



EM 385-1-1, 2008 SIGNIFICANT CHANGES OVERVIEW

Presented by:

Ellen B. Stewart, CSP

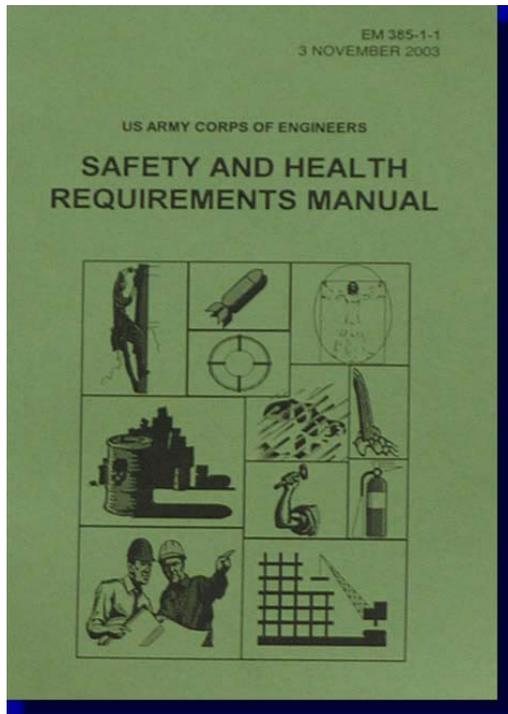
Program Manager, EM 385-1-1

USACE-SO

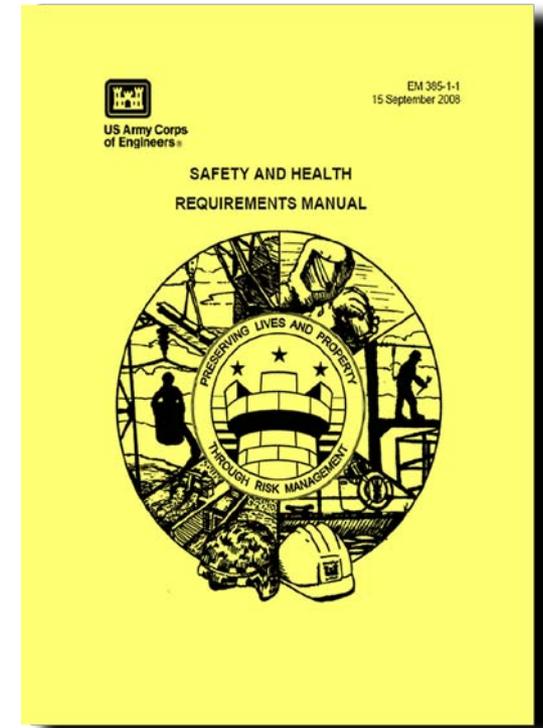
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Section 1, Program Management through Section 15, Rigging



**EM 385 1-1, 2003
VS
EM 385 1-1, 2008**





What's it LOOK LIKE?

- Most common question? What color?
 - Bright Yellow
- What size?.....
 - Same size
- Pictures.....
 - Some (ANSI/ASTM)
- Diagrams, Tables.....
 - Some
- Appendices.....
 - C, E, F, G, H, J, K, L, T gone



Table of Contents

****Click on Hyperlink****

1. [Program Management](#)
2. [Sanitation](#)
3. [Medical and First-Aid Requirements](#)
4. [Temporary Facilities](#)
5. [Personal Protective and Safety Equipment](#)
6. [Hazardous or Toxic Agents and Environments](#)
7. [Lighting](#)
8. [Accident Prevention Signs, Tags, Labels, etc.](#)
9. [Fire Prevention & Protection](#)
10. [Welding & Cutting](#)
11. [Electrical](#)
12. [Control of Hazardous Energy](#)
13. [Hand & Power Tools](#)
14. [Material Handling & Storage](#)
15. [Rigging](#)
16. [Cranes & Hoisting Equipment](#)
17. [Conveyors](#)
18. [Motor Vehicles, Machinery and Mechanized Equipments, etc.](#)
19. [Floating Plant and Marine Activities](#)
20. [Pressurized Equipment and Systems](#)
21. [Fall Protection](#)
22. [Work Platforms and Scaffolding](#)
23. [Demolition](#)
24. [Safe Access, Ladders, Stairs, etc.](#)
25. [Excavation & Trenching](#)
26. [Underground Construction](#)
27. [Concrete Masonry & Steel Erection](#)
28. [Hazardous Waste Operations](#)
29. [Blasting](#)
30. [Contract Diving Operations](#)
31. [Tree Maintenance & Removal](#)
32. [Airfield & Aircraft Operations](#)
33. [Munitions & Explosives of Concern \(MEC\)](#)
34. [Confined Space Entry](#)



Other Details

- Front Letter – moved required use of UFGS to Section 1, out of letter. Makes it easier to issue change if UFGS reference number changes
- Dated 15 Sep 2008 (this is only date Chief of Staff signed EM)
- Should be distributed around 15 Feb 09



Rewrite Coordination

- Coordinated during rewrite process
 - Internally: district/divisions, centers, labs, CXs, DXs, CHPPM, Navy, NAVFAC, AF,
 - Externally: AGC, ABC, individual contractors, IBEW, Steel Erectors Association, Marine Construction/Dredge groups/contractors, drilling group;
 - Professional/Fed'l Orgs: ASSE, AIHA, OSHA, NIOSH, ASME/ANSI;



Programmatic Philosophies

- Efforts are to move USACE SOH program from “GOOD” to “GREAT”
- We have a good program but rates/incidents have hit plateau
- Need to move ahead and make our program better – make it clearer, more logical, reflect more current practices and standards
- This EM is a major effort to achieve that goal.



SECTION 1

Program Management

01.A.07 USACE Project Managers (PMs) shall ensure that:

- a safety and occupational health plan (SOHP) is developed for funded projects, in accordance with the Safety and Occupational Health Reference Document contained in the USACE Business Manual, and incorporated into each Project Management Plan (PMP)/Program Management Plan (PrgMP).
- The PM shall collaborate with the customer on project safety goals and objectives and communicate same through the PMP/PrgMP (SOHP) and PDT meetings.



SECTION 1

Program Management

- 01.A.08 a. The PDT shall ensure that identified hazards, control mechanisms, and risk acceptance are formally communicated to all project stakeholders.
- b. Unified Facilities Guide Specification (UFGS) for Safety and Health (currently 01 35 26) shall be used in all USACE contract work and those contracts administered on behalf of the USACE under the provisions of FAR Clause 52.236-13.
- c. MILCON Transformation contracts will include the FAR Clause 52.236-13 as well as the Model Request for Proposal (RFP).



SECTION 1

- 01.A.10 PHA available on USACE-SO website; Identifies PHA Elements
 - A complete PHA document shall indicate that the hazards, control mechanisms, Personal Protective Equipment (PPE) and training required for the position were discussed with the employee;
 - Shall be signed by supervisor and employee;
 - Shall contain copy of employee's training certificate of completion for all required training.



SECTION 1 Program Management

- 01.A.11 Accident Prevention Plans now allows:
 - d. For limited scope supply, service and R&D contracts, an abbreviated APP may be allowed by the Contracting Officer and local SOHO. See Appendix A, paragraph 11 for details



SECTION 1

- Added headers to clarify what pertains to whom:
- 01.A.13 – now Contractor Required AHAs
- 01.A.14 – now USACE-Required AHAs
- AHA form will be on USACE-SO Website
- <http://www.usace.army.mil/CESO/Pages/Home.aspx>



SECTION 1

- New SSHO Requirements:
- 01.A.17 Site Safety and Health Officer (SSHO).
The Contractor shall employ a minimum of one Competent Person at each project site to function as the SSHO, depending on job complexity, size and any other pertinent factors.
- a. The SSHO shall be a full-time responsibility unless specified differently in the contract. The SSHO shall report to a senior project (or corporate) official.



SECTION 1

- b. The SSHO (s), as a minimum, must have completed the 30-hour OSHA Construction safety class or as an equivalent, 30 hours of formal construction safety and health training covering the subjects of the OSHA 30-hour course (see Appendix A, paragraph 4.b) applicable to the work to be performed and given by qualified instructors.
- > The SSHO is also required to have five (5) years of construction industry safety experience or three (3) years if he possesses a CSP or safety and health degree.



SECTION 1

- c. An SSHO (or a Designated Representative, as identified in the APP/AHA and as deemed appropriate/equivalent to SSHO by the GDA) shall be on-site at all times when work is being performed.
- d. The SSHO shall be responsible for managing, implementing and enforcing the Contractor's Safety and Health Program in accordance with the accepted APP.



SECTION 1

- e. SSHOs shall maintain this competency through 24 hours of formal safety and health related coursework every four (4) years.



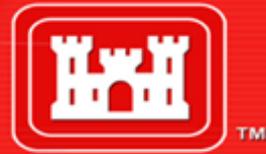
SECTION 1

- > For limited service contracts, for example, mowing (only), park attendants, rest room cleaning, the Contracting Officer and Safety Office may modify SSHO requirements and waive the more stringent elements of this section.
> See Appendix A, paragraphs 4 and 11.
- > For complex or high hazard projects, the SSHO shall have a minimum of ten (10) years of safety-related work with at least five (5) years experience on similar type projects.



SECTION 1

- 01.A.19 Addresses CDSO..
 - Collateral Duty Safety Personnel. USACE organizations may be augmented by Collateral-Duty (Army civilian) safety personnel. Collateral duty safety personnel will:...
 - Be identified in writing
 - Identifies assignment, actions, responsibilities



Section 1.B

- Requires all training, indoctrinations, meetings be documented



SECTION 1.C

- 01.C Physical Qualifications
 - References Privacy Act
 - Requires Medical Clearance from Prescribed Meds if affects job
 - Employees shall not be under influence – drugs/alcohol and if found to be, shall be removed from job site
 - Drug-free work site



SECTION 1.D and 01.E

- 01.D.02 Accident reporting adds “illness” as well as “injury”
 - updates accident reporting threshold to \$200,000 PD
 - Includes investigation requirement (not BOI) and immediate reporting of any arc flash incident/accident
 - Adds USACE aircraft destroyed or missing for investigation
 - Adds Arc Flash Incidents be reported
- Moves HAZCOM Requirements from Section 1 to Section 6



APPENDIX A

- Requires APP be available at worksite
- Allows GDA/SO to Customize APP as Appropriate for the Work (Small/Limited Scope/Service Contracts) and Lists Minimum Acceptable elements
- Lists OSHA 30-Hour Equivalent Course Content



SECTION 2 SANITATION



1. General, rearrange order of paragraphs, expanded some paragraphs – provided more explanation and provided headings to highlight some i.e. 02.H. Change Rooms
2. Added Paragraphs on Housekeeping – 02.B.01 through 02.B.03
3. Drinking water provided additional description on approved potable water systems i.e. connecting to local municipal water supply – 02.C.03
4. Added paragraph on open containers prohibition – 02.C.06
5. Added paragraph on usage of non-potable water to clean work areas – 02.D.03



SECTION 2 SANITATION



6. General paragraph on Toilets – shall be made available in all places of employment and delineated what they shall contain i.e. soap, method of drying hands, lighting, ventilation etc. – 02.E.01 a through m.

7. Added paragraph to provide hand sanitizers when water is not available 02.E.02 Construction Sites



SECTION 3

- Section 3.B. Description of First Aid Kit reflects the ANSI Z308.1 Definition
 - Container Strength
 - Contents for each Class (1-3)
 - Appropriate location for each (portable indoor vs outdoor, permanent indoor, etc)



SECTION 3.D

- CPR and First Aid training changed to allow additional resources:

“First-aid attendants shall hold certification in first-aid and CPR training from the American Red Cross, the American Heart Association, or from an organization whose training adheres to the standards of the International Liaison Committee on Resuscitation (and is stated in writing) or from a licensed physician. All classes shall contain a hands-on component. The certification shall state date of issue and length of validity.”



Section 4 - Temporary Facilities

4.A.04.b. Fencing shall extend from grade to a minimum of 48 in (1.2 m) above grade, shall have a maximum mesh size of 2 in (50 mm), and fencing shall remain rigid/taut with a minimum of 200 lbs (.9 kN) of force exerted on it from any direction with less than 4 in (100 mm) of deflection. - provides min. standard for temporary fencing removes ambiguity. Change is considered a reasonable deterrent to a casual trespasser.

4.A.04.c. Warning signs to be posted 150' apart (used to be 300'). The 300' was considered too far apart for signs warning of hazards.



Section 4 - Temporary Facilities

- 4.A.04.d. This still allows some locations to not have fencing (due to location, exposure, etc), but requires that a risk analysis be performed.
- 4.A.05.g. Wooden floors shall be elevated 1.5 feet to prevent dampness, permit free circulation of air beneath, and for easier and safer maintenance.
- 04.B NOW Access/Haul Roads. Moved here from Section Chapter 8 – Signage & Traffic Control. Logical fit - No changes to requirements.



Section 5 – Safety and Personal Protective Equipment

- General 05.A Responsibilities: added necessity to perform analysis of work activity to determine control
 - Clarified hierarchy: use process and engineering controls before PPE to protect employees.
 - Restructured so each PPE group is under it's own subsection and easier to find (i.e., hardhats, protective footwear, high-visibility apparel, etc.



05.B. EYE AND FACE PROTECTION

- Mandates use of sideshields on RX safety glasses
- Specifically addresses consideration of use of polarized lenses for certain activities



05.C. HEARING PROTECTION AND NOISE CONTROL

- No significant changes.



05.D. HEAD PROTECTION

- Added allowance of areas and activities properly identified and documented in AHA to be considered non-hard hat area. Parallels OSHA.
- GDA may determine exceptions for certain trades to wear their hard hats with bill turned around to conduct certain activities as long as the headgear is designed to accommodate the need



05.E. PROTECTIVE FOOTWEAR

- New Section – used to be under 05.A.General.
- Respiratory protection moved to 05.G
- Changed reference standard from ANSI Z49 to ASTM F2412 and F2413
- Add-on type devices not allowed unless demonstrated by employer to be equally effective via independent testing data (i.e., foot, toe or metatarsal guards)
- Sections for UXO and wild land fire management now in this subsection – used to be in 05.A General



05.F HIGH VISIBILITY APPAREL

- New Section providing requirements governing use of High Visibility Apparel
- Class 2 (minimum) vs Class 3; when to wear
- Allowable Colors, all per ANSI/ISEA 107-2004



05.G. RESPIRATORY PROTECTION

- Significantly changed to eliminate repetition of OSHA 1910.134
- Provides clearer guidance on Respiratory Program - management requirements and contents



05.H. FULL BODY HARNESSES, LANYARDS, AND LIFELINES

- These components are considered personal fall protection systems and you are redirected to 21.H.05
- Adds Lineman's equipment must be industry designated "Linemen's FP Harness" that will resist arc flash. Refers reader to 21.H.05.D.(2)



05.I ELECTRICAL PROTECTIVE EQUIPMENT

- Adds additional details on use of rubber gloves and other equipment meeting ASTM F18 standards to protect employees that work on energized equipment
- Adds Inspection requirements for rubber protective equipment
- Adds sections on live-line tool requirements and inspection/maintenance records



05.I ELECTRICAL PROTECTIVE EQUIPMENT (cont'd)

- Addresses arc flash but redirects to Section 11.B for full requirement
- Adds requirement that all live-line wooden tools shall be replaced with FRP (Fiberglass reinforced plastic) within 2 years from date of this manual. No more wooden handles!
- Redirects user to Section 05.H for requirement on linemen's personal fall protection equipment



05.J. PERSONAL FLOTATION DEVICES

- 05.J.01 addresses inherently buoyant PFDs
– Type III, V or better
- 05.J.02 addresses Type V (USCG approved for COMMERCIAL use) auto-inflatable PFDs as long as criteria is met
- New Table 5-1 with clear pictures



05.K. LIFESAVING AND SAFETY SKIFFS

- NO SIGNIFICANT CHANGES.



SECTION 6 - Structural Changes

- Hazard Communication moved from Section 1 to Section 6.B
- Confined Space moved to new Section 34
- Appendix C, Silica added as Section 6.N
- Added 6.L Mold Evaluation
- Added 6.M Chromium VI Exposure



SECTION 6.B

- Added HazCom Requirements from Section 1 to Section 6.B
- Added requirement for a maximum 10 seconds to reach an emergency eye wash
- Added language referring to OSHA and NFPA hazardous materials storage and DOT training requirements
- Lead/Asbestos plans, details clarified here



SECTION 6.C Hot Substances

- Major rewrite - reflects changes in industry and lessons-learned
- Added hot kettle distance and placement requirements
- Added training requirements for hot kettle operators
- Added engineering requirements for Bituminous-material melting kettles
- Banned the use of chemicals with low flash points to thin the mixture
- Added minimum PPE required to operate



SECTION 6.D

Harmful Plants, Animals and Insects

- Allows DEET- or Permethrin-Coated Clothing
- Few more details on planning – PPE, training, etc



SECTION 6.E Ionizing Radiation and Section 6.F Non-Ionizing Radiation and EMF

- 06.E Added requirement for RSO to complete an Annual Review
- 06.F Added eye exam for LASER operators
- 06.F Added personal protective clothing requirement for working on RF equipment



Section 6.G – Ventilation and Exhaust Systems

- Clarified applies to “portable and temporary systems” vs. design stds for permanent systems



SECTION 6.H Abrasive Blasting

- **SILICA SAND PROHIBITED AS A BLASTING MATERIAL**
- Defined minimum level of PPE for abrasive blasting
- Added paragraph on blasting without an enclosure; Defined protection for co-located workers
- Added paragraph on outdoors blasting
- Adds Table 6-3, Blasting Media Alternatives



SECTION 6.I Inclement Weather and Heat/Cold Stress Management

- Assigns responsibility to SSHO to monitor severe weather as necessary; can make determination as to when to stop work
- Requires monitoring of individuals for heat/cold related injuries
- Provides heat/cold stress plan requirements



SECTION 6.K - IAQ Management

- Added two paragraphs on mold assessment and remediation
- Trained individuals required for both the assessment and remediation
- Building occupants must be informed of the work being done.



SECTION 6.L - Control of Chromium VI Exposures

- 6.L.01 All activities which could generate chromium (VI) fumes, mists, or dusts shall be evaluated by an IH or SP to determine potential personnel exposure over the OSHA chromium (VI) standards
- Lists typical operations
- Evaluation shall be in AHA/APP



SECTION 6.M Crystalline Silica

- Brought Appendix C, Silica into Section 6.M
- Eliminated requirements related to silica blasting since it's prohibited
- Still requirements for monitoring, medical surveillance, and training for silica (potential) exposure

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SECTION 7- LIGHTING

- Paragraph 07.A.01, Added requirement to perform light monitoring to ensure proper light intensities are provided
- Paragraph 07.A.07, Added: Light fixtures may be no closer than 18” to overhead sprinkler systems per NFPA Standards.
- New Paragraph 07.A.09: For temporary lighting, see Section 11.E.06.



Section 8 Accident Prevention Signs, Tags, Labels, Signals, Piping System Identification And Traffic Control

- Now references USACE Sign Manual and is consistent with same
- Provides clearer diagrams/figures
- Moved crane and helicopter hand signals into Section 16 – Cranes and Hoisting Equipment



Section 9 - Fire Prevention and Protection

- 09.B.18 Re-added requirement for storage areas to be curbed, diked or other containment
- 09.C.12 LP Gas Storage: 2003 EM prohibited any inside storage; now allow max. 5 one-pound propane cylinders stored indoors (industrial buildings not normally frequented by the public) as long as they are stored away from exits and stairways, or in areas normally used for the safe exit of people.



Section 10 - Welding and Cutting

- 10.A.02 All welding equipment shall be inspected before each use
- 10.A.07 All structural welding on critical structures shall be performed by welders certified in accordance with American Welding Society (AWS) standards using qualified and approved welding practices and procedures (AWS certification or approved equivalent organization which trains to AWS standards) - 2003 EM says applies only to contract work – this now applies to all – gov't or contractor
- 10.A.09 – Based on AHA of activity, PPE is to be selected in accordance with the requirements of Section 5



Section 10 - Welding and Cutting

- 10.B.04 – Chromium (VI) has been added to the list of materials of toxic significance and specific compliance requirements have been cited (29 CFR 1926.1126). An initial worker exposure assessment is required.
- 10.C.01 – Hot work permits are required on all Government installations when welding, cutting, or heating operations are performed unless otherwise indicated by the GDA.

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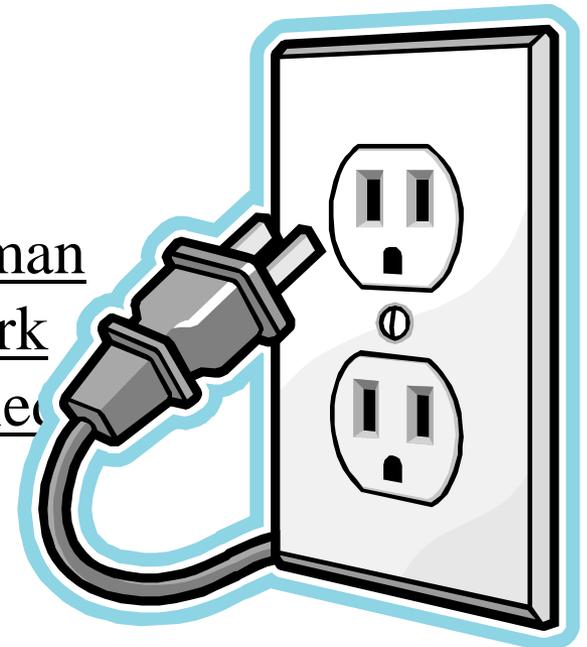
Section 10 - Welding and Cutting

- 10.D.07.a - Oxyfuel gas/other oxygen-fuel gas welding and cutting systems using cylinder-regulator-hose-torch shall be equipped with both a reverse-flow check valve and a flash arrestor, in each hose, at the torch handle or at the regulator.
Used to be required on both hoses, both ends.
- 10.E.03 – Welding cables shall be inspected for wear and damage before each use. Cables in need of repair shall not be used.
- 10.F.04 – The use of engineering and work practice controls is required for certain welding operations in order to reduce worker exposures to lowest achievable levels (wording for Chromium VI activities)



SECTION 11 - Electrical

- 11.A.01 “Qualified Person, Electrical” – Appendix Q
 - c. Electrical work shall be performed by QPs with verifiable credentials familiar with applicable code requirements.
Verifiable credentials consist of State, National and/or Local Licenses or Certifications that a Master or Journeyman Electrician may hold, depending on work being performed, and should be identified in the appropriate AHA.





Section 11 – Electrical

- Tables indicating safe distances updated
- 11.A.01.c
 - (1) USACE and/or other government electricians having attained Journeyman Level qualification via completion of USACE/Government-sponsored electrical training programs are considered to be in compliance with this requirement.
 - (2) For all work, Journeyman/Apprentice ratio shall be in accordance with State, Local and Host Nation requirements applicable to where work is being performed.



Section 11 - Electrical

- 11.A.02.c. Energized work may never be performed without prior authorization. If determined that equipment must be worked in energized condition, energized work permit shall be submitted to GDA for acceptance. > See NFPA 70E. Permits must be prepared in advance and include, as a minimum: ... (1) - (8)
- 11.A.05 QP responsible for determining number of workers required to perform the job safely and shall identify work hazards and controls in corresponding AHA. Work must be performed with a sufficient number of workers to provide a safe working environment.



Section 11 - Electrical

- 11.A.12 AHA and written work procedures must be prepared for unusual or complicated work activities or any activity identified by the QP
- 11.B ARC FLASH – NEW subsection due to importance
- 11.B.01 – requires analysis to determine approach distance, risk category & PPE requirements; PPE; AF-rated clothing; signage, labeling;
- Requires AHA separate and distinct from one required in Section 1 – speaks directly to Arc Flash issues



Section 11 - Electrical

- 11.B (old) becomes 11.C – Disconnects, etc – different subsection paragraph numbers
- 11.C.02.c: Disconnects; “Disconnecting means to be capable of accepting a lock and of being locked in the open position.” (parallels OSHA)
- 11.D.01.a. A ground shall be provided for non-current carrying metallic parts of equipment such as generators (per NEC 250.34, portable and vehicle-mounted generators are exempt from grounding provided conditions of 11.D.01.b and c are met),



Section 11 - Electrical

11.D.05.d Grounding: Added Exception: In industrial facilities only; AEGCP may be used when outlets GFCI can't/shouldn't be.

11.D.05.g: GFCI's may be sensitive to some equipment (concrete vibrators, etc) or unavailable for the voltage and current rating. Then AEGCP...

11.E.04 (old 11.D.04.) Wet locations: adds new "a". USACE personnel and contractors are prohibited from placing electric sump pumps into USACE project bodies of water (lakes, etc.) to support periodic maintenance and/or construction activities. These pumps are not designed to be submersed in locations where people could be present in the water (i.e., recreating, swimming, wading, etc.) and doing so can create an electrical hazard that could result in serious injury or electrocution.



Section 11 - Electrical

- 11.F Operations Adjacent to Overhead Lines: Table 11-1, Minimum Clearances; changed using standard measurements (instead of 9.8 ft, now 10 ft). Voltage classifications changed a little.
- 11.F.04.b changed last sentence allowing exemption for electric line trucks/aerial lifts. Electric line trucks and/or aerial lifts used for working on energized overhead line must meet the requirements of 1910.269 and 11.I.
- 11.G .03 Battery storage and handling - 3 new additions:
- d. Use only insulated tools in the battery area to prevent accidental shorting across battery connections;
 - e. PPE shall be used as prescribed in 11.G.06 and Section 5.
 - f. For lead acid batteries, bicarbonate of soda to neutralize any acid spillage (1 lb/gal (0.1 kg/L)of water) shall be provided for flushing and neutralizing spilled electrolyte and for fire protection.



Section 11 – Electrical

- 11.G.05 Exit from battery area shall remain unobstructed.

- 11.G.06 PPE. The following shall be available and used for the safe handling of the battery and protection of personnel
 - a. Safety glasses with side shields and faceshields or goggles;
 - b. Acid-resistant rubber gloves;
 - c. Protective rubber aprons and safety shoes;
 - d. Lifting devices of adequate capacity, when required.



Section 11 - Electrical

- Table 11-2: revised to correspond with changes in OSHA electrical standard on hazardous classifications vs. zones.
- Table 11-3: revised to reflect current NESC table;
- 11.I.07.a De-energized conductors and equipment that are to be grounded shall be tested or visually checked by meters or indicators.
- b. Requirements as detailed in NEC and NESC for placing and removing personal protective grounds shall be followed.



» Appendix D: Assured Equipment Grounding Conductor Program (AEGCP)

- Added requirements to make AEGCP available to GDA, identified components; who shall enforce; further testing and recordkeeping requirements (parallel OSHA Standard and for clarity)



SECTION 12 Control of Hazardous Energy

12.A.01 This Section shall apply to contractor-managed Hazardous Energy Control Programs (HECP) only, as well as all requirements of 1910.147, ANSI Z244.1, and ANSI A10.44.





Section 12

- 12.A.01 (cont'd): When a site is controlled by a contractor and USACE employees are affected by contractor-managed HECP (e.g., QA's on construction sites, etc.), they shall comply with the contractor's HECP.
- 12.A.02 USACE-owned/operated facilities that involved hazardous energy shall comply with ER 385-1-31, the applicable regional HECP and any local supplements.



Section 12 (Hazardous Energy)

- 12.A.04 Systems with energy isolating devices that are capable of being locked out shall be locked out.
- 12.A.07
 - a. Employees shall be trained and tested prior to working on Corps' Facilities where the Corps' HECP is in use to ensure that they are knowledgeable of the procedures. Contractors shall ensure that all of their employees and sub-contractors are knowledgeable of their HECPs.



Section 12 – Hazardous Energy

- 12.A.11 Locks and Tags
 - b. Locks must always be used when the clearance involves equipment that is accessible by the public.

- 12.C.01 Periodic Inspections
 - No more daily inspections documentation; just periodic inspection documentation

- 12.E.05 Personal Protective Grounds.
 - a. Protective grounds shall be identified and accounted for in some manner, as identified in the Contractor's HECF and procedures.



SECTION 13

Hand and Power tools



US Army Corps of Engineers



BUILDING STRONG

VAN WERT COUNTY HOSPITAL

1957



Van Wert County Health Department
1000 N. Main St., Van Wert, OH 44881
Phone: 419-235-2200
Fax: 419-235-2201
www.vanwert.org



13. H POWER-DRIVEN NAILERS AND STAPLERS

- 13.H.01 This section applies to hand-held electric, combustion or pneumatically driven nailers, staplers, and other similar equipment (heretofore referred to as “nailers” in this section) which operate by ejecting a fastener into the material to be fastened when a trigger, lever, or other manual device is actuated. This does not apply to common spring-loaded “staple guns”.

TS







13. H POWER-DRIVEN NAILERS AND STAPLERS

- 13.H.02 Nailers shall have a safety device on the muzzle to prevent the tool from ejecting fasteners unless the muzzle is in contact with the work surface. The contact trip device or trigger shall not be secured in an “on” position.



13. H POWER-DRIVEN NAILERS AND STAPLERS

- 13.H.03 Nailers shall be operated in a way to minimize the danger to others and the operator from ricochets, air-firing, and firing through materials being fastened.



13. H POWER-DRIVEN NAILERS AND STAPLERS

- a. Except when used for attaching sheet goods (sheathing, sub-flooring, plywood, etc.) or roofing products, nailers shall be operated with a sequential trigger system that requires the surface contact trip device to be depressed before the firing trigger can be activated and that limits ejection to one nail per trigger pull before resetting.



13. H POWER-DRIVEN NAILERS AND STAPLERS

- b. When used for sheet goods and roofing materials, nailers may be operated in the contact trip mode (bump or bounce-nailing) only as allowed by the manufacturer. This mode may only be used when the operator has secure footing, such as on a work platform, floor or deck, and shall not be used when the operator is on a ladder, beam, or similar situations where the operator's balance and/ or reach may be unstable.



SECTION 14

- References Section 6 for Requirements of Storing of Hazardous Materials
- 14.D. now DEBRIS NETS (removed from Section 21 where it had been placed with nets for Fall Protection) – consistency of topic material
- Old 14.D (Material Disposal) moved to Section 14.D

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Section 15 Rigging

BACKGROUND

- Started process in 2006
- Team consisted of USACE, Navy, Trade Groups (AGC), and members of ASME Committee



Section 15 PRIMARY GOALS

- Place all Rigging related requirements in Section 15
- Review and Incorporate ASME B30.26 series requirements, as applicable.
- Review and incorporate OSHA standards, as applicable (1910, 1926 primarily)
- Improve flow and sequence of 15



Section 15 - Rigging

- 15.A General.
 - 15.A.05 When hoisting loads, a positive latching device shall be used to secure the load and rigging (i.e., self-closing safety latches, hook with a spring-loaded gate, an alloy anchor type shackle with a bolt, nut and retaining pin). Adds clarification



Section 15.B Training

Deleted 15.A.08. “The practice of multiple-lift rigging (Christmas tree lifting) is prohibited.” and created 15.C, Multiple Lift Rigging

15.B NEW: Personnel Qualifications

15.B.01 Any worker acting in the capacity of Rigging Lift Supervisor shall meet the requirements of this section.



15.B. Personnel Qualifications

- 15.B.02 Any worker engaged in the duties and the performance of rigging shall be a **Qualified Rigger** and as such, shall meet the following requirements:
 - a. Be at least 18 years of age;
 - b. Be able to communicate effectively with the crane operator, the lift supervisor, flagman and affected employees on site;
 - c. Have basic knowledge and understanding of equipment-operating characteristics, capabilities, and limitations.



15.B. Personnel Qualifications

- 15.B.03 In addition, Qualified Riggers and Lift Supervisors shall be able to demonstrate knowledge and proficiency to appropriate management personnel in the following; a-g.
- Last 2 years, USACE has had 6 accidents related to rigging error/issues
- Need to increase level of attention, training and proficiency required of rigging personnel



Section 15.C Multiple Lift Rigging

- 15.C.01 USACE allows multiple lift rigging practices for the purpose of erecting/placing structural steel ONLY. Strict compliance with this section and 1926.753 Subpart R shall be mandated.



Section 15.C Multiple Lift Rigging – cont'd

- 15.C.02 A Multiple Lift is considered a critical lift and requires a carefully detailed, written critical lift plan per Section 16.H. In addition, all details and requirements of this section are required to be addressed in the Critical Lift Plan to include, as a minimum:



Section 15.C Multiple Lift Rigging – cont'd

- 15.C.03. Multiple lifts shall only be performed if the following criteria is met:
 - Multiple lift rigging assemblies are used,
 - A maximum of five members are hoisted per lift,
 - Only beams and similar structural members are lifted,
 - The total load is not exceeded,
 - The multiple lift rigging assembly shall be rigged members attached at their center of gravity and maintained reasonably level.
 - Rigged from the top down and rigged at least 7-feet apart (2.1m)



Section 15.D Wire Rope

- 15.D Wire Rope.
- 15.D.01 Wire rope must be inspected, maintained and replaced per 16.D.12. Used to be when 2 or more wires are broken...
- 15.D.06 Fabricated slings with eyes or endless loop slings using wire rope clips for hoisting material or lifting are prohibited except where the application precludes the use of prefabricated slings. All slings fabricated using wire rope clips shall be designed by a RPE for the specific application.
- Improved diagrams/figures, etc



Section 15.E Chain

- 15.E.02 Chain - shall be inspected before initial use and weekly thereafter. Inspect chains on an individual link basis. Chains shall be cleaned before they are inspected, as dirt and grease can hide nicks and cracks.
- a. Wear: Replacement shall be as scheduled in Table 15-2. (NEW TABLE FOR ALLOWABLE CHAIN WEAR)
- b-f: Stretch, Deformed links, Cuts, gouges, or nicks, Cracks,



Section 15.F

- 15.F Fiber Rope (natural and synthetic).
- 15.F.01 Fiber rope shall be inspected by a competent person for the following: No changes:...a-i



Section 15.G

- **15.G SLINGS** All slings shall be in accordance with ASME B30.9.
- 15.G.01 Slings and their fittings and fastenings, shall be inspected...details of what to inspect



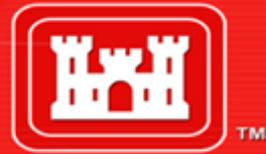
Section 15.H Rigging Hardware

- All rigging hardware shall be inspected for defects prior to use: a-e
- Added to end of 15.H.06: Shackles shall be maintained by the user so as to be legible throughout the life of the shackle.
- Added more on shackle markings, inspections, other



Section 15.H Rigging Hardware

- Added to Hooks: 15.H.07.d. Miscellaneous-type hooks (i.e., grab hooks, foundry hooks, sorting hoods and choker hooks) may be used as long as they are used, inspected and maintained in accordance with Manufacturer's recommended use.
- Added to 15.H.10 Eyebolts: requirements for markings, inspections, turnbuckles, etc.



End of Section 15

QUESTIONS?