For product identification and originality, please check the reverse side of the coil for the following branding text.

TRUECORE® STEEL
TECHNICAL GUIDE

The information contained in this brochure is of a general nature only, and has not been prepared with your specific needs in mind. You should always obtain specialist advice to ensure that any materials, approaches and techniques referred to in this brochure meet your specific requirements.

NS BlueScope Malaysia makes no warranty as to the accuracy, completeness or reliability of any estimates, opinions or other information contained in this brochure, and to the maximum extent permitted by law, NS BlueScope Malaysia disclaims all liability and responsibility for any loss or damage, direct or indirect, which may be suffered by any person acting in reliance on anything contained or omitted from this document.

TRUECORE® is a registered trade mark of BlueScope Steel Limited.

Copyright © 2013 NS BlueScope Malaysia Sdn. Bhd. All rights reserved. No part of this brochure may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the written permission of NS BlueScope Malaysia Sdn. Bhd.
**What is Structural Integrity?**

Structural integrity affects the building’s function and safety. Some framing materials are prone to warp, sag or shrink over time, hence increasing the risks of cracked walls, jammed doors and waving rooflines. Framing materials made from steel is an investment for your building’s future.

**Dimension accuracy**
TRUECORE® steel is true, straight and resistant to deformation.

**How does it work?**
TRUECORE® steel is inert to moisture attack including any other defects such as fungal growth or termite infestation.

**How does it perform?**
TRUECORE® steel is much easier to be utilised because it is flexible in design and provides structural versatility. Framing made from TRUECORE® steel is quick and easy to erect due to prefabrication and fastening techniques.

**Other advantages**
- Termite proof - TRUECORE® steel is resistant to insect infestation and hence no damage to the building with the structure remaining as it is.
- No preservative or post treatment - TRUECORE® steel does not require any post treatment to prolong service life and minimum maintenance cost.

**What is Structural Design?**

Structural design for roof trusses are carried out using Computer Aided System (CAD) in compliance to relevant design codes such as BS 5950 part 5 or AS/NZS 4600 and other code of practices as required by local authorities. A typical roof truss system should consist of top chord, bottom chord, web and batten made from high strength structural steel grade material with high corrosion resistance performance.

**G550—High strength**
TRUECORE® steel is a designed structural grade building material that has a standard chemical composition and specific consistency in strength. TRUECORE® steel is high tensile and comes with a guarantee of 550 MPa yield strength.

**How does it work?**
TRUECORE® steel can form a specific shape or cross section. With such high tensile strength together with the optimised engineering design, the structural load can be handled with less support and larger span.

**How does it perform?**
As the structural load is optimised with less building material, it reduces the overall structural cost. TRUECORE® steel is light thus it is easy to handle including steel frame erection that requires minimum lifting cost. This also contributes to quick installation and a higher operating efficiency.

**Other strengths**
- Non combustible - TRUECORE® steel is non fire propagated, hence minimum fire risk up to a temperature of 300 degrees celsius.
- High in durability - TRUECORE® steel when used properly, will have a service life of minimum 50 years.

**Key notes:**
- Certain framing materials are highly sensible towards moisture and will shrink, twist, rot, warp and damaged.
- TRUECORE® steel is flexible in design with simple and quick installation.
- A TRUECORE® steel is ferrous metal, it is inert to moisture and termite attacks.

**Key notes:**
- More timber trusses are required for traditional building to support the structural load in preventing structural failure.
- TRUECORE® steel has high tensile strength that can handle the structural load more effectively with less support.
- TRUECORE® steel is specially designed as a high strength structural grade building material.
Corrosion rates of galvanized steel and 55% Al-Zn alloy coated steel at Australian Atmosphere Exposure Test Sites.

<table>
<thead>
<tr>
<th>Site</th>
<th>Galvanized Steel</th>
<th>55%Al-Zn Alloy Coated Steel</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>g/m²/y</td>
<td>µm/y</td>
</tr>
<tr>
<td>Severe Marine</td>
<td>140</td>
<td>9.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.2</td>
</tr>
<tr>
<td>Marine</td>
<td>18</td>
<td>1.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.54</td>
</tr>
<tr>
<td>Industrial/Marine</td>
<td>20</td>
<td>1.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.57</td>
</tr>
<tr>
<td>Rural</td>
<td>4</td>
<td>0.28</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.17</td>
</tr>
</tbody>
</table>

Sacrificial protection is provided by an active metal (e.g. zinc), protecting a less active metal (e.g. steel). The more active metal corrodes in preference to the less active metal will corrode (Figure A). TRUECORE® steel exhibits a more complex coating structure consisting of both zinc-rich and aluminium-rich areas (Figure B). The zinc-rich area provides excellent sacrificial protection, while the aluminium-rich area provides durable barrier protection. It is the combination of these two characteristics that make TRUECORE® steel durable and effective against corrosion.

Corrosion rates of galvanized steel and 55% Al-Zn alloy coated steel at Australian Atmosphere Exposure Test Sites.

TRUECORE® steel comprises 43.5% zinc, 55.0% aluminium and 1.5% silicon. The minimum coating mass of 150 g/m² offers a high level of corrosion resistance.

How does TRUECORE® steel from BlueScope work?

Sacrificial protection is provided by an active metal (e.g. zinc), protecting a less active metal (e.g. steel). The more active metal corrodes in preference to the less active metal will corrode (Figure A). TRUECORE® steel exhibits a more complex coating structure consisting of both zinc-rich and aluminium-rich areas (Figure B). The zinc-rich area provides excellent sacrificial protection, while the aluminium rich area provides durable barrier protection. It is the combination of these two characteristics that make TRUECORE® steel durable and effective against corrosion.

TRUECORE® steel combines the superior strength of zinc/aluminium alloy-coated steel with an exclusive blue resin tint from BlueScope.

TRUECORE® steel complies with Australian Standards AS 1397 and Malaysia Standards MS 1196. Durability and performance is backed by warranty*.

Benefits of TRUECORE® steel, only from BlueScope

- High corrosion resistance
- Guaranteed material strength of G550
- Warranty* against structural failure caused by corrosion up to 50 years
- Proven customer and in-field response and support
- Nationwide availability and support
- Certified and tested by SIRIM

How to identify genuine TRUECORE® steel, only from BlueScope

To identify genuine TRUECORE® steel made only by BlueScope, pay attention to the TRUECORE® steel branding text on every coil. The brand presence is your assurance of BlueScope’s commitment to quality.

The quality assurance and warranty* offered from BlueScope

- Guaranteed minimum yield strength of 695 MPa
- Minimum coating mass of 150g/m² by triple spot test

KEY NOTES:

- Corrosion is dissolution of metal due to the surrounding environment.
- TRUECORE® steel comprises 43.5% zinc, 55.0% aluminium and 1.5% silicon with a minimum coating mass of 150g/m².
- For TRUECORE® steel, the zinc-rich area provides excellent sacrificial protection, while the aluminium-rich area provides durable barrier protection.

How does it perform?

The pictured samples were exposed for the same period of time under a similar severe condition. The galvanised steel shows severe loss of coating and consequent red rusting of the steel substrate but the TRUECORE® steel is still in good condition.

Corrosion is caused by the deterioration of metal due to chemical reaction as a result of exposure to the environment (water and oxygen). It is also known as oxidation. Corrosion of metal results in the formation of rust or oxides in the corroded area.

What is TRUECORE® steel from BlueScope?

TRUECORE® steel is a galvanised steel with a zinc/aluminium coating. It is made by BlueScope and has a blue tinted resin coating. TRUECORE® steel is more durable and effective against corrosion than galvanised steel.

ZN/AL coating technology (AZ150)

BlueScope’s proprietary metallic coating technology - TRUECORE® steel is superior in corrosion performance under varied conditions, when compared with other galvanised steel.

TRUECORE® steel comprises 43.5% zinc, 55.0% aluminium and 1.5% silicon. The minimum coating mass of 150 g/m² offers a high level of corrosion resistance.

How to identify genuine TRUECORE® steel, only from BlueScope

To identify genuine TRUECORE® steel made only by BlueScope, pay attention to the TRUECORE® steel branding text on every coil. The brand presence is your assurance of BlueScope’s commitment to quality.

The quality assurance and warranty* offered from BlueScope

- Guaranteed minimum yield strength of 695 MPa
- Minimum coating mass of 150g/m² by triple spot test

Benefits of TRUECORE® steel, only from BlueScope

- High corrosion resistance
- Guaranteed material strength of G550
- Warranty* against structural failure caused by corrosion up to 50 years
- Proven customer and in-field response and support
- Nationwide availability and support
- Certified and tested by SIRIM

How does it work?

Sacrificial protection is provided by an active metal (e.g. zinc), protecting a less active metal (e.g. steel). The more active metal corrodes in preference to the less active metal will corrode (Figure A). TRUECORE® steel exhibits a more complex coating structure consisting of both zinc-rich and aluminium-rich areas (Figure B). The zinc-rich area provides excellent sacrificial protection, while the aluminium-rich area provides durable barrier protection. It is the combination of these two characteristics that make TRUECORE® steel durable and effective against corrosion.

TRUECORE® steel comprises 43.5% zinc, 55.0% aluminium and 1.5% silicon. The minimum coating mass of 150 g/m² offers a high level of corrosion resistance.

How confident are you if offered an equivalent product?

TRUECORE® steel combines the superior strength of zinc/aluminium alloy-coated steel with an exclusive blue resin tint from BlueScope.

TRUECORE® steel complies with Australian Standards AS 1397 and Malaysia Standards MS 1196. Durability and performance is backed by warranty*.

Benefits of TRUECORE® steel, only from BlueScope

- High corrosion resistance
- Guaranteed material strength of G550
- Warranty* against structural failure caused by corrosion up to 50 years
- Proven customer and in-field response and support
- Nationwide availability and support
- Certified and tested by SIRIM

How to identify genuine TRUECORE® steel, only from BlueScope

To identify genuine TRUECORE® steel made only by BlueScope, pay attention to the TRUECORE® steel branding text on every coil. The brand presence is your assurance of BlueScope’s commitment to quality.

The quality assurance and warranty* offered from BlueScope

- Guaranteed minimum yield strength of 695 MPa
- Minimum coating mass of 150g/m² by triple spot test

Benefits of TRUECORE® steel, only from BlueScope

- High corrosion resistance
- Guaranteed material strength of G550
- Warranty* against structural failure caused by corrosion up to 50 years
- Proven customer and in-field response and support
- Nationwide availability and support
- Certified and tested by SIRIM

How to identify genuine TRUECORE® steel, only from BlueScope

To identify genuine TRUECORE® steel made only by BlueScope, pay attention to the TRUECORE® steel branding text on every coil. The brand presence is your assurance of BlueScope’s commitment to quality.

The quality assurance and warranty* offered from BlueScope

- Guaranteed minimum yield strength of 695 MPa
- Minimum coating mass of 150g/m² by triple spot test

Benefits of TRUECORE® steel, only from BlueScope

- High corrosion resistance
- Guaranteed material strength of G550
- Warranty* against structural failure caused by corrosion up to 50 years
- Proven customer and in-field response and support
- Nationwide availability and support
- Certified and tested by SIRIM

TRUECORE® steel combines the superior strength of zinc/aluminium alloy-coated steel with an exclusive blue resin tint from BlueScope.

TRUECORE® steel complies with Australian Standards AS 1397 and Malaysia Standards MS 1196. Durability and performance is backed by warranty*.

Benefits of TRUECORE® steel, only from BlueScope

- High corrosion resistance
- Guaranteed material strength of G550
- Warranty* against structural failure caused by corrosion up to 50 years
- Proven customer and in-field response and support
- Nationwide availability and support
- Certified and tested by SIRIM

TRUECORE® steel combines the superior strength of zinc/aluminium alloy-coated steel with an exclusive blue resin tint from BlueScope.

TRUECORE® steel complies with Australian Standards AS 1397 and Malaysia Standards MS 1196. Durability and performance is backed by warranty*.

Benefits of TRUECORE® steel, only from BlueScope

- High corrosion resistance
- Guaranteed material strength of G550
- Warranty* against structural failure caused by corrosion up to 50 years
- Proven customer and in-field response and support
- Nationwide availability and support
- Certified and tested by SIRIM

TRUECORE® steel combines the superior strength of zinc/aluminium alloy-coated steel with an exclusive blue resin tint from BlueScope.

TRUECORE® steel complies with Australian Standards AS 1397 and Malaysia Standards MS 1196. Durability and performance is backed by warranty*.

Benefits of TRUECORE® steel, only from BlueScope

- High corrosion resistance
- Guaranteed material strength of G550
- Warranty* against structural failure caused by corrosion up to 50 years
- Proven customer and in-field response and support
- Nationwide availability and support
- Certified and tested by SIRIM
How many types of branding text exist on TRUECORE® steel?
To maximize the identity of TRUECORE® steel, both side branding and sinusoidal branding co-exist in TRUECORE® steel. See illustration below.

Will the TRUECORE® steel sinusoidal branding text affect the product performance including mechanical properties such as tensile strength and elongation?
No. Sinusoidal branding is just a change with the printing orientation and there is NO impact to the product performance and the mechanical properties. TRUECORE® steel still guarantees minimum yield strength of 550 MPa.

After TRUECORE® steel has been slitted and roll-formed into truss, would I still able to see the branding text in sinusoidal form?
No. After TRUECORE® steel has been slitted, the sinusoidal branding text will be cut into small portions. You may see only a portion of the branding text in diagonal directions in every slit piece or every truss. See illustration below.

Can I reject the coil if the sinusoidal branding text is not consistently printed?
No. The objective of reverse sinusoidal branding text is to increase the visibility of TRUECORE® steel’s branding text for easier identification. However if its content is wrongly printed such as wrong coating mass e.g. AZ100 instead of AZ150, then a formal complaint could be raised. However if its content is wrongly printed such as wrong coating mass e.g. AZ100 instead of AZ150, then a formal complaint could be raised.