



# AMERICAN NATIONAL STANDARD

*ANSI/ASSE A10.40 – 2007 (R2013)*  
*Reduction of Musculoskeletal*  
*Problems in Construction*

*American National Standard*  
*for Construction and*  
*Demolition Operations*

*ANSI/ASSE A10.40 – 2007 (R2013)*



AMERICAN SOCIETY OF  
SAFETY ENGINEERS

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**ANSI®**  
**ANSI/ASSE A10.40 – 2007 (R2013)**

**American National Standard**  
**Construction and Demolition Operations**

**Reduction of Musculoskeletal Problems in Construction**

Secretariat

**American Society of Safety Engineers**  
1800 East Oakton Street  
Des Plaines, Illinois 60018-2187

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**American National Standards Institute, Inc.**

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## **Foreword** (This Foreword is not a part of American National Standard A10.40-2007 (R2013).)

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 Transportation, Storage, Handling and Use 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 and Debris 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 (under development)
- 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
- A10.41 Equipment Operator and Supervisor Qualifications and Responsibilities (under development)
- A10.42 Rigging Qualifications and Responsibilities in the Construction Industry
- A10.43 Confined Spaces in Construction (under development)
- A10.44 Lockout/Tagout in Construction

A10.46 Hearing Loss Prevention  
A10.47 Highway Construction Safety  
A10.48 Communication Tower Erection (under development)  
A10.49 Control of Health Hazards (under development)

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.

*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.

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

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## AMERICAN NATIONAL STANDARD A10.40 REDUCTION OF MUSCULOSKELETAL PROBLEMS IN CONSTRUCTION

### 1. SCOPE AND PURPOSE

**1.1 Scope.** This standard applies to construction work where there may be risk factors, which could lead to musculoskeletal problems for construction workers. This standard does not apply to office or administrative work performed by construction companies.

**1.2 Purpose.** The purpose of this standard is to reduce occupational contributions to musculoskeletal problems in construction workers.

Note: Implementing this standard can help reduce the risk of musculoskeletal problems, but may not eliminate them due to the complex etiology of musculoskeletal problems and non-occupational risk factors. Note also that the mere presence of occupational risk factors may not constitute a problem.

Note: This standard is not intended to be and should not be used by governmental authorities in any enforcement procedures or as a basis for enforceable standards. The committee understands that there is not complete agreement about the causes and solutions to musculoskeletal problems in construction.

**1.3 Modifications and Exemptions.** In cases of practical difficulty, infeasibility, new developments and/or unnecessary hardship, exceptions may be made to the literal requirements of this standard, but only when it is clearly evident that equivalent protection is thereby assured.

### 2. DEFINITIONS

**2.1 Musculoskeletal Problems.** Musculoskeletal problems include injuries to the muscle, tendon, sheath, nerve, bursa, blood vessel, bone, joint or ligament and

musculoskeletal pain or swelling, and also where there may not be any obvious evidence of injury and where occupational exposure is clearly identified. The injuries include, but are not limited to:

- Muscular
- Carpal Tunnel Syndrome
- Thoracic Outlet
- Tenosynovitis
- Myalgia
- Double Crush Syndrome
- Reynaud's
- DeQuervains
- Strains
- Cubital Tunnel Syndrome
- Connective Tissue
- Bursitis
- Spasms
- Sciatica
- Disc Damage
- Neurological
- Vascular
- Tendonitis
- Back

**2.2 Occupational Risk Factors.** Conditions or activities on a construction site that may increase the likelihood that a musculoskeletal problem may occur. The mere presence of these risk factors may not constitute a problem. The magnitude of the risk is related to the duration and magnitude of exposure and the combination of risk factors.

Note: Appendix G includes additional discussion to help understand these risk factors.

**2.2.1 Force.** Use of the muscles to move or hold objects – e.g., pushing, pulling lifting, lowering and carrying.