

# Why UltraShield®?



# UltraShield®

Why insist to cap completely around ?



## To make the board capped 360 degree around :









1. It will give the board maximum protection and **STOP** all the first generation product problems and also the non-360 capped board problems such as :  
a) Cupping , b) Cracking and c) Swelling
2. It requires more sophistication in technology, advanced skills and knowledge in mold design BUT **NewTechWood** insists to make all **UltraShield**<sup>®</sup> boards with 360 degree fully capped composite products, including the tiny area of the groove.



**Because this is the only way to give  
ULTRA protection**

# Types of composite boards in the market:

PE polymer & wood composite material currently has 4 types:

A	 A cross-section of a composite board with a full protective cap on both ends. The text "UltraShield®" is printed on the right side.	 A blue shield icon with "360°" inside, next to a green checkmark, indicating full protection.
B	 A cross-section of a composite board with a groove cut out from the end cap. The text "Groove was cut out not completely capped" is printed on the right side.	 A shield icon with the word "cut" inside, next to a yellow warning triangle, indicating a vulnerability.
C	 A cross-section of a composite board with half-capped ends. The text "Half capped Composite brands" is printed on the right side.	 A shield icon with "1/2" inside, next to a yellow warning triangle, indicating partial protection.
D	 A cross-section of a composite board with no protective capping. The text "Nothing capped: First generation composite brands" is printed on the right side.	 A shield icon with "0" inside, next to a red 'X' mark, indicating no protection.

A



**UltraShield®**

B



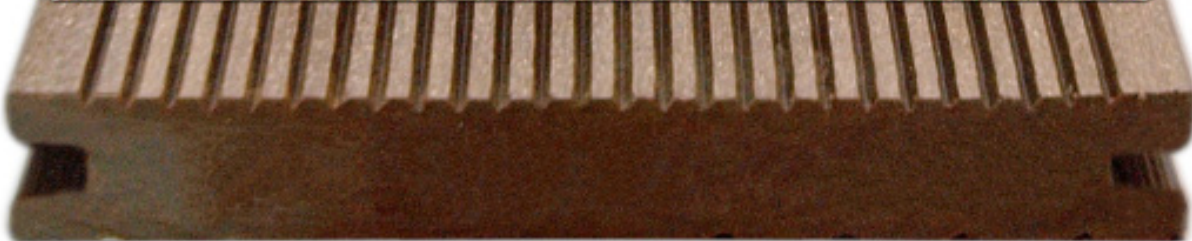
Groove was cut out  
not completely capped

C



Half capped  
Composite brands

D



Nothing capped :  
First generation  
composite brands

# What problems do type **D** have?



No Skin  
→ Nothing Capped

D



**Composite boards without any coating, nothing capped around, known as first generation or conventional composite**

- Without any cap to protect the core, the wood fiber is exposed to the surface and damaged by various harsh weather condition, UV, moisture, and bacteria.
- Not only the color will be faded out, the structure and composition will be degraded or even destroyed. Many severe problems have already risen during the past few years in the wood composite market.



# Main **Problems** of the First Generation Composite Material

1. Crumbling
2. Color Fading
3. Fungus & Mold & Mildew
4. Cracking
5. Scratching
6. Staining

# 1. Crumbling

- When the first generation composite board expose to the UV and water, it begins to decompose and break down. This is due to an improper amount of bounding agent and antioxidant added to the first generation composite material.
- The wood fiber absorbs moisture with UV together which causes composite decking to decay, crumble, decompose, degenerate, deteriorate, disintegrate, and rot.







## 2. Color Fading

- Color fading has been a huge issue. The reason for the fading comes from the wood fiber content. Even when mixed with enough antioxidants and UV stabilizers it will still fade due to the nature of the wood fiber.
- What's even worse it is the fading level would hardly be the same.





Color difference-many decks were faded with uneven color resulting in some boards being lighter and others getting darker.

### 3. Fungus & Mold & Mildew

- This problem really has found in many places in U.S. because of extreme climate condition. Some of the places go through hot, cold and wet all in one day. Mold is actually attacking the exposed wood fibers on the surface of the board, creating black mold stain. Many people try to use deck cleaners to clean off the mold but it actually comes back many times worse than before.







## 4. Cracking

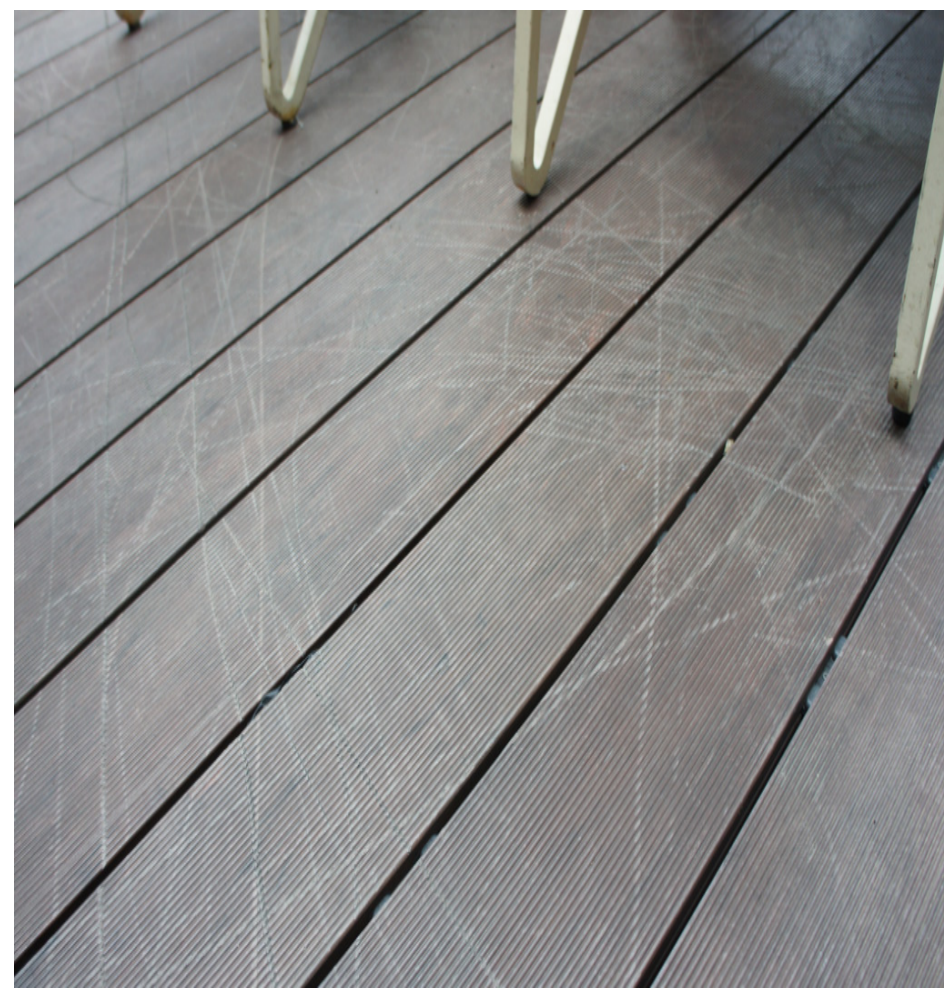
- Cracking is a break down of the composition of the board due to UV and Water. Some additives will help but eventually the exposed wood fiber of all first generation composite boards will deteriorate and the strength of the board will be weak and started cracking during the process of expansion and contraction. This is even more apparent around the area of screw and nail.





## 5. Scratching

- Composite decking is not a completely scratch proof material. The difference between the first generation and the capped composite is that the surface is more scratch resistance. The first generation product will scratch with simply using a finger nail.



## 6. Staining

- Without any cap protection, any stains will be absorbed by the wood fiber or penetrate in between the wood fiber and polymer directly and permanently.



# What problems do type C have?



Half Skin  
→ Half Capped

C

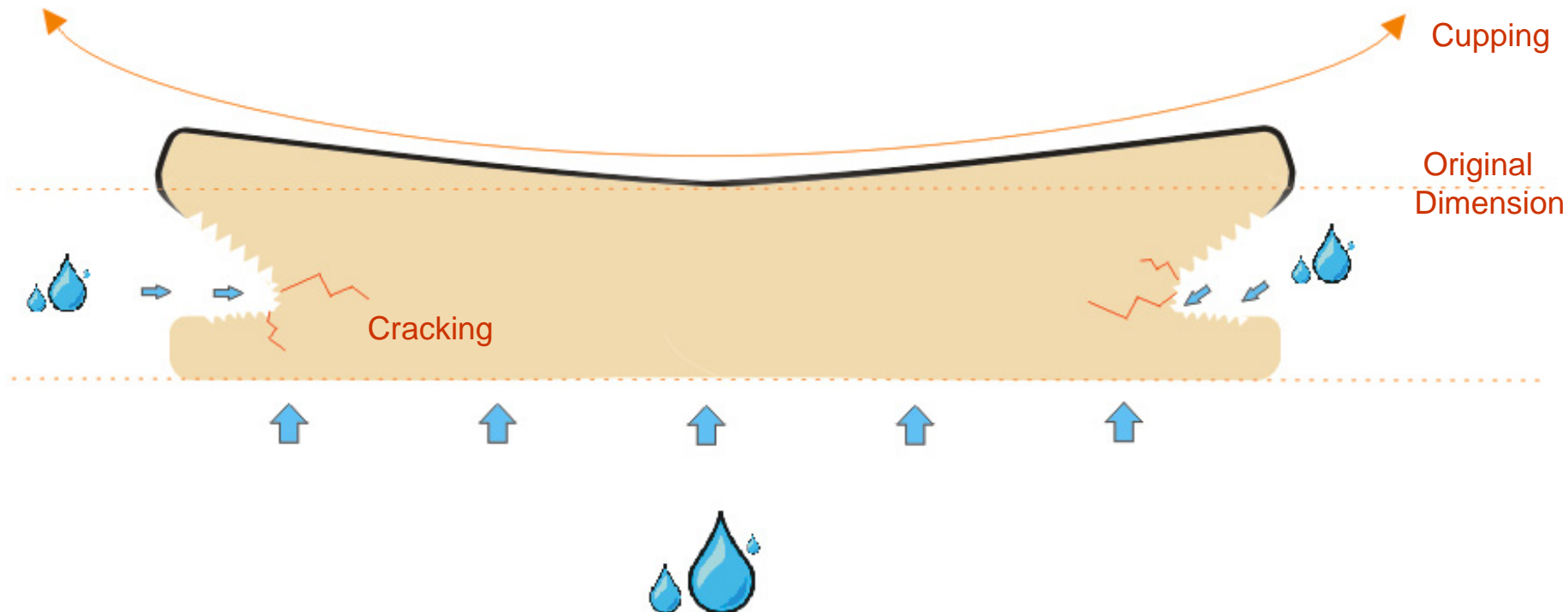


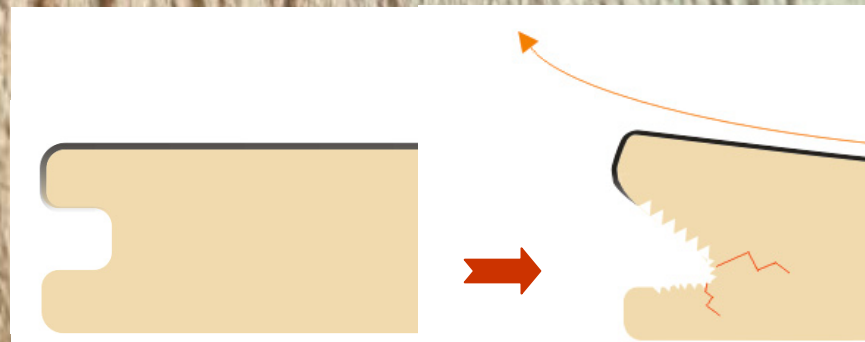
**A brand only capped top half of the board,  
this solves some problems, but other problems occur**

- Capping the top half of the board does provides higher stain & scratch resistant, and gives protection against UV from top so it helps to maintain the color in certain period of time.
- However, because the capped layer shield and inner core were made of different materials, so they have different expansion and contraction rate, and also more significantly in this case: the difference in water adsorption rate.

## 7. Swelling & Cupping

- The core swells and expands while the capped layer doesn't, in which it makes the board cupping and cracking apart in the groove.
- Cupping is the capped layer curving outward as shown in the diagram. When capped layer only covers the top side of the board, the force of contraction pulls the entire top layer from the bottom layer which is holding down by the clip. and causes cracking.









Cupping

Cupping





Cupping

**Whole project were re installed**

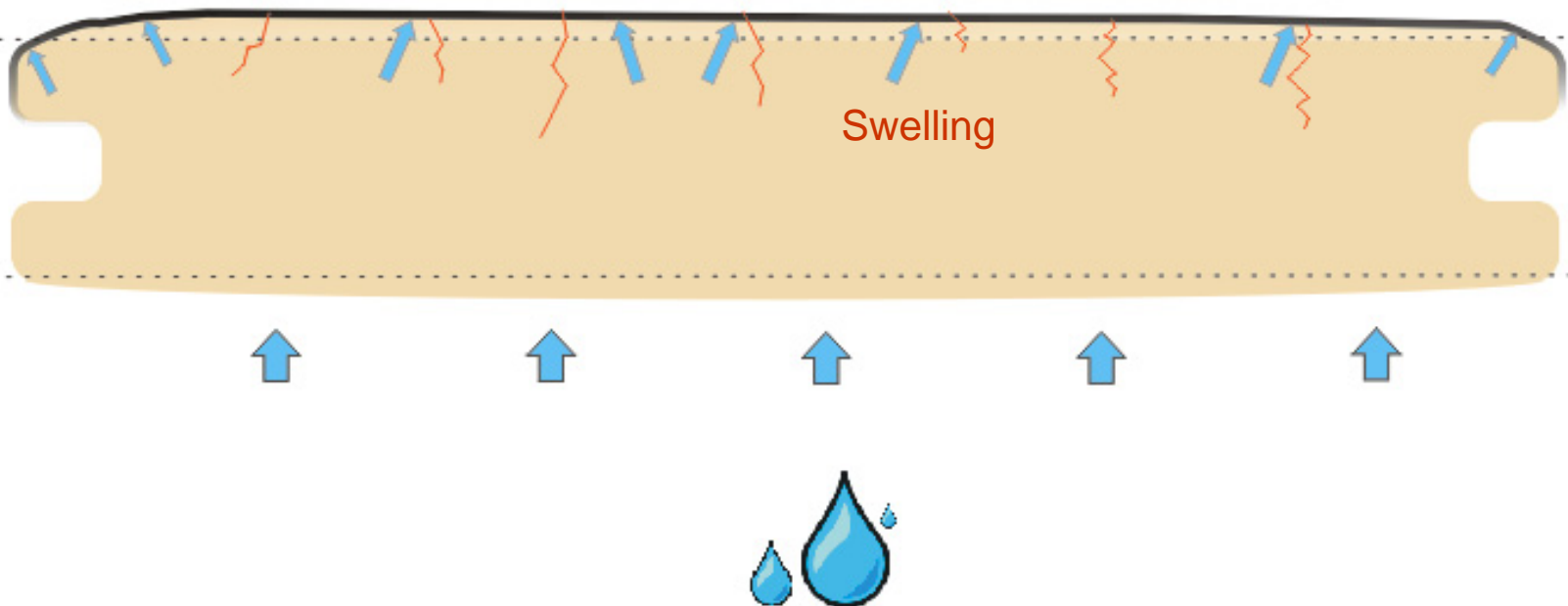


**Uninstalled deck boards**



## 8. Cracking in the capped layer

- Similarly, because the inner core swells and expands. The force push outward and crack the capped layer.





# What problems do type **B** have?



Cut Skin  
→ Not Completely Capped

B



**Some brands have boards with uncapped groove, by cutting out the groove on both sides of the board, or were unable capped technically.**

- With uncapped groove, the moisture can still go into the core from the groove along the entire board, so the swelling, cupping and cracking hazards are still potentially existing
- During the groove cutting, the capped layer could be damaged.



# How about type **A** ?



Full Skin  
→ 360 degree Completely Capped

**UltraShield®** has 360 degree complete protection all around the board including tiny area of curvature and groove area.



**UltraShield®** believes this is the only way to protect the board from UV, water, insects and any other bacteria attacking the core.



# UltraShield® Advanced Capped Composite Material

has a strong & durable polymer shield capped the core 360 degree.

- **The Core** is made of wood fiber, PE polymer and additives .
- **The Shield** is made of special engineering grade polymer and additives with extreme low water penetration.

The Shield prevents moisture penetration inside the core, avoiding problems like:

- × No Rot
- × No Split & Crack
- × No Fungus & Mold
- ➔ Durable and longer life span to keep your family members healthy & safe

Moreover, as the strong and tough Shield, it gives a maximum protection with:

- ✓ Stains Resistance
- ✓ Scratch Resistance
- ✓ No need to paint
- ➔ Maintain the pleasant outlook for years to come with very low maintenance, and will save your time and money

# UltraShield<sup>®</sup> Stain Test

Step 1. Stain with black ink



UltraShield decking



Conventional decking

# UltraShield® Stain Test

Step 2. Wipe out half of the ink



UltraShield decking



Conventional decking

# UltraShield® Stain Test

Step 3. Wash off by water



UltraShield decking



Conventional decking

# UltraShield® Stain Test

Last Step: Dry and see the result



UltraShield decking  
No penetration through the top  
layer and no stain left



Conventional decking  
Stain remains

# UltraShield® Scratch Test

Original surface of the boards



UltraShield decking



Conventional decking



# UltraShield® Scratch Test

Scratch with coin



UltraShield decking  
Insignificant marks

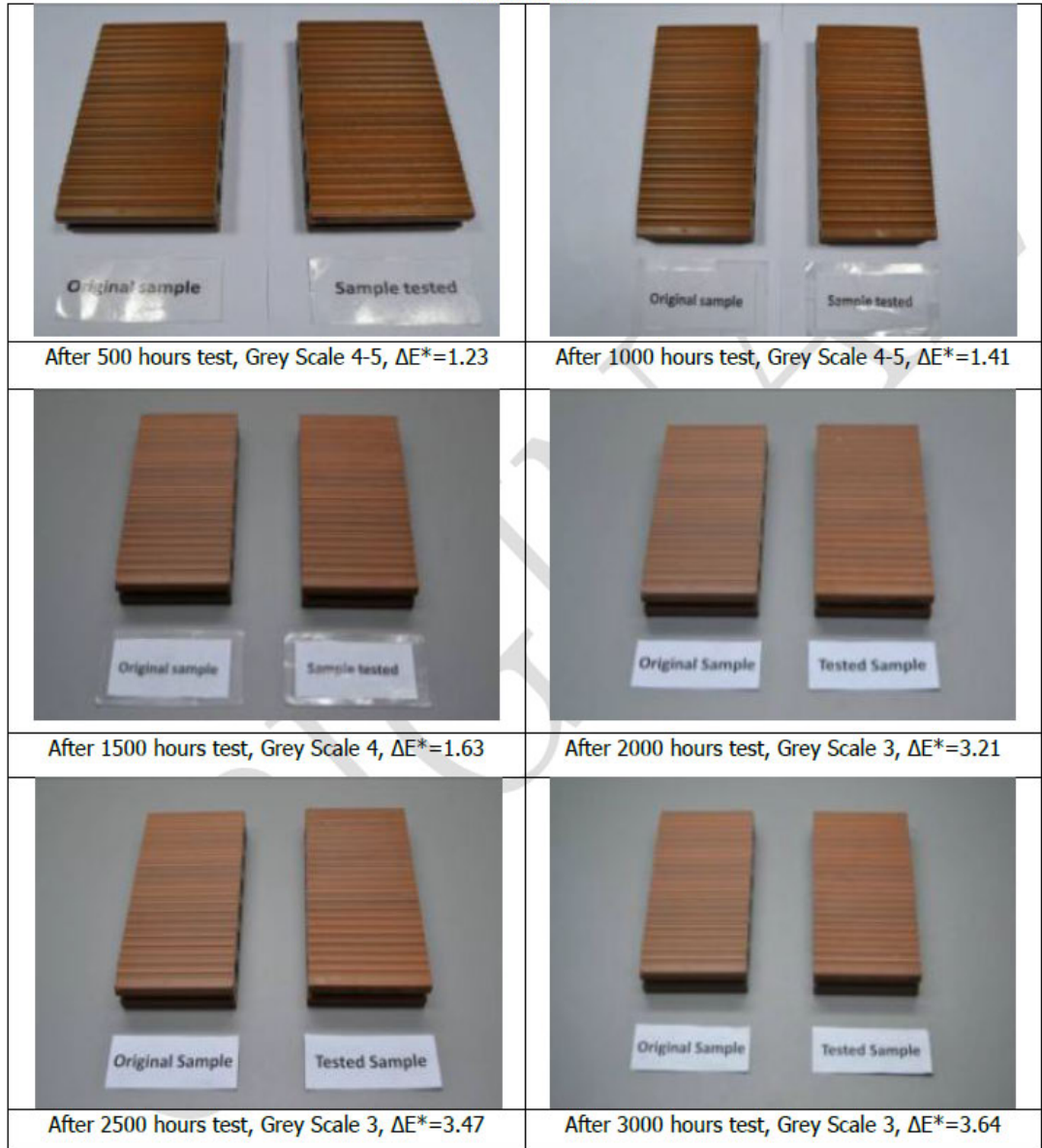


Conventional decking  
Significant marks & material worn off

# UltraShield® UV Test: 3000 hours

Tested in a QUV chamber for 3000 hours, no visible color change can be observed  
(Delta E <4.0)

Model: UH07



# UltraShield® Patterns:

**UltraShield®** not only gives highly functional **Ultra Protection**, it also brings superb colors and patterns.

The latest Naturale line features a unique processing on the surface to make it the most wooden feel and look in the capped composite product EVER.



**UltraShield® Naturale™**

# UltraShield® Colors:

 UltraShield® by NewTechWood®



Maple



Teak



Ipe



Walnut



Redwood



Antique



Stone Gray



Sliver Gray



Smoke White



Light Gray



Charcoal



**Ultra Protection**



**Superb  
colors and patterns**



**UltraShield<sup>®</sup> Naturale<sup>™</sup>**