



**PSIRA**  
Private Security Industry Regulatory Authority

**MAKE IT FIREPROOF:**  
Fire prevention and detection in  
the private security industry







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## About the report

Title: MAKE IT FIREPROOF: FIRE PREVENTION AND DETECTION IN THE PRIVATE SECURITY INDUSTRY

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Special Thanks: To all the participants within this sector.



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# EXECUTIVE SUMMARY

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The fire prevention and detection sector comprises various role players. The need to gain insights into the activities undertaken by these role players remains critical for the Private Security Industry Regulatory Authority (PSiRA) as they arguably form part of the broader private security sector in South Africa.

Needless to say, the fire prevention and detection sector is not novel. However, the exact size of the sector remains unknown as there remains a robust debate of whether the sector should be part of the private security sector. Within the fire prevention and detection sector, there are two sub-sectors, being fire prevention on one hand and fire detection on the other. The question of whether both sub-sectors should be part of the private security industry remains a subject for further debate.

The role players that were identified in this study are registered with a number of bodies and/or organisations which are not necessarily regulatory bodies. These include the Fire Detection Industry Association and the Fire Protection Association of Southern Africa. This creates a regulatory 'gap', as these bodies and/or organizations are not legally mandated to regulate the fire and prevention sector. Instead they arguably promote good practices.

Arguably, there is a link between fire prevention and detection and private security insofar as it relates to the provision of a "security service" by "security officers" in terms of the Private Security Industry Regulation Act 56 of 2001. These security officers are the "first line of defence" in the event of there being a fire outbreak or a fire detection alarm has been triggered. They are responsible for preventing and detecting fire.

The argument to the above is that the private security industry and fire prevention and detection are two distinct industries. The PSiR Act, provides that a “security service” is one where a person renders services by protecting life and property in any manner. Based on this argument, a broader look at this definition would mean that consultants providing fire detection systems are providing a security service, thus interpreting the definition in a wide sense - and loosely.

# 1. INTRODUCTION

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The importance of having a fire detection plan tailored to specific needs of each business, organisation and home cannot be over emphasized. Security officers (within this fire detection and prevention space) play a significant role in the prevention and detection of fires.<sup>1</sup> As a matter of fact, all workplaces, public and private places should have a fire detection plan in place. A fire outbreak could occur at any time and at any place. According to the PSiRA Annual Report 2020/2021, 43 businesses were registered with the Private Security Industry Regulatory Authority.

It goes without saying that the lives of people should be the first priority during a fire outbreak, and the importance of undertaking a study on fire prevention and detection cannot be overemphasised. This report is an exploratory study, which seeks to provide a more detailed idea of what the fire prevention and detection sector entails, how big/or small the sector is, and how it is regulated, if at all.

The fire detection and prevention sector include consultants who offer a range of services such as conducting fire prevention, detection and risk assessments, and other services that include all the detailed designs of fire related systems, such as automatic sprinklers, hydrants, hose reels, smoke ventilation, fire detection and alarm systems and gas suppression just to name a few.<sup>2</sup> Among other objectives, this study sought to determine whether these consultants are registered with PSiRA.

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- 1 Absolute Security & Facility. Security Guards Role In Prevention And Detection Of Fires. <https://absoluteservices.in/blog/security-guard-role-duringfires/#:~:text=In%20case%20of%20fire%2C%20the,it%20through%20the%20CCTV%20camera> (accessed on 09 May 2022).
  - 2 Fire Engineering. Fire Engineering consulting Services. <https://www.wsp.com/en-ZA/services/fire-engineering> (accessed 09 May 2019).

The study also explored the working relationship between security service providers, fire departments, and fire detection consultants. A number of terms have been used to describe technologies or systems that detect the occurrence of a fire such as “fire alarm systems”, “fire detection systems or fire detectors”. It is hoped that a study of this nature will assist the Authority in appreciating the terminology used in the fire detection and prevention sector and shed light on the training involved in this sector.

Apart from the terminology used in the fire prevention and detection space, this study discusses briefly the types of fire detections systems currently in the market. It is also easy for one to simply say organisations should have fire safety management plans in place, but how often do these plans get updated or checked? Further, do employees get informed or trained according to the updated fire safety plans or/ and are the fire drills conducted if so, how often? Needless to say, fire detection systems are complex and specialised, and thus require a high standard of care and maintenance to enable them to consistently fulfill their intended objectives of life safety.<sup>3</sup>

Firstly, this report provides a background to the study which contextualises the need for the study on the fire detection and prevention sector in order to identify any regulatory gaps from PSIRA perspective. Secondly, the report discusses the research aim, objectives, hypothesis and questions, which provided guidance in approaching this study. Thirdly the report will provide a research methodology detailing how the data was collected. This part will also present limitations to the study. Fourthly, the report provides the literature review on the subject matter. Fifthly, the report presents research findings which were gathered during the field research. Sixthly, recommendations are presented as informed by the research findings. Lastly, a conclusion is drawn.

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3 Fire Detection Industry, Private Security Industry Advisory Committee, 16 November 2021.

## 2. BACKGROUND

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Subsequent to the 2021 fire outbreaks that occurred at Charlotte Maxeke Hospital and the University of Cape Town's library, the South African Bureau of Standards (SABS) released its recommendations for fire detection and alarm systems for non-domestic premises in the form of a Code of Practice for design, installation, commissioning and maintenance of fire detection and alarm systems in non-domestic premises (the Code). The Code provides for when, and what kind of alarm systems and smoke detectors should be used at non-domestic premises, like businesses and hospitals.<sup>4</sup> Fire alarms with proactive warnings placed in the right places could save lives and mitigate property damages.<sup>5</sup> In the case of South Africa the statistics for fires were not readily available. This presents a challenge in appreciating the extent of fires and how they are addressed by the fire detection and prevention sector.

In the case of the United States, it is estimated that there are 475,500 construction fires per year, resulting in 2,950 civilian fatalities, 12,775 civilian casualties, and \$7.9 billion in property loss.<sup>6</sup> Further, according to the US-based National Fire Protection Association, "two-thirds of all house fires in the United States occur in homes with no functioning smoke detectors, alarms that have been neglected, or alarms that have been lost".<sup>7</sup>

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4 Sarah Evans published 16 May 2021, Business Insider South Africa. SA has new rules for fire alarms. Here's what you need to know. <https://www.businessinsider.co.za/sa-has-new-rules-for-fire-alarms-heres-what-you-need-to-know-2021-> (accessed 08 May 2022).

5 Shamrat, F.J.M., Khan, A.A., Sultana, Z., Imran, M.M., Abdulla, A. and Khater, A., 2021, October. An Automated Smart Embedded System on Fire Detection and Prevention for Ensuring Safety. In 2021 2nd International Conference on Smart Electronics and Communication (ICOSEC) (pp. 978-983). IEEE.

6 As above.

7 As above.



It may be argued that fire detection providers may extend, or rather include, designers of the prevention plans of buildings. These designers may be required to follow or adhere to certain guidelines in terms of the National Building Regulations. Further, the extent to which the designers follow these guidelines and principles may or may not have an adverse effect when it comes to issues of insurance. Fire detection plans and systems will differ depending on the building, size of the building and the desired needs of the clients. The Insurer Property Protection guide provides more information on issues relating to claims of insurance. Research on insurance related matters is beyond the scope of this study.

In the event of a fire, security service providers have to take reasonable steps to minimize the effects of a fire. Different fire safety systems are used and installed as a means to prevent and or detect a fire in buildings and private residents. Security supervisors and security officers play an important role in ensuring safety of buildings, people and property. Security service providers also have a duty to detect and prevent fires.<sup>8</sup> The role of security service providers also differ in the event of a fire outbreak. This study focuses on the specific sector of fire detection and prevention and not on events which take place before and during a fire outbreak and how security service providers react during a fire outbreak. The study seeks to reveal the role players which are involved during prevention and preparation of a fire outbreak.

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8 (n 1 above).

### 3. RESEARCH AIM, OBJECTIVES, RESEARCH HYPOTHESIS AND QUESTIONS

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The aim of the study is to acquire in-depth knowledge of the different role players in the fire detection and prevention sector.

#### Objectives

The objective of the study is to as follows:

- Discover the extent of the fire detection sector,
- Determine the role of actors in the fire detection and prevention sector,
- Identify the fire detection equipment and technologies, and
- Determine the training afforded to security service providers and consultants and the relevant training providers.





## Research Hypothesis

The research hypothesis is: *The fire prevention and detection sector is effectively regulated in accordance with the Private Security Industry Regulation Act, No. 51 of 2001.*

The study has two research questions, namely

- (1) Primary research question: *What role is played in the fire prevention and detection sector within the South African private security industry?*
- (2) Secondary research questions are as follows:-
  - What is the extent of the fire detection sector?
  - What are the various roles of actors in the fire detection and prevention sector?
  - What equipment and technologies are used in the fire detection and prevention sector?
  - What training is afforded to various actors in the fire detection and prevention sector?

## 4. RESEARCH METHODOLOGY

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This section presents the tools and techniques that were used in conducting the study. In conducting the study, qualitative methodology was used. Face-to-face interviews were conducted in collecting the data. This assisted in providing in-depth insights into the phenomenon. The qualitative research methodology allowed for the participants in this study to share their lived experiences. Further, the participants had an opportunity to share insights into their work in the fire detection and prevention sector. They also provided their recommendations on how PSiRA could improve its regulatory mandate.

Prior to the interviews, a consent form was sent to each research participant, where they were asked to give permission to have their contributions reflected in the report. In the consent form, they also confirmed that they were aware that the report with their contributions would be published. The sample size included small, medium and big companies of security service providers.

Interviewed participants included officials from the fire department; representatives of the Fire Protection Association of Southern Africa; fire detection consultants; PSiRA officials; and private security service providers, including installers of fire detection systems. Data collection tools such as desktop and field research were used in conducting the study. Where it was impossible or impractical to have face to face interviews, the use of skype, Microsoft Teams, telephonic became handy. On completion of the study, the member checking method was used to ensure the validity and reliability of the data collected.

## 5. LIMITATIONS TO THE STUDY

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It must be noted that the study on fire detection and prevention is the first study of its kind undertaken under the auspices of PSiRA. There is also a dearth of literature on the subject matter as it specifically relates to private security in the South African context. This presented the first limitation to the study. Be that as it may, this study made use of generic literature which is applicable in international contexts.

By its very nature, participation in research is voluntary. Some of the identified respondents that were requested to participate indicated that they were engineers working in the fire detection sector and were not security providers. For this reason, they declined to be interviewed. Some personnel in the Fire brigade stated that their job was solely to put out a fire. This presented the second limitation. Nevertheless, since the study was exploratory in nature, insights were gathered from those who willingly provided information.

The question as to whether or not the fire detection and prevention sector is part of the security sector remains a subject of debate. The PSiRA database contains no more than 44 security providers registered under this sector which is not a entirely a credible number reflective of providers in the fire detection and prevention sector in South Africa. This presented a third limitation to the study as the sector can arguably be seen to be unregulated (at least by PSiRA). Be that as it may, this study was able to make a case for the need for the Authority to provide guidance on this issue.

Despite the limitations presented above, the study remains credible.

## 6. LITERATURE REVIEW

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This section focuses on academic writings of scholars who have written on the phenomenon relating to fire detection and prevention. Early fire detection can help to alert and prevent disasters that cause great economic damages and human losses.<sup>9</sup> Before one can speak about the different fire systems that are available in the market, it is important to first define - or rather provide - a few definitions within this sector as they relate to fire detection systems.

### 6.1 Definitions

A fire detection system can be defined as a fire alarm system that receives signals and responds to events produced by various inputs such as smoke and heat detectors.<sup>10</sup> Fire detection systems are permanently installed and are made up of manual and automatic systems.<sup>11</sup> Fire detection systems vary, which means the costs associated with the installation of these systems will also vary depending on that specific equipment or system.

In fire detection and prevention, there are vision-based systems. According to Gomes *et al*, vision-based systems are expected to produce sufficiently detailed data for the estimation of the fire's outline, location, and dynamics.<sup>12</sup> They further argue that thermal cameras can do the above in an extremely robust way.<sup>13</sup>

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9 Millan-Garcia, L., Sanchez-Perez, G., Nakano, M., Toscano-Medina, K., Perez-Meana, H. and Rojas-Cardenas, L., 2012. An early fire detection algorithm using IP cameras. *Sensors*, 12(5), pp.5670-5686.

10 Fire Detection. <https://integratek.co.za/firedetection/> (accessed 25 July 2022).

11 As above.

12 Gomes, P., Santana, P. and Barata, J., 2014. A vision-based approach to fire detection. *International Journal of Advanced Robotic Systems*, 11(9), p.149.

13 As above.

However, their high cost renders them practically non-existent in the vast majority of surveillance applications.<sup>14</sup> Fire detection from low-cost surveillance cameras operating within the visible spectrum is expected to generate the highest practical impact.<sup>15</sup> The type of fire detection systems to be installed should be tailored to the specific needs of that building.

Fire protection installation can be described as any water installation which conveys water solely for the purposes of firefighting.<sup>16</sup> Water is an important source to put out fires. Fire protection installation is defined as any device or system designed and installed to (a) detect, control or extinguish a fire, and/or (b) alert occupants or the fire service, but excludes portable and mobile fire extinguishers.<sup>17</sup>

## 6.2 Fire detection servicing

To avoid false alarms, smoke and heat detectors only trigger once a sufficient amount of smoke particles flow into the device or until the temperature has increased substantially.<sup>18</sup> To provide fire protection in the building it is very important to detect fire at its early stage.<sup>19</sup> Early detection of fires saves lives and reduces damage to property. It is also important to develop new fire and smoke detection techniques to reduce the number of false alarms.<sup>20</sup> In the South African context, the fire detection system

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14 As above.

15 As above.

16 SOUTH AFRICAN NATIONAL STANDARD. The application of the National Building Regulations Part W: Fire installation. SANS 10400-W:2011.

17 As above.

18 Qureshi, W.S., Ekpanyapong, M., Dailey, M.N., Rinsurongkawong, S., Malenichev, A. and Krasotkina, O., 2016. QuickBlaze: early fire detection using a combined video processing approach. *Fire technology*, 52(5), pp.1293-1317.

19 Fong, N.K., 2010. Review of fire detection problem. *International Journal on Engineering Performance-Based Fire Codes*.

20 As above.

must be designed, installed and maintained by competent persons as stipulated by SANS 10139.<sup>21</sup>

In accordance with South African regulations and SANS 10139:2012 a fire detection system must be serviced every six months. This is a compulsory and legal requirement in order to comply with regulations. All work and services must be recorded in a log-book and signed off by a competent SAQCC certified fire detection technician/engineer.<sup>22</sup>

### 6.3 Fire Fighting vs Fire Prevention

Fighting fires is a firefighter's primary duty.<sup>23</sup> Fire fighting and fire prevention are not the same thing even though some may argue that they may be similar to a certain extent. The counter argument is that similar and same do not mean one thing or identical. When one looks at fire fighting, there is a fire department within different municipalities and even airports wherein specific individuals are employed to be fire fighters. When there is a fire outbreak these individuals are called upon to try put out the fire. The sole duties of fire fighters is to put out a fire and yes this may at times entail evacuating people inside a building, conducting investigations on arson claims, assist during natural disasters. There are other functions incidental there to and this is not an exhaustive list. The main focus is to provide clarity or a clear distinction between fire fighting and fire preventing.

Fire fighters conduct regular drills and training on how a fire should be put out and are specifically employed for that purpose. In addition fire fighters, during the course of performing their functions, are required to wear safety suits which protects them from getting burnt by the fire. Fire fighters are also required to wear a face mask also referred to as self-contained breathing

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21 Fire Engineering(in 2 above).

22 As above.

23 Career Explorer by Sokanu Interactive. <https://www.careerexplorer.com/careers/firefighter/>. (accessed 30 January 2023).

apparatus. Security officers do not wear such protective safety suit or face mask. Every fire department in South Africa has its own requirements but the basic entry level requirements are: Matric, driving licence - Code 10 with PrDP, Pass a physical test, Must not be claustrophobic and Must not be afraid of heights.<sup>24</sup>

Security service providers in addition to their duties are required in terms of their service level agreement to try put out a fire where possible and evacuate people. Whereas fire fighters are employed to put out fires and in addition to their duties are required to perform other roles incidental there to. Fire prevention is the tools and steps taken by people to put out or prevent the fire from occurring or spreading, such as regularly checking if the fire sprinklers, fire detectors and hydrants are working.

Fire prevention on the other hand can be done by anyone and in this section the word anyone is used loosely. What is meant here is that owners of buildings whether residential or commercial buildings may take it upon themselves to take reasonable steps to ensure that their fire detection systems are working. Security officers undergo fire fighter training on how to react in the event there is a fire outbreak, because security officers are the first responders in such an event where they are employed. In buildings where security service providers are employed, there will be a security manager whose duty it is to ensure that security officers know how to use fire hydrants and how security officers are expected to react in the event of a fire outbreak. Security officers will use fire hydrants where applicable and or evacuate people, or ring the fire alarm to alert people that they need to evacuate the building. And at times calling fire fighters or the fire department is usually done by the security manager present in that building. Security service providers are therefore not fire fighters. An attempt to put out a fire or to evacuate people in the event of a fire is one of their many duties but is not their primary duty.

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24 <https://www.arrivealive.mobi/Safety-from-Fire-at-our-Homes>. (accessed 30 January 2023).

## 6.4 Organisation of building regulations

It is now a legal requirement in South Africa as per SANS 10400 – section: 4.31.2 for all buildings that exceed 30m in height (approx. 10 floors), or contain any floor exceeding 5,000m<sup>2</sup>, to be equipped with a fire detection system.<sup>25</sup> Any building containing an occupancy classified as a) F1, with a floor area of more than 500m<sup>2</sup> irrespective of height or floor area, shall be equipped with a fire detection system and alarm system that is designed, installed and maintained by competent persons in accordance with SANS 10139.<sup>26</sup>

The organization of the building regulations are divided into twenty-three parts, however for purposes of this paper, we will only focus on two parts namely;

- Part T – Fire Protection
- Part W – Fire Systems



25 As above.

26 South African National Standards: SANS 10400-T (2011) (English):  
The application of the National Building Regulations Part T: Fire protection.  
<https://www.nfast.co.za/gallery/fire%20extinguisher%20regulations.pdf>  
Page 45.



## 6.5 Fire and safety international standards

The Standards Division of the South African Bureau of Standards (SABS) maintains and develops several national standards aimed at ensuring the protection of life and property from fire and fire-related damage.<sup>27</sup> As part of the SABS's legislated mandate, the SABS published a revised version of *SANS 10139, Code of Practice For Design, Installation, Commissioning And Maintenance Of Fire Detection And Alarm Systems In Non-Domestic Premises*, which brings South Africa in line with fire safety standards similar to those in the United Kingdom and Europe.<sup>28</sup> *SANS 10139 is based on the British Standards BS5839-1, Fire Detection And Fire Alarm Systems For Buildings.*<sup>29</sup> *Code Of Practice For Design, Installation, Commissioning And Maintenance Of Systems In Non-Domestic Premises.*<sup>30</sup> The British Standard (BS5839-1) was updated several years ago after fatalities occurred at an old age home in Lancashire that killed 14 elderly people.<sup>31</sup>

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27 South African Institute of Electrical Engineers. SABS Updates National Standard on Crucial Fire Detection And Alarm Systems. 13 May 2021.<https://www.saiee.org.za/News/DisplayNewsItem.aspx?niid=51387>

28 As above.

29 As above.

30 As above.

31 As above.

## 7. RESEARCH FINDINGS

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This section looks at the findings as informed by data collected from participants. These findings are based on either the knowledge or first-hand experience of the participants.

Depending on the work rendered by the different consultants, the below are some of the words used to describe fire prevention and detection within this industry. Prevention has been described by some participants as focusing on the maintenance aspect of fire detection systems and the installation of such fire related systems.<sup>32</sup> One needs to ensure that the fire detection systems are well maintained and, most importantly, having the right systems installed that will help prevent and also detect a fire.<sup>33</sup> Detection has been said to have systems in place that protect the build from fire by providing early warnings of a fire.

### 7.1 Extent of the fire detection sector

The study was not able to identify the true size of the fire prevention and detection sector, meaning that an exact size of the sector could not be determined. There are approximately 1,500 contractors and installers, within the sector however some are not registered.<sup>34</sup> As previously stated in the limitations that participation is voluntary. Further, the study was able to identify that this sector has a many different role-players which could fall under both or either the category of prevention or detection. A number of participants stated that the fire prevention and detection sector is a sector completely separate from private security. Prevention focuses on the physical aspect, looking at the building, to lessen the fire. While detection focuses on tools or equipment such as using fire detectors to detect the smoke to warn and activate the alarm.

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32 Anonymous.

33 As above.

34 FDIA.

According to the PSiRA 2020/21 annual report, there were 43 registered security service providers who rendered fire prevention and detection services. Upon request to access the database, and telephonically contacting the service providers, there are companies that conceded to not providing any such services. Currently the database shows that there are 44 registered security service providers within this sector. More than half of the service providers on this database did not provide any fire prevention and detection services. The study therefore indicates that this database is incorrect and needs to be updated to show the true reflection within this sector.

## **7.2 Role of Actors in the Fire Detection and Prevention Sector**

Fire safety engineers are employed by public and private sector organizations of all types.<sup>35</sup> The role of fire engineers is to look at the overall big picture of the building. These engineers or consultants will then provide advice on what is needed for a specific building such as having a fire escape of a certain size depending on the system.<sup>36</sup> When it now comes to detection, the consultants will have the knowledge of the relevant standards of the different systems.<sup>37</sup> The department of Labour has requested that fire detection consultants be registered with the SAQCC - there are four groups namely, cablers, installers, commissioners and designers.<sup>38</sup>

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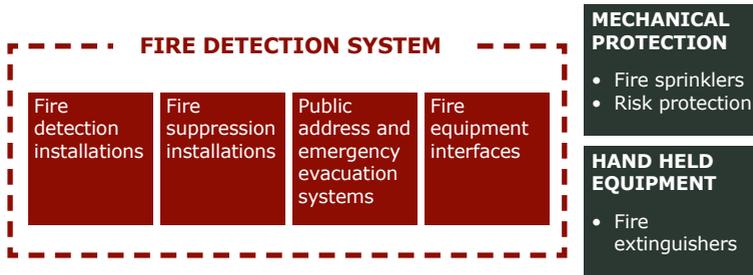
35 Meacham, B.J., 2014. Fire safety engineering at a crossroad. *Case Studies in Fire Safety*, 1, pp.8-12.

36 As above.

37 As above.

38 Anonymous.

## Fire Protection Sector<sup>39</sup>



### 7.2.1 Registration of Fire Prevention Detection Consultants

The common view and response were that it should not be made a requirement that fire engineering consultants be registered with PSiRA because these are two industries separate from each other. Fire Prevention consultants supply a system within the physical part of the building. Some have argued that fire detection has zero to do with security. Further stating that security officers' role in this sector is limited to assisting people or help those people evacuate the building.

A question that was asked was, why should fire fighters be registered with PSiRA? This question came from the premise that the role of fire fighters is to put out a fire. A strong view was expressed that anything fire related should fall under health and safety and not private security. Further stating that owners of buildings have a duty to protect their building. It is therefore incorrect to think that every owner of a building should be registered with PSiRA just because they have a duty to protect their building from a fire.

### 7.2.2 Membership and Association

The organisations listed below are bodies which have been identified by the study, where actors in this sector are members or have some sort of affiliation or are required in terms of legislation to comply with certain minimum standards and quality controls.

<sup>39</sup> Private Security Industry Advisory Committee. 16 November 2021.

It should be emphasised that not all of these organisations were established in terms of an Act of Parliament:

<p><b>The Fire Protection Association of Southern Africa (FPASA)</b></p>	<p>Was established in 1973 to provide a specialized fire safety management technical and training service to industry, commerce and society at large.<sup>40</sup></p> <p>Today the role of the FPASA covers Education, Information, Advice, Consultancy and Training (Fire College).<sup>41</sup></p>
<p><b>The Quality Council for Trades and Occupations (QCTO)</b></p>	<p>is a Quality Council established in 2010 in terms of the Skills Development Act Nr. 97 of 1998.</p> <p>Its role is to oversee the design, implementation, assessment and certification of occupational qualifications, including trades, on the Occupational Qualifications Sub-Framework (OQSF).</p> <p>The QCTO also offers guidance to skills development providers who must be accredited by the QCTO to offer occupational qualifications.<sup>42</sup></p>
<p><b>South African National Standards (SANS)</b></p>	<p>The SABS is the apex national standardisation institution in South Africa, established by the Standards Act, 1945 (Act No. 24 of 1945), and continues to exist under the Standards Act, 2008 (Act No. 8 of 2008).<sup>43</sup></p> <p>The SABS is a Schedule 3B public entity under the Public Finance Management Act, 1999 (Act No. 1 of 1999) (PFMA). The objectives of the SABS are:</p> <ul style="list-style-type: none"> <li>• Develop, promote, and maintain South African National Standards (SANS)</li> <li>• Promote quality in connection to commodities, products, and services</li> <li>• Render conformity assessment services and matters connected therewith.<sup>44</sup></li> </ul>
<p><b>South African Qualification Authority (SAQA)</b></p>	<p>SAQA is the oversight body of the National Qualifications Framework (NQF). The role of SAQA, as stipulated in the NQF Act, is to advance the objectives of the NQF, oversee the further development and implementation of the NQF, and co-ordinate the Sub-Frameworks. SAQA's functions are set out in section 13 of the NQF Act.<sup>45</sup></p>
<p><b>South African Qualification Control Committee (SAQCC- FIRE)</b></p>	<p>Falls under the SAQA</p>

40 <http://www.fpsa.co.za/about-fpsa/about-the-association>. Accessed 10 November 2022.

41 As above.

42 <https://www.qcto.org.za/mandate.html>. Accessed 10 November 2022.

43 [https://www.sabs.co.za/About-SABS/about\\_vision.asp](https://www.sabs.co.za/About-SABS/about_vision.asp). Accessed 10 November 2022.

44 As above.

45 <https://www.saqa.org.za/about-saqa>. Accessed 10 November 2022.

### 7.3 Equipment and Technologies in the Fire Detection and Prevention Sector

The equipment used in this sector differs from client to client depending on the needs of that client. Further, the kind of equipment that is installed will depend on the size of the building and where the building is located. For an early evacuation to take place, early notification of the existence of fire is crucial. <sup>46</sup> The most effective way of early notification of a fire is in the form of a fire detection and alarm system.<sup>47</sup> Fire detection systems not only provide early notification but also offers critical functions such as:<sup>48</sup>

- Phased evacuation of areas affected by the fire, when linked to a Voice Evacuation System;
  - Shutting down the HVAC and Ventilation Fans, to limit the spread of fire and minimise smoke exposure to occupants;
  - Closing Fire Door and Fire Dampers, to limit the spreading of Fire.
  - Starting Pressurisation Fans, to clear smoke from stairways for occupants to evacuate;
  - Automatically alert Fire Brigade, to reduce the response time;
  - Monitoring of Fire Sprinkler Systems; and
  - Monitoring of Total Flooding Fire Gas Suppression Systems.<sup>49</sup>

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46 Private Security Industry Advisory Committee. 16 November 2021.

47 As Above.

48 As above.

49 As above.

According to Den Breejen, De Vries, Breuers, Cremer, Kemp, Roos, and Schutte, timely detection allows the suppression units to reach the fire in its initial stages and this will reduce the suppression costs considerably.<sup>50</sup>

Fernández-Berni, Carmona-Galán, Martínez-Carmona, and Rodríguez-Vázquez are also of the view that early detection and accurate location are two crucial points when it comes to preventing forest fires from spreading.<sup>51</sup> Fernández-Berni et al, further argue that wireless sensor networks constitute a powerful technology especially suitable for environmental monitoring.<sup>52</sup> Such equipment enables low-cost fine grained surveillance of hazardous locations like wildland urban interfaces.<sup>53</sup> Rapid detection allows for early evacuation and extinguishment of a small fire, while late or no detection may allow the fire to spread.<sup>54</sup>

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50 Den Breejen, E., Breuers, M., Cremer, F., Kemp, R., Roos, M., Schutte, K. and De Vries, J.S., 1998. *Autonomous forest fire detection* (pp. 2003-2012). Coimbra, Portugal: ADAI-Associação para o Desenvolvimento da Aerodinâmica Industrial.

51 Fernández-Berni, J., Carmona-Galán, R., Martínez-Carmona, J.F. and Rodríguez-Vázquez, Á., 2012. Early forest fire detection by vision-enabled wireless sensor networks. *International Journal of Wildland Fire*, 21(8), pp.938-949.

52 As above.

53 As above.

54 Willstrand, O., Brandt, J. and Svensson, R., 2016. Detection of fires in the toilet compartment and driver sleeping compartment of buses and coaches — Installation considerations based on full scale tests. *Case Studies in Fire Safety*, 5, pp.1-10.

## 7.4 Training in the Fire Detection and Prevention Sector

The training that is available for engineers and consultants focuses on equipment training, training on the different SAN standards and training on how to install the system.<sup>55</sup> In order for a person or company to render and fire related services, persons need to register and become a member of SAQCC and Fire Detection Industry Association.<sup>56</sup> The South African Qualification & Certification Committee (SAQCC) Fire, is an industry-elected body established to ensure that individuals working within this sector of the fire industry have the appropriate competence through training, qualifications, and experience in compliance with:<sup>57</sup>

- The specifications laid out in SANS 1475 for portable fire extinguishers.
- The requirements of SANS 14520 and/or SANS 306 where individuals and companies designing, installing, commissioning, and servicing gaseous fire extinguishing systems.
- The requirements of SANS 10139 where individuals and companies designing, installing, commissioning, and servicing fire detection and alarm systems.

SAQCC-Fire works closely with Certification Bodies approved by the Department of Employment and Labour to ensure standards are met and technicians and servicing companies adhere to the law. The South African Qualification & Certification Committee (SAQCC) Fire is a Non-Profit Company.<sup>58</sup>

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55 FIDA 2022.

56 As above.

57 <https://www.saqccfire.co.za/about/> (accessed 04 October 2022).

58 <https://www.saqccfire.co.za/about/>.

A person needs to register with SAQCC who works closely with the Fire Detection Industry Association (FDIA). FDIA then provides training at a fee to the public. This training is accredited by SAQCC even though it is offered by FDIA.<sup>59</sup>

The Fire Detection Industry Association is a body established over 20 years ago. When FDIA was established, there were no standards that a person or organisation had to conform to.<sup>60</sup> There were many incorrect processes meaning the fire detection prevention sector was doing what they thought was necessary at the time or was applicable to their company. With the establishment of FDIA, European standards were then adopted, which meant engaging the SABS to get those standards approved SANS-5, where to install fire systems and the correct methods.<sup>61</sup> FDIA as an association has grown to include many contractors so that FDIA has a baseline of how the different installations are done in accordance with the standards.<sup>62</sup>

FDIA is a completely voluntary organisation there are no strict requirements to become a member.<sup>63</sup> Apart from being a registered company and FDIA merely requests that members agree that the installations are inspected by a 3<sup>rd</sup> party to ensure compliance to the relevant SAN standards.<sup>64</sup>

FDIA has contractors and consulting engineers and suppliers within the industry. FIDA is a body that ensures that the relevant SAN standards are abided by and that ultimately, the end user gets a system that is compliant and that will help protect the property

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59 FIDA

60 As above.

61 FIDA.

62 As above.

63 As above.

64 As above.

and lives of the people in that building.<sup>65</sup> There's no legislation that compels an individual to belong to FDIA.<sup>66</sup>

The study did not identify any specialised fire prevention and detection training course available to the private security industry. The training currently available usually focuses on fire, health and safety.

## **7.5 Link between fire Prevent Detection and Security**

According to the SAN standards 10400, a person is required to have a fire detection system in their building.<sup>67</sup>

There are specific standards for specific types of risks and buildings. The standards state that there must be fire detection equipment that must be connected to a 24-hour control room which can react to a fire alarm. The first line to react in the event of a fire would be a security offer. When there is a fire outbreak or a fire detection alarm goes off, the reaction to fire is attended to by the security officer present in that building.<sup>68</sup> There is a relationship in terms of monitoring and control. It is the security officer who plays a reactive role.<sup>69</sup>

## **7.6 Private Security Industry Advisory Committee**

According to the Private Security Industry Advisory Committee (PSIAC), PSiRA must be the key stakeholder in the sector and exercise its authority.<sup>70</sup> The focus of PSiRA should be with all the companies that are involved in the Installation and Maintenance of these Fire Alarm and Detection systems and all the associated

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65 As above.

66 As above.

67 As above.

68 Anonymous.

69 As above.

70 Private Security Industry Advisory Committee. 16 November 2021.

systems.<sup>71</sup> According to PSIAC, the FDIA was instrumental in ensuring that the SAQCC, which is responsible for handheld mechanical fire extinguisher equipment and registering of personnel in that field, is involved in the Fire Detection Industry.<sup>72</sup> The PSIAC stated further that, the fire industry is largely unregulated by the local authorities due to lack of resources and knowledge.<sup>73</sup>

## **7.7 Maintenance of Fire Detection Systems**

The standards of the PSIAC state that the systems need to be fully serviced once a year, and the site or premises need to be visited twice a year depending on the size.<sup>74</sup> However if, for example, the building has a gas suppression system then it has to be serviced every three months. According to SAN Standard 10139 edition 2021, it is the responsibility of the owner of the building to ensure that all fire detection equipment is fully operational.<sup>75</sup>

The standards say the owner of the system must look or check the system daily to ensure nothing faulty and, if the system uses batteries, ensure that the batteries are working. The owner of the building buys the relevant system, and installs it into the building. The owner of that building then has responsibility to check the system once a day to ensure that nothing is wrong with the system. Fire detection systems are passive in nature. They work when a fire or smoke detector has been triggered so there is no way to know if it works prior to such fire outbreak other than to test the system on a regular basis. This duty usually falls on the fire marshal of the company or health and safety officer of that company.

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71 As above.

72 As above.

73 As above.

74 Clive Foord. FDIA.2022.

75 As above.

## 7.8 PRASA

Fire prevention and detection is considered a critical component and falls under risk and compliance.<sup>76</sup> Every building has a fire smoke detector whereby the alarm will sound when it detects smoke. It is then where the security officers will check that specific building or area and try to diffuse the fire.<sup>77</sup> It is the responsibility of the security officer to record all incidents of activation or and evacuation. The security officer will maintain records of all systems and heating tools. When the heat is at a certain level, it will trigger the alarm. It is also the duty of security officers to record the number of people entering the building. For instance, should there be an evacuation and the access control register, if the register says 30 people the entered the building however during the evacuation only 25 people are accounted for, the security officer will have to check the building where possible for the 5 missing people.<sup>78</sup> Fire hydrates have sticker and on that sticker, there is a date an expiration date.

As a safety measure, PRASA puts fire hydrants on all trains however these hydrates get stolen leaving the trains exposed and the lives of commuters in danger or at risk. A solution would be to try find the market for these stolen fire hydrates so that the police can be called to assist to determine where the hydrates are taken and sold.<sup>79</sup> The positive is that with the roll out of new trains, the trains will have fire detectors as well as cameras installed on them.<sup>80</sup>

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76 PRASA. October 2022.

77 As above

78 As above.

79 As above.

80 As above.

## 8. RECOMMENDATIONS

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### 8.1 Extent of Fire Prevention and Detection Sector

The only way to know the true size of this sector is to engage the industry associations operating within it. It is recommended that PSiRA should engage the different industry associations as well as the different role-players in this sector and related sub-sectors who would be in a position to share insights on the extent of the fire prevention and detection sector.

### 8.2 Update Fire Prevention and Detection Database

It is recommended that PSiRA should consider updating the fire prevention and detection database of security service providers. Currently the database 44 security service providers that render fire prevention and detection services which is an incorrect number.

### 8.3 Registration

PSiRA needs to pronounce on this matter of who needs to be registered. This matter needs to be finalized by PSiRA and must state clearly who the different role-players are that need to be registered and why. An industry circular should be issued with the different names or categories of individuals that are required to register with PSiRA.

## **8.4 Sector Specific Stakeholder Engagement**

It is recommended that PSiRA consider engaging sector specific stakeholders. By doing so, PSiRA will be able to bridge some gaps that currently exist. Within fire prevention and detection there are a number of related sub-sectors that PSiRA needs to engage.

Further, PSiRA - at the executive level - needs to engage the various associations within this sector to ensure that there is no overlapping of roles. PSiRA stands to learn a lot from these associations. This will also ensure that PSiRA is not over regulating a sector that falls outside the ambit of private security. Communication should also be extended to the public to allow for public participation.

## **8.5 Training**

### **8.5.1 Accreditation of Fire Prevention and Detection courses**

Currently the training and courses related to fire prevention and detection are approved and accredited by SAQA and the SAQCC. PSiRA needs to issue a clear statement on the extent to which PSiRA as a regulator will accredit fire related training courses.

### **8.5.2 Training for PSiRA inspectors**

Once the issues of accreditation are resolved, it is important for PSiRA inspectors to undergo some form of fire prevention and detection training so that the inspectors familiarise themselves with the different equipment available in the market and also so that inspectors are more knowledgeable about this sector and the related sub-sectors within fire prevention and detection as one cannot regulate which they do not know.

## 9. CONCLUSION

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The common view from the participants is that fire prevention and detection is a completely separate industry from private security. Private security can be seen as playing a role in fire prevention when the security officer is the first line of response in the event of a fire outbreak, or when the detection systems such as smoke detectors have been triggered. Further stating that it should not be a requirement by PSiRA to register since fire prevention and detection does not form part of private security. One cannot discuss fire detection without mentioning fire prevention. Fire detection relates to the equipment, technologies and tools used to detect a fire. Fire prevention is the tools and steps taken by people to put out or prevent the fire from occurring or spreading, such as regularly checking if the fire sprinklers fire detectors and hydrants are working.

PSiRA needs to state exactly who needs to be registered to avoid any confusion. This will ensure that those individuals and companies are not only registered with PSiRA but are also compliant with the PSiR Act.

The true size or extent of the fire prevention and detection sector is unknown, largely due to the fact that this sector is unregulated and the actors within this sector are not registered to any regulatory body. PSiRA needs to engage the other role-players such as industry associations within this sector. By doing so, PSiRA will have an idea of the extent of this sector.

The fire prevention equipment which is available in South African needs to meet specific quality assurance checks and must be installed by competent installers in terms of the SANS standards.

The standards ensure that clients get good value for money and, most importantly, that the installed equipment will protect not only the property of the client but also the lives of those in that building. PSiRA needs to issue out an industry circular or notice, stating clearly that producers of fire detection equipment must be registered with PSiRA. The Authority needs to go a step further by stating exactly which equipment it is referring to.

Currently the organisation that accredits fire prevention and detection training is the South African Qualification & Certification Committee (SAQCC) Fire for approved courses in fire extinguisher servicing, cabling, fire detection, fire systems, and gas suppression among others. It seems there is no regulatory body established in terms of an Act of Parliament and the organisations that the different role-players have registered with are bodies that ensure and promote sharing of good practices and quality assurance.



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