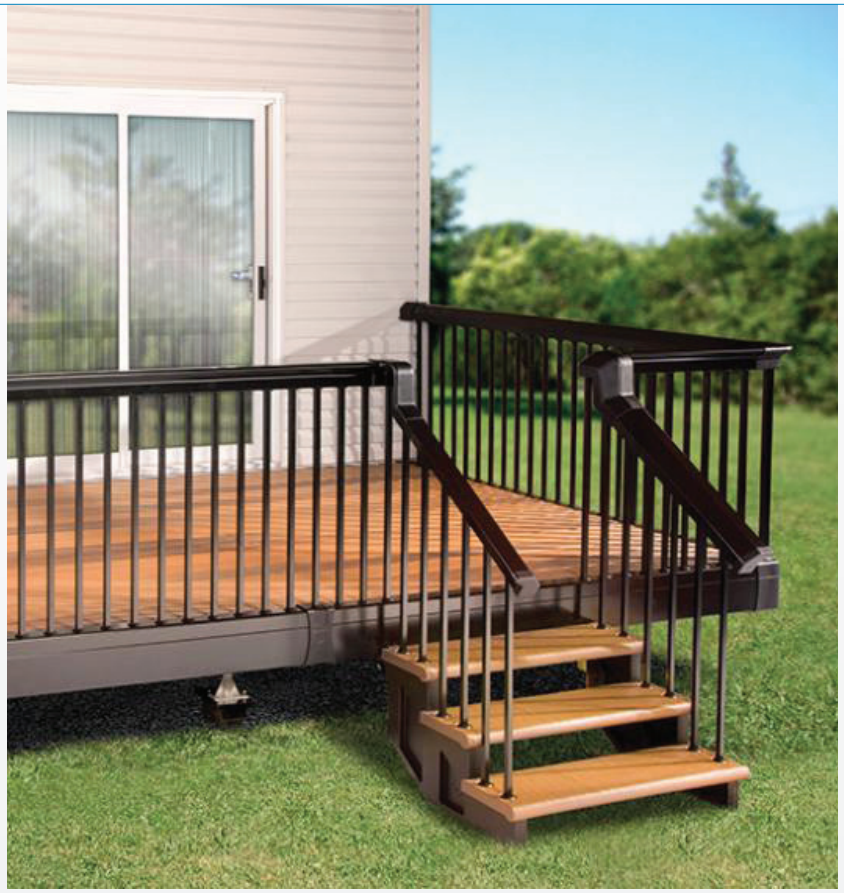
Turning tradition on its head



When you think of an outdoor deck, the first thing you think of is probably wood. But what if there's a better option? Something that won't degrade, warp, rot or require regular annual maintenance? The innovators at Calgary-based SigmaDek knew there had to be a better way and approached Dynacast to help them find it.

ALL THE BENEFITS, NONE OF THE DRAWBACKS

There's nothing better than sitting in the sun on a gorgeous deck. Properly maintained, a deck is an extension of your living space and an asset to any property. But as any deck owner knows: they can be a lot of work. Year-in, year-out, wooden decks demand regular maintenance — from resurfacing to varnishing. And if they don't get it, they can become dangerous eyesores.

Of course, until now, wood has always been the default material used for decks. But not any longer if SigmaDek has anything to do with it. We spent some time with Brian Boettger, VP Product Development to find out more.

A COLLABORATION OF EXPERTS

In order to achieve this dream, Brian said they recognized "we needed 'best in class' partners if we were to build the business to its full potential. We identified Dynacast as that partner and reached out to them very early on."

THE ADVANTAGES OF ALUMINUM

When SigmaDek approached Dynacast to create a non-wood decking support system, they had already decided they wanted to work with aluminum. Aluminum is not a traditional deck construction material but it met the SigmaDek engineering team's key objectives: easy to install, long life span, no degradation, improved levels of safety in comparison with wood framed decks, and most importantly, completely maintenance free.

PUTTING SAFETY FIRST

One of the challenges the team faced was that The International Building Code had no provisions for aluminum components in decks. As a result, the all-aluminum deck system must undergo rigorous testing, which is ongoing. And the engineered safety factor is roughly 2.5 times greater than the building code requires for a similar wooden deck structure. For example, the connector between joist and stair stringer had to withstand stresses of 15,000 psi.

DYNACAST
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Stresses of that magnitude are within the capabilities of die cast aluminum. The issue was designing components whose strength did not come at the expense of economical casting or feature integration. For example, thicker wall sections or ribs might make it easier to meet structural requirements but they also add to the cost to the casting process.

RISING TO THE CHALLENGE

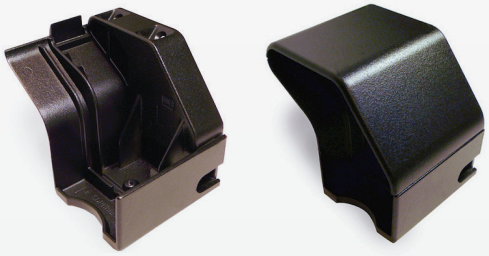
In order to deliver parts which provided the strength needed but did not add to the price, Dynacast's engineers improved the design for manufacturability (DFM) for more than 30 unique die cast parts.

Changes included the elimination of undercuts, the addition of draft angles to some features, wall thicknesses, structural ribs, gates, runners, and overflows. By making the parts easier to die cast, the DFM modifications produced a significant cost benefit. Savings came in the form of less complex tooling, faster cycle times, and fewer secondary machining operations.

INTRODUCING A WORLD FIRST

The result? The world's first fully fabricated, non-wood decking support system which meets all SigmaDek's safety and maintenance goals.

Strong, sustainable and designed to enhance the beauty of any home, SigmaDek is the result of the finest minds in die casting and decking working together to achieve a world first. In the words of Brian Boettger, working together with Dynacast meant "we are able to deliver a product to the end-user which we are confident meets or exceeds anything else in the marketplace."



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To learn more or discuss your own project, please contact a local sales engineer at **www.dynacast.com/contact.**