CPWR
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Data Bulletin

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Musculoskeletal Disorder (MSD) Trends in Construction

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OVERVIEW

Musculoskeletal disorders (MSDs) are a collection of injuries and/or sources of pain that occur in joints, ligaments, muscles, nerves, tendons and other parts of the body, particularly in the limbs, neck, or back. Construction workers are often exposed to tasks and work environments that leave them at greater risk of these injuries than workers in general. These injuries can reduce workers' productivity, shorten their careers, and diminish their quality of life. They also create a financial burden for employers, workers, and their families, costing the U.S. construction industry over $700 million in 2023. Prior research has shown declines in the number and rate of MSDs over time, but construction still has rates higher than all industries combined. Additionally, the presence of an MSD is associated with increased opioid use among construction workers, a major concern given the industry has one of the highest overdose rates.

This issue examines musculoskeletal disorders (MSDs) in construction, including the number and impact of these injuries, self-reported pain, *prescription analgesic* and/or opioid use by *industry*, demographics, and other characteristics. MSD injury data include nonfatal injuries resulting in *days away from work (DAFW)* and comes from the U.S. Bureau of Labor Statistics (BLS) Survey of Occupational Injuries and Illnesses (SOII). Due to SOII data changing from annual to biennial estimates in 2021, data is shown for two-year periods. It is important to note that SOII data has been found to underreport nonfatal injuries, affecting the accuracy of the count of MSDs. Data on self-reported worker pain and injury come from the Centers for Disease Control (CDC) National Health Interview Survey (NHIS), while data for prescription analgesic use come from the Medical Expenditure Panel Survey (MEPS) downloaded through IPUMS. Data for rate calculations shown were obtained using the Current Population Survey (CPS) and were calculated per 10,000 *full-time equivalents (FTEs)* for chart 1; chart 4 uses rates provided by BLS.

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THIS ISSUE

This issue examines musculoskeletal disorders (MSDs) in construction, including MSDs by industry, self-reported pain, prescription analgesic and/or opioid use by industry, demographics, and other characteristics.

KEY FINDINGS

From 2021 to 2022, there were 33.2K construction workers who had days away from work due to MSDs.
Chart 1

Specialty Trade Contractors (NAICS 238) had the highest rate of MSDs in construction, with 28.4 per 10,000 FTEs.
Chart 4

In 2023, 40.5% of construction workers who limited their activities for at least 24 hours due to a repetitive strain injury were told their injury was likely work related.
Charts 7

In 2022, 5.2% of construction workers reported taking prescription opioids.
Chart 8

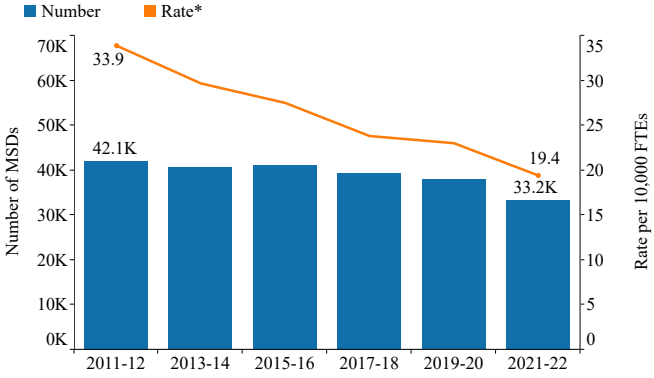
Just over a quarter of construction workers (27.6%) with a musculoskeletal injury reported taking a prescription opioid in 2022.
Chart 9

NEXT DATA BULLETIN

Heat Injuries and Illnesses among Construction Workers

From 2011 to 2022, the number of MSDs in private construction decreased 21.1% (42.1K to 33.2K; chart 1). Over this period, the rate of MSDs decreased 42.8% (33.9 to 19.4 per 10,000 FTEs). The largest drop in MSDs between periods was from 2019-2020 to 2021-2022, with a decline of 4.6K MSDs.

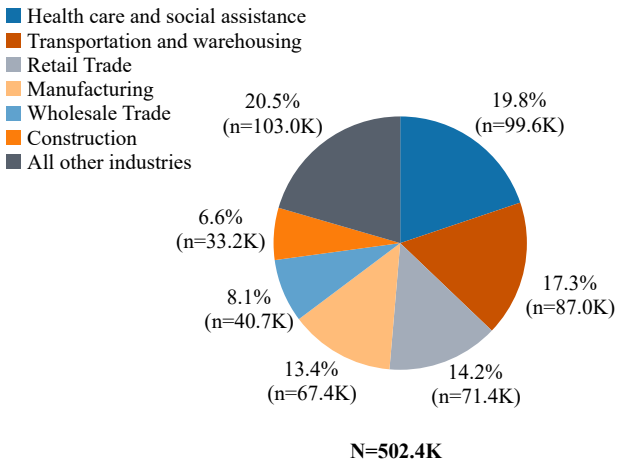
1. MSDs in construction (2011-2022; private industry)



Source: *U.S. Bureau of Labor Statistics, 2011-2022 Survey of Occupational Injuries and Illnesses and 2011-2022 IPUMS Current Population Survey.*

Of all U.S. industries, construction had the sixth highest number of MSDs during 2021-2022 (n=33.2K; chart 2). The three industries with the highest numbers—health care and social assistance (n=99.6K), transportation and warehousing (n=87.0K) and retail trade (n=71.4K)—together accounted for over half (51.3%) of reported MSDs during that period.

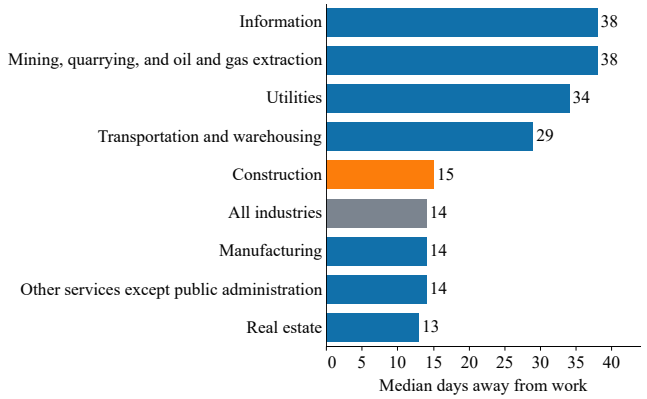
2. MSDs, by major industry (2021-2022)



Source: *U.S. Bureau of Labor Statistics, 2021-2022 Survey of Occupational Injuries and Illnesses.*

The number of median days away from work due to MSDs were examined by industry for 2021-2022 (chart 3). Information and mining, quarrying, and oil and gas extraction had the highest median days away from work, 38, followed by utilities (34 days) and transportation and warehousing (29 days). Construction had the fifth highest median days away from work at 15 days, followed by manufacturing (14 days), other services except public administration (14 days), and real estate (13 days). For construction workers, the median days away from work due to MSDs had been rising since 1993. Among construction workers, the median days away from work from 2021 to 2022 for all nonfatal injuries was 11, compared to the 15 days for MSDs (data not shown).

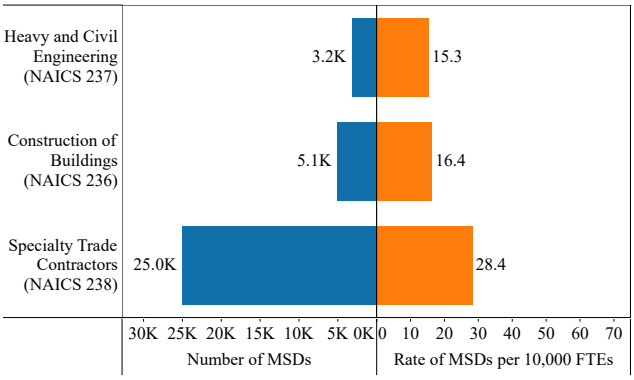
3. Median days away from work due to MSDs, by selected major industries (2021-2022)



Source: *U.S. Bureau of Labor Statistics, 2021-2022 Survey of Occupational Injuries and Illnesses.*

MSDs by *major subsector* in construction were also examined for 2021-2022 (chart 4). Specialty Trade Contractors (NAICS 238) had the highest number and rate of MSDs during the period, with 25.0K injuries at a rate of 28.4 per 10,000 FTEs. Construction of Buildings (NAICS 236) had the second highest number (5.1K injuries) and rate (16.4K per 10,000 FTEs), followed by Heavy and Civil Engineering (NAICS 237), with 3.2K injuries and a rate of 15.3 per 10,000 FTEs.

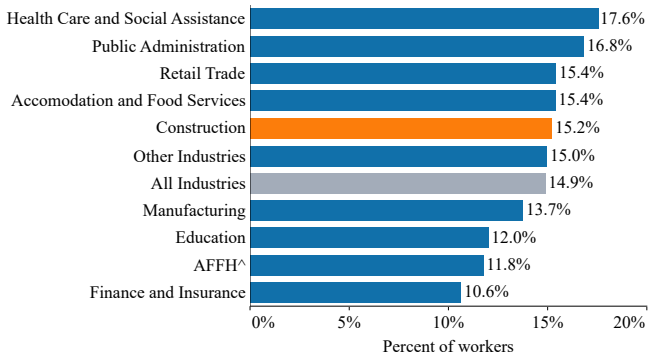
4. MSDs, by major construction subsector (2021-2022)



Source: *U.S. Bureau of Labor Statistics, 2021-2022 Survey of Occupational Injuries and Illnesses.*

For self-reported back pain and *repetitive strain* injuries, 15.2% of construction workers (1.2M; chart 5) reported having a lot of back pain in 2023, which was comparable to all industries (14.9%). Among construction workers 50 years or older, 17.5% reported having a lot of back pain (data not shown). Prior research has found that long-term construction work with MSD exposures are associated with back disorders for workers 50 years and over.

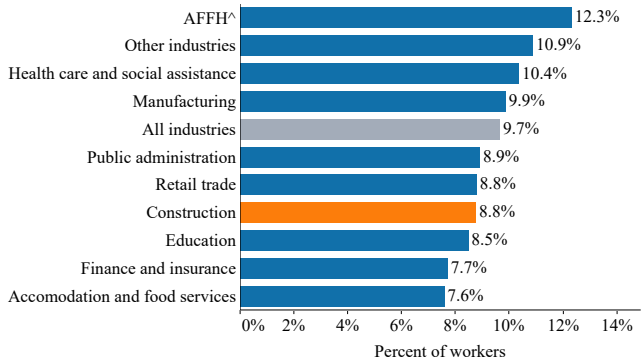
5. Percent of workers that reported having a lot of back pain*, by industry (2023)



Source: *U.S. Centers for Disease Control, 2023 National Health Interview Survey.*
**During the past 3 months at time of survey.*
^Agriculture, Fishing, Forestry, and Hunting.

Next, workers who reported having an injury caused by repetitive strain were examined. In 2023, 8.8% of construction workers (1.2M; chart 6) reported an injury due to repetitive strain, compared to 9.7% of workers across all industries. In the same year, 11.5% of construction workers 50 years or older reported repetitive strain injuries (data not shown). Construction workers are at increased risk of these injuries due to the nature of the work, including not only repetitive motions, but also forceful exertions, awkward postures, vibrations, and lack of recovery time.

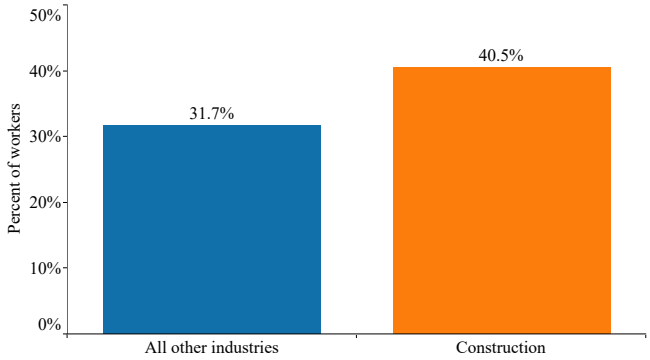
6. Percent of workers that reported having an injury due to a repetitive strain*, by industry (2023)



Source: *U.S. Centers for Disease Control, 2023 National Health Interview Survey.*
** During the past 3 months at time of survey.*
^ Agriculture, Fishing, Forestry, and Hunting.

Workers who limited their activities for at least 24 hours due to injuries that likely resulted from work-related repetitive strains were then explored (chart 7). In 2023, 40.5% of construction workers reported that they had limited their activities due to a work-related repetitive strain, compared to 31.7% of workers in all other industries.

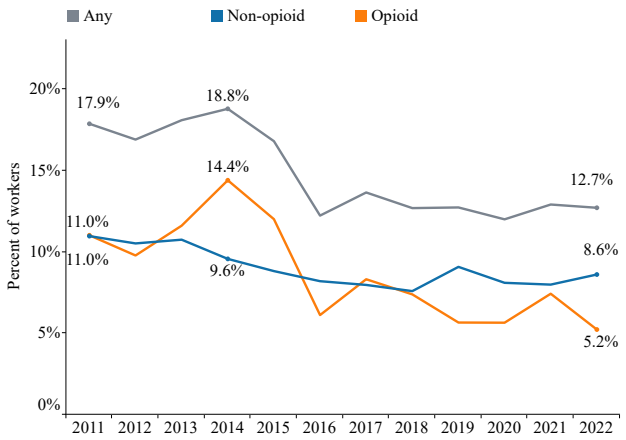
7. Percent of workers* that reported limiting activities for at least 24 hours due to a work-related repetitive strain injury (2023)



Source: *U.S. Centers for Disease Control, 2023 National Health Interview Survey.*
**Workers that reported having an injury due to a repetitive strain during the past 3 months at time of survey.*

Prescription analgesic use among U.S. construction workers was evaluated from 2011 to 2022 (chart 8). Over this period, any analgesic use among construction workers decreased 29.1% (17.9% to 12.7%), opioid use among construction workers decreased 52.7% (11.0% to 5.2%), and non-opioid (e.g., ibuprofen, acetaminophen) analgesic use declined 21.8% (11.0% to 8.6%). The decline in opioids aligns with a 44.4% decrease in opioid prescriptions in the U.S. from 2011 to 2020. Opioid use among construction workers decreased from 2017 to 2020 before increasing in 2021 and decreasing again in 2022. In 2022, 12.7% of construction workers reported taking any analgesic, with 8.6% taking non-opioids and 5.2% taking opioids.

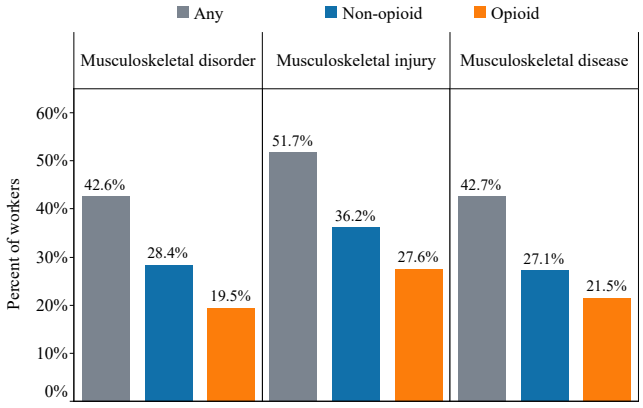
8. Prescription analgesic use among U.S. construction workers, by type (2011-2022)



Source: *2011-2022 IPUMS Medical Expenditure Panel Survey.*

In 2022, analgesic use was more prevalent among workers with *musculoskeletal injuries* (e.g. fractured spine, fractured limb, contusion, dislocation, nerve injury) than among those with *musculoskeletal diseases* (e.g., gout, arthropathies, dorsopathies, rheumatism, osteopathies), 51.7% versus 42.7%, respectively (chart 9). Moreover, non-opioid analgesic use was more common than opioid use across all types of musculoskeletal disorders.

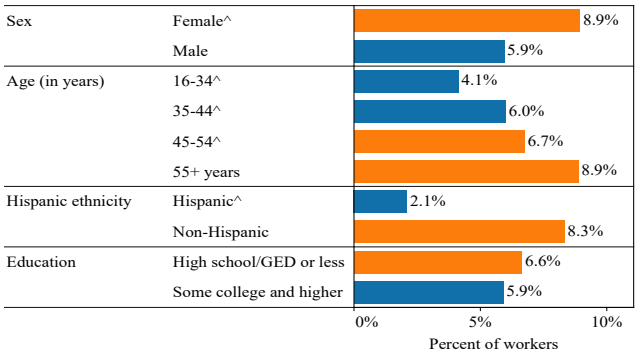
9. Prescription analgesic use among construction workers, by musculoskeletal disorder type (2022)



Source: *2022 IPUMS Medical Expenditure Panel Survey.*

Prescription opioid use among construction workers was then evaluated by demographics. During 2021-2022, prescription opioid use was highest among older construction workers (55+ years; 8.9%), and 1.5 times as likely among females as among males (8.9% versus 5.9% ; chart 10). By ethnicity, non-Hispanics were almost four times more likely than their Hispanic counterparts to use prescription opioids (8.3% versus 2.1%). Workers with a high school diploma or less reported higher prescription opioid use than their counterparts (6.6% versus 5.9%).

10. Prescription opioid use among construction workers, by demographic characteristics* (2021-2022)



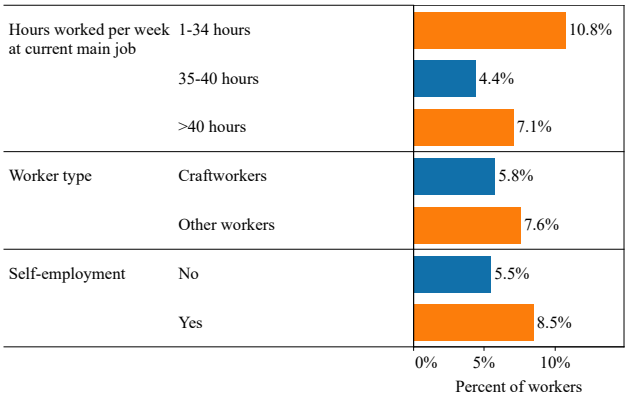
Source: *2021-2022 IPUMS Medical Expenditure Panel Survey.*

**Bars colored in orange indicate a higher percent than all construction (6.3%).*

^Frequency below 30, interpret with caution.

Next, prescription opioid use among construction workers was examined by employment characteristics (chart 11). Part-time (10.8%) and overtime (7.1%) workers were more likely to use opioids than full-time workers (4.4%) during 2021-2022. These types of workers with nonstandard arrangements were more prone to work-related injuries and illnesses. *Other workers* were 1.3 times as likely to use opioids as *craftworkers* (7.6% versus 5.8%). *Self-employed* workers were more likely to use opioids than workers who were not self-employed (8.5% versus 5.5%).

11. Prescription opioid use among construction workers, by employment characteristics* (2021-2022)

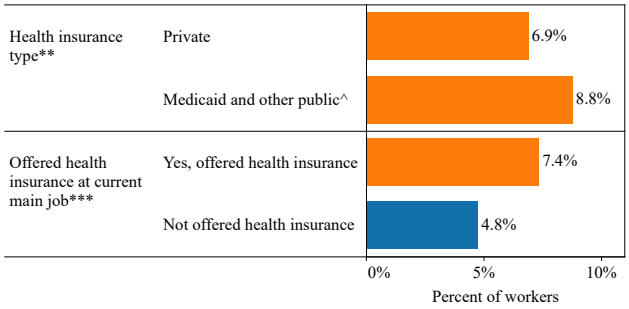


Source: *2021-2022 IPUMS Medical Expenditure Panel Survey.*

**Bars colored in orange indicate a higher percent than all construction (6.3%).*

Lastly, prescription opioid use among construction workers from 2021 to 2022 was assessed by health insurance coverage. Insured workers—those with private insurance (6.9%) or Medicaid and other public insurance (8.8%)—were more likely to use opioids than all construction combined (6.3% ; chart 12). Workers offered health insurance by their employer were over 1.5 times as likely to use opioids as those who were not (7.4% versus 4.8%). Prior research showed increased prescription opioid use among insured adults.

12. Prescription opioid use among construction workers, by health insurance coverage* (2021-2022; wage-and-salary workers)



Source: *2021-2022 IPUMS Medical Expenditure Panel Survey.*

**Bars colored in orange indicate a higher percent than all construction (6.3%).*

***Uninsured excluded from chart due to frequency lower than 10.*

****Only include workers who were wage earners.*

^Frequency below 30, interpret with caution.

Construction has seen reductions in the number and rate of MSDs resulting in days away from work. There remain differences among subsectors, with workers at Specialty Trade Contractors suffering these injuries at nearly twice the rate of workers at the two other major subsectors from 2021 to 2022.

Construction workers experienced decreases in MSDs and fewer repetitive strain injuries than workers in all industries but reported slightly higher rates of back pain. However, construction workers still reported having to limit activities due to repetitive strain more frequently than other industries. Furthermore, opioid use was higher among women and the self-employed.

The data show it is still critical to prevent injuries before they happen, and CPWR provides guidelines on pre-task planning alongside our Best Built Plans combination planning and training program, which focuses on preventing strain and sprain injuries through effective manual materials handling. CPWR also provides many resources dedicated to preventing opioid deaths in construction and aims to keep industry members up to date on the topic through the REASON newsletter. OSHA and NIOSH also have materials that address hazards and exposures in the construction industry.

ACCESS THE CHARTS & MORE

View the charts in PowerPoint and the data underlying the charts in Excel. Downloading will start when you click on each link. These files can also be found under the Data Bulletin at: https://www.cpwr.com/research/data-center/data-reports/.

DEFINITIONS

- ***Days away from work (DAFW)*** *– nonfatal injury cases resulting in at least one day away from work beyond the day of injury or illness onset.*
- ***Full-time equivalent worker (FTEs)*** *– determined by the hours worked per employee on a full-time basis, defined as working 2,000 hours (40 hours x 50 weeks) per year.*
- ***Industry*** *– 2-digit NAICS codes; for more information on individual industry definitions see https://www.bls.gov/iag/home.htm.*
- ***Major subsector*** *– 3-digit NAICS codes within construction.*
- ***Musculoskeletal disorders (MSDs)*** *– injuries and/or pain that occur in joints, ligaments, muscles, nerves, tendons and other areas of the limbs, neck, or back.*
  - *Medical Expenditure Panel Survey Definitions used in Chart 9.*
    - ***Musculoskeletal Disease***
      - *Include arthritis, gout, arthropathies and related disorders, dorsopathies, rheumatism (excluding the back), osteopathies, chondropathies, and acquired musculoskeletal deformities.*
      - *Were identified according to the ICD-10 codes adapted by MEPS that linked to an event or prescribed medicine record during the year. Include the following ICD-10 codes: M00-M25, M1a, M30-M36, M40-M54, and M60-M94.*
    - ***Musculoskeletal Injury*** *– an injury resulting from trauma or overuse.*
      - *Include fractures, contusion with intact skin surface and superficial unspecified injury, dislocations, sprains, strains, injuries to nerves and spinal cord.*
      - *Were identified according to the ICD-10 codes adapted by MEPS that linked to an event or prescribed medicine record during the year. Include the following ICD-10 codes: S03, S12-S14, S20, S22-S24, S30, S32-S34, S40, S42-S44, S50, S50-S54, S60, S62-S64, S70, S72-S74, S80, S82-S84, S90, S92-S94, T02-T03, T08-T10, T12, and T14.*
    - ***Musculoskeletal Disorder*** *– include musculoskeletal diseases and/or injuries as defined above.*
  - *Survey of Occupational Injuries and Illnesses used in Charts 1-4.*
    - ***MSD*** *– include cases where the nature of the injury or illness is pinched nerve; herniated disc; meniscus tear; sprains, strains, tears; hernia (traumatic and nontraumatic); pain, swelling, and numbness; carpal or tarsal tunnel syndrome; Raynaud's syndrome or phenomenon; musculoskeletal system and connective tissue diseases and disorders, when the event or exposure leading to the injury or illness is overexertion and bodily reaction, unspecified; overexertion involving outside sources; repetitive motion involving microtasks; other and multiple exertions or bodily reactions; and rubbed, abraded, or jarred by vibration.*
- ***Prescription analgesic*** *– a medication that reduces pain.*
  - ***Non-opioid*** *– a medication to reduce pain, including acetaminophen, ibuprofen, and aspirin.*
  - ***Opioid*** *– a medication to reduce moderate to severe pain made from the opium poppy plant or in the laboratory.*
- ***Repetitive strain injury*** *– injuries caused by repeating the same movements over an extended period . Includes repetitive strain injuries that occurred during the past 3 months at the time of the survey.*
- ***Self-employed*** *– defined in MEPS as not working for someone else.*
- ***Worker type*** *– indicates the type of work being performed.*

- ***Craftworkers*** *– all workers except those who are managerial, professional, or administrative support. Also called blue-collar or production workers.*
- ***Other workers*** *– includes managerial, professional, and administrative support workers. Also called white-collar workers.*

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- Electronic Library of Construction Occupational Safety and Health
  https://www.elcosh.org/index.php
- eLCOSH Nano
  https://nano.elcosh.org/
- Exposure Control Database
  https://ecd.cpwrconstructionsolutions.org/
- Nano Safety Data Sheet Improvement Tool
  https://nanosds.elcosh.org/
- Safety Climate–Safety Management Information System (SC-SMIS)
  www.scsmis.com
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  https://stopconstructionfalls.com/
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