



# RESEARCH FOUNDATION

## RESEARCH FOR THE NFPA MISSION

### PROJECT PROSPECTUS

## Review of Available Technologies for Deaf and Hard of Hearing Populations

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**Background:** Audible and visible alarms are required in sleeping rooms, such as hotel rooms which may be occupied by people who are deaf or hearing impaired. However, evidence suggests that strobe lights are ineffective in alerting such people when asleep. A previous Research Foundation study also shows that older adults also may fail to respond to both audible and visible alarms. People with significant hearing loss compensate by using alternative devices such as bed shakers, portable devices that alert them of alarm activation by detecting the audible signal and vibrating in response. Despite the critical role these devices play in life safety for people with hearing loss, they are not standardized and their effectiveness is not fully understood.

**Research Goal:** The primary objective of this project is to develop resources on and provide a review of the currently available alternative alarm and detection technologies and their respective characteristics, use cases, regulations and certification and approval processes for the deaf and hearing-impaired community.

### **Project Tasks:**

#### **Task 1: Literature Review.**

- a) Provide a literature review of alarm technologies and their respective effectiveness for the deaf and hard of hearing population.
- b) Provide a review of codes and standards (including listing standards) that address these alarm technologies.

#### **Task 2: Identify and Review Available Technologies.**

- a) Identify and develop a list of alarm technologies available for the deaf and hard of hearing population (e.g. bed shakers and similar technologies)
- b) Summarize the characteristics of these technologies (specifically how the technologies connect to fire alarm systems), the type of technology used, their effectiveness at waking, where available, and any applicable standards that they are subject to (including listings).
- c) For this at-risk population, clarify and provide guidance on the applicable use cases of the identified technologies.

**Task 3: Develop a final report.** Develop a draft and final report documenting the analysis from Tasks 1 and 2.

**How this will be used:** This information will be used by the applicable NFPA Technical Committees as well as the NFPA Disability Access Review and Advisory Committee (DARAC) to update safety information for disabled communities.