DOE Construction Safety Advisory Committee Meeting/Training Session

March 24, 2021

Please send an email letting us know you are on-line to:

craig.schumann@hq.doe.gov

DOE Construction Safety Advisory Committee Meeting/Training Session
March 24, 2021
10:30 AM – 11:30 AM Central Standard Time

- 10:30-10:40 “Welcome and Introductions”-Craig Schumann, Chair

- 10:40-11:30 “Electrical Safety in Construction-What are 10 things to look at?” Cari Helberg, Argonne National Laboratory Electrical Inspector.

NOT MEASUREMENT SENSITIVE

DOE-STD-1149-2016
August 2016

DOE STANDARD

SAFETY AND HEALTH PROGRAM FOR DOE CONSTRUCTION PROJECTS

U.S. Department of Energy
Washington, D.C. 20585

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One 2021 goal for the committee is to issue a revised 1149 Technical Standard

DOE CONSTRUCTION SAFETY ADVISORY COMMITTEE

Argonne NATIONAL LABORATORY

ELECTRICAL SAFETY IN CONSTRUCTION

TOP 10 THINGS TO LOOK AT

CARI HELBERG, MAS, CESCP, CBO

Occupational Safety Specialist,
Electrical Inspector
Argonne National Laboratory

U.S. DEPARTMENT OF ENERGY
Argonne National Laboratory is a U.S. Department of Energy laboratory managed by UChicago Argonne, LLC.

March 24, 2021

OSHA's Top 10: FY 2020

1. Fall Protection – General Requirements
2. Hazard Communication
3. Respiratory Protection
4. Scaffolding
5. Ladders
6. Lockout/Tagout
7. Powered Industrial Trucks
8. Fall Protection – Training Requirements
9. Personal Protective and Lifesaving Equipment – Eye and Face Protection
10. Machine Guarding

Presented by
Safety+Health

OSHA TOP 5 ELECTRICAL CONSTRUCTION HAZARDS

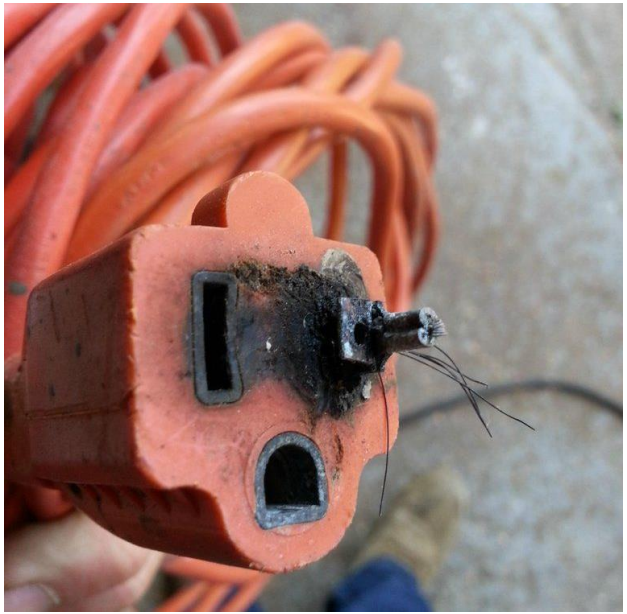
1. CONTACT WITH POWER LINES
2. LACK OF GROUND-FAULT PROTECTION
3. PATH TO GROUND MISSING OR DISCONTINUOUS
4. EQUIPMENT NOT USED IN MANNER PRESCRIBED
5. IMPROPER USE OF EXTENSION AND FLEXIBLE CORDS

TOP 10 VIOLATIONS I FIND ON CONSTRUCTION SITES

1. CORDS RUN WHERE SUBJECT TO DAMAGE
   - NEC Art. 590.4(H)
   - NEC Art. 400.10 & 12

TOP 10 VIOLATIONS I FIND ON CONSTRUCTION SITES

2. Use of damaged cords
   - NEC Art. 400.10 & 12



TOP 10 VIOLATIONS I FIND ON CONSTRUCTION SITES

3. Required GFCI-protection
   - NEC Art. 210.8 & 422.5
   - NEC Art. 590.6

TOP 10 VIOLATIONS I FIND ON CONSTRUCTION SITES

4. Use of listed (NRTL) equipment
   - NEC Art. 110.3


Jackery
Jackery
EXPLORER 300
DISPLAY
0W
0W
100%
DC
12V, 10A
USB
IN/OUT:PD 60W
5V/2.4A
AC
INPUT
PURE SINE-WAVE
110V, 300W

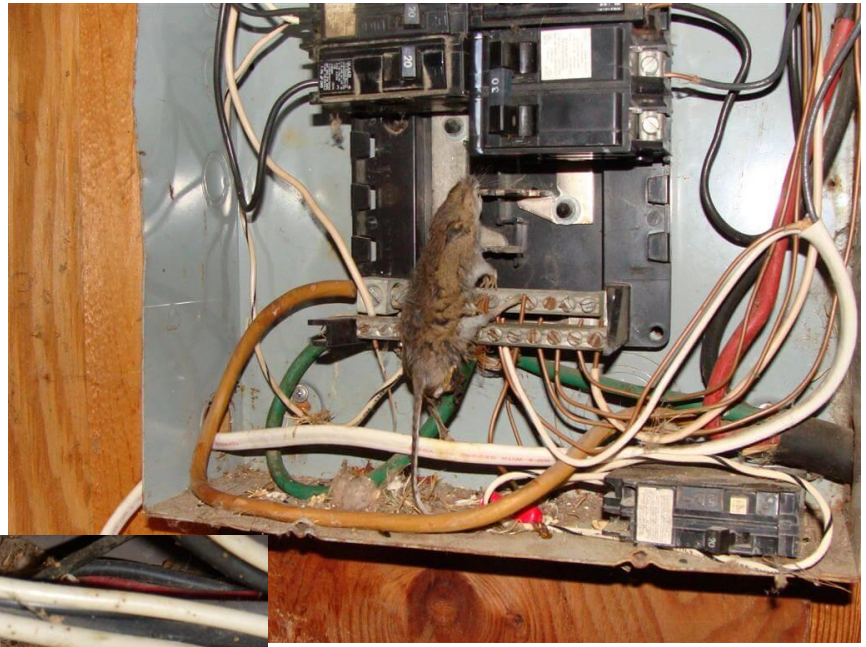

1
2
3
4
5
6
7
8
9
10

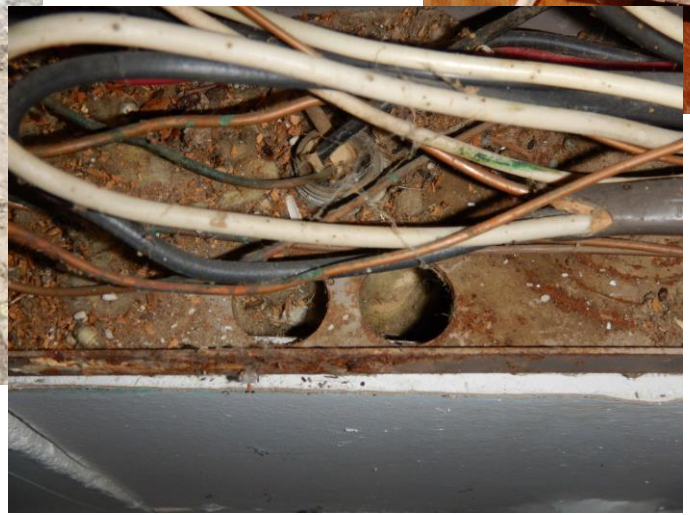
TOP 10 VIOLATIONS I FIND ON CONSTRUCTION SITES

5. Lack of Lamp Protection
   - NEC Art. 590.4(F)

TOP 10 VIOLATIONS I FIND ON CONSTRUCTION SITES

6. Re-used temporary panels/services
   - NEC Art. 590.8(A)





TOP 10 VIOLATIONS I FIND ON CONSTRUCTION SITES

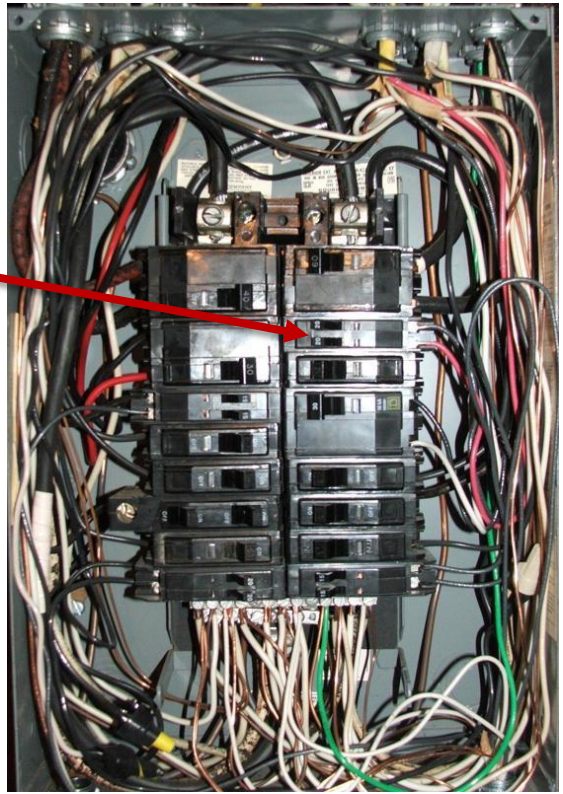
7. Use of generators - Grounding
   - NEC Art. 430


HONDA
EU7000is

GROUNDING

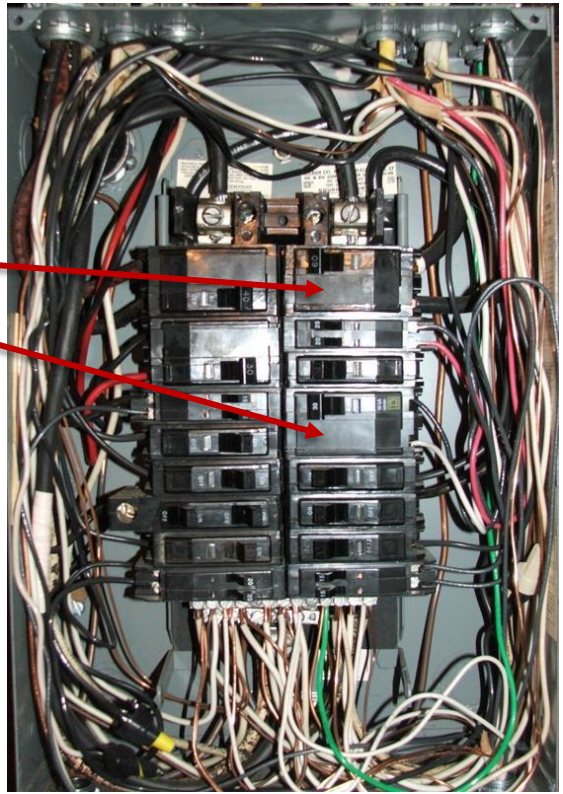
TOP 10 VIOLATIONS I FIND ON CONSTRUCTION SITES

8. Improper Overcurrent Protection
   - NEC Art. 240
     - Tandem Breakers



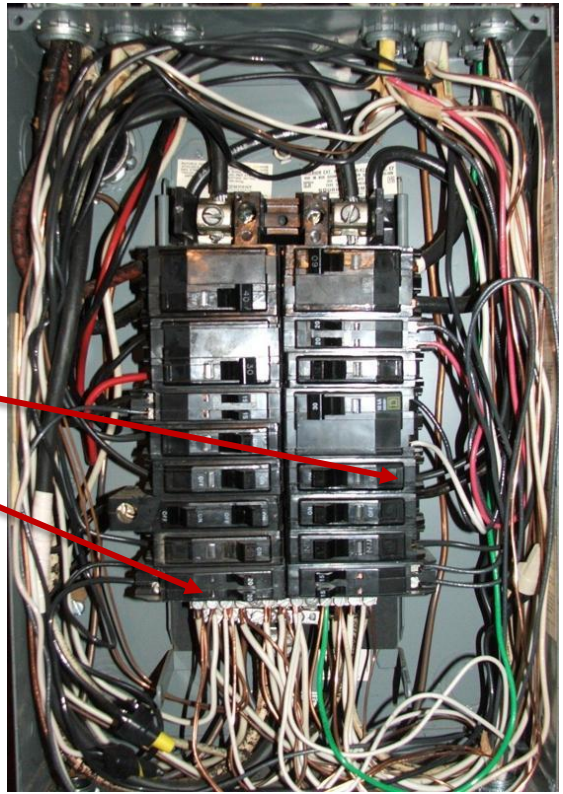
TOP 10 VIOLATIONS I FIND ON CONSTRUCTION SITES

8. Improper Overcurrent Protection
   - NEC Art. 240
     - Tandem Breakers
     - Small wires on big breakers



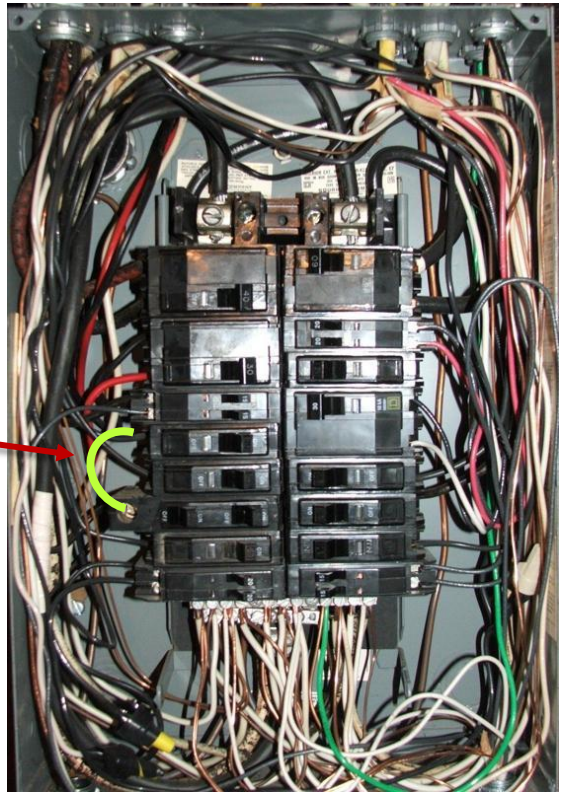
TOP 10 VIOLATIONS I FIND ON CONSTRUCTION SITES

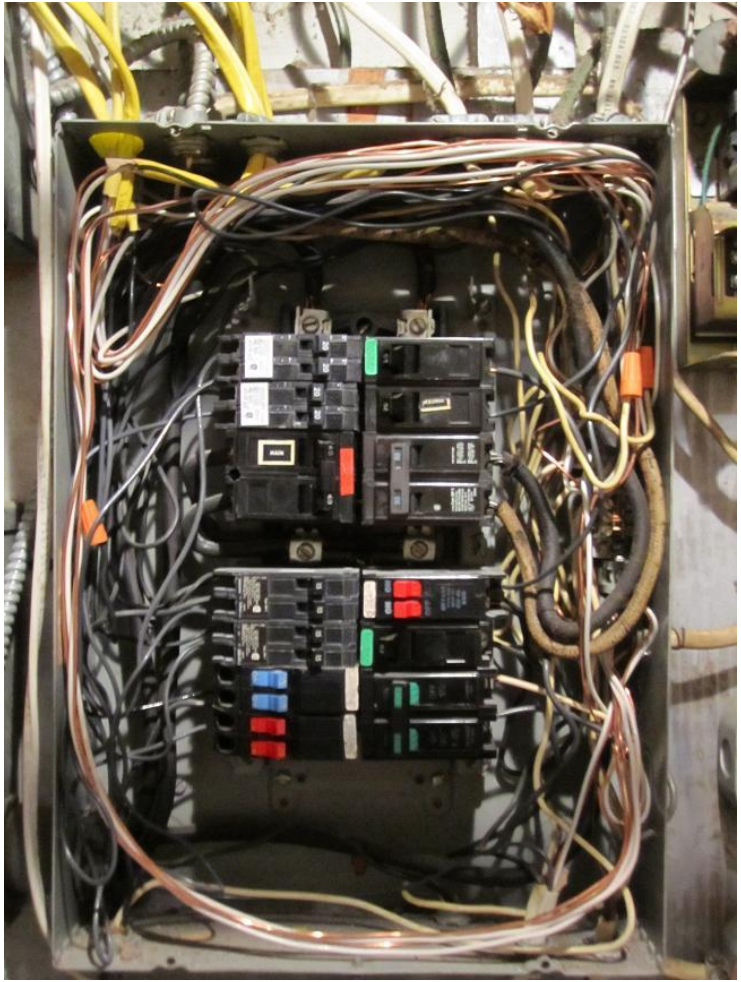
8. Improper Overcurrent Protection
   - NEC Art. 240
     - Tandem Breakers
     - Small wires on big breakers
     - 2 wires under 1 lug



TOP 10 VIOLATIONS I FIND ON CONSTRUCTION SITES

8. Improper Overcurrent Protection
   - NEC Art. 240
     - Tandem Breakers
     - Small wires on big breakers
     - 2 wires under 1 lug
     - Parallel breakers





TOP 10 VIOLATIONS I FIND ON CONSTRUCTION SITES

9. Housekeeping/tripping hazards

TOP 10 VIOLATIONS I FIND ON CONSTRUCTION SITES

10. Overhead power lines
    - ➢ NFPA 70E, Art. 130.4

TABLE 130.4(D)(a) *Shock Protection Approach Boundaries to Exposed Energized Electrical Conductors or Circuit Parts for Alternating-Current Systems*

(1)	(2)	(3)	(4)
	Limited Approach Boundary[b]		
Nominal System Voltage Range, Phase to Phase[a]	Exposed Movable Conductor[c]	Exposed Fixed Circuit Part	Restricted Approach Boundary[b]; Includes Inadvertent Movement Adder
Less than 50 V	Not specified	Not specified	Not specified
50 V–150 V[d]	3.0 m (10 ft 0 in.)	1.0 m (3 ft 6 in.)	Avoid contact
151 V–750 V	3.0 m (10 ft 0 in.)	1.0 m (3 ft 6 in.)	0.3 m (1 ft 0 in.)
751 V–15 kV	3.0 m (10 ft 0 in.)	1.5 m (5 ft 0 in.)	0.7 m (2 ft 2 in.)
15.1 kV–36 kV	3.0 m (10 ft 0 in.)	1.8 m (6 ft 0 in.)	0.8 m (2 ft 9 in.)
36.1 kV–46 kV	3.0 m (10 ft 0 in.)	2.5 m (8 ft 0 in.)	0.8 m (2 ft 9 in.)
46.1 kV–72.5 kV	3.0 m (10 ft 0 in.)	2.5 m (8 ft 0 in.)	1.0 m (3 ft 6 in.)
72.6 kV–121 kV	3.3 m (10 ft 8 in.)	2.5 m (8 ft 0 in.)	1.0 m (3 ft 6 in.)
138 kV–145 kV	3.4 m (11 ft 0 in.)	3.0 m (10 ft 0 in.)	1.2 m (3 ft 10 in.)
161 kV–169 kV	3.6 m (11 ft 8 in.)	3.6 m (11 ft 8 in.)	1.3 m (4 ft 3 in.)
230 kV–242 kV	4.0 m (13 ft 0 in.)	4.0 m (13 ft 0 in.)	1.7 m (5 ft 8 in.)
345 kV–362 kV	4.7 m (15 ft 4 in.)	4.7 m (15 ft 4 in.)	2.8 m (9 ft 2 in.)
500 kV–550 kV	5.8 m (19 ft 0 in.)	5.8 m (19 ft 0 in.)	3.6 m (11 ft 8 in.)
765 kV–800 kV	7.2 m (23 ft 9 in.)	7.2 m (23 ft 9 in.)	4.9 m (15 ft 11 in.)


890
CROMWELL
AVE


BUZZ
890
CROMWELL
AVE

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