



FOUR TYPES OF SCREEDS AND THEIR USES

Sure, a 2x4 still works for screeding concrete in small placements (oof!), but it can't compete with the speed or surface finishes enabled by vibratory and laser screeds. Here are the pros and cons of the four types of screeding technologies.

FROM 2X4S TO LASERS, SCREEDING CONCRETE GOES HIGH TECH

Screeding is one of the first steps in placing and finishing concrete. This step in the finishing operation is the most important in producing a true plane surface and takes place immediately after the spreading of the concrete. It must be completed before excess bleed water appears on the surface. In reality, the better this step is performed, the better the final product. With that said, is a traditional 2x4 good enough? Let's look at the options for screeding concrete.

Hand screeding with a dimensional 2x4 — Good for leveling but does not consolidate very well. Requires at least two people and possibly a third depending on the size of the pour, plus muckers. Should only be done "on form."

One man vibratory screed — Good leveling and consolidation due

to vibration. Can be done with one person, plus muckers. Operator can screed on form or without (wet screeding).

Vibratory truss screed — Excellent flatness, leveling and consolidation. Requires two men, plus muckers. Used on form only, but has the ability to provide superior flatness and/or crowns with excellent production rates. Can also be used with curb adapters.

Laser screed — One person operation, plus muckers. Can provide superior flatness and high production rates.

HAND SCREEDING

1. Select a screed board that is a couple of feet longer than the width of the pour. For example, when pouring a driveway that is 12 feet wide, use a screed board that is at least 14 feet long. Either 2x4 or 2x6

dimensional lumber is commonly used as screed boards.

The other option is a magnesium screed board. If your customer does this job frequently, magnesium is the best choice as it stays true and is much easier to clean up.

2. Have one worker at each end of the screed board. Smoothing out wet concrete can be hard work and the wider the pour, the more difficult it will be.

3. Set the screed board so the narrow side of the board rests on the forms that surround the concrete. Allow a bit of the board to extend past the form at each side for the screed operators to hold on to.

4. Start filling the form with concrete. Be careful to make sure corners and sides are packed full. Start at one end of the slab and begin



A One-Person Vibratory Screed such as the Morrison Uni-Screed shown here offers numerous benefits over hand screeding, including slightly better leveling, considerably better consolidating and far better finishing speed — with far less worker effort.

sliding the screed board in a sawing motion towards the other end.

5. Another worker should stand by with a shovel of wet concrete to pour into low areas as the screed passes over. When a low area appears, fill the void, lift the board, go back and screed that area again.

6. Repeat the process at least one more time across the entire length of the pour. The movement of the screed back-and-forth will get small bits of gravel in the concrete to settle downward, while moisture and air bubbles will rise to the surface of the wet concrete, making the final product stronger.

ONE-PERSON VIBRATORY SCREEDS (OPVS)

Based on the chart below, an OPVS has many benefits over hand screeding. It does a slightly better job of leveling, but a considerably better job of consolidating. Vibration is the key to dispersing aggregate and filling air pockets. The end result

is a stronger, more uniform slab.

You will also note that an OPVS has little benefit over a hand screed when it comes to screeding on form. Both methods work well on form but wet screeding is a different story. Trying to hold a conventional board level without guidance on either side can be difficult. The sawing motion required is also much more difficult. The basic operation of the OPVS allows it to almost float on the concrete while giving excellent consolidation.

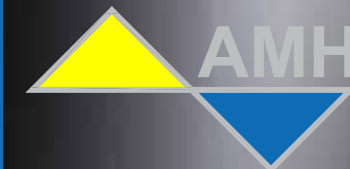
Although the initial cost is substantially higher than a 2x4, the labor savings will end up saving the operator money overall. The average street price of a Morrison Uniscreed with a 12-foot beam is around \$2,000. One man can operate it, saving at least one man's labor. It also screeds considerably faster than screeding by hand, allowing the user to finish the job faster. How much labor savings there will be, will be determined

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SCREEDING METHODS RATED FROM POOR TO EXCELLENT (1-5)

	Dimensional 2x4	One Man Vibratory Screed	Vibratory Truss Screed	Laser Screed
Leveling	3	4	5	5
Consolidation	1	3	4	4
Gradeability	3	3	4	4
For Screeding	4	4	5	1
Wet Screeding	1	3	1	5
Initial Cost	5	4	3	1
Labor Savings	1	4	3	3
Crowning	1	1	5	1

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A vibratory truss screed produces excellent flatness, leveling, production rates and consolidation over wide pouring widths. It requires two men, plus muckers, and is used on-form.

by the size of the job, but most users say it pays for itself in less than a season, and gives you a stronger finished product.

VIBRATORY TRUSS SCREEDS

Based on the chart on page 77, truss screed has many benefits over the OPVS. It does a great job of

leveling and consolidating. Grade ability is good and you won't find a better way to screed on form. While initial cost is considerably higher than the OPVS, it is significantly lower than a laser screed.

Compare a 25-foot hydraulic-powered super screed with the cost of a laser and you'll see as much as a 90 percent lower cost depending on the unit in comparison. With adjustable turn buckles, you won't find a better method of crowning.

When it comes to pours where accuracy is key, a Morrison truss screed is capable of producing FL 50 numbers (Floor Levelness). In addition, it offers the highest vibration levels available at up to 14,000 vpm. This high vpm is what allows users to work with as little as zero-slump concrete with a lightweight aluminum truss.

Morrison has eliminated the need for heavy weight with high vibration. This high vpm also provides users with exceptional speed, as much as 25 percent faster than conventional truss screeds.

One of the best things about the Morrison screed is its ability to keep running even after bearing failure. Morrison's patented bearing design allows for up to 20 percent of bearings to fail while continuing to operate. As you know, bearings never fail with the unit on the shelf. Compare this with other brands of truss screed that will stop with the first bearing failure. Setup on a job is quick and easy, and the aluminum/magnesium components make it a snap to move around.

Features to look for include:

- High efficiency engines: Morrison screeds use Honda engines that burn less than one gallon (3.8L) in an eight-hour day.
- Vibrations are distributed through a



rotating shaft that oscillates inside durable bearing housings.

- Turnbuckles located along entire length make it easy to adjust for crowns, valleys or flat surfaces. Look for screeds that adjust up to 1/4-inch per foot and jam nuts that lock firmly in place to meet demanding "F" floor specifications.
- Lightweight, durable frames (such as the aluminum/magnesium frame used by Morrison) for exceptional strength and durability.
- Bolted construction throughout means no welds to break and no need for special tools. Can parts be easily replaced on the job site if necessary?
- Steel rails available for those that require them.

These units also make excellent rental products. Let your customers try it first, and see how easy it is.

LASER SCREEDS

Laser screed technology produces slab-on-grade concrete floors that are flatter and stronger than any comparative floors produced by using conventional methods. They establish grade by laser, utilizing a 3-D profiler system, disperse concrete by auger, and then vibrate and consolidate the concrete. The console-mounted computer maintains grade with laser precision and monitors the screed elevation at a rate of five times per second.

Laser screeds also feature a

self-leveling screed head that is mounted on a telescopic boom. Laser screeds are setting new standards for concrete floor production. In addition to being "laser precise" and mechanically powerful, they are fast! The average laser screed can accurately screed 240 square feet of concrete in just 60 seconds. That means more floor is placed daily and production schedules are satisfied or actually shortened.

Laser screeds bring concrete finishing into the 21st century. They produce slab-on-grade concrete floors that are flatter and stronger than any floors produced by conventional methods, but this accuracy and speed comes at a high initial cost.

Concrete mixes containing steel fibers can also be screeded with ease. The only real negative associated with laser screeds is initial cost. You will find that top-of-the-line units range from \$100,000 to \$350,000 when purchased new. **CS**


Jeff Durgin is president of Bartell Morrison USA and a well-known authority on concrete working, finishing and cutting with diamond blades.

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