Maffeis Engineering SPA

# Euston Travelodge SPECIFICATION EWS-003

MHBC-008-SD-SP103\_REV02

04-11-2022

# Contents

B50 General structural requirements	1
H43 Metal insulating sandwich panel cladding/ roofing	4
P10 Sundry insulation/ proofing work	7

# B50 General structural requirements

# Tendering

# 10 Information to be provided with tender

- 1. Description: For metal insulating sandwich panel cladding
- 2. Submit the following
  - 2.1. Drawings: Details and locations of connections to supporting structure
  - 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 (west elevation) and 12 m (south-east elevation)
- 1.2. Depth of lowest basement: Not applicable
- 2. Loadbearing capacity, integrity and insulation: Demonstrate adequacy of the structure by testing to BS 476-21.
- 3. Reaction to fire of structural elements: To Building Regulations.
  - 3.1. 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 and window's frame
- 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. Survey SFS system and window's frame to check the position of the window frame within the

thickness of the externak wall. Check also the type of window's frame to clearly understand how the metal sandwich panel should be fixed to that.

- 2.1. Items to be recorded: Modifications and other irregularities of the fabric, if any
- 2.2. Additional investigations: None
- 3. Report: Submit for comment.

 $\Omega$  End of Section

# H43 Metal insulating sandwich panel cladding/ roofing

# Types of cladding/ roofing system

# **110** Metal insulating sandwich panel

- 1. Description: Cladding between windows
- 2. Humidity load: To BS EN ISO 13788, Class 3
- 3. External exposure: To BS EN ISO 12944-2, C3 (medium)
- 4. Fire performance
  - 4.1. Reaction to fire/ external exposure to fire
    - 4.1.1.Wall panel: To BS EN 13501-1, Class A2-s1, d0 or better
    - 4.1.2. Wall panel core insulation: To BS EN 13501-1, Class A2-s1, d0 or better
- 5. Support structure: Existing SFS System
- 6. Panels
  - 6.1. Standards generally: Factory-assembled construction to BS EN 14509
  - 6.2. External facing material: Organically coated aluminium to BS EN 1396
    - 6.2.1.Composition: Manufacturer standard
    - 6.2.2.Profile: Flat
    - 6.2.3.Colour: As per existing RAL
  - 6.3. Internal facing material: Organically coated aluminium to BS EN 1396
    - 6.3.1.Composition: Manufacturer standard

6.3.2. Profile: Flat

- 6.4. Core insulation: Mineral wool lamella to BS EN 13162
- 6.5. Panel thickness: 25 mm
- 6.6. Joint type
  - 6.6.1.Side/ vertical: Submit details

6.6.2.End/ horizontal: Submit details

7. Additional requirements: None

# **General requirements**

# 165 Contractor's design

- 1. Description: OF cladding between windows
- 2. Design responsibility: Determine depth and thickness of profile and type, sizes and number of fixings
- 3. Design standard: In accordance with BS 5427.
- 4. Product specification and requirements: To BS EN 14509.
- 5. Structural and fire requirements
  - 5.1. Generally: As section B50.
  - 5.2. Modifications: None
  - 5.3. Design: Complete the design in accordance with the designated code of practice to satisfy specified performance criteria.

# 172 Thermal bridging

- 1. Requirement: Complete the design of the cladding/ roofing system to avoid excessive thermal bridging.
  - 1.1. Standard and process, in accordance with: BS EN ISO 6946 and BS EN ISO 10211

# **Design/ performance requirements**

#### **185 Performance compliance**

1. Verification: Before commencing fabrication, submit evidence based on laboratory testing or computer modelling.

#### 187 Deflection of metal cladding/ roofing

- 1. Standard: Calculation or test in accordance with BS EN 14509.
- 2. Wall cladding: Maximum permitted deflection under distributed loads as a multiple of span and due to:
  - 2.1. Wind load: To structural engineer's requirements

#### **198 Water penetration**

1. Requirement: Under site exposure conditions, moisture must not penetrate onto internal surfaces, or into cavities not designed to be wetted.

# 200 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%

#### 202 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.

# Fixing cladding/ roofing

# **215 Painting structure**

1. Sequence: Paint outer surface of supporting structure before fixing cladding/ roofing.

#### **219 Fasteners**

1. Unspecified fasteners: All fixings and fasteners as per BS EN ISO 3506 grade A2 generally, grade A4 when used in severely corrosive environments.

#### 221 Fittings and accessories

1. Unspecified fittings and accessories: The Contractor shall propose a proprietary system and shall use all materials and components accordingly.

#### 223 Prevention of electrolytic action

- 1. Isolating tape: Type recommended by cladding/ roofing manufacturer.
  - 1.1. Location: To contact surfaces of supports and sheets of dissimilar metals.
- 2. Avoid risk of bi-metallic corrosion. Include separators where different metallic materials are used.

#### 275 Continuity thermal insulation

- 1. Material: Mineral wool
  - 1.1. 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.
  - 1.2. Reaction to fire: To BS EN 13501-1, Class A2-s1, d0 or better
- 2. Recycled content: Contractor's choice
- 3. Installation: Secure and continuous with cladding/ roofing insulation.

#### 410 Fixing panels and sheets generally

- 1. Penetrations: Openings to minimum size necessary.
- 2. Orientation: Exposed joints of side laps away from prevailing wind unless shown otherwise on drawings.
- 3. Panel and sheet ends, laps and raking cut edges: Fully supported and with fixings at top of lap.
- 4. Fasteners: Drill holes. Position at regular intervals in straight lines, centred on support bearings.
  - 4.1. Position of fasteners in oversized drilled holes: Central.
  - 4.2. Fasteners torque: Sufficient to correctly compress washers.
- 5. Debris: Remove dust and other foreign matter before finally fixing panel and sheets.
- 6. Completion: Check fixings to ensure watertightness and that panels and sheets are secure.
- 7. Cut edges: Paint to match face finish.

#### 470 Structural movement joints

- 1. Type: Cover flashing fixed on one side over gap between panels.
- 2. Location: Coincident with structural movement joint.
- 3. Width of gap: To match structural movement joint requirements.
- 4. Requirement: Weathertight and maintain insulation and vapour continuity.

#### 670 Documentation

1. Certificates, records, guarantees and other documents: The Contractor shall submit all As-Built documentation upon completion of the installation works, but not limited to, drawings, reports, material submittals and test reports.

 $\Omega$  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: 35 mm mineral wool
- 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