FCI vs BCI

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Building Condition Metrics: FCI vs BCI

When viewing information at a building level in BUILDER, users may wonder about the distinction between two seemingly related metrics, the building condition index (BCI) and the facility condition index (FCI). On the surface, both metrics are designed to indicate the overall physical health or condition of the building. However, the two metrics are derived from different approaches, and so there are pros and cons with each, and certain situations where one may be more applicable than the other.

Facility Condition Index – A monetary based metric

The FCI metric measures the financial liability of the deferred maintenance and repair work that has accumulated in the building facility over time. The FCI is then expressed as a ratio of the estimated cost of the repairs needed to correct the accumulated M&R needs against the plant replacement value (PRV) of the facility. The equation to compute the FCI value for a building is provided below, which results in a score near 100 if the building condition is good and minimal repair work is needed, but falls as condition deteriorates and repair costs increase.

Building Condition Index – A performance based metric

The BCI measures the condition of the building based on standardized inspection observations about the in-service condition and performance of the systems and components that make it up. These inspection observations result in a condition index score on a 0-100 scale that indicates the condition loss of the component and its adverse effect on performance due to pre-defined modes of deterioration. The individual component index scores are aggregated to a system level and then to a building level using a weighted average approach. This weighting is typically based on the replacement value of the individual components, such that higher cost items get a higher weight in the overall BCI score, but could also be based on criticality or risk based weighting factors.

So which metric is better?

That answer largely depends on your situation, which may change over the course of the facility's lifecycle. If you are a decision maker looking to understand you facility's condition from a financial perspective, and you've had a recent, detailed assessment done that documents all the deficiencies that you need to address and the estimated cost to do so, then the FCI will likely be the most applicable metric. But if you have a large portfolio of facilities and you are unsure about the total cost of repairs needed for each one, then the BCI may be the way to go, especially if you want a consistent way to compare the overall condition across the board, regardless of the perceived work needs from one building to the next.

However, if you don't want to choose one over the other, you can see both metrics displayed in BUILDER. BUILDER will compute the BCI using its regular condition index algorithm, but it will also compute the FCI based on the total estimated cost of any work items that have been generated and exist in a work plan for the building. This allows you to manage you buildings by more than just a single metric.

It is important to understand that the FCI and BCI both require accurate input variables to produce a meaningful output metric. For the FCI, the main input is the cost of repair work needed, which can be costly to obtain and highly variable based on the experience and personal judgment of the assessor. For the BCI, the main input is the condition rating of the individual components, which also requires inspector personnel resources, but is designed to be more objective and consistent across different assessors, locations, and building types and uses.

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