

# A Guide to Ultra-Low Maintenance Decking

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## INTRODUCTION

Composite decking has been around for many years now, but the old problems of stains, color fade, and mold & mildew growth still persist. Consumer demand for solutions to these common problems led to the development of a new generation of high performance decking. CorrectDeck CX was introduced in 2005 and was the first composite decking to address the growing ultra-low maintenance decking marketplace.

As deck owners have become aware of the advantages of ultra-low maintenance decking, this category has started to expand to meet market demand. There have been recent additions to this field, primarily deck boards composed of vinyl/PVC that are trying to compete as ultra-low maintenance.

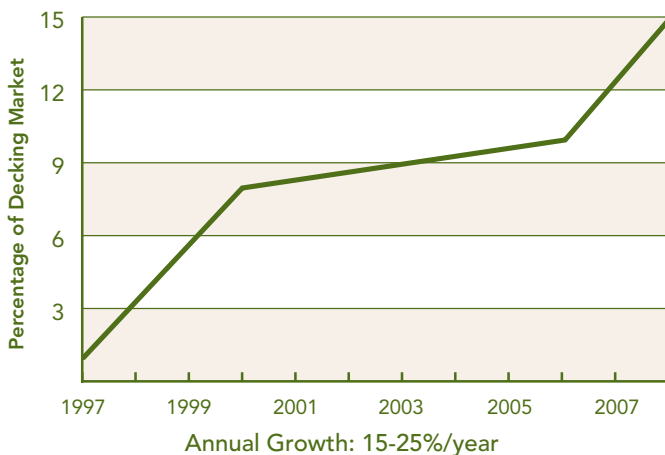
In this white paper, we'll review recent history of the composite decking market, discuss the properties that ultra-low maintenance decking materials should have, and evaluate tests of CorrectDeck CX versus recent vinyl/PVC competitors.

## THE EVOLUTION OF THE DECKING MARKET:

Pressure treated wood was the start of the decking market years ago, with the advent of CCA (chromated copper arsenate) preservatives. However, even chemically treated wood has many properties that do not lend themselves to a long lasting, attractive deck. These drawbacks of required annual upkeep, splitting, cupping, and warping (not to mention the use of heavy metals) opened the door for alternate materials to gain market share.

Wood Polymer Composites (WPCs) were introduced as a sustainable, higher performing option to wood, and have been gaining market share steadily over the past ten years.

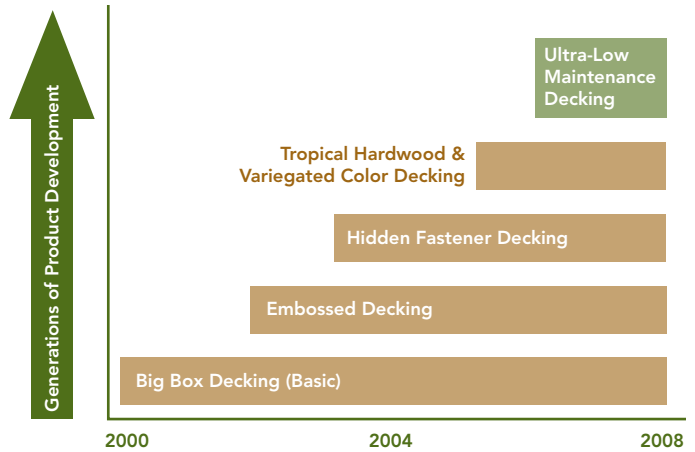
## GROWTH OF THE COMPOSITE DECKING MARKET



Conventional wisdom has been that the composite decking market will consolidate, as the more than 70 producers sell, close, or buy each other. There just isn't room in the marketplace for that many brands, and the sheer volume of products has made choosing a composite decking product difficult.

However, an interesting trend is developing as well—the market is fragmenting to serve smaller niches, with a variety of looks, fastener systems, and material types finding a market.

There are at least five distinct niches within the composite decking market: big-box decking, embossed decking, hidden fastener decking, tropical hardwood & variegated color decking, and ultra-low maintenance decking.



One of the most interesting niches, and the most advanced in terms of product development, is the ultra-low maintenance decking segment. Ultra-low maintenance composite decking is defined as material that comes as close to maintenance-free as possible, striving to meet the expectations of the most demanding decking consumer.

This consumer has very high expectations of composite decking—essentially, one expects an easy to clean material that will go on looking good for a very long time with little-to-no upkeep, looks like wood, but doesn't contain any potentially harmful chemicals or splinters. That is the expectation that built the composite decking business.

This high expectation presents an opportunity—the opportunity to meet it. And this expectation is what led to the development of the ultra-low maintenance composite decking category, and the introduction of CorrectDeck CX.

Decking in this category includes some kind of additive, extrusion, or material technology (or perhaps all three) to resist the common offenders and biggest sources of complaints: grease stains, mildew spots, and color fade. Generally it does not have any exposed natural fiber, or any other material whose properties and durability might be unpredictable or hard to control.

## WHAT IS ULTRA-LOW MAINTENANCE?

To aid in understanding the ultra-low maintenance category, we have listed the properties we believe the materials should be evaluated against:

**Stain Resistance:** Outdoor living provides countless staining opportunities; food and condiments, greases, muddy paws, lawn chemicals, or natural organics from leaves. The harder it is to stain your deck, the less cleaning it will require.

Exposed wood (or other organic) fibers can allow stains to penetrate the decking material, and can be difficult to clean. CorrectDeck CX utilizes a tough co-extruded top layer that does not leave any exposed fibers. This layer, combined with a stain resistant additive, forms a practically impenetrable barrier that helps CorrectDeck CX boards resist stains.

**Fade Resistance:** Your deck exists in the sun, and UV rays can damage many materials. Your deck should be designed to minimize fading of its color.

Color consistency is difficult with recycled plastics, but CorrectDeck CX solves this problem by capping the recycled wood fiber and plastic substrate with a patented co-extrusion process which reduces or eliminates fading, improves color retention, and dramatically improves lot-to-lot color consistency.

**Mold/Mildew Resistance:** Mold and mildew are huge challenges for outdoor materials, especially on decks, where pollen and pollutants collect and water can sit for long periods of time.

In addition to its wipe clean surface, CorrectDeck CX is the only decking product that features Microban® antimicrobial product protection that inhibits the growth of mold and mildew for ultra-low maintenance.

**Eco-Optimized:** We believe that any building product being designed today should keep an eye towards the environment, be sustainable, and recyclable.

Most high-end decking products use fewer recycled ingredients than their low-end counterparts. This is because the use of recycled plastics introduces opportunities for color variation that the high-end consumer will not tolerate.

Unique among top-end decking products, CorrectDeck CX contains our highest level of recycled raw materials. We are able to achieve this due to our co-extrusion process, which fuses a high-performance surface layer of new plastic to the structural substrate.

Additionally, we have addressed cradle-to-cradle considerations in the development of CorrectDeck CX in the following ways:

- All of our materials are labeled with their resource content, which facilitates recycling
- We are always developing our network of composite decking recycling bins, which are intended to provide opportunity for recycling jobsite scrap (end cuts, etc.)

**Easy Installation:** An ultra-low maintenance decking product should reduce visible fasteners both for aesthetics and ease of installation, and to reduce the chances of collecting debris and dirt.

Only CorrectDeck CX can boast an ultra-low maintenance decking product with an easy to use hidden fastener system, The Fastenator®.

**High Impact Resistance:** Your deck will see traffic from people and things like lawn furniture, grills, and sporting equipment. Impact resistance ensures that daily wear doesn't mean premature deck repairs.

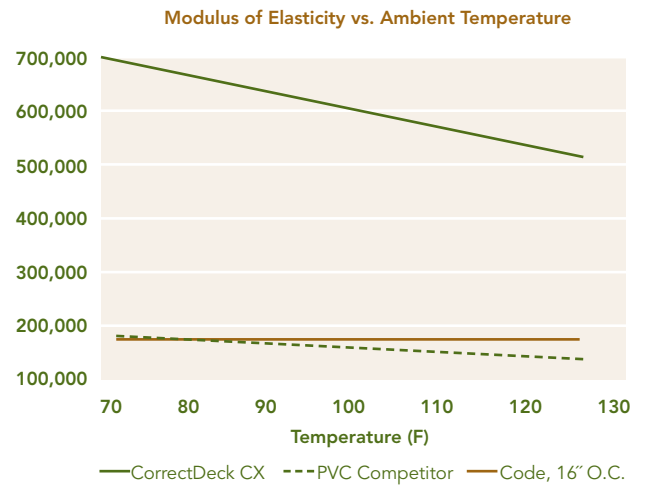
CorrectDeck CX has been designed with a hardwood fiber and polypropylene core that is structurally stiff, dense and resistant to impact. The core of cellular PVC decking products is created by a foaming process that generates air bubbles to expand the core. This type of core can dent and crush relatively easily when impacted.

## TESTING<sup>1</sup>

Having defined our parameters for ultra-low maintenance decking, we tested CorrectDeck CX against a leading vinyl/PVC competitor using ASTM (American Society for Testing and Materials) standards to accurately compare test results.

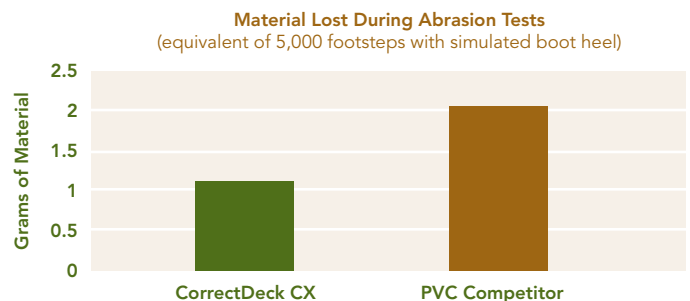
**Chart 1:** Testing according to ASTM D6109 for Flexure. This chart shows the relative stiffness of CorrectDeck CX as compared to PVC decking at different temperatures.

**What it means:** Code sets a minimum limit of 175,000 psi for decking set at 16" o.c. The PVC decking tested fails this minimum at approximately 77 degrees F.



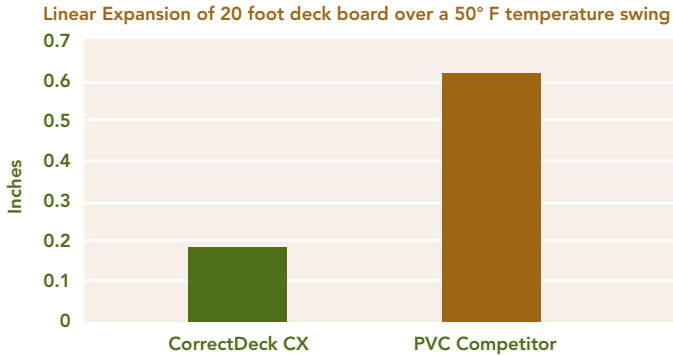
**Chart 2:** Testing according to ASTM D4060 for Abrasion Resistance. This chart shows how much material is removed from the decking over the course of multiple "scuffs".

**What it means:** CorrectDeck CX is roughly twice as tough against wear as the PVC decking.



**Chart 3:** Testing according to ASTM D696 for Coefficient of Thermal Expansion. This chart shows how much longer a twenty foot section of decking would get over a temperature increase of 50 degrees F.

**What it means:** PVC is prone to lengthening as it gets hot, and shrinking as it cools. A PVC board that was cool in the morning could be 5/8" longer in the evening after it has been lying in the hot sun all day. The CorrectDeck CX board would be just over 1/8" longer.



## CONCLUSIONS

Ultra-low maintenance decking is the fastest growing segment of the outdoor living market. There are finally products that live up to customer expectations, and deliver high performing exterior spaces while reducing maintenance and environmental impact.

When choosing a deck, there are many factors to consider, and our testing shows that CorrectDeck CX outperforms any material currently available in the ultra-low maintenance decking category while maximizing sustainability.

**Greater Strength:** Based on ASTM D6109 testing CorrectDeck CX is more than 3 times stronger than typical PVC based decking products. This makes CorrectDeck CX significantly firmer underfoot, and eliminates the "trampoline effect" that is present with PVC decking materials.

Further, many PVC products require additional framing materials, such as being framed 8" on-center to receive code approval on stair applications.

**Abrasion Resistance:** Based on ASTM D4060 testing, CorrectDeck CX is roughly twice as tough against wear as PVC decking.

**Available Colors:** CorrectDeck CX's co-extruded top layer incorporates UV inhibitors to resist fading from the sun's rays, and was designed to incorporate a wide range of both dark and light colors not possible with thermally sensitive PVC. CorrectDeck CX is currently available in 8 different colors.

**Sustainable Solution:** CorrectDeck CX is composed of 80% recycled material (hardwood fiber and polypropylene), is labeled for recycling, and can generate up to 3 LEED points if an under-deck drainage system is used.

**PVC-Free:** Our CorrectDeck CX composite decking is 100% PVC-Free. CorrectDeck CX is a 100% polypropylene and recycled hardwood fiber composite which delivers ultra-low maintenance without vinyl.

**Mold & Mildew Resistance:** CX features a special co-extruded coating that has Microban® antimicrobial protection to repel stains, mold and mildew.

**Time on the Market:** Unlike the newer PVC based decking materials, CorrectDeck's composite product has been on the market since 1999.

## Why PVC-Free is important to Correct Building Products:

PVC, or polyvinyl chloride, commonly known as vinyl, is a plastic commonly used in consumer products including building supplies, cars, toys and other goods. Correct Building Products has never used PVC in any of its products, including the ultra-low maintenance CorrectDeck CX.

### WHY PVC-FREE:

- PVC doesn't 'play well with others' in the recycle stream—it should be separated. However, there is currently no infrastructure to recycle PVC in most municipalities.
- PVC products should be labeled with their resource content in order to aid in cradle-to-cradle recycling, but most are not.
- PVC can release dangerous chemicals into the environment when burned.
- PVC has little resistance to heat and cannot be used for dark colors.
- Most hospitals and global companies including Toyota, Honda, Target, Sears, Nike, and Herman Miller are phasing out PVC due to the above concerns.

If you do choose a PVC product, please consider the proper disposal of jobsite scrap and do not allow it to be burned on your jobsite.

<sup>1</sup> **Testing References:** All tests performed at University of Maine Advanced Engineered Wood Composites Center using ASTM standards.