ASME B30.27-2025
(Revision of ASME B30.27-2019)

Material Placement Systems

Safety Standard for Cableways, Cranes, Derricks, Hoists, Hooks, Jacks, and Slings

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

ASME B30.27-2025
(Revision of ASME B30.27-2019)

Material Placement Systems

Safety Standard for Cableways, Cranes, Derricks, Hoists, Hooks, Jacks, and Slings

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers
Two Park Avenue • New York, NY • 10016 USA

Date of Issuance: September 30, 2025

The next edition of this Standard is scheduled for publication in 2030. This Standard will become effective 1 year after the Date of Issuance.

This code or standard was developed under procedures accredited as meeting the criteria for American National Standards. The standards committee that approved the code or standard was balanced to ensure that individuals from competent and concerned interests had an opportunity to participate. The proposed code or standard was made available for public review and comment, which provided an opportunity for additional public input from industry, academia, regulatory agencies, and the public-at-large.

ASME does not “approve,” “certify,” “rate,” or “endorse” any item, construction, proprietary device, or activity. ASME does not take any position with respect to the validity of any patent rights asserted in connection with any items mentioned in this document, and does not undertake to insure anyone utilizing a standard against liability for infringement of any applicable letters patent, nor does ASME assume any such liability. Users of a code or standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, is entirely their own responsibility.

Participation by federal agency representatives or persons affiliated with industry is not to be interpreted as government or industry endorsement of this code or standard.

ASME accepts responsibility for only those interpretations of this document issued in accordance with the established ASME procedures and policies, which precludes the issuance of interpretations by individuals.

The endnotes and preamble in this document (if any) are part of this American National Standard.



ASME Collective Membership Mark

All rights reserved. “ASME” and the above ASME symbol are registered trademarks of The American Society of Mechanical Engineers. No part of this document may be copied, modified, distributed, published, displayed, or otherwise reproduced in any form or by any means, electronic, digital, or mechanical, now known or hereafter invented, without the express written permission of ASME. No works derived from this document or any content therein may be created without the express written permission of ASME. Using this document or any content therein to train, create, or improve any artificial intelligence and/or machine learning platform, system, application, model, or algorithm is strictly prohibited.

The American Society of Mechanical Engineers
Two Park Avenue, New York, NY 10016-5990

Copyright © 2025 by
THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS
Printed in U.S.A.

CONTENTS

Foreword v
Committee Roster vii
Correspondence With the B30 Committee ix
B30 Standard Introduction x
Summary of Changes xii

Chapter 27-0 **Scope, Definitions, References, and Personnel Competence** 1
Section 27-0.1 Scope 1
Section 27-0.2 Definitions 1
Section 27-0.3 Reference to Other Codes and Standards 2
Section 27-0.4 Personnel Competence 2
Chapter 27-1 **Construction and Installation** 6
Section 27-1.1 Markings 6
Section 27-1.2 Mobile Material Placing Boom Construction 7
Section 27-1.3 Work Platforms, Access Walkways, and Gangways 7
Section 27-1.4 Electrical Installations 7
Section 27-1.5 Ergonomics 8
Section 27-1.6 Outriggers 8
Section 27-1.7 Controls and Indicators 8
Section 27-1.8 Guards 8
Section 27-1.9 Mobile and Stationary Placing Booms 8
Section 27-1.10 Delivery Systems 9
Section 27-1.11 Loss of Power 9
Section 27-1.12 Remote Starting 9
Section 27-1.13 Manuals 9
Section 27-1.14 Translation of Technical and Safety-Related Information 10
Section 27-1.15 Fuel and Exhaust Systems 10
Section 27-1.16 Hoppers 10
Section 27-1.17 Pump Pressure Release 10
Chapter 27-2 **Inspection, Testing, and Maintenance** 12
Section 27-2.1 Inspection 12
Section 27-2.2 Testing 13
Section 27-2.3 Maintenance 14
Chapter 27-3 **Operation** 15
Section 27-3.1 Qualifications for and Conduct of Operators and Operating Practices 15
Section 27-3.2 Material Placement System Lockout/Tagout 23
Section 27-3.3 Signals 23
Chapter 27-4 **Separate Placing Booms** 26
Section 27-4.1 Design and Construction 26

Section 27-4.2 Inspection, Testing, and Maintenance 30
Section 27-4.3 Operation 31

Figures

27-0.1-1 Material Placement System: Truck-Mounted Boom Pump 3
27-0.1-2 Material Placement System: Separate Placing Boom 3
27-0.1-3 Material Placement System: Truck-Mounted Telescopic Conveyor System 3
27-0.1-4 Material Placement System: City Pump 4
27-0.1-5 Material Placement System: High-Pressure Trailer Pump 4
27-0.1-6 Material Placement System: General Purpose Trailer Pump 4
27-0.1-7 Material Placement System: Ball Valve Pump 5
27-0.1-8 Material Placement System: Examples of Delivery System Components 5
27-1.7.5-1 Standardized Joystick Movement 9
27-1.16-1 Grates and Hoppers 11
27-3.1.5-1 Area of Extended Outriggers 22
27-3.1.6.1-1 Danger Zone for Material Placement Systems and Delivery System Operating Near Electrical Transmission Lines 23
27-3.3.2-1 Material Placement System Hand Signals 25
27-4.1.11-1 Common Separate Placing Boom Components 28

Table

27-3.1.6.3-1 Minimum Required Clearances 24

FOREWORD

This American National Standard, Safety Standard for Cableways, Cranes, Derricks, Hoists, Hooks, Jacks, and Slings, has been developed under the procedures accredited by the American National Standards Institute (ANSI). This Standard had its beginning in December 1916, when an eight-page Code of Safety Standards for Cranes, prepared by the American Society of Mechanical Engineers (ASME) Committee on the Protection of Industrial Workers, was presented at the annual meeting of ASME.

Meetings and discussions regarding safety on cranes, derricks, and hoists were held from 1920 to 1925 involving the ASME Safety Code Correlating Committee, the Association of Iron and Steel Electrical Engineers, the American Museum of Safety, the American Engineering Standards Committee (AESC) [later changed to American Standards Association (ASA), then to the United States of America Standards Institute (USASI), and finally to ANSI], Department of Labor — State of New Jersey, Department of Labor and Industry — State of Pennsylvania, and the Locomotive Crane Manufacturers Association. On June 11, 1925, the AESC approved the ASME Safety Code Correlating Committee's recommendation and authorized the project with the U.S. Department of the Navy, Bureau of Yards and Docks, and ASME as sponsors.

In March 1926, invitations were issued to 50 organizations to appoint representatives to a Sectional Committee. The call for organization of this Sectional Committee was sent out October 2, 1926, and the Committee was organized on November 4, 1926, with 57 members representing 29 national organizations.

Commencing June 1, 1927, and using the eight-page Code published by ASME in 1916 as a basis, the Sectional Committee developed the Safety Code for Cranes, Derricks, and Hoists. The early drafts of this safety code included requirements for jacks, but, due to inputs and comments on those drafts, the Sectional Committee decided in 1938 to make the requirements for jacks a separate code. In January 1943, ASA B30.2-1943 was published addressing a multitude of equipment types, and in August 1943, ASA B30.1-1943 was published addressing only jacks. Both documents were reaffirmed in 1952 and widely accepted as safety standards.

Due to changes in design, advancement in techniques, and general interest of labor and industry in safety, the Sectional Committee, under the joint sponsorship of ASME and the Bureau of Yards and Docks (now the Naval Facilities Engineering Command), was reorganized on January 31, 1962, with 39 members representing 27 national organizations. The new Committee changed the format of ASA B30.2-1943 so that the multitude of equipment types it addressed could be published in separate volumes that could completely cover the construction, installation, inspection, testing, maintenance, and operation of each type of equipment that was included in the scope of ASA B30.2. This format change resulted in B30.3, B30.5, B30.6, B30.11, and B30.16 being designated as revisions of B30.2 with the remainder of the B30 volumes being published as totally new volumes. ASA changed its name to USASI in 1966 and to ANSI in 1969, which resulted in B30 volumes from 1943 to 1968 being designated as either ASA B30, USAS B30, or ANSI B30, depending on their date of publication.

In 1982, the Committee was reorganized as an Accredited Organization Committee operating under procedures developed by ASME and accredited by ANSI. This Standard presents a coordinated set of rules that may serve as a guide to government and other regulatory bodies and municipal authorities responsible for the guarding and inspection of the equipment falling within its scope. The suggestions leading to accident prevention are given both as mandatory and advisory provisions; compliance with both types may be required by employers of their employees.

In case of practical difficulties, new developments, or unnecessary hardship, the administrative or regulatory authority may grant variances from the literal requirements or permit the use of other devices or methods but only when it is clearly evident that an equivalent degree of protection is thereby secured. To secure uniform application and interpretation of this Standard, administrative or regulatory authorities are urged to consult the B30 Committee, in accordance with the format described on the Correspondence With the B30 Committee page, before rendering decisions on disputed points.

Safety codes and standards are intended to enhance public safety. Revisions result from committee consideration of factors such as technological advances, new data, and changing environmental and industry needs. Revisions do not imply that previous editions were inadequate.

The 2009 edition consolidated the requirements of two standards, CPMA 27-2000 and B30.27-2005, into the B30.27 Volume. The 2014 edition of B30.27 incorporated many global B30 changes, including the addition of para. 27-3.1.3, requirements for translation of documents, and several other changes. The 2019 edition added Chapter 27-4 and made several other changes. This 2025 edition updates the liquid structural material supplier driver's responsibilities, the definition of the term "shortrigging," the requirements for hand signals, and the pour supervisor's responsibilities.

This Volume of the Standard, which was approved by the B30 Standards Committee and by ASME, was approved by ANSI and designated as an American National Standard on April 10, 2025.

ASME B30 COMMITTEE
Safety Standard for Cableways, Cranes, Derricks, Hoists, Hooks, Jacks, and Slings

(The following is the roster of the committee at the time of approval of this Standard.)

STANDARDS COMMITTEE OFFICERS

E. D. Fidler, *Chair*
T. Sicklesteel, *Vice Chair*
S. D. Wood, *Vice Chair*
K. Peterson, *Secretary*

STANDARDS COMMITTEE PERSONNEL

B. B. Bacon, Tennessee Valley Authority
T. L. Blanton, OGR Consulting Services, LLC
P. A. Boeckman, The Crosby Group
D. Boyle, The Crosby Group
J. R. Burkey, Columbus McKinnon Corp.
J. A. Danielson, The Boeing Co.
D. R. Decker, Becket, LLC
L. D. DeMark, Sr., Equipment Training Solutions, LLC
D. W. Eckstine, Eckstine and Associates
E. D. Fidler, Grove U.S., LLC
M. Gardiner, ICC Forensics, LLC
J. A. Gilbert, JAGwire Management, LLC
D. A. Henninger, Bridon-Bekaert Ropes Group
M. M. Jaxtheimer, Navy Crane Center
T. W. Klein, Wireco Worldgroup, Inc.
R. M. Kohner, Landmark Engineering Services
A. J. Lusi, Jr., LuMark Consulting
T. C. Mackey, HiLine Engineering & Fabrication, Inc.
J. Mihlbauer, All Ship & Cargo Surveys, Ltd.
R. M. Parnell, Industrial Training International, Inc.
J. T. Perkins, All Material Handling
K. Peterson, The American Society of Mechanical Engineers
B. A. Pickett, Systems Engineering and Forensic Services
J. A. Pilgrim, Manitowoc Cranes
S. K. Rammelsberg, CB&I Storage Solutions
J. M. Randall, J. E. Spear Consulting, LP
K. Rask, NBIS
K. Reynolds, Shell Exploration & Production
C. L. Richardson, Lone Star Rigging
J. E. Richardson, Navy Crane Center
J. W. Rowland III, Consultant
A. R. Ruud, Atkinson Construction
L. Shapiro, Howard I. Shapiro & Associates Consulting Engineers
T. Sicklesteel, NCCCO
D. W. Smith, J. E. Spear Consulting, LP
C. H. Smith, Morrow Equipment Company, LLC
W. J. Smith, Jr., NBIS
R. G. Strain, Advanced Crane Technologies, LLC
J. Sturm, Sturm Corp.
D. Sullivan, IUOE Local 542 JATC
P. A. Vallejos, Hanford Mission Integration Solutions, LLC
C. Warren, Webber, LLC
J. D. Wiethorn, International Crane & Construction Safety Solutions, LLC
S. D. Wood, Terex Corp.
M. Chaudanson, *Alternate,* Howard I. Shapiro & Associates Consulting Engineers
T. Cobb, *Alternate,* Columbus McKinnon Corp.
P. B. Debuigne, *Alternate,* Blue Origin
D. Duerr, *Alternate,* 2DM Associates, Inc.
M. Eckstine, *Alternate,* Eckstine and Associates
D. Freeman, *Alternate,* CB&I Storage Solutions
D. Frerking, *Alternate,* XCMG American Research Corp.
T. Gordon, *Alternate,* International Union of Operating Engineers Local 14-14b
J. B. Greenwood, *Alternate,* Navy Crane Center
A. Imlah, *Alternate,* The Boeing Co.
L. D. Means, *Alternate,* Consultant
W. J. Merrill, *Alternate,* Merrill Safety Solutions, LLC
G. D. Miller, *Alternate,* Manitowoc Cranes
D. A. Moore, *Alternate,* Unified Engineering
P. Quick, *Alternate,* Affiliated Engineering Laboratories, Inc.
G. M. Ray, *Alternate,* Tennessee Valley Authority
S. Rogers, *Alternate,* Consultant
S. Santee, *Alternate,* Navy Crane Center
B. Schmoyer, *Alternate,* U.S. Training Consultants, LLC
J. R. Schober, *Alternate,* American Bridge Co.
J. E. Spear, *Alternate,* J. E. Spear Consulting, LP
J. A. Stewart, *Alternate,* Stewart Safety Consulting
D. Stott, *Alternate,* Ryskless
A. Thompson, *Alternate,* Wireco Worldgroup, Inc.
W. Tubbs, *Alternate,* Craneology, Inc.
J. J. Van Egeren, *Alternate,* Manitowoc Cranes
M. P. Zerba, *Alternate,* Lampson International, LLC
J. W. Downs, Jr., *Honorary Member,* Downs Crane and Hoist Co.
J. L. Franks, *Honorary Member,* Consultant
C. W. Ireland, *Honorary Member,* Consultant
P. R. Juhren, *Honorary Member,* Morrow Equipment Co., LLC
J. M. Klibert, *Honorary Member,* Lift-All Co., Inc.
J. C. Ryan, *Honorary Member,* Boh Bros. Construction Co., LLC

B30 INTEREST REVIEW GROUP

O. Akinboboye, Ropetech Engineering Services
B. Dobbs, LEEA
J. Edmundson, Konecranes Nuclear Equipment & Services, LLC
Y. T. F. Elhola, Axess Group
D. Ferland, AMECO
A. Gomes Rocha, Industrial Training International, Inc.
J. Groce, Wireco Worldgroup, Inc.
N. C. Hargreaves, Hargreaves Consulting, LLC
J. Hui, Southeast University, School of Civil Engineering, Nanjing
D. Mabelane, The South African Nuclear Energy Corp.
A. C. Mattoli, Prowinch, LLC
T. McCullough, Allegiance Crane & Equipment
D. Modzeleski, Dematic Corp.
C. Neth, Neth Engineering, PLLC
A. Payne, Bureau of Safety & Environmental Enforcement

B30 REGULATORY AUTHORITY COUNCIL

C. N. Stribling, Jr., *Chair*, Kentucky Labor Cabinet
K. Peterson, *Secretary*, The American Society of Mechanical Engineers
R. D. Jackson, U.S. Department of Labor
D. E. Latham, State of Maryland DLLR
M. J. Nelmida, State of California, OSH Standards Board
S. Sumeshwar, State of California Department of Industrial Relations
T. Taylor, North Carolina Department of Labor
N. Reynolds, *Alternate*, Maryland Occupational Safety and Health

B30.27 SUBCOMMITTEE PERSONNEL

K. Rask, *Chair*, NBIS
R. J. Edwards, *Vice Chair*, NBIS
G. E. Brown, R. L. McCoy, Inc.
J. L. Bury, Construction Forms, Inc.
G. Key, Western Concrete Pumping, Inc.
J. Madigan, Conco Pumping
D. J. Mitchell, IUOE Local 542 JATC
C. Price, Concrete Pumping Holdings, Inc.
S. A. Roisum, Schwing America, Inc.
M. Schultz, Capital Pumping
D. Smith, Consultant
D. Sullivan, IUOE Local 542 JATC
K. Walgenbach, National Ready Mixed Concrete Association
L. D. DeMark, Sr., *Contributing Member*, Equipment Training Solutions, LLC
T. P. O'Malley, *Contributing Member*, Schwing America, Inc.
R. Waterman, *Contributing Member*, Brundage-Bone Concrete Pumping, Inc.

CORRESPONDENCE WITH THE B30 COMMITTEE

General. ASME codes and standards are developed and maintained by committees with the intent to represent the consensus of concerned interests. Users of ASME codes and standards may correspond with the committees to propose revisions or cases, report errata, or request interpretations. Correspondence for this Standard should be sent to the staff secretary noted on the committee's web page, accessible at https://go.asme.org/B30committee.

Revisions and Errata. The committee processes revisions to this Standard on a continuous basis to incorporate changes that appear necessary or desirable as demonstrated by the experience gained from the application of the Standard. Approved revisions will be published in the next edition of the Standard.

In addition, the committee may post errata on the committee web page. Errata become effective on the date posted. Users can register on the committee web page to receive email notifications of posted errata.

This Standard is always open for comment, and the committee welcomes proposals for revisions. Such proposals should be as specific as possible, citing the paragraph number, the proposed wording, and a detailed description of the reasons for the proposal, including any pertinent background information and supporting documentation.

Cases. The committee does not issue cases for this Standard.

Interpretations. Upon request, the committee will issue an interpretation of any requirement of this Standard. An interpretation can be issued only in response to a request submitted through the online Inquiry Submittal Form at https://go.asme.org/InterpretationRequest. Upon submitting the form, the inquirer will receive an automatic email confirming receipt.

ASME does not act as a consultant for specific engineering problems or for the general application or understanding of the Standard requirements. If, based on the information submitted, it is the opinion of the committee that the inquirer should seek assistance, the request will be returned with the recommendation that such assistance be obtained. Inquirers can track the status of their requests at https://go.asme.org/Interpretations.

ASME procedures provide for reconsideration of any interpretation when or if additional information that might affect an interpretation is available. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME committee or subcommittee. ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

Interpretations are published in the ASME Interpretations Database at https://go.asme.org/Interpretations as they are issued.

Committee Meetings. The B30 Standards Committee regularly holds meetings that are open to the public. Persons wishing to attend any meeting should contact the secretary of the committee. Information on future committee meetings can be found on the committee web page at https://go.asme.org/B30committee.

(25)

B30 STANDARD INTRODUCTION

SECTION I: SCOPE

The ASME B30 Standard contains provisions that apply to the construction, installation, operation, inspection, testing, maintenance, and use of cranes and other lifting and material-movement-related equipment. For the convenience of the reader, the Standard has been divided into separate volumes. Each volume has been written under the direction of the ASME B30 Standards Committee and has successfully completed a consensus approval process under the general auspices of the American National Standards Institute (ANSI).

As of the date of issuance of this Volume, the B30 Standard comprises the following volumes:

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

B30.11 Monorails and Underhung Cranes (withdrawn 2018 — requirements found in latest revision of B30.17)

B30.12 Handling Loads Suspended From Rotorcraft

B30.13 Storage/Retrieval (S/R) Machines and Associated Equipment

B30.14 Side Boom and Rotating Pipelayers

B30.15 Mobile Hydraulic Cranes (withdrawn 1982 — requirements found in latest revision of B30.5)

B30.16 Overhead Underhung and Stationary Hoists

B30.17 Cranes and Monorails (With Underhung Trolley or Bridge)

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

B30.24 Container Cranes

B30.25 Scrap and Material Handlers

B30.26 Rigging Hardware

B30.27 Material Placement Systems

B30.28 Balance Lifting Units

B30.29 Self-Erecting Tower Cranes

B30.30 Ropes

B30.31 Self-Propelled, Towed, or Remote-Controlled Hydraulic Platform Transporters[1]

B30.32 Unmanned Aircraft Systems (UAS) Used in Inspection, Testing, Maintenance, and Load-Handling Operations

SECTION II: SCOPE EXCLUSIONS

Any exclusion of, or limitations applicable to, the equipment, requirements, recommendations, or operations contained in this Standard are established in the affected volume's scope.

SECTION III: PURPOSE

The B30 Standard is intended to

(a) prevent or minimize injury to workers, and otherwise provide for the protection of life, limb, and property by prescribing safety requirements

(b) provide direction to manufacturers, owners, employers, users, and others concerned with, or responsible for, its application

(c) guide governments and other regulatory bodies in the development, promulgation, and enforcement of appropriate safety directives

SECTION IV: USE BY REGULATORY AGENCIES

These volumes may be adopted in whole or in part for governmental or regulatory use. If adopted for governmental use, the references to other national codes and standards in the specific volumes may be changed to refer to the corresponding regulations of the governmental authorities.

[1] This volume is currently in the development process.