



**World Fire
Congress**

2024 | UNITED STATES

Communities of Practice (COPs)

*Global conversations to shape the
future of fire and civil defense.*

Led by UL Research Institutes
Fire Safety Research Institute



Communities of Practice

- WFC delegates meet to **build relationships** that will allow a more open, transparent, and efficient **sharing of information** through communities of practice.
- COPs enable experts within our ranks to **gather regularly** to share strategies





Communities of Practice

- To bring forward **possible solutions** to common challenges
- To **identify emerging problems** areas and set priorities
- To monitor the progress of cooperative efforts and programs to **reduce fire losses**.

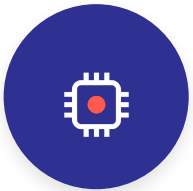
COPs Beginning 2026



01

Climate-Driven Large-Scale Events

Response & Resilience



02

Emerging Technology & AI



03

Data

Foundation of Evidence-Driven Fire Services



04

Fire in Low- & Middle-Income Nations



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Firefighter Health & Safety



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Women in the Fire Service



COMMUNITY OF PRACTICE 01

Climate-Driven Large-Scale Events *Response & Resilience*

- Climate change is reshaping the fireground today — accelerating events that **exceed the planning assumptions, resource capacities, and tactical doctrines** of even the most well-resourced services.
- The challenge is no longer only suppression; it is **systemic resilience**.

● **100M+**

people exposed to fire
worldwide in the 2024–25
season

● **700,000+ ha**

burned across South Korea,
Türkiye, Spain & Portugal

FOCUS OF THIS COMMUNITY

- Cross-border mutual aid architectures
- Community preparedness and adaptation
- Pre-positioning, early warning & evacuation



COMMUNITY OF PRACTICE 01

Climate-Driven Large-Scale Events

Storms & Floods

- Warming oceans and a more energized atmosphere are escalating **destructive storms and flooding** — hurricanes, typhoons, and cyclones intensify faster and carry far greater rainfall, while flash flooding overwhelms infrastructure **built for a climate that no longer exists**.
- **Fire, rescue, and civil defense personnel are consistently first on scene** — swift-water rescue, structural collapse search and rescue, mass evacuation, and shelter operations — often while their own stations and apparatus are directly affected.

ADDITIONAL FOCUS AREAS

- Multi-hazard mutual aid: wildfire, storm & flood response
- Compound and cascading events (e.g., burn-scar flooding)

- **~4,000 deaths**

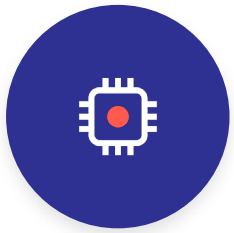
and ~\$49B in damage from 95 named tropical storms worldwide in 2025

- **35.1M people**

exposed to flooding globally each year — up ~25% since 1970

- **5,000+ deaths/yr**

from flash floods, causing ~\$50B in losses globally every year



COMMUNITY OF PRACTICE 02

Emerging Technology & Artificial Intelligence

- From AI-powered detection and satellite monitoring to autonomous apparatus, smart PPE, and commander decision-support, technology can synthesize vast data in real time — **delivering actionable intelligence** when seconds matter.
- However, the pace is uneven and the risks are real.

• **Seconds**

the window where real-time intelligence changes outcomes

• **Governance**

Maintain human oversight as adoption accelerates

FOCUS OF THIS COMMUNITY

- Share what works — and what does not
- Ethics and equity of adoption
- Shared frameworks for every nation



COMMUNITY OF PRACTICE 03

Data: The Foundation of Evidence-Driven Fire Services

- Fire service decisions — at the incident, department, and policy levels — are only as good as the data that informs them. Yet **fire data remains fragmented, inconsistent, and rarely shared across jurisdictions or borders.**
- Without common standards, we cannot know the extent of the fire problem and what is working.

FOCUS OF THIS COMMUNITY

- Data governance & interoperability
- Minimum viable data schema and standards for low-resource settings
- A global fire intelligence ecosystem

● **Fragmented**

Fire data is rarely comparable across nations

● **Every nation**

The goal: intelligence that serves all, not only the most advanced



COMMUNITY OF PRACTICE 04

Fire in Low- & Middle-Income Nations

LMICs

- Fire is one of the world's most inequitable killers. **Dense informal settlements, combustible construction, open-flame cooking, and under-resourced rescue services** compound the toll. This is not a distant problem — it is a shared global responsibility, and a call for partnership, not charity.

FOCUS OF THIS COMMUNITY

- Capacity building & technology transfer
- Informal settlement & community fire safety
- Genuine partnership, not charity

• **150,000+**

fire and burn-related deaths
every year

• **95%+**

of those deaths occur in LMICs
— death rates ~6× higher



COMMUNITY OF PRACTICE 05

Firefighting: Tactics & Training

The nature of fire is changing faster than the doctrines and curricula designed to fight it. From the **wildland-urban interface to lithium-ion, high-rise, industrial, and mass-casualty incidents**, tactics standard in one nation may be unknown in another — and directly transferable across borders.

FOCUS OF THIS COMMUNITY

- Compare doctrine & share incident lessons
- Simulation and technology-enhanced training
- Shared training tactics and standards that protect firefighters

● WUI

burning structures become the primary fuel, multiplying intensity

● Exchange

knowledge transfer between delegates is the key



COMMUNITY OF PRACTICE 06

Firefighter Health & Safety

- Those who serve face **occupational risks** among the most serious of any profession — yet the nature of those risks, and the responses to them, are deeply uneven worldwide.
- Other gaps are foundational: **basic PPE, rehabilitation,** and any formal **health monitoring** at all.

FOCUS OF THIS COMMUNITY

- Build shared, evidence-based knowledge
- Compare effective interventions
- Advocate a universal standard of health and safety [care]

• **~75%**

of IAFF line-of-duty deaths in 2024 attributed to cancer

• **Universal**

protection should not depend on the country you serve



COMMUNITY OF PRACTICE 07

Women in the Fire Service

- Women remain dramatically underrepresented in fire and civil defense — yet the global picture is far from uniform, and the variations across nations offer some of this community's most valuable lessons.
- A service that reflects its communities is more capable, more trusted, and more resilient.

- **4–5%**

of the U.S. career firefighting workforce are women

- **~80%**

of female firefighters report poorly fitting PPE

FOCUS OF THIS COMMUNITY

- Recruitment, retention & leadership pathways
- Equipment and PPE designed for all body types
- Culture change and policy that works

Communities of Practice – Leadership

TBD

Initial Agenda for COPs

- *Review the **Challenge***
- *Complete Literature Review and Compilation*
- *Brainstorm Related Challenges (Sub- challenges)*
- *Establish **priorities** for consideration*
- *Identify Deliverables to the WFC Nations*
 - *Best practices*
 - *Solutions*
 - *New insights*
- *Develop actionable recommendations to the WFC*

COP Timelines

- *COP Meetings*
 - *Quarterly or Monthly meeting – consistent day/time*
 - *Rotate AM vs. PM to share daytime meeting among nations*

Rules of Engagement

- The group is being assembled to **provide individual stakeholder input**, and to **exchange facts and information**.
- This group does not have a governance structure, **does not engage in voting** or consensus-based discussions.

Roll Out – September 2026

Stakeholder Engagement = The HUB

Statement of Concern

It is critical for the global fire service **to stay connected** to be aware of each other's strategic priorities, challenges and needs.

This connectedness enables WFC to identify **common objectives** to

- Design joint **engagements**
- Support joint investments in **research and development**
- Support community risk reduction through **joint public messaging ...** saving limited resources.
- Identify strategic engagement **opportunities and exchanging knowledge and expertise.**

#1 Structure Fire

Statement of Concern

- Nations experience billions of dollars in **direct and indirect economic loss**.
- Globally, fire threatens critical infrastructure, national security, and public safety.
- Structure fires are a leading cause of civilian fire deaths and injuries, and **most fires are preventable**.
- Many fire departments **do not have adequate resources** to respond safely, efficiently, and effectively.

#2 Climate Change

Statement of Concern

- Climate change has a broad range of observed effects and is **changing the baseline risk environments for fire departments** across the globe.
- Climate change driven **wildfires** are growing in intensity, size and destructiveness.
- **Drought, extreme heat, floods, severe storms, extreme cold, and rising seas levels** all affect the emergency events to which firefighters respond.
- Climate change **effects on communities can be catastrophic** including overwhelmed firefighter response capabilities, tragic loss of life, and socioeconomic devastation.

#3 Fire Risks from Emerging Technology

Statement of Concern

- **Beneficial innovation** like electric vehicles (EV) and Lithium-Ion battery bikes and scooters are needed to move us away from dependence on fossil fuels.
- Innovation can sometimes lead to **unintended consequences** like a fire threat.
- Globally, there is a need to **share information** on threat realization, policy and regulation, response resources, public awareness and prevention education, research, and firefighter training.

#4 Firefighter Health and Safety

Statement of Concern

- The fire-fighting community struggles with several health concerns including elevated rates of **cancer and mental health** conditions.
- Firefighters have a 9% higher risk of developing cancer and a 14% higher risk of dying from cancer compared to the general public.
- Firefighters and other rescue personnel develop PTSD at a similar rate to military service members returning from combat.
- To exacerbate the health and safety challenges, many nations are **struggling to recruit firefighters**.

#5 Firefighter Education and Training

Statement of Concern

- Firefighters have become universal around the world. However, **consistency in firefighter training has not.**
- Initial firefighting skills are normally taught through local, regional, state, or nationally approved fire academies or academic institution training courses.
- The **skills** required for safe firefighting operations should be **regularly practiced** during training evaluations **throughout a firefighter's career.**
- Depending on the requirements of a fire department, **additional skills and certifications** may be acquired throughout a firefighter's career for promotional opportunities to fire officers.
- Many nations experience **lack of basic firefighter training resources** and most certainly **lack advanced officer training opportunities.**



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Communities of Practice (COPs)

Organization and Leaders

