

American National Standard

for Evacuation Devices –

Volume 1:

**Emergency Stair Travel Devices Used by
Individuals with Disabilities**



RESNA

Rehabilitation Engineering and Assistive Technology Society of North America

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American National Standard
for Evacuation Devices—

**Volume 1:
Emergency Stair Travel Devices Used by
Individuals with Disabilities**

Secretary

**Rehabilitation Engineering and Assistive
Technology Society of North America**

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Foreword

This standard covers emergency stair travel devices used by individuals with disabilities (ESTDs). These devices are used to enable evacuation by individuals with disabilities from high-rises, but may be used in any structure having stairs. Individuals with disabilities (occupants) work with other individuals during use, such as first responders, other life safety personnel, co-workers, family members, or others (operators).

This standard is designed to document the minimum requirements for ESTDs, and test methods to produce objective information about the equipment. All are intended to promote occupant and operator safety. In all cases, information disclosed with respect to the testing should be considered specific to the testing of a specific ESTD make and model.

ANSI/RESNA ED Volume 1 consists of the following sections under the general title Evacuation Devices:

Volume 1: Emergency Stair Travel Devices Used by Individuals with Disabilities

Section 1: Track-Type, Controlled-Descent, Manual Ascent Devices

The RESNA Standards Committee on Emergency Stair Travel Devices Used by Individuals with Disabilities (ESTD) was approved to begin work on this ED-1 standard by the RESNA Assistive Technology Standards Board (ATSB) on June 24, 2009. This occurred after recognizing that no single standards organization had responsibility to oversee these life-safety devices, and as a result consumers were left to navigate an overabundance of technical specifications in order to try to piece the pertinent criteria together.

The use of emergency stair travel devices by individuals with disabilities has been noted in such large-scale incidents such as the attacks on the World Trade Center in 1993 and 2001. Most information about these devices is anecdotal, however. The RESNA Standards Committee on ESTD was formed to establish common terminology, identify essential features, and introduce performance standards, so that consumers, life safety professionals, and building owners and managers are able to select effective, high quality devices for use by building occupants. Even with a standard, it should be noted that regular attention to maintenance and adequate on-going training on the proper use of a device is an important aspect of its successful use.

Committee Goals

The RESNA Standards Committee on ESTDs strives to establish strategic alliances with groups such as the National Fire Protection Association and others, to ensure that this established RESNA ED-1 Standard is incorporated into other review bodies with enforcement authority. It should also be recognized that this standard is established in such a way that advances in the industry or yet unrealized equipment can be included in subsequent revisions to the standard.

Committee Structure

The RESNA Standards Committee on ESTDs officers include a Chair, Vice Chair, and Secretary. All RESNA ESTD members, including the officers, are identified as belonging to one the following interest categories:

- Building owners and managers
- Code development/code enforcement professionals
- Consultants
- Consumers
- Insurance industry professionals
- Manufacturers and suppliers
- Researchers
- Testing organization and facility professionals
- General or other

Per RESNA Procedures, RESNA ESTD membership must be balanced, i.e., the number of members in any one interest group cannot exceed more than one third of the total number of members. This helps promote diverse discussion and consensus across different perspectives as votes are taken.

For further information regarding RESNA procedures, please visit the RESNA website <www.resna.org>

RESNA is accredited as a standards organization and the RESNA Assistive Technology Standards Board oversees the work of the RESNA standards committees. RESNA is an interdisciplinary organization that promotes assistive technology for people with disabilities.

Suggestions for the improvement of this standard are welcome. They should be sent to the following address:

RESNA Assistive Technology Standards Board
1700 North Moore Street, Suite 1540
Arlington, VA 22209

This standard was approved by the RESNA Standards Committee on Emergency Stair Travel Devices Used by Individuals with Disabilities and the RESNA Assistive Technology Standards Board for submittal to ANSI. Committee approval of the standard does not necessarily imply that all the committee members voted for its approval or the approval of every test method or requirement in the standard. At the time the standard was developed, the RESNA Standards Committee on Emergency Stair Travel Devices Used by Individuals with Disabilities consisted of the following members:

Name of Representative

Organization

University of Illinois at Chicago	Chair, Glenn Hedman
Task Force on Fire & Life Safety.	Vice-Chair, Edwina Juillet
U.S. Dept. of Homeland Security Science & Technology Directorate	Secretary, Michael Boyce
EAD & Associates	Elizabeth Davis
Evac+Chair	Jeff Wolvovsky
Garaventa Lift	Trevor de Jaray
MET Laboratories	Harold Raab
National Fire Protection Association	Allan Fraser
National Fire Protection Association Disabilities Task Force	Michael Collins
National Institute for Standards & Technology	Erica Kuligowski
Stryker	Cliff Lambarth
Underwriters Laboratories	Edgar Wolff-klammer
U.S. Department of Labor	James Downing

Acknowledgement

The RESNA Standards Committee on ESTDs would like to acknowledge the contributions of University of Illinois at Chicago – Assistive Technology Unit Rehabilitation Engineer Molly Reiter Boland and Fabrication Specialist James Graham, regarding their work on the design and fabrication of the modified RESNA WC-1 mannequin.

Dedication

This first edition of the RESNA ED-1 Standard on Emergency Stair Travel Devices is dedicated to the memory of Bill Scott, charter member of the Committee, and whose career and Committee work contributed greatly to the independence and life safety of individuals with disabilities.

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Scope of Volume 1

Volume 1: Emergency Stair Travel Devices Used by Individuals with Disabilities.

This RESNA standard covers the purpose, design, performance, description, inspection, and maintenance of devices whose primary purpose is the travel of individuals with disabilities over stair and horizontal surfaces during building evacuations. This standard does not cover devices whose purpose is the travel of individuals with disabilities during routine travel on stairs.

This standard specifies requirements and test methods for determining emergency stair travel device performance. It also specifies requirements for the disclosure of the test results.

The test methods may be used to verify a manufacturer's claim that a product exceeds the minimum requirements of this standard.

WARNING: This RESNA Standard calls for the use of procedures that may be injurious to the testing technician if adequate precautions are not taken.

Section 1

Track-Type, Controlled-Descent, Manual Ascent Devices

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Section 1 Introduction

At the time of publication, there were no other performance standards for these devices. As such, the RESNA ED-1 Standard stands by itself. If the ISO or another standards organization completes development of a standard for these devices, this RESNA ED-1 Standard shall supersede that version.

Section 1: Track-Type, Controlled-Descent, Manual Ascent Devices

1 Scope

This section of RESNA ED-1 covers the performance of track-type, controlled-descent, manual-ascent emergency stair travel devices.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ANSI ICC A117.1-2009 Accessible and usable buildings and facilities (approved October 20, 2010)

ANSI/RESNA WC-1:2009, Section 1: Determination of static stability

3 Terms and Definitions

The definitions contained in this section shall apply to the terms used in this Standard. Where terms are not defined in this section or within another section, they shall be defined using their ordinarily accepted meanings within the context in which they are used. Merriam-Webster's Collegiate Dictionary, 11th Edition, shall be the source for the ordinarily accepted meaning.

For the purposes of this section of RESNA ED-1, the following apply:

3.1 arm support

the part of the device that provides a place for the occupant to place and/or secure an arm during use

3.2 attachment

the physical connection by which one component is attached to another

3.3 capacity

the maximum occupant weight that the device is rated for, as provided by the manufacturer

3.4 closure

a component that connects and disconnects one or more parts of the safety belts to each other

3.5 controlled descent

regulated downward velocity

3.6 horizontal travel

movement on a level, flat surface

3.7 live load

the weight of the occupant