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21.1 References

NOTE: *References listed in this section are cited in Hanford Site Hoisting and Rigging Manual (HSHRM) chapters. The only exception is Attachment 3, Freight Container Lifting Standard, which has its own reference list.*

21.1.1 American National Standards Institute (ANSI)

- N14.6, *American National Standard for Radioactive Materials - Special Lifting Devices for Shipping Containers Weighing 10,000 Pounds (4500 kg) or More*

21.1.2 American Society of Mechanical Engineers (ASME)

NOTE: *The most recent ASME standards referenced here should be invoked by contract to accompany this Manual. However, in some circumstances, referenced standards may be invoked periodically (e.g., upon award of a site-wide management contract) instead of for the duration of the contract (with running updates for each minor site contractor or subcontractor.) This decision is left to the Department of Energy's discretion. Therefore, this Chapter does not cite the year of any referenced ASME standard to facilitate Hanford Site's ultimate decision in this regard.*

- B30.1, *Jacks, Industrial Rollers, Air Casters, and Hydraulic Gantries*
- B30.2, *Overhead and Gantry Cranes Top Running Bridge, Single or Multiple Girder, Top Running Trolley Hoist*
- B30.3, *Tower Cranes*
- B30.4, *Portal and Pedestal Cranes*
- B30.5, *Mobile and Locomotive Cranes*
- B30.6, *Derricks*
- B30.7, *Winches*
- B30.8, *Floating Cranes and Floating Derricks*
- B30.9, *Slings*
- B30.10, *Hooks*
- B30.12, *Handling Loads Suspended from Rotorcraft*
- B30.13, *Storage/Retrieval (S/R) Machines and Associated Equipment*

- B30.14, *Side Boom Tractors*
- B30.16, *Overhead Underhung and Stationary Hoists*
- B30.17, *Cranes and Monorails (With Underhung Trolley or Bridges)*
- B30.18, *Stacker Cranes (Top or Under Running Bridge, Multiple Girder with Top or Under Running Trolley Hoist)*
- B30.19, *Cableways*
- B30.20, *Below-the-Hook Lifting Devices*
- B30.21, *Lever Hoists*
- B30.22, *Articulating Boom Cranes*
- B30.23, *Personnel Lifting Systems*
- B30.25, *Scrap and Material Handlers*
- B30.26, *Rigging Hardware*
- B30.27, *Material Placement Systems*
- B30.28, *Balanced Lifting Units*
- B30.29, *Self-Erecting Tower Cranes*
- BTH-1, *Design of Below-the-Hook Lifting Devices*
- HST-1, *Performance Standard for Electric Chain Hoists*
- HST-2, *Performance Standard for Hand Chain Manually Operated Chain Hoists*
- HST-3, *Performance Standard for Manually Lever Operated Chain Hoists*
- HST-4, *Performance Standard for Electric Wire Rope Hoists*
- HST-5, *Performance Standard for Air Chain Hoists*
- HST-6, *Performance Standard for Air Wire Rope Hoists*
- NOG-1, *Rules for Construction of Overhead and Gantry Cranes (Top Running Bridge, Multiple Girder)*

- NUM-1, *Rules for Construction of Cranes, Monorails, and Hoist (with bridge or trolley or hoist of the underhung type)*
 - P30.1, *Planning for Load Handling Activities*
 - PASE, *Portable Automotive Service Equipment (PASE)*
- 21.1.3 **American National Standards Institute/American Welding Society (ANSI/AWS)**
- D14.1, *Specification for Welding of Industrial and Mill Cranes and Other Material Handling Equipment*
- 21.1.4 **American National Standards Institute/Industrial Truck Standards Development Foundation (ANSI/ITSDF)**
- B56.1, *Low Lift and High Lift Trucks*
 - B56.6, *Rough Terrain Forklift Trucks*
 - B56.9, *Operator Controlled Industrial Tow Trucks*
 - B56.10, *Manually Propelled High Lift Industrial Trucks*
- 21.1.5 **American Society of Testing and Materials (ASTM)**
- E208, *Standard Test Method for Conducting Drop-Weight Test to Determine Nil-Ductility Transition Temperature of Ferritic Steels*
- 21.1.6 **Code of Federal Regulations (CFR)**
- 10 CFR 100, *Reactor Site Criteria*
 - 10 CFR 835, *Occupational Radiological Protection*
 - 29 CFR 654, *Duties of Employers and Employees*, also known as the “OSHA General Duty Clause”
 - 29 CFR 1910, Subpart N, *Materials Handling and Storage*
 - 1910.147, *The Control of Hazardous Energy (Lockout/Tagout)*
 - 1910.178, *Powered Industrial Trucks*
 - 1910.179, *Overhead and Gantry Cranes*
 - 1910.180, *Crawler Locomotive and Truck Cranes*
 - 1910.181, *Derricks*
 - 1910.184, *Slings*
 - 29 CFR 1918, *Safety and Health Regulations for Longshoring*
 - 29 CFR 1926, Subpart H, *Materials Handling, Storage, Use, and Disposal*

- 1926.251, *Rigging Equipment for Material Handling*
- 29 CFR 1926, Subpart N, *Helicopters, Hoists, Elevators, and Conveyers*
 - 1926.554, *Overhead Hoists*
- 29 CFR 1926, Subpart R, *Steel Erection*
- 29 CFR 1926, Subpart CC, *Cranes and Derricks in Construction*
 - 1926.251, *Rigging Equipment for Material Handling*
 - 1925.1401, *Definitions*
 - 1926.1404, *Assembly/Disassembly – General Requirements*
 - 1926.1416, *Listed Operational Aids*
 - 1926.1417, *Operation*
 - 1926.1425, *Keeping Clear of the Load*
 - 1926.1427, *Operator Qualification and Certification*
 - 1926.1431, *Hoisting Personnel*
 - 1926.1432, *Multiple Crane/Derrick Lifts—Supplemental Requirements*
 - 1926.1434, *Equipment Modifications*
 - 1926.1438, *Overhead and Gantry Cranes*
- 49 CFR, *Federal Motor Carrier Safety Regulations and Regulatory Guidance*
 - 172, *Hazardous Material Regulations*
 - 213, *Track Safety Standards*
 - 383.5, *Definitions*
 - 391, Subpart E, *Physical Qualification and Examination*

21.1.7 **American Concrete Institute**

- 318, *Building Code Requirements for Structural Concrete and Commentary*
- 301, *Specifications for Structural Concrete*

21.1.8 **Department of Energy**

- 2002-RL-HNF-0025, *Lesson Learned –I-Beam Trolley Failure*
- DOE-0359, *Hanford Site Electrical Safety Program*
- DOE-HDBK-1205-97, *Guide to Good Practices for Design Development and Implementation of Examinations*
- DOE-HDBK-1206-98, *Guide to Good Practices for on-the-Job Training*
- *Functions, Responsibilities and Authorities Manual (FRAM)*, U.S. Department of Energy, Richland Operations Office.

21.1.9 **National Fire Protection Agency (NFPA)**

- 505, *Powered Industrial Trucks Including Type Designations, Areas of Use, Conversions, Maintenance, and Operation*
- 70, *National Electrical Code*

21.1.10 **Society of Automotive Engineers**

- SAE J765, *Crane Load Stability Test Code*

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NOTE: *References that are listed in this section are not cited in the Manual text but include sections that relate to topics in this Manual.*

21.2.1 Code of Federal Regulations (CFR)

- 10 CFR 710, *Criteria and Procedures for Determining Eligibility for Access to Classified Matter or Special Nuclear Material*
- 14 CFR 77, *Objects Affecting Navigable Airspace*
- 29 CFR 1910, Subpart N, *Materials Handling and Storage*
 - 1910.27, *Fixed Ladders*
- 29 CFR 1910, *Occupational Safety and Health Administration*
 - 1910.183, *Helicopters*
- 29 CFR 1926, Subpart E, *Personal Protective and Life Saving Equipment*
 - 1926.106, *Working Over or Near Water*

21.2.2 American National Standards Institute (ANSI)

- A10.28, *Safety Requirements for Work Platforms Suspended from Cranes or Derricks for Construction and Demolition Operations*
- A1264.1, *Safety Requirements for Workplace Floor and Wall Openings, Stairs and Railing Systems*
- MH27.1, *Specifications for Underhung Cranes and Monorail Systems*
- Z241.2, *Safety Requirements for Melting and Pouring of Metals in the Metalcasting Industry*

21.2.3 American National Standards Institute/American Society of Mechanical Engineers (ANSI/ASME)

- B18.15, *Forged Eyebolt*

21.2.4 American National Standards Institute/American Welding Society (ANSI/AWS)

- D1.1, *Structural Welding Code – Steel*
- D1.2, *Structural Welding Code – Aluminum*

21.2.5 American Society of Mechanical Engineers (ASME)

- NQA-1, *Quality Assurance Program Requirements for Nuclear Facilities*

21.2.6 **American Society of Safety Engineers (ASSE)**

- A1264-89, *Safety Requirements for Workplace Walking/Working Surfaces and Their Access; Workplace, Floor, Wall and Roof Openings; Stairs and Guardrails Systems*

21.2.7 **American Society of Testing and Materials (ASTM)**

- A148/A148M, *Standard Specification for Steel Castings, High Strength, For Structural Purposes*
- A391/A391M, *Standard Specification for Grade 80 for Alloy Steel Chain*
- A489, *Standard Specification for Carbon Steel Eyebolts*
- E165, *Standard Practice for Liquid Penetrant Inspection Method*
- E709, *Standard Practice for Magnetic Particle Examination*
- F 1145, *Standard Specification for Turnbuckles, Swaged, Welded, Forged*
- F541, *Standard Specifications for Alloy Steel Eyebolts*

21.2.8 **Crane Manufacturer’s Association of America (CMAA)**

- 70, *Specifications for Top Running Bridge & Gantry Type Multiple Girder Electric Overhead Traveling Cranes*
- 74, *Specifications for Top Running & Under Running Single Girder Electric Overhead Traveling Cranes Utilizing Under Running Trolley Hoist*

21.2.9 **Construction Safety Association of Ontario**

- *Mobile Crane Manual*
- *Rigging Manual*

21.2.10 **The Crosby Group**

- *The Crosby General Catalog*, Tulsa, OK.

21.2.11 **Department of Energy**

- DOE Order 5480.4, *Environmental Protection, Safety, and Health Protection Standards*
- DOE Order 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*
- DOE Standard 1090, *DOE Standard for Hoisting and Rigging*

21.2.12 **Federal Specifications, Defense Printing Department**

- MIL-S-24214, *Shackles, Steel, General Purpose, and High Strength*
- RR-C-271, *Chains and Attachments, Welded and Weldless*
- RR-W-410D, *Wire Rope and Strand*

21.2.13 **National Electrical Manufacturer's Association (NEMA)**

- ICS-6, *Enclosures for Industrial Control and Systems*

21.2.14 **National Fire Protection Agency (NFPA)**

- Article 610, *Cranes and Hoists*

21.2.15 **Underwriters' Laboratories (UL)**

- 558, *Standard for Safety Industrial Trucks, Internal Combustion Engine-Powered*
- 583, *Standard for Safety Electric-Battery-Powered Industrial Trucks*

21.2.16 **Washington Administrative Code (WAC)**

- WAC 296, *Labor and Industries, Dept. of*
 - 296-24, *General Safety and Health Standards*
 - 296-24-240, *Crawler Locomotive and Truck Cranes*
 - 296-155-525, *Cranes and Derricks*
 - Part D, *Materials Handling and Storage, Including Cranes, Derricks, etc., and Rigging*
 - Part L, *Cranes, Derricks, Hoists, Elevators, and Conveyors*

21.2.17 **Wire Rope Technical Board (WRTB)**

- *Wire Rope Sling User's Manual*, 1990
- *Wire Rope User's Manual*, 3rd Edition, 1993