

## **STREET BENCH CSI SPECIFICATIONS**

### **Part 1 GENERAL**

#### **1.1 Section Includes:**

- A. Street Benches as shown on drawings and as specified herein.

#### **1.2 Submittals**

- A. Submit manufacturer's shop drawings and maintenance instructions.
- B. Manufacturer information:
  - 1. Provide overview literature describing manufacturer's overall scope of products.
  - 2. Provide URL of manufacturer's website; website must provide access to technical data, images and general product information.

#### **1.3 Quality Assurance**

- A. Manufacturer Qualifications: Minimum of 20 years of experience in the manufacturing of stone (reinforced) architectural products.
- B. Supporting drawings: Products are supported with complete shop drawings by manufacturer.

#### **1.4 Testing Standard References**

- A. SS(Singapore Standards) Testing Standards:
  - 1. SS485:2011 - Specifications for Slip Resistance classification of public pedestrian surface materials.
  - 2. SS245:1995 - Specifications for Water Absorption.
- B. ASTM(American Society for Testing and Materials) Testing Standards:
  - 1. ASTM D543:2014 - Specifications for Chemical Resistance classification.

#### **1.5 Sustainability**

- A. Provide Green Label certifications from:
  - 1. SEC(Singapore Environment Council)
  - 2. SGBC(Singapore Green Building Council) - Product leader in SGBC product directory - <https://web.sgbc.online/public/product>
- B. Heavy Metals Testing Standards:
  - 1. Heavy Metals Test Analysis - Specifications for testing of hazardous substances.
- C. Toxicity Testing Standards:
  - 1. US EPA 1311 Toxicity Characteristic Leaching Procedure (TCLP) - Specifications for testing of inorganic contaminants.

#### **1.6 Delivery, Storage and Handling**

- A. Deliver materials to installation site in manufacturer's original packaging. Handle products in accordance with manufacturer's instructions. Store in clean, dry location until installation.

**1.7 Warranty**

A. Provide manufacturer's standard warranty.

1. Warranty terms: one year against defects in materials and workmanship.

**Part 2 PRODUCT**

**2.1 Manufacturer**

A. Jonite Private Limited  
5 Upper Aljunied Link  
Quartz Industrial Building #01-01  
Singapore 367903  
Phone: +65 6383-3788  
Fax: +65 6383-3718  
Email: [info@jonite.com](mailto:info@jonite.com)  
Website: [www.jonite.com](http://www.jonite.com)

**2.2 Street Benches**

A. General

1. Street Benches shall be MODEL \_\_\_\_\_
2. Size and dimensions to be as specified in shop drawing attached.

**2.3 Material**

A. Street bench material shall be stone (reinforced) from at least 30% recycled materials. The material is a 95% agglomeration of natural stone substrates & mineral oxides formed under a high-tech vacuum & compression process. It is a proprietary formulated structural polymer hybrid system of a heterogeneous blend.

**2.4 Accessories**

A. Anchor Bolts: Corrosion resistant.

B. (Optional) Bench Dividers - All benches to come with additional dividers in between seats.

**2.5 Finish**

A. Street Bench to be supplied in natural stone matte state.

B. Colour to be \_\_\_\_\_

C. (Optional) Colour to be customized according to sample submitted to manufacturer.

**Part 3 EXECUTION**

**3.1 Examination**

A. Do not begin installation until site is properly prepared.

**3.2 Preparation**

A. Clean surfaces thoroughly prior to installation.

**3.3 Installation**

A. Install in accordance with manufacturer's instructions.

B. Anchor product securely in place.

**3.4 Cleaning and Protection**

- A. Clean promptly after installation in accordance with manufacturer's instructions.
- B. Do not use harsh cleaning materials like acid wash that could damage product.
- C. Repair or replace product if damaged by mishandling.

**NOTE:** Please note that Options are highlighted in red. Select or delete as desired.

**Jonite<sup>®</sup> Stone (reinforced) architectural products are compliant to the general specification & criteria as in accordance:-**

**Core Material**

- A 95% agglomeration of natural stone substrates & mineral oxides formed under a proprietary vacuum & compression process.
- A proprietary formulated structural polymer hybrid system of a heterogeneous blend.

**Material Structural & Mechanical Properties**

- **Tensile Strength:** 8-25 MPa
- **Compression Strength:** 47.8 Mpa
- **Flexural Strength:** 21.1MPa (ASTM D 790-92)
- **Modulus of Elasticity:** 20 - 40 Gpa
- **Standard Density:** 2.0 - 2.4 kg/dm<sup>3</sup>
- **Elongation at Rapture:** 3%
- **Thermal Coefficient of Expansion:** 106C-1

**Physical Properties**

- **Water absorption:** 0.09% (SS245:1995 Appendix F - Water Absorption Test)
- **Slip Resistance:** Achieved Classification V (Very Low notional contribution of the floor surface to the risk of slipping when wet - SS485:2011)
- **Chemical Resistance:** Achieved ASTM D543:2014 - Specifications for Chemical Resistance classification)

**Load Class**

- Compliant with \*BS EN124:2015 - *\*selected products only*
- Compliant with \*BS EN1433:2002 - *\*selected products only*

**Sustainability**

- Singapore Green Label certification- (022-016-0270 Eco-Friendly Building Material) from SEC(Singapore Environment Council)
- Singapore Green Building Product certification- Product Leader (SGBP 2019-2728) from SGBC(Singapore Green Building Council)
- USGBC(United States Green Building Council) member satisfies MR Credit 4: Recycled Content under LEED<sup>®</sup>((Leadership in Energy and Environmental Design)
- No heavy metals detected in accordance to Heavy Metals Test Analysis - Specifications for testing of hazardous substances
- No toxic materials detected in accordance to US EPA 1311 Toxicity Characteristic Leaching Procedure (TCLP) - Specifications for testing of inorganic contaminants

Standards & Labels



022-016-0270  
Eco-Friendly Building Material



SGBP 2019-2728

