ASTM INTERNATIONAL
Helping our world work better

ASTM International Emergency Management Services Standards

U.S.–China Emergency Management Industry and Standards Webinar

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Technical Committees E54 and F38
ASTM International
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www.astm.org

Helping Our World Work Better

12,800+ ASTM standards operate globally

Applied to just about everything from steel to sustainability

They improve the lives of millions every day

Universal Equality of Opportunity

Operating Globally

- ASTM is one of the world's largest Standards Developing Organizations, with global reach and influence
- Working across political, cultural and geographic borders
- Trusted for market relevance and technical quality
- The choice for many global industries
  - within and outside the US
- ASTM has an office in Beijing
  - A MOU with SAC,
  - And Cooperative Agreements with CNIS and SIS

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ASTM Technical Committees

Collaborative

- Consensus participation in a transparent process; open to anyone, anywhere
- Stakeholders are businesses of all sizes, producers, governments, labs, universities, and consumers; we build on the members' expertise
- Technical Committees: develop and manage standards, engage and liaise with other stakeholders, support development of strategy

Wide range of topics and uses

- Serving over 90 industry sectors from traditional to cutting edge
- Technical experts (marketplace) decide what standards are needed + content
- Standards are voluntary and global:
  - 8,400+ citations by more than 75 nations worldwide
  - The choice of many global industries; 50+% sales outside US

Dynamic Information

- Responding to new challenges, new technology, new markets
- New standards in 16-18 months, revisions in 6-8 months.
- Mandatory review every 5 years
- On-line membership tools (networking, web conferencing, balloting and drafting) and information access.

30,000 volunteer members from **158** nations participating in ASTM

148 main committees
2,000+ subcommittees

In 2019:
159 New
1934 Revised
12,800+ standards

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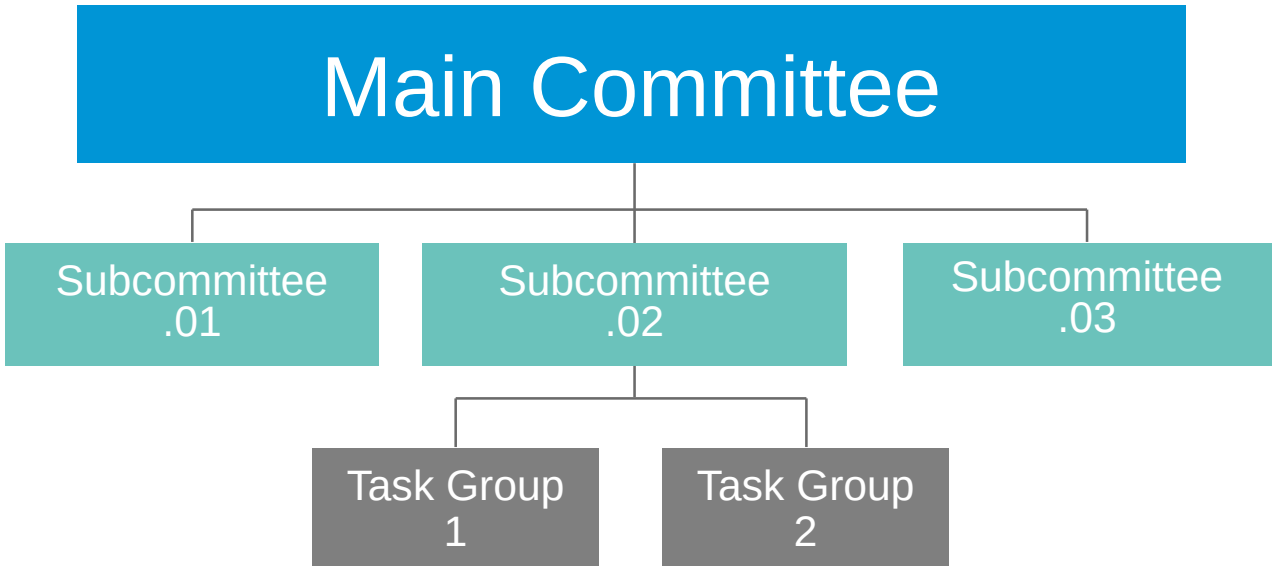
Technical Committee Structure



Technical Committees
Address specific industry subjects

Subcommittees
Address subsets of specialized subject matter

Task Groups
Organized by subcommittees: standards get drafted, revised, and developed at this level

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Importance of Standards

Roles of Standards

- Fundamental building blocks for product development
  - Establishes consistent protocols– universally understood and adopted (or not)
- Ensures safety, quality, and reliability
  - Consumer confidence (or not)
- Helps international trade
  - Market access (or not)

WTO TBT- International Standards

- Identifies six principles by which international standards are developed
- International standards have special status under WTO rules
- Regulations based on international standards are presumed not to create unnecessary obstacles to international trade
- International standards developed according to the WTO TBT Agreement promote trade and public-private cooperation

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ASTM International Standards

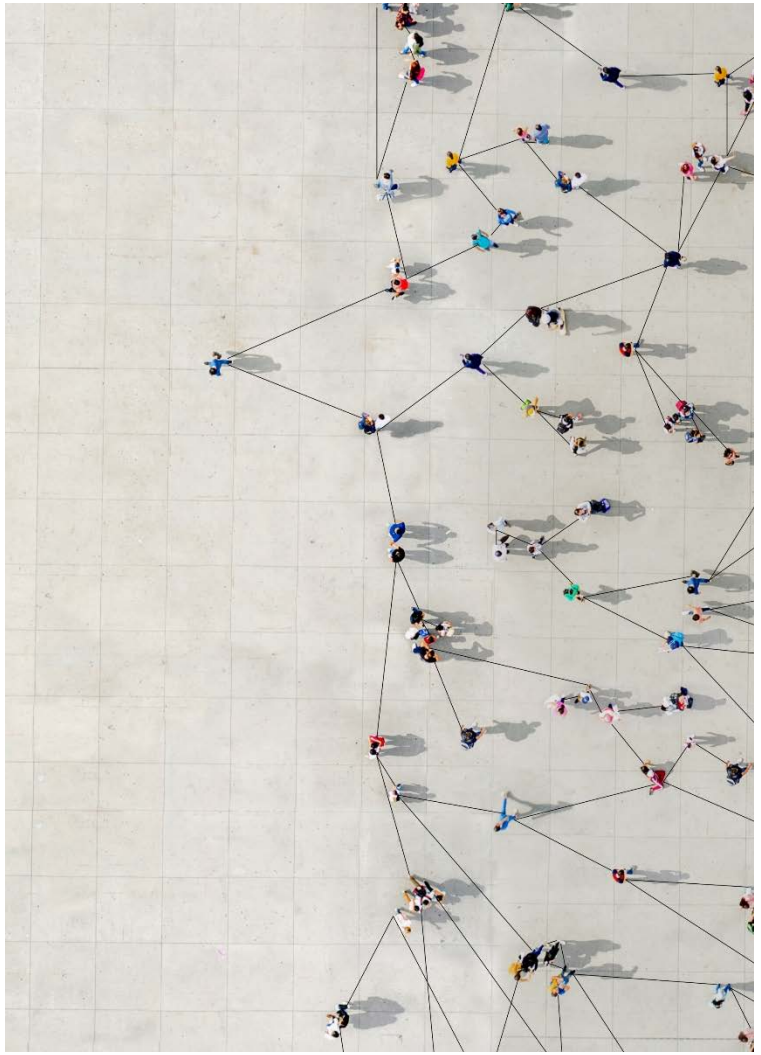
ASTM International standards development brings together the public and private sector to solve technical problems. Our international standards:

Support Government Regulations

- Today, there are more than 8,400 citations of ASTM International standards as references in regulations, normative standards, adoptions, and as the basis of national standards in over 120 countries – including several Asian economies
- These standards address a range of products: raw materials, toys, infrastructure/construction products, medical devices, environmental aspects of air, soil and water, robotics, the application of additive manufacturing technology, and UAS.

Advance Public Policy Objectives

- ASTM embraces international principles to develop standards that enable trade, underpin good business regulation, promote private-public collaboration, and improve the integrity of products and materials on a worldwide basis



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ASTM Has Several Related EMS TCs

Conventional EMS

ASTM Technical Committee F30 on Emergency Medical Services

- 35+ years developing standards
- Over 50 standards
  - EMS Equipment
  - Personnel, Training, Education
  - Communications
  - Organization/Management

ASTM Technical Committee F32 on Search and Rescue

- 30+ years developing standards
- Over 60 standards
  - Equipment, Testing, Maintenance
  - Management and Operations
  - Personnel, Training, Education

ASTM also has new technical committees addressing new aspects of EMS.

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F38 Unmanned Aircraft Systems

Quick facts:

- Formed: 2003, memorandum agreement with FAA
- Current Membership: 480+ members (30 regulators), 25 nations
- Standards: 25 approved; 20+ in development

Subcommittees:

F38.01 Airworthiness

- Hardware oriented
- Safe design, construction, test, modification, & inspection of the individual component, aircraft, or system

F38.02 Flight Operations

- Procedure oriented
- Safe employment of the system within the aviation environment among other aircraft & systems

F38.03 Personnel

- Individual, Crew and Organization Oriented
- Safe practices by the individuals and teams responsible for employing the system

Global Representation

Australia	Ireland	Russian Federation
Belgium	Israel	Saudi Arabia
Brazil	Italy	Singapore
Bulgaria	Japan	Slovenia
Canada	Republic of Korea	Switzerland
China	Netherlands	United Arab Emirates
Denmark	New Zealand	
France	Norway	United Kingdom
Germany		United States

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F38 Unmanned Aircraft Systems

Key Standards:

- F3442/F3442M-2020
  Specification for Detect and Avoid System Performance Requirements
- F3389-2020
  Test Method for Assessing the Safety of Small Unmanned Aircraft Impacts
- F3411-19
  UAS Remote ID and Tracking
- F3266-18
  Standard Guide for Training for Remote Pilot in Command of Unmanned Aircraft Systems (UAS) Endorsement
- F3379-20
  Guide for Training for Public Safety Remote Pilot of Unmanned Aircraft Systems (UAS) Endorsement. (Just Published)

Under Development

- WK62669
  Detect and Avoid Test Methods
- WK63418
  Specification for Service Provided under UAS Traffic Management (UTM)
- WK65042
  Guide for Operations Over People

Areas Include:

Design & Construction
Design & Command
Design & Performance
Production Acceptance
QA
Batteries
Fixed Wing & VTOL
Safely Bound Flight Behavior
Software Dependability
Registration & Marking

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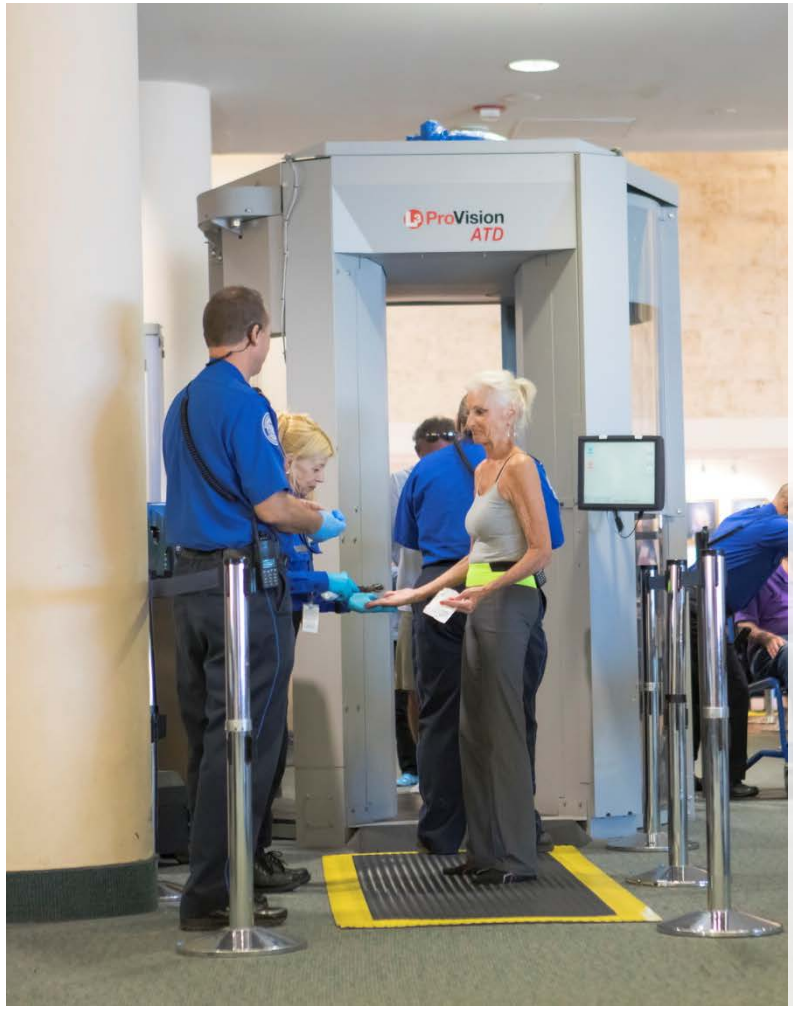
E54 Homeland Security Applications

Quick facts:

- Formed: 2003
- Current Membership: 400+ from 12 nations
- Standards: 63 approved; 77 in development

Subcommittees:

E54.01 CBRNE Sensors and Detectors
E54.02 Emergency Preparedness, Training, and Procedures
E54.03 Decontamination
E54.04 Personal Protective Equipment (PPE)
E54.05 Building and Infrastructure Protection
E54.06 Electronic Security Systems
E54.07 Operational Equipment
E54.08 Response Robots



Key Stakeholders

Dept. of Commerce
Dept. of Homeland Security
Dept. of Justice
US Army
Chesapeake Testing
NFPA
NIOSH / NPPTL
NIST

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E54 Homeland Security Applications

Key Standards:

- E2601-15
  Standard Practice for Radiological Emergency Response
- E2842-14
  Standard Guide for Credentialing for Access to an Incident or Event Site
- E2915-13
  Standard Guide for Emergency Operations Center (EOC) Management
- E2951-13
  Standard Guide for Community Emergency Preparedness for Persons with Disabilities

Under Development

- WK68829
  Guide for Community Resilience Planning for Buildings and Infrastructure Systems
- E54.09
  Suite of Standards on Response Robots and Aerials

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E54.09 Response Robots

Aerial Response Robots – Test Methods Under Development

- Safety: Impact forces; lights & sounds; prop guards, sense & avoid; lost power behaviors; lost communication behaviors; lost GPS behaviors
- Situational Awareness: Point & Zoom Cameras; Inspect Planar Targets; Inspect Spiral Targets; Inspect Omnidirectional Targets; Search Wide Areas; Map Wide Areas; Navigate and Map Hallway Labyrinths
- Operation: Pre-flight Readiness Assessment & Launch & Recovery Procedures
- Sensing

  Visual: Image Acuity; Dynamic Range, Color Acuity
  Thermal: Image Acuity; Dynamic Range
  Latency of Video, Audio and Control
  Audio Speech Acuity

- Radio Communications: Line of Sight, Non-Line of Sight, Attenuated Range; Interference Range
- Energy / Power: Endurance Range (with & w/out payload); Dwell Time
- Maneuvering: Follow Lines While in Up & Down Range Orientation; Orbit a Point; Precision Landing; Negotiate through Wires, Pass through Windows and Slalom Obstacles
- Logistics: Configuration Identification; Packaging for Urban Search & Rescue Equipment
- Guides: Aerial Response Robot Purchasing; Response Robot Training; Response Robot test apparatuses

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UAS Public Safety JWG: Overview

Overview

- Formed: 2017
- JWG Members
  - UAS Experts
  - Training Providers
  - Public Safety personnel

Experts Represented

- NFPA 2400
- F38 Unmanned Aircraft Systems
- F54 Homeland Security Applications
- F32 Search and Rescue

Objectives

- Identify key public safety UAS operations
- Prioritize operations for industry need
- Develop Consistent scenario structure for ease of personnel execution and acceptance
- Develop Standard Use-case scenarios

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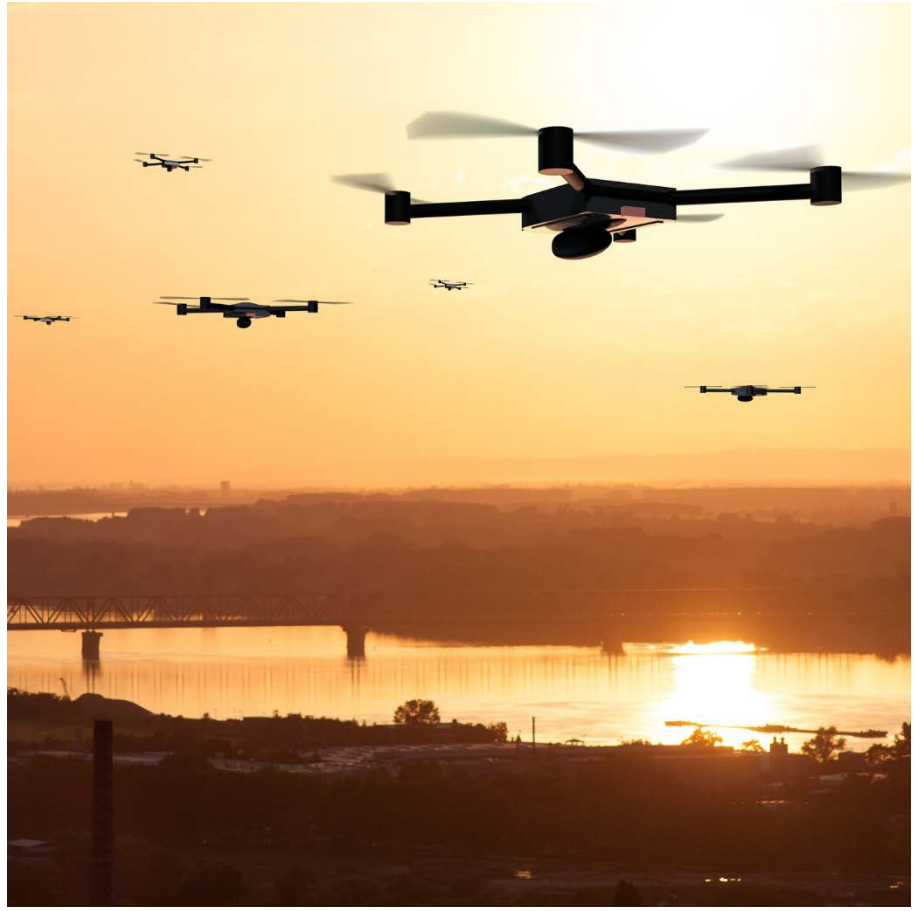
UAS Public Safety JWG: Overview

Areas of focus

- Accident Reconstruction Mapping
- Search and Rescue (SAR)
- Various environments and events
- Hazardous Chemicals / Hazmat
- Fire-fighting
- Structural Fire Response
- Wildfire Response
- Tactical Operations
- Payload Delivery
- Building Safety & Damage Assessment
- Closed Structure SAR

Key scenario components

- Professional Qualifications
- Operational Requirements
- Safety Management Systems
- Operational Plan
- Record Keeping / Reporting
- Terminology



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