



CENTER CERTIFICATION RESEARCH REPORT

2018

OVERVIEW

The United States Bowling Congress set out to improve its Center Certifications more than five years ago. Over a three-year period, USBC studied the center certification process and published a study of 64 centers and 1,000 lanes across 20 states. The results of the study led to changes in the certification process that were announced at the 2017 USBC Convention.

USBC stated this will commence in three stages:

1. Focus on educating inspectors and improve the data collection process
2. Analyze the data to determine what changes would be required
3. Bowling centers to make improvements to the playing field for certified competitions

This report marks the first time in the organization's history it has published the bowling center data collected by local USBC Association inspectors. It contains the data USBC has analyzed thus far, regarding lane topography and other key measurements.

Center Certification History

Dating to when the American Bowling Congress was founded¹, the 1898-1899 season was the first-year important rule changes regarding lane equipment were established. It was decided the gutters must run the entire length of the alley, they must be two inches in depth and from 8 3/4" to 9" in width.

Because of the increased amount of bowling, wear and tear on kickbacks had forced many operators to use various protective materials. Some of the materials were deemed too resilient, so to arrive at uniform kickback action it was decided an operator could nail one thickness of leather onto the kickbacks.

It also was announced at the time that the foul line could not be more than one-inch wide and the length of an alley must be determined by measuring from the center of the foul line to the center of the headpin.

In succeeding seasons, the following specifications were adopted:

- 1904-1905: Round gutters at the pit end were ruled out; square ones were specified
- 1924-1925: Wood-fiber kickbacks were permitted; prior to this, the only substance allowed was leather
- 1925-1926: The thickness of the fiber kickback was reduced from one-half inch to one-eighth of an inch
- 1932-1933: Because of the depression, the annual resurfacing rule was held in abeyance for one season

In the 1935-1936 season, the ABC established a tolerance of ± 0.040 " (40/1000ths) of an inch for deviation from the plane surface of the alley bed. Any high or low place of the alley exceeding the limit was declared enough to prevent recognition of a High Game award claim.

In 1983, the American Bowling Congress (ABC) and Women's International Bowling Congress (WIBC) developed the Certified Lane Inspectors Workshop (CLIW) program, which enabled association officials to become certified lane inspectors. CLIWs helped bring consistency and standardization to lane certifications and inspections by offering instruction on lane measuring and dressing inspections.

In 1988, another milestone year was marked as the beginning of joint ABC/WIBC operation and financing of the Equipment Specifications and Certification Departments. Previously, the departments were entirely under ABC's jurisdiction.

¹ A History of the ABC

When the United States Bowling Congress (USBC) was formed in 2005, Equipment Specifications and Certifications began the process of merging into one department. Since that time, there were no major changes in this area until the USBC published a Lane Certification Study Report² at the 2017 USBC Convention.

Project Scope

The United States Bowling Congress announced on April 27, 2017, it would implement new requirements for lane inspections and adjust specifications for new installations for the 2019-2020 season based on research conducted by the USBC Equipment Specifications and Certifications team.

The research included analysis of the lane certification paperwork submitted by 323 centers, in addition to USBC's examination of 64 centers and more than 1,000 lanes throughout the country, in which lanes were checked to determine compliance with current specifications, a study of the pin deck specifications, and an examination of lane topography.

The studies were undertaken to determine the extent of lanes that were out of specification, which pin deck measurements have the most effect on scoring, how lane topography shifts over time, and how lane topography affects the ball path.

Since the announcement, USBC has been working tirelessly to educate both associations and bowling centers about the upcoming changes. Starting with certifications for the 2018-2019 season, a new application for center certification was made available on BOWL.com to address the number of measurements required for each lane and how kickbacks are measured.

To date, lane inspectors have measured 3,300-plus centers and 72,800-plus lane beds as nearly 79% of all certifications have been completed. Lane inspectors were required to measure for crowns/depressions and crosswise tilt at five locations for synthetic lanes and three locations for wood lanes. With many lanes using synthetic panels, and the fact it takes at least five synthetic panels to construct a lane, there is a need to have at least one measurement for each panel.

A pin-deck area scoring study determined the most important measurement affecting percentage of strikes is the distance between the kickbacks at the back of the pin deck. Measurements now will be taken from kickback plate to kickback plate starting with the 2018-2019 season, as it simplifies the measuring process and is not a change in the specification.

To ensure the accuracy of the data, at the time USBC allowed a one-year grace period for center certification. Simply having a proper inspection of the bowling center, supplying the data and having all three signatures (inspector, association manager and bowling center) on the report sent to USBC Headquarters allowed the center to be certified for the 2018-2019 season. The data collected during these inspections has been analyzed to determine if additional improvements to the process are needed for the 2019-2020 season.

Key Findings

The 2018-2019 season marks the first year USBC analyzed all lane certification data collected and began developing a database of all the measurements.

For the lane and pin deck area, the inspections required 29 measurements on each synthetic lane and 21 measurements on each wood lane. With more than 4,000 certified centers and more than 90,000 lanes, over 2.5 million measurements will have been taken once all data is collected. The

² [Lane Certification Study Report](#)

data gathered by local USBC Associations has been extremely helpful.

USBC wishes to update you on this historic data collection and analysis. Data will continue to be collected and USBC will be verifying the collected data before a final analysis and report is issued. The numbers and trends in this report are preliminary and subject to change.

As of Dec. 1, 2018, certification data from 3,300-plus centers and 72,800-plus lanes have been compiled in the Center Certification database with more center data added each day. To date, over 3,500 center certification reports have been submitted to USBC headquarters and the outstanding data still is coming in. At the completion of the process, USBC will have data from approximately 4,200 certified centers.

What we have learned from the process:

- Synthetic lanes make up 85% of all lanes measured; the remaining 15% are wood lanes
- Wood lane topography tends to be flatter with 99% in compliance versus synthetic lanes which are 96% within specification
- The head panels showed 93% within specification
- The backend of the lane (last three panels for synthetic) tend to be flatter with 98% in compliance
- Kickback-to-kickback plate and pin spotting show approximately 90% within specification and about 93% of the gutter depths are compliant
- 72% of centers have more than 95% of all measurements within specification

CENTER CERTIFICATIONS

The Equipment Specifications and Certifications team works to help uphold the credibility of the sport and makes competition fair by analyzing lane inspection data to ensure USBC standards are equitable.

USBC local association officials annually visit bowling centers in their areas and use a variety of instruments to perform a physical inspection of the lanes and their adjacent components such as the channels, channel depths, pin spots, and pin deck.

USBC rules state that bowling centers must renew their certification by September 1 to host any USBC certified competition for that season.

Education and Training

After the announcement was made at the 2017 USBC Convention concerning center inspections, a series of videos, reports and updated manuals were created to help educate all stakeholders in the Center Certification process.

The Association Services team, along with the Equipment Specifications and Certifications team, conducted 30 Lane Inspection Workshops throughout the country during the 2017-2018 season, including two additional workshops at the 2018 Convention.

- 966 people from more than 300 associations have attended workshops in the field
- 450 association volunteers attended the convention seminars

Feedback from all events has been positive and, during the past few years, USBC has worked diligently to expand the number of inspectors at the local level. USBC is also working to improve the availability and quality of training for all lane inspectors.

Inspection Equipment Sales have risen 70% year-to-date since the announcement, indicating the acceptance and commitment of the effort required by all USBC associations.

There are several ongoing initiatives in this area:

- Communication through USBC Association E-news
- Continued discussion through the Association Leader's Facebook page
- Instructional workshops to be held during the 2018-2019 season
- Spot-checking of bowling centers whose inspections were already completed

This will continue to ensure all associations are receiving the necessary information and education to support this effort in the field.

Lane Topography

Lane topography consists of taking a measurement on five panels for synthetic lanes and three locations for wood lanes. The panels that are measured consist of the first five panels, starting with the head panel.

Crown and depression measurements are taken on the 10 board from both edges of the lane (L10 board and R10 board) and the center board (20 board) for the first four synthetic panels or the first two wood lane locations. The fifth panel for synthetic lanes, or the last measurement for wood lanes, are measured on the 15th board from the left and right edges of the lane (L15 board and R15 board).

The locations change down the lane, so measurements are taken in the ball-track area, which is where the ball travels to the strike pocket. Also, cross tilts are taken at each of these locations.

Overall Data

Report Updated: 12/1/2018

Total Centers: 3,306

Total Lane Beds: 72,805

Again, while data still is being collected and our analysis is ongoing, we can report on some preliminary findings.

The panel furthest out of specification was the head panel, though approximately 93% of the crowns and depressions are within specification and about 94% of the cross-tilt measurements are also within specification. The backend of the lane meets specifications most often with about 98% of all the results (both crowns/depressions and cross tilts) on the last three panels in compliance. The center of the lane has the most out-of-specification results yet averages around 95% in specification versus 97% of the 10 board (left and right side) in compliance.

As we previously reported, the topography will fluctuate during the year as humidity and temperature changes.

Playing Field

Nearly all new centers are installing synthetic lanes versus the traditional wood lanes because of the long-term maintenance savings by not having to resurface lanes on a regular basis. Thus far, of the 3,300-plus inspection reports entered in the data base:

- Synthetic lanes = 85% (61k lanes)
- Wood lanes = 15% (11k lanes)

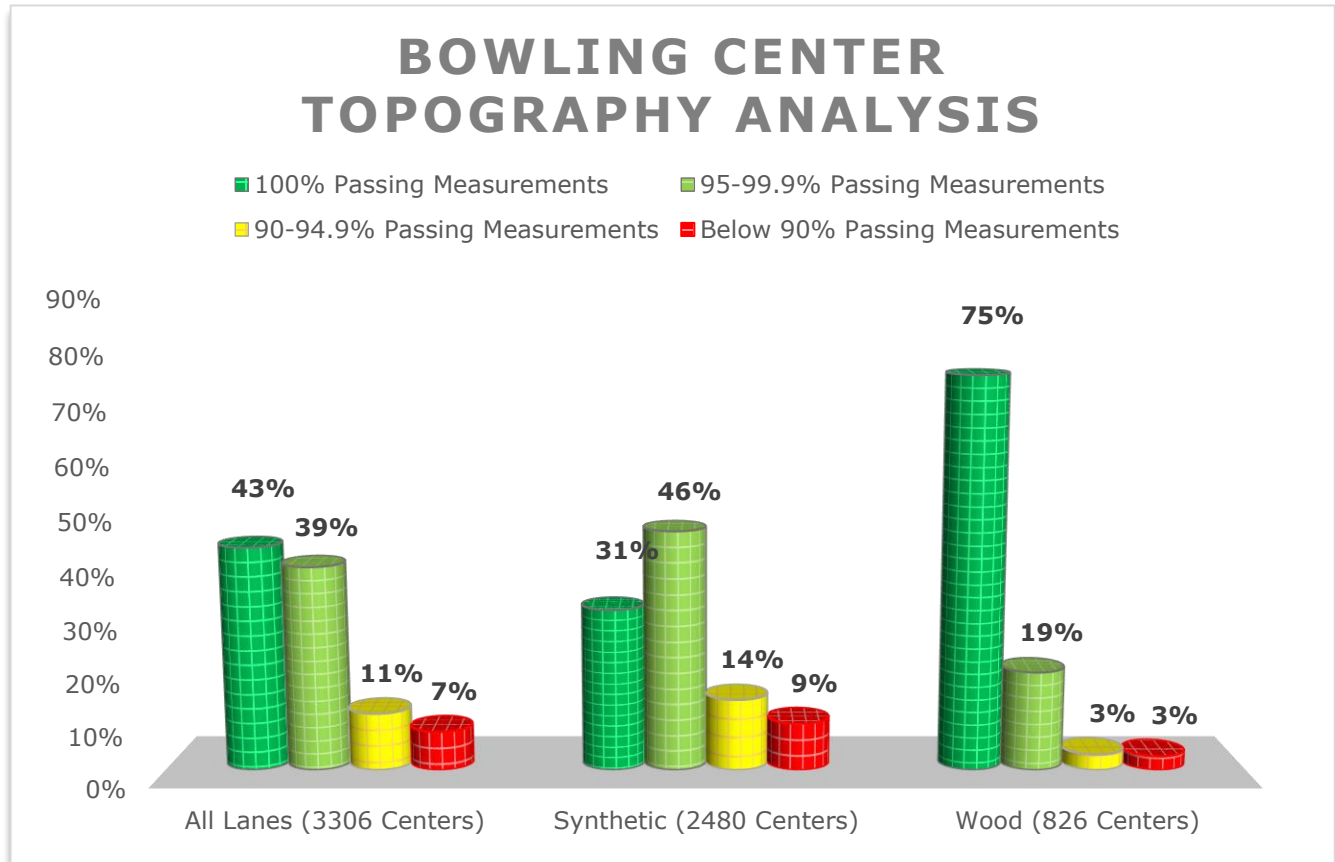
If one considers that Guardian and Lane Shield topcoats yield a synthetic lane, the breakdown of synthetic versus wood lanes would be:

- Synthetic lanes = 86% (62k lanes)
- Wood lanes = 14% (10k Lanes)

We've begun to see some trends emerging when comparing synthetic and wood lanes from center inspection reports.

When looking at all lanes individually, wood lanes appear to be flatter at 99% versus synthetic lanes which were 96% within specification for crowns and depressions. This is probably because the centers resurface wood lanes every few years.

Below is a chart showing a breakdown of centers according to the percentage of topography results within specification:



Approximately 43% of all the centers have all topography measurements within the specification and 82% have 95% of all topography results within the specification. If those numbers hold, the good news is that a large percentage of the centers are meeting the specifications.

End Pair Analysis

Upon reviewing the data, USBC evaluated the end pairs – lanes on the high and low end of the house – to determine what differences there might be, if any. A common perception among bowlers is that the end pairs play differently than the rest of the house.

The analysis of the end lane data compared to all lanes within specification to date:

Description	Crown / Depression	Cross Tilt
% of All lanes in Specification	97%	97%
% Low End Lane in Specification	97%	96%
% High End Lane in Specification	97%	96%

The preliminary data shows that while there is some variance, it isn't significant enough to

determine the lanes would truly play different than other lanes within the bowling center. If they do, it is not based on the topography.

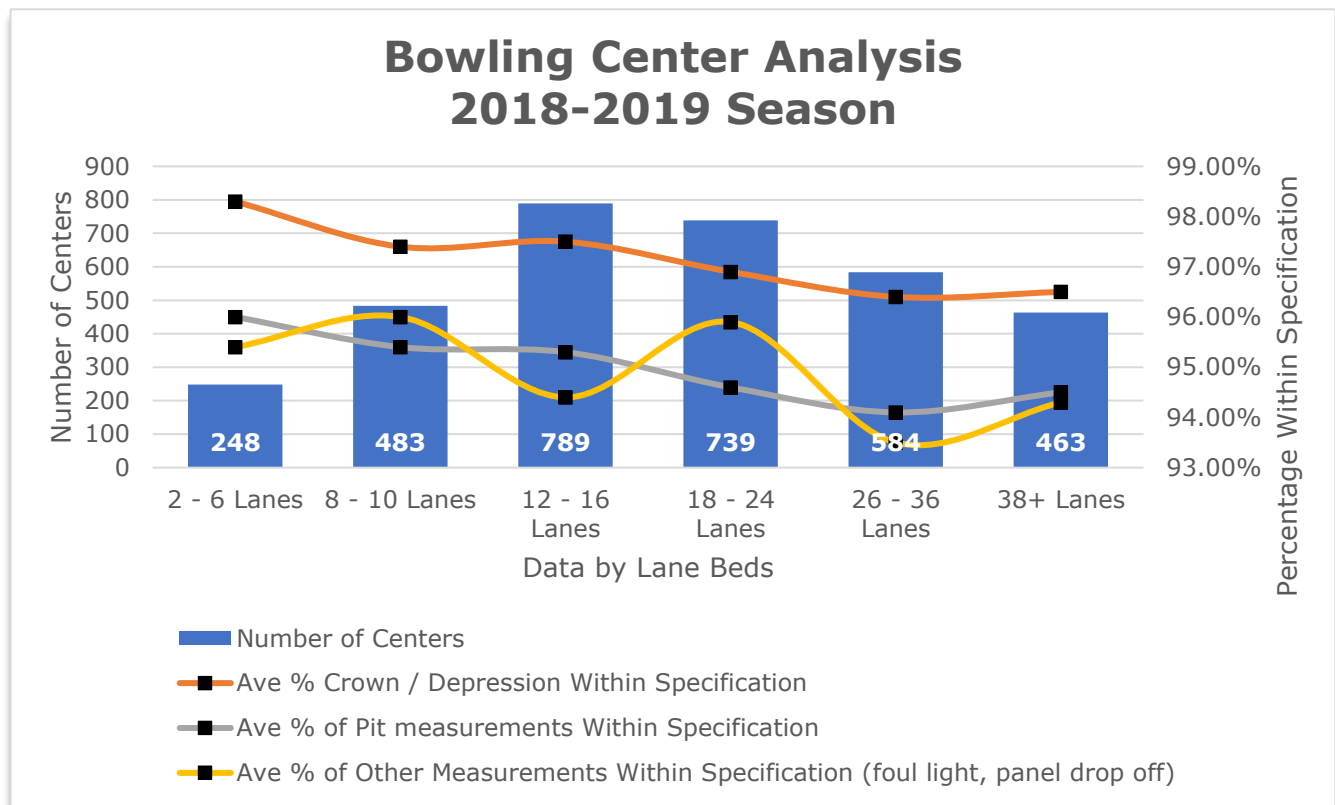
Pit Measurements

Center Certification specifications cover both the flatness of the lane and the pit measurements. The pit measurements are important as they affect how the pins fly after the ball impact.

Initial findings are that the kickback-to-kickback plate and pin spotting show approximately 90% are within specification and about 93% of the gutter depths are compliant. The lengthwise tilts are the most promising, with nearly 99% meeting specifications and 96% of cross tilts meeting specification, too.

Facility Overview

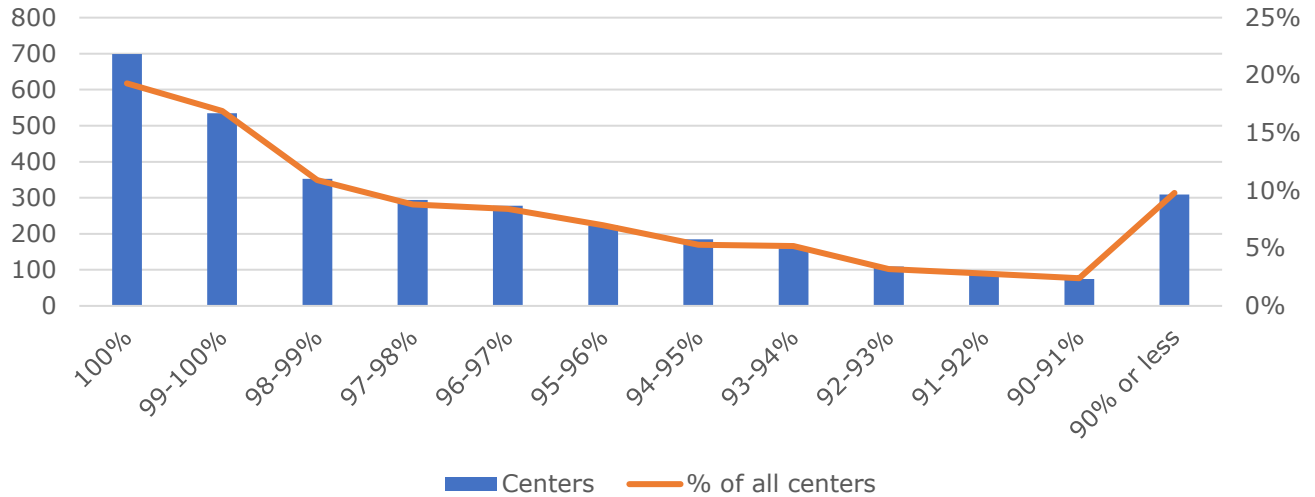
The USBC Equipment Specifications and Certifications team also analyzed the results and sorted the data by center size.



Based on preliminary data, it appears the average percentage of crowns and depressions within specification gradually increase as the center size decreases.

Below are all certification results combined when looking at the number of centers in range for all measurements by percentage passing:

Bowling Center Analysis Combined 2018-2019 Season



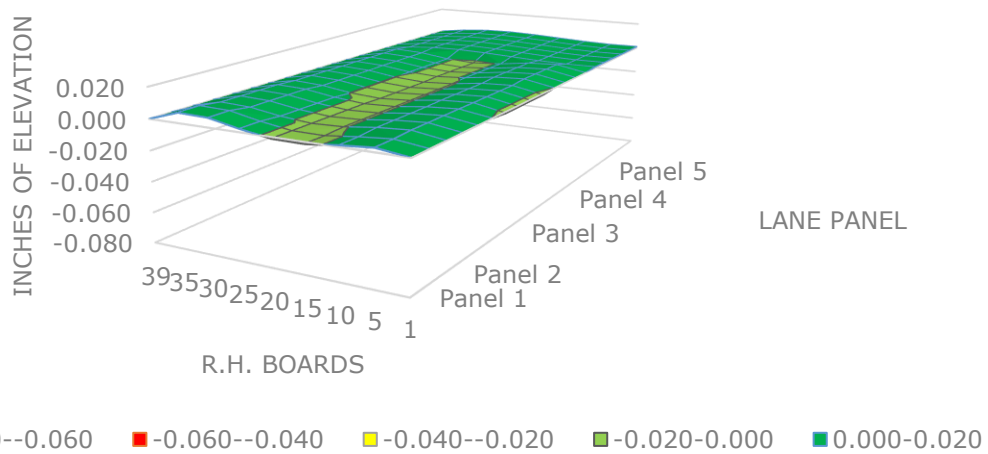
- 21% of all centers (699) pass all certification specifications
- 72% of centers (2382) are 95% compliant
- 91% of centers (2997) are 90% compliant

Center Comparison

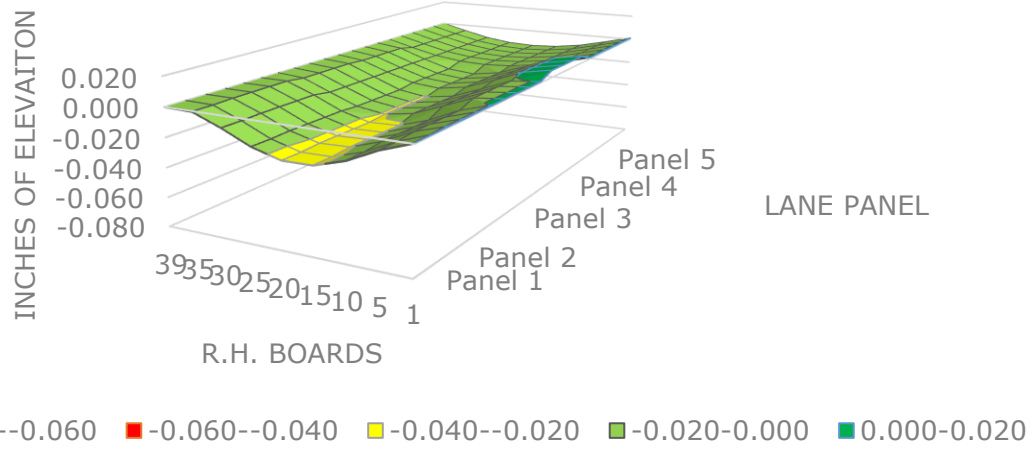
The Equipment Specifications and Certifications team compared all measurements from a variety of centers whose inspection reports indicated they were furthest out of specification to the most ideal center measured.

- Centers evaluated have a similar amount of lane beds and surface
- Image is approximately 500 times magnification

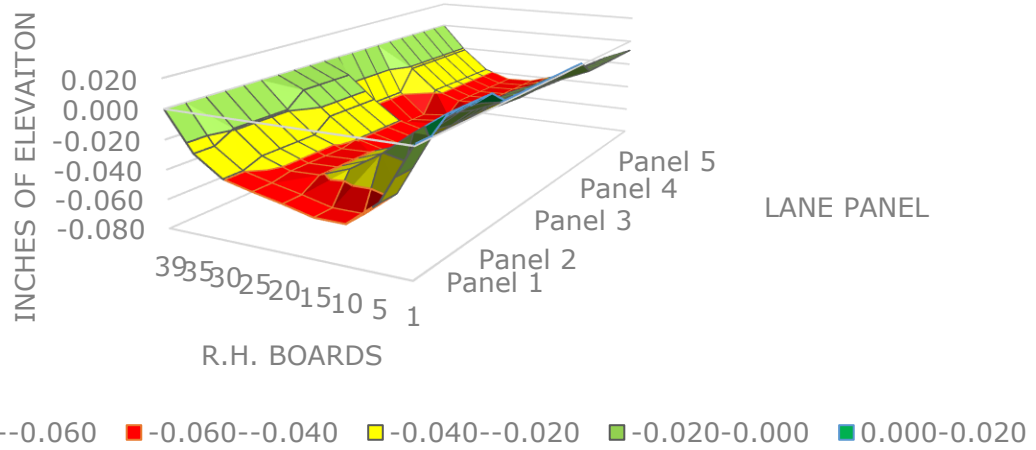
Example of Flat Lanes



Example of Moderately Depressed Lanes



Example of Severly Depressed Lanes



SUMMARY

The previous lane certification study, along with the current data gathered and a commitment to an ongoing educational effort, are all dedicated to the idea that USBC needs to continually explore all facets in bowling while thinking about the future of the sport and the integrity of the competitions conducted in the sport.

In addition to the research and data gathered from today's bowling centers, USBC believes the engagement of all stakeholders in these topics is extremely important to build a brighter future for the sport and a better USBC of which everyone can be proud.

Lane topography and kickbacks have shown their impact on scoring. This, combined with the inconsistency from lane to lane across all centers, throw off the balance of competitions within each center, city and state.

The sustainability and integrity of the current environment long-term is the chief concern.

As shown in the data, approximately 90% of bowling centers across the country are within specification, but additional data is needed.

Next Steps

The United States Bowling Congress has decided to extend the study through next season. This means all centers having a proper inspection with the three required signatures and supplying the data to USBC Headquarters will be certified for the 2019-2020 season.

Also starting with inspections for the 2019-2020 season, USBC will increase the certification fee to allow local associations to charge up to to \$10 per lane bed. The fee increase is the first in more than two decades, when the certification fee went from \$3 to \$5 per lane for the 1995-1996 season.

Data will continue to be collected and USBC will verify the collected data before a final analysis and report is issued.

Further education and awareness with those inspecting lanes at the local level will be important, as well as an ongoing dialogue with all stakeholders concerning what the future of the sport should look like. USBC then will proceed responsibly toward it.

This will allow USBC to continue to collect data. Getting two years of data will help USBC to better understand the landscape of bowling center topography and other key measurements within the field of play.

USBC will continue to research all areas of the sport moving forward. USBC has been, and always will be, committed to fulfilling its role as the National Governing Body for the sport of bowling.