

Skimmer: Ensuring the Continuity of the Bond Beam

By Nathan Delaforce

This article shares some techniques and procedures we have developed as a company — from the guys in the field to our design team — along with input from industry leaders and exceptional educators, plus years of experience (including trial and error). Commonly, not enough time and detail are spent on forming and reinforcing our bond beams, particularly around surface skimmers. Such a simple aspect is often overlooked, leading to costly results and creating failure-prone areas in our concrete structures.

First, let's start with a simple definition of what a bond beam is in a swimming pool, and what role the skimmer plays. A concrete bond beam is a thickened horizontal concrete beam that runs along the entire perimeter of the pool. It is reinforced with reinforcing bars, providing the concrete section with extra strength to help prevent cracking, and aiding the pool walls to withstand the backfill pressure from surrounding soils and backfill materials. It also helps distribute the pressure of the water inside the pool against the wall. In other words, it's like the rim on the top of a solo cup!

The skimmer is a bucket space within the bond beam that's built to hold a skimmer basket, which captures

light debris floating on the surface of the filled pool.

The skimmer placement in the bond beam area should be as strong as any other part of the bond beam; but unfortunately, this is not the case in most instances. That's where we began our mission: To create a skimmer box that is easy to construct and replicate, integrating well with our tried-and-true forming techniques, while conforming to American Concrete Institute (ACI) guidelines for reinforcing steel concrete coverage.

Typically, we see either large square boxes with insufficient or no reinforcing steel hanging off the back of the bond beam, or small restrictive boxes with inadequate reinforcing steel or thickness of concrete that fail to maintain the strength of the bond beam and are nearly impossible to backfill correctly. After building a mockup of our typical formed wall in our shop, we set the skimmer and reverse-engineered the form to fit the skimmer, resulting in Fig. 1.



Our typical bond beam.



A typical skimmer box, rebar placement too close, forming too tight, not enough rebar across the skimmer mouth to continue the bond beam continuity.



Fig. 1: Prefab box being installed on our mock-up wall



Fig. 2: Pre-formed skimmer boxes and rebar cages

We built out 6.5 in. (165 mm) all the way around, ensuring our steel has 2.5 to 3 in. (64 to 75 mm) of cover on either side of the reinforcing bars, while reducing excess weight by angling the sides at 45 deg.

When developing our standard wall forming system, we sought out and received constructive input from our shotcrete contractor regarding anything that could simplify their job. They suggested angling the back of our bond beam instead of having a 90-deg shelf, to ease removal of rebound. Making perfect sense, we applied this principle to the bottom of our skimmer boxes, significantly reducing the rebound in the in-place concrete. As an added benefit, it improves backfilling under the skimmers, eliminating voids and settling issues in the decking, especially in impervious areas where we cannot use a concrete base for pavers, travertine, marble, etc.

After establishing our basic design, we began prefabricating our boxes in the shop (Fig. 2) whenever we faced inclement weather. We now have a consistent prefabricated form that is easy to install and transport to the job site, saving us considerable time on the job — and as we all know, time is money.

Time for the reinforcing bars! Back at the mockup wall, we contacted one of our engineers for a typical structural reinforcing detail. We adapted and employed his detail to our new form (Fig. 3), ensuring all our tolerances were met.

We created a jig to represent the plastic chairs used on our walls and pre-manufactured our steel cage by spot



Fig. 3: Steel jig in place in mockup



Fig. 4: Ready for shotcrete placement with reinforcement bars under the skimmer mouth and extra reinforcing steel in the box to control shrinkage.



Fig. 5: After shotcrete placement during 28-day water cure.

welding the components together. Now all our skimmer steel is prefabricated in the shop on rainy days, allowing us to make good use of our downtime and keep our team busy. Back at the job site, we tie in the rest of our walls and bond beam reinforcing steel after the skimmer forms, skimmers, and reinforcing bars are set in place (Fig. 4). This makes the skimmer much stronger, less bulky, and easier to place in the bond beam with less rebound, facilitating effortless backfilling (Fig. 5).

Like anything we do in our industry, there is a constant need for improvement. When we keep an open mind and continue to educate ourselves, we can accomplish those improvements. We can all become better contractors by sharing our ideas and striving to raise the bar for our industry, which will benefit all of our customers. Hopefully, this will help builders avoid costly mistakes and encourage them to think outside the box to develop better building solutions and techniques to share as well.



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