



ASTM INTERNATIONAL  
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# Homeland Security and Public Safety: Research, Applications and Standards

STP 1614  
Editors:  
Philip J. Mattson  
Jennifer L. Marshall



ASTM INTERNATIONAL

**SELECTED TECHNICAL PAPERS**

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## Foreword

THIS COMPILATION OF Selected Technical Papers, STP1614, *Homeland Security and Public Safety: Research, Applications, and Standards*, contains peer-reviewed papers that were presented at a symposium held June 28–29, 2018, in San Diego, California, USA. The symposium was sponsored by ASTM International Committee E54 on Homeland Security Applications and Subcommittee E54.04 on Personal Protective Equipment (PPE).

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Philip J. Mattson  
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*Washington, DC, USA*

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## Overview

This volume contains a collection of 18 peer-reviewed papers from the *Symposium on Homeland Security and Public Safety: Research, Applications, and Standards* held June 28–29, 2018, in San Diego, California, USA. The event was the first symposium held by the ASTM Committee E54 on Homeland Security Applications. The Committee was formed in 2003 and has been addressing the standards needs of the homeland security and public safety sector for over 15 years. The symposium covered several topical areas that impact the homeland security sector, such as personal protective equipment for law enforcement, fire service and EMS professionals, security and infrastructure, usability of technology, operational equipment and response robotics. The symposium focused on current and emerging standards within the homeland security and public safety user communities.

The symposium was preceded by three days of standards development during the biannual meeting of ASTM Committee E54 on Homeland Security Applications. To open the symposium on the first day, the symposium co-chairs invited Assistant Chief Chris McGrath of the San Diego Police Department to welcome attendees to San Diego and tell personal stories of the value of standards, particularly the value of standards for body armor, in his department. On the second day, Douglas Nakama from the Federal Emergency Management Agency (FEMA) Urban Search and Rescue Branch opened the session. He discussed his experience and the importance of standardized test methods for response robots, providing additional context for the response robot presentations.

The overall objective of this symposium was to provide a forum to discuss strategically coordinated standards development and the increasing need for standards in homeland security and public safety. Specifically:

- Showcase strategic topics/issues facing this standards community
- Discuss topical issues such as response robotics, personal protective and operational equipment, and critical infrastructure
- Define better ways to connect standards development with conformity assessment in this community
- Promote communication and information sharing between ASTM International committees, other SDOs, researchers, manufacturers, users, test laboratories, accreditation bodies, and government agencies
- Assess the need for new and/or revised standards as well as better coordination and links with standards between other SDOs

At the symposium, we had 20 presentations by subject matter experts from academia, industry, and Federal agencies. We also had a poster session showcasing seven posters from researchers from academia and federal laboratories. A subset of presenters and poster authors submitted peer-reviewed papers from the symposium and are now collected in this STP. These papers span several areas, including high-level standards strategy, the usability and human factors elements of technology, personal protective equipment for fire, law enforcement, EMS and bomb squads, response robotics, and lastly infrastructure and security technology and standards. It very much reflects the breadth of the space of the homeland security sector.

The symposium co-chairs express their gratitude to ASTM staff for their contributions and guidance to planning throughout the many months preceding the symposium. Furthermore, this STP would not have been possible without the attentiveness and countless hours volunteered by our peer reviewers to ensure that all of the following manuscripts were fit for publication. It is our sincere hope that these selected technical papers contribute significantly to the further advancement of standards that support homeland security applications and operations.

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