



# Determining Self-Leveling Underlayment Elevation Requirements

## TDS 236

The term self-leveling has long been used to describe cementitious products that exhibit a high flow characteristic when compared to concrete, and cure to a smooth surface that is ideal for finished floor goods. Self-leveling cements achieve their name by mimicking the flow characteristics of liquids while they are placed. This ability to act as a liquid is the chief benefit to using self-leveling underlayments in order to achieve a flat floor. Although self-leveling underlayments do indeed achieve a smooth and comparably flat surface, the term 'self-leveling' is in fact a bit of a misnomer. Different substrate characteristics and profiles can contribute to installations that can often appear flat, however, can remain canted or require more material in order to achieve the manufacturer's recommended pour depths. Self-leveling cements are indeed a faster and most efficient method to achieving a flat floor; however, without proper preparation prior to installation, they can fall short of their intended goal. The following information will outline a method of measuring the inconsistencies of a given floor and properly prepare it for the use of a self-leveling underlayment.

### NIVCOMP DIGITAL LEVEL

The NIVCOMP digital level is a robust tool that offers many advantages over traditional layout and floor mapping methods. Using a liquid reservoir and hose line, the NIVCOMP can detect elevation differences and express them in either metric or imperial units. It requires no line of sight and is easily operated by a single individual. The tool is made up of a hose reel that contains a fluid reservoir, a 75 foot hose, and a handheld unit. It is important that the hose reel is not moved once the measurement process begins as it is used as a point of reference. Furthermore, when taking measurements, make sure the hose stays level and is not swayed during the measurement process as this could influence the readings.

### BASIC USE AND SETUP OF THE NIVCOMP DIGITAL LEVEL

Remove the NIVCOMP from the case and screw the pole attached to the handheld unit together. Press the button on the handheld unit once in order to power on the unit. Find the point on the floor that will be considered the zero point or the desired finished pour height and place the bottom of the NIVCOMP handheld unit at this location. Wait for a zero to appear on the digital display of the handheld unit. Click the button in order to set this as the zero point. Now measurements can continue without the pressing of the button. Simply walk the unit to each intersection of your floor grid and the reading will display on the handheld unit. For the latest information on using the NIVCOMP please visit the manufacturer's website below.

### HOW TO DETERMINE A ZERO POINT

What is the desired height of the self-leveling? Are there preexisting conditions that are dictating the overall height of the floor? Are there spots on the floor that already exceed the height that is required? These are questions that need to be addressed prior to pouring material for obvious reasons. Product choice, as well as pour depth will be dictated by the definition of a zero point. If the pour depth is going to be determined by door jambs, base the zero point on the height of the door jambs. If the self-leveling project is taking place to address low spots on the floor be certain to set your zero point *to the desired finished floor height*.

### LEVEL PEGS

Level pegs are visual aids that are placed on the subfloor prior to the introduction of a self-leveling underlayment. They offer a visual confirmation that a section or area of the subfloor's topographical disparity has been addressed. The typical installation method is to take a reading using a NIVCOMP at a precise location, cut the level peg to the corresponding height, and adhere it to the floor at the location where the reading was taken. Using level pegs in tandem with a NIVCOMP digital level is advantageous in that it allows for an accurate installation of self-leveling material indicating to the operator exactly how deep the material must be poured at various points on the floor.

### CREATING A FLOOR MAP

In order to best plan a pour; it is advisable to grid out the area. The size of the grid is going to be determined by the floor flatness (FF) tolerances that are required on the project. For a pour that can guarantee a tolerance of 1/4" over a 10ft span, it would be advisable to set your floor grid at a minimum of 5'. For tighter tolerances, such as 1/8" over a 10ft span, it would be advisable to set your grid to 2' intervals. The tighter the interval is that is chosen for the grid, the better the likelihood that the desired floor flatness tolerances are achieved.

Once a grid tolerance is determined, proceed to start from the center of the room and mark parallel lines at the given distance using a chalk line. After the initial series of parallel lines have been marked, start from the center and repeat the process working perpendicular to the initial series of lines. The intersections of these lines will be locations for both placing level pegs and using the NIVCOMP to take floor height readings. For more information on Floor Flatness ( $F_F$ ) and Floor Levelness ( $F_L$ ) please refer to [TDS 233](#).

## TAKING READINGS AND MARKING THE FLOOR

Begin taking readings at each intersection of lines that have been marked on the floor. The reading that you receive from the NIVCOMP will tell you the depth required to attain the finished floor height. Using a pair of scissors cut the level peg to the reading and adhere it to the point on the floor where the measurement was taken. Proceed to measure and place a level peg at each intersection on the floor. Finally, look for any inconsistent points that may have not been marked such as high spots or dips. Be certain to add these points on the floor to ensure adequate coverage. Once all the necessary level pegs have been placed, self-leveling underlayment can be installed over the floor. The level pegs may remain in place and installed over with the self-leveling underlayment.

## SUMMARY

This TDS is an overview of using specific tools for creating a floor map prior to the use of a self-leveling underlayment. For more information on the use of a NIVCOMP and level pegs you can visit the following sites:

<http://www.topleveltools.com/> - U.S. based retailer for NIVCOMP Digital Level and level pegs

<http://www.dirotec.com/en/product.php> - manufacturer's website for the NIVCOMP Digital Level

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