IDENTIFYING COMMON ROOT CAUSES OF FALLS FROM HEIGHTS

For Technical Difficulties:

Chat with host, Jessica Bunting (button on bottom right)
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WELCOME & INTRODUCTION:

CHRIS TRAHAN CAIN, EXECUTIVE DIRECTOR, CPWR

JESSICA BUNTING, ASSISTANT DIRECTOR, R2P, CPWR

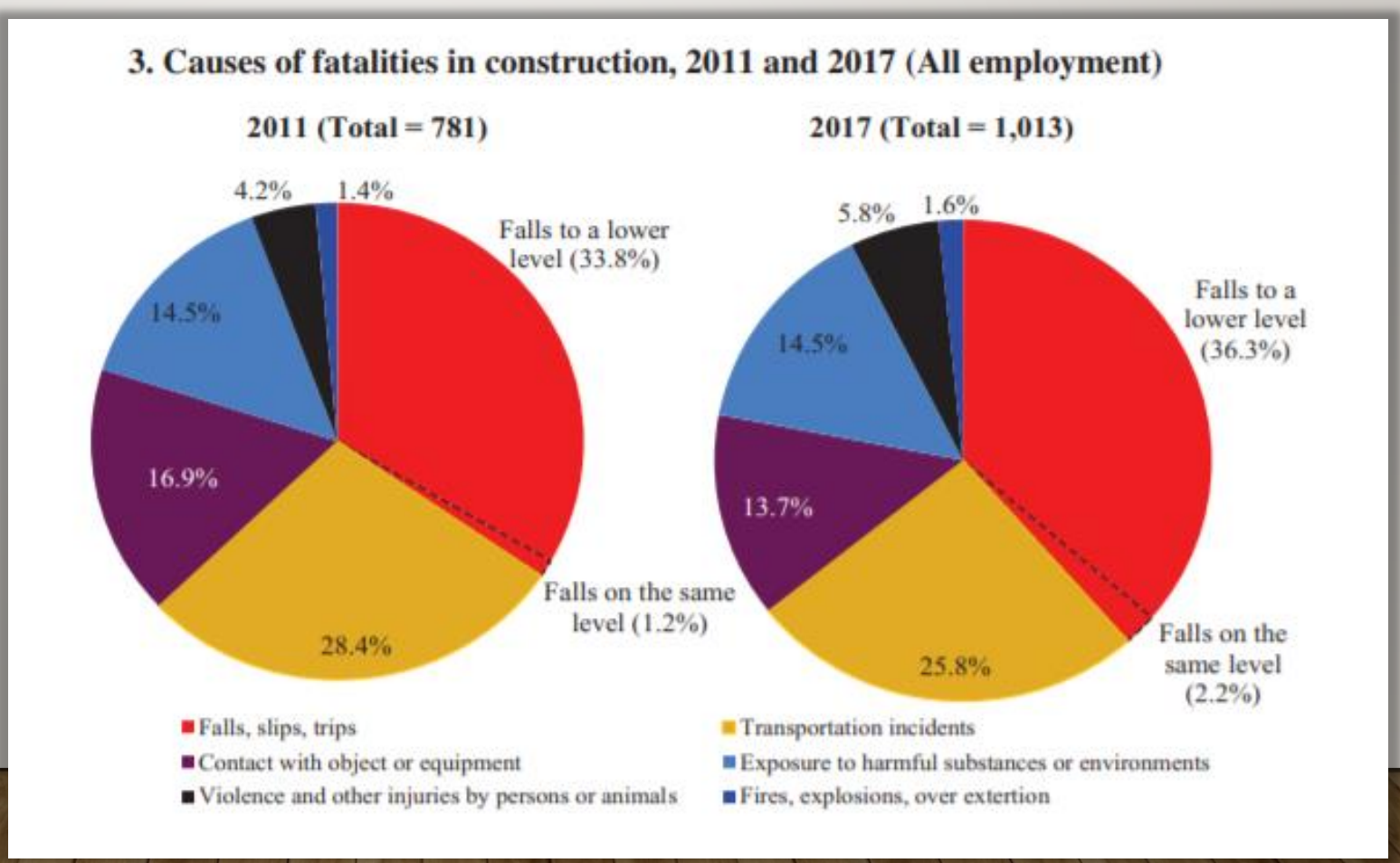
PANELISTS:

THOM KRAMER, PE, CSP, LJB INC. PRINCIPAL & Z359 ACCREDITED STANDARDS COMMITTEE CHAIRMAN

JANE BEAUDRY, SR. HSE MANAGER, JACOBS, MEMBER OF THE ANSI/ASSP Z359 NATIONAL WORK AT HEIGHTS SUBCOMMITTEE

WHY FOCUS ON FALLS FROM HEIGHTS?

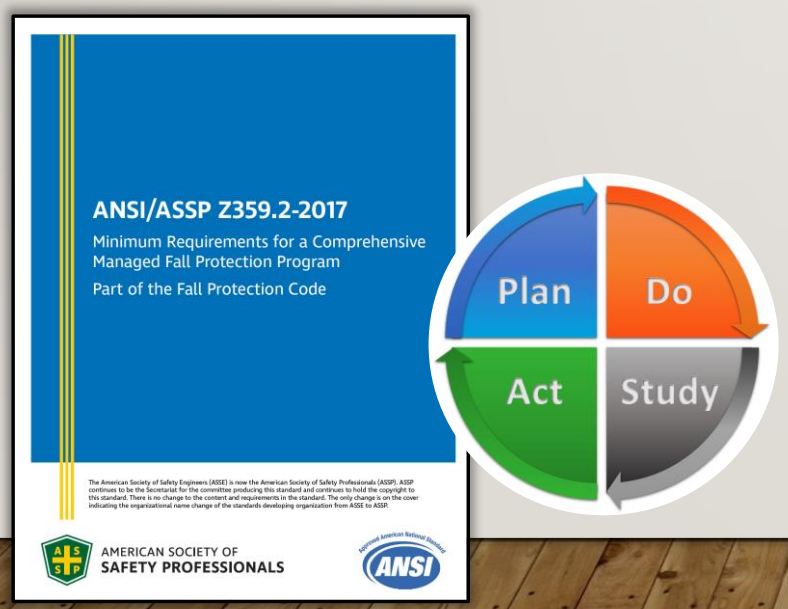
- Falls Kill – they are the number one cause of death in construction!
- Falls CAN be prevented – solutions for fall prevention and protection exist!



FALL PREVENTION EFFORTS

CPWR research, outreach & resource development

OSHA-NIOSH-CPWR National Campaign & Stand-Down to Prevent Falls in Construction



ANSI Z359 voluntary standards and guidance that responds to industry needs & focuses on operational improvement

THOMAS KRAMER, PE, CSP

LJB Inc. Principal & Z359 Accredited Standards Committee Chairman

- What We Know
- Gaps in Information
- ANSI Z359 Work from Heights Task Force
- Goal of the Survey

FAI-6882771-1

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

REPORT OF INVESTIGATION

Surface Mine
(Sand)

Fatal Slip/Fall Accident
September 1, 2020

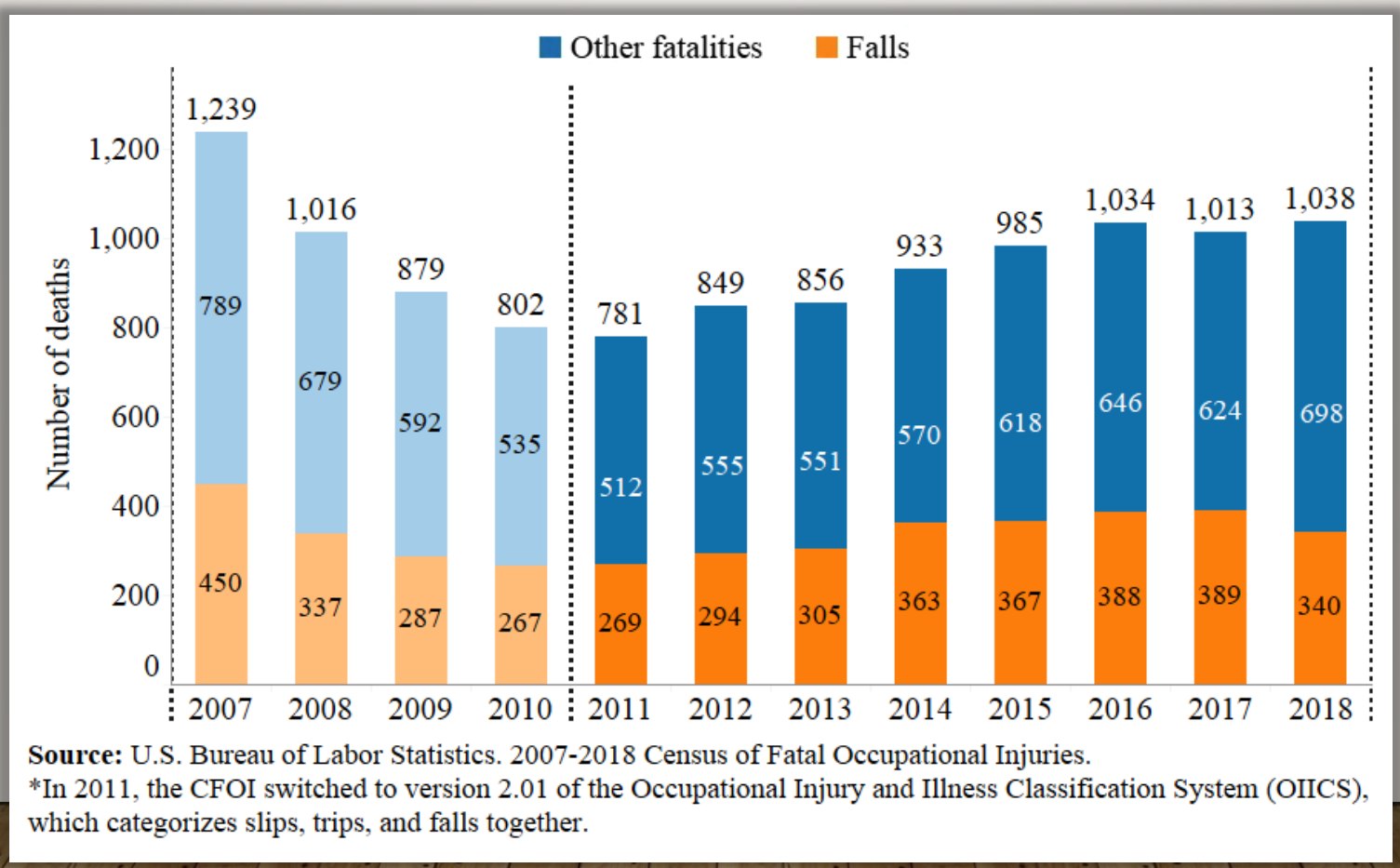
Arepet Industries
Arepet Industries, LLC
Von Ormy, Bexar County, Texas
ID No. 41-05471

Accident Investigators

Robert Dreyer
Mine Safety and Health Specialist

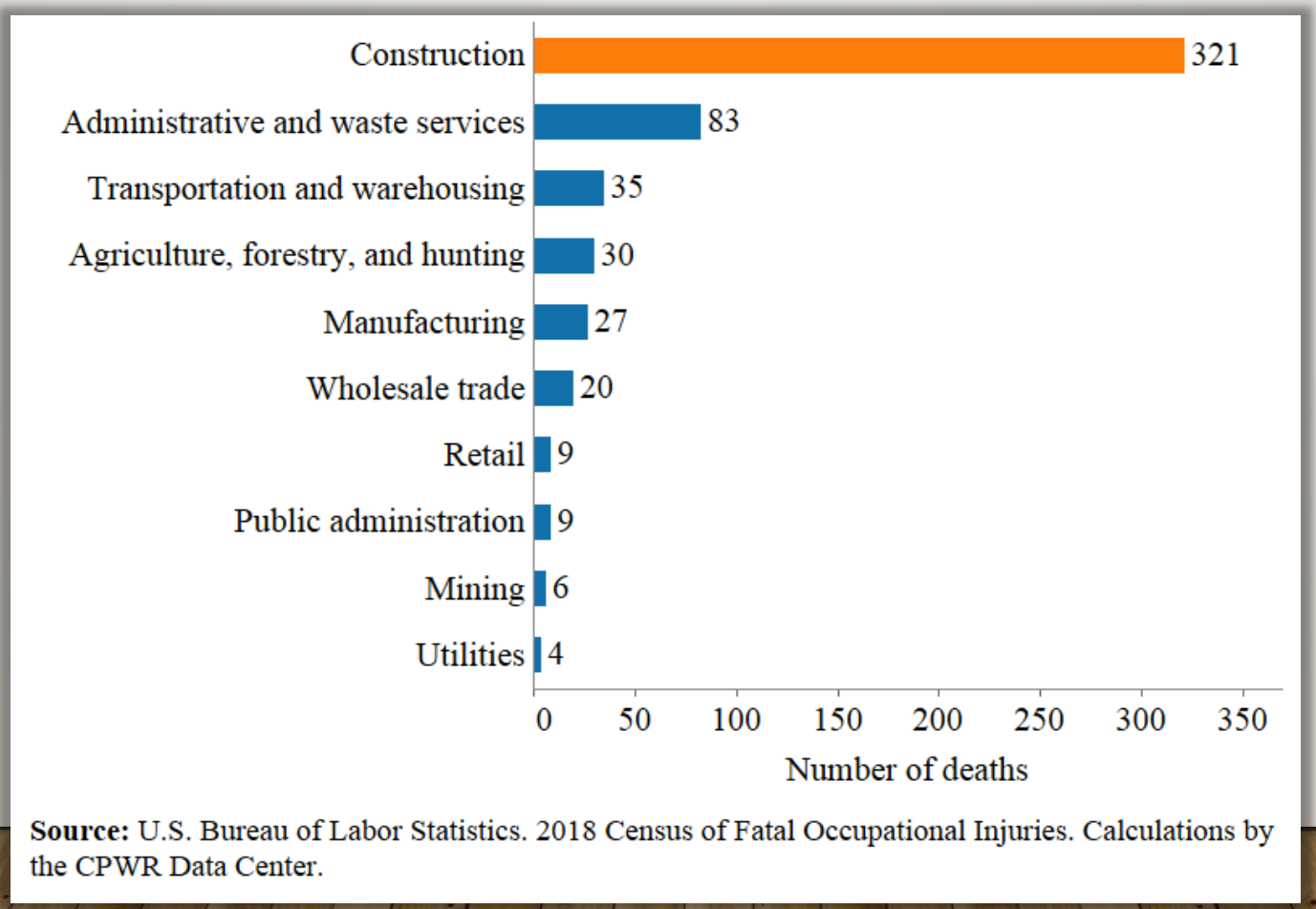
Thomas Balch
Mine Safety and Health Inspector

NUMBER OF FALLS & OTHER FATALITIES IN CONSTRUCTION (2007 – 2018)



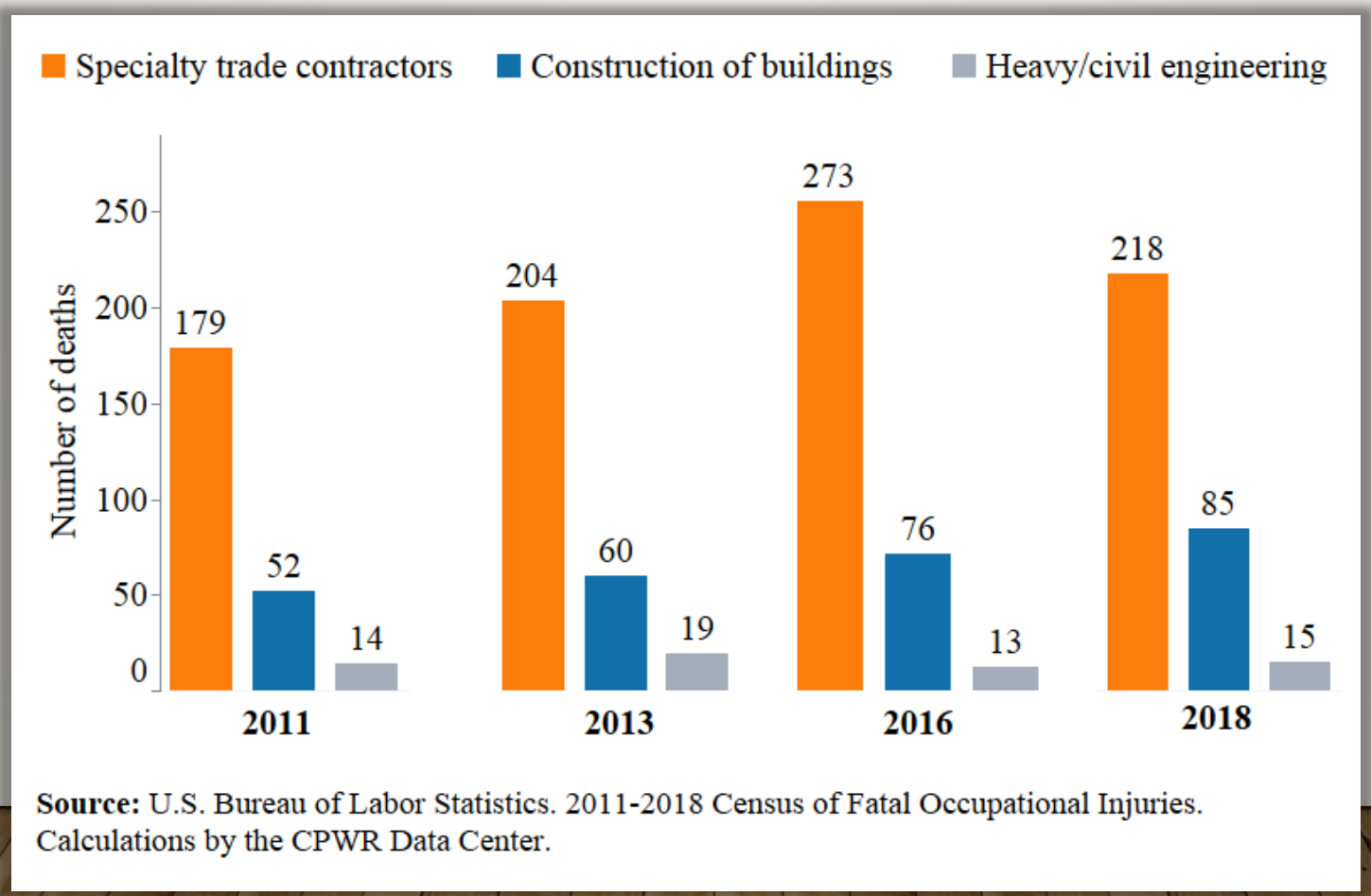
Source: U.S. Bureau of Labor Statistics. 2007-2018 Census of Fatal Occupational Injuries.
*In 2011, the CFOI switched to version 2.01 of the Occupational Injury and Illness Classification System (OIICS), which categorizes slips, trips, and falls together.

FATAL FALLS TO A LOWER LEVEL BY MAJOR INDUSTRY (2018)



Source: U.S. Bureau of Labor Statistics. 2018 Census of Fatal Occupational Injuries. Calculations by the CPWR Data Center.

NUMBER OF FATAL FALLS TO A LOWER LEVEL BY MAJOR CONSTRUCTION SUBSECTOR (SELECT YEARS)



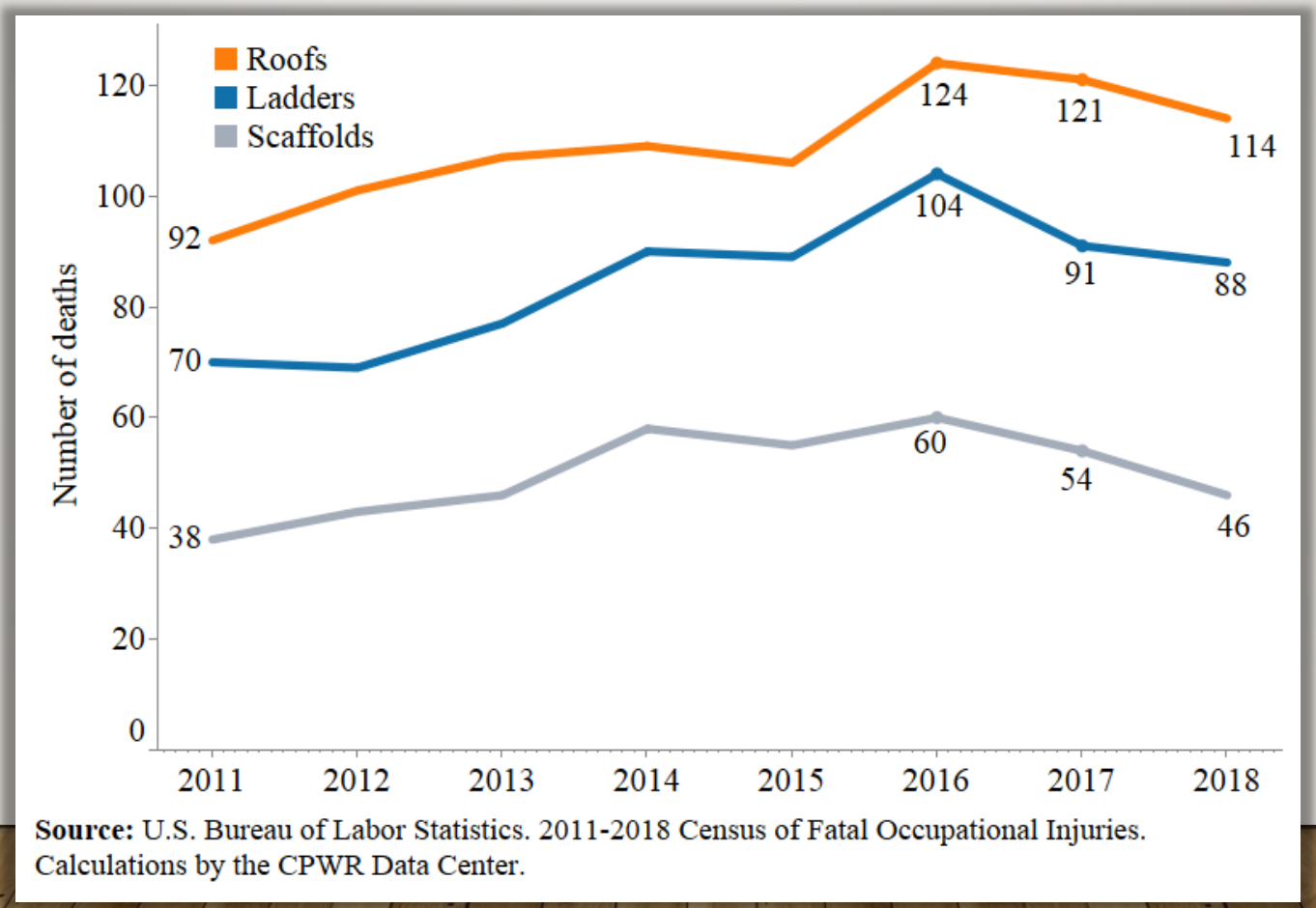
Source: U.S. Bureau of Labor Statistics. 2011-2018 Census of Fatal Occupational Injuries. Calculations by the CPWR Data Center.

FATAL FALLS BY TYPE OF CONSTRUCTION (2018)

Type of Construction	Number	Percent
Roofing	77	23%
Residential Building	67	20%
Plumbing and HVAC	24	7%
Nonresidential Building	20	6%
Painting and Wall Covering	17	5%
Heavy and Civil Engineering	16	5%
Electrical	15	5%

Source: OSHA presentation of 2018 BLS data

NUMBER OF FALL FATALITIES IN CONSTRUCTION BY PRIMARY SOURCE (2011 – 2018)



Source: U.S. Bureau of Labor Statistics. 2011-2018 Census of Fatal Occupational Injuries. Calculations by the CPWR Data Center.

UK VS. US STATISTICS – 2016

	US	UK
GDP	18.6 tn USD	2.62 tn USD
New construction	1.23 tn USD	0.14 tn USD
Total workplace fatalities	5,190	137
Construction fatalities	991	30
Total fall fatalities	849	25

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7.1x

8.8x

37.9x

33x

34x

TOP 10 OSHA VIOLATIONS IN CONSTRUCTION

1. Fall Protection – General Requirements (1926.501)
2. Scaffolding (1926.451)
3. Ladders (1926.1053)
4. Fall Protection – Training (1926.503)
5. Eye and Face Protection (1926.102)
6. General Safety and Health Provisions (1926.20)
7. Head Protection (1926.100)
8. Specific Excavation Requirements (1926.651)
9. Aerial Lifts (1926.453)
10. Fall Protection Systems Criteria and Practices (1926.502)

Source : OSHA/ OIS
As of 9/30/19

FACE REPORT DATA (1982 – 2015)

- PFAS not available more than half (54%)
- PFAS available but not used 23%

Underlying causes not PFAS-related:

- Unprotected skylight
- Incorrect ladder for job
- No ladder provided (used other means – chair, climbed scaffold, etc.)
- Unsafe weather conditions
- Electrocution (ladder came in contact with power lines)
- Struck by object

GAPS IN INFORMATION

- Common underlying causes –
  - Physical, material failures or environmental causes
  - Human causes – supervisory or personal mistakes or violations
  - Organizational or systematic causes
- Insight on how multiple factors combine to cause a fall
- Needs of the industry

ANSI Z359 NATIONAL WORK AT HEIGHT TASK FORCE

- Approximately 26 members
- ANSI Z359 full committee members + interested stakeholders and safety and health professionals
- Focus on identifying new data sources to inform future Committee standards and recommendations

GOALS OF THE FALL EXPERIENCE SURVEY

Learn more about underlying causes of falls in order to:

- Create more relevant resources and materials in support of the Fall Prevention Campaign & Stand-Down
- Improve CPWR outreach and education efforts
- Influence future research on fall safety
- Inform ANSI standards
- Share data with industry to improve collective fall prevention efforts

JANE BEAUDRY

- About the Survey
- Survey Questions
- Survey Timeline
- Taking the Survey
- Relevant Resources

Sr. HSE Manager, Jacobs, member of the ANSI/ASSP Z359 National Work at Heights Task Force

ABOUT THE SURVEY

- Currently in draft format
- Incorporates feedback from the Work at Heights Task Force & the NORA Construction Sector Falls Work Group
- Estimating 15 – 20 minutes
- Questions prioritized to learn about the fall experience
- Anonymous
- Option to complete a second separate survey to provide contact information confidentially
- Take survey as many times as you want

FALL EXPERIENCE SURVEY QUESTIONS

1. WHAT TYPE OF WORK DO YOU DO?
   a. Construction
   b. General Industry
   c. Maritime
   d. Mining
   e. Energy
   f. Transportation, Utility, Warehouse
   g. Equipment Manufacturing
   h. Equipment Supply
   i. Insurance
   j. Other:

2. WHAT TYPE OF INDUSTRY SEGMENT ARE YOU CURRENTLY INVOLVED WITH?
   a. Commercial
   b. Residential (single home dwellings, low rise buildings)
   c. Residential (high rise buildings)
   d. Industrial and/or Specialty
   e. Heavy & Highway
   f. Government/Public Sector
   g. Other (please specify):

3. HAVE YOU EVER BEEN INVOLVED IN, WITNESSED, OR INVESTIGATED A FALL INCIDENT?
   a. Yes
   b. No

SURVEY ENDS

FALL EXPERIENCE SURVEY QUESTIONS

For the next series of questions, please tell us about the most serious fall incident you were involved in, witnessed, or investigated and/or the one you remember the best.

4. WAS THE FALL FATAL?
   a. Yes
   b. No

5. WHAT HEIGHT DID THE FALL OCCUR AT?
   a. Less than 6 ft
   b. 6-10 ft
   c. 11-20 ft
   d. 20-30 ft
   e. 31-40 ft
   f. Over 40 ft

6. WAS IMMEDIATE MEDICAL CARE REQUIRED?
   a. Yes
   b. Not immediately
   c. Not at all
   d. I'm not sure
   e. Other (please specify):

7. [FOR NON-FATAL FALLS IN Q4] HOW WERE YOU/THE INDIVIDUAL WHO FELL RESCUED?
   a. Self-rescue
   b. Aerial lift
   c. Bucket or crane basket
   d. Hoist
   e. Stair tower
   f. Professional/emergency services
   g. Other (please specify):
   h. Not applicable
   i. I'm not sure

TASK-BASED QUESTIONS

8. WHAT TASK WERE YOU/THE INDIVIDUAL DOING AT THE TIME OF THE FALL? (OPEN ENDED)

9. IF YOU/THE INDIVIDUAL FELL FROM A ROOF, WAS IT A LOW OR STEEP SLOPE?
   a. Low (4:12 inches or less)
   b. Steep (greater than 4:12 inches)
   c. I'm not sure
   d. Not Applicable

10. WHAT TYPE OF ACCESS EQUIPMENT, IF ANY, WAS BEING USED AT THE TIME OF THE FALL?
    a. Step ladder
    b. Extension ladder
    c. Aerial lift
    d. Swing scaffold
    e. Standard scaffold
    f. Mast climbing scaffold
    g. Bucket truck
    h. Stair tower
    i. Crane basket
    j. Rope access
    k. Other (please specify):
    l. None

11. WHAT TYPE OF FALL PROTECTION, IF ANY, WAS BEING USED AT THE TIME OF THE FALL?
    a. Personal Fall Arrest System (harness, lanyard, anchorage)
    b. Guardrails
    c. Safety nets
    d. Other (please specify):
    e. None

CAUSE-RELATED QUESTIONS

12. DID YOU/THE INDIVIDUAL WHO FELL BELIEVE THAT FALL PROTECTION WAS REQUIRED BY COMPANY SAFETY POLICY FOR THE TASK THAT LED TO THE FALL?
    a. Yes
    b. No
    c. I'm not sure

13. WHAT, IN YOUR OPINION OR THE OPINION OF THE INVESTIGATION PERFORMED OF THE FALL INCIDENT, WERE THE PRIMARY CAUSE(S) OF THE FALL? (CHOOSE UP TO 3)
    a. Employer did not provide fall protection
    b. Fall protection was provided, but not used
    c. Insufficient or ineffective planning – i.e. No competent person, Fall hazards were not identified or changed
    d. Employer provided incorrect access equipment for the job (e.g. wrong ladder, or a ladder when scaffolding would be safer)
    e. Employer did not provide access equipment (e.g. used a chair because no ladder was available)
    f. Access equipment was provided, but not used
    g. Personal fall arrest system failure
    h. Poorly fitting harness
    i. Other fall protection failure
    j. Access equipment malfunction or failure (e.g. faulty ladder or lift)
    k. Failure of a walking/working surface
    l. Individual was struck by an object
    m. Unsafe weather conditions
    n. Unprotected skylight or hole
    o. OSHA fall protection standard was followed, but provided insufficient protection for the conditions.
    p. Lack of relevant training
    q. Lack of training in my/the individual's language
    r. Language or cultural barriers
    s. Other (please specify):

CAUSE-RELATED QUESTIONS

14. WHAT TYPE OF TRAINING DID YOU/THE INDIVIDUAL WHO FELL HAVE AT THE TIME OF THE INCIDENT? (CHECK ALL THAT APPLY)
    a. OSHA 10
    b. OSHA 30
    c. Competent Person (EM 385)
    d. Training for the inspection of the specific fall protection/arrest equipment being used at the time
    e. Training for the use of the specific fall protection/arrest equipment being used at the time
    f. Training on the proper use of the access equipment
    g. Self-rescue training
    h. Training on how to complete an effective pre-task plan
    i. Vendor and/or manufacturer led training
    j. Other (please specify):
    k. None
    l. I'm not sure

15. WERE YOU/THE INDIVIDUAL NEW TO THE WORK FORCE WHEN THE FALL OCCURRED?
    a. Yes
    b. No
    c. I'm not sure

16. AT THE TIME OF THE FALL, WHO DID YOU/THE INDIVIDUAL WHO FELL WORK FOR?
    a. General Contractor
    b. Subcontractor
    c. Not applicable
    d. I'm not sure

17. WHAT LEVEL OF PLANNING WAS DONE BY THE EMPLOYER AND/OR A COMPETENT PERSON? (CHECK ALL THAT APPLY)
    a. Pre-bid planning
    b. Pre-Job planning
    c. JHA/JSA was reviewed and approved before work began
    d. Daily task assessments – at a location other than where the work occurred
    e. Daily task assessments – where the work activity took place
    f. Mid shift task assessment review
    g. A full written fall protection plan
    h. Fall protection (or equipment) permit(s)
    i. Rescue planning
    j. None
    k. I'm not sure

CONSEQUENCES

18. WHAT, IF ANY, CONSEQUENCES DID THE EMPLOYER EXPERIENCE AS A RESULT OF THE FALL INCIDENT? (CHECK ALL THAT APPLY)
    a. OSHA citation/ penalty
    b. Regional government citation/penalty
    c. Decreased business volume
    d. Loss of staff
    e. Higher insurance premiums
    f. Other (please specify):
    g. None
    h. I'm not sure

19. DID THE EMPLOYER INSTITUTE ANY SIGNIFICANT OR SUSTAINED CHANGES TO THEIR WAYS OF WORKING AS A RESULT OF THIS EVENT?
    a. Yes
    b. No
    c. I'm not sure

20. [IF YES TO Q19] PLEASE DESCRIBE THOSE CHANGES (OPEN-ENDED):

OVERALL EXPERIENCES

21. TAKING INTO CONSIDERATION NOT JUST THIS EXPERIENCE, BUT ANY AND ALL FALL INCIDENTS YOU HAVE BEEN INVOLVED IN, WITNESSED, OR INVESTIGATED, WHAT DO YOU BELIEVE ARE THE BIGGEST CONTRIBUTORS TO FALLS FROM HEIGHTS? (SELECT UP TO 3)
    a. Employer did not provide fall protection
    b. Fall protection was provided, but not used
    c. Insufficient or ineffective planning (e.g., no competent person, fall hazards were not identified or changed)
    d. Employer provided incorrect access equipment for the job (e.g., wrong ladder, or a ladder when scaffolding would be safer)
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    p. Lack of relevant training
    q. Lack of training in my/the individual's language
    r. Language or cultural barriers
    s. Other (please specify):

OVERALL EXPERIENCES

22. HOW OFTEN HAVE YOU WITNESSED THE FOLLOWING ON A JOBSITE?

	Always	Frequently	Occasionally	Never	Not Applicable
Sufficient pre-planning for fall prevention and protection	☐	☐	☐	☐	☐
Prevention through Design measures (engineered anchor points, permanent guardrails, etc.)	☐	☐	☐	☐	☐
Sufficient pre-planning for fall rescue	☐	☐	☐	☐	☐
Regular employer-mandated inspections of fall protection and/or access equipment	☐	☐	☐	☐	☐
Fall protection and/or access equipment that is improperly set up or maintained	☐	☐	☐	☐	☐
New workers exposed to fall hazards without proper competent person supervision	☐	☐	☐	☐	☐
New workers exposed to fall hazards without proper training	☐	☐	☐	☐	☐
PPE not provided by employer	☐	☐	☐	☐	☐
Lack of properly fitting PPE	☐	☐	☐	☐	☐
Supervisors and coworkers actively checking for fall protection whenever it is required	☐	☐	☐	☐	☐

ADDITIONAL DEMOGRAPHIC QUESTIONS

Questions based on industry selected in previous questions to determine:

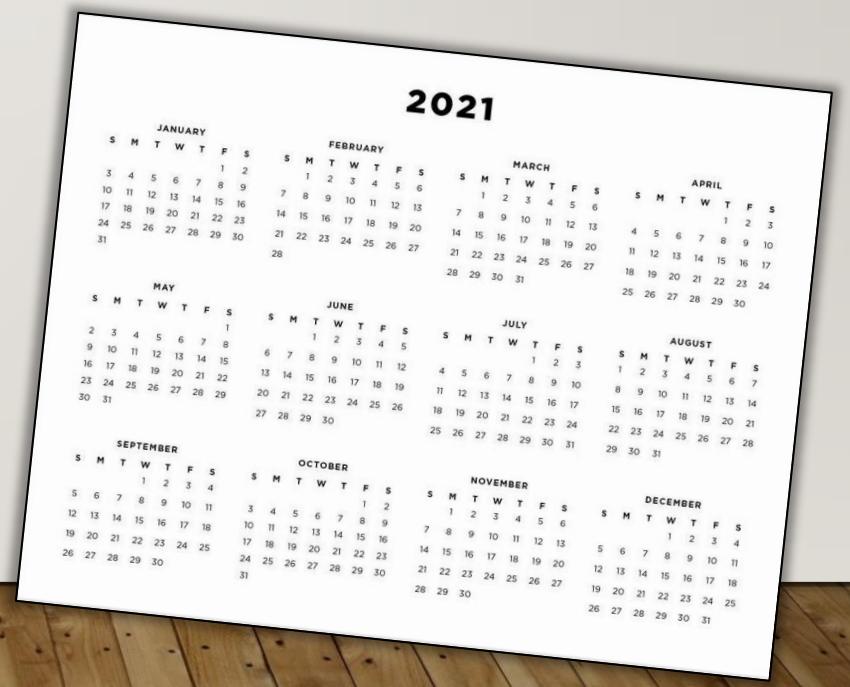
- YEARS OF EXPERIENCE
- CURRENT TRADE OR PRODUCT(S) SOLD/SUPPLIED
- CURRENT ROLE OR POSITION WITHIN COMPANY
- COMPANY SIZE
- AVERAGE JOBSITE SIZE

At End of Survey:

If you are interested in talking about your experience or experiences in more depth, please consider providing your contact information at this separate and confidential link. CPWR will not share your information, and we will not link it to any of the responses in this survey unless you give express permission for us to do so when contacted.

ESTIMATED SURVEY TIMELINE

- DEC – JAN: develop & test online version (Qualtrics)
- JAN – MARCH: collect responses
- APRIL – MAY: analyze results
- MAY ONWARD: utilize and share findings



HOW TO TAKE OR SHARE THE SURVEY

www.cpwr.com/research/research-to-practice-r2p/r2p-partnerships/fall-prevention-and-protection/fall-experience-survey/

RELEVANT RESOURCES

- StopConstructionFalls.com
- Fatality Mapping Project: stopconstructionfalls.com/fatality-map/
- Data Report: New Trends of Fatal Falls in the Construction Industry: www.cpwr.com/research/data-center/data-reports/
- CPWR Construction Chart Book: www.cpwr.com/research/data-center/the-construction-chart-book/
- Construction FACE Database: www.cpwr.com/research/data-center/construction-face-database/
- MSHA Fatality Report: https://www.msha.gov/data-reports/fatality-reports/2020/september-1-2020-fatality/final-report
- ANSI/ASSP Z359 Fall Protection and Fall Restraint: https://www.assp.org/standards/standards-topics/fall-protection-and-fall-restraint-z359
- UK All Party Parliamentary Group: https://workingatheight.info/
- UK WAH regulation: https://www.hse.gov.uk/work-at-height/the-law.htm

QUESTIONS?

- Jessica Bunting – jbunting@cpwr.com
- Thom Kramer - tkramer@ljbinc.com
- Jane Beaudry - jane.beaudry@jacobs.com