

TECHNICAL INFORMATION PAPER SERIES



BENCHMARKING IN CONSTRUCTION SAFETY: HOW DO YOU RATE?

There are several ways to benchmark your construction project against others, but it gets tricky. You have to assure you are comparing apples to apples. Can you compare a stadium against a high-rise building? A major freeway overpass against a bridge? A building in Arkansas against an identical building in Southern California? The exposures will be different and the local workforce may have a major impact.

Although no two job sites will be exactly the same, there are some variables that you can compare. Using a fictional construction project, we'll explain several different calculations that can be used to benchmark your company against others, or divisions within the same company, including:

- Experience Modification Rating
- Incident Rate
- Total Recordable Incident Rate

- Lost Time Injury Rate
- Days Away, Restricted or Transferred
- Loss Rate
- Cost per Worker Hour Rate

EXPERIENCE MODIFICATION RATING (EMR)

EMR recognizes the differences among contractors with respect to employee safety. It does this by comparing the experience of individual contractors with the average contractor in the same type business or classification. The differences are reflected by an experience rating modification (mod), based on payroll and injuries, which may result in an increase, decrease, or no change in workers' compensation insurance premiums. We won't go into detail about how this is calculated because the underlying calculation concepts are

continued

complex, however the average company has a rating of 1.0. If your rating is better than average, your rating will be less than 1.0. For instance, if your company is 20% better than competitors, your rating will be 0.80. On the other hand, if your rating is worse than average, it will be greater than 1.0; for example, 20% worse than average is a rating of 1.2.

The ratings are based on data provided by the insurance companies and are calculated by the National Council of Compensation Insurance (NCCI). This impacts insurance costs because insurance companies use this number as a factor to calculate your premium. General contractors often use this number to determine which subcontractors they will consider for their projects. The biggest advantage to the EMR: They are independently calculated and reported by the NCCI.

Drawbacks with this method include:

- The EMR is a lagging indicator going back four years.
- Employers have been known to illegally refrain from filing certain claims to receive a lower EMR.
- Within the same SIC code you may have two different types of companies with different exposures. The company with the better rating might look like the better company when they just don't have as many exposures.
- Companies with highly paid workers will have a lower EMR because it is based on payroll.
- An outside single event could impact the EMR severely. An example being, three workers are driving to a job site and are rear-ended by an uninsured motorist, increasing workers' compensation insurance claims costs significantly.

INCIDENT RATE

The incident rate is used to compare your safety performance against the national or state average. It measures the frequency of injuries and illnesses that occur within a given amount of time and is typically based on 100 full-time workers for a one-year period.

$$\text{Incident Rate} = \frac{\text{Number of injuries/illnesses} \times 200,000}{\text{Employee hours worked}} = \frac{77 \times 200,000}{2,424,705} = 6.35$$

A quick calculation:

$$\text{Incident Rate} = \frac{\text{Number of injuries} \times 100}{\text{Number of full-time equivalent workers}}$$

TOTAL RECORDABLE INCIDENT RATE (TRIR)

This rate computes the frequency of recordable injuries and illnesses that occur within a given amount of time and is typically for 100 full-time workers for a one-year period. For example, in 2018 the average total recordable incident rate for a construction company was 3.0.

$$\text{Total Recordable Incident Rate} = \frac{\text{Number of OSHA recordable incidents} \times 200,000}{\text{Employee hours worked}} = \frac{29 \times 200,000}{2,424,705} = 2.39$$

A quick calculation:

$$\text{Total Recordable Incident Rate} = \frac{\text{Number of OSHA recordable incidents} \times 100}{\text{Number of full-time equivalent workers}}$$



DAYS AWAY, RESTRICTED OR TRANSFERRED (DART)

This incident rate evaluates the total reportable injuries and illnesses resulting in days away from work, job transfer or restricted job duties that occur within a given amount of time. This rate, typically for 100 full-time workers for a one-year period, is a fairly new benchmark and incorporates job transfer and restricted job duties, which are not included in the lost-time injury rate. In our example, the DART and lost-time injury rates are the same. In 2018, the average DART rate for the construction industry was 1.8.

$$\text{DART} = \frac{\text{Total reportable injuries/illnesses resulting in days away from work, job transfer or restricted job duties}}{\text{Employee hours worked}} = \frac{2 \times 200,000}{2,424,705} = 0.16$$

A quick calculation:

$$\text{DART} = \frac{\text{Total reportable injuries/illnesses resulting in days away from work, job transfer or restricted job duties}}{\text{Number of full-time equivalent workers}}$$

LOST TIME INJURY RATE (LTIR) OR LOST TIME INJURY FREQUENCY RATE

The rate is similar to the DART, but only calculates loss-time incidents.

$$\text{Lost Time Injury Rate} = \frac{\text{Lost-time cases} \times 200,000}{\text{Employee hours worked}} = \frac{2 \times 200,000}{2,424,705} = 0.16$$

A quick calculation:

$$\text{Lost Time Injury Rate} = \frac{\text{Lost-time cases} \times 100}{\text{Number of full-time equivalent workers}}$$

LOSS RATE

The loss rate measures total losses on a project, divided by payroll and multiplied by 100. This method is used to compare different construction companies or large wrap/controlled insurance program projects.

$$\text{Loss Rate} = \frac{\text{Losses} \times 100}{\text{Payroll}} = \frac{\$490,114 \times 100}{\$102,699,549} = 0.4772\%$$

COST PER WORKER HOUR

The cost per worker hour is a simple formula that takes the losses and divides it by the total hours worked on the project.

$$\text{Cost Per Worker Hour} = \frac{\text{Losses}}{\text{Employee hours worked}} = \frac{\$490,114}{2,424,705} = \$0.202$$

OVERVIEW

The following results were calculated for a fictional construction company. Averages are taken from the Bureau of Labor Statistics (BLS) for 2018.

- Experience Modification Rating = 0.56 (compare to 1.0)
- Incident Rate = 6.35
- Total Recordable Incident Rate = 2.39 (construction average is 3.0)
- Lost Time Injury Rate = 0.16 (construction average is 1.2)
- Days Away, Restricted or Transferred = 0.16 (construction average is 1.8)
- Loss Rate = 0.4772% (less than 2.0% is considered good)
- Cost per Worker Hour Rate = \$0.202

Clearly, the outcomes are very different. So, what have we learned?

There are numerous benchmarking techniques to measure performance in construction, each providing a different output. There are also several other formulas used in the industry. Placing the data into the formulas may seem like an easy task, but you must be sure the data being used is consistent. Even if a third party provides the data, they can only use the data given to them. It's important to investigate all incidents (recordable or not) so you can learn from each incident; and most importantly, prevent incidents from reoccurring.

REFERENCES

- mydigitalpublication.com/publication/?m=17910&i=600163&p=24 pages 22-25
- safetyrisk.net/how-to-calculate-Itifr-and-other-health-and-safety-indicators
- industrysafe.com/blog/osha-recordkeeping/what-is-a-total-case-incident-rate
- nmmcc.com/wp-content/uploads/FORMULAS_for_CALCULATING_RATES1.pdf
- bls.gov/iif/oshwc/osh/os/summ1_00_2018.htm

LEARN MORE.

For more information, contact your Risk Engineering consultant from The Hartford today or visit TheHartford.com/riskengineering

The information provided in these materials is intended to be general and advisory in nature. It shall not be considered legal advice. The Hartford does not warrant that the implementation of any view or recommendation contained herein will: (i) result in the elimination of any unsafe conditions at your business locations or with respect to your business operations; or (ii) be an appropriate legal or business practice. The Hartford assumes no responsibility for the control or correction of hazards or legal compliance with respect to your business practices, and the views and recommendations contained herein shall not constitute our undertaking, on your behalf or for the benefit of others, to determine or warrant that your business premises, locations or operations are safe or healthful, or are in compliance with any law, rule or regulation. Readers seeking to resolve specific safety, legal or business issues or concerns related to the information provided in these materials should consult their safety consultant, attorney or business advisors. All information and representations herein are as of August 2020.

The Hartford® is The Hartford Financial Services Group, Inc. and its subsidiaries, including Hartford Fire Insurance Company. Its headquarters is in Hartford, CT.

20-ML-415596 © August 2020 The Hartford



Business Insurance
Employee Benefits
Auto
Home