2023 CII Safety Summary Report

CII Member Companies

Owners

- Air Products
- Albemarle Corporation
- Anheuser-Busch InBev
- Aramco Services Company
- Archer Daniels Midland Company
- Architect of the Capitol
- Ascend Performance Materials
- Braskem S.A.
- Bruce Power
- Cargill, Inc.
- Chevron
- Consolidated Edison Company of New York
- Covestro LLC
- CSL Behring
- DTE Energy
- DuPont
- Eastman Chemical Company
- ExxonMobil Corporation
- GlaxoSmithKline
- Honeywell International Inc.
- INEOS Group Holdings S. A.
- Irving Oil Limited
- Koch Industries, Inc.
- Linde Engineering Americas
- Los Alamos National Laboratory
- LyondellBasell
- Ma'aden-Saudi Arabia Mining Co.
- Marathon Petroleum Corporation
- Naval Facilities Engineering Command
- New York Power Authority
- NOVA Chemicals Corporation
- Nuclear Decommissioning Authority
- Nutrien
- Occidental Petroleum Corporation
- Ontario Power Generation
- PEMEX Deer Park
- Petronas
- Phillips 66
- Public Service Electric & Gas Company
- Reliance Industries Limited (RIL)
- SABIC - Saudi Basic Industries Corporation
- Sempra Infrastructure Partners, LP
- Shell
- Sila Nanotechnologies Inc.
- Smithsonian Institution
- Southern Company
- TC Energy
- Tennessee Valley Authority
- The Dow Chemical Company
- The Procter & Gamble Company
- U.S. Army Corps of Engineers
- U.S. Department of Commerce/NIST
- U.S. Department of Defense/Tricare Management Activity
- U.S. Department of Energy
- U.S. Department of State
- U.S. General Services Administration
- Vale S.A.
- Zachry Corporation

Contractors

- Baker Construction Enterprises
- Barton Malow Company
- Bechtel Group, Inc.
- Black & Veatch
- Burns & McDonnell
- Chemex Global
- Chiyoda Corporation
- CRB
- Dematic
- Fluor Corporation
- Hargrove Engineers + Constructors
- Hatch
- JGC Corporation
- KBR
- Kiewit Corporation
- Larsen & Toubro Limited
- MasTec Power Corporation
- Matrix Service Company
- McCarthy Building Companies, Inc.
- McDermott International, Inc.
- MODEC Inc.
- Orion Plant Service, Inc.
- PCL Constructors, Inc.
- POWER Engineers, Inc.
- Richard Industrial Group
- Techint Engineering & Construction
- Technip Energies
- thyssenkrupp Industrial Solutions (USA), Inc.
- Toyo Engineering Corporation
- United Engineers & Constructors, Inc.
- Victaulic
- Wood
- Worley
- Zachry Group

Service Providers

- Accenture
- Access Sciences
- Alvarez & Marsal
- Autodesk, Inc.
- AVEVA Solutions Ltd.
- AWP University
- CAXperts GmbH
- Construct-X, LLC
- Dassault Systèmes SE
- Deloitte
- DyCat Solutions
- Earthbrain Ltd.
- Global Site Solutions
- Group ASI
- Hilti Corporation
- I.M.P.A.C.T.
- iConstruct
- InEight
- Insight-AWP Inc.
- Kahua, Inc.
- Kairos Power, LLC
- McDonough Bolyard Peck, Inc.
- O3 Solutions
- Oracle USA, Inc.
- Pathfinder, LLC
- PTAG, Inc.
- SIRIS, LLC
- Valency Inc.
- Verum Partners

2023 CII Safety Summary Report

Construction Industry Institute

Deployment Committee

DPC2023-2
Version 1.1

March 2024

Printed in the United States of America.

Version 1.0 (February 2024)
Version 1.1 (March 2024) - minor text and figure corrections

Contents

Chapter 1

Introduction

CII has collected annual corporate safety performance data from its member organizations since 1990 as part of its long-term commitment to improving safety in the construction industry. This 2023 report summarizes safety rates of 2022 calendar year **reported by CII members only**.

Survey Instrument

The CII safety survey gathers data by industry sector, location, and employee type. The main data entry fields include:

- Total Work Hours
- Total Recordable Incident Cases
- Days Away and Restricted or Transferred (DART) Cases
- Total Number of Days Associated with Days Away (DA) Cases
- Total Number of Days Associated with Job Restriction or Transfer (RT) Cases
- Number of Fatalities

In addition, the survey includes questions regarding near misses, first aid cases, and fatalities. All the rates presented in this report follow OSHA's definitions, which are available in the OSHA 300 form.

Survey Scope and Potential Limitations

Respondents (both owners and contractors) were asked to provide safety data for both their direct-hire employees and their contractors' employees. However, because contractors were not uniquely identified in the owner responses, some double reporting of contractor data is possible. This overlap often presents itself in two ways:

- Owners reporting on their contractors' employees
- Contractors reporting on their direct-hire employees.

Readers should use caution when comparing results across different industry sectors, since **some sectors have relatively small sample sizes**. (This is reflected in the number of companies and work hours associated with each sector reported in the charts.)

CII uses definitions for its industry groups that are different from both the system OSHA currently uses, the 2002 North American Industrial Classification System (NAICS); and the Standard Industrial Classification (SIC) system that OSHA used prior to 2003. The construction industry divisions of NAICS and SIC system consist of three major groups:

1. General Building (NAICS 236 and SIC 15)
2. Heavy Construction except for Buildings (NAICS 237 and SIC 16)
3. Special Trade Contractors (NAICS 238 and SIC 17)

CII data do not include residential construction, which is included in OSHA's "General Building" category.

CII collects safety data related (only) to capital projects, excluding operations and maintenance (this is particularly important for owners reporting their safety data).

Chapter 2

2022 Safety Data Summary

For the 2022 calendar year, 57 organizations submitted their corporate safety statistics. These data represent a total of 1.37 billion work hours. Figure 1 summarizes the reported work hours by organization type and project location. The Global responses are those that did not break down the data into U.S. (domestic) and international hours.

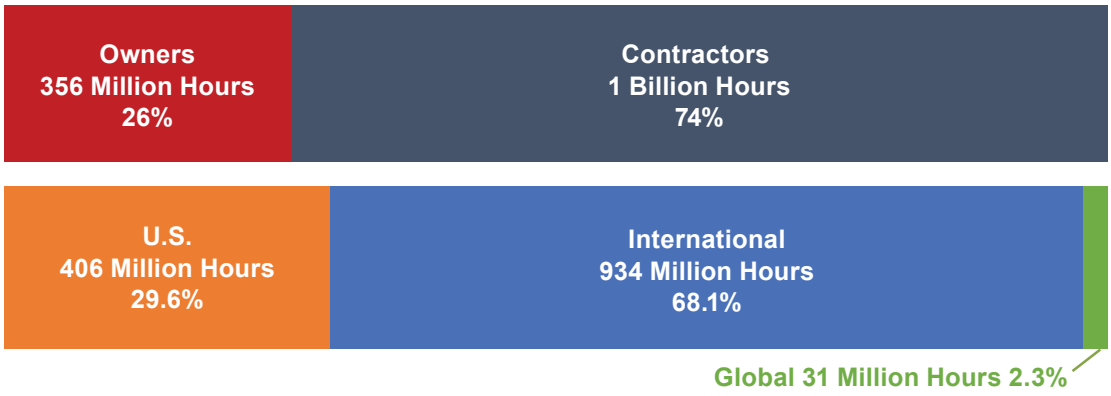

Figure 1. Summary of Work Hours by Organization Type and Project Location

Table 1 summarizes the data by the severity of incidents. Some respondents did not provide all of the requested data or provide details for all categories. For instance, an organization may report the total recordable incidents but not report the DART cases, in which case the aggregated amount of work hours for DART cases will be smaller. For this reason, the total overall work hours reported differs from many of the categories presented in Table 1. In particular, some owners had difficulty reporting information related to job restriction or transfer (RT) cases due to the short durations of the work tasks involved.

Table 1. Summary of Incident Cases and Work Hours by Organization Type

		Owner	Contractor	Total
TRIR	*Cases*	377	1,245	**1,622**
	Work Hours	356,536,495	1,014,374,491	**1,370,910,986**
DART	*Cases*	165	481	646
	Work Hours	356,536,495	1,002,390,004	**1,358,926,499**
Fatality	*Cases*	4	7	**11**
	Work Hours	356,536,495	1,014,374,491	**1,370,910,986**

Chapter 3

Historical TRIR and DART Rates

Figures 2 and 3 show the trends of TRIR and DART rates and work hours for survey respondents as well as for the U.S. construction industry as reported by OSHA. The CII rates remain steady since 2016, with TRIR staying between 0.22 and 0.28 and DART staying between 0.09 and 0.12.

OSHA changed its record-keeping rules on January 1, 2002, and altered some of the criteria that determine which injuries and illnesses are recorded. As a result, OSHA suggests that readers should use reasonable caution when comparing data prior to and after this change, which is indicated by the vertical green dotted line. Overall industry TRIR and DART were 2.4 and 1.5 in 2022 as per Bureau of Labor Statistics (BLS Website). The CII rates for TRIR and DART were .24 and .10 in 2022.

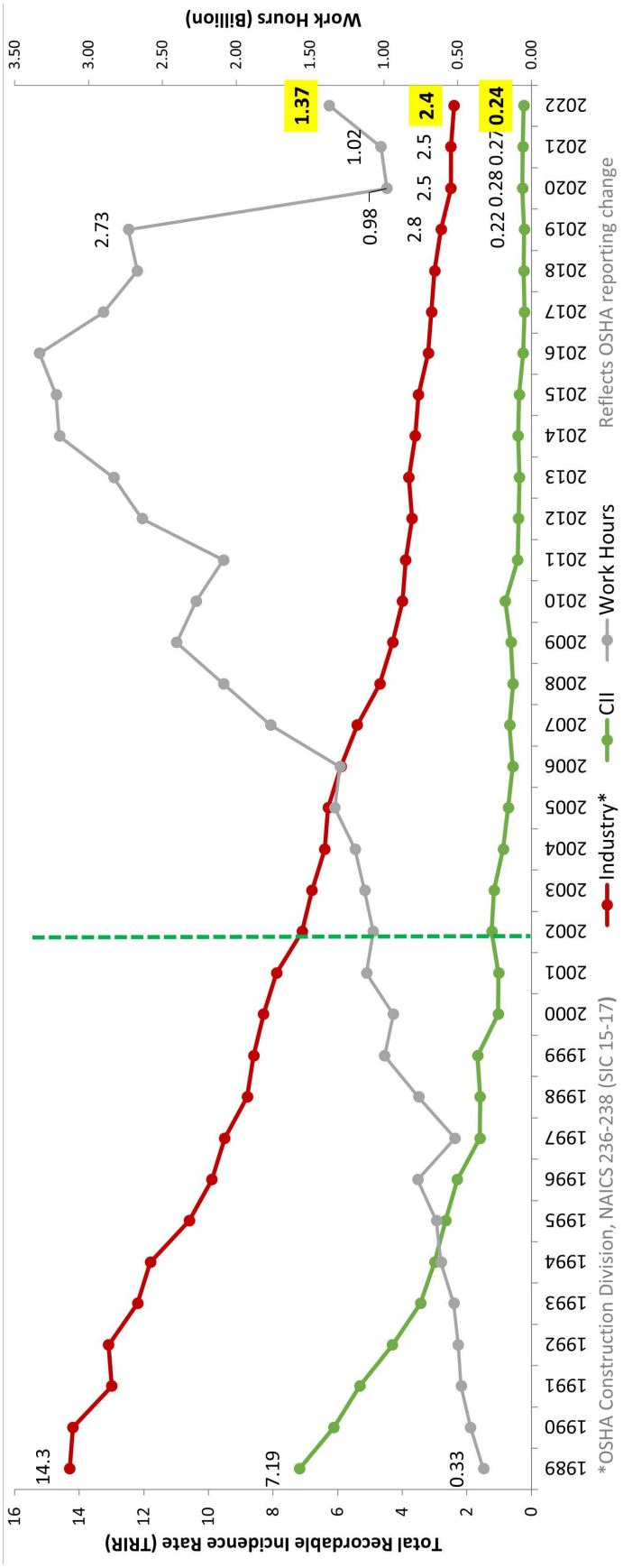

Figure 2. CII Members Reported TRIR (RIR) Rate, 1989-2022

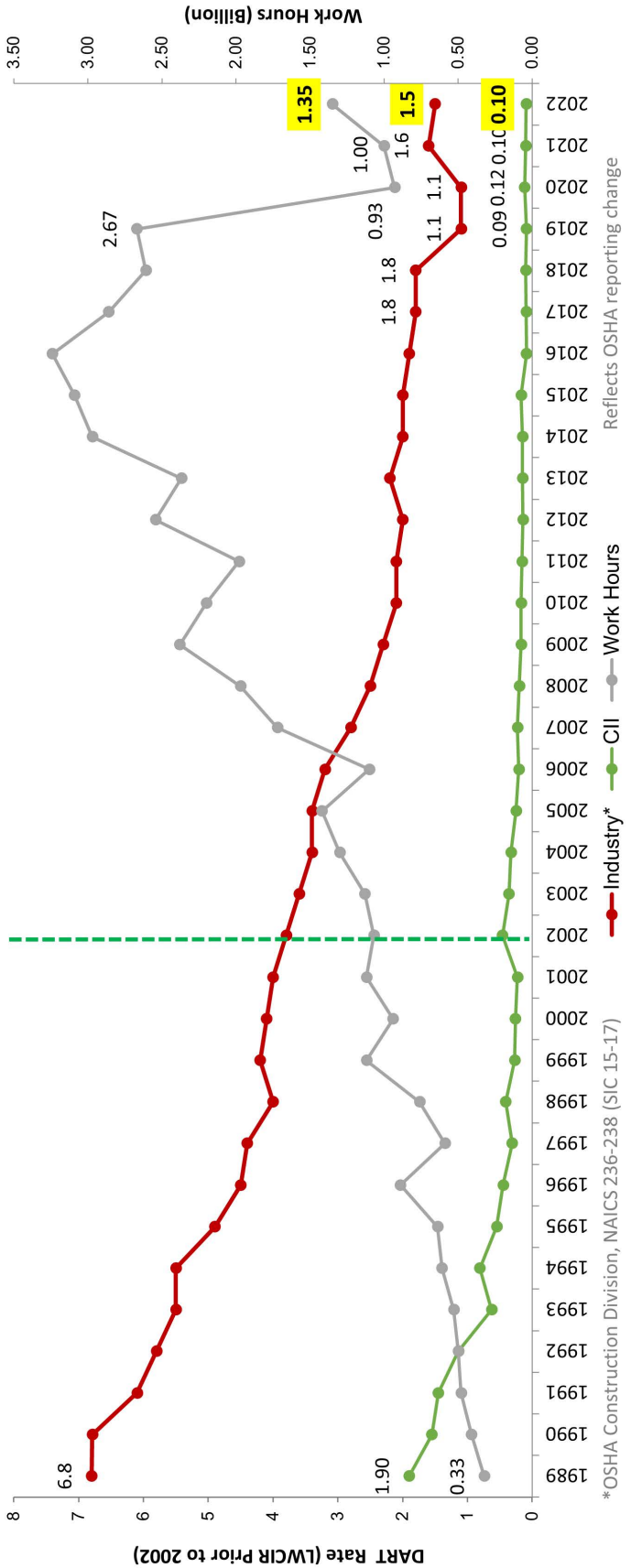

Figure 3. CII Members Reported DART (LWCIR) Rate, 1989-2022

Chapter 4

Safety Data and Rates by Industry Group

The safety survey collects data from four industry groups: Heavy Industrial, Light Industrial, Buildings and Infrastructure. The figures below summarize the TRIR (Figure 4) and DART rates (Figure 5) for each group, and by respondent type. The N values indicate the number of companies that submitted data, and the “Total” (green) bars represent the combined data including both owners and contractors.

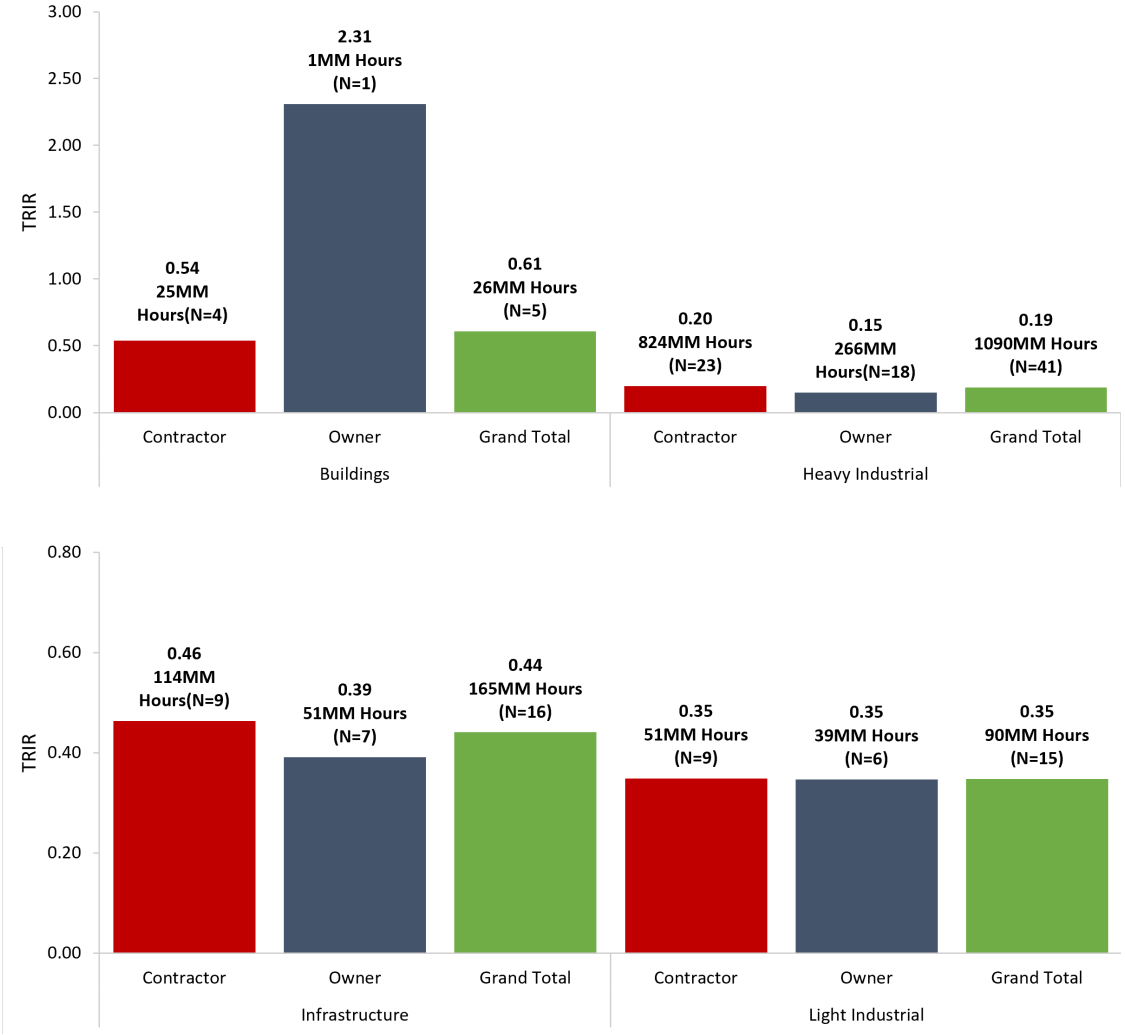

Figure 4. 2022 TRIR by Industry Group

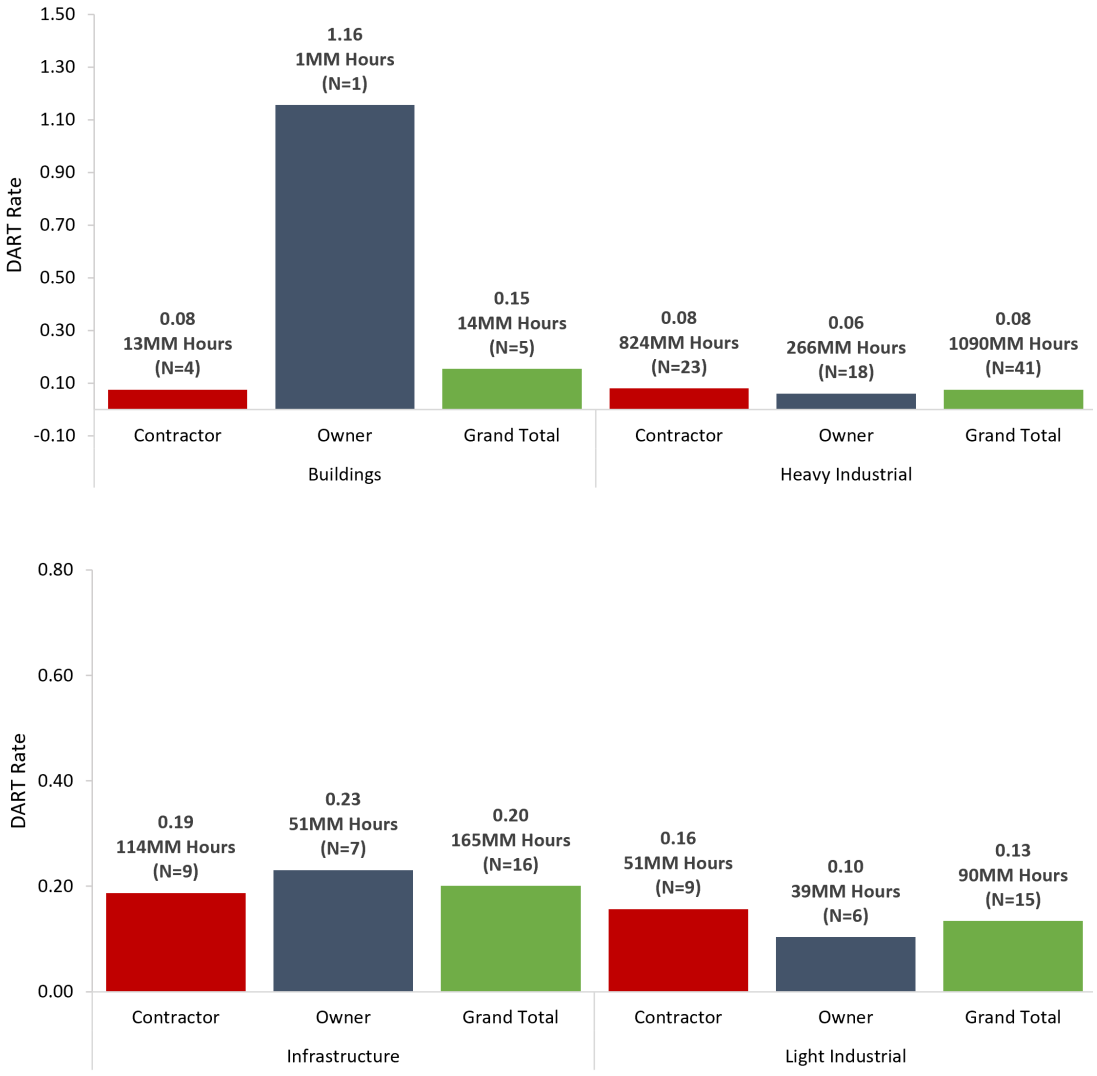

Figure 5. 2022 DART Rates by Industry Group

Chapter 5

Safety Data and Rates by Project Location

Survey respondents are involved in capital projects around the world. This chapter compares data from U.S. and non-U.S. projects. Note that, ideally, the non-U.S. number should be further broken down by geographic region. But the availability of data is limited to most regions and, therefore, this document aggregated all non-U.S. data into one group. As shown in Figures 6 and 7, the N values indicate the number of companies that submitted data, and the "Total" (green) bars represent all of the data.

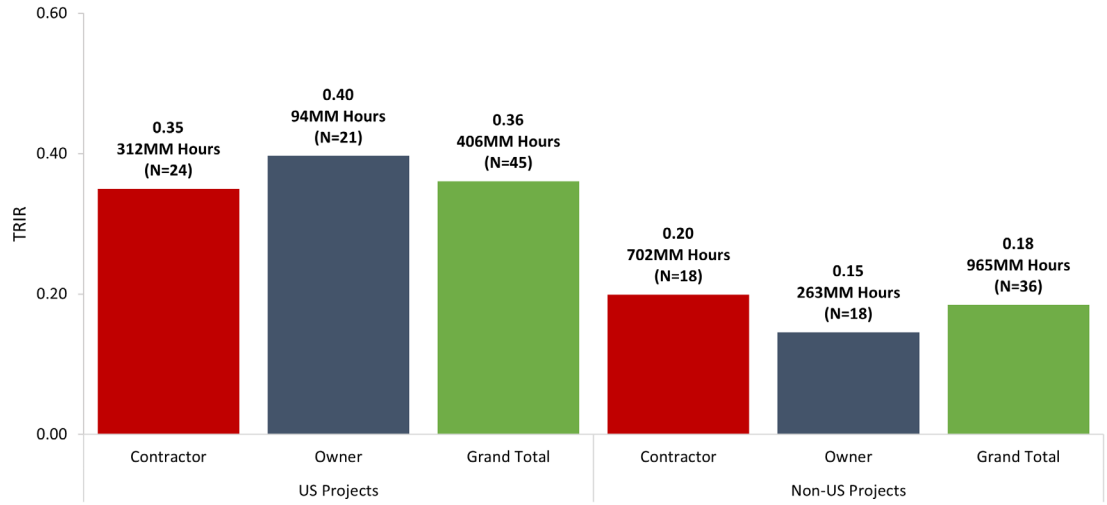

Figure 6. 2022 TRIR by Project Location

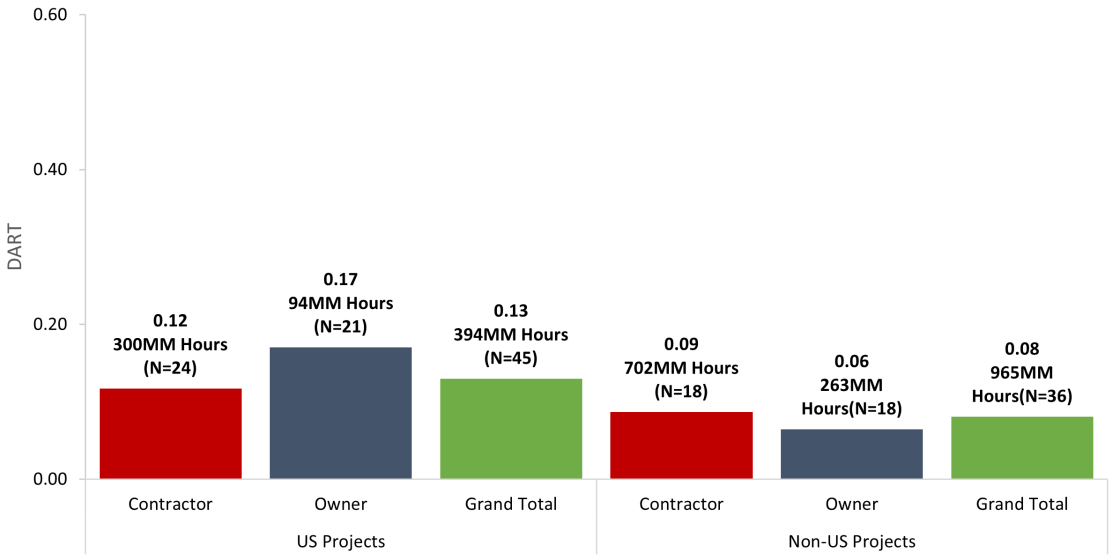

Figure 7. 2022 DART Rates by Project Location

Chapter 6

Fatalities

As shown in Figure 8, the overall fatality rate of CII members went up in 2022 to 1.6 from 0.99 reported in 2021. The 3-year moving average for 2020-2022 is 1.34. For reference, the overall industry fatality rate was 9.6 in 2022 as per Bureau of Labor Statistics (BLS Website).

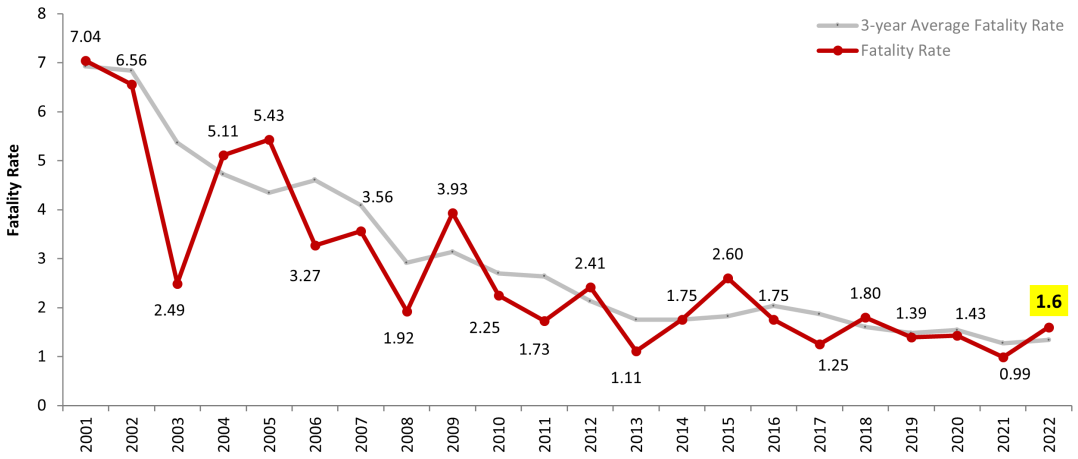

Figure 8. Yearly and 3-year Average Fatality Rates (2001–2022)

In 2022, 11 fatalities were reported by CII members. Figure 9 shows that the lead causes were the Contact with Objects and Equipment and Falls.

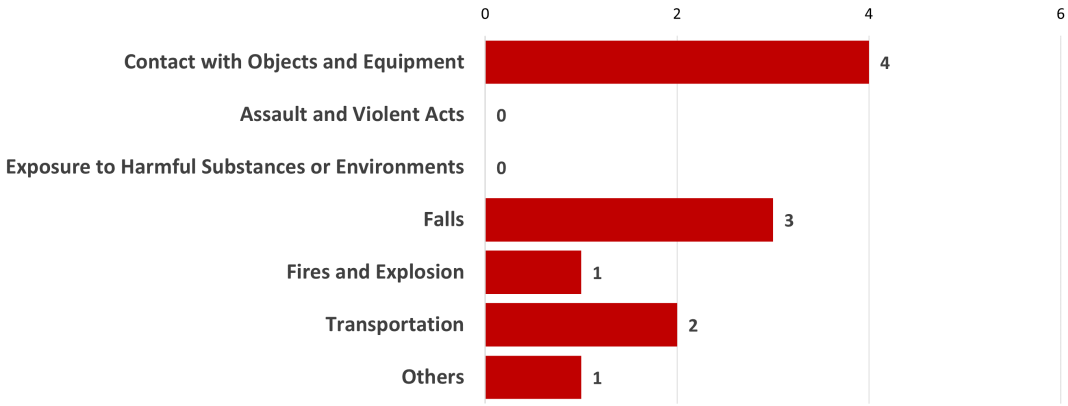

Figure 9. Fatality Causes in 2022

Chapter 7

Corporate Safety Benchmarks

The information presented in this section allows organizations to determine more precisely where they stand relative to other organizations. Organizations can benchmark their corporate safety performance against other organizations using Table 2 and the figures below.

Presented in Table 2 are the corporate-level descriptive statistics including percentile, mean, standard deviation (S.D.), and sample size based on TRIR, DART, DA (Days Away), and Fatality Rate of individual companies. For instance, if an organization had a TRIR of 0.45 in 2022, its safety performance fell in the third quartile, between 0.22 and 0.51. This means that the organization's TRIR is worse than at least 50% of the responding organizations but better than at least 25% of them.

Table 2. 2022 Corporate Safety Statistics for Benchmarking

	All				Contractors				Owners			
Percentile	TRIR	DART	DA	Fatality Rate	TRIR	DART	DA	Fatality Rate	TRIR	DART	DA	Fatality Rate
100th	2.31	1.16	0.77	1.93	0.85	0.53	0.20	0.12	2.31	1.16	0.77	1.93
75th	0.51	0.14	0.05	0.00	0.49	0.10	0.05	0.00	0.51	0.17	0.05	0.00
50th	0.22	0.06	0.02	0.00	0.19	0.05	0.02	0.00	0.25	0.08	0.03	0.00
25th	0.10	0.01	0.00	0.00	0.10	0.02	0.01	0.00	0.10	0.00	0.00	0.00
0th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mean	0.35	0.16	0.07	0.04	0.29	0.12	0.05	0.01	0.40	0.21	0.10	0.07
S.D.	0.40	0.26	0.15	0.26	0.27	0.16	0.06	0.02	0.49	0.32	0.20	0.36
n	57	56	56	57	28	28	28	28	29	28	28	29

Figures 10 through 12 (on the next page) show percentile charts for organizations' TRIR, DART rate, and DA rate. For example, if a contractor had an overall corporate TRIR rate of 0.50, Figure 10 indicates that nearly 75% of contractors participating in the survey achieved a better TRIR.

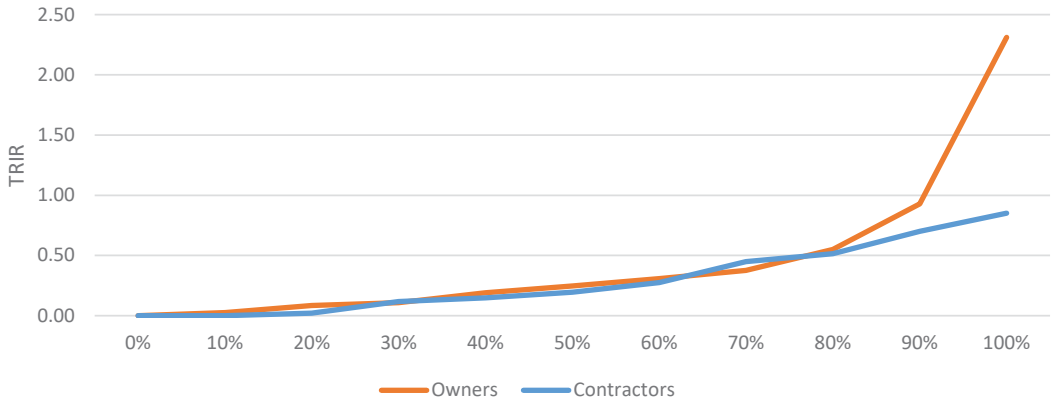

Figure 10. Corporate Safety Statistics - TRIR

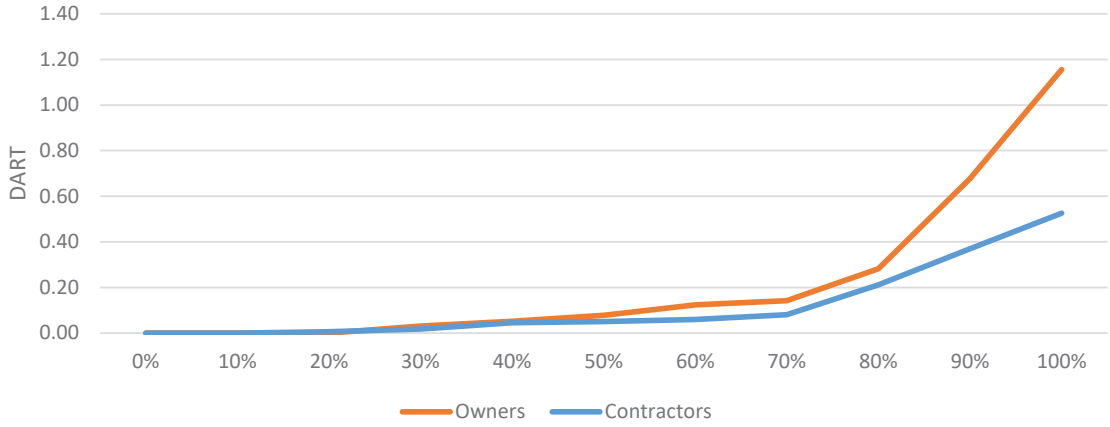

Figure 11. Corporate Safety Statistics - DART Rate

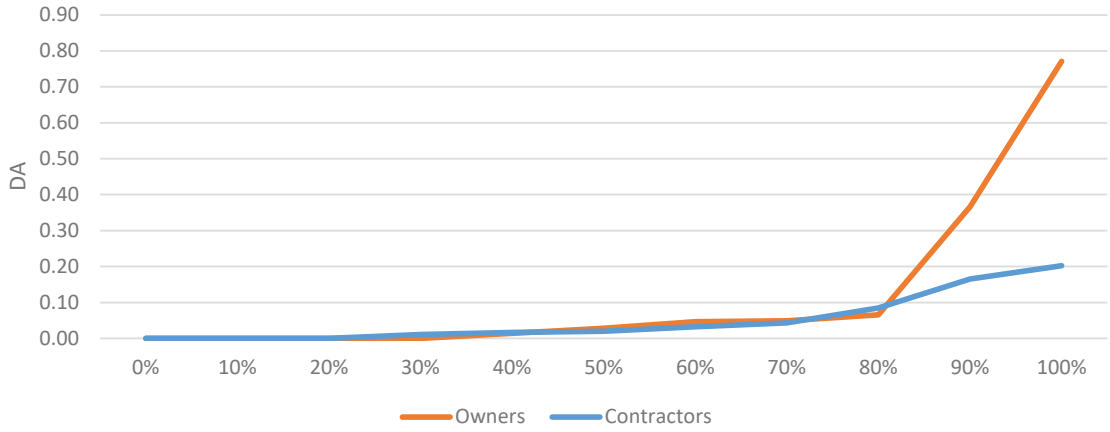

Figure 12. Corporate Safety Statistics - DA Rate

Appendix

Glossary of Terms

DA The Days Away rate is the number of DA cases occurring annually among 100 full-time workers (i.e., 2,000 hours per worker per year).

$$\text{DA Rate} = \frac{(\text{\# of DA Cases}) \times 200{,}000}{(\text{Total Work Hours by All Employees})}$$

DART Days Away, Restricted or Transferred (replaced LWCIR in 2002). The DART rate is the number of DART cases occurring annually among 100 full-time workers (i.e., 2,000 hours per worker per year).

$$\text{DART Rate} = \frac{(\text{\# of DART Cases}) \times 200{,}000}{(\text{Total Work Hours by All Employees})}$$

FR Fatality Rate. The number of fatal work injuries occurring annually among 100,000 full-time workers (i.e., each worker works 40 hours per week for 50 weeks per year, or 200,000,000 hours per year).

$$\text{Fatality Rate} = \frac{(\text{\# of Fatalities}) \times 200{,}000{,}000}{(\text{Total Work Hours by All Employees})}$$

LWCIR Lost Workday Case Incident Rate (replaced by DART in 2002)

RIR Recordable Incident Rate (replaced by TRIR in 2002)

TRIR Total Recordable Incident Rate (replaced RIR in 2002). The number of recordable injuries occurring annually among 100 full-time workers (i.e., 2,000 hours per worker per year).

$$\text{TRIR} = \frac{(\text{\# of Recordable Cases}) \times 200{,}000}{(\text{Total Work Hours by All Employees})}$$

Construction Industry Institute
The University of Texas at Austin
3925 W. Braker Lane (R4500)
Austin, Texas 78759-5316

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