

ANSI/ASSP A10.7 - 2018

Safety and Health Requirements for Construction and Demolition Use, Storage, Handling and Site Movement of Commercial Explosives and Blasting Agents



AMERICAN SOCIETY OF
SAFETY PROFESSIONALS



The information and materials contained in this publication have been developed from sources believed to be reliable. However, the American Society of Safety Professionals (ASSP) as secretariat of the ANSI accredited A10 Committee or individual committee members accept no legal responsibility for the correctness or completeness of this material or its application to specific factual situations. By publication of this standard, ASSP or the A10 Committee does not ensure that adherence to these recommendations will protect the safety or health of any persons or preserve property.

ANSI®
ANSI/ASSP A10.7 – 2018

**American National Standard
Construction and Demolition Operations**

**Safety and Health Requirements for
Construction and Demolition Use, Storage, Handling and
Site Movement of Commercial Explosives and Blasting Agents**

Secretariat

American Society of Safety Professionals
520 N. Northwest Highway
Park Ridge, Illinois 60068

Approved July 25, 2018

American National Standards Institute

American National Standard

Approval of an American National Standard requires verification by ANSI that the requirements for due process, consensus and other criteria for approval have been met by the standards developer. Consensus is established when, in the judgment of the ANSI Board of Standards Review, substantial agreement has been reached by directly and materially affected interests. Substantial agreement means much more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that a concerted effort be made toward their resolution. The use of American National Standards is completely voluntary; their existence does not in any respect preclude anyone, whether they have approved the standards or not, from manufacturing, marketing, purchasing or using products, processes, or procedures not conforming to the standards. The American National Standards Institute does not develop standards and will in no circumstance give an interpretation of any American National Standard. Moreover, no person shall have the right or authority to issue an interpretation of an American National Standard in the name of the American National Standards Institute. Requests for interpretation should be addressed to the secretariat or sponsor whose name appears on the title page of this standard.

Caution Notice: This American National Standard may be revised or withdrawn at any time. The procedures of the American National Standards Institute require that action be taken periodically to reaffirm, revise or withdraw this standard. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute.

Published September 2018 by

American Society of Safety Professionals
520 N. Northwest Highway
Park Ridge, IL 60068
(847) 699-2929 • www.assp.org

Copyright ©2018 by American Society of Safety Professionals
All Rights Reserved.

No part of this publication may be reproduced
in any form, in an electronic retrieval system or
otherwise, without the prior written permission
of the publisher.

Printed in the United States of America

Foreword (This Foreword is not a part of American National Standard A10.7-2018.)

This standard is one of a series of safety standards that have been formulated by the Accredited Standards Committee on Safety in Construction and Demolition Operations, A10. It is expected that the standards in the A10 series will find a major application in industry, serving as a guide to contractors, labor and equipment manufacturers. For the convenience of users, a list of existing and proposed standards in the A10 series for Safety Requirements in Construction and Demolition Operations follows.

| | |
|--------|--|
| A10.1 | Pre-Project & Pre-Task Safety & Health Planning |
| A10.2 | Safety, Health and Environmental Training (under development) |
| A10.3 | Powder-Actuated Fastening Systems |
| A10.4 | Personnel Hoists and Employee Elevators |
| A10.5 | Material Hoists |
| A10.6 | Demolition Operations |
| A10.7 | Use, Storage, Handling and Site Movement of Commercial Explosives and Blasting Agents |
| A10.8 | Scaffolding |
| A10.9 | Concrete and Masonry Construction |
| A10.10 | Temporary and Portable Space Heating Devices |
| A10.11 | Personnel Nets |
| A10.12 | Excavation |
| A10.13 | Steel Erection |
| A10.15 | Dredging |
| A10.16 | Tunnels, Shafts and Caissons |
| A10.17 | Safe Operating Practices for Hot Mix Asphalt (HMA) Construction |
| A10.18 | Temporary Roof and Floor Holes, Wall Openings, Stairways and Other Unprotected Edges |
| A10.19 | Pile Installation and Extraction Operations |
| A10.20 | Ceramic Tile, Terrazzo, and Marble Work |
| A10.21 | Safe Construction and Demolition of Wind Generation/Turbine Facilities (under development) |
| A10.22 | Rope-Guided and Non-Guided Workers' Hoists |
| A10.23 | Safety Requirements for the Installation of Drilled Shafts |
| A10.24 | Roofing – Safety Requirements for Low-Sloped Roofs |
| A10.25 | Sanitation in Construction |
| A10.26 | Emergency Procedures for Construction Sites |
| A10.27 | Hot Mix Asphalt Facilities |
| A10.28 | Work Platforms Suspended from Cranes or Derricks |
| A10.29 | Aerial Platforms in Construction (under development) |
| A10.31 | Digger-Derricks |
| A10.32 | Personal Fall Protection Used in Construction and Demolition Operations |
| A10.33 | Safety and Health Program Requirements for Multi-Employer Projects |
| A10.34 | Public Protection |
| A10.37 | Debris Nets |
| A10.38 | Basic Elements of a Program to Provide a Safe and Healthful Work Environment |
| A10.39 | Construction Safety and Health Audit Program |
| A10.40 | Reduction of Musculoskeletal Problems in Construction |
| A10.42 | Rigging Qualifications and Responsibilities in the Construction Industry |
| A10.43 | Confined Spaces in Construction and Demolition Operations |
| A10.44 | Lockout/Tagout in Construction |
| A10.46 | Hearing Loss Prevention |
| A10.47 | Highway Construction Safety |
| A10.48 | Communication Structures |
| A10.49 | Control of Health Hazards |

One purpose of these standards is to serve as guides to governmental authorities having jurisdiction over subjects within the scope of the A10 Committee standards. If these standards are adopted for governmental use, the reference of other national codes or standards in individual volumes may be changed to refer to the corresponding regulations.

Normative Requirements

This standard uses the single column format common to many international standards. The normative requirements appear aligned to the left margin. To meet the requirements of this standard, machinery, equipment and process suppliers and users must conform to these normative requirements. These requirements typically use the verb “shall.”

NOTE: The informative or explanatory notes in this standard appear indented, in italics, in a reduced font size, which is an effort to provide a visual signal to the reader that this is informative note, not normative text, and is not to be considered part of the requirements of this standard; this text is advisory in nature only. The suppliers and users are not required to conform to the informative note. The informative note is presented in this manner in an attempt to enhance readability and to provide explanation or guidance to the sections they follow.

Revisions: The A10 Committee welcomes proposals for revisions to this standard. Revisions are made to the standard periodically (usually five years from the date of the standard) to incorporate changes that appear necessary or desirable, as demonstrated by experience gained from the application of the standard. Proposals should be as specific as possible, citing the relevant section number(s), the proposed wording and the reason for the proposal. Pertinent documentation would enable the A10 Committee to process the changes in a more-timely manner.

Interpretations: Upon a request in writing to the Secretariat, the A10 Committee will render an interpretation of any requirement of the standard. The request for interpretation should be clear, citing the relevant section number(s) and phrased as a request for a clarification of a specific requirement. Oral interpretations are not provided.

No one but the A10 Committee (through the A10 Secretariat) is authorized to provide any interpretation of this standard.

Approval: Neither the A10 Committee nor American National Standards Institute (ANSI) approves, certifies, rates or endorses any item, construction, proprietary device or activity.

Appendices: Appendices are included in most standards to provide the user with additional information related to the subject of the standard. Appendices are not part of the approved standard.

Checklists: Checklists included in A10 standards may be copied and used in non-commercial settings only.

Committee Meetings: The A10 Committee meets twice per year. Persons wishing to attend a meeting should contact the Secretariat for information.

Standard Approval: This standard was processed and approved for submittal to ANSI by the American National Standards Committee on Safety in Construction and Demolition Operations, A10. Approval of the standard does not necessarily imply (nor is it required) that all Committee members voted for its approval. At the time ANSI approved this standard, the A10 Committee had the following members:

Richard King, CSP, Chair
Steven Rank, Vice Chair
Timothy R. Fisher, CSP, CHMM, ARM, CPEA, Secretary
Lauren Bauerschmidt, MS Engr, CSP, Assistant Secretary
Jennie Dalesandro, Administrative Technical Support

Organization Represented

Name of Representative

| | |
|---|--|
| 3M | Raymond A. Mann |
| Accident Prevention Corporation | Mike Boraas |
| AGC of America | Frank Burg, CSP, P.E. |
| American Insurance Services Group | Terry Krug, CSP, CIH |
| American Society of Civil Engineers | Michael McCaffrey |
| American Society of Safety Professionals | Kevin Cannon |
| American Wind Energy Association | Thad Nosal |
| American Work Platform Training Inc. | James G. Borchardt, CSP, CPE, CPSM, CRIS |
| APT Research, Inc. | John O'Connor, P.E. |
| Associated Builders and Contractors, Inc. | Harlan Fair, P.E. |
| A-Z Safety Resources, Inc. | Ken Shorter, CSP, ARM, TCDS |
| Barton Malow Company | A. David Brayton, CSP, CPC |
| Black & Veatch | Christopher Daniels |
| Building & Construction Trades Department | Michele Myers Mihelic |
| Century Elevators | Dennis W. Eckstine |
| Clark Construction Group | Saralyn Dwyer |
| Cole-Preferred Safety Consulting, Inc. | Stephen Wiltshire, MSc |
| Construction & Realty Safety Group, Inc. | Greg Sizemore |
| CPWR – The Center for Construction Research & Training | Jane F. Williams, CPEA, CCA |
| Edison Electric Institute | Jeffrey Oliver, CSP, CHST |
| Elevator Industry Work Preservation Fund | Mark Haggenmaker |
| Ellis Fall Safety Solutions, LLC | Richard F. King, CSP |
| Engineering Systems, Inc. | John H. Johnson, CSP |
| Fluor Corporation | Chris Cain, CIH |
| Gilbane Building Co. | Gary Gustafson |
| Richard D. Hislop | Paula Manning |
| | Eric Schmidt, P.E. |
| | Kurt Dunmire, CSP, CHST |
| | Barry Cole |
| | Ron Lattanzio |
| | Frank Marino |
| | Bruce Lippy, Ph.D., CIH, CSP |
| | Babak Memarian, Ph.D. |
| | Jonathan Kerns |
| | Adam Frederick |
| | Michael D. Morand |
| | James Demmel |
| | J. Nigel Ellis, Ph.D., P.E., CSP, CPE |
| | John T. Whitty, P.E. |
| | David Ahearn, P.E. |
| | Edward J. Tuczak, P.E. |
| | Michael Weatherred, CSP |
| | Jim Bates, CSP |
| | Robert Hinderliter, ASP |
| | Thomas Trauger, CSP, ARM, CRIS |
| | Richard Hislop |
| | Shawn Bradfield |

Independent Electrical Contractors, Inc.
Innovative Safety, LLC
Institute of Makers of Explosives
International Association of Bridge, Structural,
Ornamental and Reinforcing Iron Workers
International Association of Heat & Frost
Insulators & Allied Workers
International Brotherhood of Boilermakers
International Brotherhood of Electrical Workers
International Brotherhood of Teamsters
International Safety Equipment Association
International Union of Bricklayers & Allied
Craftworkers
International Union of Operating Engineers
IUPAT
Kiewit Power Constructors Co.
Laborers' International Union of North America
Lamar Advertising
Lendlease Corporation
Liberty Mutual
Marsh LLC
Maryland Occupational Safety & Health
Mechanical Contractors Association of America
Miller & Long Concrete Construction
National Association of Home Builders
National Association of Railroad Safety
Consultants & Investigators
National Electrical Contractors Association
National Institute for Occupational Safety & Health
National Railroad Construction & Maintenance
Association
National Roofing Contractors Association
National Society of Professional Engineers
NESTI, Inc.

Paul Dolenc
Jerry Rivera
Daniel M. Paine
Barbara Paine
Joshua Hoffman
Susan JP Flanagan
Steven Rank
Tim Keane
Mark Garrett
Bridget Connors
David Mullen
Dan Gardner
LaMont Byrd, CIH
Asher Tobin
Cristine Fargo
Michael Kassman, CHST
Gerard Scarano
Christopher Trembl
Barbara McCabe
Kenneth Seal
Rusty Brown, CSP
Dave Hinz
Walter A. Jones, MS, CIH
Travis Parsons
Chuck Wigger, CSP
Beth Phelps
Joel Pickering, CET, CHMM
Michael Lentz
Daniel P. Lavoie, CSP, ARM
Stan Williams, ARM, CHST
Timothy Bergeron, CSP
Mischelle Vanreusel
Michael Daughaday
Peter Chaney, MS, CSP
Dennis Langley
Frank Trujillo
Alex Rodas, CHST
Robert Matuga
Chelsea Vetick
Lewis Barbe, P.E., CSP, CRSP
Michael J. Johnston
Wesley Wheeler
Thomas G. Bobick, Ph.D., P.E., CSP, CPE
G. Scott Earnest, Ph.D., P.E, CSP
Jeffrey D. Meddin, CSP, CHEP, CHCM
Harry Dietz
Tom Shanahan
E. Ross Curtis, P.E., DFE, F.ASCE, F.NSPE
Paul Swanson, P.E.
Michael Hayslip, P.E., CSP
Jack Madeley, P.E., CSP

Operative Plasterers and Cement Masons
International Association
PATMI

Phoenix Fabricators and Erectors, Inc.

Professional Safety Consultants, Inc.

Safety Environmental Engineering, Inc.
Scaffold & Access Industry Association

Shafer Safety Solutions, LLC
Sheet Metal & Air Conditioning Contractors
National Association
SMART Union

SPA Incorporated
Stock Enterprises
The Association of Union Constructors

Turner Construction Company

U.S. Army Corps of Engineers

U.S. Department of Energy

United Association of Plumbers & Pipefitters

United Brotherhood of Carpenters and
Joiners of America
United Union of Roofers, Waterproofers &
Allied Workers
West Virginia University Extension Service

ZBD Constructors, Inc.

Deven Johnson

James A. Borchers
Craig Pratt
Luke Humphrey
Frank Massey
Jim E. Lapping, MS, P.E., CSP
Kathryn Stieler
Matthew Murphy
Ted Beville
DeAnna Martin
Carmen Shafer, CSP, CHST
Mike McCullion, CSP, ARM

Randall Krocka
Charles Austin, MS
Stanley Pulz, CSP, P.E.
Steve Stock, P.E., PLS
Wayne Creasap, II
Kathleen Dobson, CSP, CHST, STS.C
Cindy L. DePrater, ALCM
Abdon Friend, CSP
Michelle Brain
Steven Washington
Terry Meisinger
Maurice Haygood
Cheryl Ambrose, CHST, OHST
Rich Benkowski
William Irwin
Dale Shoemaker
Richard Tessier
Keith J. Vitkovich
Brandon Takacs, CSHM
Mark Fullen, Ed.D., CSP
Greg Thompson, CSP
Jeffrey D. Meddin, CSP, CHEP, CHCM

Independent Experts & Observers:

Alliance of Hazardous Materials Professionals
Conner Strong & Buckelew

Lockton Companies
National Association of Tower Erectors

U.S. Department of Labor – OSHA

Warfel Construction Company

Carl Heinlein, CSP, ARM, CRIS
Eric Voight
Ken Bogdan
Jason Scollin, CSP, ASP, MS, STC-C
John P. Jones
Kathryn Stieler
Dean McKenzie
Scott Ketcham
Jeffrey I. Pierce
Kevin Stoltzfus

Subgroup A10.7 had the following members:

Lon Santis, Chair

J. Winston Forde, Vice Chair

Susan JP Flanagan

Mike Koehler

Jerry Wallace

Contents

| | |
|---|----|
| 1. Scope and Purpose..... | 12 |
| 1.1 Scope | 12 |
| 1.2 Purpose..... | 12 |
| 2. References | 12 |
| 2.1 Referenced American National Standards..... | 12 |
| 2.2 Referenced Institute of Makers of Explosives Standards | 13 |
| 2.3 Referenced Governmental Publications..... | 13 |
| 2.4 Referenced and Related Standards..... | 14 |
| 3. Definitions | 14 |
| 4. Pre-Project Safety and Health Planning | 23 |
| 4.1 General Responsibilities | 23 |
| 4.2 Site Preparation..... | 23 |
| 4.3 Site-Specific Safety and Health Program Components | 24 |
| 4.4 Multi-Employer Sites..... | 24 |
| 4.5 Determination of Safety Apparatus, Personal Protective Equipment and Atmospheric Testing Devices..... | 25 |
| 4.6 Training, Certification, Permits..... | 25 |
| 4.7 Blasters | 25 |
| 4.8 Mitigation of Vibration Activity and Atmospheric Overpressure | 26 |
| 5. On-Site Transportation of Explosives | 26 |
| 6. Storage of Explosive Materials | 29 |
| 6.1 General Provisions | 29 |
| 6.2 Storage of Explosive Material in On-Site Magazines and Mix Plants | 29 |
| 7. Explosive Magazine Storage, Construction and Table of Distances | 31 |
| 7.2 Classification of Magazines | 39 |
| 7.3 Magazine Construction Outdoor | 39 |
| 7.4 Types of Magazines | 41 |
| 8. Bulk Storage Units and Mix Plants | 45 |
| 9 Use of Explosive Materials | 45 |
| 10 Loading of Explosive Materials for the Blast..... | 47 |
| 11 Explosive Charges | 48 |
| 12 Procedure After Blasting | 49 |
| 12.2 Post-Blast Inspections | 49 |
| 12.3 Misfires..... | 50 |

| | |
|--|----|
| 12.4 Blasting Records / Documentation / Record Retention | 50 |
| Appendices | 52 |
| Appendix A Excavation Work in Compressed Air | 52 |
| Annex B Guide to Use of Table of Recommended Separation Distances of Ammonium Nitrate and Blasting Agents from Explosives or Blasting Agents..... | 54 |
| Annex C Surface and Underground Blasting | 55 |
| Annex D Department of Transportation 49 CFR Hazardous Materials Classes and Index to Hazard Class Definitions..... | 57 |

**AMERICAN NATIONAL STANDARD A10.7
SAFETY AND HEALTH REQUIREMENTS FOR CONSTRUCTION AND DEMOLITION
USE, STORAGE, HANDLING AND SITE MOVEMENT OF COMMERCIAL
EXPLOSIVES AND BLASTING AGENTS**

1. Scope and Purpose

1.1 Scope

1.1.1 This standard is applicable to all entities involved in any construction or demolition project that requires the use of commercial explosives and blasting agents.

1.1.2 This standard is intended to work with the other federal, state and local regulations for use of commercial explosives and blasting agents.

1.1.3 The requirements of this standard do not apply to display or consumer pyrotechnics, small-arms ammunition or explosive power packs in the form of explosive-activated or explosive-charged construction devices such as explosive rivets, explosive bolts, explosive charges for driving pins or studs, cartridges for explosive-actuated power tools, and powder-actuated fastening systems.

1.2 Purpose

The purpose of this standard is to provide the construction industry with recommendations for establishing and maintaining a level of safety and health for the off-highway transportation, storage, storage, and use of commercial explosives and blasting agents for construction and demolition.

2. References

2.1 Referenced American National Standards.

The following ANSI/ASSE A10 standards, in addition to others listed at the front of this document, provide guidance for development of safe and healthful operations.

ANSI/ASSP A10.1, *Pre-Project & Pre-Task Safety & Health Planning*

ANSI/ASSP A10.3, *Safety Requirements for Powder-Actuated Fastening Systems*

ANSI/ASSP A10.6, *Safety & Health Program Requirements for Demolition Operations*

ANSI/ASSP A10.8, *Scaffolding Safety Requirements*

ANSI/ASSP A10.12, *Safety Requirements for Excavation*

ANSI/ASSP A10.13, *Safety Requirements for Steel Erection*

ANSI/ASSP A10.15, *Safety Requirements for Dredging*

ANSI/ASSP A10.16, *Safety Requirements for Tunnels, Shafts and Caissons*

ANSI/ASSP A10.19, *Safety Requirements for Pile Installation & Extraction Operations*

ANSI/ASSP A10.23, *Safety Requirements for the Installation of Drilled Shafts*

ANSI/ASSP A10.25, *Sanitation in Construction*

ANSI/ASSP A10.26, *Emergency Procedures for Construction & Demolition Sites*