



KTC Topography Report

Lake Wales, FL

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BUILT FOR BOWLING

Introduction

Kegel is pleased to provide you with this revolutionary LaneMap™ Guide. This guide is an assessment of the gravitational forces on each board of each lane in this bowling center. It will assist you in knowing how much and where gravitational forces come into the play on each lane as the bowling ball travels from foul line to head pin.

Understanding the Data

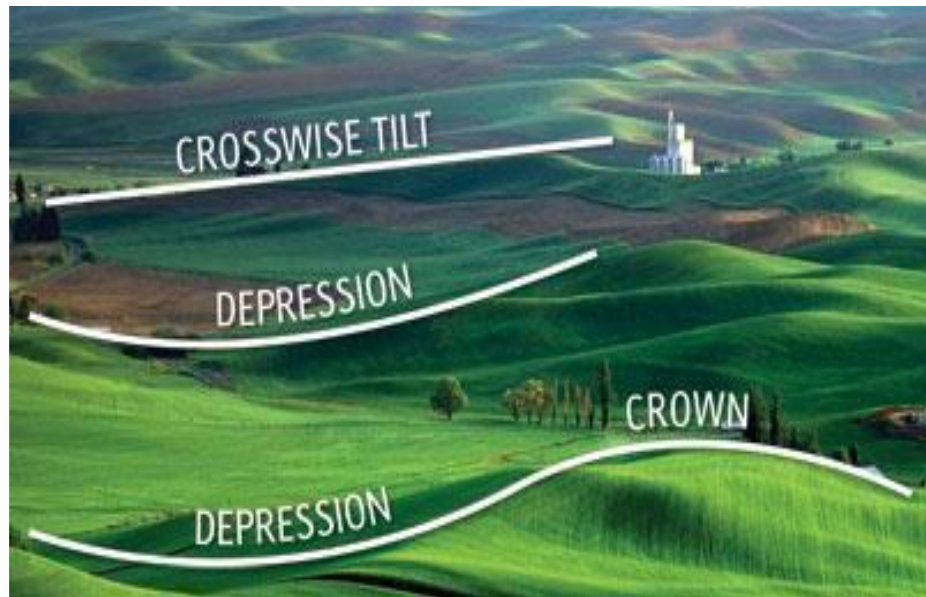
This guide is designed to compare each pair of lanes in the bowling center. The data presented is:

- ☛ LaneMap™ Graph - A colored gravitational slope graph of each lane

The Kegel LaneMapper™ is a state of the art device that can efficiently and accurately log digital recordings of surface topography. Designed by Kegel specifically for bowling lanes, the LaneMapper™ reads and records both length and crosswise levels while simultaneously logging crowns and depressions of all 39 boards at any distance on the lane to an accuracy of .001 inch. The LaneMap Guide was derived from this tool and data.

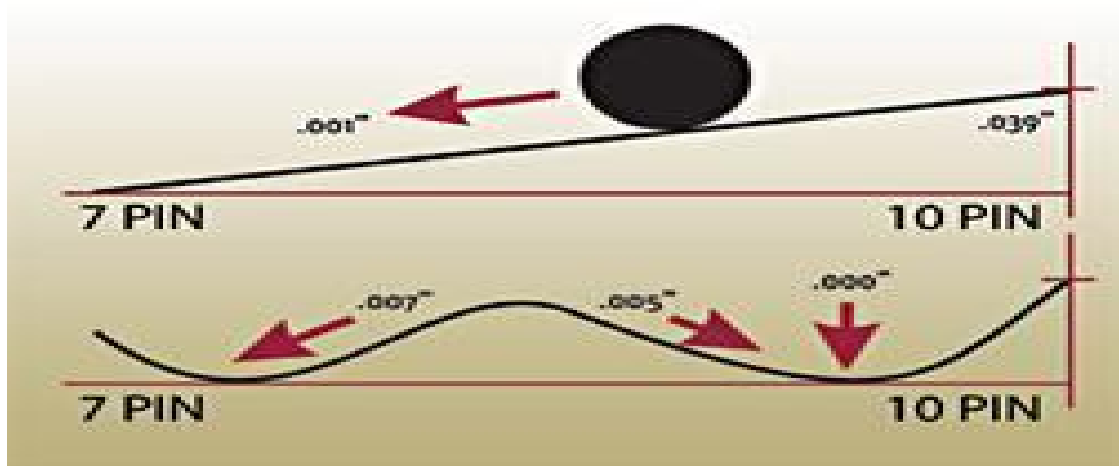


Topography is defined as the graphical representation of surface features indicating relative positions and elevations. It's a known fact that changes in topography adversely affect the ball path and ball motion (rate of energy depletion). When topographical features are randomly different on a bowling lane, so is ball motion.



Another variable is **Slope per Board™**. Each board has a specific slope, calculated from the crosswise tilt, crowns, and depressions. The degree of this slope has a proportional effect on the ball path and can also influence the rate of energy depletion of the bowling ball. I.e. deplete energy sooner or later.

For example, a board with a $\frac{2}{1000}$ " slope will affect the ball twice as much as a board with a $\frac{1}{1000}$ " slope. Bowlers throw balls on different boards and **each ball is only affected by the slope of the board it's on**. The other slopes don't matter to that ball because quite simply, it's not on them.



Understanding the Data

This report is designed to compare each pair of lanes in the bowling center.

The data presented are:

- Raw Data Table of all the individual topography readings - crosstils lengthwise level, crowns (highs) and depressions (lows) of each board at every scan distance for every lane
- Lengthwise Level Graph of each pair of lanes
- LaneMap™ - A colored gravitational slope graph of each lane
- 3-D contour map of each lane

Raw Data Table

The data table shows all the scanned topography measurements. There are no decimals in this table because all measurements were multiplied by a thousand. This means .020" = 20 thousandths of an inch. A double pound sign (##) is above 99 thousands of an inch.

A (–) before the number indicates a depression at that point on the lane. Unless otherwise noted, the crowns and depressions are calculated against zero (flat).

The below example shows that on Lane 1 at a distance of 11.5' from the foul line, board number 3 on the left side (L3) is depressed by (-10) or (ten thousandths)

Lane	Distance	Cross	Length	L1	L2	L3	L4	L5	L6	L7
1	9.6	-0.016	-0.003	0	-2	-6	-10	-19	-25	-
1	11.5	-0.005	-0.001	0	-7	-10	-16	-20	-25	-
1	13.4	-0.011	0.001	0	-5	-7	-9	-12	-13	-
1	15.3	0.013	0.01	0	-1	-3	-2	-4	-5	-

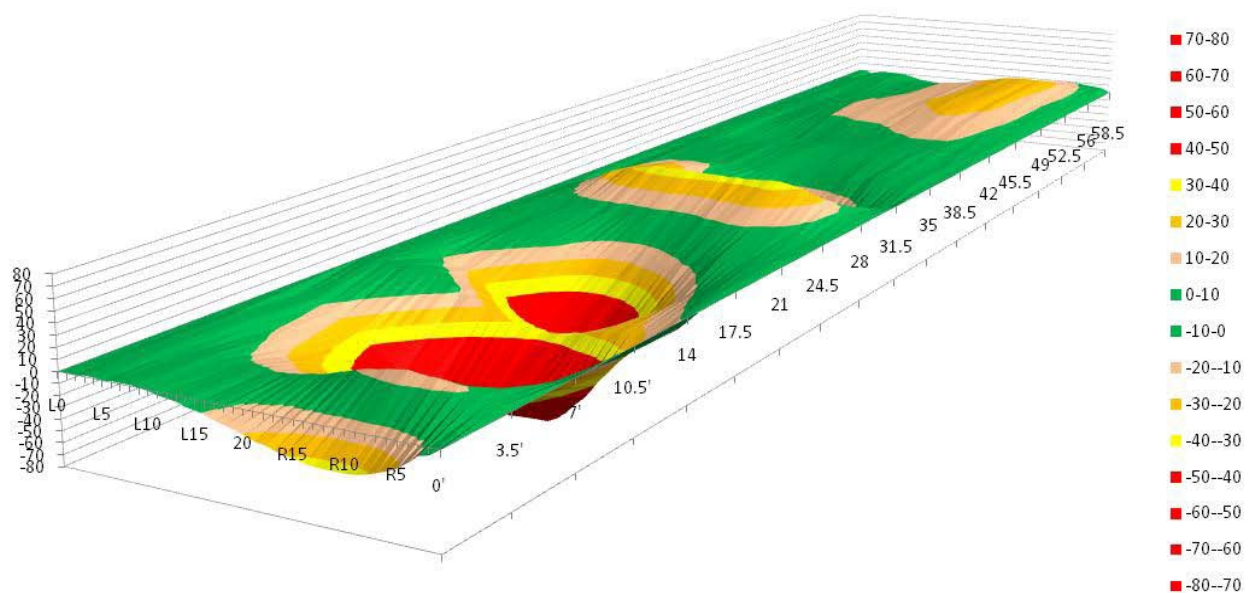
Lengthwise Level Graph

Although this is not a required specification for existing centers, it has been adopted by the USBC, the specification governing body of tenpins. See USBC form EQ-09101, page 4, and dated 12/08 for this specification. Considering front-to-back level has a critical effect on consistent lane to lane ball reaction, we measure at each leveler.



3-D Contour Graph

The 3D graph is a visual aid showing the highs (crowns) and lows (depressions) of each bowling lane surface. The data was multiplied by a factor of four to make differences more obvious when viewing the graph.



Kegel LaneMap™ Graph

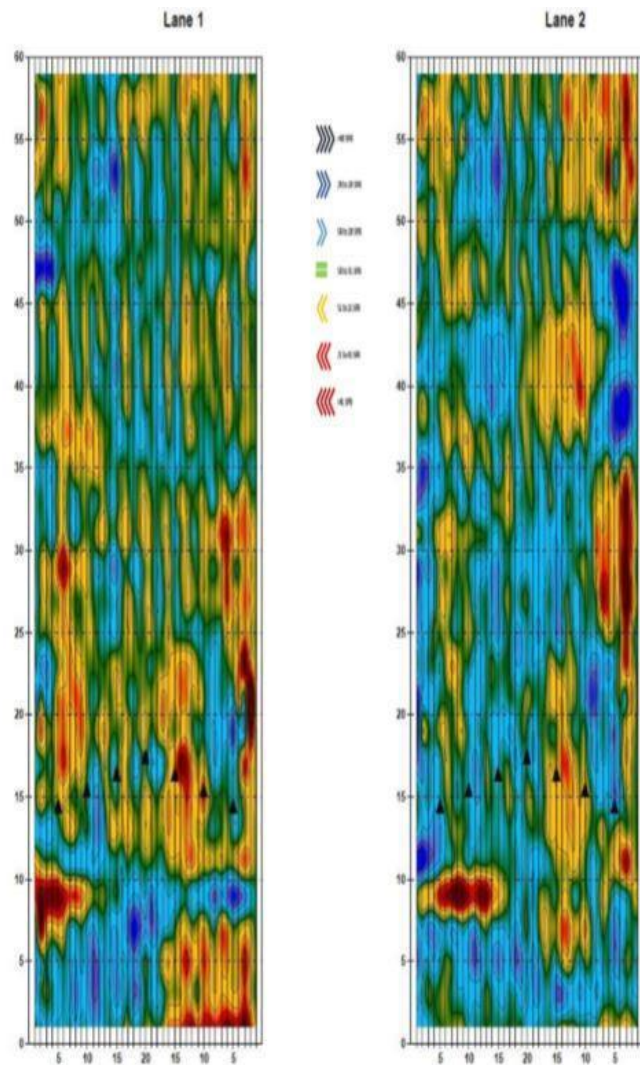
The revolutionary Kegel LaneMap™ graph shows the slope per board and is the gravitational influence on the “canvas” (lane) prior to the application of “paint” (lane conditioner). Gravity and friction are separate forces on a bowling ball but gravity problems cannot be fixed with friction solutions.

Since the lanes are generally oiled identically, differences between lanes in ball reaction will be a function of differences in gravitational forces “under” the conditioner. In order for two lanes to play the same, they must not only be oiled the same, but they also must have similar gravitational influences in comparable places.

The black and dark blue areas on the LaneMap™ graph are very strong gravitational influences to the right while light blue areas are less, but still substantial influences to the right.

The maroon and red areas are very strong gravity influences to the left, while orange areas are less but still substantial influences to the left.

Green represents areas of very little gravity influence. The bottom of the graph is the foul line and the top of the graph is right before the pins.



Bowling Center Lane Details

- ✎ Number of Lanes: 24
- ✎ Lane Surface: Wood
 - Year of Installation: 2000
- ✎ Lane Surface Lateral and Underlayment: Wood
 - Underlayment Year Installation: 2000
- ✎ Head Area Replaced?: No
- ✎ Approach Surface: Wood
- ✎ Pin Decks: DBA
- ✎ Pinsetters: AMF
- ✎ Scoring System: Qubica