

# American National Standard



## ENVIRONMENTAL INDUSTRY A S S O C I A T I O N S

*for Equipment Technology and  
Operations for Wastes and  
Recyclable Materials ---*

***Mobile Wastes and Recyclable  
Materials Collection,  
Transportation, and  
Compaction Equipment —  
Safety Requirements***



WASTE EQUIPMENT TECHNOLOGY ASSOCIATION  
A PART OF THE  
ENVIRONMENTAL INDUSTRY ASSOCIATIONS

4301 CONNECTICUT AVENUE, NW • SUITE 300 • WASHINGTON, DC 20008  
TELEPHONE: 202-244-4700 • FAX: 202-966-4824

American National Standard  
for Equipment Technology and Operations  
for Wastes and Recyclable Materials —

Mobile Wastes and Recyclable Materials Collection,  
Transportation, and Compaction Equipment —  
Safety Requirements

Secretariat  
**Environmental Industry Associations**

Approved March 1, 2007  
**American National Standards Institute, Inc.**

## American National Standard

Approval of an American National Standard requires verification by the American National Standards Institute (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 he has approved the standards or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standards.

ANSI does not develop standards and will in no circumstances 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 ANSI. Requests for interpretations should be addressed to the secretariat or sponsor whose name appears on the title page of this standard.

**NOTE:** This American National Standard may be revised or withdrawn at any time.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 ANS.

Published by

**Waste Equipment Technology Association  
(Part of Environmental Industry Associations)  
4301 Connecticut Avenue, NW, Suite 300  
Washington, DC 20008**

Copyright © 2007 by Environmental Industry Associations  
All rights reserved.

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

Printed in the United States of America

Table of Contents

	Page
<b>Foreword</b> (informative).....	ii
<b>0 Introduction</b> (informative) .....	1
<b>1 Scope</b> .....	1
<b>2 Normative references</b> .....	2
<b>3 Definitions</b> .....	3
<b>4 Manufacture, installation, reconstruction, and modification</b> .....	20
<b>5 Instructions for operation and maintenance</b> .....	21
<b>6 Operational requirements</b> .....	22
<b>7 Mobile equipment safeguards and features</b> .....	30
<b>8 Minimum requirements for stand-up and dual drive configurations</b> .....	49
<b>9 Safety program and training</b> .....	51
 <b>Annex</b>	
<b>A Bibliography</b> (informative) .....	53
<b>B Interpretation of the Definitions “Modification” and “Reconstruction”</b> .....	54
 <b>Figures</b>	
<b>1 Front-loading compacting equipment</b> .....	10
<b>2 Hoist-type equipment</b> .....	11
<b>3 Mechanized side loader</b> .....	12
<b>4 Recycling collection vehicles</b> .....	12
<b>5 Rear-loading compacting equipment</b> .....	13
<b>6 Cart dumper</b> .....	13
<b>7 Rear-loader container lifting equipment</b> .....	14, 15
<b>8 Side-loading compaction equipment</b> .....	16
<b>9 Automated side loader</b> .....	16
<b>10 Tilt-frame equipment</b> .....	19
<b>11 Refuse transfer trailer</b> .....	18
<b>12 Grapple loader and grapple truck collection equipment</b> .....	19
<b>13 Mobile compactor rear riding step configuration</b> .....	34
<b>14 Front-loader conspicuity markings</b> .....	43
<b>15 Side-loader (rectangular) conspicuity markings</b> .....	44
<b>16 Side-loader (cylindrical) conspicuity markings</b> .....	45
<b>17 Rear-loader conspicuity markings</b> .....	46
<b>18 Roll-off vehicle conspicuity markings</b> .....	47
<b>19 Hoist type vehicle conspicuity markings</b> .....	48
<b>20 Grapple loader truck conspicuity markings</b> .....	48

## AMERICAN NATIONAL STANDARD

## ANSI Z245.1 - 2007

### FOREWORD (This foreword is not part of American National Standard Z245.1-2007)

This revised American National Standard (ANS) is applicable to the construction, reconstruction, modification, care, maintenance, operation, and use of mobile waste or recyclable materials collecting, transportation and compacting equipment. The standard identifies requirements for the following refuse collecting and compacting equipment mounted on refuse truck chassis: rear-loading, front-loading, and side loading compacting equipment; tilt frame and hoist-type equipment; grapple loaders; satellite vehicles; waste transfer vehicles; recycling collection vehicles; and mechanized container collecting and lifting equipment. The standard does not apply to the truck chassis/cab upon which the waste or recyclable materials collecting and compacting equipment is mounted except for certain provisions as stated in clauses 7.3.1.1 and Section 8.

The first and second revisions of this standard (ANSI Z245.1-1975 and ANSI Z245.1-1984) covered mobile collecting and compacting equipment and stationary compacting equipment. The third revision (ANSI Z245.1-1992), fourth revision (ANSI Z245.1-1999) and this one contain requirements for mobile collecting and compacting equipment only. Requirements for newly manufactured and remanufactured stationary compactors are contained in *American National Standard for - Stationary Compactors - Safety Requirements*, ANSI Z245.2-1992 and later revisions, and pertain to stationary compactors manufactured after the effective date of that standard. Stationary compactors manufactured before that date are still covered by ANSI Z245.1-1975 and ANSI Z245.1-1984.

This standard replaces ANSI Z245.1-1999. Provisions of that standard, which are carried forward into this standard, remain in effect and are immediately applicable to all new mobile collecting and compacting equipment.

Because of the difficulty of changing manufacturers' production lines to incorporate the provisions that are either new or are revisions of clauses of ANSI Z245.1-1999, the following guidelines have been selected by the Accredited Standards Committee Z245 as to effective dates:

- for all new mobile collecting and compacting equipment, twenty-four (24) months after the approval date of this standard;
- for all existing mobile equipment manufactured during the period of December 8, 2001 until 24 months after the approval date of this standard, the provisions of ANSI Z245.1-1999 shall apply;
- for all existing mobile equipment manufactured during the period of January 3, 1994 until December 8, 2001, the provisions of ANSI Z245.1-1992 shall apply;
- for all existing mobile equipment manufactured during the period of May 2, 1986 until January 2, 1994, the provisions of ANSI Z245.1-1984 shall apply;
- for all existing mobile equipment manufactured during the period of March 16, 1978 until May 1, 1986, the provisions of ANSI Z245.1-1975 shall apply; and
- for all existing mobile equipment, regardless of the date of manufacture, the provisions of 4.2, 4.3, 5.2, and Clauses 6 and 9 shall apply 24 months after the approval date of this standard.

For more information on mobile equipment safety, see the *Manual of Recommended Safety Practices*, published by the Environmental Industry Associations, whose address appears below.

This revised standard contains an informative reference annex, which is not considered part of this standard. Inquiries, requests for interpretation and suggestions for improvement of this American National Standard are invited. They should be sent to the Secretary, ASC Z245, c/o Environmental Industry Associations, 4301 Connecticut Ave., NW, Suite #300, Washington, DC 20008

**AMERICAN NATIONAL STANDARD**

**ANSI Z245.1 - 2007**

This revised American National Standard was processed and approved for submittal to ANSI by the Accredited Standards Committee on Equipment Technology and Operations for Wastes and Recyclable Materials, Z245. Committee approval of this standard does not necessarily imply that all committee members voted for its approval. At the time it approved this revised standard, the Z245 Committee had the following members:

Gary Satterfield, Chairman  
C. Phillip Headley, Secretary

The members of Accredited Standards Committee Z245, and the organizations represented, who participated in the development of this standard were:

<u>Organization Represented</u>	<u>..... Name of Representative</u>
Allied Waste Industries .....	Gary Mosier
.....	Mark Johnson (Alternate)
Waste Industries .....	Ralph Ford
Waste Management .....	Billy Martin
Malter Associates, Inc. ....	Dave Malter
SACOM Inc. ....	Jerry Van Beek
EST Solutions .....	Susan Eppes (Alternate)
Zurich Services Corporation .....	Jim York
The City of Corpus Christi, TX .....	Jeffrey Kaplan
City of Rochester .....	Lou Guilmette
.....	Karon Simoni (Alternate)
City of Tacoma.....	Dave Carlisle
Commonwealth of Pennsylvania .....	Carl Hursch
NIOSH .....	John Etherton
.....	Paul Moore (Alternate)
Environmental Industry Associations .....	Gary Satterfield
.....	Phillip Headley (Alternate)
Institute of Scrap Recycling Industries .....	John Gilstrap
.....	Cheryl Specter (Alternate)
Solid Waste Association of North America .....	Lori Scozzafava
.....	John Skinner (Alternate)
Waste Equipment Technology Association (WASTEC)	
Baler Committee .....	Henry Jobe
.....	Open (Alternate)
Compactor Committee .....	Denny Pool
Commercial Container Committee .....	Denny Gill
.....	Roger Oukrop (Alternate)
Distributor Committee .....	Open
.....	Tom Stevens (Alternate)
Mobile Equipment Committee .....	Jerry Zanzig
.....	Steve Wienkes (Alternate)
Residential Container Committee .....	Mike Knaub
.....	Mike Schwalbach (Alternate)

**AMERICAN NATIONAL STANDARD**

**ANSI Z245.1 - 2007**

The ASC Z245 Subcommittee 1 (Mobile Equipment) that drafted this revised American National Standard had the following members:

Steve Wienkes, Chairman  
Phillip Headley, Secretary

Harvey Aasman  
Neil Allison  
Skip Berg  
Scott Berning  
Jimmy Biggerstaff  
Randy Bice  
Elmer Bischoff  
Bruce Clark  
Stephen Colby  
Steve David  
Dale Deist  
Jane Dolezal  
Charles Duell  
Jeffrey Eckhardt  
Susan Eppes  
Michel Fillion  
Gary Fleming  
Jose Flores  
John Ford  
Ralph Ford  
Tim Foster  
Bill Geise  
Denny Gill  
Steve Ginter  
Lou Guilmette  
Jeff Hadley  
Odis Hamill  
Shannon Harrop

Larry Horning  
Henry Jobe  
Mark Johnson  
Jim Johnston  
Charlie Luper  
Dave Malter  
Billy Martin  
Robert Mecchi  
James Ober  
Tony Odhner  
Roger Oukrop  
Richard Peltier  
Gerald Peters  
Denny Pool  
Lee Rathbun  
Dan Rosen  
Tom Schearer  
Lynn Schreiber  
Paul Smith  
Scott Stefaniak  
Larry Stone  
Jerry Van Beek  
Kevin Weaver  
Chris Weiss  
Brian Wilson  
Wayne Worthington  
Jerry Zanzig  
Jim Zito

## AMERICAN NATIONAL STANDARD

ANSI Z245.1 - 2007

American National Standard  
for Equipment Technology and Operations for  
Wastes and Recyclable Materials —

# Mobile Wastes and Recyclable Materials Collection, Transportation, and Compaction Equipment — Safety Requirements

## 0 Introduction

This standard was developed by American National Standards Institute Accredited Standards Committee Z245 Subcommittee 1 on Mobile Collection Equipment and approved by Accredited Standards Committee Z245.

This standard revises the collection, transportation and compaction equipment safety requirements found in ANSI Z245.1-1999 by providing specific requirements for construction, maintenance and operation necessary to ensure the safe manufacture and operation of the mobile equipment.

The requirements contained in this standard pertain to new mobile collection equipment as produced by the manufacturer. New requirements and revisions are not intended to be retroactive for waste collection vehicles manufactured to comply with earlier revisions of this standard. Refer to the approved edition of ANSI Z245.1 in effect at the time of manufacture for those requirements.

Exceptions and notes contained in the standard apply to the clause or sub-clause in which they are contained or to which they reference. Exceptions pertain to normative requirements. Notes are informative and provide guidance for the evaluation of a normative requirement.

The units of distance measurement used in this standard are in the inch-pound system. When a value for measurement is followed by a value in other units in parentheses (metric) the second value is only approximate. The first value is the requirement.

## 1 Scope

**1.1** This revised American National Standard is applicable to all persons engaged in the manufacture, modification, operation, cleaning, maintenance, service, or repair of mobile collecting, transporting, and compacting equipment. It attempts to distinguish between persons who may be the legal owner, lessor, lessee, or who are otherwise contracted with or hired to become involved with, the equipment. Excluded from this standard is equipment used for the collection, transportation, or disposal of hazardous or flammable materials regulated by title 40 Code of Federal Regulations (CFR) Part 263 or 49 CFR Parts 171 through 180. Stationary compactors, which were included in *American National Standard for Safety Requirements for Refuse Collection and Compaction Equipment*, ANSI Z245.1-1975, and *American National Standard for Refuse Collecting and Compacting Equipment — Safety Requirements*, ANSI Z245.1-1984, are now covered by *American National Standard for Refuse Collection, Processing, and Disposal Equipment — Stationary Compactors — Safety Requirements*, ANSI Z245.2-1992, as of the effective date of