

# Navigating Philosophical Questions in Fire Safety and Incident Management

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# Highlights

- Ethical considerations in fire safety management remain largely unexplored
- Philosophers can play a key role in improving fire risk management strategies
- Fire safety policies must balance human life, property and environmental protection
- Fair resource distribution is essential for justice in fire risk management
- Inclusive decision-making strengthens fire risk governance and community

engagement

#### Introduction

Although fires can affect anyone in society, a disproportionate number of those who are killed or injured are children, the elderly, and people with disabilities (although the most affected groups may vary between countries). In the European Union alone, 5,000 people are killed in residential fires annually, and the number of injured people could be up to 10 times as high (Moniruzzaman, 2023; European Fire Safety Alliance, 2024). Animals and natural environments negativly are affected by fires too, although more research is needed to understand the direct impact of fires on animal mortality rates (Jolly et al., 2021). The direct and indirect costs of fires, including service provision, fatalities, injuries, and environmental and property damage, are enormous. Cautious estimates suggest that in most developed countries, the cost of fires amounts to at least one per cent of the Gross Domestic Product (McNamee et al., 2019). There is reason to believe that the costs could be significantly higher in other parts of the world.

Many fire risk management policies and procedures are taken for granted, often they are justified by the reasoning, "We have always done it this way." While such an approach may seem reasonable given that it has for the most part worked in the past, it can inadvertently increase the risk of catastrophic events in a complex, ever-changing environment. A key issue is that merely replicating past practices may lead to forgetting why the practices were implemented in the first place. In fire risk management, the primary objective is to ensure a sufficient and satisfactory level of safety. However, focusing heavily on how things are done might cause safety levels to erode. This phenomenon is known as 'drift into failure' (Dekker and Pruchnicki, 2014). That is, when established practices are being used without continuously evaluating their impact or purpose, they may unknowingly deviate from safe conditions. To prevent potential drift into failure, it is crucial to regularly reassess and incorporate new knowledge, not just on how fire safety measures or polices are implemented but whether they still achieve the intended level of protection or purpose. This requires a forward-thinking approach that continuously assesses risks, responds to emerging challenges, is open to new perspectives, and re-examines established 'truths' to maintain genuine safety.

Although fires affect core values and resources in society, there is a noticeable lack of academic literature specifically addressing the ethical challenges attached to fire risk management. Sandin and

<sup>&</sup>lt;sup>1</sup> Spinardi (2019) observed this effect in the application of Performance Based Design (fire protection and safety as per Table

Wester (2010) concluded that there was no substantial body of literature or discussion on the ethics of fire safety generally, nor on the specific issues of fire safety resource and responsibility allocation. This has changed slightly in recent years, not least through the rapidly growing field of disaster ethics (Geale, 2012; O'Mathúna et al., 2018; Lukasiewicz and Baldwin, 2020; Jennings, 2022; Zack, 2023). However, it is not wrong to conclude that the ethics of fire risk management has received considerably less attention compared to closely related public health and safety areas, such as road safety or pandemic response, where practitioners and academic scholars vigorously debate ethical issues.

Fire risk management brings about various ethically challenging issues, starting with what goals should be pursued and how to best address them (Goldstein and Kennedy, 2022). It forces us to think hard about; Who or what ought to enjoy protection? At what cost, how limited public means ought to be distributed among protected objects? Who should be involved in the fire preventative planning and response operations? what constitutes a fair division of responsibilities between private individuals and society's institutions? Among others questions. These are relevant issues to investigate not only for scholars working in the field of applied ethics (Sandin, 2009), but also for scholars and practitioners who wish to contribute to achieving effective and cost-efficient fire risk management. Thus, in an article on wildfire planning Goldstein and Kennedy (2022) conclude: "If fire management is to respond effectively to ever-increasing pressures, scientific and technological innovation must be paired with commensurate attention to the ethical dimensions of fire management, to developing the tools and processes that can facilitate a more robust engagement of stakeholders around ethical issues, and to embracing the important role that value-based deliberation plays as part of fire research and fire planning and management" (p. 911).

This paper follows Goldstein and Kennedy's pleading. It argues that the fire safety and engineering focused research agenda proposed by, for instance, the International Association of Fire Safety Science (IAFSS) (McNamee, et al., 2019) needs to be supplemented with efforts targeting the normative challenges of fire risk management. Such efforts would not only close the gap that currently exists in the expanding field of disaster ethics, where fire risk has until now played a minor role, but contribute to the professionalisation of the public fire and rescue response, inform public debate, and make room for more efficient, legitimate, and equivalent fire safety outcomes. In this paper, four fundamental ethical issues in fire risk management are identified with the further aim of giving practitioners and scholars a better understanding of how to meet the core objectives of fire safety, while ensuring that implemented strategies are not only effective but equitable and justifiable from a moral point of view:

- 1. What entities warrant protection in fire risk management?
- 2. On what grounds should fire risk resources and protections be distributed?
- 3. What level of fire safety ought to be considered sufficient and satisfactory?
- 4. Where does responsibility lie for achieving satisfactory fire risk management?
- 5. Who ought to participate in fire risk management decisions?

Although the five questions identify the most fundamental ethical issues in fire safety management, the discussion below does not aim to capture all relevant aspects of those issues; this would be a far too difficult task. As was noted by Plantinga et al. (2022), fire and rescue services operate in an exceptionally complex decision-making environment. Fires, especially wildfires and building and residential fires, impact (and are impacted by) a wide range of private and public stakeholders. In

many cases, as is most notably the case in the fire incident response phase, decisions must be made under stress, as multiple societal values may be at risk, and there is little time for systematic reflection or for acquiring additional necessary information and in addition response operations, including fire suppression, typically evolve through different phases as the situation develops, each demanding renewed (and different) judgment and action.

Importantly, fire protection efforts begin well before any actual incident occurs. The fact that successful prevention often results in no visible emergency response highlights the often-invisible but essential role of fire risk management in safeguarding society. For these reasons, determining what level of fire protection should be considered sufficient and satisfactory, or how fire protection resources should be distributed to meet legitimate justice requirements, among others, are notoriously difficult tasks. This paper discusses the fundamental ethical issues in fire risk management at a general level, although a more careful ethical analysis is required to give specific directions concerning legitimate courses of action.

# Summary/Conclusion

By introducing a set of philosophical and ethical aspects related to fire risk management as a system, it becomes evident that this is a highly complex context. As we have shown, many of the challenges involved are interrelated, and the questions they raise cannot be easily addressed in isolation. Evaluating the sufficiency or adequacy of fire safety measures may seem relatively straightforward when examining individual components or subcomponents of fire risk management (see Table 1). However, these elements are deeply interconnected and often overlap. The shift to consider not only the outcomes but also the processes involved, particularly what constitutes a *satisfactory* protection, requires a broader evaluative framework. This includes accounting for a wider range of protected entities, ensuring a fair and transparent allocation of resources, and recognizing the importance of participation, clear responsibility, and accountability in a similar manner across the spectrum.

For some informed readers, both scholars and practitioners, the issues highlighted in this article may not be entirely new. However, our aim is to support a more holistic understanding by underscoring the need to integrate philosophical and ethical perspectives with the many practical and policy-related demands that shape modern fire risk management. This firstly aligns with the first two steps of Wolff's (2019) framework for engaged philosophy, identifying relevant values and clarifying their implications in this specific context, as outlined in Table 2, and secondly add to Goldstein and Kennedy's (2022) plea to embrace value-based deliberations within the fire research, planning and management. While we recognize that there are ongoing initiatives and varying conditions and capacities around the world aimed at addressing some of these value-laden challenges, they are often limited to specific contexts or focused on a narrow aspect of the fire risk management system. Moreover, it remains unclear to what extent these ideas have been implemented in practice, and what their actual effects are on the system as a whole.

# **Referred Tables**

Table 1 Key components of fire risk management

Component	Focus Area	Main Activities
Fire Prevention	Eliminating fire hazards	Risk assessments, training, regulations, building regulations
Fire Protection	Active and passive fire control	Fire alarms, sprinklers, fire-resistant materials
Fire Safety Management	Policy, procedures and compliance	Safety audits, fire drills, emergency planning
Fire Incident Management	Response and recovery	Preparation, incident procedures, Evacuation, firefighting coordination, post-incident analysis
Business or Community Continuity	Ensuring operations or upholding functions post-fire incident	Incident/disaster recovery, insurance, system restoration, policy adaptation

Table 2 Wolff (2019) proposed steps in engaged philosophy.

Step	Description	
1. Identify the issue and current state of affairs	Recognize the issue in need of public attention and understand its current legal, regulatory, and factual context. This includes surfacing overlooked or unnamed problems.	
2. Identify the arguments and values	Map the positions in the debate and analyze the arguments and values (e.g., autonomy, fairness) on each side. Clarify assumptions and expose weak reasoning.	
3. History and comparisons	Investigate the historical background and policy evolution of the issue. Compare with other jurisdictions or contexts to inform potential solutions.	
4. Create a profile of possible solutions	Build a menu of plausible policy options, taking into account the feasibility of change, status quo bias, and insights from history and other examples.	
5. Evaluation of options	Assess each option using a pluralistic and pragmatic approach. Consider harm reduction, practical consequences, and whether certain reframings can narrow disagreement.	
6. Policy recommendation	Propose a solution that can be justified publicly and has the potential for real-world implementation. This step can involve advocacy and communication to influence decision-makers and the public.	

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