TATA BLUESCOPE STEEL LIMITED

PRODUCT SPECIFICATION LANGUAGE FOR
PEB BUILDING (ECOBUILD™ BUILDING SYSTEM- WITH TRIMDEK® 1015 ROOFING)

Section 1: General product Specification Language

Item language

Item No.	Description	Qty.	Unit	Rate	Amoun
Item 1	**Structural Members** Supply of PEB building systems manufactured from : a) Frame: Supply of Primary (Built-up) sections are fabricated from hot rolled steel plates c®onforming to ASTM A 572M Grade 345 (or equivalent) type 2 with minimum yield strength of 345 MPa. Flanges are welded to the web by a continuous single side fillet weld deposited by an automatic submerged arc welding process. The Built up frame shall have primer paint applied as per Tata BlueScope steel standards. Supply of Hot rolled sections confirming to ASTM A36 M Grade 36 or equivalent with minimum yield strength of 250 MPa. Supply of Galvanized secondary members are cold-formed from steel coils conforming to ASTM A 653M (or equivalent), with zinc coating to Z120 designation (120g/m2) having a minimum yield strength of 345 MPa. **b) Roofing panels :** Supply of colour coated trapezoidal TRIMDEK® 1015 profile sheet of 1015 mm effective cover width and nominal 28 mm deep ribs with subtle square fluting in the five pan at nominal 200 mm centre-to-centre. The end rib shall be designed for anti-capillary action, to avoid any seepage of water through the lateral overlap. The feed material is manufactured out of nominal 0.45 mm Base Metal Thickness (BMT), Hi-Tensile steel with min. 550 MPa yield strength, metallic hot dip coated with Aluminium-Zinc alloy (55% Aluminium, 45% Zinc) as per AS 1397 - Zincalume AZ150 (Min. 150 gms/sq.mt total on both sides) with Colorbond steel quality paint coat as per AS/NZS 2728 Class 3 of BlueScope Steel make or equivalent. The paint shall have a total coating thickness of nominal 35 µm, comprising of nominal 20 µm exterior coat on top surface and nominal 5 µm reverse coat on back surface over nominal 5 µm primer coat on both surfaces of approved colour shade by concern authority. The steel manufacturer's test certificate for the chemical and mechanical properties of steel must be submitted for approval by the concerned authority prior to installation. The sheet shall have brand marking of the manufacturer giving product details on the back of the sheet at every 1 meter c/c for confirming genuinity of the material. The steel sheet shall be fastened with nominal 40 µm zinc coated or nominal 25 µm zinc-tin alloy coated, Hex head, self-drilling screw as per AS 3566-2002 Class 3 fasteners of approved make (Buildex or equivalent) with EPDM washer as per the requirement considering the profile shape and design load. The fastener size shall be calculated as per the design or manufacturers recommendations. The profile sheet, fastener size etc. shall be approved by the concern authority. All the accessories like gutter/ flashing / capping shall				

be made from the same material (or manufactures recommendation) which is used for main cladding application. The measurement shall be based on finished/covered surface area.

c). Wall Panels –

Supply of TRIMDEK® 1015 1015 OR Shadowrib 900 panels are roll formed from nominal 0.45 mm base metal thickness of minimum yield strength of 550 MPa, coated with an aluminum /zinc alloy (i.e.Zincalume steel or equivalent), AZ150 (min 150 gm/m2 total on both side), conforms to Australian standard AS1397, pre-painted with Colorbond steel quality paint coat as per AS/NZS 2728 Class 3 of BlueScope Steel make. The paint finish thickness shall have a total coating thickness of nominal 35 µm, comprising of nominal 20 µm on exterior face and nominal 5 µm reverse coat on interior face over nominal 5 µm epoxy primer coat on both surfaces of approved colour shade or equivalent by concern authority. The steel manufacturer's test certificate for the chemical and mechanical properties of steel must be submitted for approval by the concerned authority prior to installation. The sheet shall have brand marking of the manufacturer giving product details on the back of the sheet at every 1 meter c/c for confirming genuinity of the material.
Profile dimensions : Trapezoidal type Lysaght TRIMDEK® 1015 profile sheet shall have min 1015 mm effective cover width, min 28 mm deep ribs with subtle square fluting in the five pans at min 203 mm centre to centre. The end rib shall be designed for anti-capillary action, to avoid any seepage of water through the lateral overlap.

OR

SHADOWRIB rib profile of 900 mm effective cover width, min. 38 mm deep ribs at pitch of min. 290 mm centre to centre distance with two stiffeners between the ribs.

d). Trims & Gutters

Wall flashing and trims (gable, corner, framed opening, accessories, etc.) are manufactured from same material (color, finsh and thickness) as wall panels or manufactures recommendation)
Roof flashing and trims (parapet flashing, transition trims, expansion joint trims and ridge caps) are manufactured from the same material (color, finsh and thickness) as roof panels or manufactures recommendation)
Eave gutters and downspouts are manufactured from the material as recommended by manufacturer.

Note: The contractor shall prepare the shop drawings based on the drawings supplied by the engineer-in-charge or the concern authority. These shall be submitted in five sets sufficiently in advance to the concern authority for approval.

Item 2	Fixing of Item 1. The erection and installation shall be done by approved Tata BlueScope steel builder or specialized agency approved by the engineer-in-charge. Manufacturer's recommended installation methodology shall be adopted for installation of item 1. The contractor is to take approval on the sheet profile, design and installation methodology before installation of the sheets from the concern authorities. All material used for installation of item 1 shall be compatible with cladding material. The installation includes profiled sheet, capping, trims, flashing, gutter and all type of accessories considered for the installation of item 1. The installation measurement shall be based on finished surface area.				

Section 2: Detailed Product Specification Language

General

Structural Members

Supply of Primary (Built-up) sections are fabricated from hot rolled steel plates conforming to ASTM A 572M Grade 345 Type 2(or equivalent) with a minimum yield strength of 345 MPa. Flanges are welded to the web by a continuous single side fillet weld deposited by an automatic submerged arc welding process. The Built up frame shall one coat of primer paint applied as per Tata BlueScope steel standards.

Supply of Hot rolled sections are mill produced according to ASTM A36 M with minimum yield strength of 250 MPa .

Supply of Galvanized secondary members are cold-formed from steel coils conforming to ASTM A 653M (or equivalent), with zinc coating to Z120 designation (120g/m2) having a minimum yield strength of 345 MPa.

Roofing panel:

Supply of colour coated trapezoidal TRIMDEK® 1015 type profile sheet of 1015 mm effective cover width and nominal 28 mm deep ribs with subtle square fluting in the pan at nominal 200 mm centre-to-centre. The end rib shall be designed for anti-capillary action, to avoid any seepage of water through the lateral overlap. The feed material is manufactured out of nominal 0.45 mm Base Metal Thickness (BMT), Hi-Tensile steel with min. 550 MPa yield strength, metallic hot dip coated with Aluminium-zinc alloy (55% Aluminium, 45% Zinc) as per AS 1397- Zincalume AZ150 (Min. 150 gms/sq.mt total on both sides) with Colorbond steel quality paint coat as per AS/NZS 2728 Class 3 of BlueScope Steel make. The profile sheet, fastener size etc. needs to be approved by the concern authority. All the accessories like gutter/ flashing / capping shall be made from the same material (or manufactures recommendation) which is used for main cladding application. The measurement shall be based on finished/covered surface area.
The contractor shall prepare the shop drawings based on the drawings supplied by the Engineer-in-charge or the concern authority. These shall be submitted in five sets sufficiently in advance to the concern authority for approval.

Wall Panels – Supply of TRIMDEK® 1015 1015 OR Shadowrib 900 panels are roll formed from nominal 0.45 mm base metal thickness of minimum yield strength of 550 MPa, coated with an aluminum /zinc alloy (i.e.Zincalume), AZ150 (min 150 gm/m2 total on both side), conforms to Australian standard AS1397, pre-painted with Colorbond steel quality paint coat as per AS/NZS 2728 Class 3 of BlueScope Steel make or equivalent. The paint finish thickness shall have a total coating thickness of nominal 35 µm, comprising of nominal 20 µm on exterior face and nominal 5 µm reverse coat on interior face over nominal 5 µm epoxy primer coat on both surfaces of approved colour shade by concern authority. The steel manufacturer's test certificate for the chemical and mechanical properties of steel must be submitted for approval by the concerned authority prior to installation. The sheet shall have brand marking of the manufacturer giving product details on the back of the sheet at every 1 meter c/c for confirming genuinity of the material.

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***Profile dimensions**:* Trapezoidal type Lysaght TRIMDEK® 1015 profile sheet shall have min 1015 mm effective cover width, min 28 mm deep ribs with subtle square fluting in the five pans at min 203 mm centre to centre. The end rib shall be designed for anti-capillary action, to avoid any seepage of water through the lateral overlap.

OR

SHADOWRIB rib profile of 900 mm effective cover width, min. 38 mm deep ribs at pitch of min. 290 mm centre to centre distance with two stiffeners between the ribs.

Trims & Gutters

Wall flashing and trims (gable, corner, framed opening, accessories, etc.) are manufactured from same color, finish and thickness as wall panels (or manufacturer's recommendation).
Roof flashing and trims (parapet flashing, transition trims, expansion joint trims and ridge caps) are manufactured from same color, finish and thickness as roof panels (or manufacturer's recommendation).
Eave gutters and downspouts are cold-formed from the same material as wall panels. (or manufactured recommendation)
Water-resistant louvers (Lysaght Louvremax) shall be manufactured from high strength ZINCALUME steel or COLORBOND steel.

Note: The contractor shall prepare the shop drawings based on the drawings supplied by the engineer-in-charge or the concern authority. These shall be submitted in five sets sufficiently in advance to the concern authority for approval.

Accessories:

Anchor bolts are manufactured from rods conforming to ASTM A 36M (or equivalent) with a minimum yield strength of 23.5 kN/cm2 and an ultimate strength of 40.2 kN/cm^2.

Bracing rods, used in sidewalls of buildings supporting cranes are solid plain round steel bars conforming to ASTM A36 M Grade 300 (or equivalent) with minimum yield strength of 250 MPa.

Flange braces used to stabilize the inner flanges of main frame columns and rafters are 50 mm x 50 mm x 4 mm steel angles conforming to ASTM A 36M (or equivalent) with a minimum yield strength of 24.8 kN/m^2 (36 ksi).

Base / gable angles are 45 mm x 73 mm x 1.5 mm thick angles supplied in 6000 mm long pieces(or as required by the design requirements), cold-formed from galvanized steel conforming to ASTM A 653M (or equivalent), with zinc coating to Z275 (G 90) designation (275 g/m^2) having a minimum yield strength of 27.7 kN/cm^2 (40 ksi).

Sealant: Special grade of silicon sealant non-hardening, neutral cure type of approved make and grade shall be applied as per manufacturer's recommendation and approval by engineer-in-charge.

Fasteners: The clip KL-70 shall be fastened with min. 40 µm Zinc coated / min. 25 µm Zinc-Tin alloy coated, Hex head, self-drilling screw as per AS 3566-2002 Class 3 fasteners of approved make (Buildex or equivalent) as per manufacturers recommendation and approved by concern authority.

Insulation: The insulation shall be aluminum foil supported fiberglass blanket of thickness 50 mm with density min 12 kg/m^3 (or as per design requirement) supported by wire mesh shall be approved by concern authority.

Erection and Fixing:

- The installation shall be done in accordance to the standard practices as specified by the manufacturer and as approved by the concern authority. All sheets and accessories must be stored and finally erected without any damage.

- The contractor will be required to submit design calculation in support of the proposed profile of the sheet and standard loading etc. to the satisfaction of the design consultant and the concern authority. The contractor shall also submit methodology for fixing and also a maintenance manual for routine maintenance.
- Special flashing, ridge capping and trims shall be fixed as per manufacturer's recommendation. The shape and girths shall be as per design requirement and shall be approved by the concern authority.
- The contractor shall ensure that panel erector is familiarized with the erection procedure and all the supporting members are straight, level and true (according to AISC) before starting panel erection. Panels shall be erected according to approved shop drawings by the concern authorities.

Measurement:

- The payment will be done on the actual finish surface area of the sheet separately for item 1 and item 2.
- No separate payment will be made for the laps of sheet and accessories, bolts, nuts, washers, adjustable bolts and supports for gutters and other fixtures. These are assumed to be included in the quoted rates.

Notes:

Optional Items specifications:

If required the optional item specification can be added to section 1 & section 2 of product specification language. For details, it is advised to contact nearest Tata BlueScope Steel office before selecting optional items.

Specification language for Insulation

A expanded GI metal mesh of approved gauge as per manufacturers recommendation along with aluminum foil and fiber glass blanket (minimum 12 kg/m^3) insulation of 50 mm thickness (or as per design requirement) approved by engineer-in-charge shall be placed over the GI mesh bed with the help of cleat, creating a bed for the external cladding placement.

Specification language for Skylight Translucent sheeting

The panel shall be nominal 1.5 mm thick, composed of a translucent, thermosetting polyester resin with a thoroughly impregnated glass fiber reinforcing mat (FRP) with or without an integrally bonded translucent film on the weathering face comply with AS/NZS 4256. The profile should match with cladding profile. The fixing shall be done with specially designed Lapseal and weather-tight washer for fixing the translucent sheeting. The profile and properties shall be approved by Engineer-in-charge before installation.

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