Placing with the Times

How monolithic placements can drive efficiency for today's contractors

by Seth Ulmer

In the ever-evolving construction industry, contractors innovate through the equipment they purchase and the processes they adopt. New processes—even those that eliminate just one step—often lead to dramatic increases in productivity and efficiency. When it comes to concrete, monolithic placements are a process that contractors can use to drive efficiency. Monolithic placements streamline concrete work by placing the curb and gutter simultaneously with flatwork, instead of completing these placements one at a time. If completed with the right equipment and considerations, contractors can reap the benefits without sacrificing quality.

Significant Savings

A traditional placement often requires curb and gutter work to be placed, finished, and cured to outline the pavement area. The crew later returns to place and complete the flatwork. A monolithic placement, or an all-in-one placement, improves efficiency by completing the curb and gutter at the same time as the flatwork. The entire job is completed with one placement instead of two, saving a considerable amount of time and boosting productivity and the bottom line.

Seeking new ways to keep up with growing demand, more contractors are seeing the benefits of monolithic placements, especially for parking lots and streets. Contractors who streamline the most time-consuming aspects, such as hand-shaping the curb and gutter, experience the most significant spike in efficiency and often double production.

Keeping up with Progress

As contractors look for ways to maximize efficiency, many turn to laser screeds to boost flatwork capabilities. Their wide adoption in the market has significantly sped up the process of screeding large areas of flatwork. But, for monolithic placements, contractors lose the efficiency gained with a laser screed if the curbing work falls behind. Crews responsible for shaping and finishing the curb by hand typically operate at a slower pace than a laser screed. The whole operation can slow down as they wait for the curb to be completed before moving on to the next section. While slipform pavers can be an option, their large size complicates busy jobsites and typically makes them inefficient for the relatively complex areas of curbing associated with monolithic placements.

The monolithic placement process allows contractors to improve efficiency by completing flatwork and shaping the curb and gutter at the same time *(all photos courtesy of Curb Roller Manufacturing)*

Walk-behind curbing machines maintain the production pace of laser screeds while eliminating extreme physical labor and the need for large machinery for curbs. These machines consist of a handle attached to a metal drum that is connected to a hydraulic power source. The single-operator machines reduce the intensive manual labor of shaping the curb and gutter while producing a consistent, high-quality result, even for operators with minimal experience. While these machines were originally developed for completing curb and gutter work on traditional placements, most can be modified for use during monolithic placements.

Newer entries to this class of equipment incorporate battery power and a design specifically created for monolithic placements. These machines combine the benefits of traditional walk-behind curbing equipment with lightweight portability to quickly move throughout the jobsite. Battery-powered walk-behind curbing machines offer easy maneuverability and transport due to their relatively small size and lack of cords and hoses.

Consider a contractor who was hired to install a large parking lot for a private company. The crew used a laser screed due to the sheer size of the project. They worked during the night to limit traffic interference and were able to place about 2000 yd^3 (1530 m^3) of pavement per night. Despite this, the operation was limited by the finite amount of curb the crew could shape by hand—only between 300 and 400 ft (91 to 122 m) per night. When the contractor invested in a battery-powered walk-behind curbing machine, however, the crew doubled productivity, shaping around 700 ft (213 m) per shift and achieving their target efficiency.

Spinning Up Results

Laser screeds and walk-behind curbing machines are ideal for projects such as parking lots with large amounts of flatwork and multiple areas of curb throughout. However, a single machine that can shape the curb and gutter simultaneously with the flatwork is more ideal for certain monolithic placement applications like street construction or replacement. Traditionally, large, expensive slipform machines are the most efficient solution if the project matches the machine design parameters and has enough volume to justify their operation and overhead costs.

Some manufacturers offer custom drum options for hydraulic screeds. These drums, typically up to 16 ft (5 m) long, are designed to match a specific shape, like half of a street, including the curb and gutter. Custom drums replace the pipe on a hydraulic roller screed and use a spinning motion to shape the concrete.

This monolithic placement method is ideal for streets due to the long, homogeneously shaped stretches of pavement. It is especially convenient for replacing existing streets because it allows one lane of traffic to remain open. After the crew completes one side of the street, they change the traffic flow to complete the second side. In the past, this was only possible with large, expensive slipform pavers or through manual labor, but a custom drum with a hydraulic screed can complete the work for a fraction of the cost or time.

Considering Quality

A common misconception is that monolithic placements produce low-quality curb work. This may be true if a crew primarily focused on flatwork is hand-shaping the curb. They may have little experience in curb and gutter work, and they have to prioritize the flatwork, which is a large portion of the job.

However, a key advantage to a monolithic placement is increased all-around quality if contractors use the proper equipment. Replacing manual curb work with one of these mechanized systems allows for achieving consistent, specification-matching results, even with an inexperienced crew. The equipment is user-friendly and enables contractors

Walk-behind curbing machines with monolithic kits and battery-operated walk-behind curbing machines are two options that contractors may consider for a more streamlined process of hand-shaping curbs

For some monolithic concrete placements, contractors may benefit from using one machine to simultaneously shape the curb and gutter and flatwork. This capability comes in the form of a custom drum with a hydraulic screed

to accomplish more with less labor, a key advantage in a difficult employment environment.

"Weather" Monolithic is Best

Weather is a key consideration when determining whether a monolithic placement is the right solution. Monolithic placements shine in tough weather conditions. As seasoned concrete workers know, the weather dictates when and how efficiently they can place concrete. Dealing with a small placement window becomes less of an issue with a smaller number of placements. With the right equipment, monolithic placements can double or even triple production and help crews maximize the work they can complete before that window closes.

Despite the advantages, there are some cases where a monolithic placement is not the best solution. For example, if a job uses asphalt for the pavement, the concrete curb and gutter must be placed separately. Additionally, the monolithic placement method is not ideal if the curb and gutter or flatwork needs to be replaced separately. For example, in colder regions where brine regularly collects in the gutter, the freezing-and-thawing breaks down the concrete and leads to a shorter life for the curb and gutter than the pavement.

Monolithic Placements, Not Mono-Benefits

Contractors can maximize their investment in concrete equipment by purchasing machines that increase productivity for a variety of applications. Beyond custom drums for monolithic placements, hydraulic screeds also pair with standard pipes to screed flatwork for jobs such as streets and sidewalks. Walk-behind curbing machines have multiple drum options and can also complete the curb and gutter for traditional placements. Additionally, battery-powered walk-behind curbing machines effectively complete patch and repair work and complement slipform machines to complete corners and tight radii.

The demands of the construction industry are rapidly shifting. There is a high demand for work, and contractors can capitalize on these opportunities by finding innovative solutions that improve their processes and increase their capacity. Monolithic placements are not the answer for every concrete project. But with the right equipment and the right application, a monolithic placement may be what drives an operation to peak efficiency.

—Curb Roller Manufacturing, **www.curbroller.com**

Selected for reader interest by the editors.

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