 1. Designated codes of practice: To the Eurocodes appropriate to the nature of the structure
- 2. Design working life: Category 4 to BS EN 1990
- 3. 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.

# 130 Contractor's design

- 1. Engineer responsible for overall stability of structure: Submit proposal, including details of qualifications and experience
- 2. Design supervision/ checking levels: To BS EN 1990, Table B4, level DSL3
- 3. Design requirements: None additional
- 4. Design quality control: To BS EN ISO 9001
- 5. Maintenance: The Contractor shall submit all detail drawings relevant to the facade scope of works to ensure the safety and serviceability of the structure, including:
  - 5.1. Critical parts that should be regularly inspected, with recommendations for the frequency of inspection.

- 5.2. Elements susceptible to corrosion, mechanical wear or fatigue that may need to be reconstructed or replaced during the design working life of the structure.
- 5.3. Means of safe access for maintenance and repair.

#### Performance

#### 220 Exposure to fire

1. Building purpose group: In accordance with Table D1 of Building Regulations (Eng) (Approved Document B, Volume 2) the type of accomodation is a mixed and may be described in the terms used in point 4 and 12 as follow:

Committee room, common room, conference room, dining room, lounge or bar (other than in (1) above), meeting room, reading room, restaurant, staff room or waiting room and bedroom

- 1.1. Height of top floor above ground: 25 m (east elevation) and 12 m (north-west elevation)
- 1.2. Depth of lowest basement: Not applicable
- 2. Reaction to fire of structural elements: To Building Regulations.
  - 2.1. Requirements (minimum): All facade materials shall be minimum Class A2-s1, d0 as per BS EN 13501-1.

#### 470 Wind loads/ actions - contractor determined

- 1. Description: FOR WALL
- 2. Standard: To BS EN 1991-1-4.
  - 2.1. Factors and coefficients: Appropriate to location, exposure, altitude, building shape and size, and taking account of existing and known future adjacent and/ or attached buildings.
- 3. Shelter from upwind obstacles: As Standard

# Execution

#### 700 Execution generally

- 1. Standard: Report conflict between specification and the designated codes of practice and the standards referenced therein before ordering affected materials or executing affected work.
- 2. Inspection levels: To BS EN 1990, Table B5, level IL3.
  - 2.1. Special requirements: None
- 3. Quality control: To BS EN ISO 9001
- 4. Tolerances: Notwithstanding tolerances specified elsewhere, do not exceed requirements for compliance with the designated code.

## **705** Connections and anchorages

- 1. 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.
- 2. Report locations where
  - 2.1. Type and number of fixings cannot be accommodated.
  - 2.2. Size or position of members prevents correct positioning.

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

- 1. Application: SFS system
- 2. Before starting work: The Contractor shall submit dimensional survey report showing current condition, deviations and verifying that new cladding can be accommodated in the existing SFS.
  - 2.1. Items to be recorded: Modifications and other irregularities of the fabric, if any
  - 2.2. Additional investigations: None

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 $\Omega$  End of Section

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# M21 Insulation with rendered finish

## **General/ system requirements**

## 120 Survey of structural substrate

- 1. Timing: Before starting work covered in this section.
- 2. Objective: To confirm suitability for application of external wall insulation system.
- 3. Survey report: The survey report shall include, but not limited, to the following:
  - 3.1. The form and condition of the structural substrate.
  - 3.2. A schedule of repairs and/ or additional works necessary to render the substrate suitable to receive the system.
  - 3.3. A schedule of services, fixtures and fittings requiring removal to facilitate installation of the system.
  - 3.4. Proposals for treatment of thermal bridges that may occur as a result of installing the system, e.g. at door and window reveals, concrete floor edges, movement joints.
  - 3.5. Any other relevant information.

# **180 Structural substrate**

- 1. Description: Existing Steel Frame System
- 2. Preparation: None required

# 230 Rendered external wall insulation system

- 1. Description: Rendered external insulation fixed to a supporting structure (SFS). Following the stratrigraphy of the facade system :
  - 1. Substrate (Plasterboard + SFS with fullfil insulation + cement bord) to be retained
  - 2. Breather membrane (new material)
  - 3. Mineral Fibre board + Fixing dowel (new material
  - 4. Mineral Reinforcing Coat (new material)
  - 5. Glass Fibre Reinforcing Mesh (new material)
  - 6. Primer and Render Finish (new material)
- 2. Standard: To BS EN 13500; ETAG 004
  - 2.1. Evidence of compliance: Submit all relevant certificates and reports to demonstrate that the proposed proprietary system complies with all requirements established in this Specification.
- 3. Certified effective life (minimum): 30 years
- 4. System reference: The Contractor shall propose a compliant material and shall submit product data including technical data sheets, tests reports to demonstrate compliance with technical requirements.
- 5. Support rails and brackets: Not required
- 6. Breather membrane: AS P10/320
- 7. Insulation: Mineral Wool to BS EN 13162 (AS P10/217)
  - 7.1. Thickness: 65 mm 80 mm
  - 7.2. Method of Fixing: Fixing dowel
  - 7.3. Recycled content: Contractor's choice
- 8. Coat: As per manufacturer's proprietary system.
- 9. Mesh: As per manufacturer's proprietary system.
- 10. Render: As per manufacturer's proprietary system.

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- 11. Fire performance: To BS EN 13501-1, Class A2-s1, d0 or better
- 12. Vapour permeability of system: Not less than that of the construction to which it is applied.
  - 12.1. Dew point calculations: Provide evidence that the condensation risk, within the building fabric, is reduced to an acceptable level.
- 13. Beads/ trims: Provide and fix all necessary bell casts, stop beads, movement and expansion joint beads, etc. required to complete the installation.

#### 240 Avoidance of interstitial condensation

- 1. Requirement: Determine interstitial condensation risk of cladding system using the method described in BS 5250 Annex D. If necessary, provide a vapour control layer and/ or revise thermal insulation to ensure that damage and nuisance from interstitial condensation does not occur. Do not allow condensation to form on internal surfaces or in hidden areas of the facades systems.
- 2. Outdoor psychrometric conditions (notional): As follows:
  - 2.1. Temperature: Winter -9°C, summer 18°C
  - 2.2. Relative humidity: Winter 60%, summer 65%
- 3. Indoor psychrometric conditions (notional): As follows:
  - 3.1. Temperature: 20°C
  - 3.2. Relative humidity: 50%

#### 250 Avoidance of surface condensation

 Requirement: Determine surface condensation risk of cladding system using the method described in BS EN ISO 13788. If necessary, revise thermal insulation to provide satisfactory temperature factor (fmin). Ensure that damage and nuisance from surface condensation and does not occur. Do not allow condensation to form on internal surfaces or in hidden areas of the facades systems.

#### **305** Contractor's design

- 1. Description: For Insulation system to North-west elevation and East elevation
- 2. Design responsibility: The Contractor shall complete the detail design in accordance with this Specification document. The Contractor shall include in their proposal, but not limited to, the following: all engineering details, material submittals, reports (e.g. thermal, structural), test results to meet the design intent and the technical performance requirements. The Contractor shall submit their proposal for review and approval prior to fabrication.
- 3. Structural and fire requirements
  - 3.1. Generally: As section B50.
  - 3.2. Modifications: None
  - 3.3. Design: Complete the design in accordance with the designated code of practice to satisfy specified performance criteria.
- 4. Functional requirements: As specified in this section
- 5. Additional requirements: None

#### Installation

#### 410 Installation

1. Installer: The system manufacturer, or a contractor approved by the system manufacturer.

#### 420 Adverse weather

- 1. General requirements: The Contractor shall follow the supplier/manufacturer's installation guide and recommendations.
- Materials/ surfaces: Do not use frozen materials and do not apply materials to frost-bound surfaces.

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- 3. Adhesives/ mortars/ renders: Do not apply when air temperature is:
  - 3.1. At or below 5°C on a falling thermometer or below 3°C on a rising thermometer, or when temperature of the air or wall surface is above 30°C and the surface is not protected.
  - 3.2. Outside range recommended by manufacturer, if different from above.
- 4. Temperature of the work: Maintain above minimum level recommended by manufacturer until adhesive/ mortar/ render has fully hardened.
- 5. Newly rendered surfaces: Protect against adverse weather conditions.
- 6. Render coatings damaged by adverse weather: Replace. Touch-ups and/or repairs shall not be acceptable.

#### 430 Substrates

1. Condition before pretreatment/ application of insulation system: Structurally sound, adequately true and level, dry, free from contamination by dirt, dust, efflorescence, organic growths or other deleterious substances and in a suitable condition to receive specified insulation system.

#### **490** Structural movement Joints

1. Requirements: Due to movements between floors, the facade shall accommodate and guaranteed all differential movements at the interface with adjacent facades. In addition, movement joints shall provide continuous insulation and weathering barriers.

#### 550 Inspection of completed installation

- 1. Timing: As soon as possible after completion of the work and before removing scaffolding.
- 2. Submit : Description of inspection and remedial works carried out.

 $\Omega$  End of Section

# P10 Sundry insulation/ proofing work

# Types of insulation

# 217 Insulation slabs fixed to backing wall

- 1. Manufacturer: The Contractor shall propose a compliant material and shall submit product data including technical data sheets, tests reports to demonstrate compliance with technical requirements.
  - 1.1. Product reference: The Contractor shall propose a compliant material and shall submit product data including technical data sheets, tests reports to demonstrate compliance with technical requirements.
  - 1.2. Characteristics: Reaction to fire: To BS EN 13501-1, Class A2-s1, d0 or better
- 2. Material: Rock wool to BS EN 13162
- 3. Recycled content: Contractor's choice
- 4. Thickness: 65 mm 80 mm
- 5. Installation requirements
  - 5.1. Joints: Butted, no gaps. Fit insulation tightly between/ around cladding supports.
  - 5.2. Fasteners: Stainless steel with minimum 70 mm diameter retaining head

#### 320 Breather membrane

- 1. Manufacturer: The Contractor shall propose a compliant material and shall submit product data including technical data sheets, tests reports to demonstrate compliance with technical requirements.
  - 1.1. Product reference: The Contractor shall propose a compliant material and shall submit product data including technical data sheets, tests reports to demonstrate compliance with technical requirements.
- 2. Standard: BS EN 13859-2
  - 2.1. Characteristics: Reaction to fire: To BS EN 13501-1, Class A2-s1, d0 or better
- 3. Installation requirements
  - 3.1. Setting out: Joints minimized. Membrane to form a continuous barrier to prevent water, snow and wind blown dust reaching the substrate.
  - 3.2. Method of fixing: Stainless steel staples at 300 mm centres on line of horizontal laps into sheathing board
  - 3.3. Joints: Lapped 100 mm minimum horizontally and 150 mm minimum vertically.
  - 3.4. Openings: Membrane fixed to reveals.
  - 3.5. Bottom edges: Membrane lapped over flashings, sills, etc. to allow free drainage to the exterior.
- 4. Penetrations: Penetration and overlaps shall be sealed following the supplier's technical guide and recommendations. The Contractor shall ensure the weather proof, insulation and vapour continuity of the building envelope.

 $\Omega$  End of Section



Specification created using NBS Chorus