The Little Straight Light

A Laser Beam is Now an Accepted Fact in Many Wall and Ceiling Applications

By Carl Rickert
Laser Alignment, Inc.

Lasers are now widely used in the interior construction industry. Although developed in the late 1950’s, the laser did not come into its own as a construction tool until the late 1960s. They are accepted tools of the trade and used for laying pipe, mining and tunneling and all aspects of general construction machine control. Laser Alignment, Inc. first developed the technique of using a laser for installation of ceiling grid in 1970. Since then, they have been used for accurate aligning of access floors, drywall work, steel studding, decking elevations, column and curtain wall plumbing and installation of sprinkler systems.

“We’ve even used lasers to put up oak trim,” said Steve Swiontek, crew foreman for Mar-Tek, which recently used a laser on a remodeling project in Westmail Mall, Kalamazoo, Mich.

It is the physical properties of the helium-neon laser light that have sparked this change in the construction industry. First, it is highly collimated. By this is meant that by the existence of a low angular divergence property, the beam is able to maintain a small size for a long distance. The 3/8 inch (9mm) beam of light is virtually constant for 500 feet (150m) and expands to only 3/4 inch (18mm) at 1000 feet (300m).

Being monochromatic is the second important physical property. This feature permits easy visual and electronic detection of the laser beam under all light conditions.

Lastly, the laser has a high level of brightness, or relative intensity. While the actual power of the beam is low,
the density of the laser light makes the beam readily visible.

While possibly difficult to grasp immediately, these three features of the laser beam have made obsolete the traditional methods of alignment. In the highly competitive, labor-intensive interior construction industry, this has taken on great importance. The rotating light of a laser can cover a construction site with a 1000 feet (300m) radius range, enabling the entire crew to use the same laser beam at the same time. Properly mounted, it can be set up to shoot over interior partitions, saving the time and trouble of multiple measurements.

This avoids delays and possible errors inherent in repeatedly setting up levels or transits. The good lasers are self-leveling, which automatically warn the user if the laser beam is disturbed and no longer accurate. This feature frees up the crewman who spent his time working the level or transit because the self-leveling Beacon does not require constant checking.

**Self-Leveling**

“That self-leveling feature is handy when the laser is hung on an unstable wall,” said Swiontek. “If someone bumps the wall, it doesn’t have to be manually releveled.”

Swiontek’s crew most commonly use their laser on a wall mount. “The wall mount has been convenient for us,” said Swiontek. “We start out by finding the wall angle height at one point. We then set the laser on one piece of the wall angle, turn it on, put up the rest of the wall angle, then the rest of the grid.”

Once the laser was set to the given height, the individual Mar-Tek crew members were able to work along using the beam to aid them in handling many tasks.

For ceiling grid, a magnetic target was attached to the ceiling grid, and the wires holding up the grid were then adjusted according to the position of the laser spot on the target. The crew would then move from support wire to support wire simply shifting the position of the target. The position of the laser beam remained constant.

A laser should also be tripod mounted in addition to the adjustable wall bracket which hangs on the molding. With various size tripods, the laser can be elevated to a desired reference point or to the finished ceiling height. Set up takes only a few minutes. Water levels and stringlines are eliminated and a continuous “benchmark” is provided that is easily transferred to any point throughout the project site. Any number of mechanics can work from the rotating head of one laser.

**Cost Effective**

By using the laser in the laydown position, one man can layout perfect 90° cross wall lines or control lines for partition tracks, walls and soffits. By simply removing the rotating head, one man can layout 90° angles, eliminating the 3-4-5 angle process. No other expensive accessories are required for layout work. Crewmen transfer partition layout to the pour area of a concrete ceiling. Swaying plumb bobs and two man operations are eliminated as you align and foster floor and ceiling track in one easy operation.

When the drywall track for this particular job was laid out, the line of the track was first established by placing the laser in the laydown position on its own support feet. The laser beam then established a line based on the measurement for the track’s position on the floor. The crewmen then lay down the track itself by using the same target used to correctly align the ceiling grid, shifting the target along the track as the track was positioned.

“There’s no comparison,” explained Swiontek. “Why, we’ve got this other store in the Mall that has to be divided into two stores. It’s already got an existing suspended ceiling, but the code demands a separating firewall, running up beyond the false ceiling, the real ceiling. All we had to do was remove a row of ceiling tile, lay the laser down and turn it on. We saved half the time with just one set up, instead of multiple set ups with a plumb bob.” “And the self leveling feature of the laser saved set up time because you don’t have to level every time you move the laser,” said the crew foreman.

“You can set it up quick,” added Mark Rogenski, a crew member, “and it doesn’t take much adjustment.”

A pivot pointer allowed for precise set up directly over control lines and manual grade operation permits the establishment of line despite in-line obstructions. Completely self-leveling
in all positions, a Beacon 5025, for example, is also equipped with an elevation alert feature which instantly alerts the operator of an elevation change. With this proven tool, contractors realize production increases of 25 to 50 percent over conventional construction methods.

With labor and material assuming the largest share of the expense in any interior installation job, whether it’s steel stud partitions, bulkheads, putting up walls or installing ceiling grid, Mar-Tek has found the laser does it accurately, while saving time and labor costs. “We use it for everything and it’s been terrific.”